

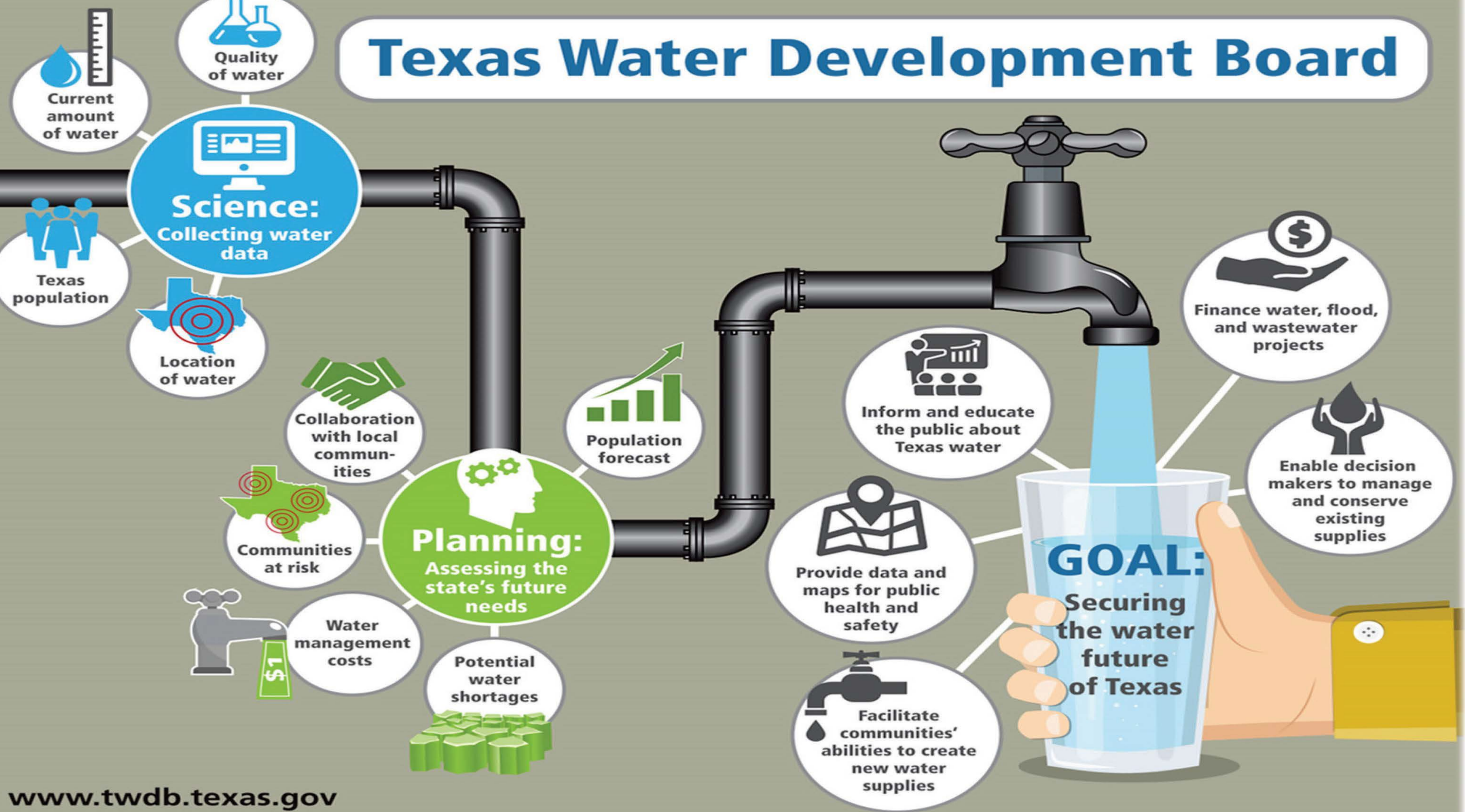
SALINITY — WHERE IS IT A PROBLEM?

TEXAS WATER DEVELOPMENT BOARD (ERIKA MANCHA, TWDB)

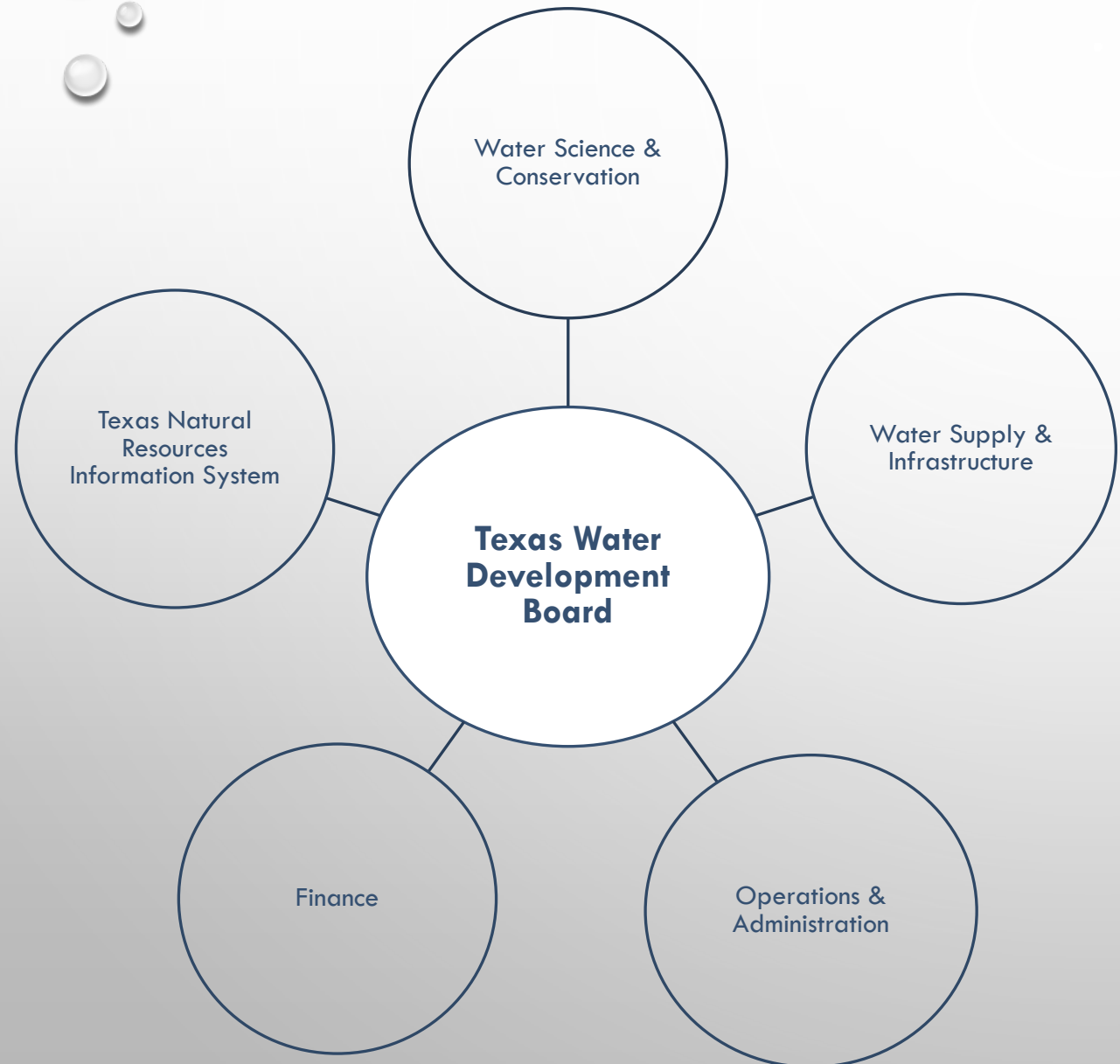
Presenter's proposed outline (10 minutes):

