

ASR in Texas

City of Corpus Christi

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Texas Water 
Development Board

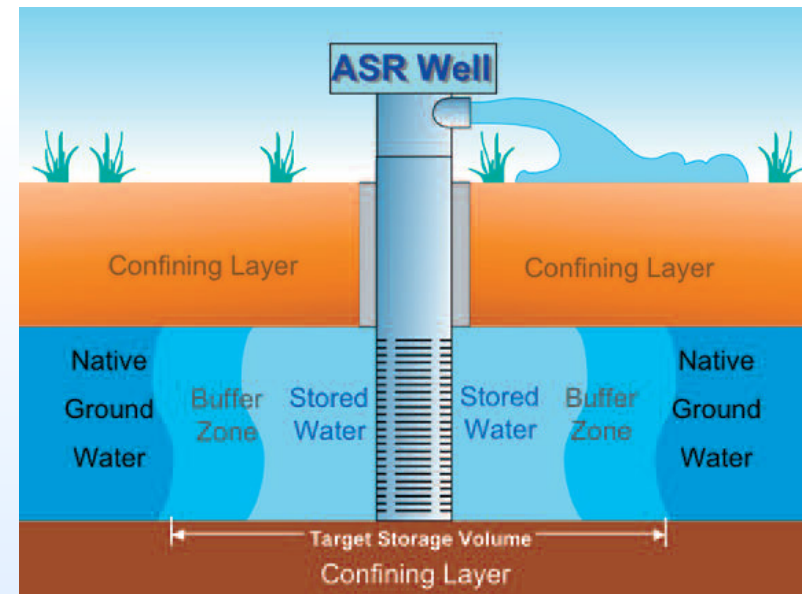
The logo for the Texas Water Development Board features the text "Texas Water" in a blue serif font and "Development Board" in a black sans-serif font. To the right of the text is a stylized graphic of three curved, overlapping lines representing water or waves.

Texas Water Development Board

The following presentation is based upon professional research and analysis within the scope of the Texas Water Development Board's statutory responsibilities and priorities but, unless specifically noted, does not necessarily reflect official Board positions or decisions.

What is ASR?

- Aquifer Storage and Recovery
 - Storage of water in a suitable aquifer and recovery of that water during times of need for beneficial use
 - Source water can be reclaimed, groundwater, or surface water; surface is most prevalent
 - Must conform to EPA primary drinking water standards if native water is below 10,000 mg/L of total dissolved solids
 - Buffer zone, hydrologic modeling and purpose of use critical to sizing



Source: NGWA

Benefits (partial)

- Eliminates evaporative losses
 - Compare to 33.8M acre-feet of surface storage
 - Compare to 18.0M ac-feet total state demand in 2012
 - 7.2M acre-feet lost in average year (20% of storage, 40% of demand)
- Mitigates surface inundation effects
 - Mid-size ASR of 37k ac-feet would require 2,500 acre surface reservoir
 - Texas average; greater area likely needed on the coastal plain
- Maximize existing resources
 - Junior surface rights
 - Transmission pipelines
 - Water treatment plants
 - Desalination plants
 - Distribution pressure
- Emergency supply
 - Hurricanes or surface water contamination

Limits/Challenges (partial)

- Requires appropriate geology
- Offers no flood control
- Offers no recreational benefits
- Hydraulic migration
 - Movement of stored water away from recovery well
 - Function of gradient, conductivity, and storage duration
 - Easier to manage with higher well counts
- Stored water protection
 - Surface pumping right ownership – El Paso and San Antonio
 - Municipal ordinance - Kerrville
 - CCASRCD Rule 5.1?
- Chemical interaction
 - Well plugging
 - Chemical mobilization

Regulatory

- House Bill 655
 - Signed into law on June 16, 2015
 - Streamlined ASR regulation
 - No pilot program required by law
 - No modification of surface water permit
 - TCEQ has sole authority via Class V UIC permit
 - Rules required by December 31, 2015
 - Greatly limits GCD authority
 - Subchapter G of Section 27 does not apply to CCASRCD
 - Intention of District's exemption?
 - So what are the rules here? Engaged with TCEQ?



