

The “Whys” of Water Conservation After Harvey

Citizens' Environmental Coalition
August 10, 2018



GALVESTON BAY
FOUNDATION

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Director of Advocacy

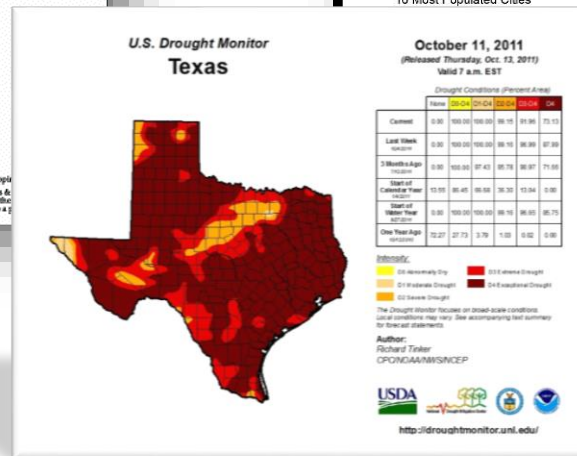
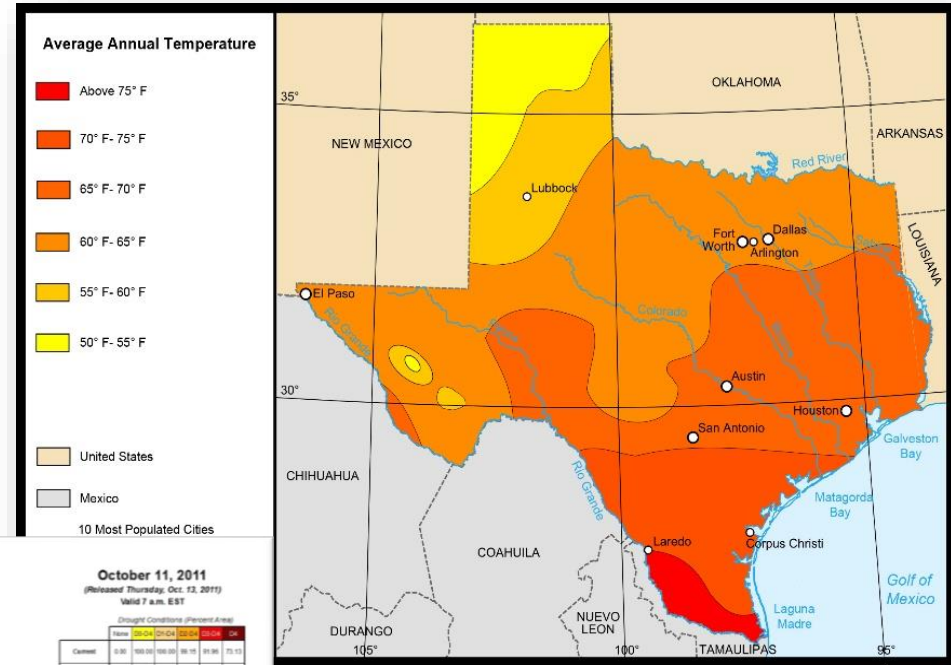
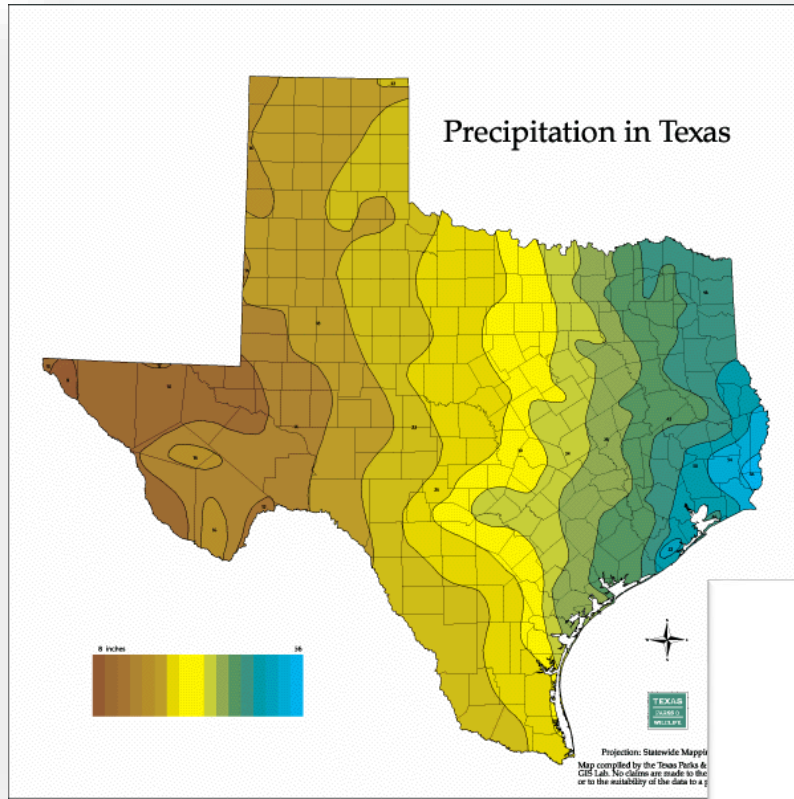


“Water, water, every where,
Not any drop to drink”





Texas' Climate



Population Growth in the SJ-T Watershed

- **Region H:**
 - 6 million
- **Watershed:**
 - 12 million

Double by 2070!

