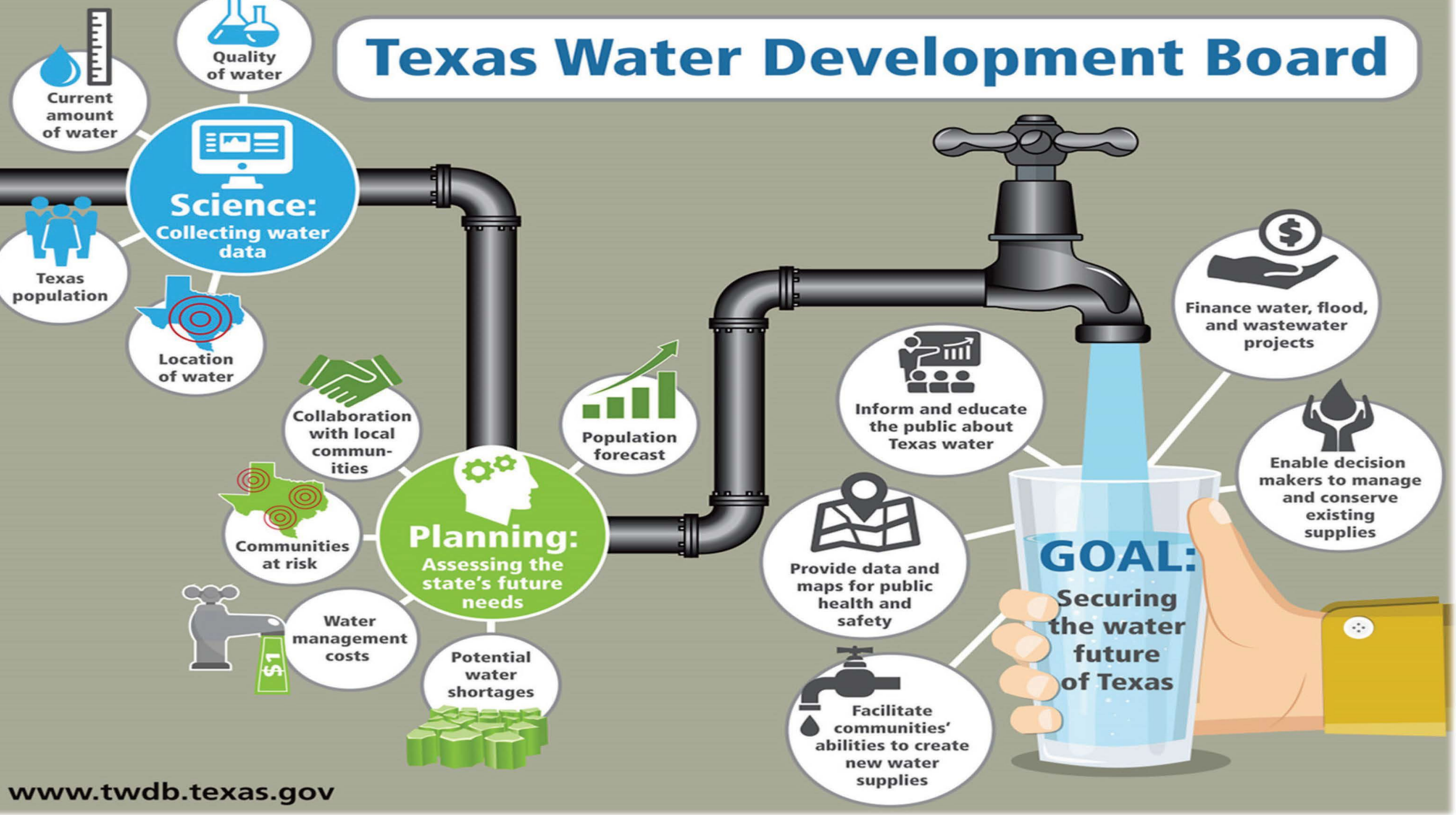
SALINITY – WHERE IS IT A PROBLEM?

TEXAS WATER DEVELOPMENT BOARD (ERIKA MANCHA, TWDB)

Presenter's proposed outline (10 minutes):

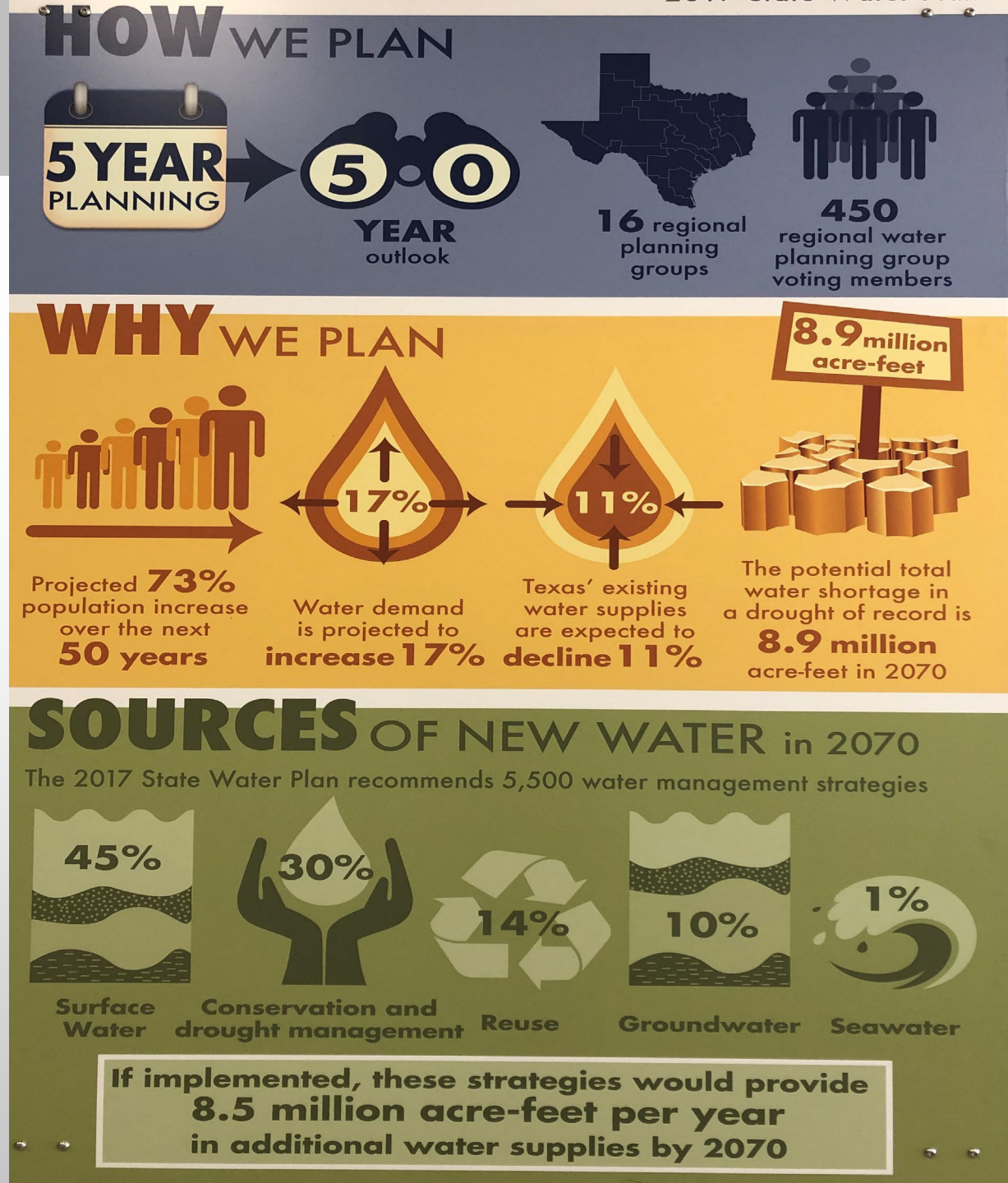
- *Sources of Salinity*
- *Economic Impacts*
- *What are the big questions/needs? E.g. control measures, toolboxes, science gaps*
- *Who are the major players? Are control efforts centralized or decentralized? Who's engaged in addressing salinity control? Do the parties work together? Are there challenges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

