Texas Water Development Board

Bays and Estuaries Water Quality Monitoring Program

Program Description

Purpose

1) To support calibration of hydrodynamic and salinity transport models

2) For development of salinity-inflow relationships

Coordination of Effort

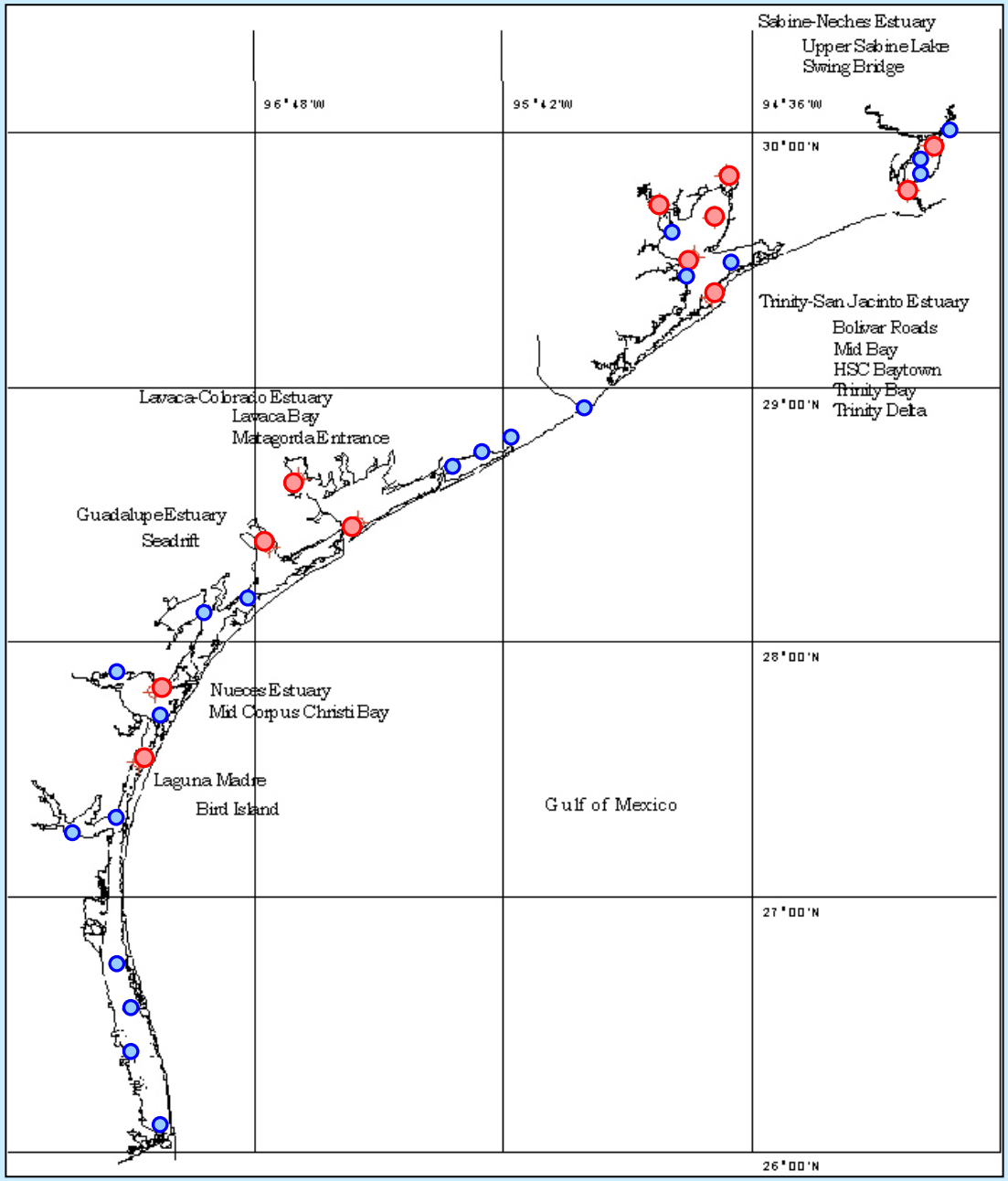
TWDB Research and Planning Fund provides support

