

# UPDATES ON THE DESALINATION DATABASE FOR TEXAS

Presenting To  
The South Central Membrane Association  
Annual Conference  
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# Background

- The desalination database for Texas was developed in 2005
- It was accurate as of March 2005



# Objectives

## First Phase

- To update the database
  - Add, remove or modify records

## Second Phase

- To develop a web-enabled data entry application

# Sources of Information

- Final Report - 'A Desalination Database for Texas' October, 2005
- TCEQ
- AMTA
- SCMA
- IDA
- Personal Contacts

# Information From the Survey

1. General Information
2. Plant Information
3. Raw Water Supply Source
4. Feed Pre-treatment
5. Membrane

# Information From the Survey (Cont.)

6. Throughput Post-treatment

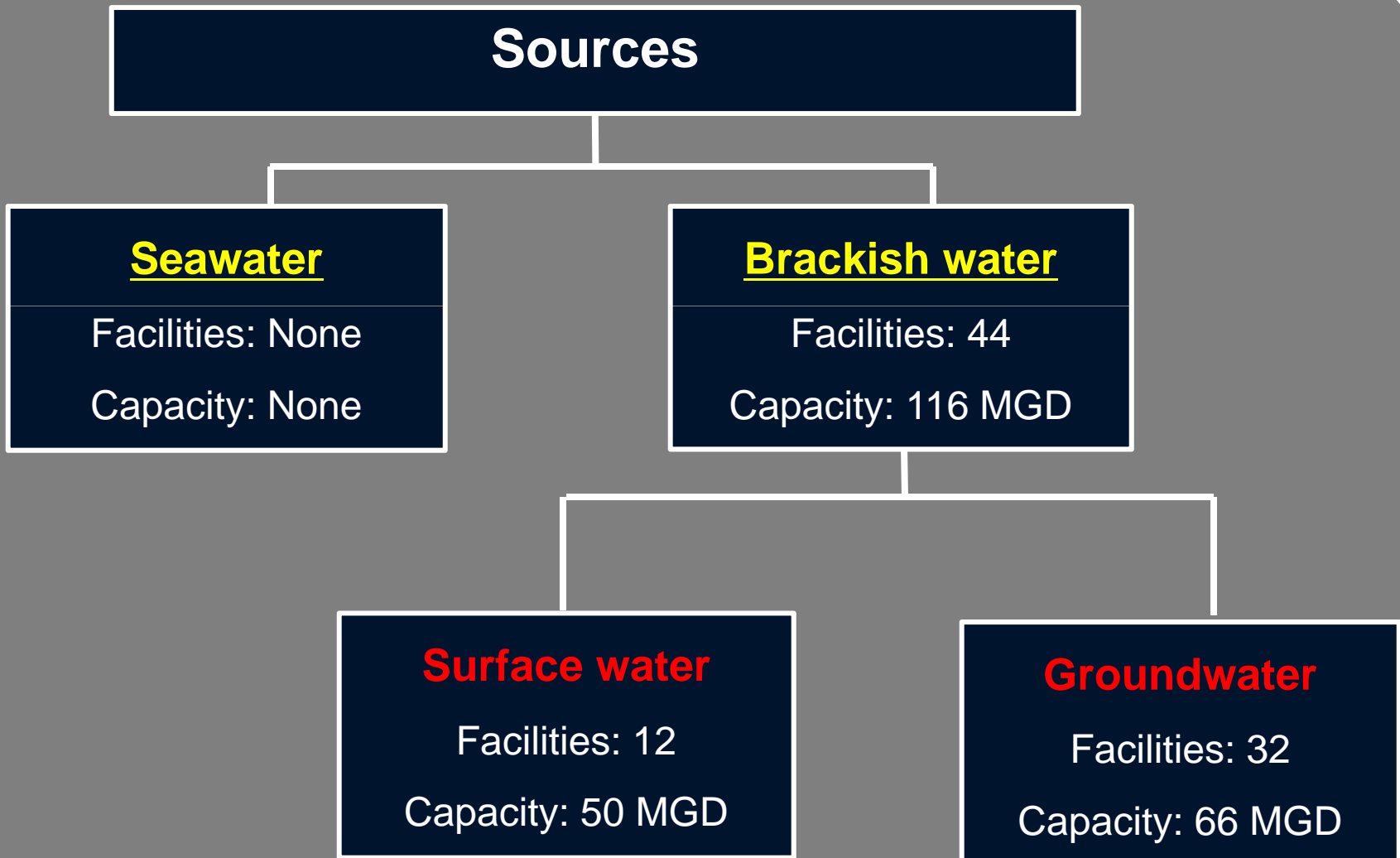
7. Concentrate Post-treatment

8. Concentrate Disposal

9. Problems Encountered

10. Cost Issues

# Desalination in Texas



# Desalination in Texas (Cont.)

## Desalination Process Types

```
graph TD; A[Desalination Process Types] --> B[RO]; A --> C[EDR]; B --- B1[Facilities: 42]; B --- B2[Capacity: 104.9 MGD]; C --- C1[Facilities: 2]; C --- C2[Capacity: 11.1 MGD];
```