- *Sources of Salinity*
- *Economic Impacts*
- *What are the big questions/needs? E.g. control measures, toolboxes, science gaps*
- *Who are the major players? Are control efforts centralized or decentralized? Who's engaged in addressing salinity control? Do the parties work together? Are there challenges with working together?*

Texas Water Development Board



Mission: "To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas"



HOW WE PLAN

5 YEAR PLANNING → **50 YEAR outlook**

16 regional planning groups

450 regional water planning group voting members

WHY WE PLAN

Projected **73%** population increase over the next **50 years**

Water demand is projected to **increase 17%**

Texas' existing water supplies are expected to **decline 11%**

The potential total water shortage in a drought of record is **8.9 million acre-feet** in 2070

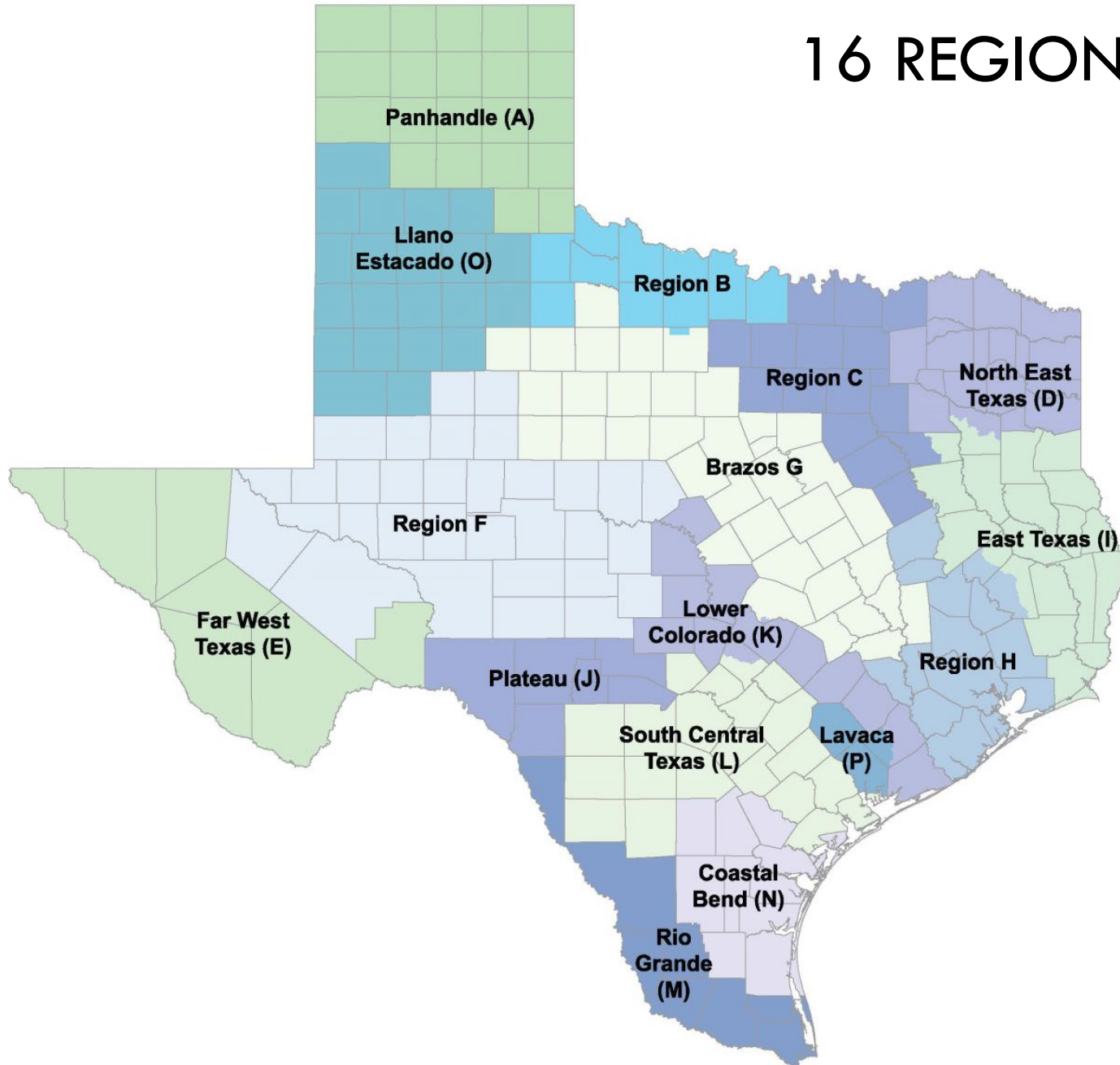
SOURCES OF NEW WATER in 2070

The 2017 State Water Plan recommends 5,500 water management strategies

Source	Percentage
Surface Water	45%
Conservation and drought management	30%
Reuse	14%
Groundwater	10%
Seawater	1%

