

# Texas Regional Planning and ASR

*Groundwater Protection Council  
UIC Conference*

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Innovative Water Technologies*

**Texas Water**   
**Development Board**

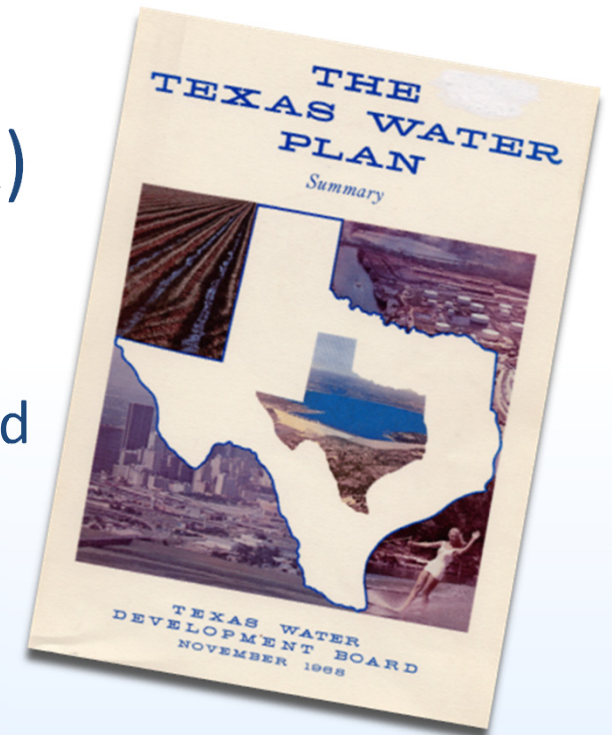
The logo for the Texas Water Development Board features the text "Texas Water" in a blue serif font and "Development Board" in a black sans-serif font. To the right of the text is a stylized graphic of three curved, overlapping lines representing water or waves.

