

# Desalination in the 2022 State Water Plan

Erika Mancha

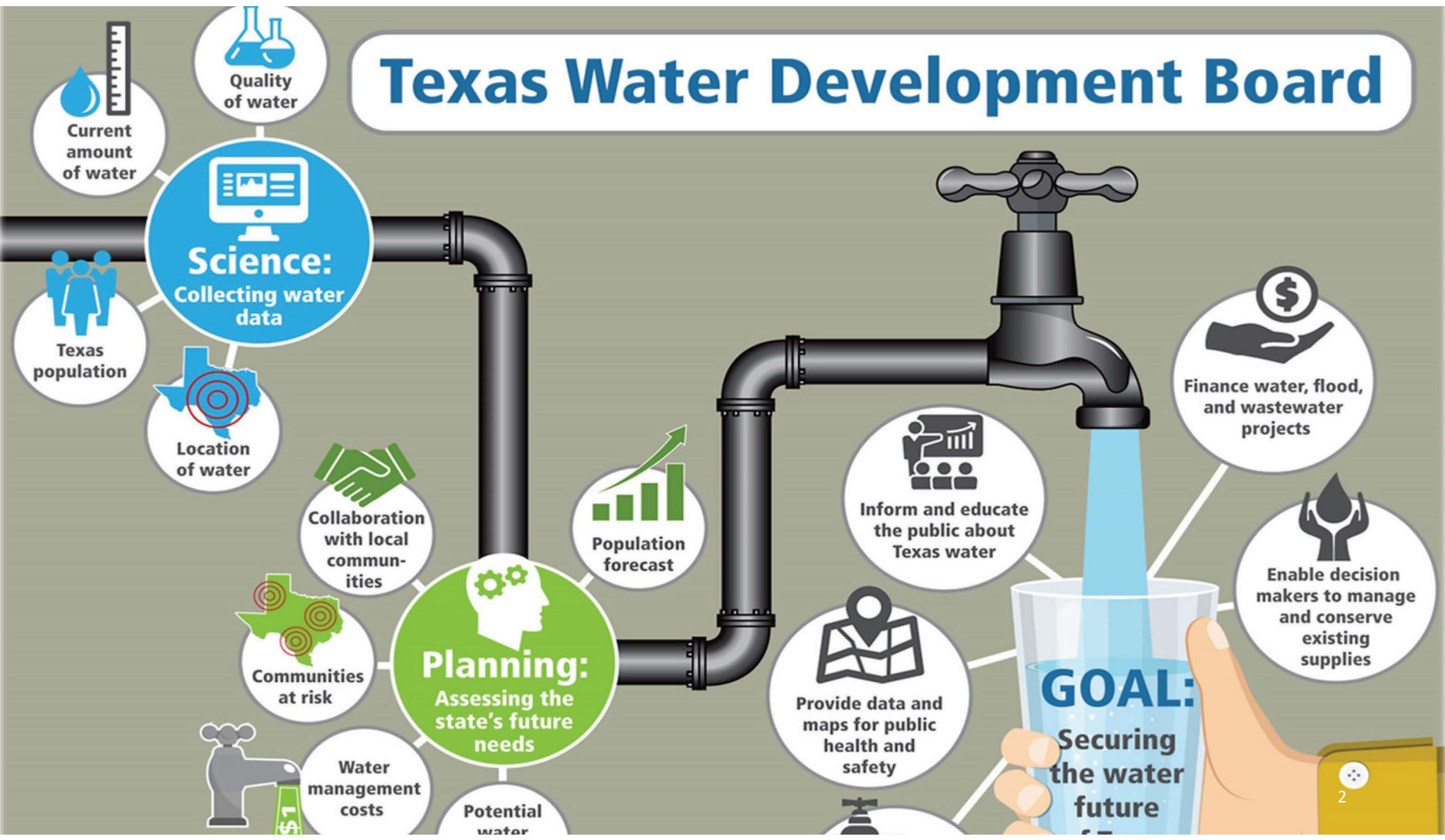
Project Texas Gulf Coast SHOWPLACE Concept Workshop