Data Collection: TPWD – Dickinson and Corpus Christi offices
Data Storage: TWDB – (previously, David Brock)

Estuary	Original Locations 1986	Current Locations 2006
Sabine - Neches	×	Sabine Lake
Trinity - San Jacinto	Trinity	✓
	Galveston	✓
Lavaca - Colorado	Matagorda	✓
	Lavaca	✓
Guadalupe	San Antonio	✓
	Mesquite	×
Mission – Aransas	Aransas	×
Nueces	Corpus Christi	✓
	Nueces	×
Laguna Madre	×	Laguna Madre

Current and Past Datasonde Locations

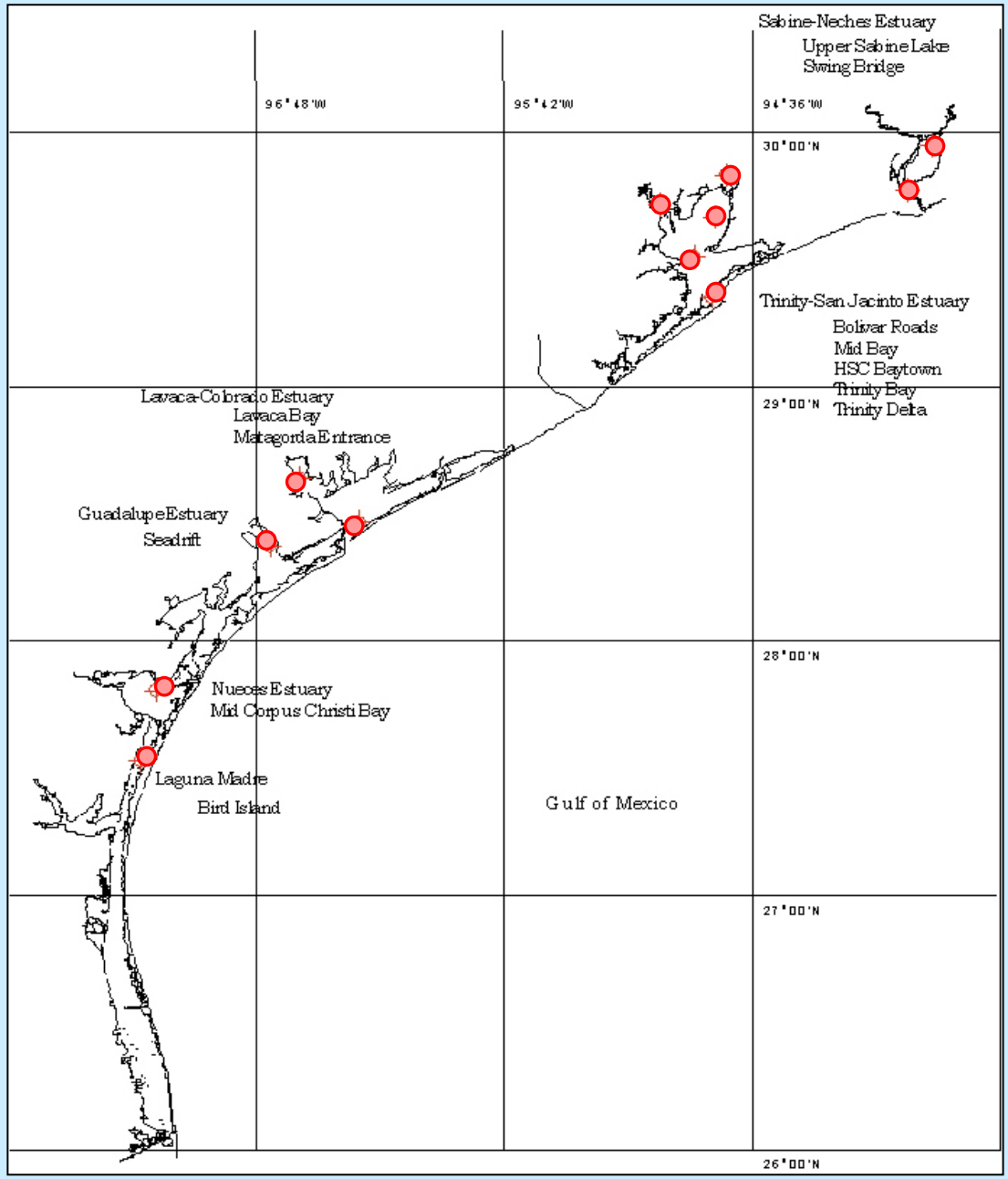
Locations were determined by the need for salinity data for use in salinity modeling.