# Texas Water Development Board

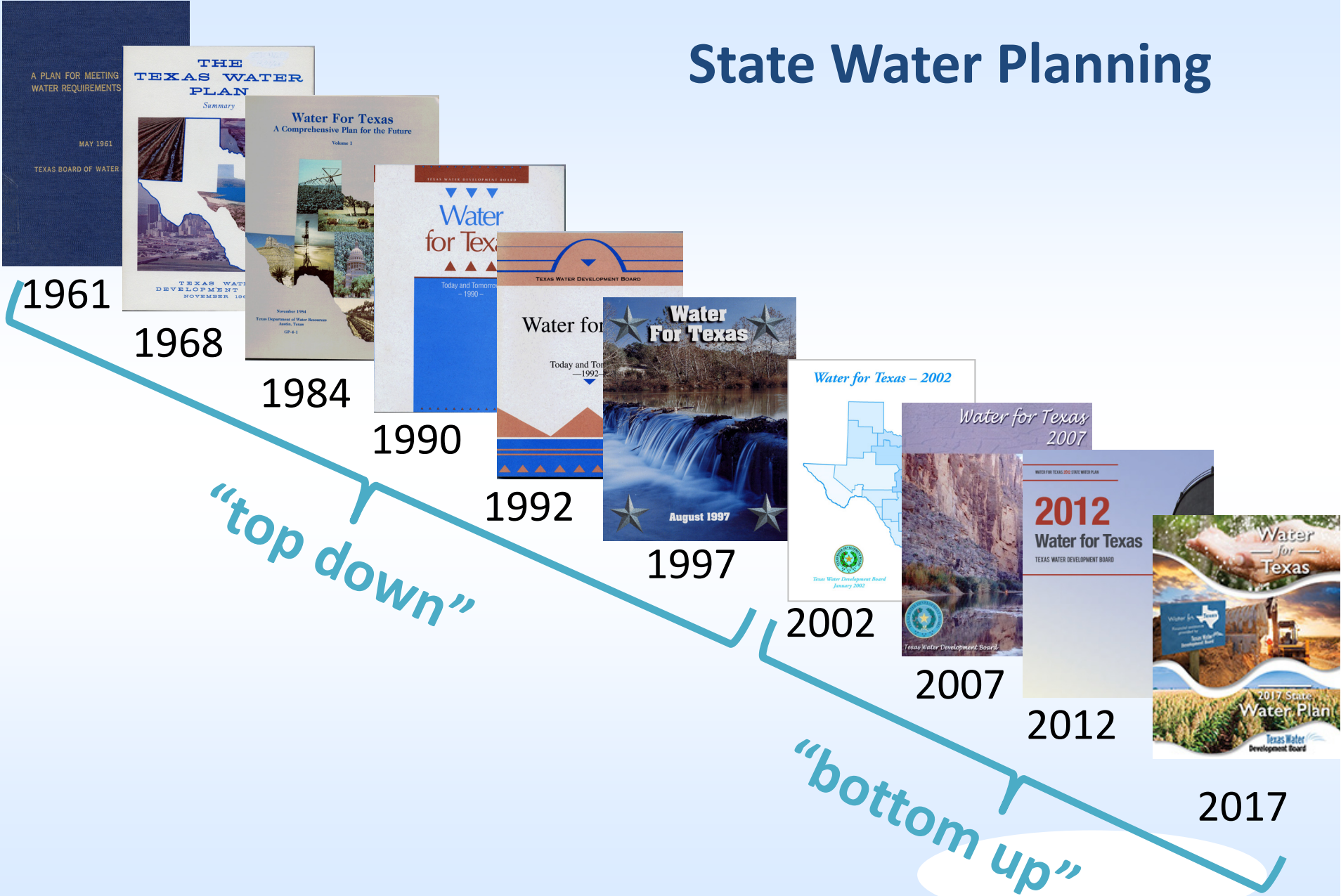
The following presentation is based upon professional research and analysis within the scope of the Texas Water Development Board's statutory responsibilities and priorities but, unless specifically noted, does not necessarily reflect official Board positions or decisions.