September 28, 2021

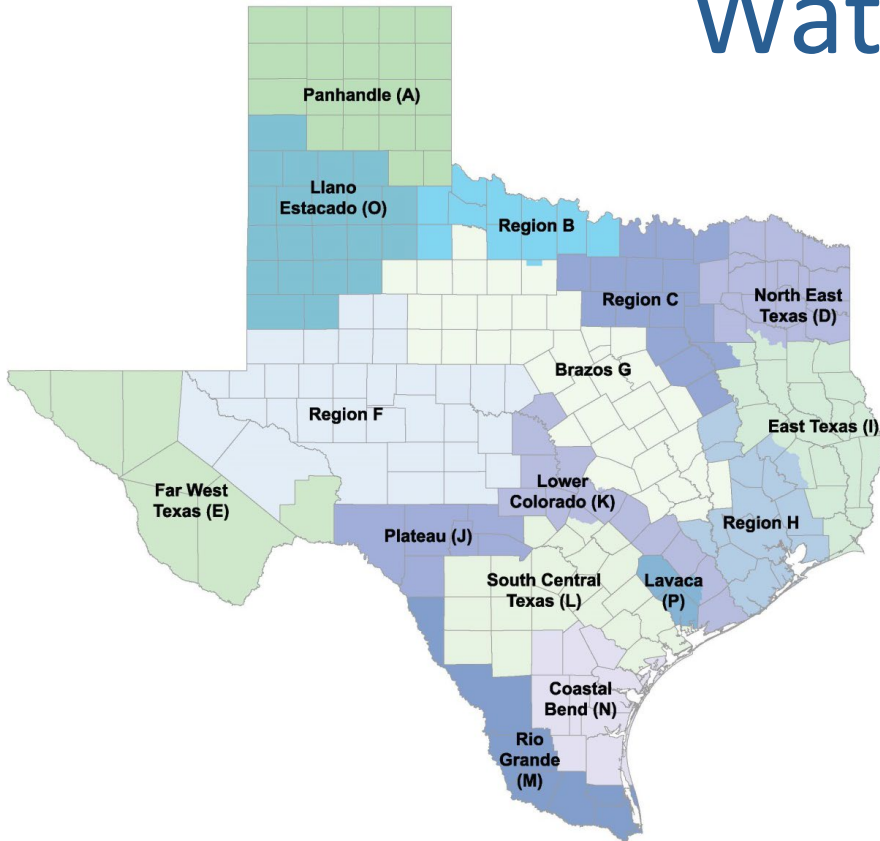
Unless specifically noted, this presentation does not necessarily reflect official Board positions or decisions.