Current Datasonde Locations

Water Quality Parameters

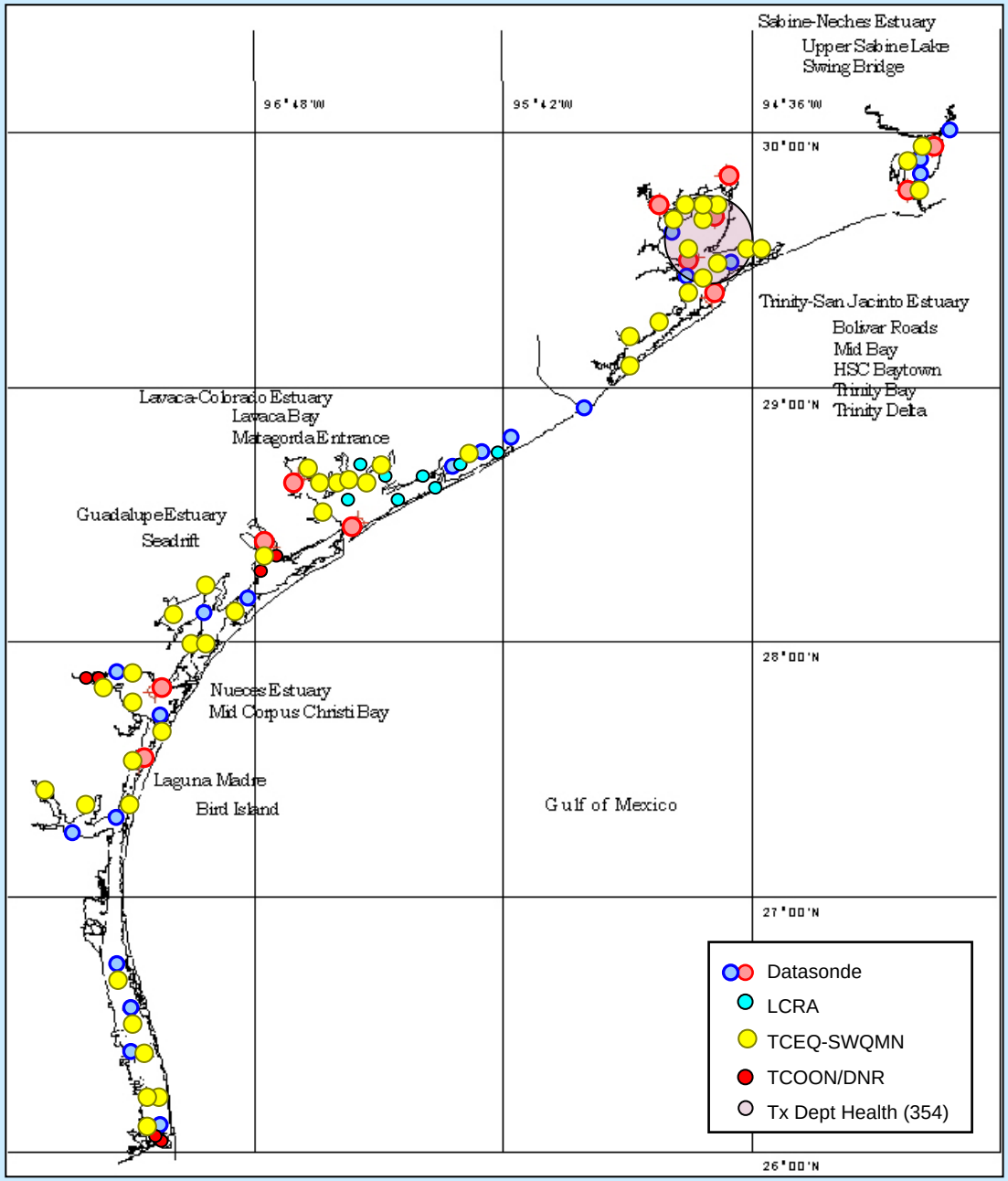
- Temperature
- Conductivity
- Salinity
- Dissolved oxygen
- Water level
- pH