Select Area Studies

- 2003 Carollo; Padre Island Desalination Exec Summary
- 2003 Carollo; Padre Island Desalination Tech Memo
- 2003 Carollo; Padre Island Desalination Engineering and Permitting
- 2005 LNV Engineering; Water System Interactive Analysis
- 2009 HDR; Proposed Five-Year Plan
- 2012 TWDB; Open File Report 12-01

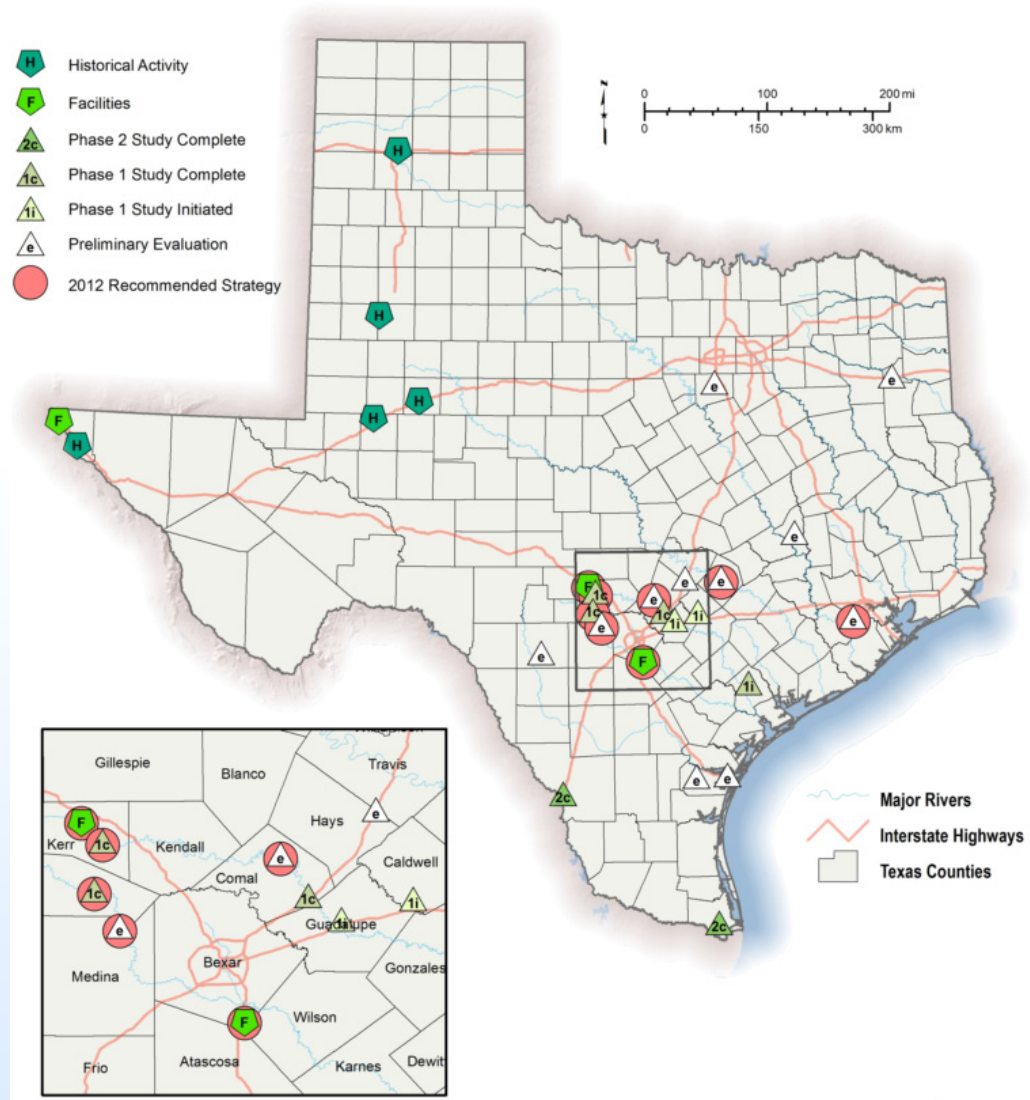


Technical Note 15-04

Aquifer Storage and Recovery in Texas: 2015

- Published in June 2015
- Snapshot as of December 2014
- Descriptions of benefits, challenges and regulatory requirements
- 27 historical, current, and proposed ASR programs
- Program map and associated tables
- Project summaries, evaluation maturity, funding
- Updated periodically to incorporate new information
- Available at www.twdb.texas.gov
 - Innovative Water\ASR TWDB Documents\Technical Reports

Map of ASR in Texas



Monitored Projects

- Many received TWDB funding
- Several “Other” to be included in the 2016 Regional Water Plans

2012 Recommended Water Management Strategies

Missouri City	Lower Colorado River Authority
City of Kerrville	San Antonio Water System
Kerr County	Medina Lake Firm Up
Bandera County	Storage above Canyon Lake

Other ASR Programs Being Monitored

Barton Springs/Edwards	GBRA Mid-Basin
City of College Station	GBRA Luling
City of Corpus Christi	New Braunfels
City of Uvalde	Robstown-Driscoll Regional
City of Victoria	Trinity Aquifer in Johnson County