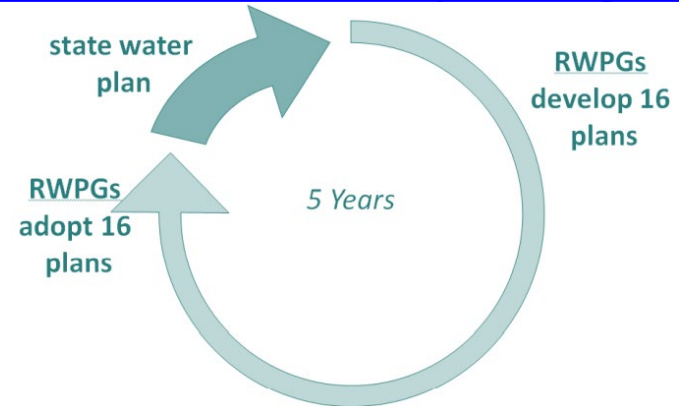
# Texas Water Development Board



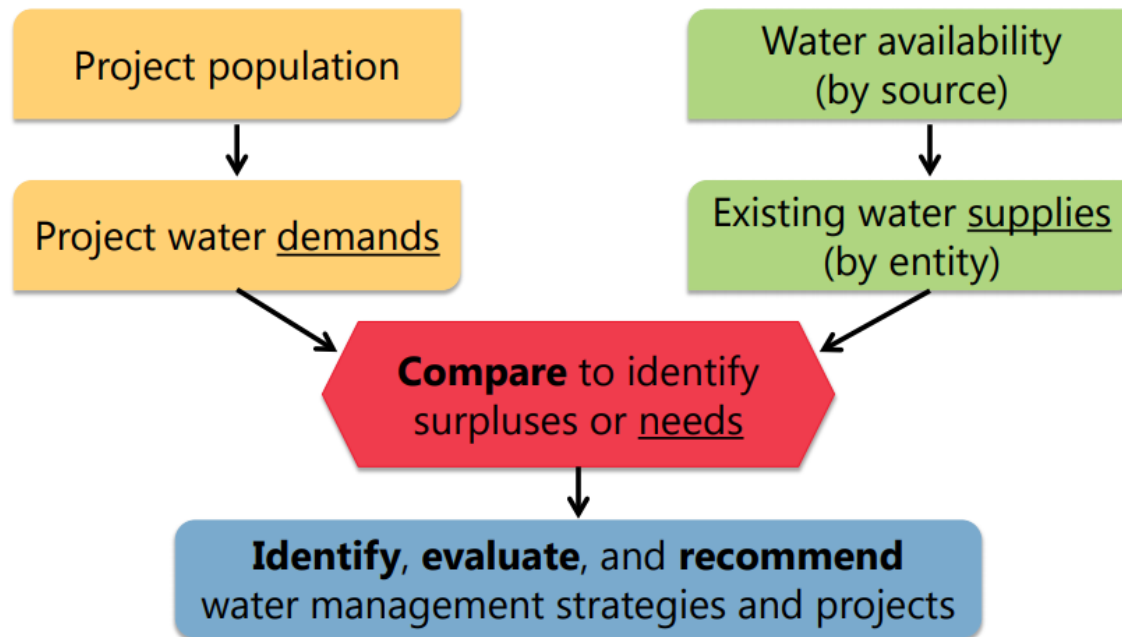
# Water Planning Basics



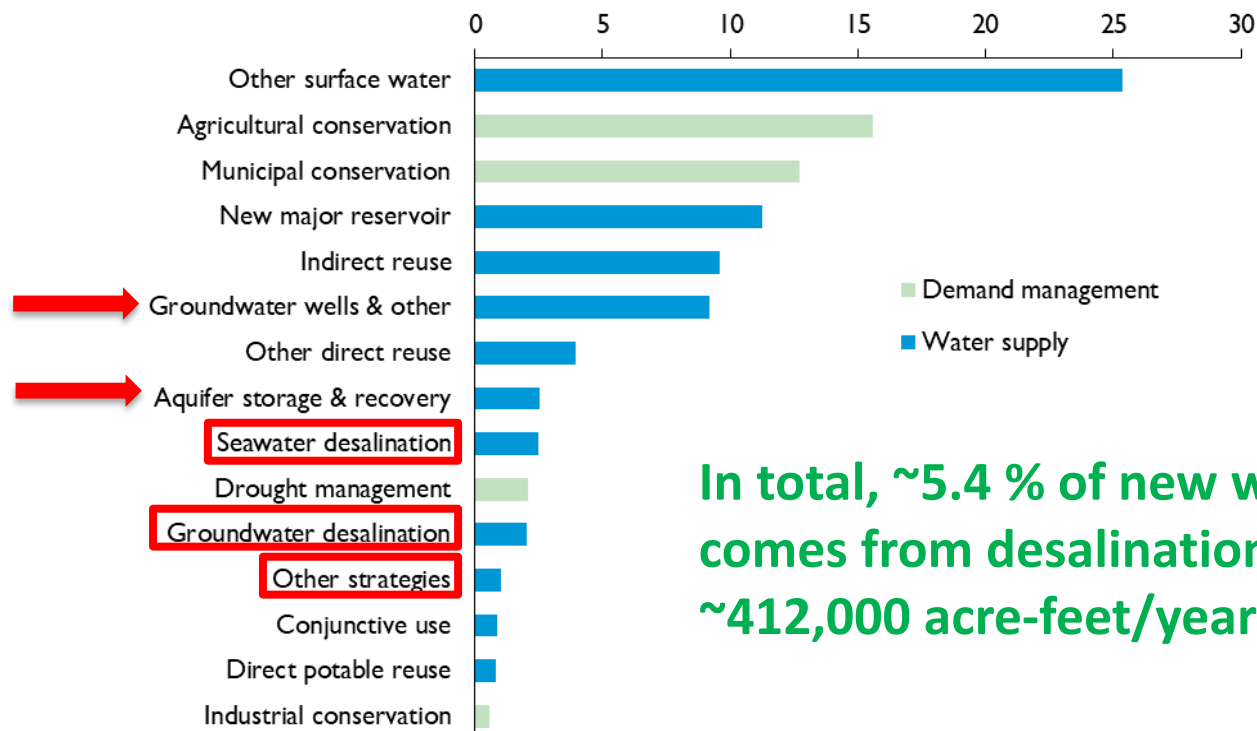
- Bottom-up approach
- 50-year planning horizon
- Meet drought of record water needs
- [2022.texasstatewaterplan.org/statewide](https://2022.texasstatewaterplan.org/statewide)



# Water Planning Basics



# Recommended Water Management Strategies by 2070 in 2022 State Water Plan



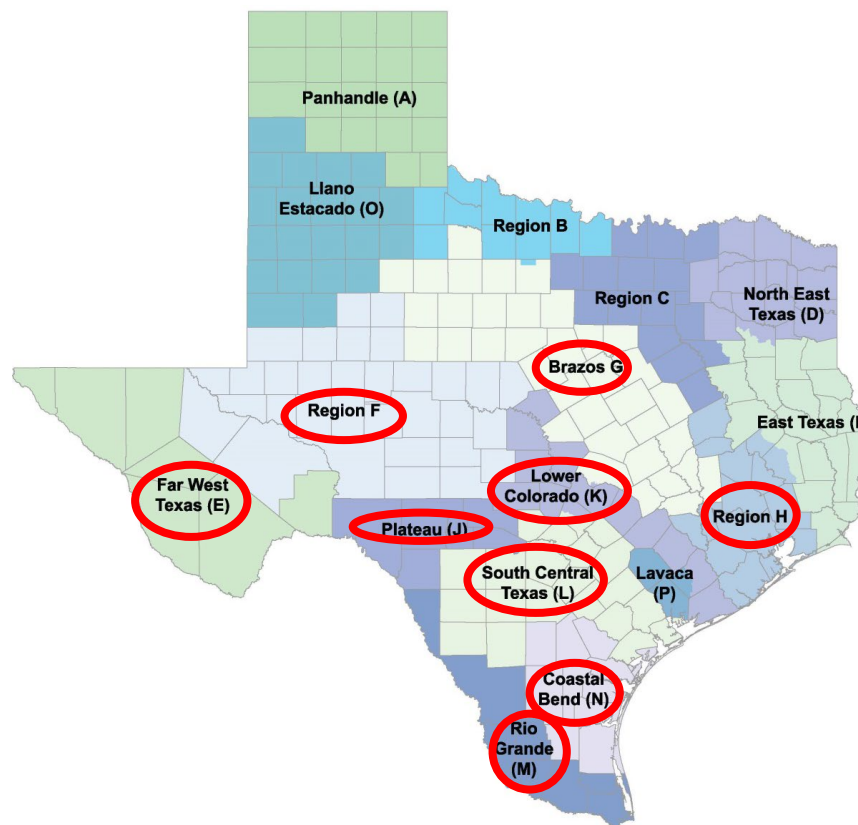
In total, ~5.4 % of new water supplies comes from desalination, which is ~412,000 acre-feet/year