# Water Planning: Legislative Response to Drought

- 1950s – Drought of Record (DOR)
  - 1957: Creation of TWDB
  - \$200 million in Water Development Fund
  - First State Water Plan in 1961

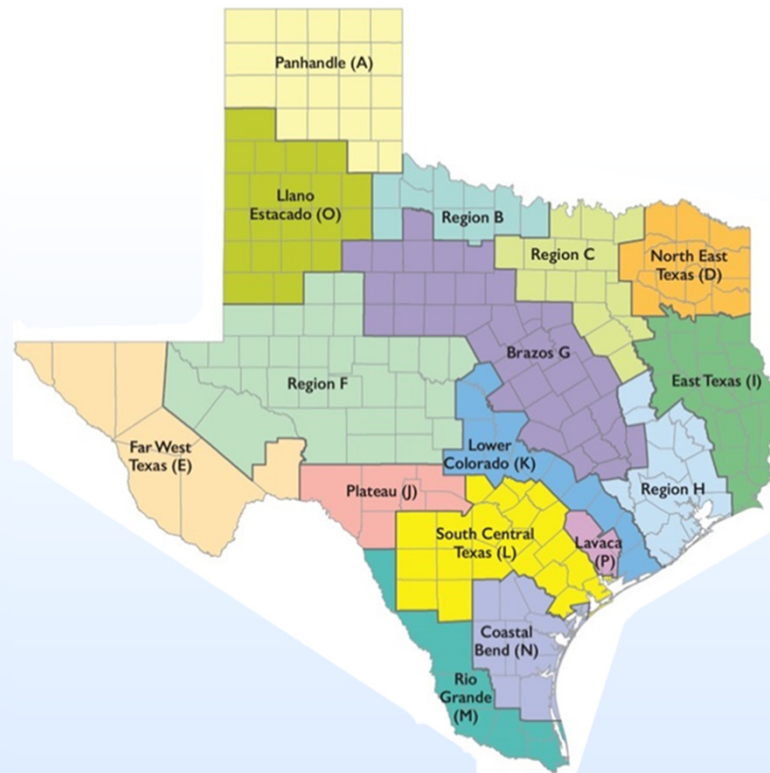


# State Water Planning



# 16 Regional Water Planning Areas

- Regional plans revised every five years
  - Forecasts in decadal increments
- Compiled by TWDB into the State Water Plan