### RO

Facilities: 42

Capacity: 104.9 MGD

### EDR

Facilities: 2

Capacity: 11.1 MGD



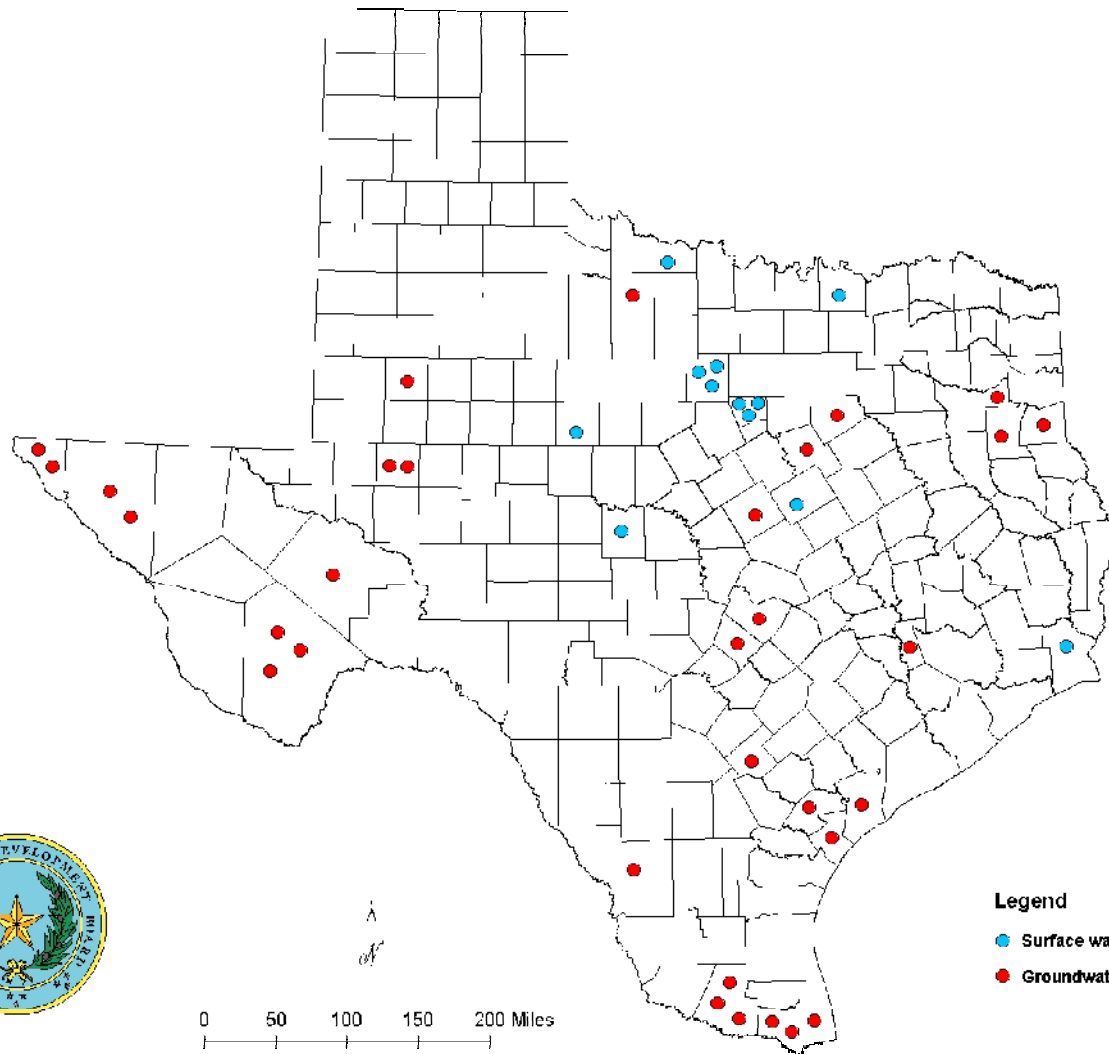
# Desalination Design Capacity



# Desalination Design Capacity (Cont.)

County	Desalination Capacity (MGD)	County	Desalination Capacity (MGD)
Aransas	0.15	Jefferson	0.25
Baylor	3.00	Karnes	2.86
Brewster	0.22	McCulloch	3.00
Calhoun	0.61	McLennan	2.30
Cameron	11.00	Midland	0.05
Coryell	Not Available	Palo Pinto	1.33
Dawson	Not Available	Panola	0.22
El Paso	33.50	Pecos	3.00
Ellis	0.25	Refugio	0.05
Grayson	11.00	Rusk	0.32
Gregg	0.29	Taylor	7.95
Hays	0.14	Travis	2.88
Hidalgo	6.45	Waller	0.09
Hill	0.65	Webb	0.10
Hood	14.55	Wichita	10.00
Hudspeth	0.12		