Texas Water Development Board

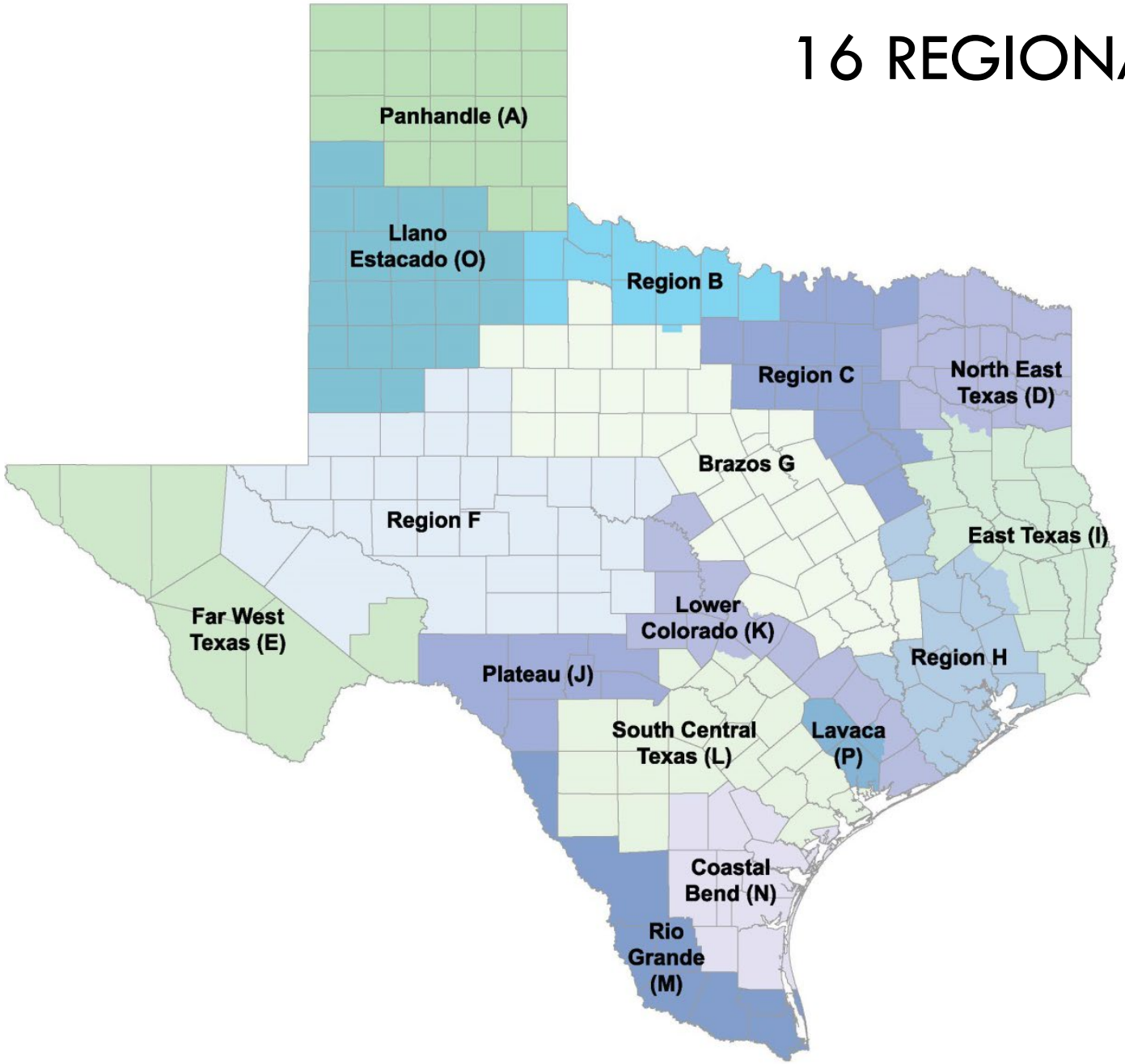


www.twdb.texas.gov

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

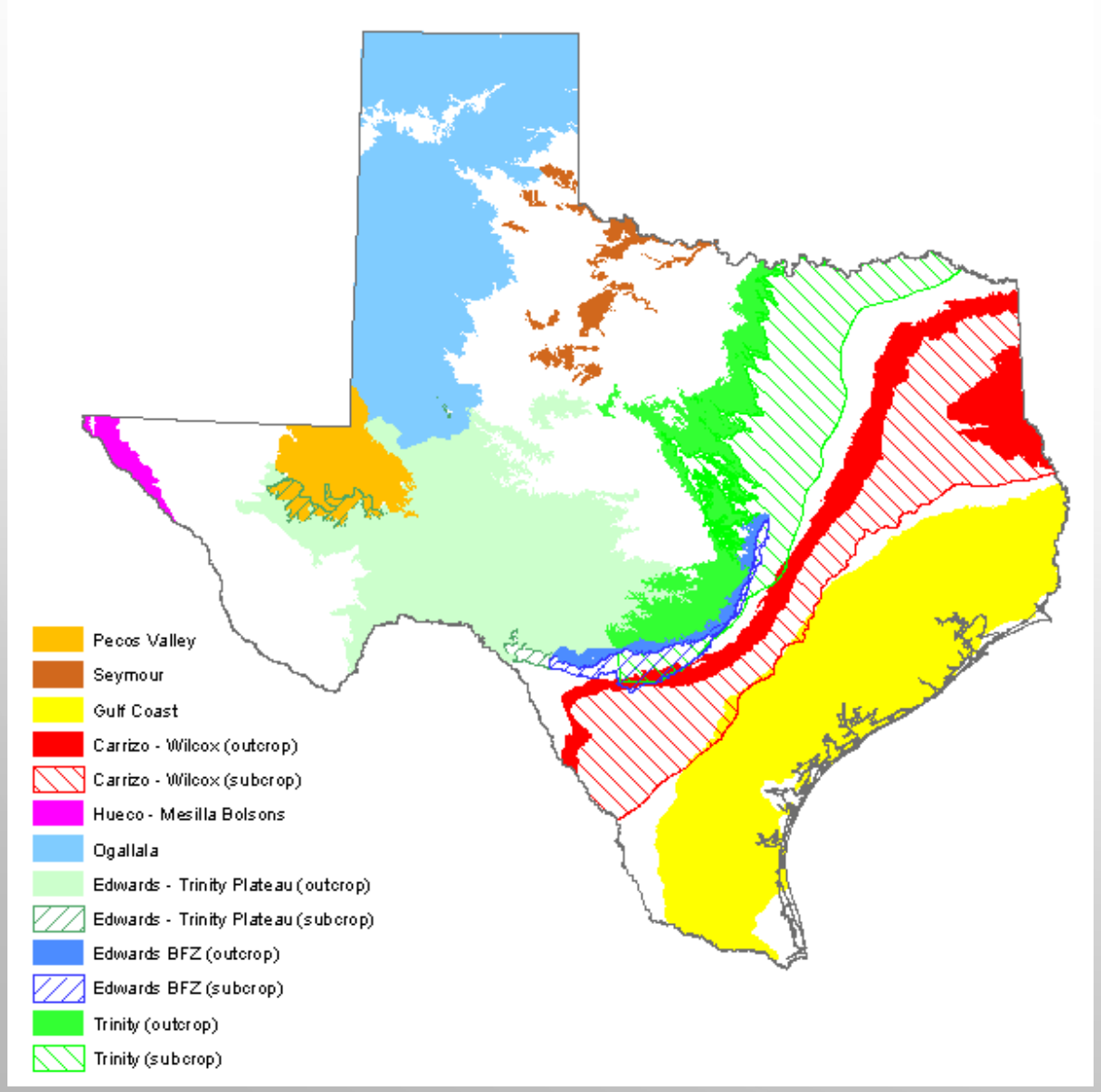