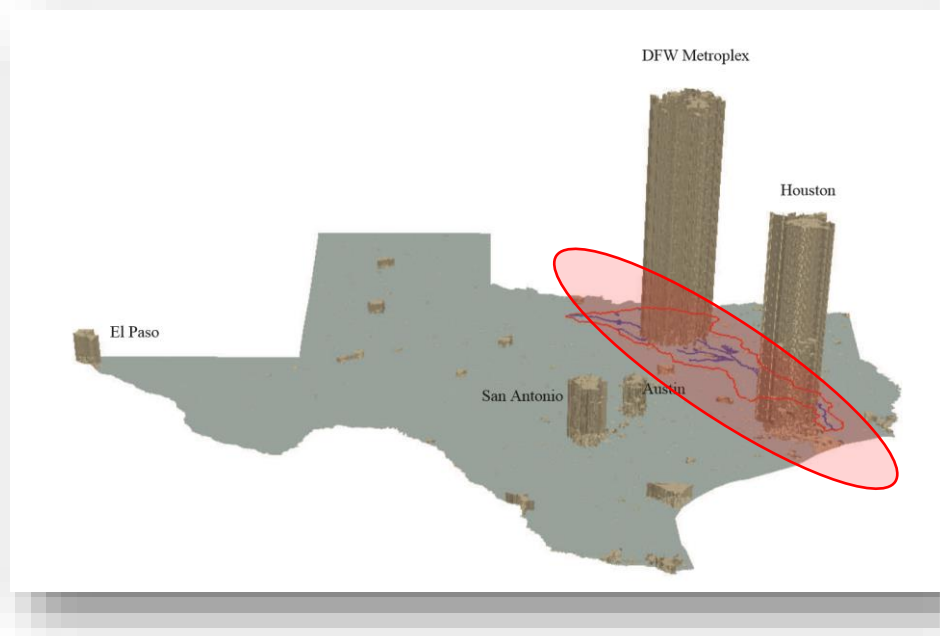
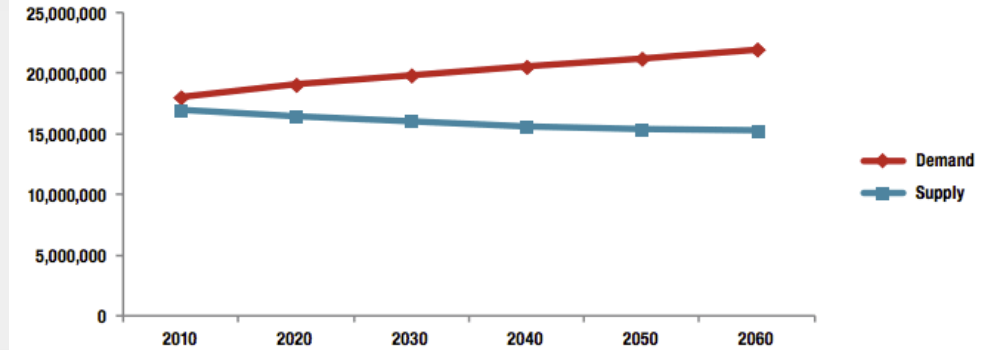


FIGURE ES.2. PROJECTED WATER DEMAND AND EXISTING SUPPLIES (ACRE-FEET PER YEAR).



2020:

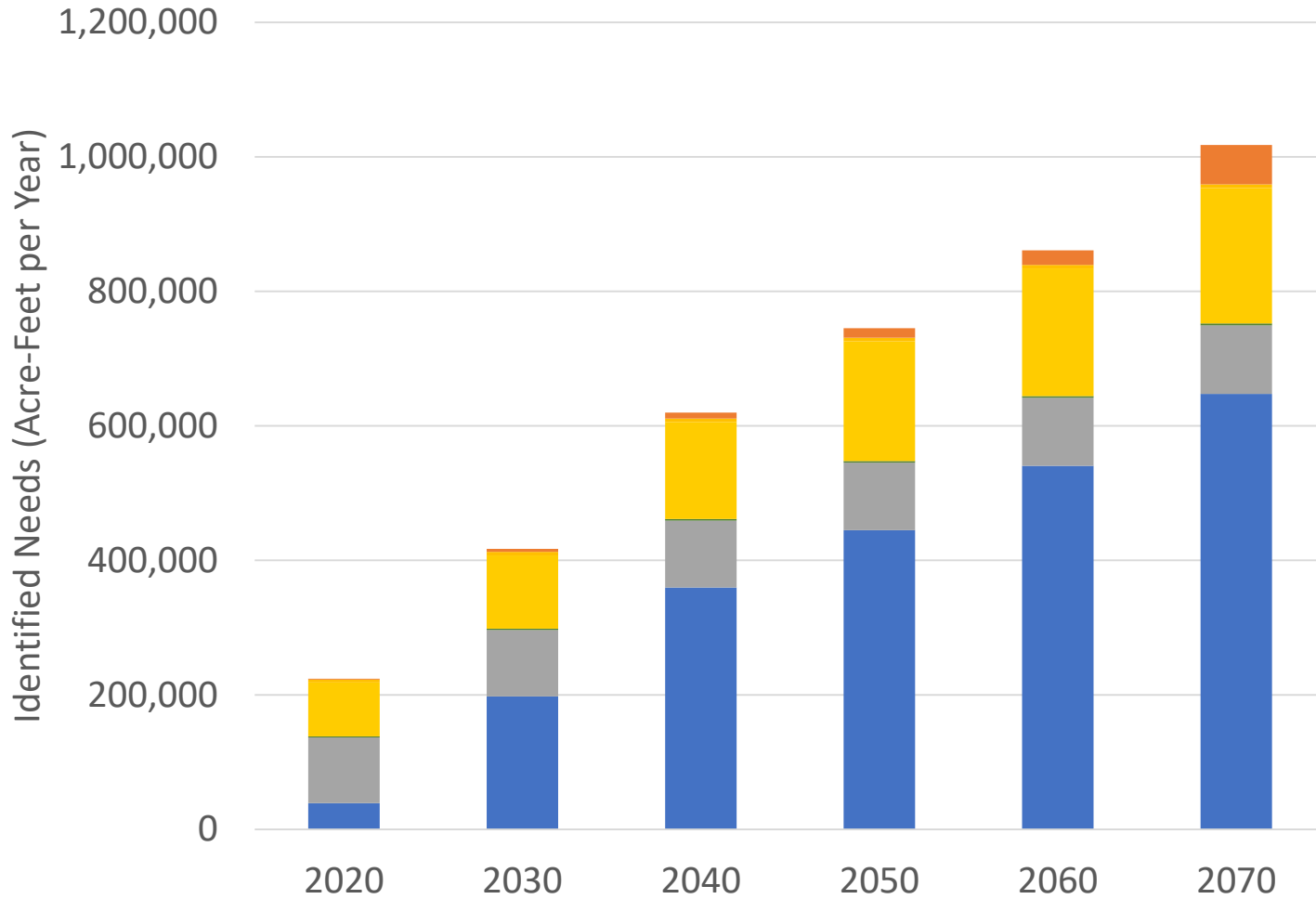
- Shortages : 347,034 ac-ft
- Strategies: 715,982 ac-ft