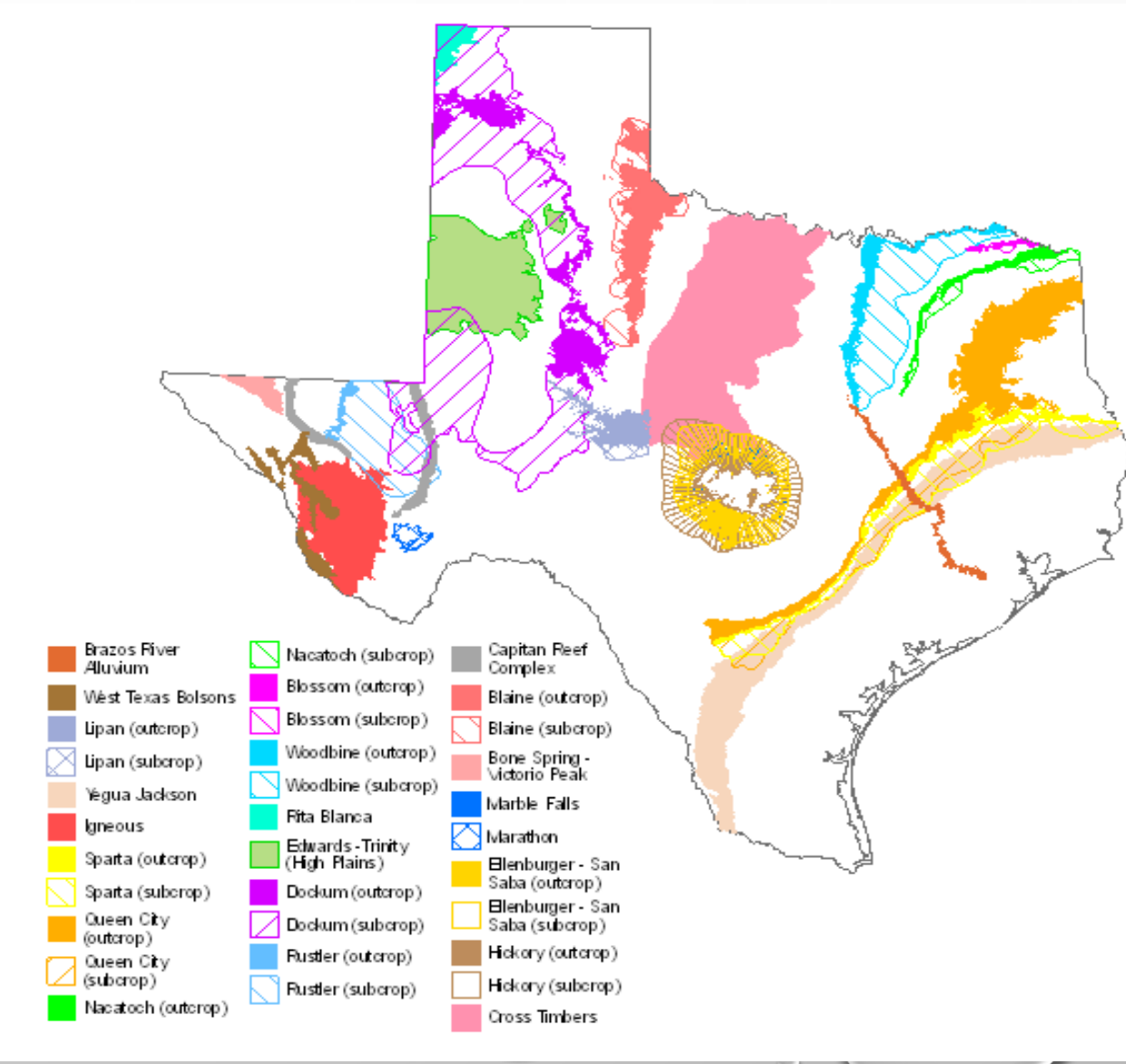
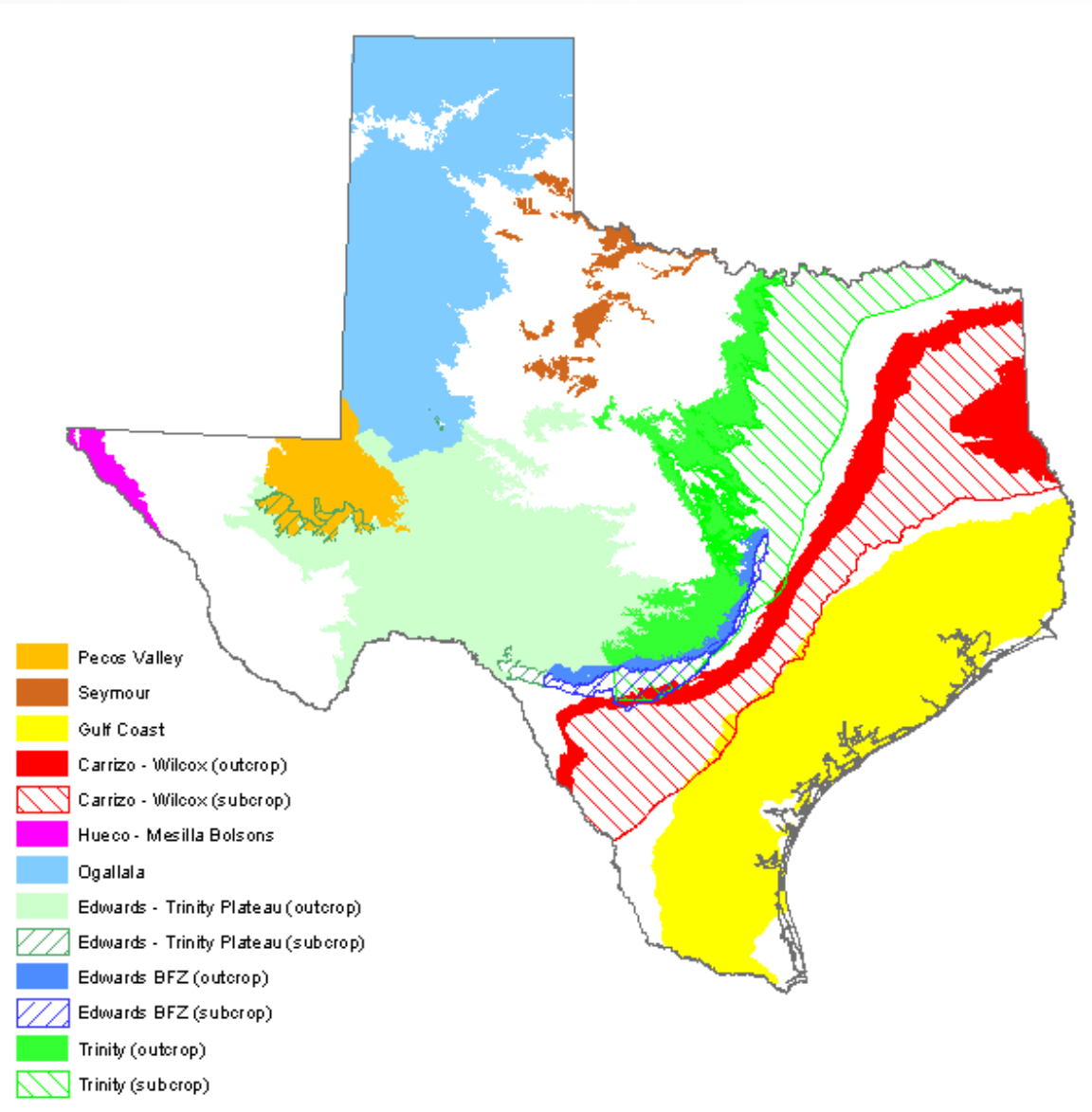
If implemented, these strategies would provide 8.5 million acre-feet per year in additional water supplies by 2070

16 REGIONAL WATER PLANNING AREAS



- Bottom-up approach
- State Water Plan every five years
- Working on 2022 State Water Plan