# Groundwater Desalination

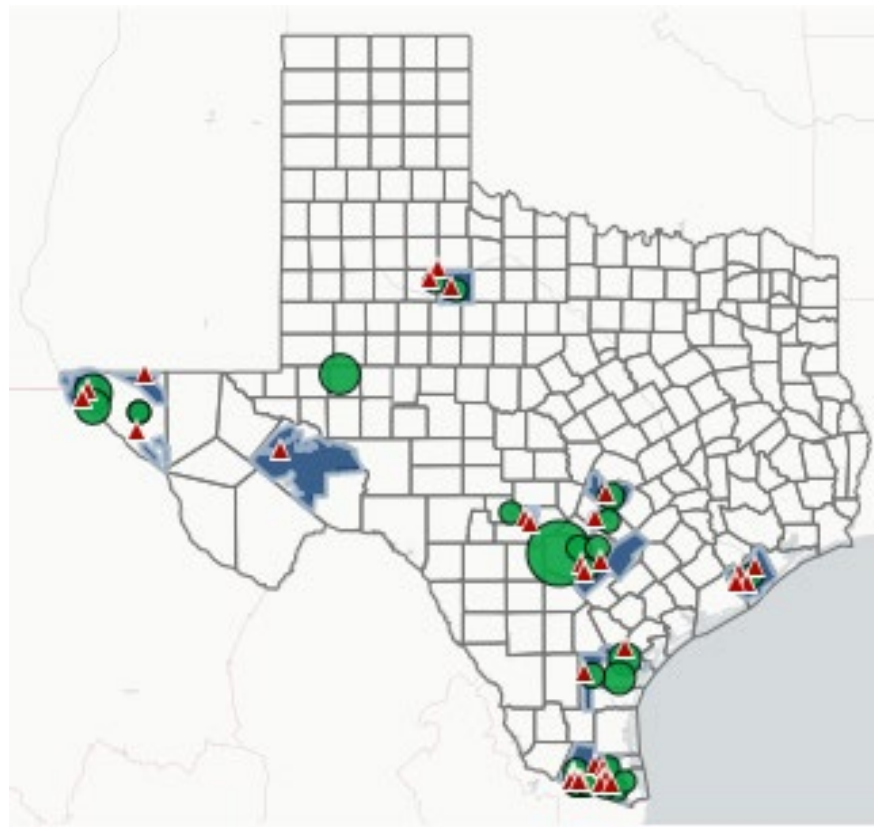
- 157,000 acre-feet per year of supply from brackish groundwater desalination is recommended in 2070 (~2.1% out of 5.4% total)
- Nine out of the 16 planning groups recommended groundwater desalination strategies
- Barriers for implementation include:
  - cost of desalination treatment and infrastructure
  - lack of interested project sponsors
  - existing availability of non-brackish water sources
  - lack of qualified operators in rural areas to operate plants



# Groundwater Desalination



# Groundwater Desalination Projects

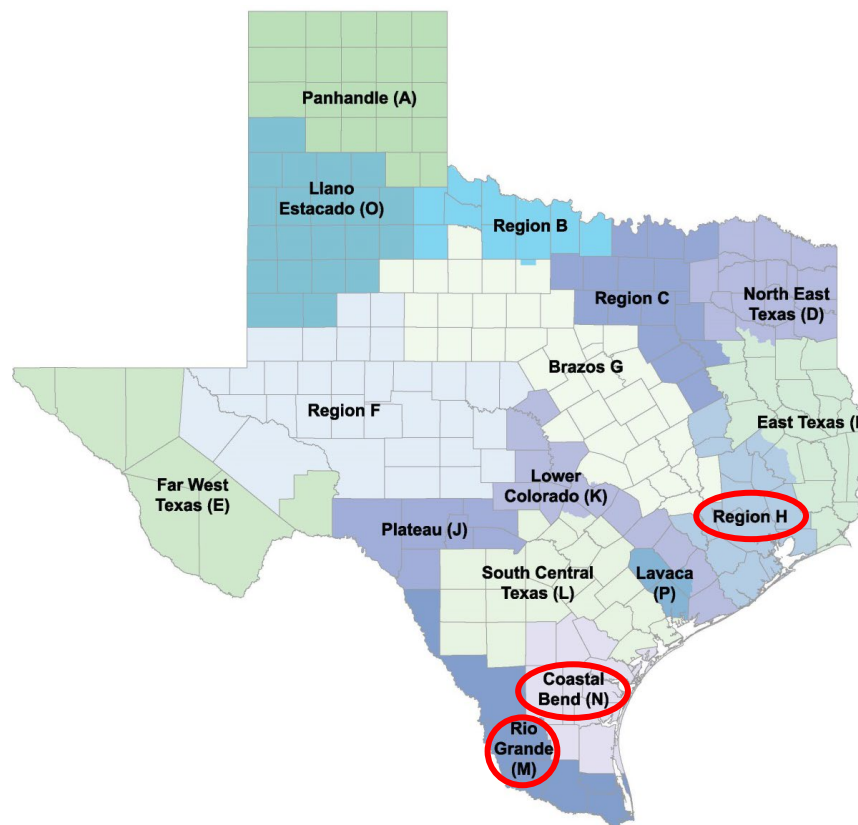




# Seawater Desalination

- 192,000 acre-feet per year of supply from seawater desalination is recommended in 2070. (~2.5 % out of 5.4% total)
- Three planning groups recommended seawater desalination strategies
- Barriers for implementation include:
  - Cost associated to conveying water supplies