2070:

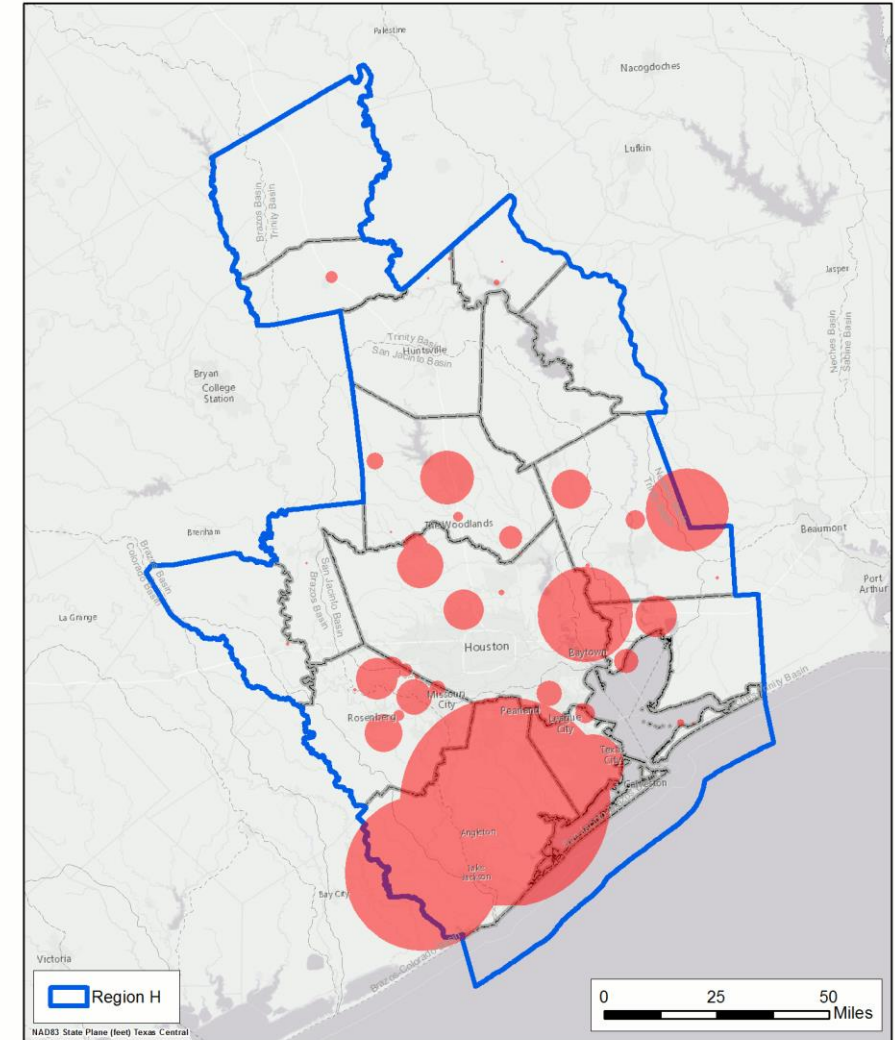
- Shortages: 1.1 M ac-ft
- Strategies: 1.7 M ac-ft

• **Cost: \$10.8 Billion**

2016 Region H: Needs



- Municipal
- Irrigation
- Livestock
- Manufacturing
- Mining
- Steam Electric Power