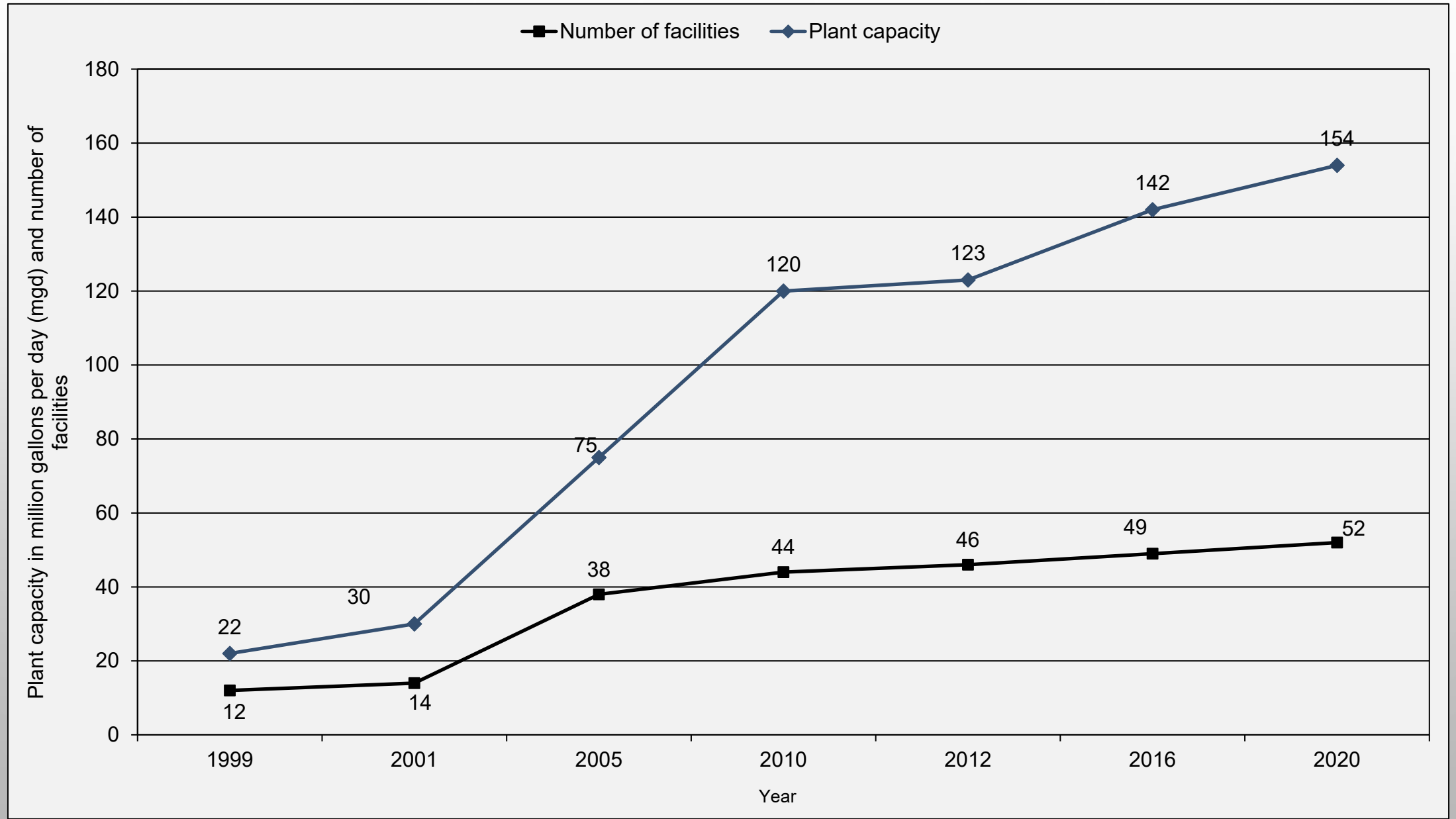
TWDB MAJOR & MINOR AQUIFERS



GENERAL SOURCES OF SALINITY

- NATURAL OCCURRING
 - MAXIMUM CONTAMINANT LEVEL FOR TOTAL DISSOLVED SOLIDS (TDS)
 - 500 MG/L IN U.S.
 - 1,000 MG/L IN TEXAS
- SEAWATER INTRUSIONS
- AGRICULTURE RETURN FLOWS
- WASTEWATER RETURN FLOWS
- SALINITY INVERSIONS

DESALINATION GROWTH IN TEXAS

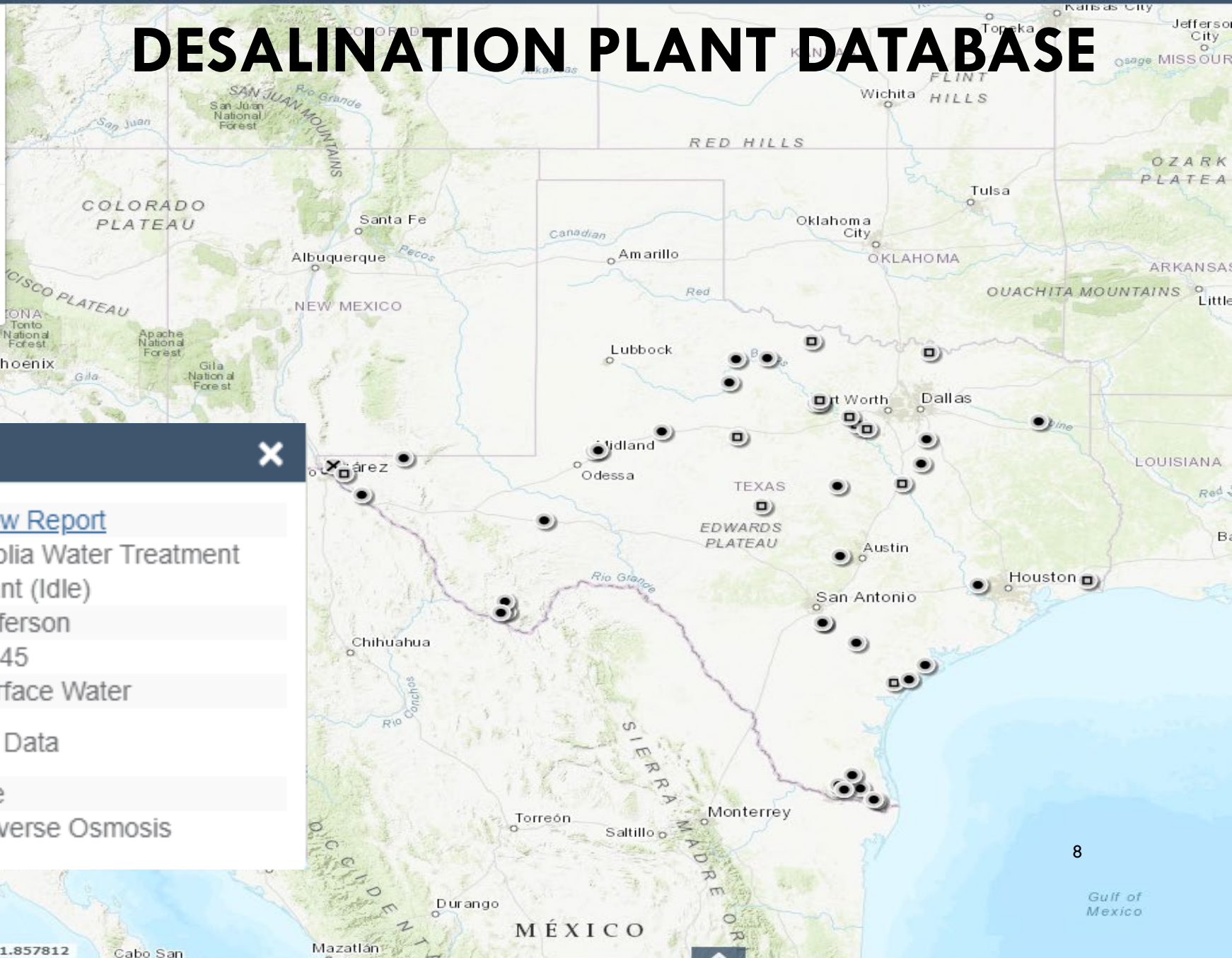


DESALINATION PLANT DATABASE

Find address

Home, Back, Forward, Refresh, Print, Info, Full Screen

- 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: Veolia Water Treatment Plant (Idle)