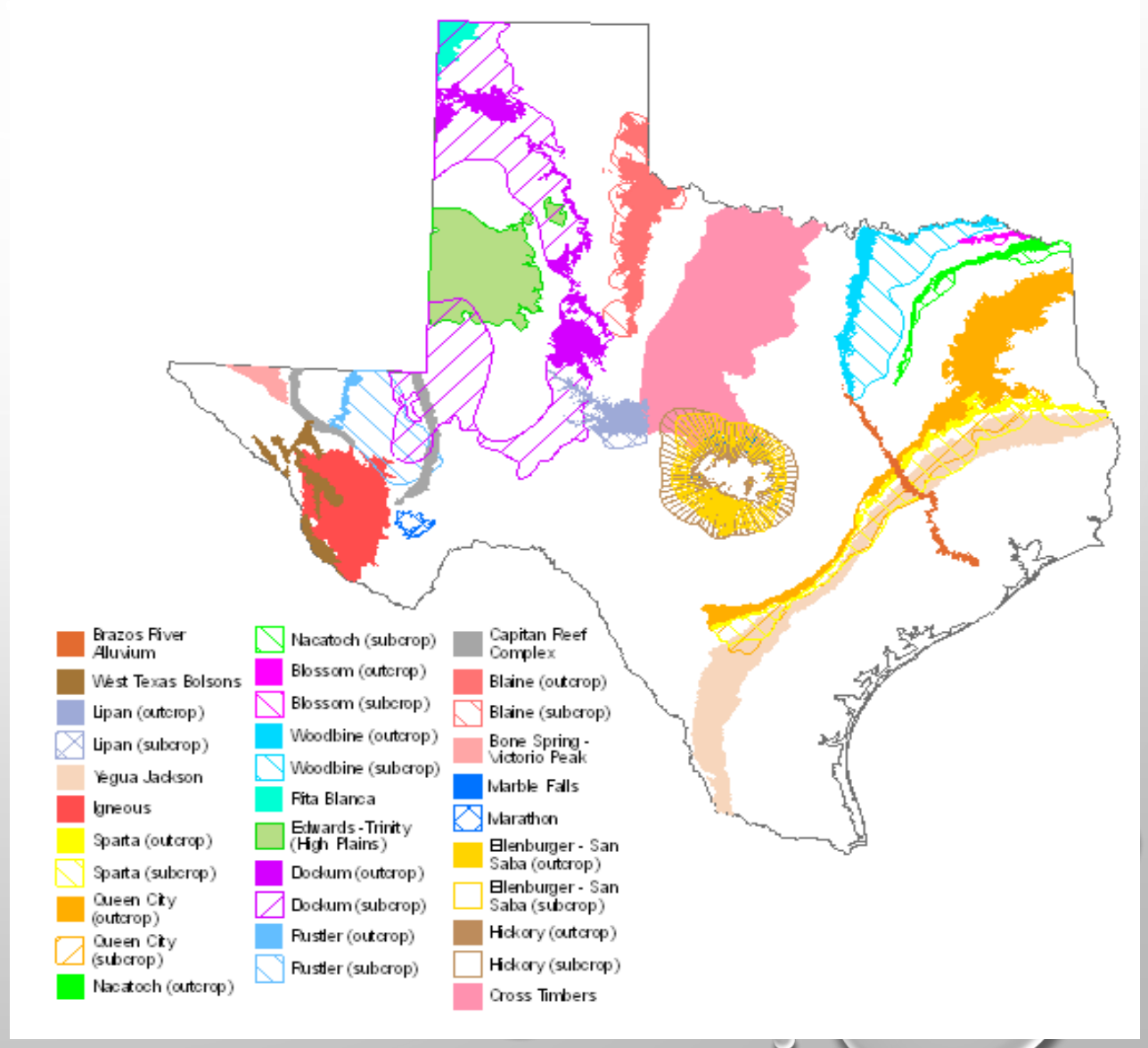
16 REGIONAL WATER PLANNING AREAS



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

TWDB MAJOR & MINOR AQUIFERS