Questions for Consideration

1) Are these sites sufficient to meet the needs of freshwater inflow studies along the Texas coast?

Statewide Monitoring Efforts



Questions for Consideration

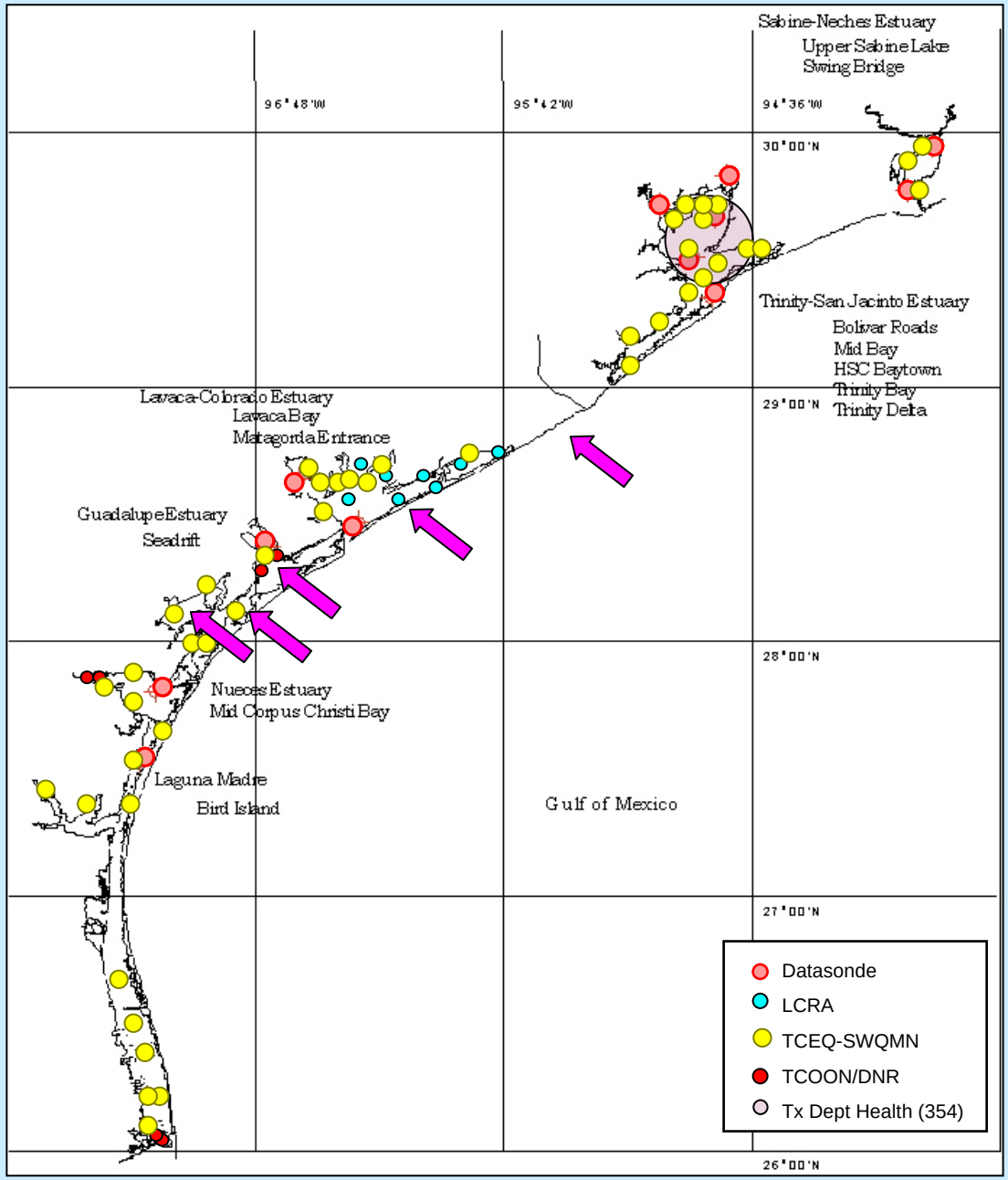
1) Are these sites sufficient to meet the needs of freshwater inflow studies along the Texas coast?