County: Jefferson

Plant Production - Design: 0.245

Water Source: Surface Water

Raw Water Total Dissolved Solids (mg/L): No Data

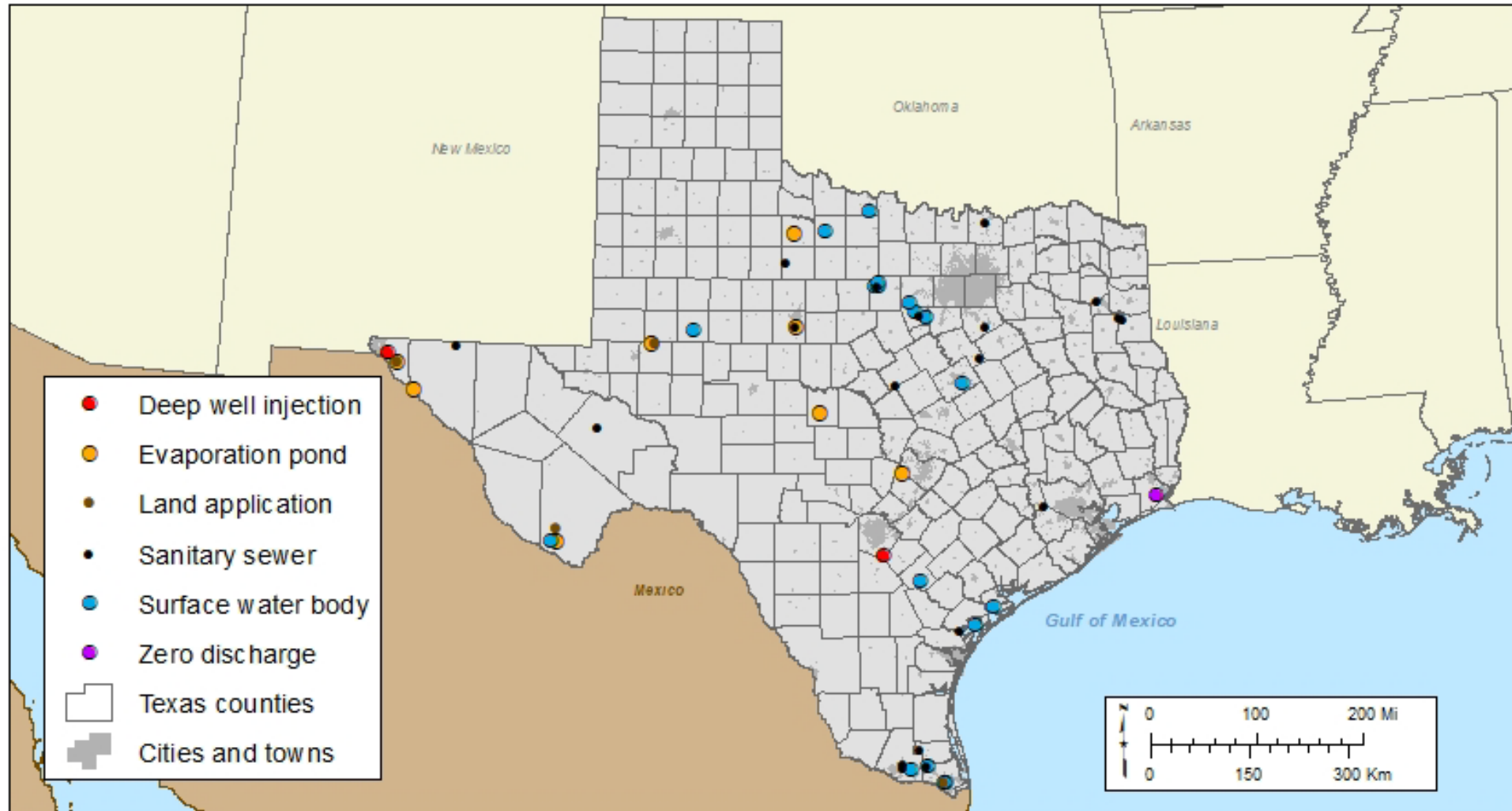
Operational Status: Idle

Process Type(s): Reverse Osmosis



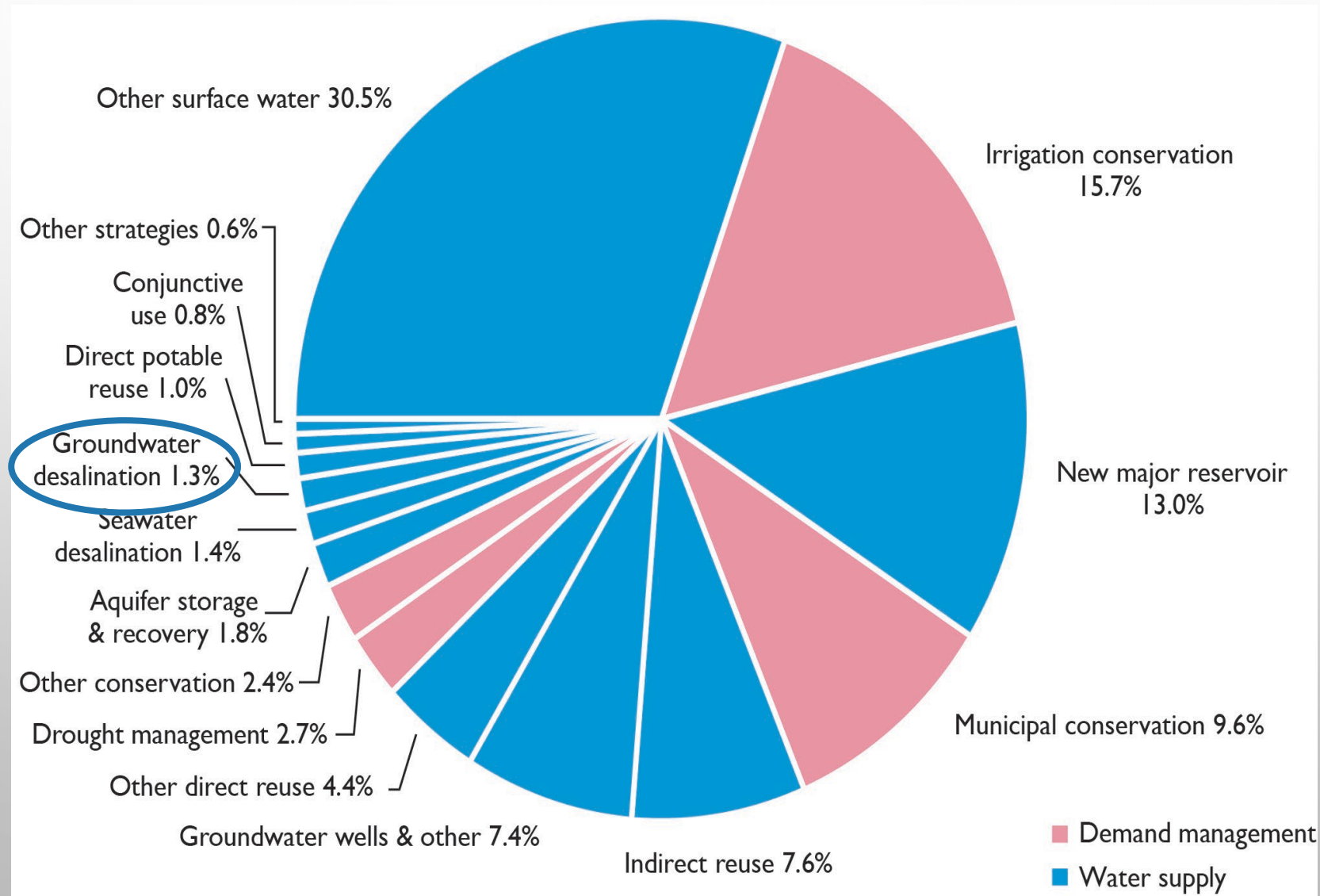
Pointer - DMS: 38° 55' 49.34" N 101° 51' 28.12" W || DD: 38.930371 -101.857812