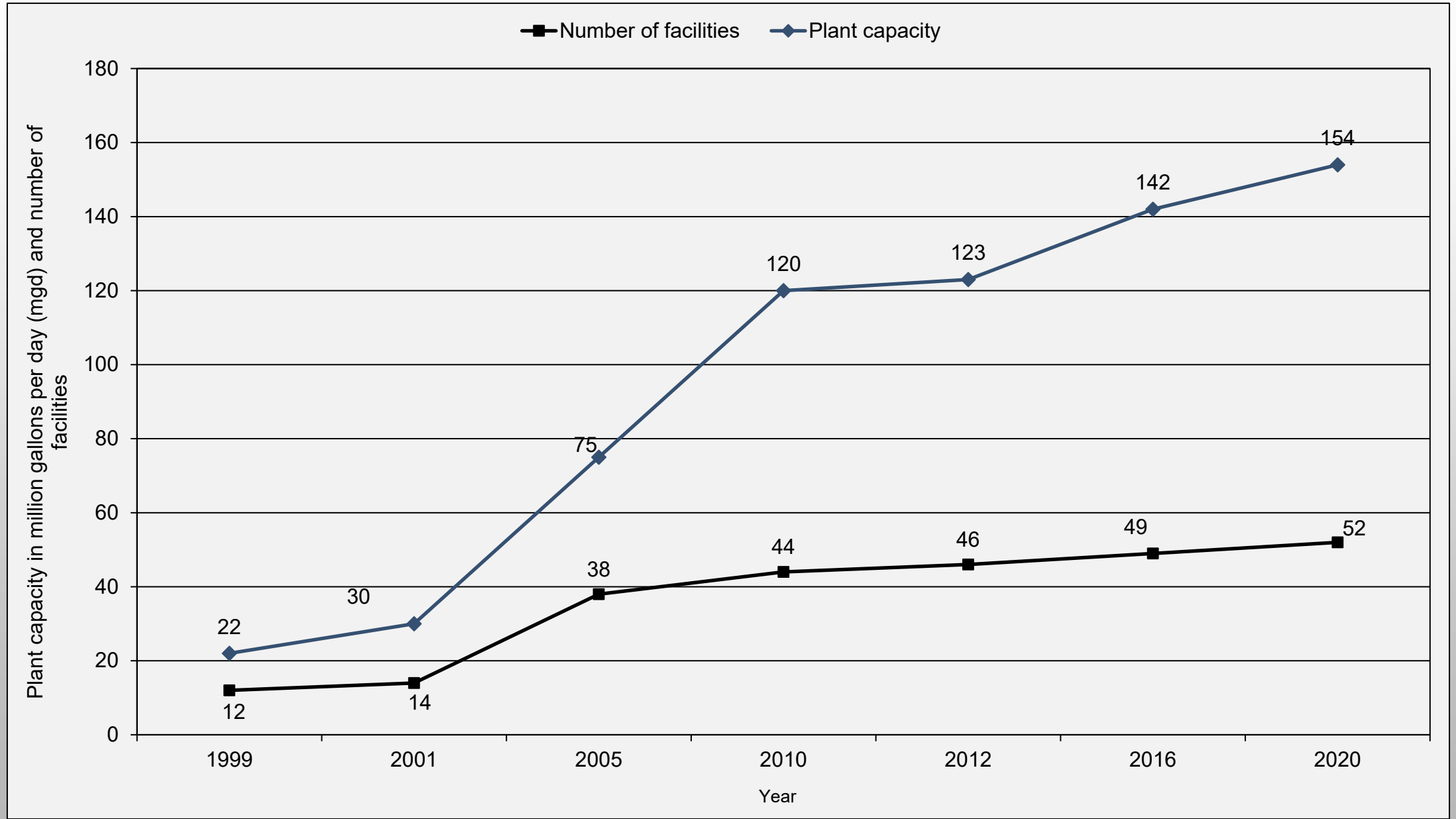




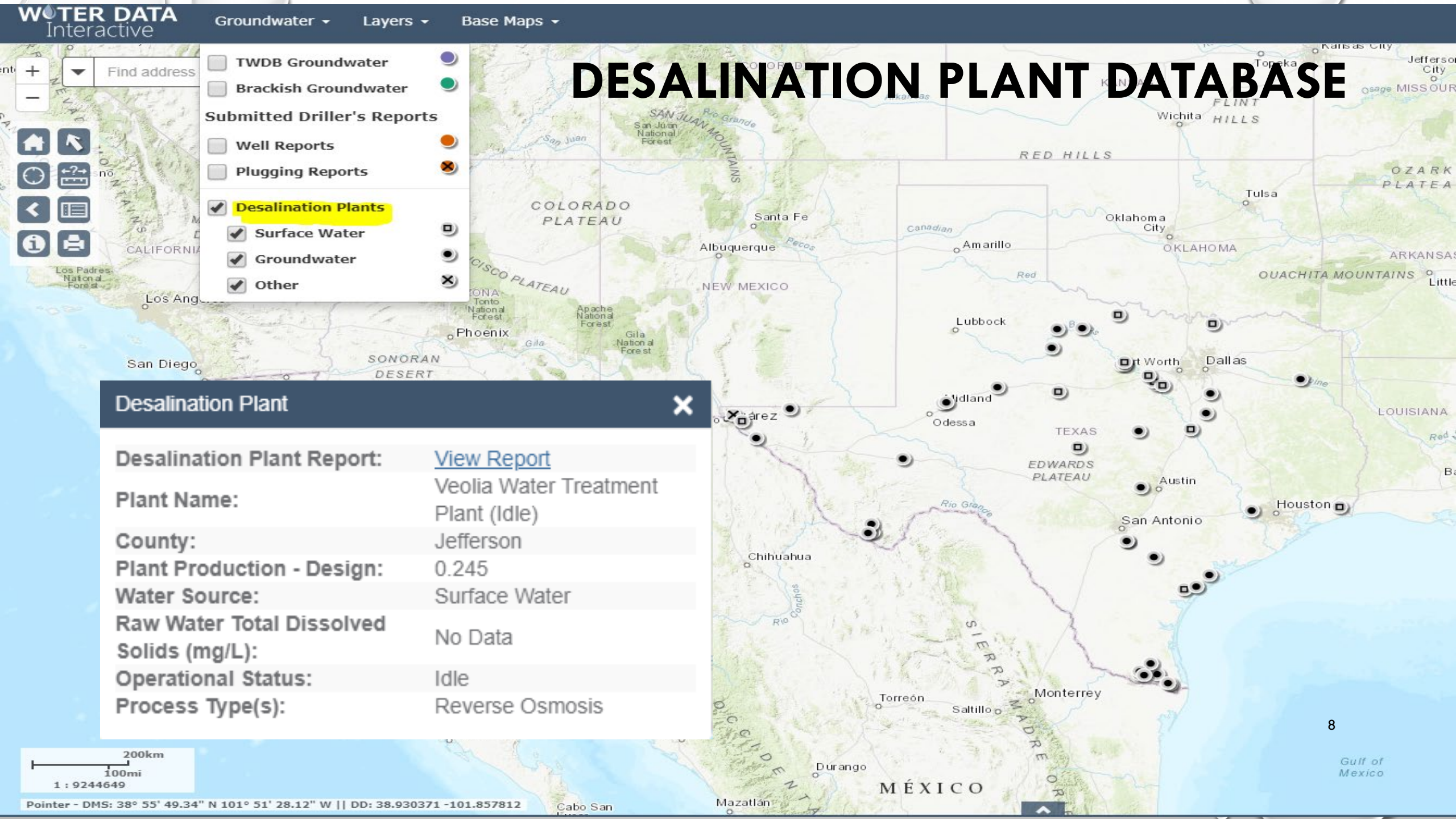
GENERAL SOURCES OF SALINITY

- 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