2) Which locations need better representation in the Datasonde Program?

Active and Proposed Monitoring Locations

Should incorporate these sites?

What other locations should be considered?



Questions for Consideration

1) Are these sites sufficient to meet the needs of freshwater inflow studies along the Texas coast?

2) What areas need more representation in the Datasonde Program?

3) What is the best method for expanding coverage by the program?

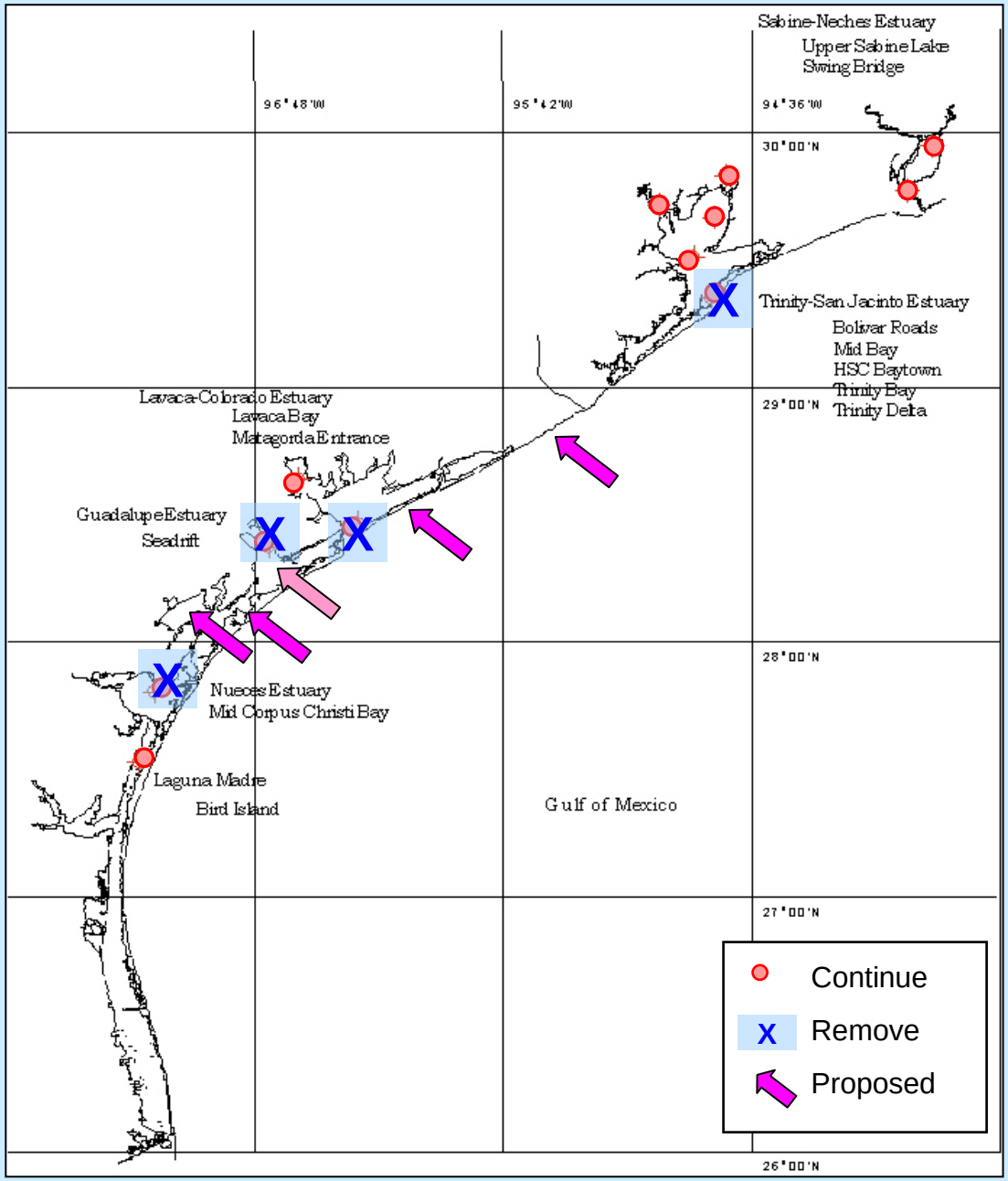
Two Options for Expanding Monitoring Efforts