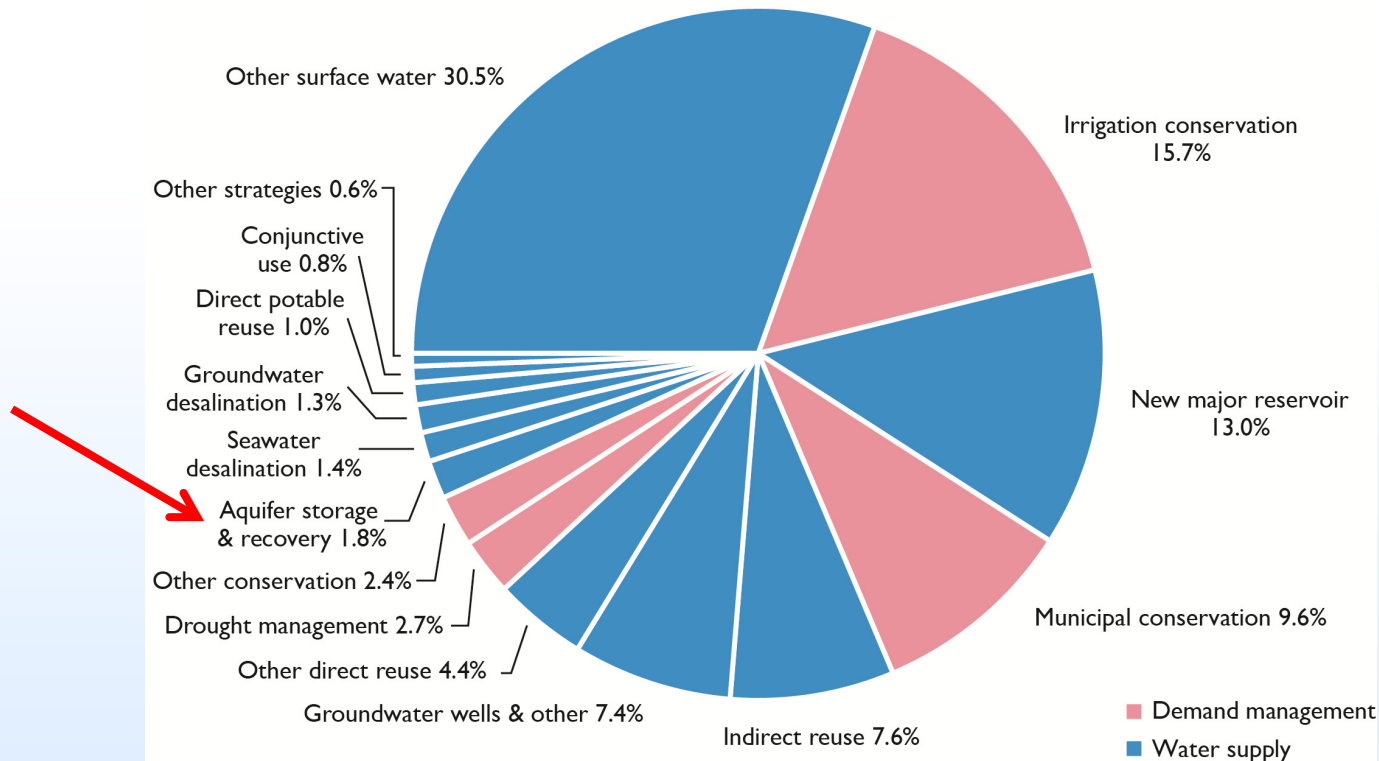
# Key Planning Metrics

- Existing Supply
  - Maximum amount of water that is physically and legally accessible for immediate use under a repeat of DOR conditions
- Demand
  - Volume of water required to carry out the anticipated domestic, public, and/or economic activities during drought conditions
- Need
  - Potential water supply shortage, based on the difference between water demands and existing water supplies
- Water Management Strategy (WMS)
  - plan to meet a need for additional water by a discrete WUG, through increasing total water supplies or maximizing existing supplies
  - Can be recommended or alternative