# Locations of Desalination Facilities in Texas

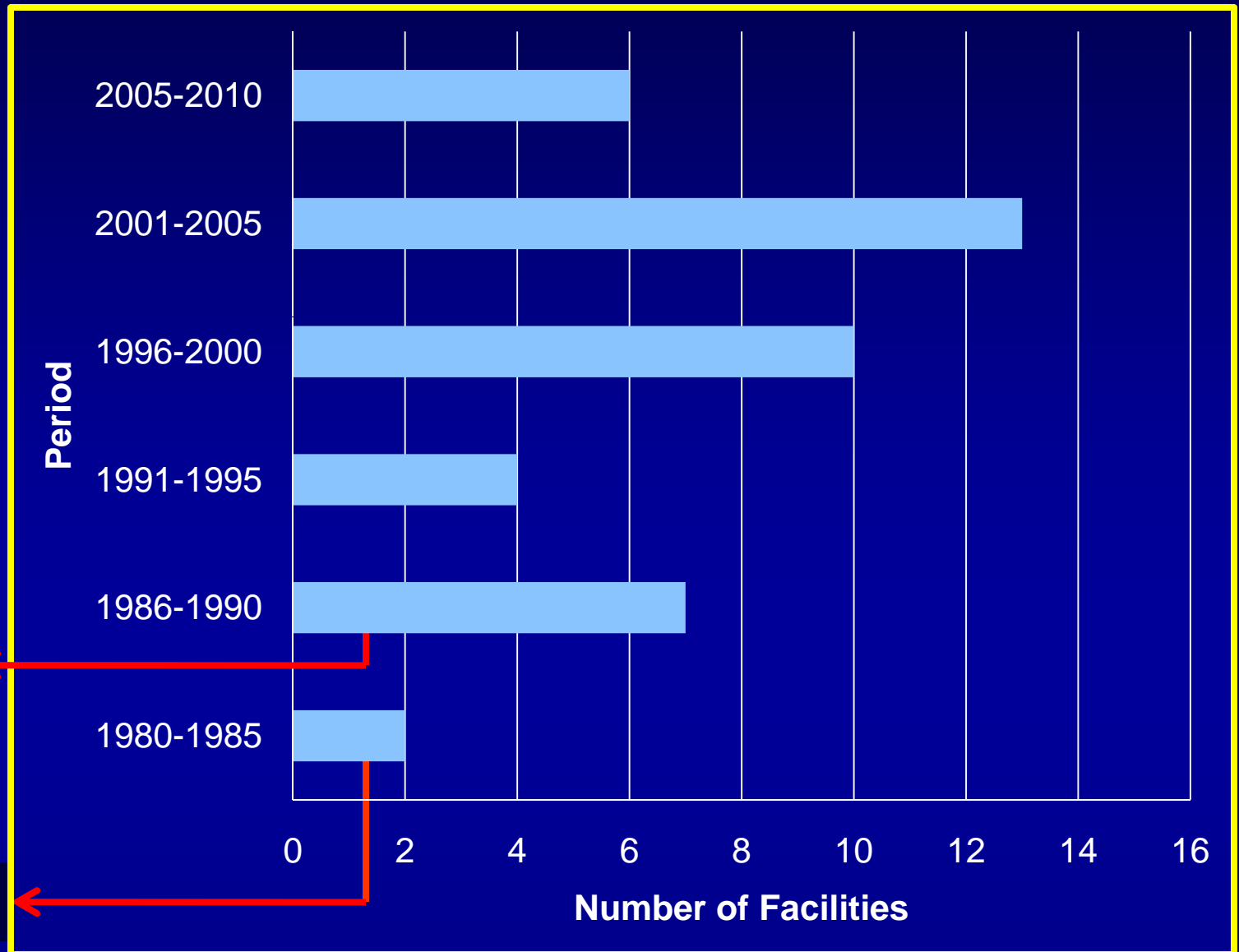


0 50 100 150 200 Miles

### Legend

- Surface water
- Groundwater

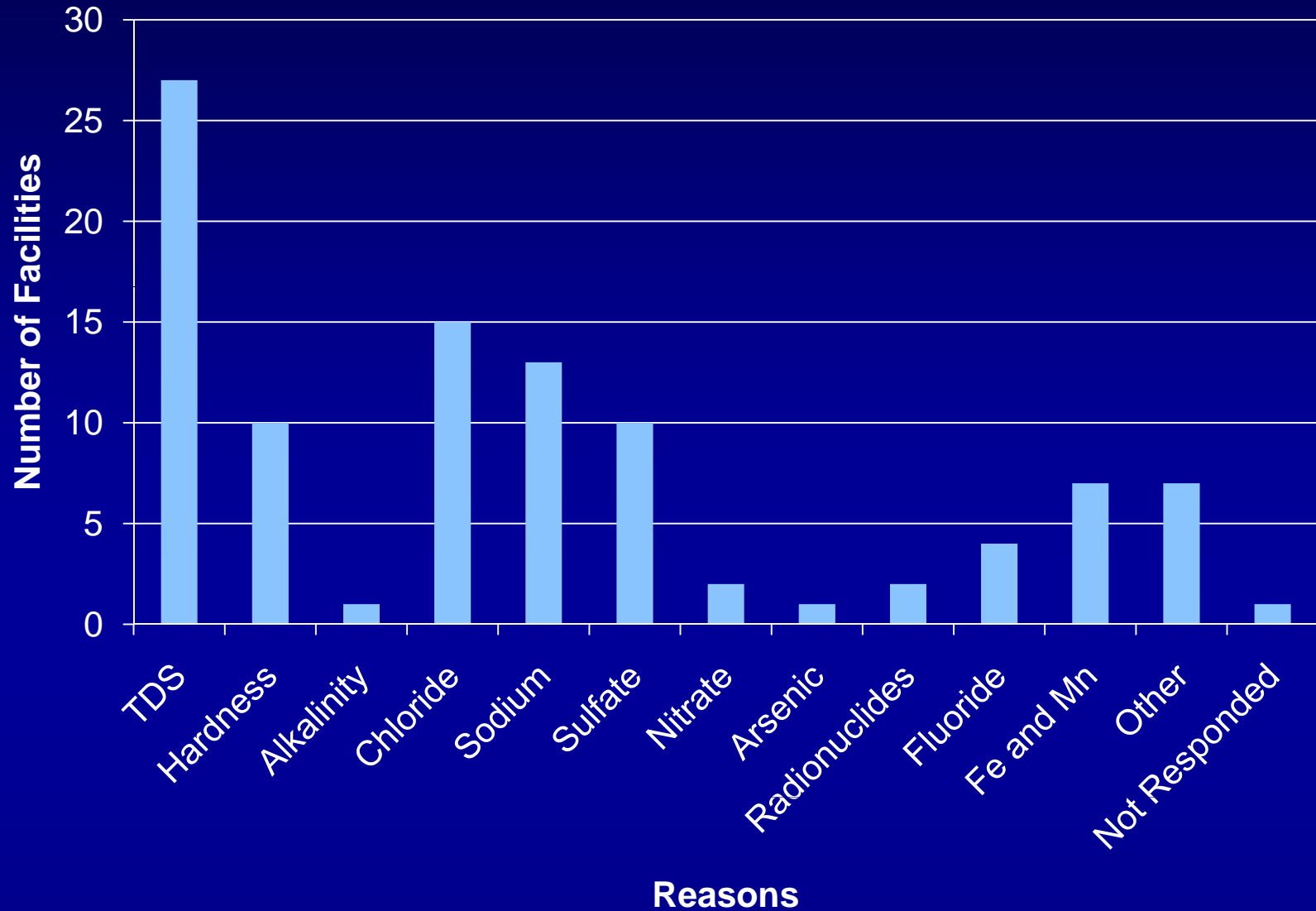
# Start Up Year of Desalination Facilities