1 - Revise existing monitoring locations

2 - Adopt a new data collection plan

Revise Existing Monitoring Locations

Is it a good idea to remove these sites?



Adoption of a New Data Collection Plan

Datasonde Approach	Salinity Approach
Water Quality Monitoring Program	Salinity Monitoring Program
Collects a suite of basic WQ parameters	Collects key WQ parameters
Provides basic WQ data	Provides salinity data

Operational Changes of a New Data Collection Plan

Datasonde Approach	Salinity Approach
Uses multi-probe instruments	Uses Temp/Conductivity/Level instruments
Labor intensive (installation and maintenance)	Minimal maintenance required
WQ data at fewer sites	Salinity data at more sites

How important is dissolved oxygen and pH?

An Example . . . based on 12 sites monitored by 2 teams

Datasonde Approach	Salinity Approach
2 WQ instruments per site	1 WQ instrument per site
	2 field computers per team
Mounts and calibration standards	Mounts and calibration standards
Repairs for instruments	Repair/Replace
2 instruments replaced per year	2 instruments replaced per year

Datasonde Approach	Salinity Approach
Set-up cost $78K	Set-up cost $39K
Annual cost $15K	Annual cost $5K

Can we double the number of sites?

Questions for Discussion

What is the future of the Datasonde Program?

Should the program focus on collecting salinity data from more locations?

Should the program continue as is?