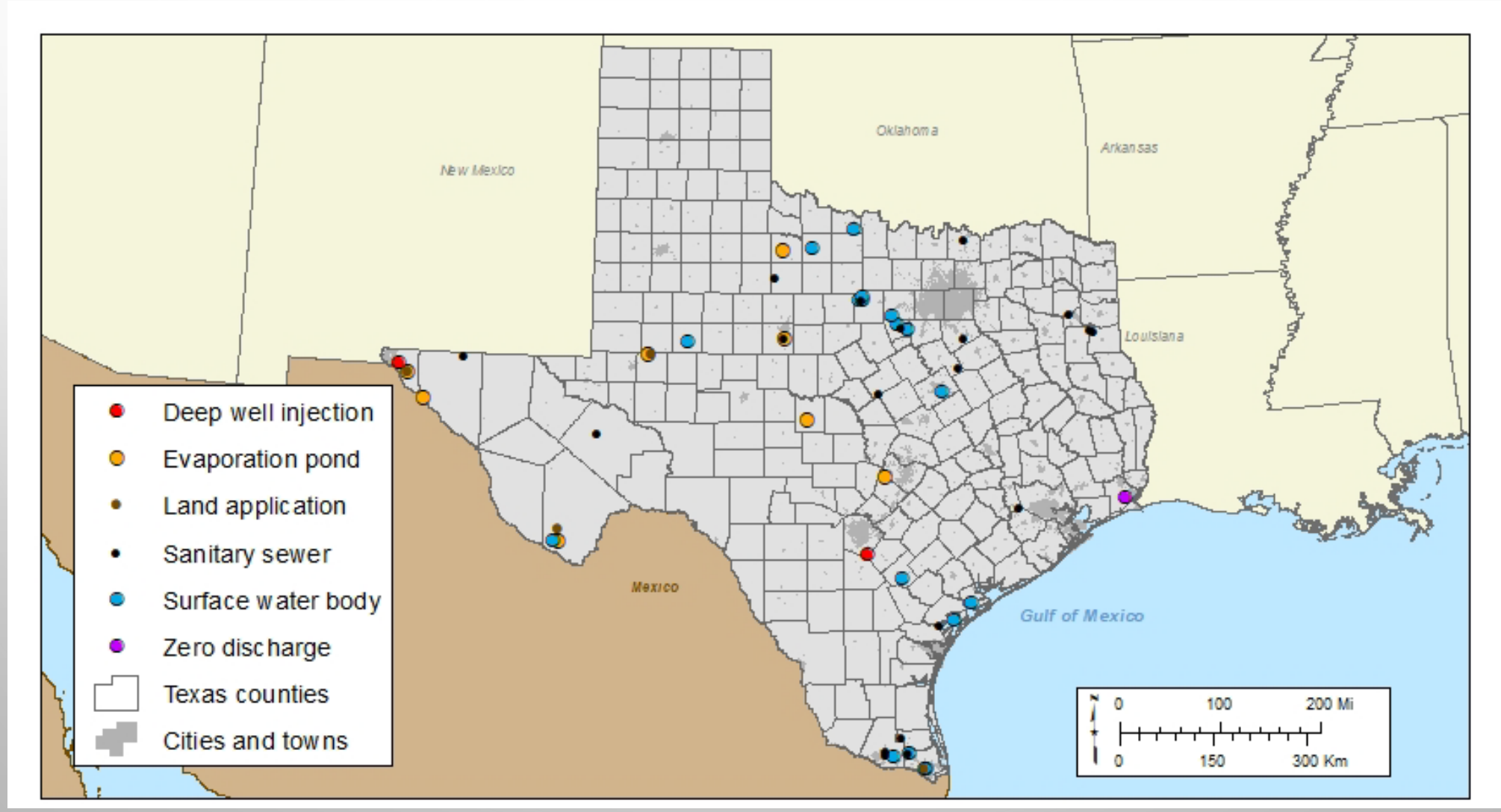
DESALINATION GROWTH IN TEXAS



DESALINATION PLANT DATABASE

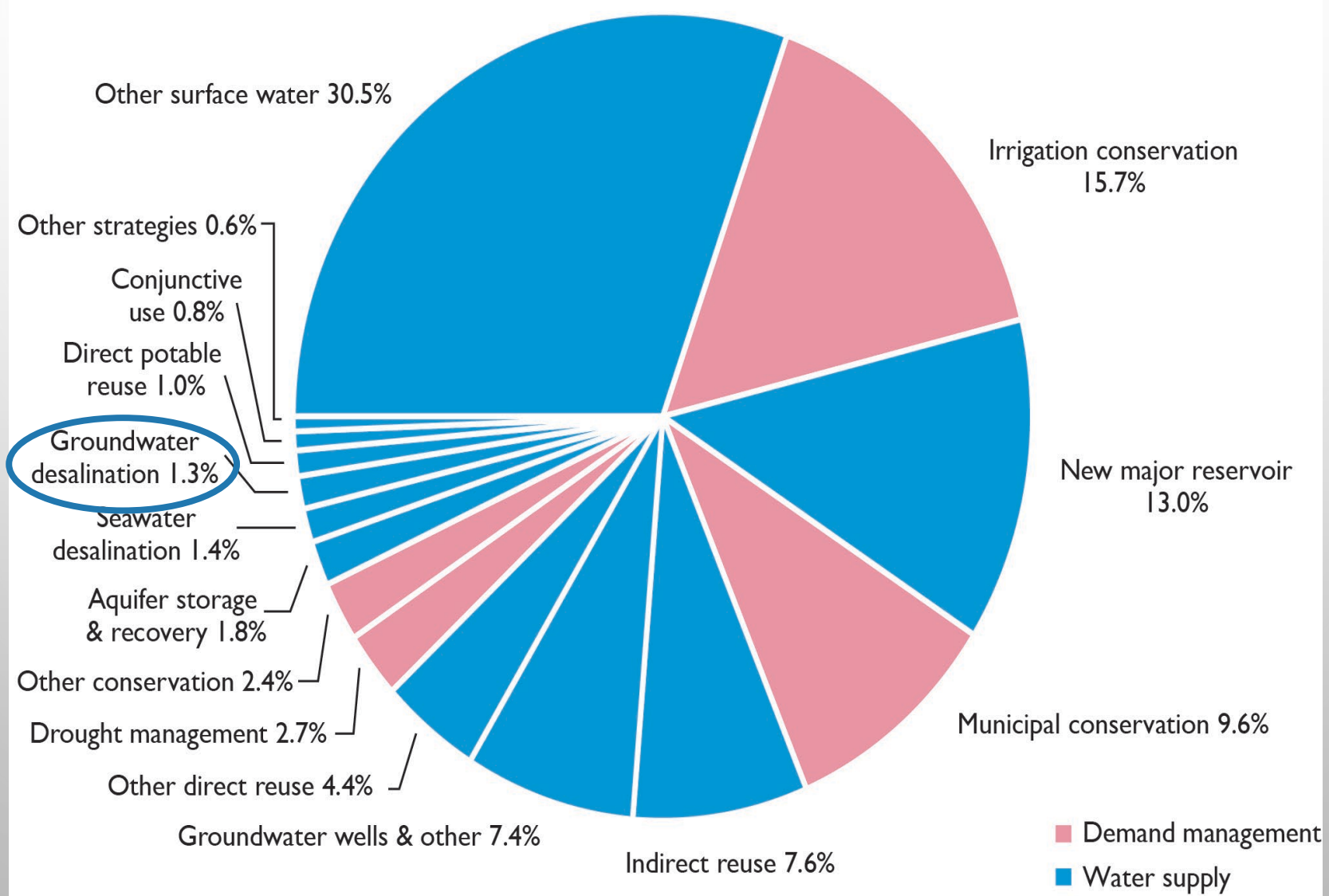


CONCENTRATE DISPOSAL METHODS