Growth in Interest*

- 2007 State Water Plan - one ASR project as a Recommended Water Management Strategy (RWMS)
 - 2,240 ac-ft first decade of use; 2,240 ac-ft fifth decade



* Excludes infiltration basin projects

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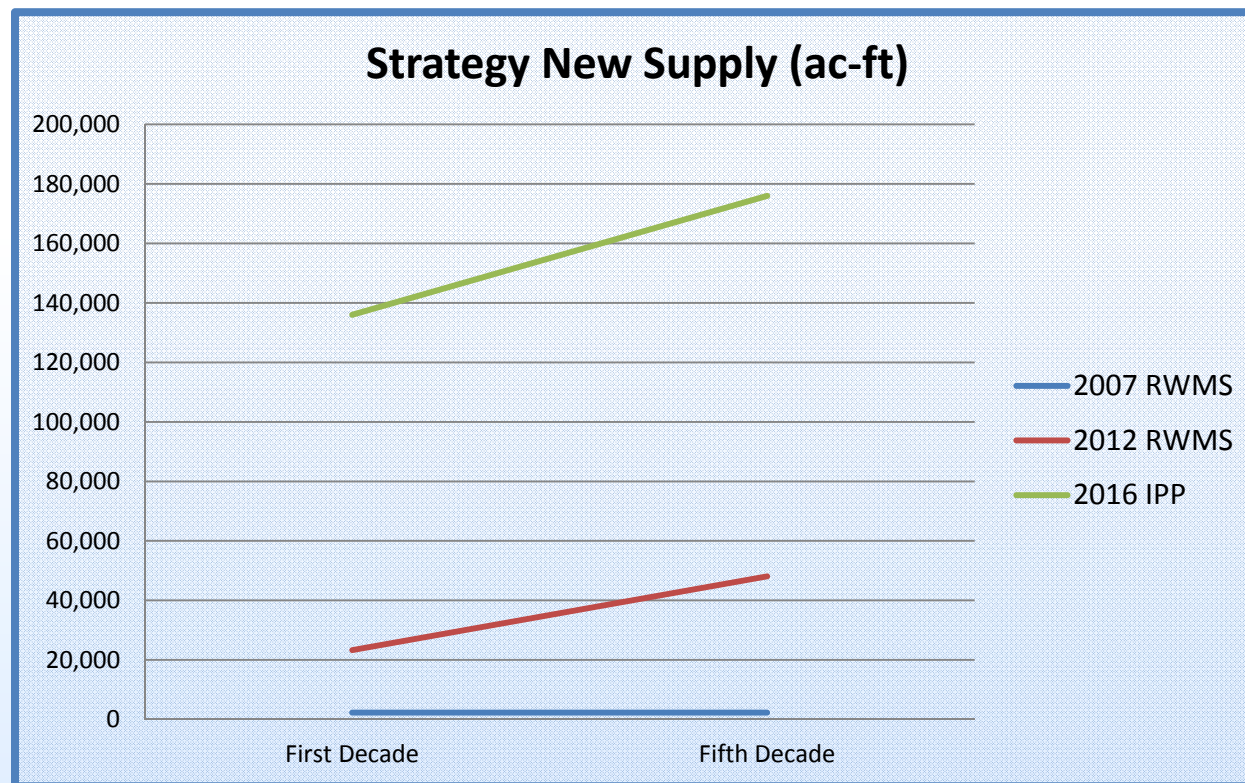
- 2012 State Water Plan – eight ASR RWMS projects
 - 23,260 ac-ft first decade of use; 48,084 ac-ft fifth decade



* Excludes infiltration basin projects

Growth in Interest*

- 2015 Initially Prepared Plans – 15 ASR RWMS projects
 - Preliminary and subject to change
 - 135,992 ac-ft first decade of use; 175,992 ac-ft fifth decade



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 - 135,992 ac-ft first decade; 175,992 fifth decade
 - Fifth decade supply of 80x the 2007 State Water Plan
 - Fifth decade supply of 3.7x the 2012 State Water Plan
- Interest is strong
- None recommended by Region N

* Excludes infiltration basin projects

Development Funding

- House Bill 1, Rider 25
 - \$1,000,000 grant from General Revenue Fund to TWDB
 - For ASR projects/studies or other innovative storage approaches that improve operational efficiencies
 - Competitive grant application process
 - Mandated to go to groundwater conservation districts
 - GCD and partners must provide matching funds
 - Probable request for applications in September
 - Probable acceptance of application until November
 - Probable grant award early 2016
 - Project completion deadline Aug 31, 2019

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