CONCENTRATE DISPOSAL METHODS

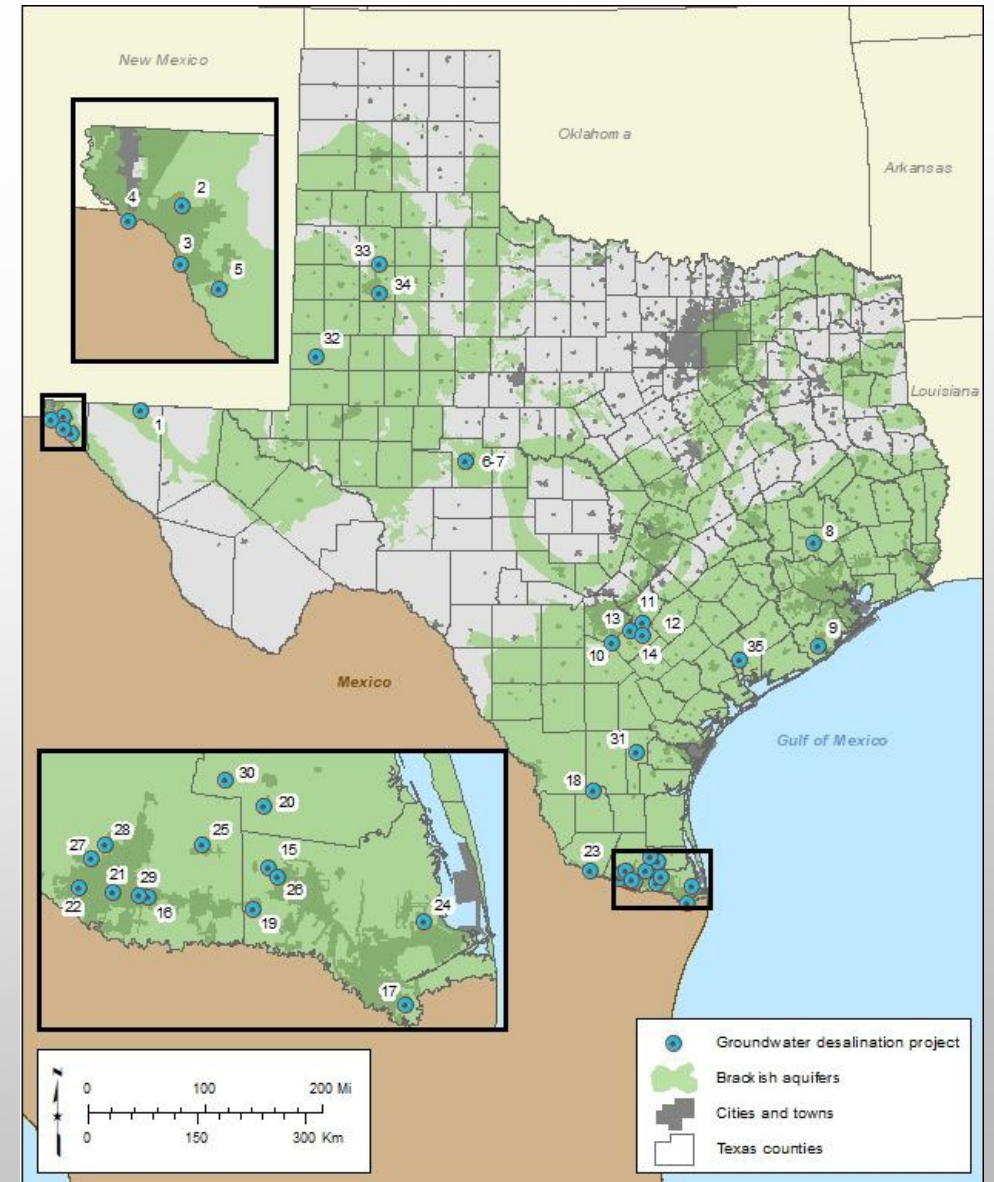
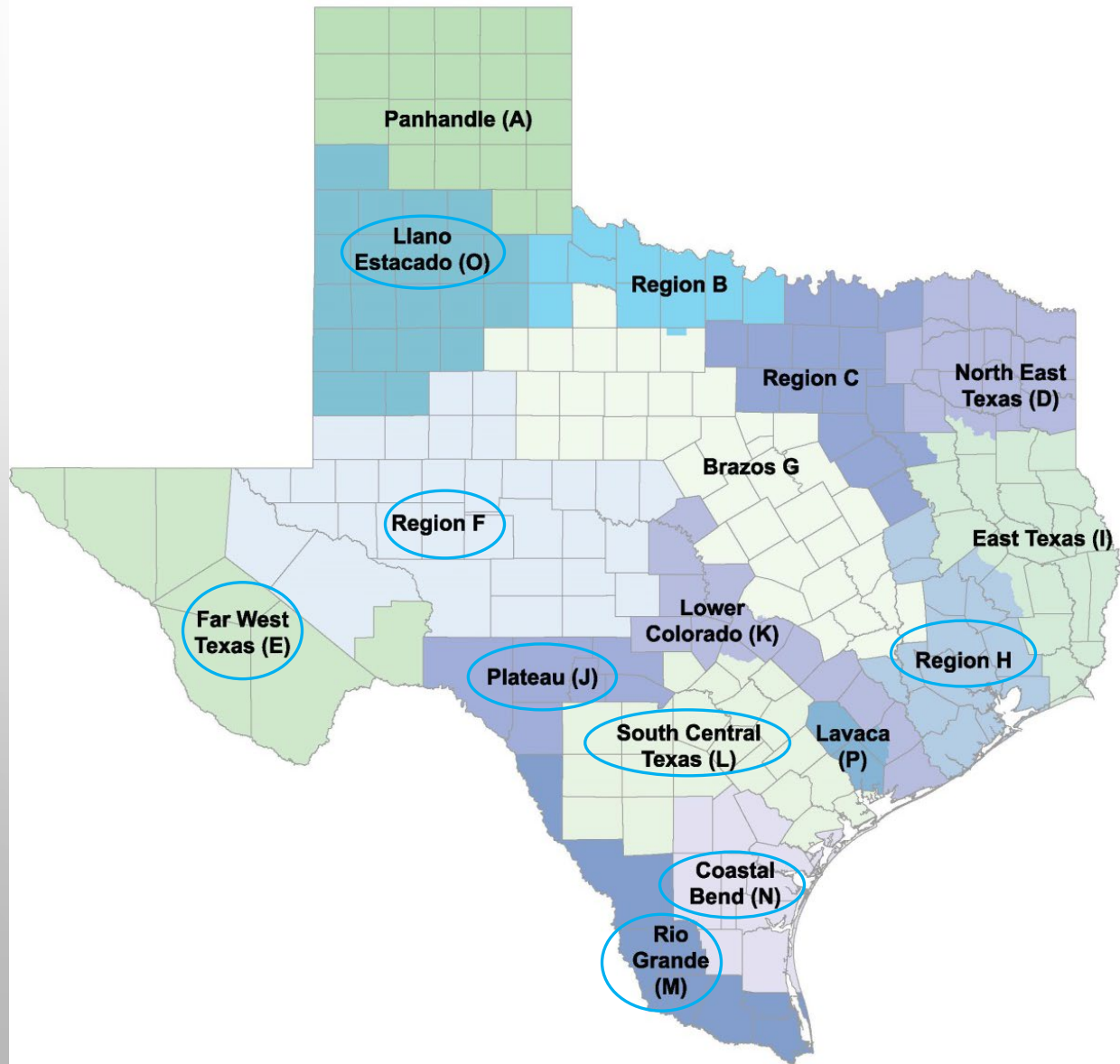