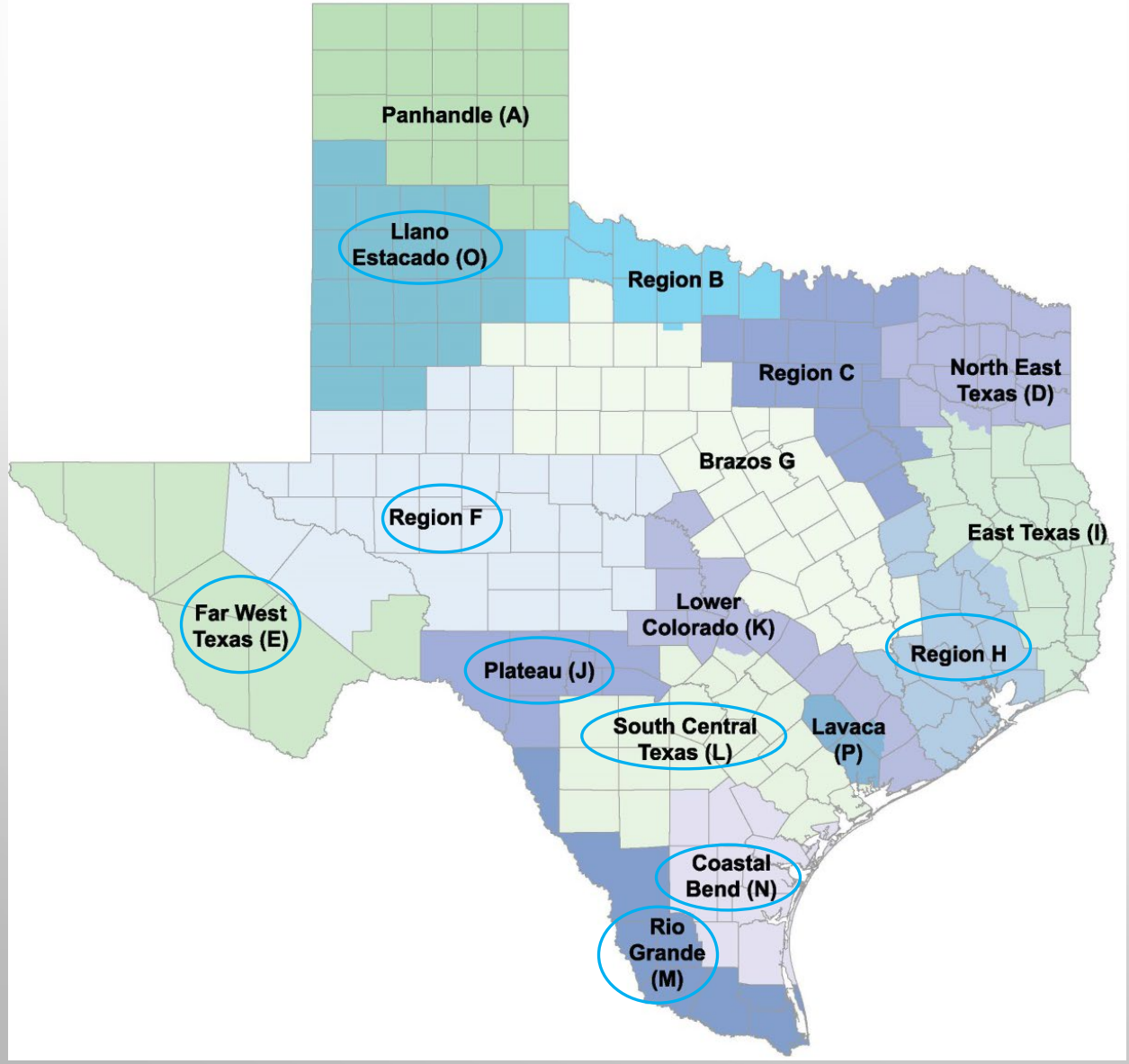


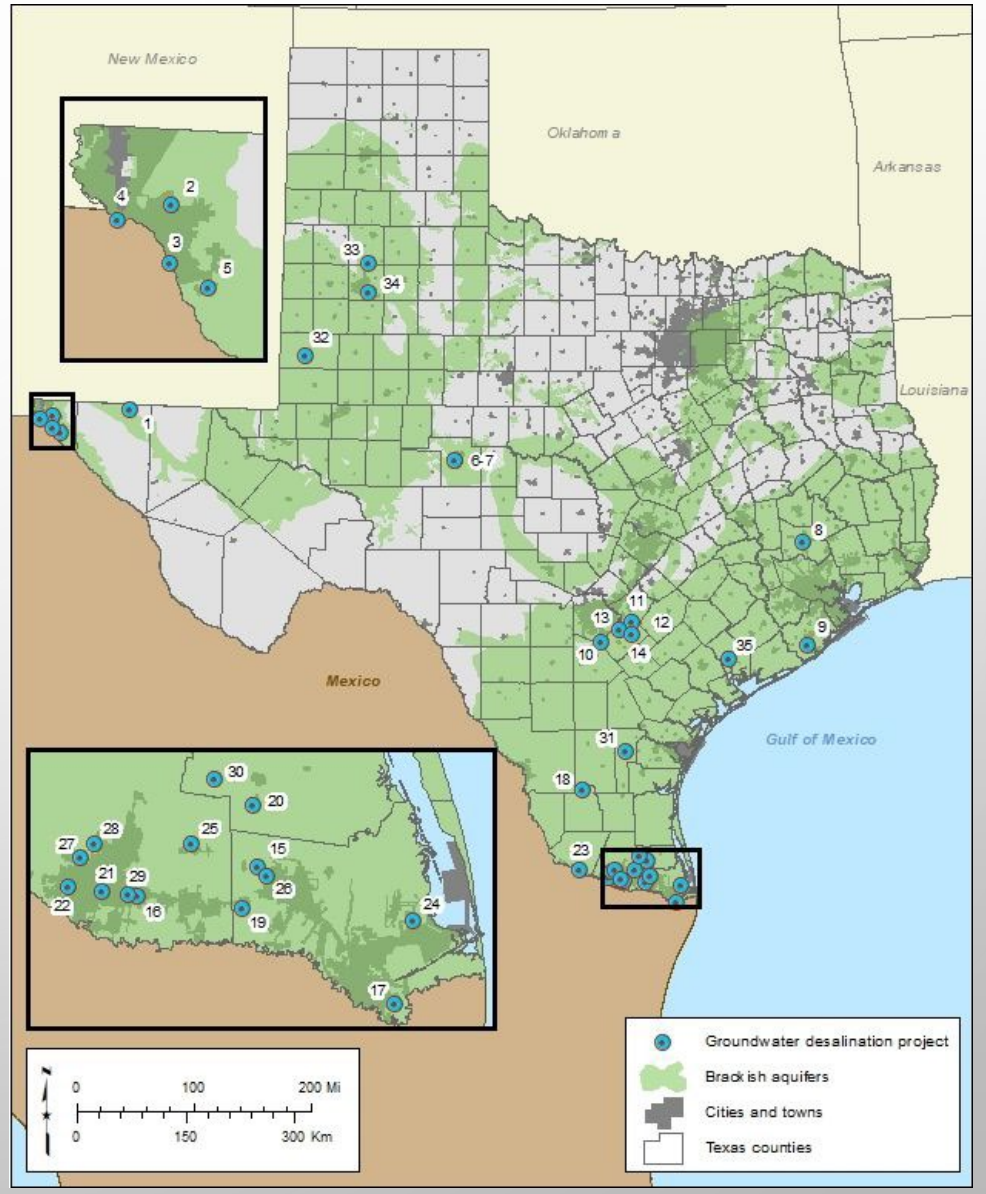
RECOMMENDED WATER MANAGEMENT STRATEGIES BY 2070 IN 2017 STATE WATER PLAN