# Seawater Desalination



# Seawater Desalination Projects

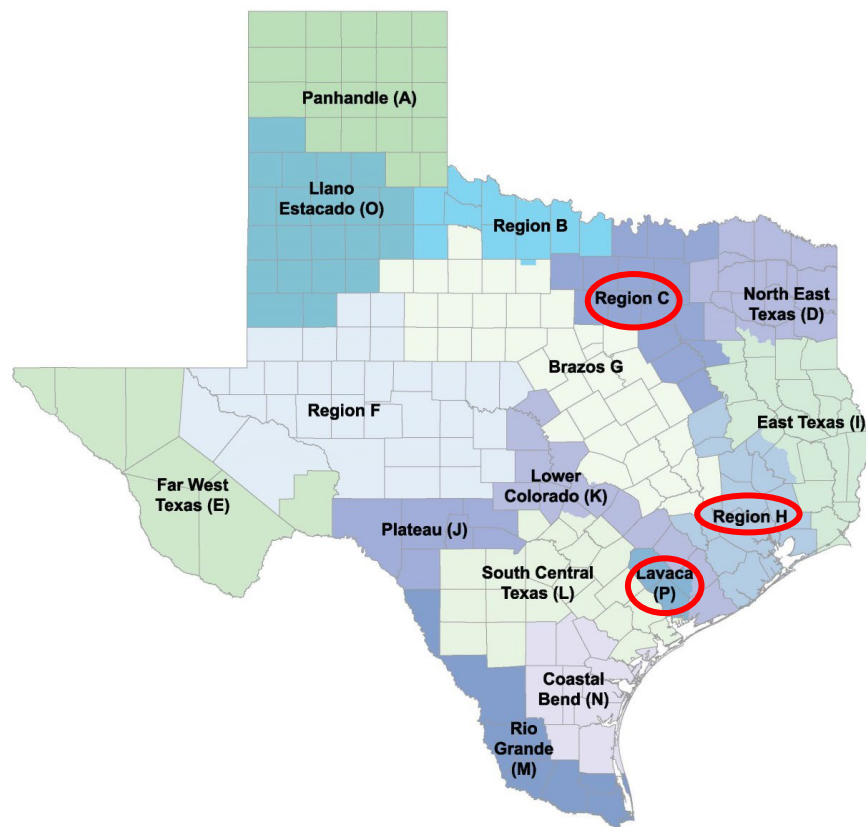
- Free Port
- Port of Corpus Christi Authority – Harbor Island and La Quinta Channel
- City of Corpus Christi – La Quinta and Inner Harbor
- Poseidon Regional – Ingleside
- Laguna Madre Water District



# Surface Water Desalination

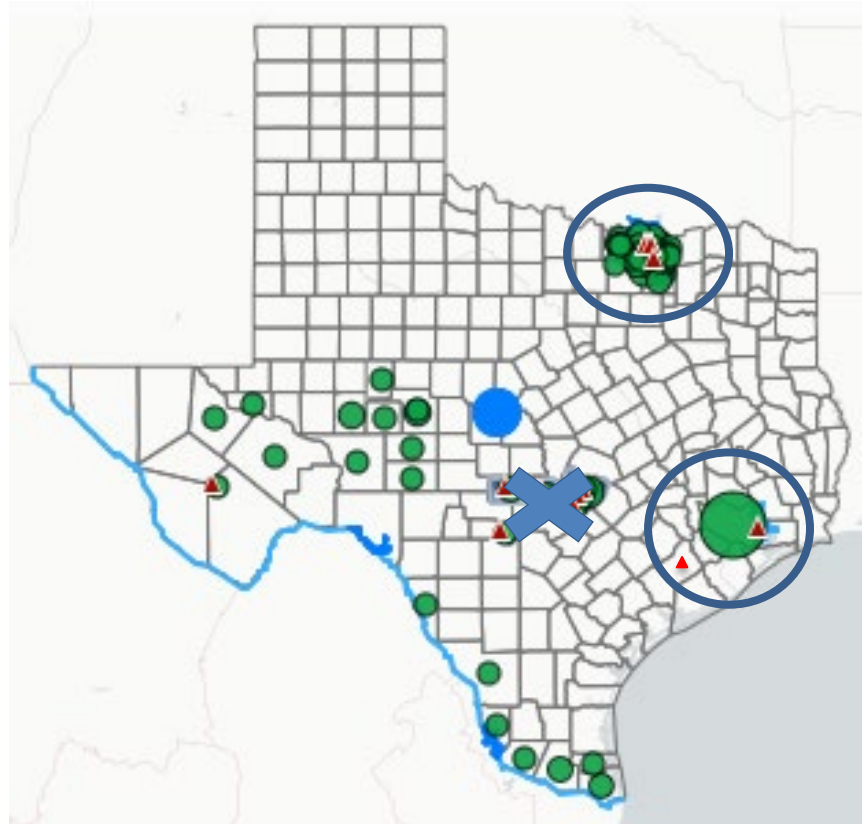
- About 63,000 acre-feet per year of supply from surface water desalination is recommended in 2070. (~0.8% out of 5.4% total)
- Three planning groups recommended surface water desalination strategies
- Barriers for implementation include: none listed