# All Recommended Strategies

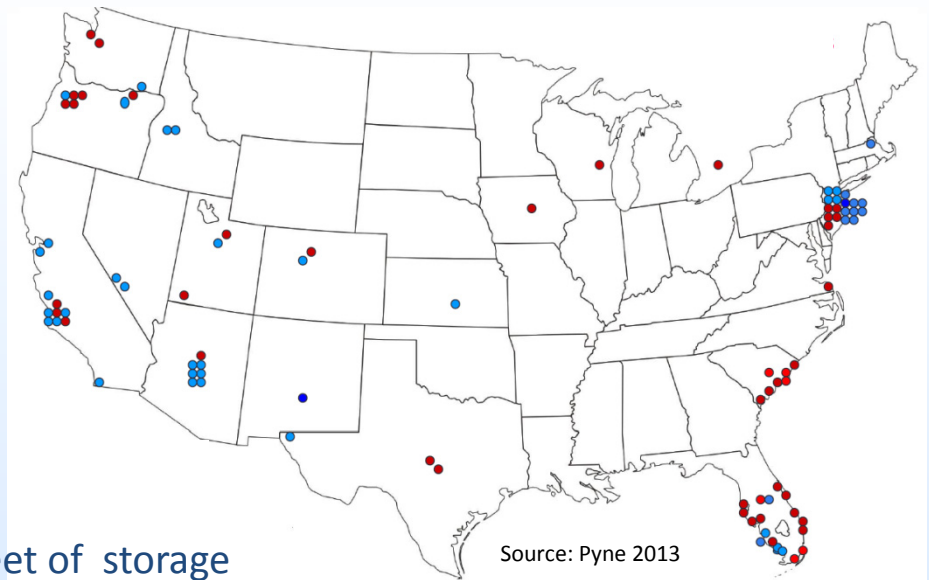
## ■ 2017 State Water Plan

- ASR is still relatively small at 1.8%
- But double its 2012 contribution



# Where is ASR in the U.S.?

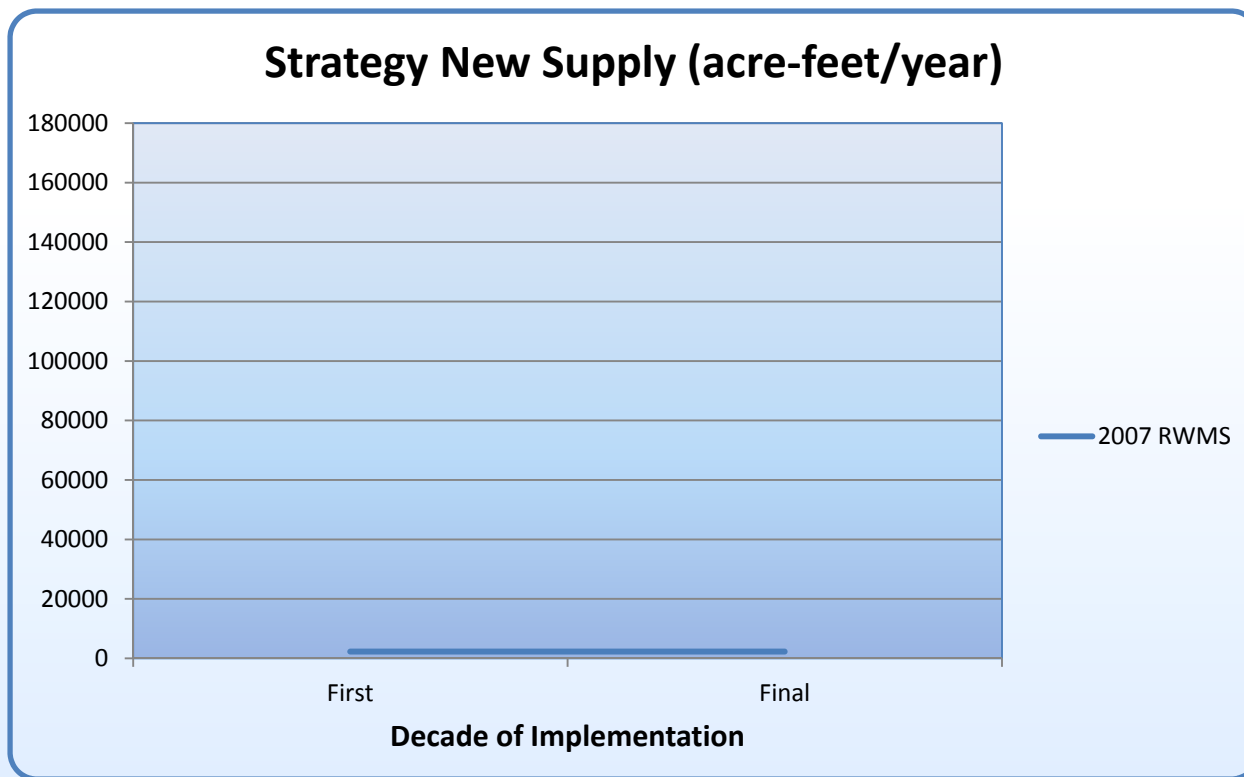
- In 2013, David Pyne reported 133 fields in the U.S.
  - First in Wildwood, N.J. in 1969; still in operation
- Texas Past and Present
  - Experiments in El Paso and Amarillo from the 40's
  - Early application in NW Texas from 60's to 80's
  - Three currently in Texas
    - El Paso – treated waste water (1985)
      - Hueco Bolson Aquifer
      - Wells and spreading basins
    - Kerrville – surface water (1998)
      - Lower Trinity Aquifer
      - Two-well system
    - San Antonio – groundwater (2004)
      - Carrizo-Wilcox Aquifer
      - 29-well system
      - Just surpassed 100,000 acre-feet of storage