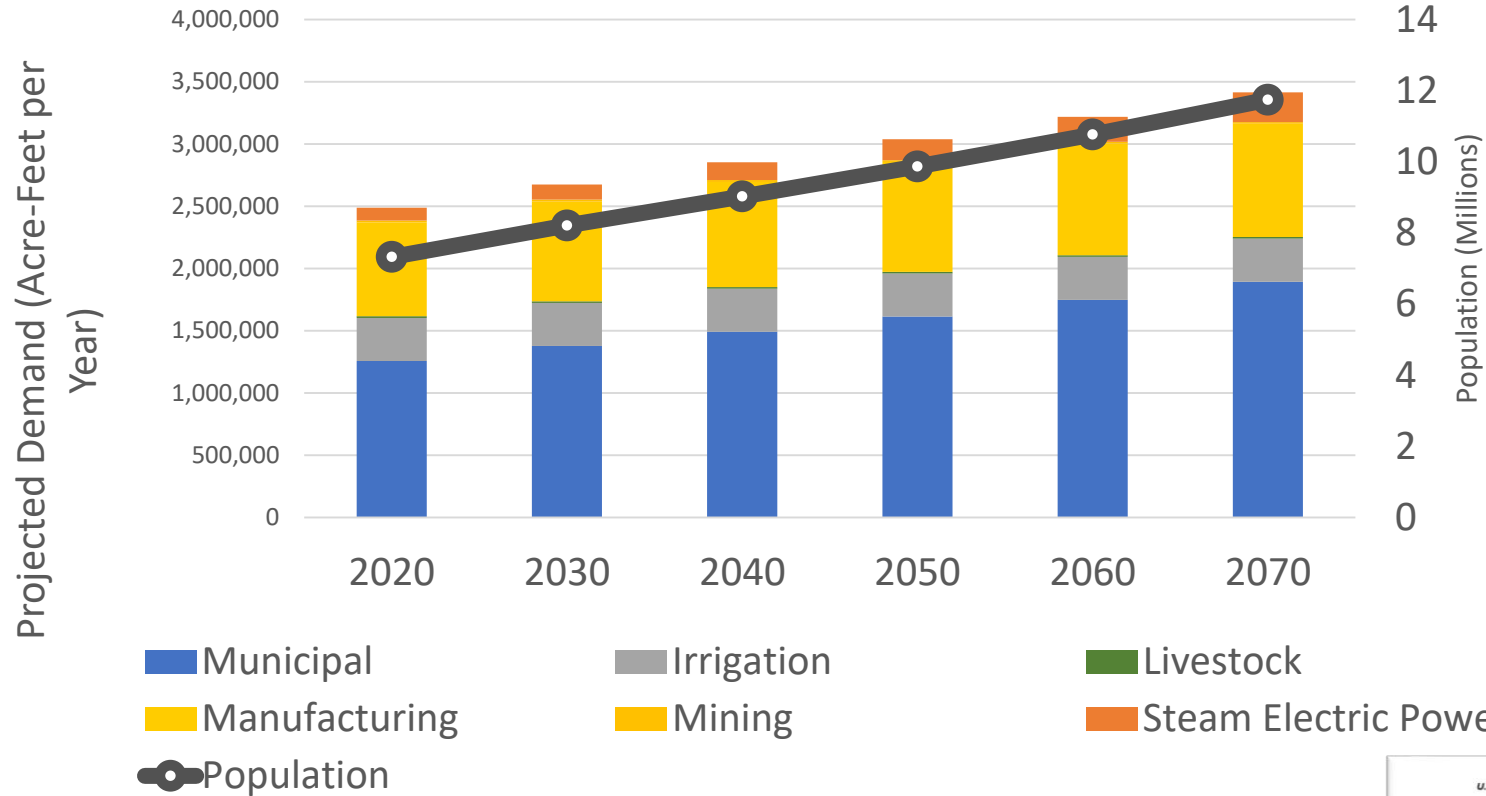
**Identified WUG Needs
2020 Decade**



Texas

Hydrological Drought and Demand Drought

2016 Region H: Population and Water Demand Projections

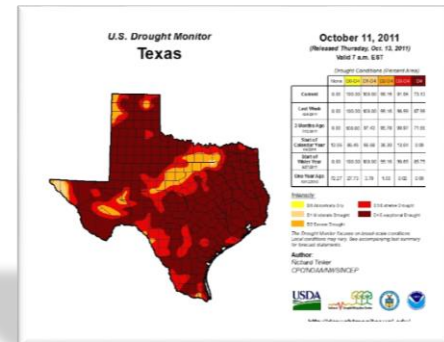