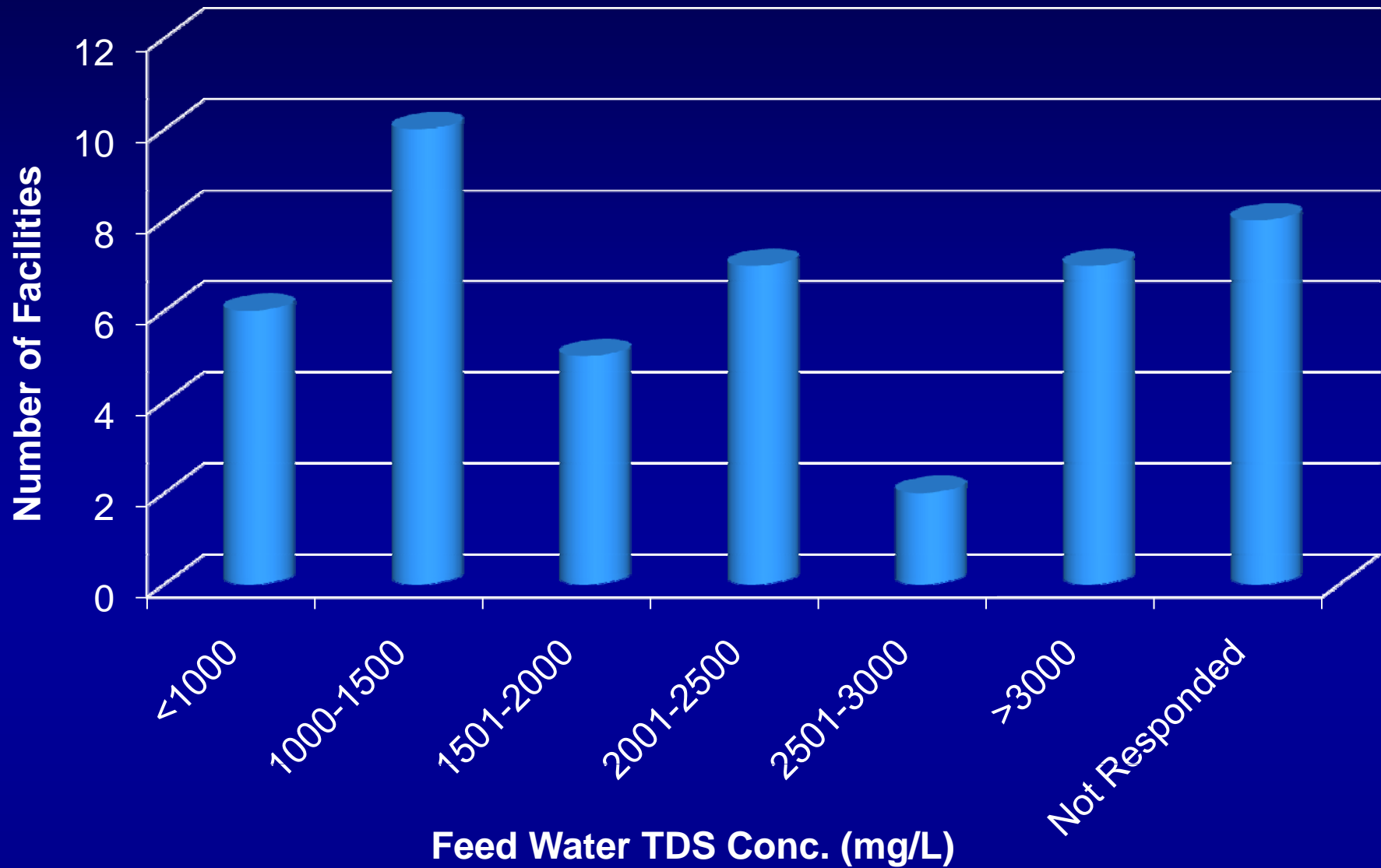
1 facility replaced EDR with RO in 2009

1 facility replaced EDR with RO in 2007

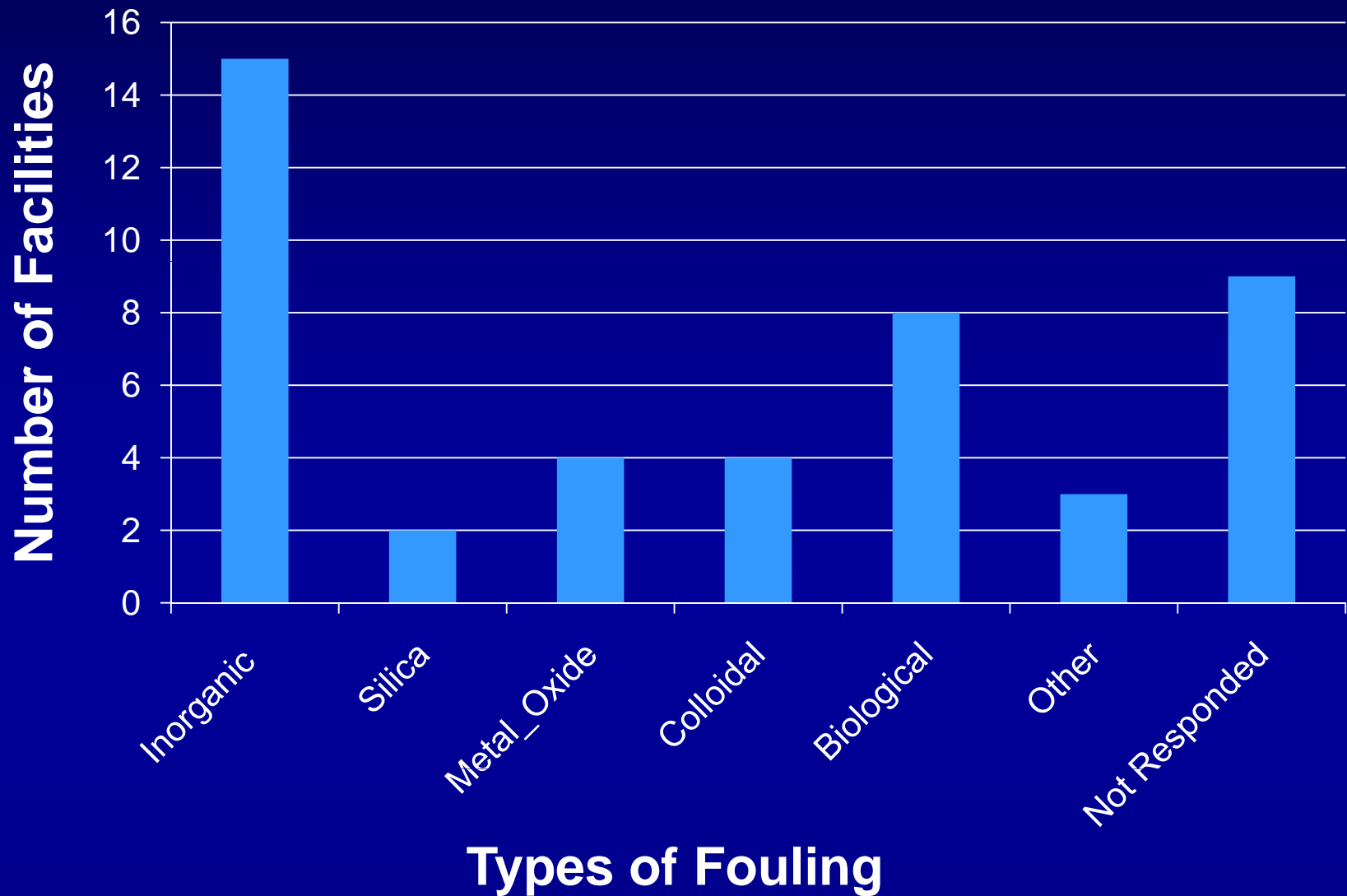
# Reasons for Building Desalination Facilities in Texas