# Recommended ASR Strategies\*

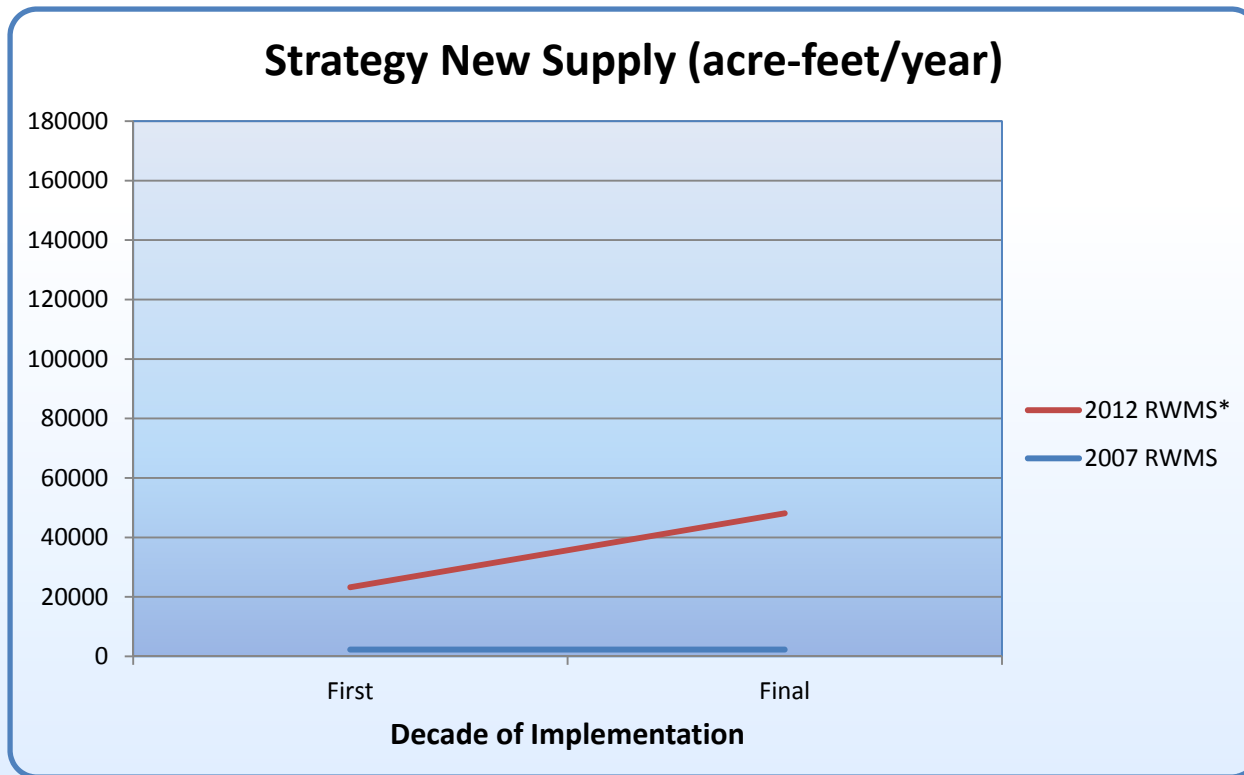
- 2007 State Water Plan - ASR projects in one planning region as a Recommended Water Management Strategy (RWMS)
  - 2,240 ac-ft first decade of use; 2,240 ac-ft fifth decade \*