~111,000 acre –feet/year

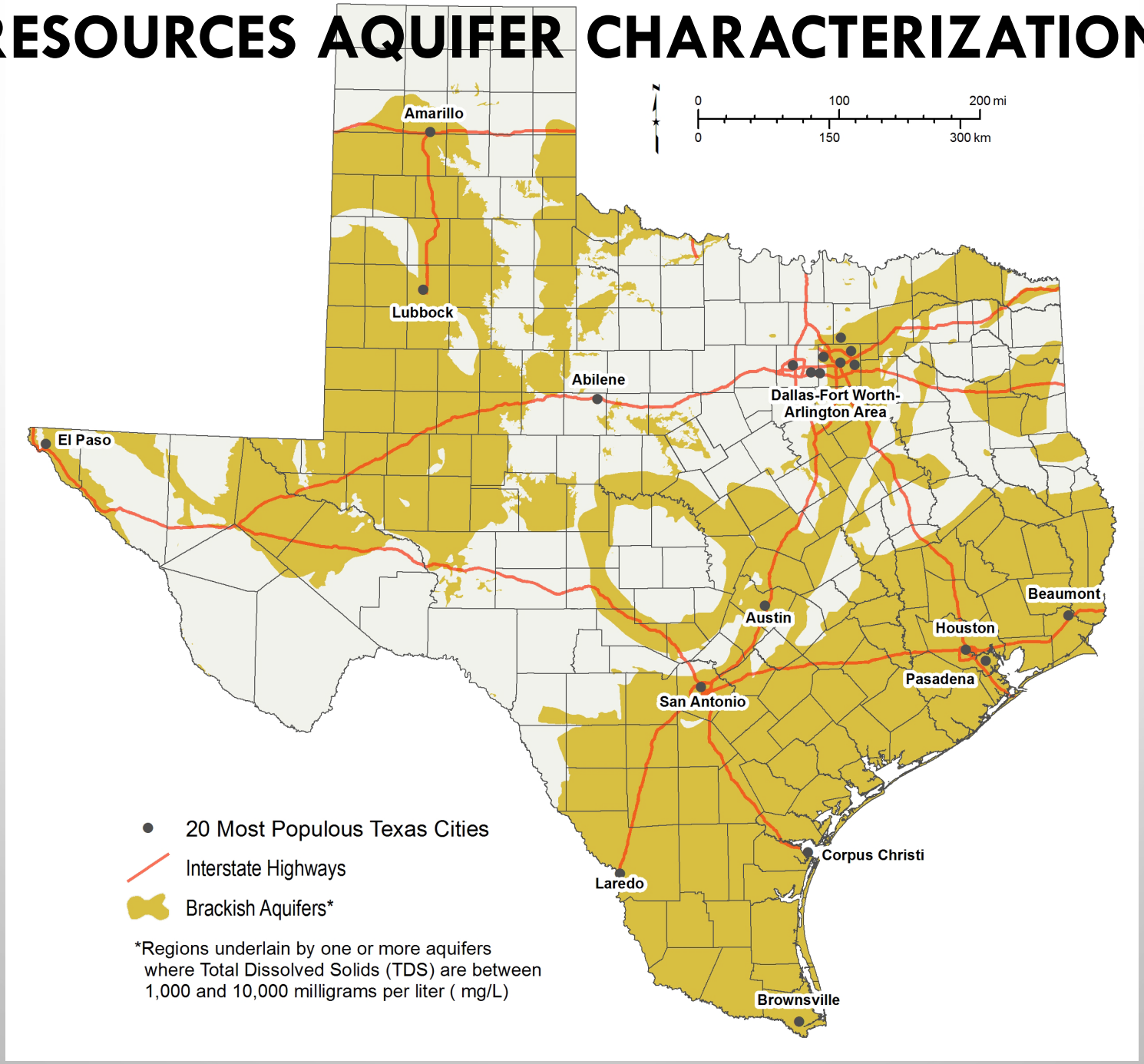


GROUNDWATER DESALINATION RECOMMENDED WATER MANAGEMENT STRATEGIES AND PROJECTS

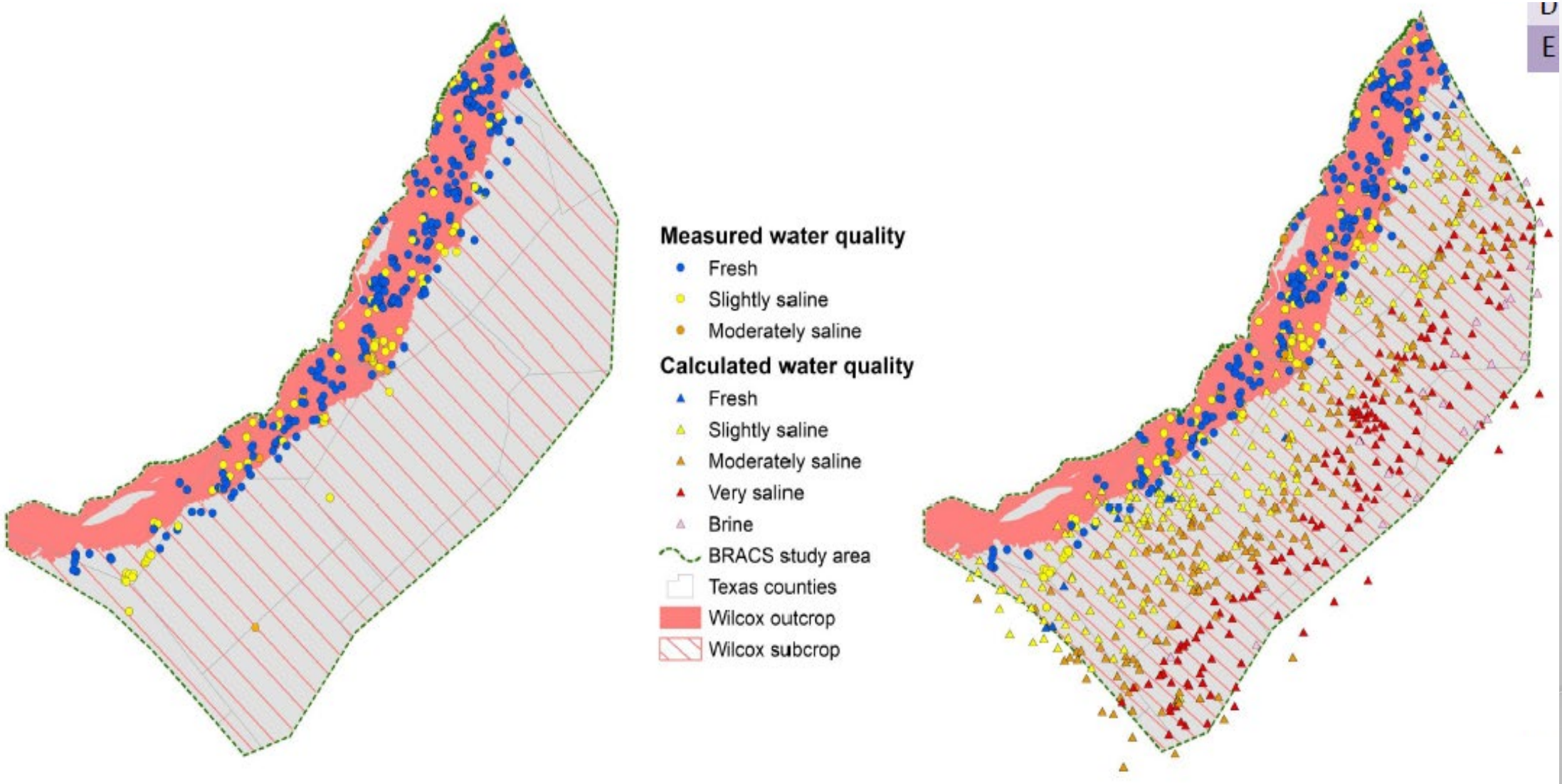