# Surface water desalination

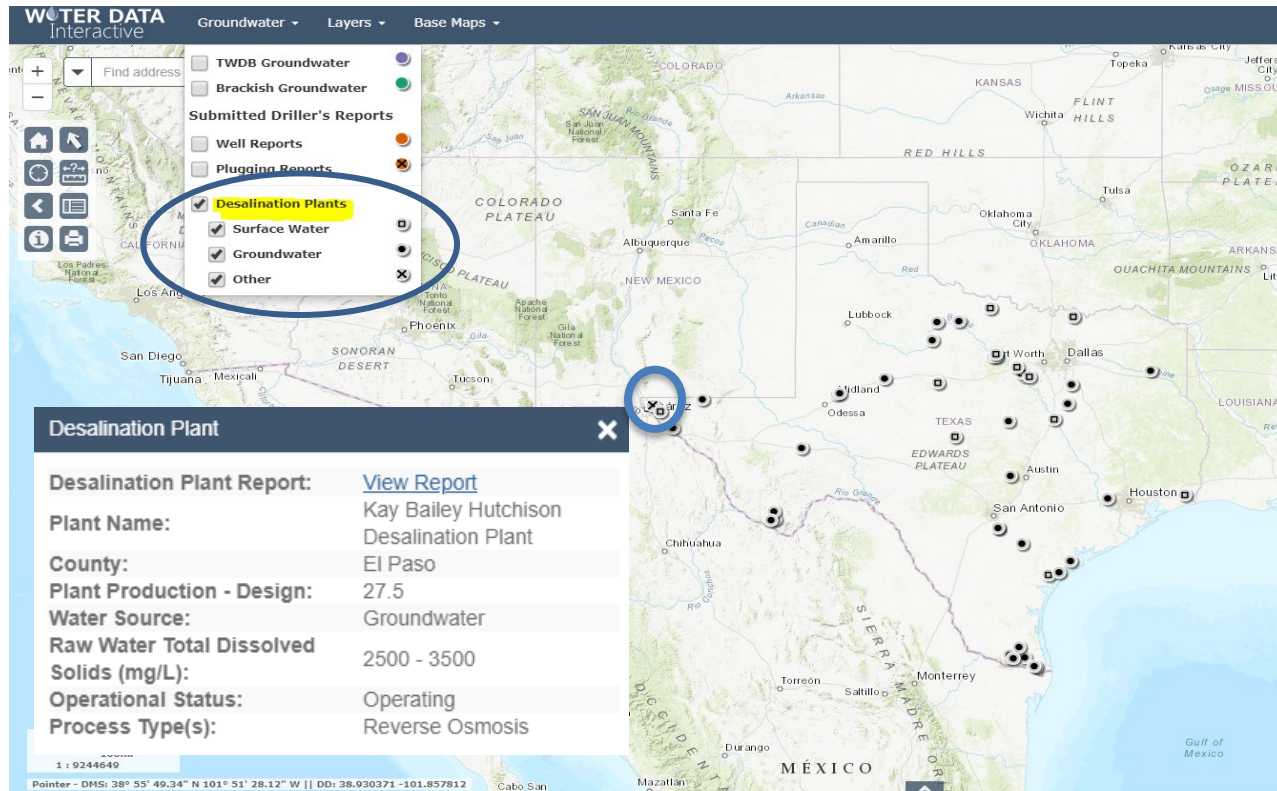


# Surface Water Desalination Projects

- City of Sherman
- Greater Texoma Utility Authority
- Parker County Special Utility District
- NRG Energy, Inc. - Cedar Bayou
- Lavaca Navidad River Authority



# Desalination Plant Database



**WATER DATA Interactive** Groundwater Layers Base Maps

Find address

- TWDB Groundwater
- Brackish Groundwater
- Submitted Driller's Reports
  - Well Reports
  - Plugging Reports
  - Desalination Plants
  - Surface Water
  - Groundwater
  - Other