Driven by increase in water usage w/population growth



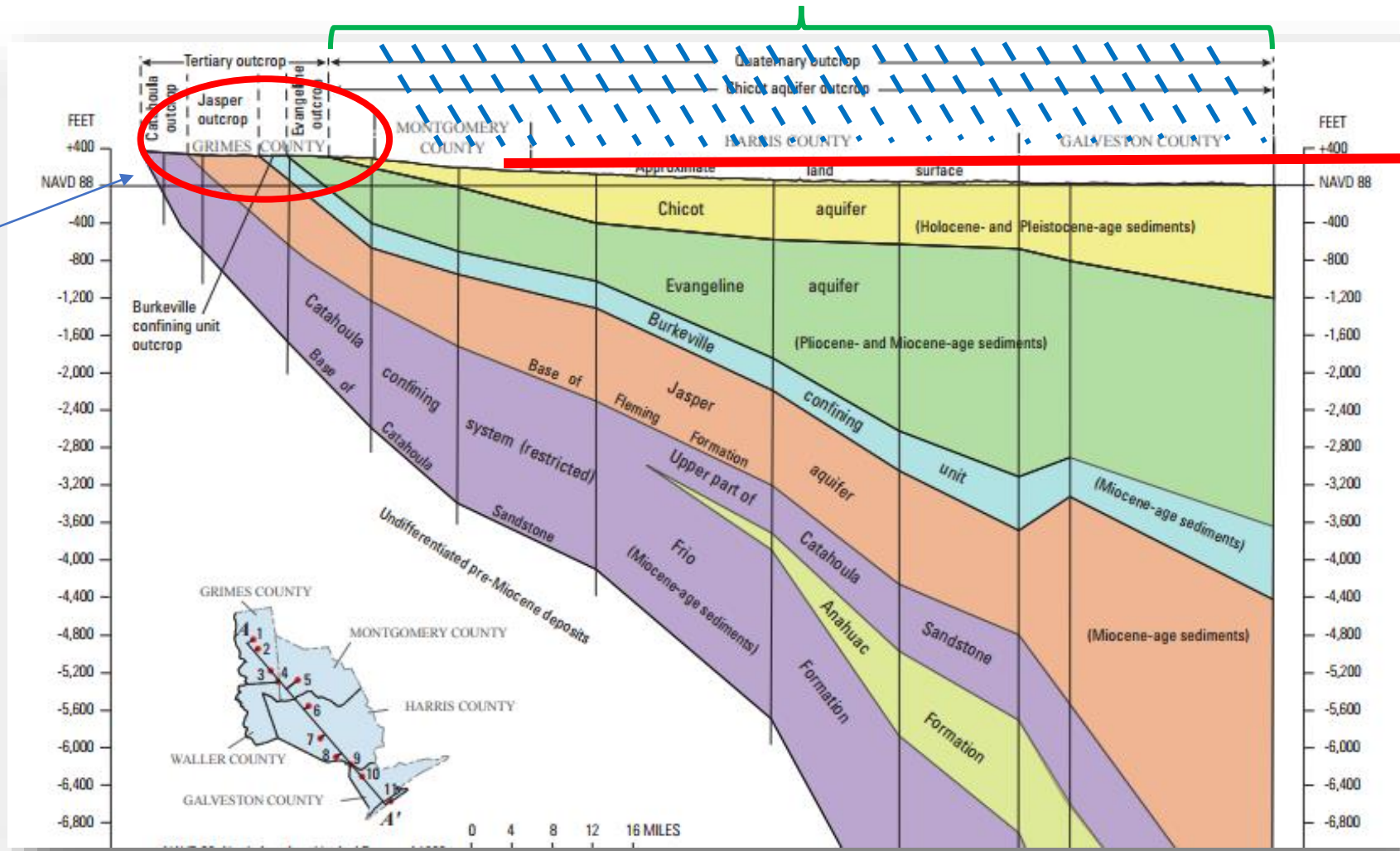
Driven by a combination of both

Driven by climate
Exacerbated by climate change



What happens with all that flood water?