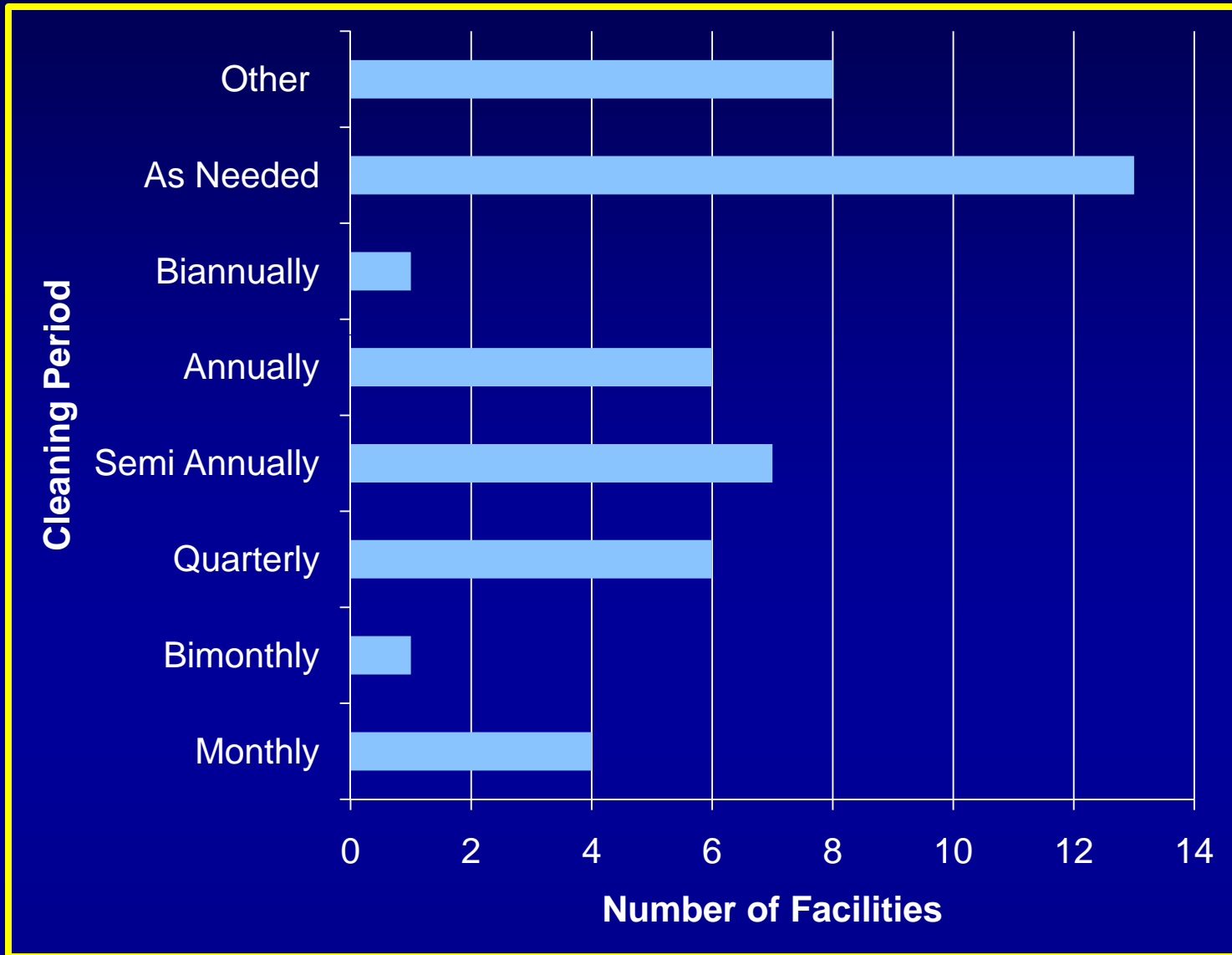
# TDS Variations in Feed Water



# Types of Membrane Fouling in Desalination Facilities of Texas

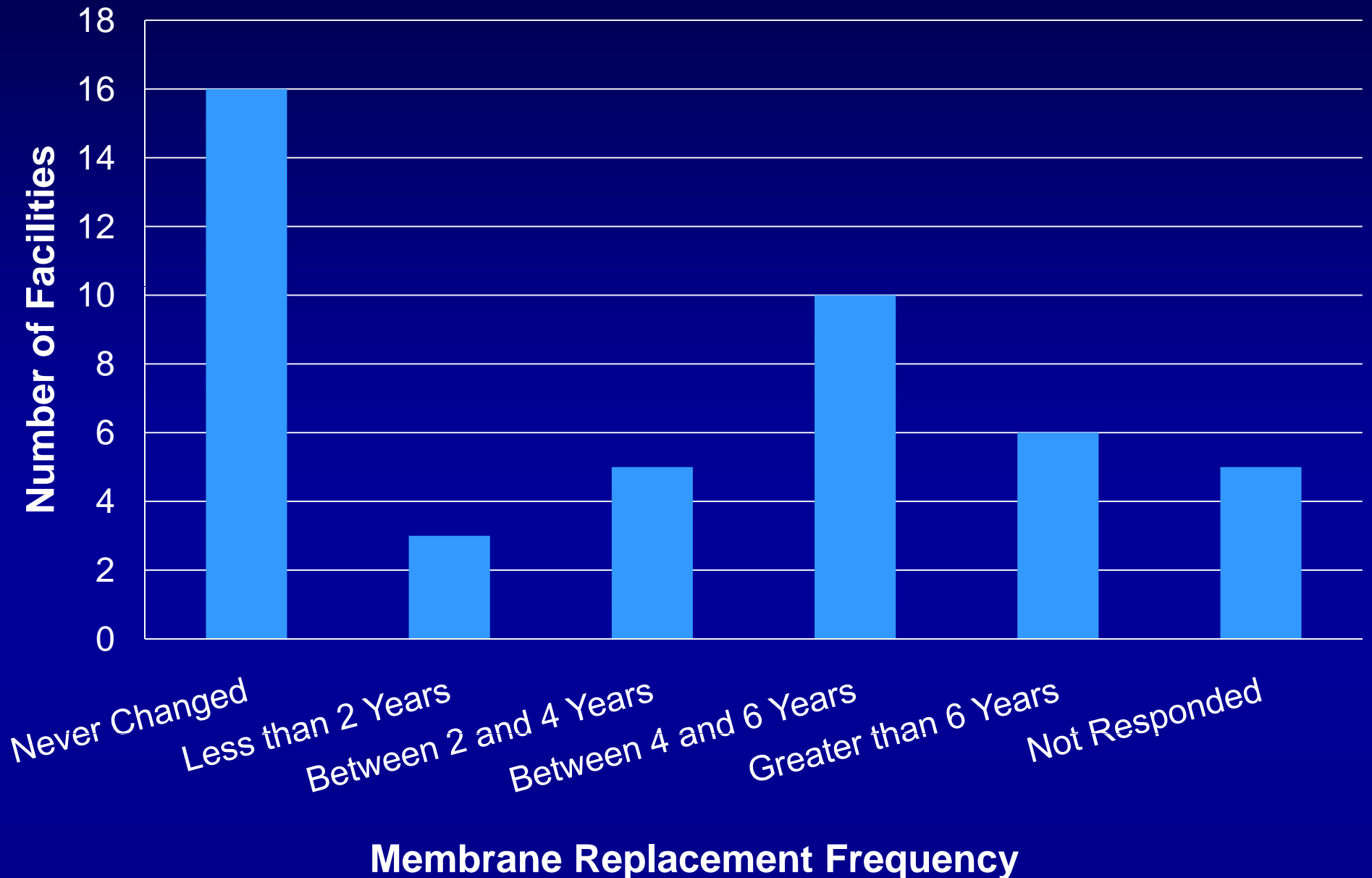


# Membrane Cleaning Frequencies

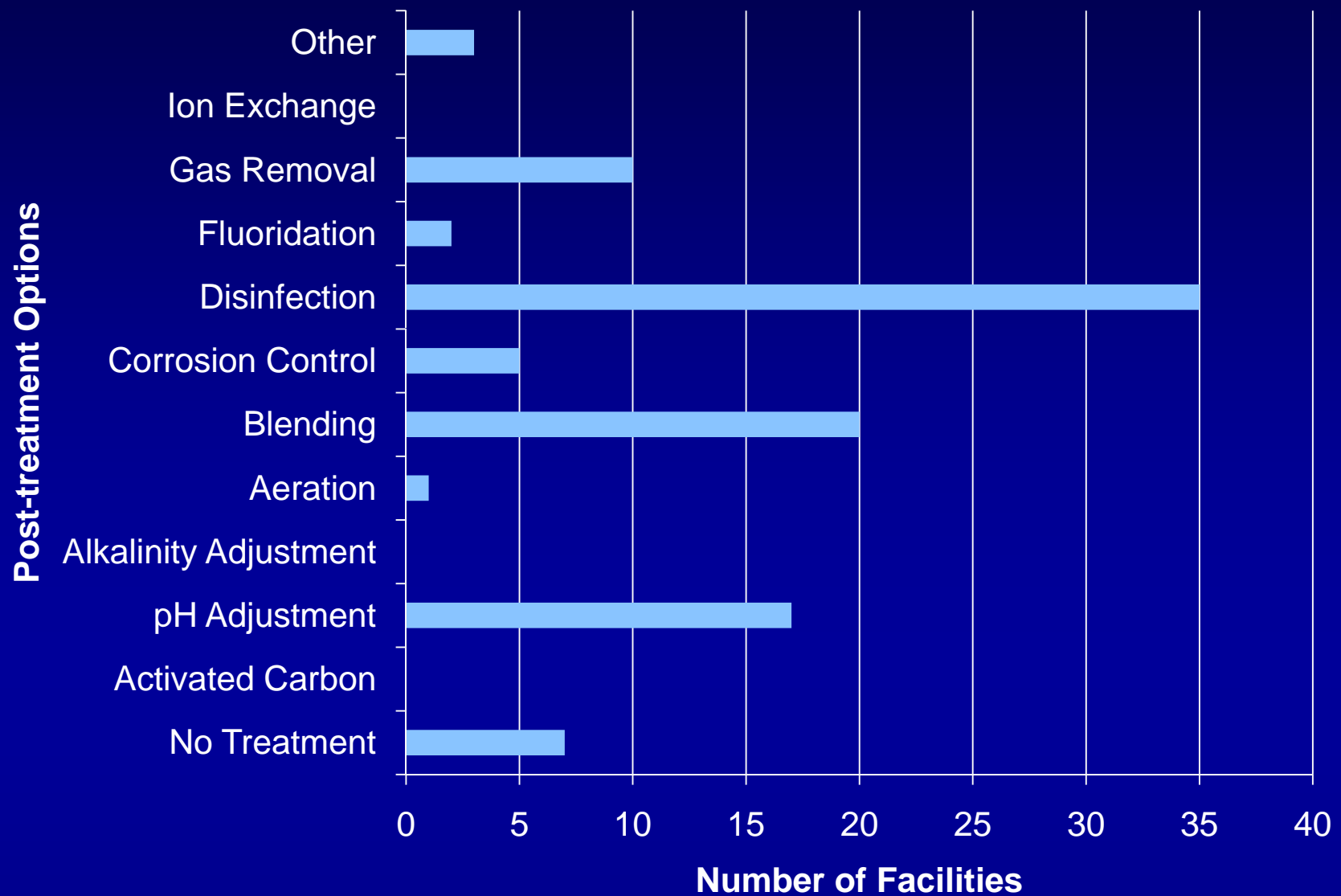




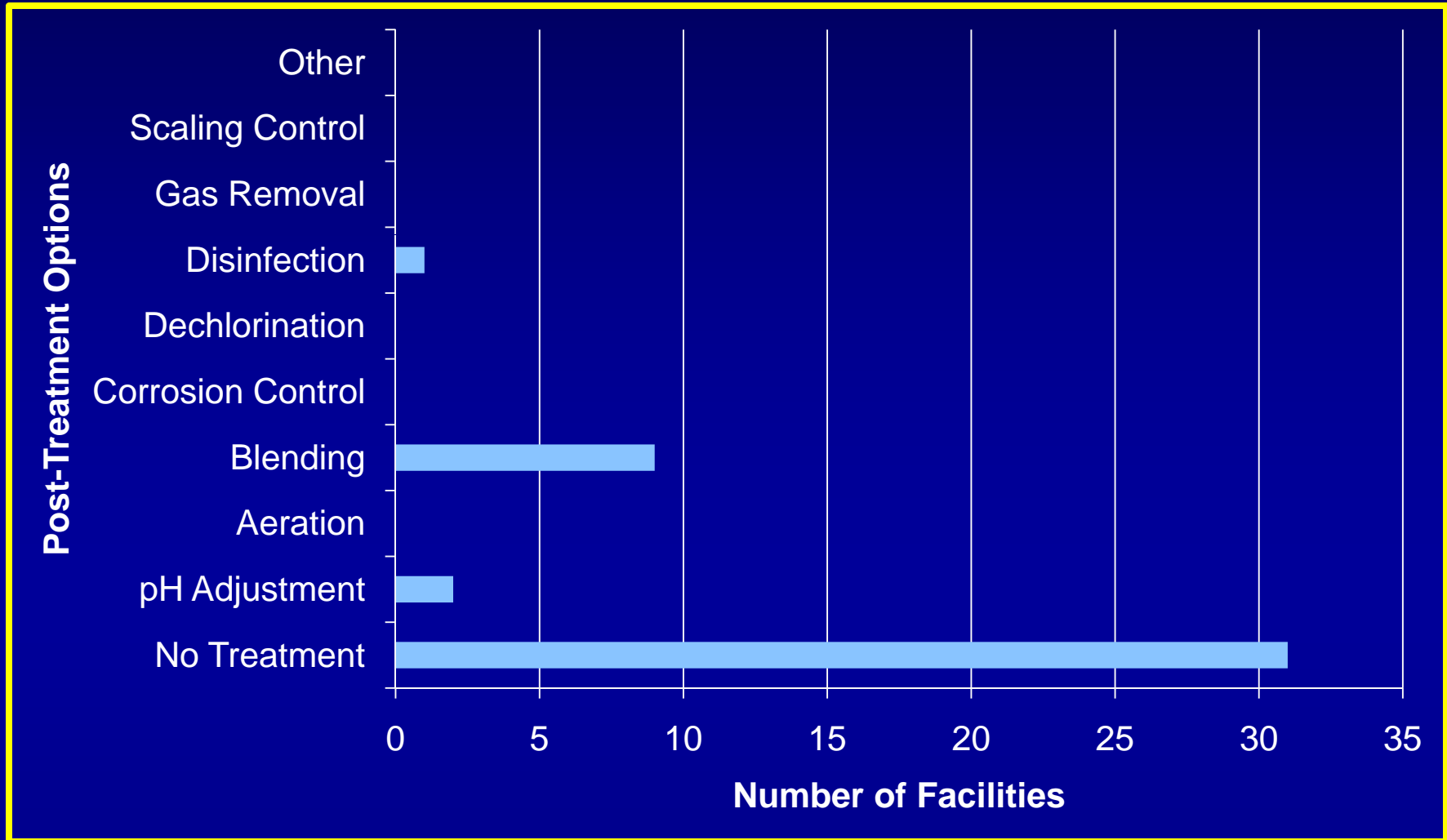