**Desalination Plant**

**Desalination Plant Report:** [View Report](#)

**Plant Name:** Kay Bailey Hutchison Desalination Plant

**County:** El Paso

**Plant Production - Design:** 27.5

**Water Source:** Groundwater

**Raw Water Total Dissolved Solids (mg/L):** 2500 - 3500

**Operational Status:** Operating

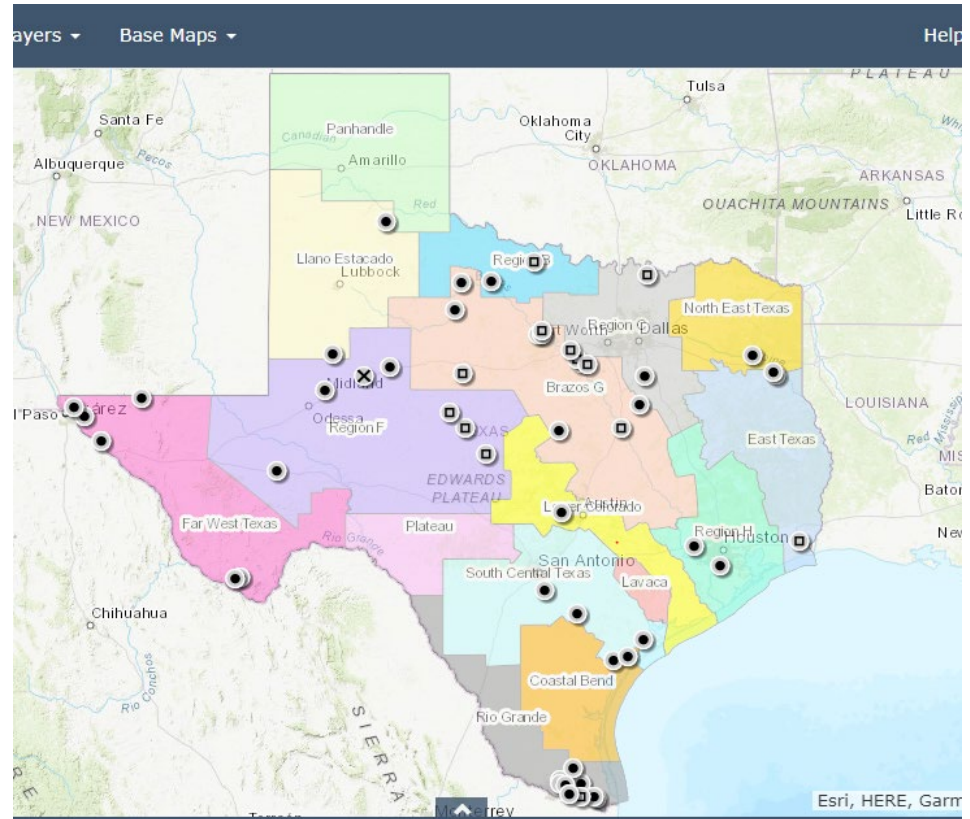
**Process Type(s):** Reverse Osmosis

1 : 9244649

Pointer - DMS: 38° 55' 49.34" N 101° 51' 28.12" W || DD: 38.930371 -101.857812

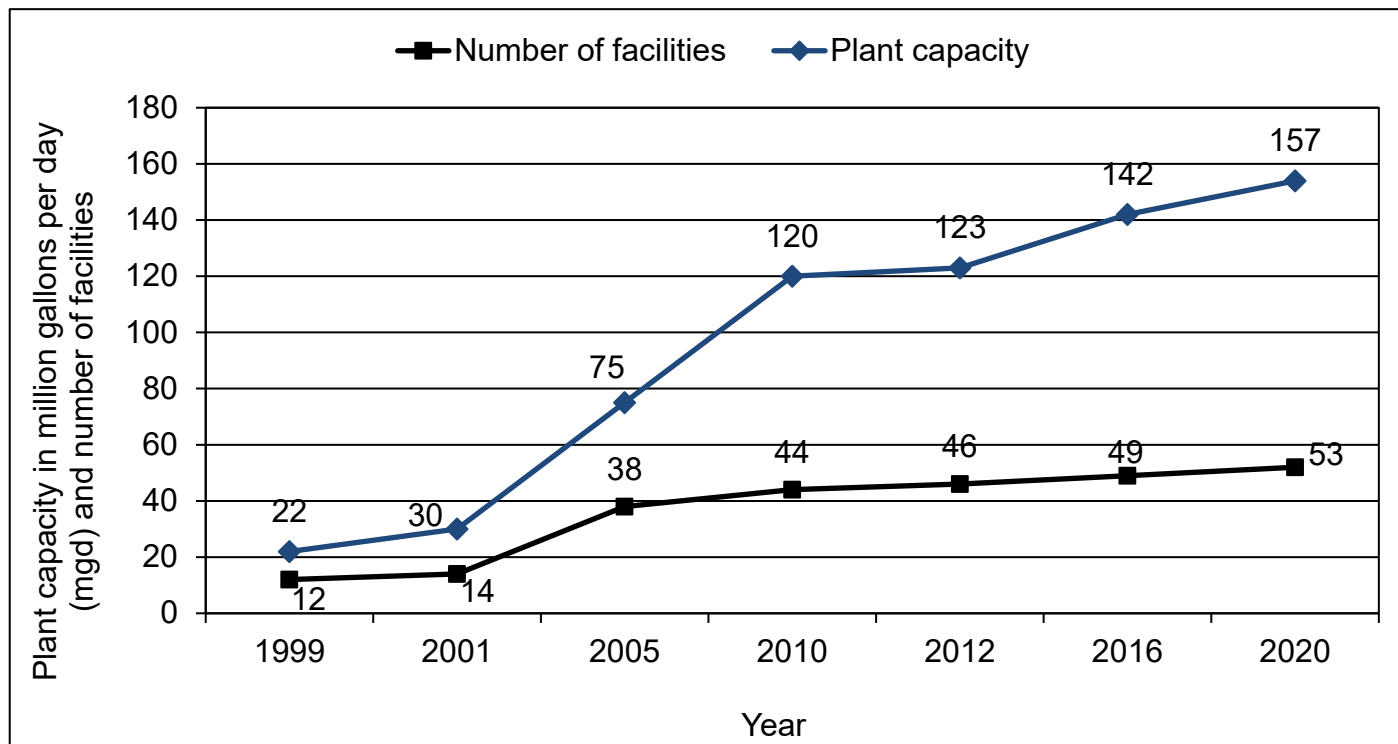
# Desalination Plant Database

- Squares = surface water desalination
- Dots = groundwater desalination
- X = direct potable reuse