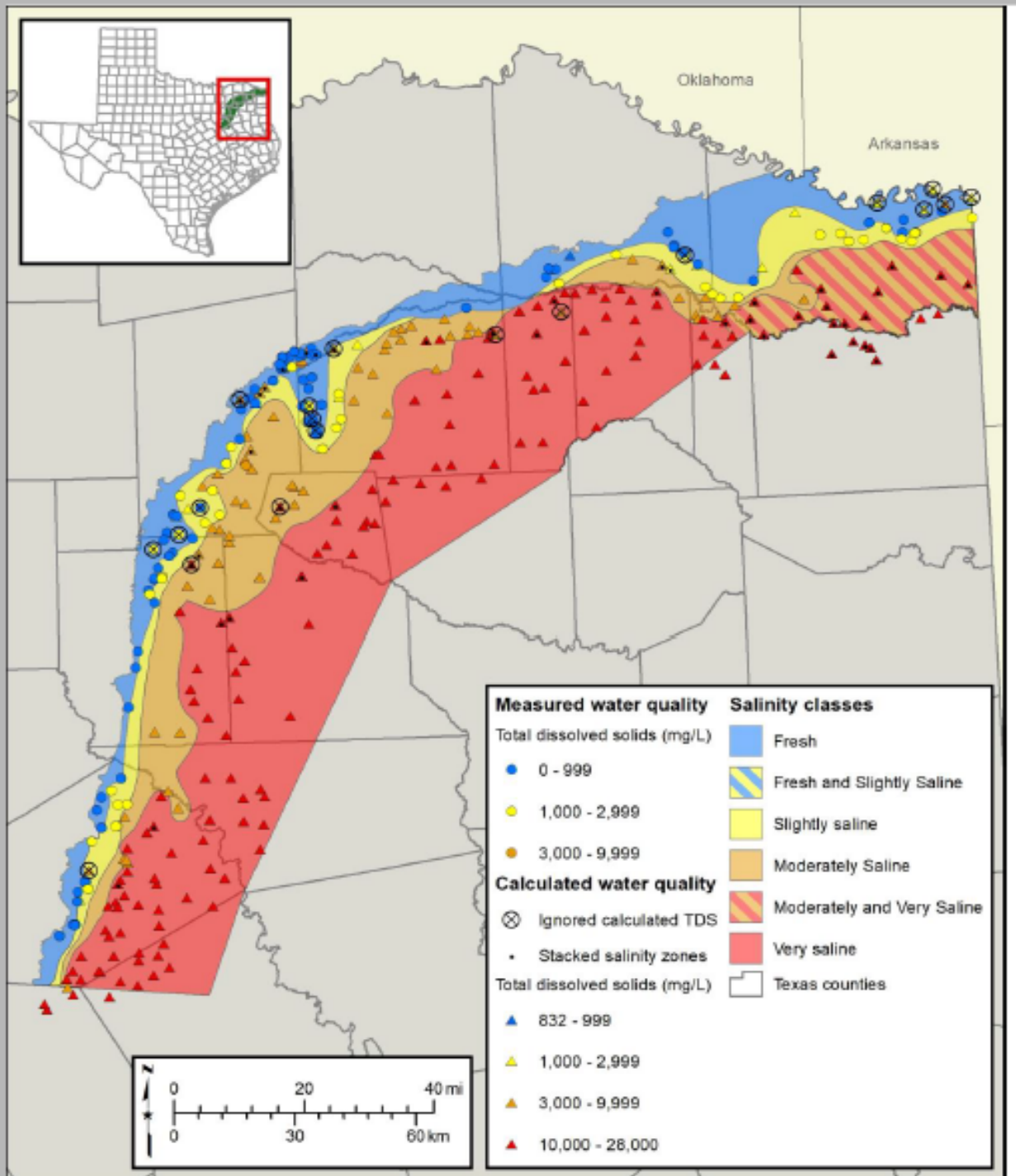


BRACKISH RESOURCES AQUIFER CHARACTERIZATION SYSTEM



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!