# Membrane Replacement Frequencies



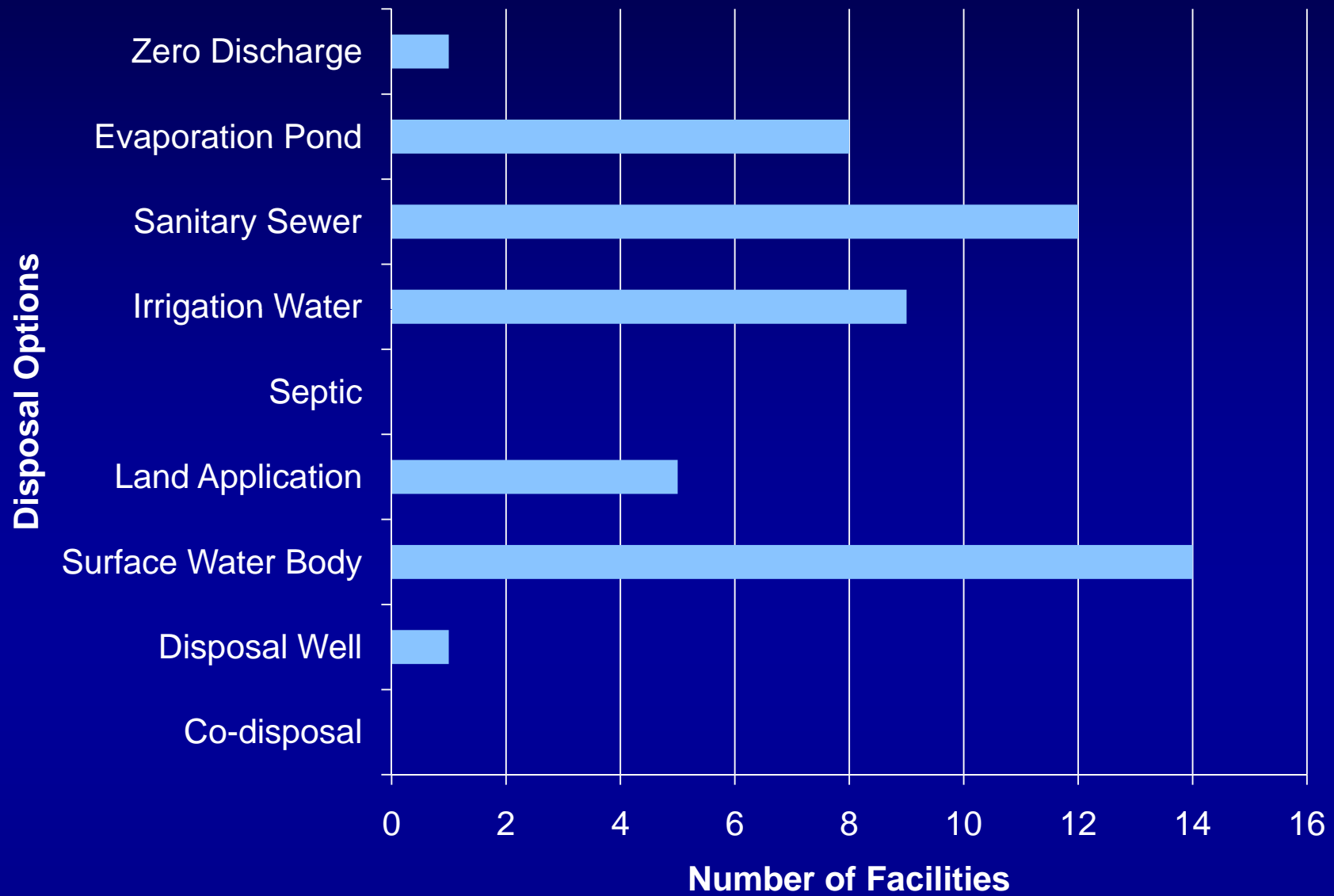
# Post-treatment of Throughput



# Post-treatment of Concentrate



# Concentrate Disposal



# Challenges

- The title - “Survey Form for Desalination Facilities” is confusing
- Key personnel for obtaining the required information
- Slower than expected response to the survey

# Potential Sites for Future Desalination Plants in Texas

- North Alamo WSC - Donna
- Stephens Regional SUD
- Central Texas WSC
- City of Ballinger
- Fort Hancock WCID
- Sylvester-McCaulley WSC

# Conclusion and Future Plan

- Desalination capacity in Texas increased from ~75 MGD to ~116 MGD in the past 5 years.
- Database information will be revised periodically.

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- Shane Groves, Margarita Arroyo and Jorge Arroyo of the TWDB



# QUESTIONS