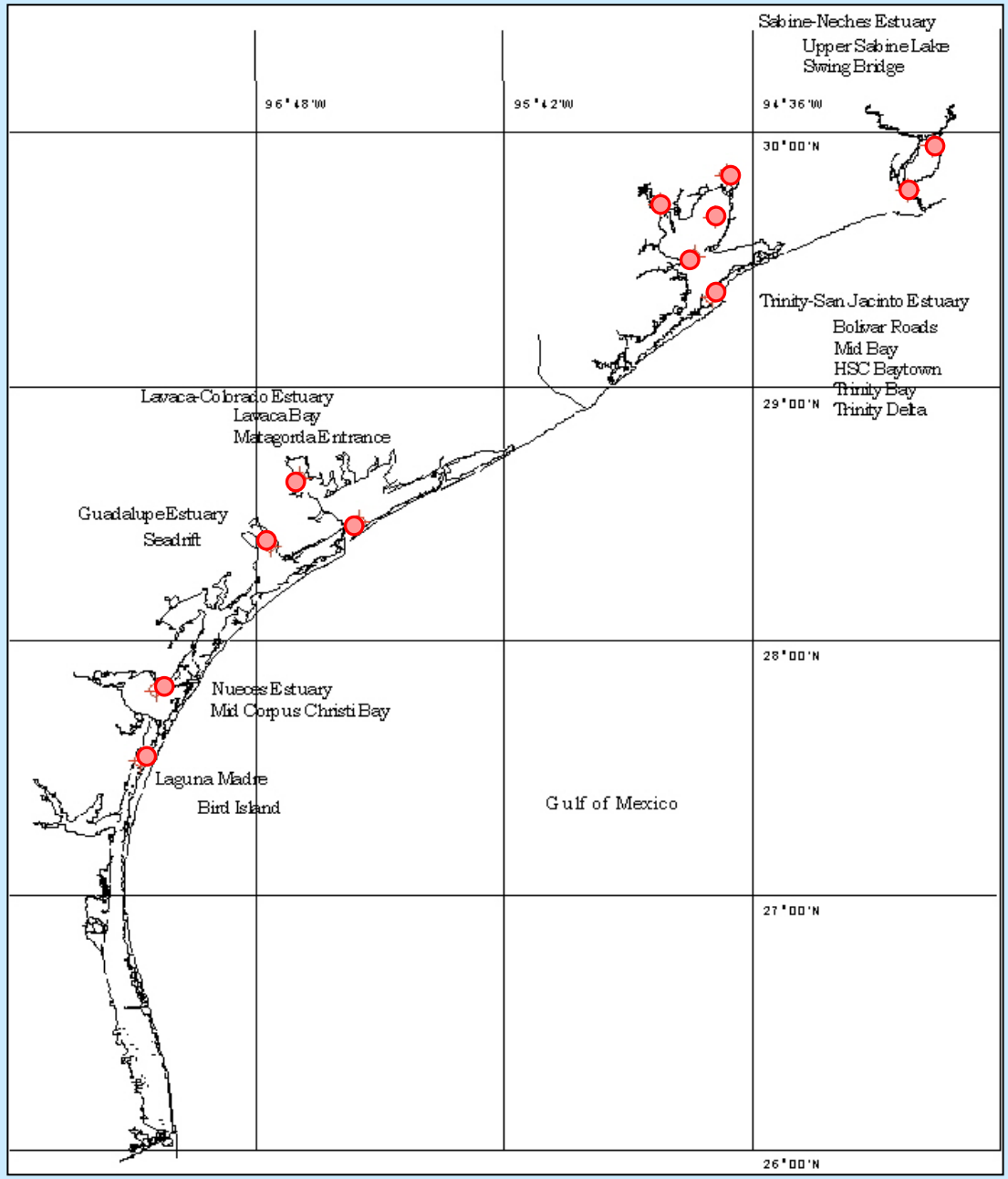
TEXAS WATER DEVELOPMENT BOARD

DATASONDE DATA

http://hyper20.twdb.state.tx.us/data/bays_estuaries/sondpage.html

carla.guthrie@twdb.state.tx.us

Current Datasonde Locations



Water Quality Parameters

- Temperature
- Conductivity
- Salinity
- Dissolved oxygen
- Water level
- pH

	Datasonde Approach		Salinity Approach	
Per Site Materials	WQ instrument*	$3,250	LTC instrument**	$2,500
	WQ instrument*	$3,250		
	Mount	+	Mount	+
	PVC	+	PVC	+
	Chain	+		
Program Materials	Conductivity Standard	+	Conductivity Standard	+
	pH 7.0 Standard	+		
	pH 10.0 Standard	+		
			Field computer†	$2,150
			Field computer†	$2,150
			Communication Package°	$273
	Instrument Repairs[a]	$8,612	Instrument Repairs	n/a
Per Site Cost		$6,500		$2,500
Per Program Cost		+		$4,573
TOTAL COST - 12 sites, 2 programs		**$78,000**		**$39,146**
Annual Repairs		$8,612		n/a
Annual Replacements		$6,500		$5,000
YEARLY COST		**$15,112**		**$5,000**

Instruments with similar capabilities available for this plan.

*Eureka	$3,250	**Solinst LTC	$2,500
*CS304	$3,500	**CTD350	$2,550
*Hydrolab	$4,500		
		†Leveloader II	$733
		°Direct Read Cables	$138
		°Direct Read Comm. Pkg	$582

[a] Repairs to Hydrolabs between FY03-FY06 = $25,835. Value reported is yearly average.