Highly urbanized areas



Grimes County: Recharge Area

Very low recharge rates

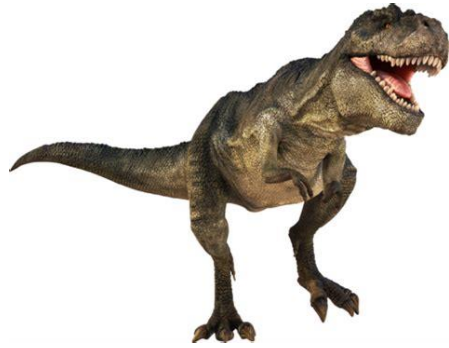
RUNOFF

Ocean

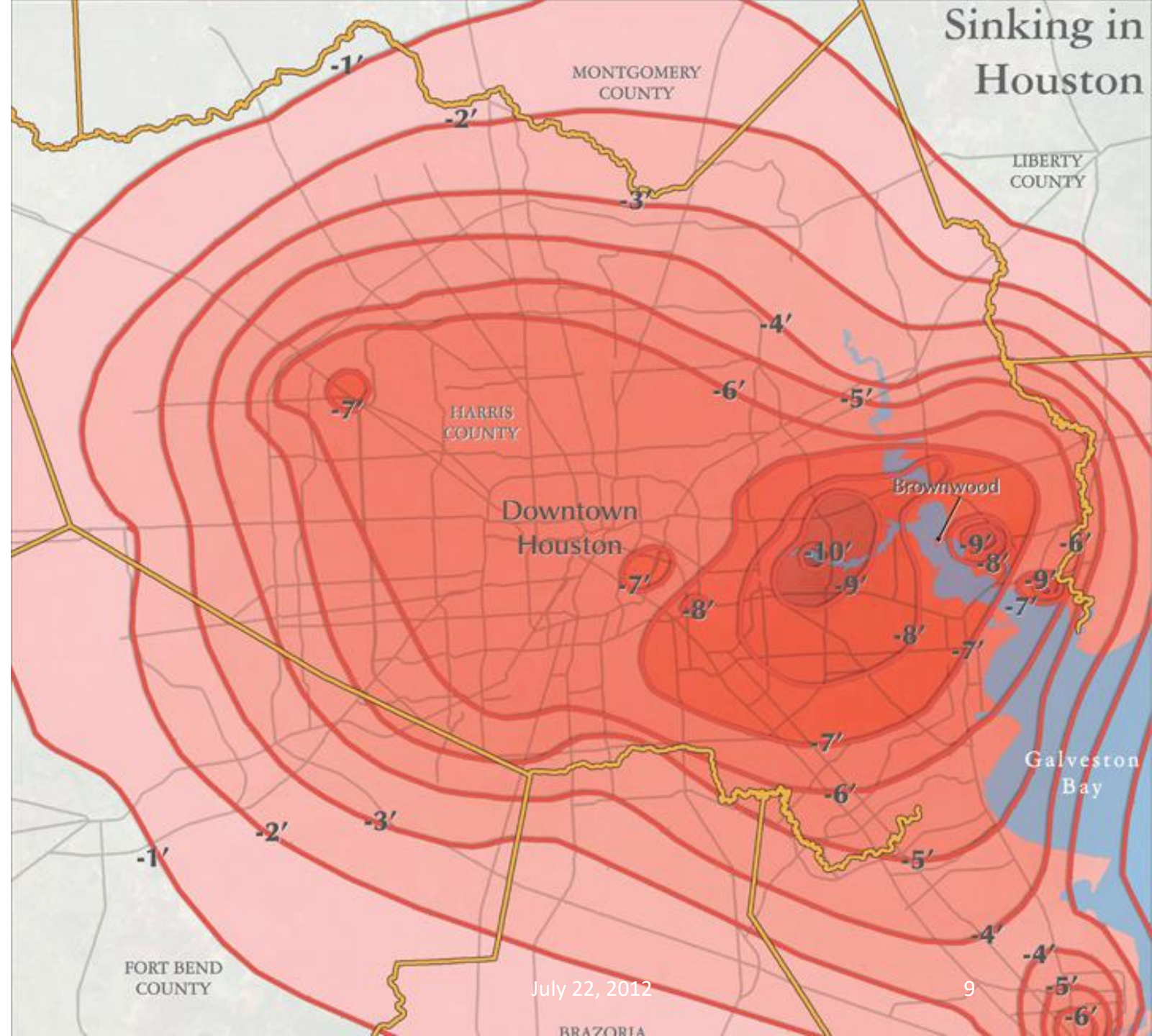
The map shows the major aquifers of Texas, color-coded by geological age and type. The legend includes:

- Recent (Holocene)
- Recent (Pleistocene)
- Recent (Pliocene)
- Recent (Miocene)
- Recent (Oligocene)
- Recent (Eocene)
- Recent (Cretaceous)
- Recent (Jurassic)
- Recent (Permian)
- Recent (Carboniferous)
- Recent (Devonian)
- Recent (Silurian)
- Recent (Ordovician)
- Recent (Cambrian)
- Recent (Precambrian)

MYTH: High rainfall events = instantly recharge aquifers

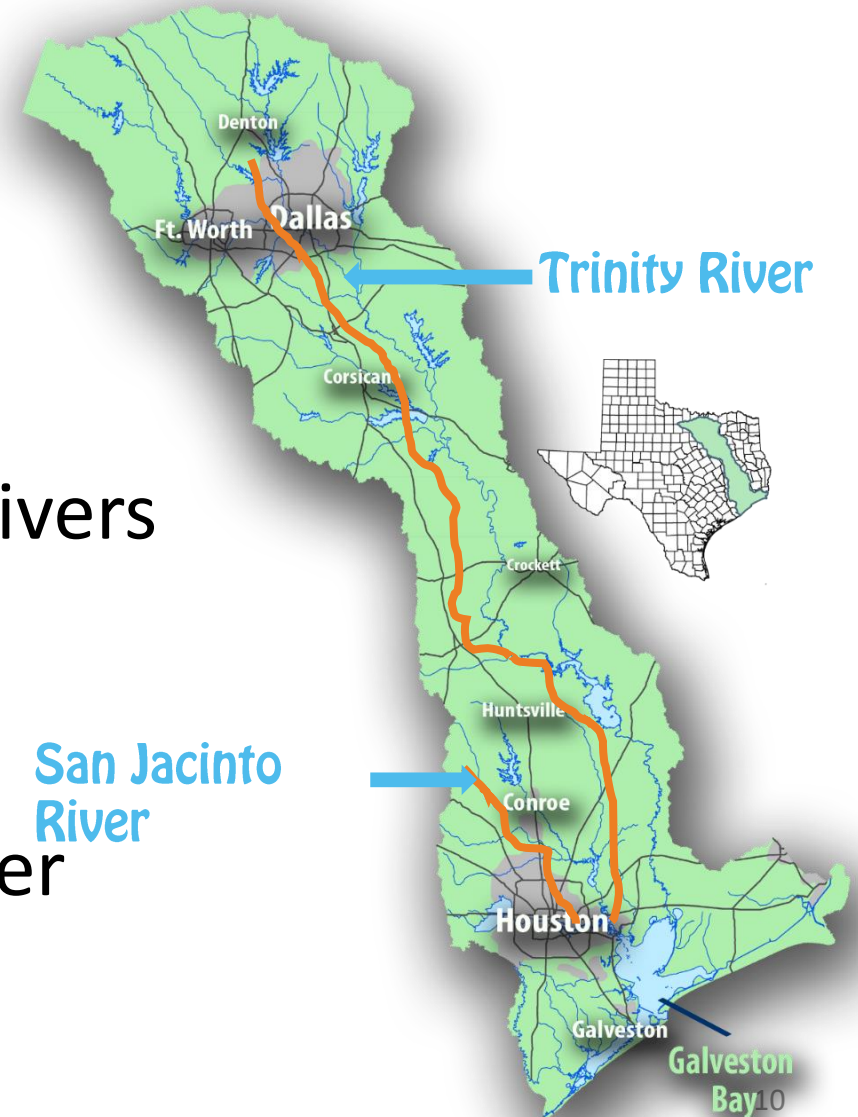


- Taking more water than we have
- This has led to subsidence in the Houston/Greater Houston area.
- Groundwater districts now help protect groundwater.