\* One acre-foot equals approximately 326,000 gallons

# Growth in Interest\*

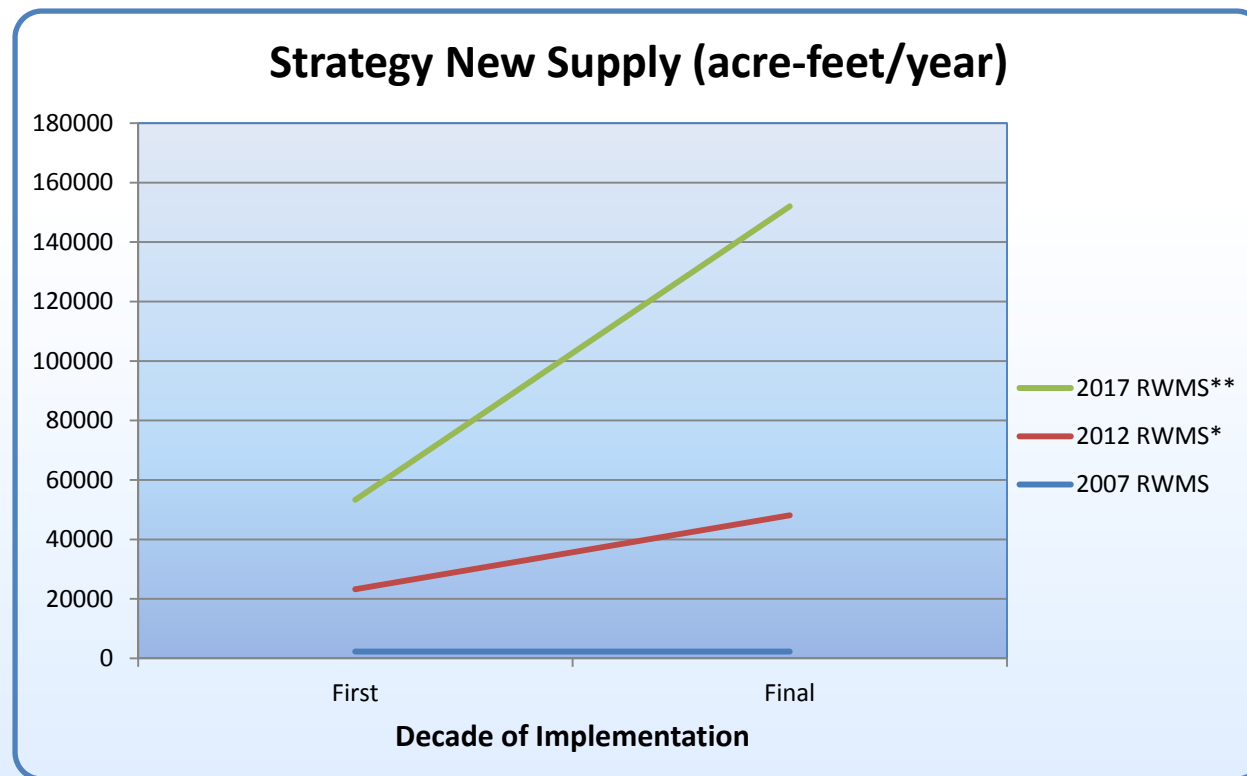
- 2012 State Water Plan – ASR projects in six planning regions as a RWMS
  - 23,260 ac-ft first decade of use; 48,084 ac-ft fifth decade



\* Excludes infiltration basin projects

# Growth in Interest

- 2017 State Water Plan Recommended ASR strategies in seven regions
  - 53,341 ac-ft decade 2020; 152,000 ac-ft decade 2070
  - Triple the final decade volume from the 2012 SWP



\* Excludes infiltration basin projects

\*\* Included only supply allocated to a water user group

# Funding Background

- 84<sup>th</sup> Texas Legislature, House Bill 1, 2015, Rider 25
  - \$1,000,000 from General Revenue Fund
  - For innovative storage approaches, including but not exclusively ASR
  - One-for-one matching grant funds to GCD's
  - Competitive grant application process
    - Request for application notice – September 22, 2015
    - Application deadline – November 3, 2015
    - Grant approval – January 7, 2016

# Application Summary

- Six applications received
  - Four ASR field studies
  - One ASR desktop/planning study
  - One enhanced recharge field study
- Three grants awarded

Recipient	Funding		
	Total	Requested	Awarded
Edwards Aquifer Authority	\$563,000	\$281,500	\$281,500
Victoria County Groundwater Conservation District	\$570,226	\$285,112	\$285,112
Corpus Christi Aquifer Storage and Recovery Conservation District	\$1,000,000	\$500,000	\$433,388

# Application Summary

- Edward Aquifer Authority/New Braunfels Utilities
  - Exploration of storage potential in the saline Edwards Aquifer
  - Permit, design, and construct continuous wireline core hole and monitor well
  - Conduct geochemical analysis of the aquifer using samples from the core hole
  - Conduct geophysical logging and a short-duration pump test using the monitor well
- Victoria County GCD and City of Victoria
  - Permit, design, and retrofit an existing groundwater production well for ASR in the fresh Gulf Coast Aquifer
  - Test and assess the operational ASR well
  - Collect data to support development of full-scale system
- Corpus Christi ASRCD and City of Corpus Christi
  - Conduct an exploratory test drilling program in the slightly/moderate Gulf Coast Aquifer
  - Collect hydrogeological and geochemical data
  - Perform geochemical analysis on water sources
  - Develop a field-scale groundwater model to simulate ASR operations

# Texas Water Development Board

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