RECOMMENDED WATER MANAGEMENT STRATEGIES BY 2070 IN 2017 STATE WATER PLAN

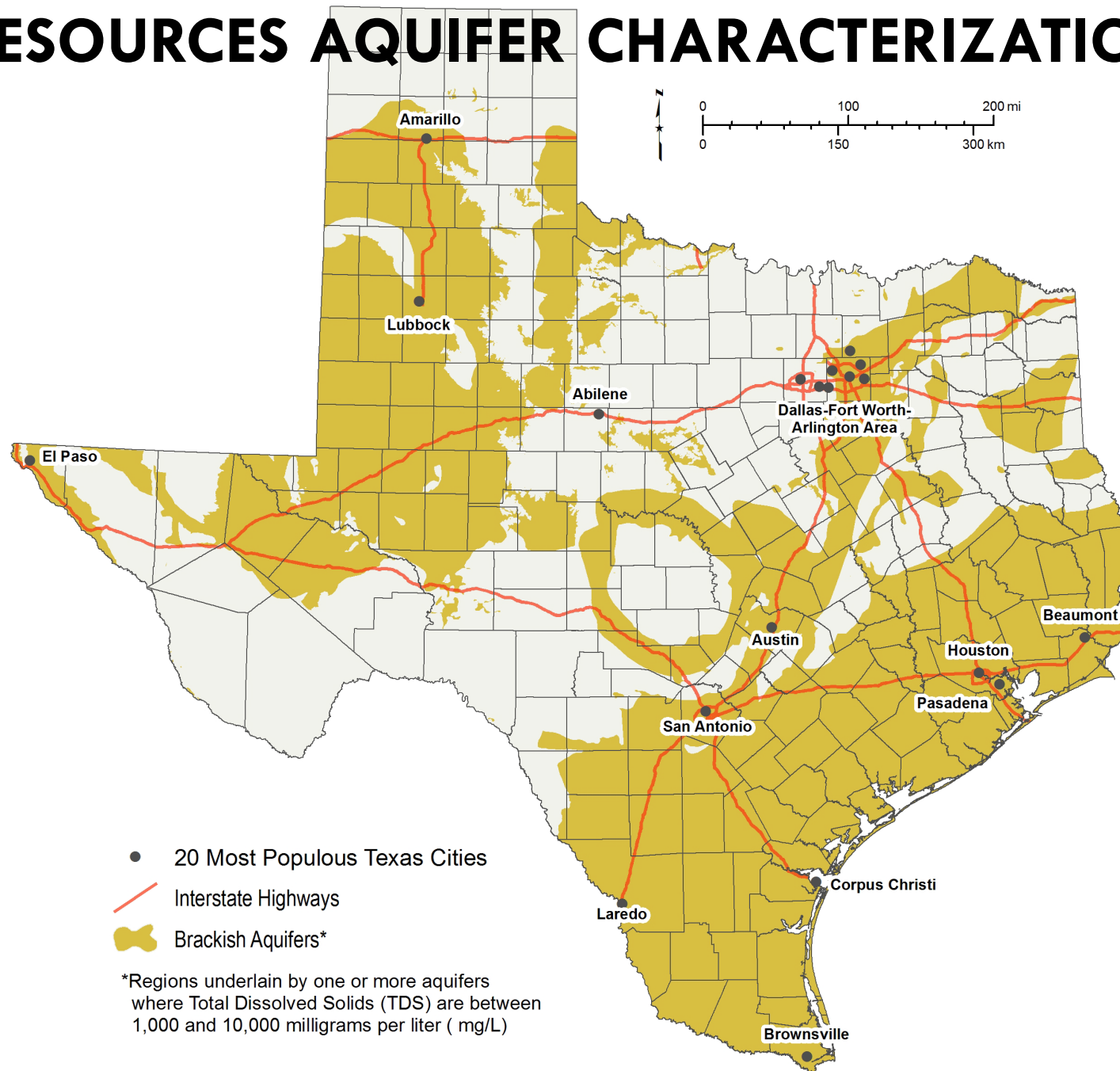
~111,000
acre -feet/year



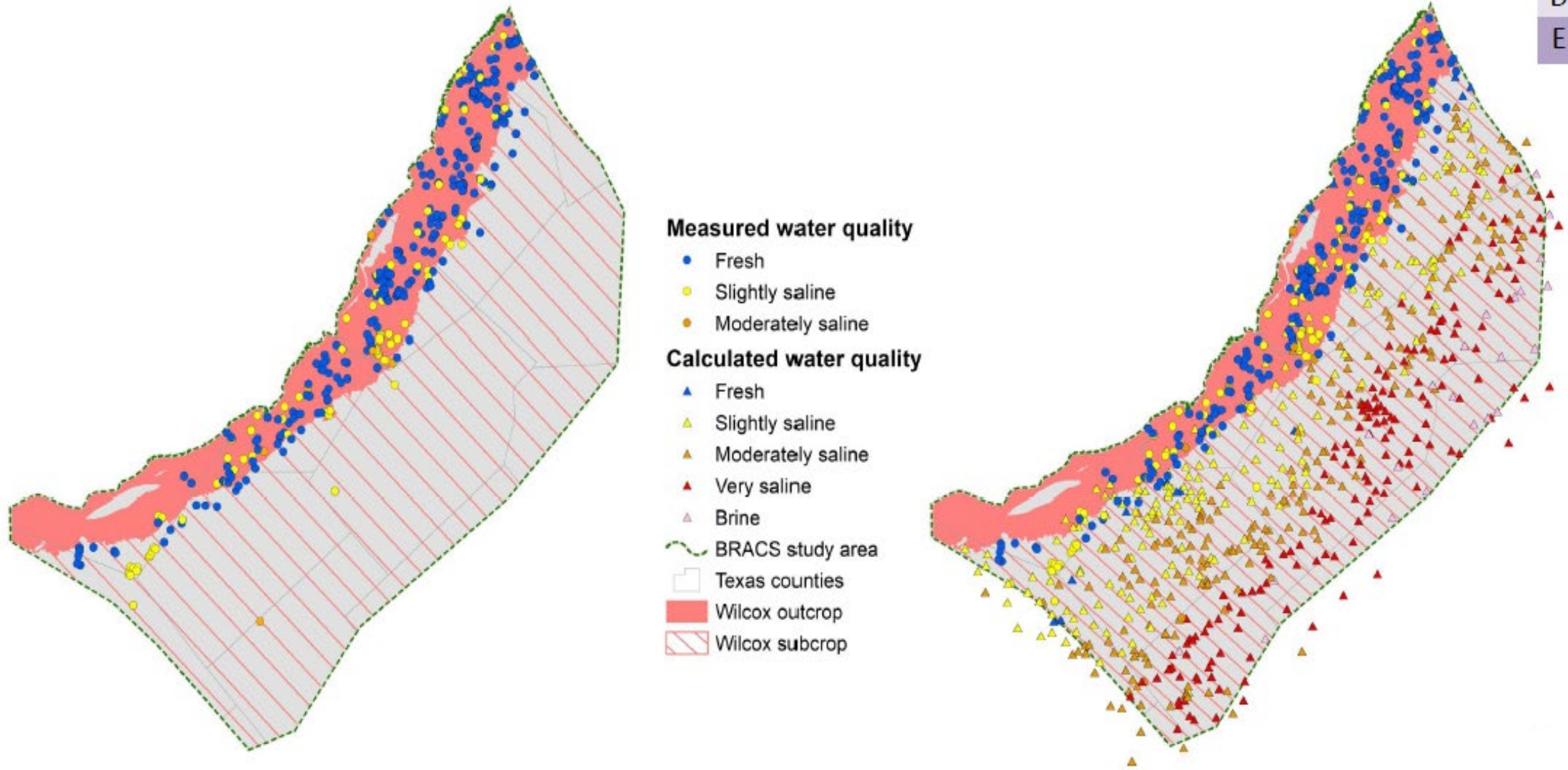
GROUNDWATER DESALINATION RECOMMENDED WATER MANAGEMENT STRATEGIES AND PROJECTS



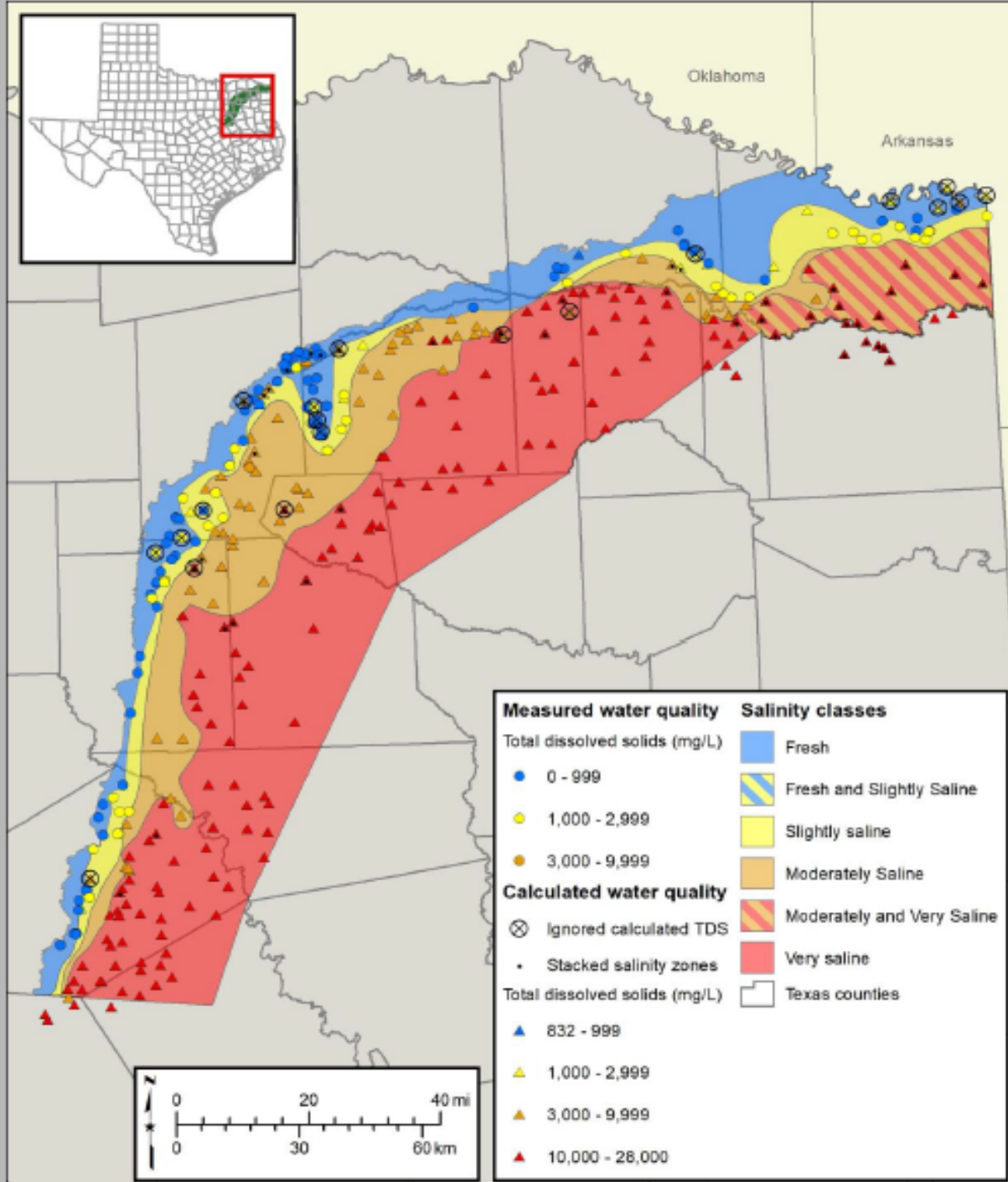
BRACKISH RESOURCES AQUIFER CHARACTERIZATION SYSTEM



MEASURED VS CALCULATED WATER QUALITY DATA



Examples from recently published studies



Salinity class	Volume (acre-feet)
Fresh	2,120,000
Fresh and slightly saline	30,000
Slightly saline	2,040,000
Moderately saline	3,720,000
Moderately and very saline	1,890,000
Very saline	8,190,000
Total	17,990,000

SALINITY CAN BE GOOD TOO!

Water Data For Texas

Not secure https://waterdatafortexas.org/coastal

Water Data
for Texas

Reservoirs

Drought

Groundwater

Coastal

Lake Evaporation/Rainfall

TexMesonet

About

Texas Water
Development Board

Continuous Water Quality Monitoring

Water Quality Point Measurement

Freshwater Inflow Estimates

API

Texas Bays & Estuaries Continuous Water Quality Monitoring Stations