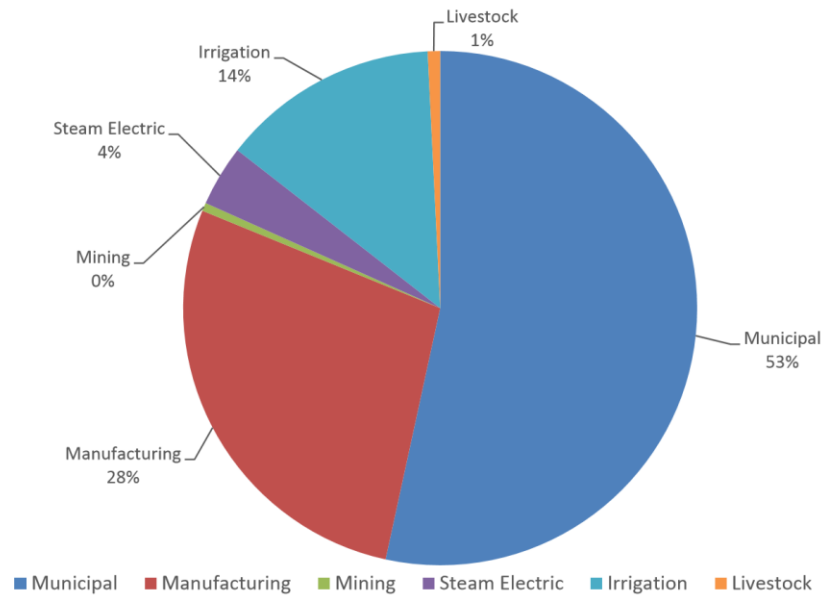
Shifting from groundwater to surface water use

- To relieve subsidence and unsustainable groundwater use
- We are now using more water from rivers
- Houston's water is:
70% surface and 30% groundwater



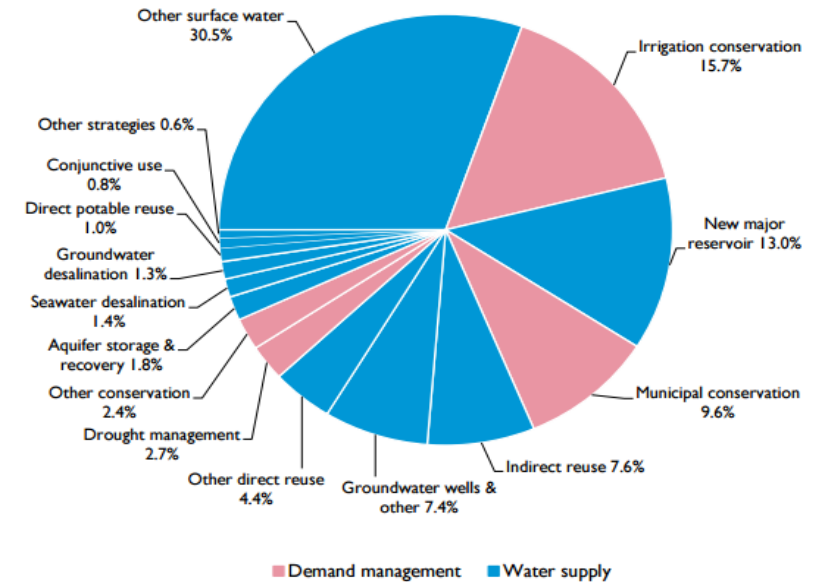
Why: “the need to protect rivers and streams”?