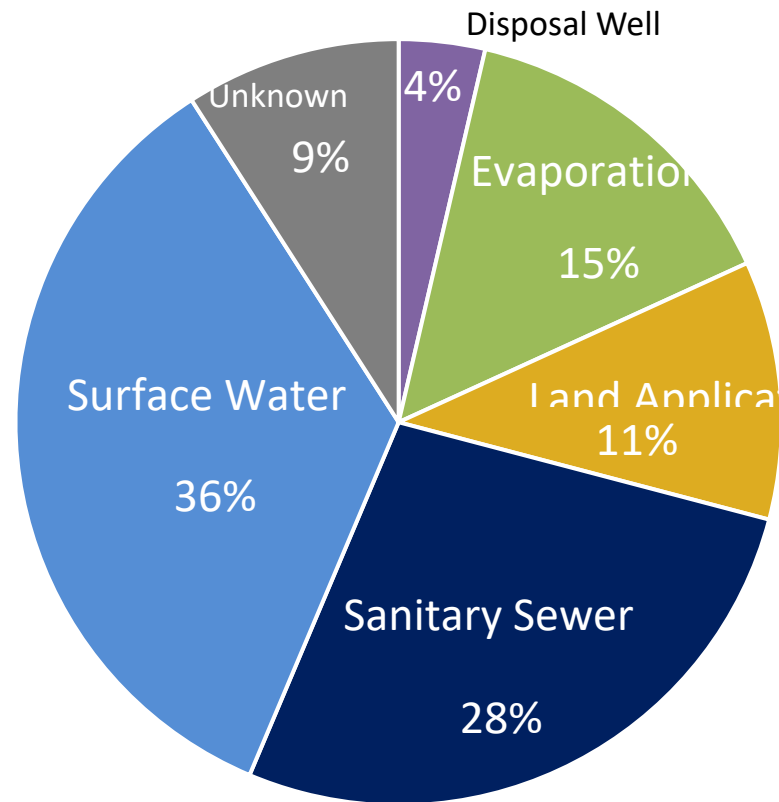
# Desalination growth in Texas













# 2020 Desalination Database Update

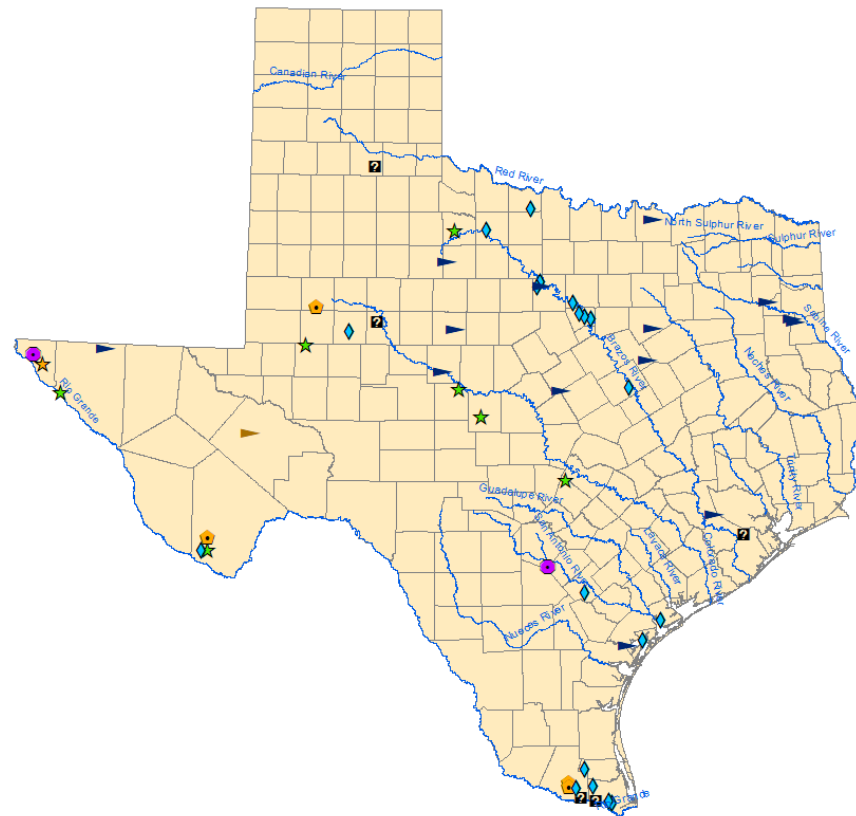
- Added 7 new desalination plants (10.17 MGD)
  - 4 groundwater and 3 surface water desalination
- Closed 3 existing small plants (0.05 MGD)
  - 3 groundwater desalination
- Increased plant capacity for 6 existing plants (+5.43 MGD)
  - 2 groundwater and 4 surface water desalination

# Concentrate Disposal Methods



# Concentrate Disposal in Texas

-  Disposal Well
-  Evaporation Pond
-  Land Application
-  Land Application and Evaporation Pond
-  Sanitary Sewer
-  Sanitary Sewer and Land Application
-  Surface Water Discharge
-  Unknown
-  Major rivers in Texas
-  County





Erika Mancha  
(512) 463-7932  
erika.mancha@twdb.texas.gov

**Innovative Water Technologies**  
**[www.twdb.texas.gov/innovativewater/index.asp](http://www.twdb.texas.gov/innovativewater/index.asp)**