Figure 1-2 – Percentage of 2010 Total Water Demand by Use



Environment NOT included in planning

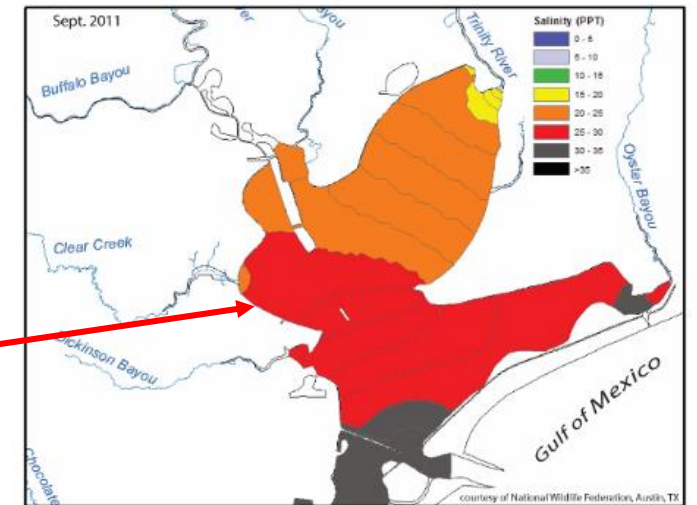
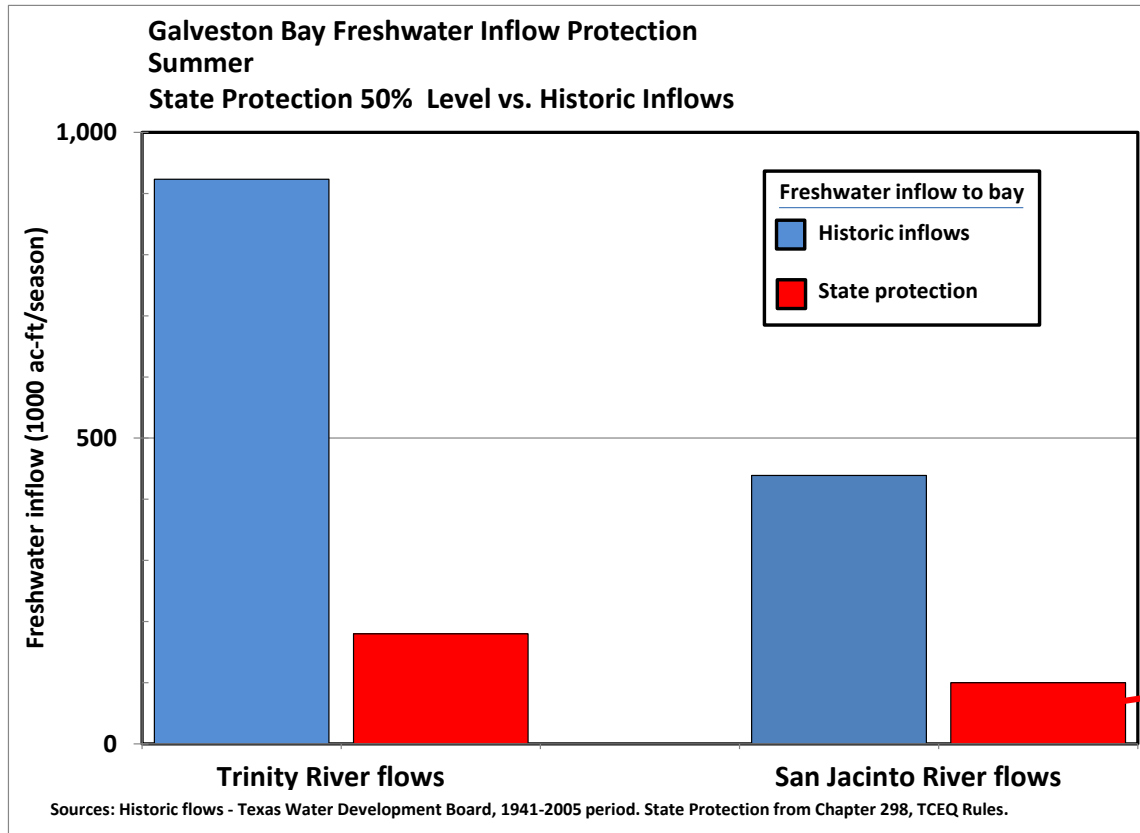
Figure ES.7 - Share of recommended water management strategies by strategy type in 2070



Water Conservation NEEDED
To meet future “human” water needs

Inadequate Protection for Rivers

Standards adopted in 2011 are inadequate for Galveston Bay

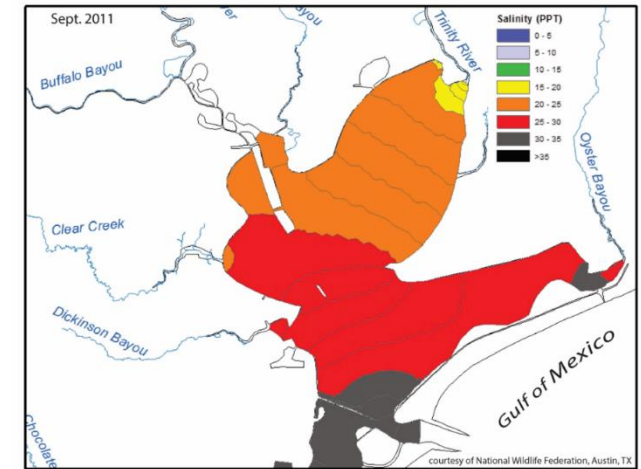
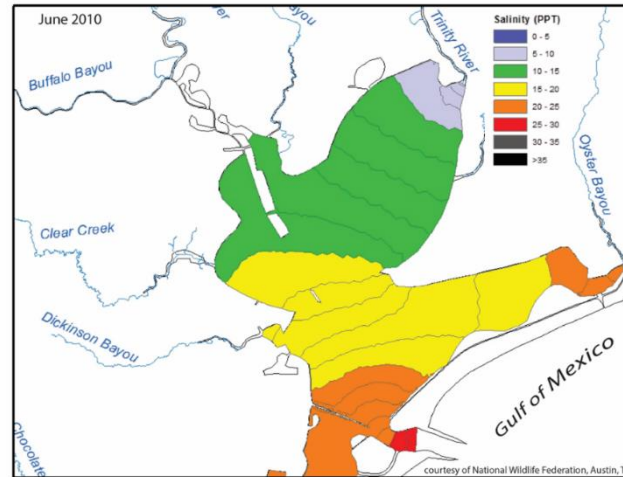


“Protection” Simulate Drought Conditions

Examining the 2011 drought in context

June 2010:
745,000 Ac-ft

September 2011:
160,000 Ac-ft



Eastern Oysters
do not survive in
high salinities



Less Freshwater:

Higher Salinity
Less sediments and
nutrients

