Methods to promote freshwater inflow to East Matagorda Bay

COLORADO AND LAVACA RIVERS AND MATAGORDA AND LAVACA BAY AND BASIN AREA STAKEHOLDER COMMITTEE

LA GRANGE, TX

AquaStrategies

May 21, 2015

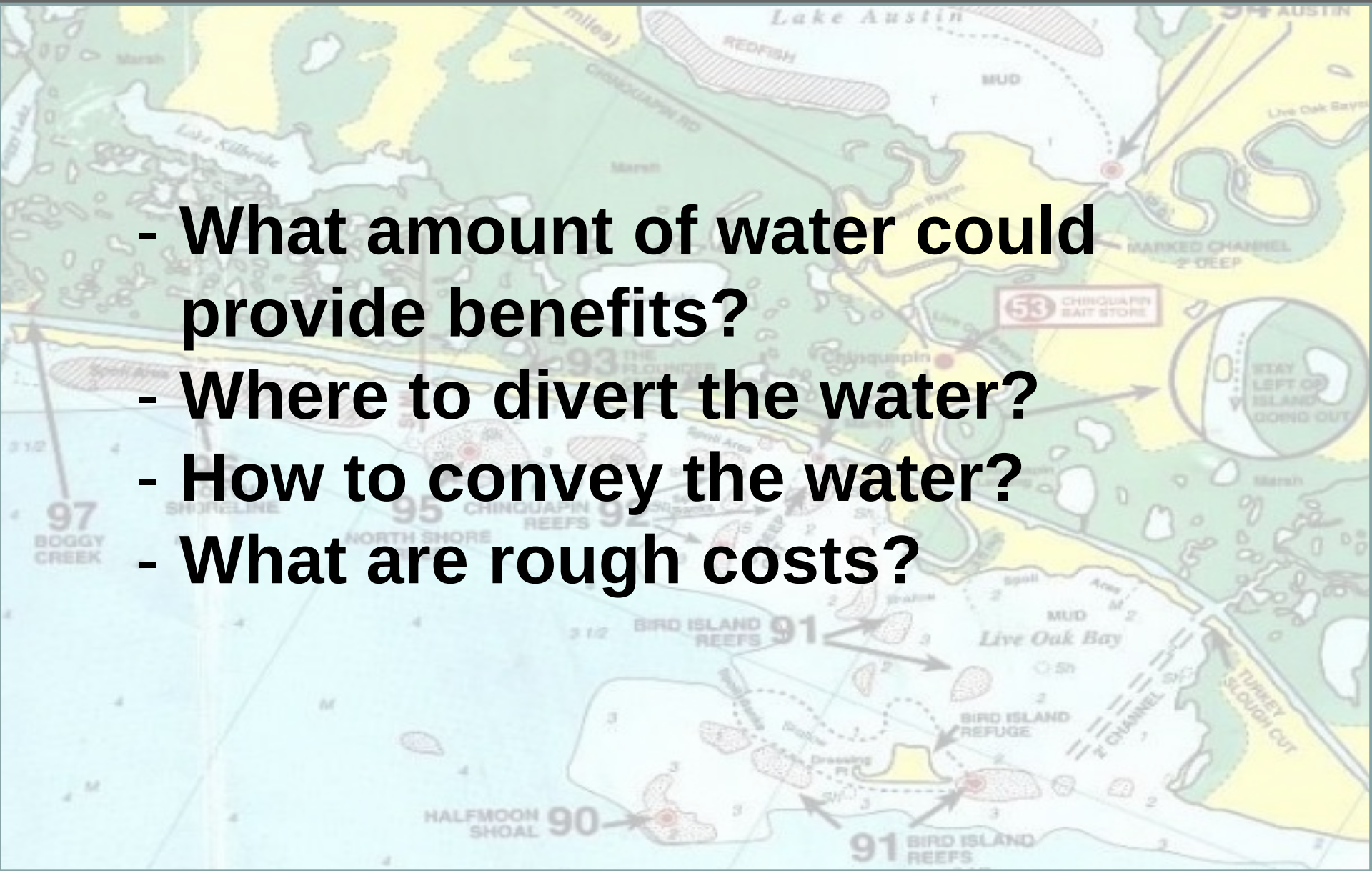
Problem Statement

East Matagorda Bay

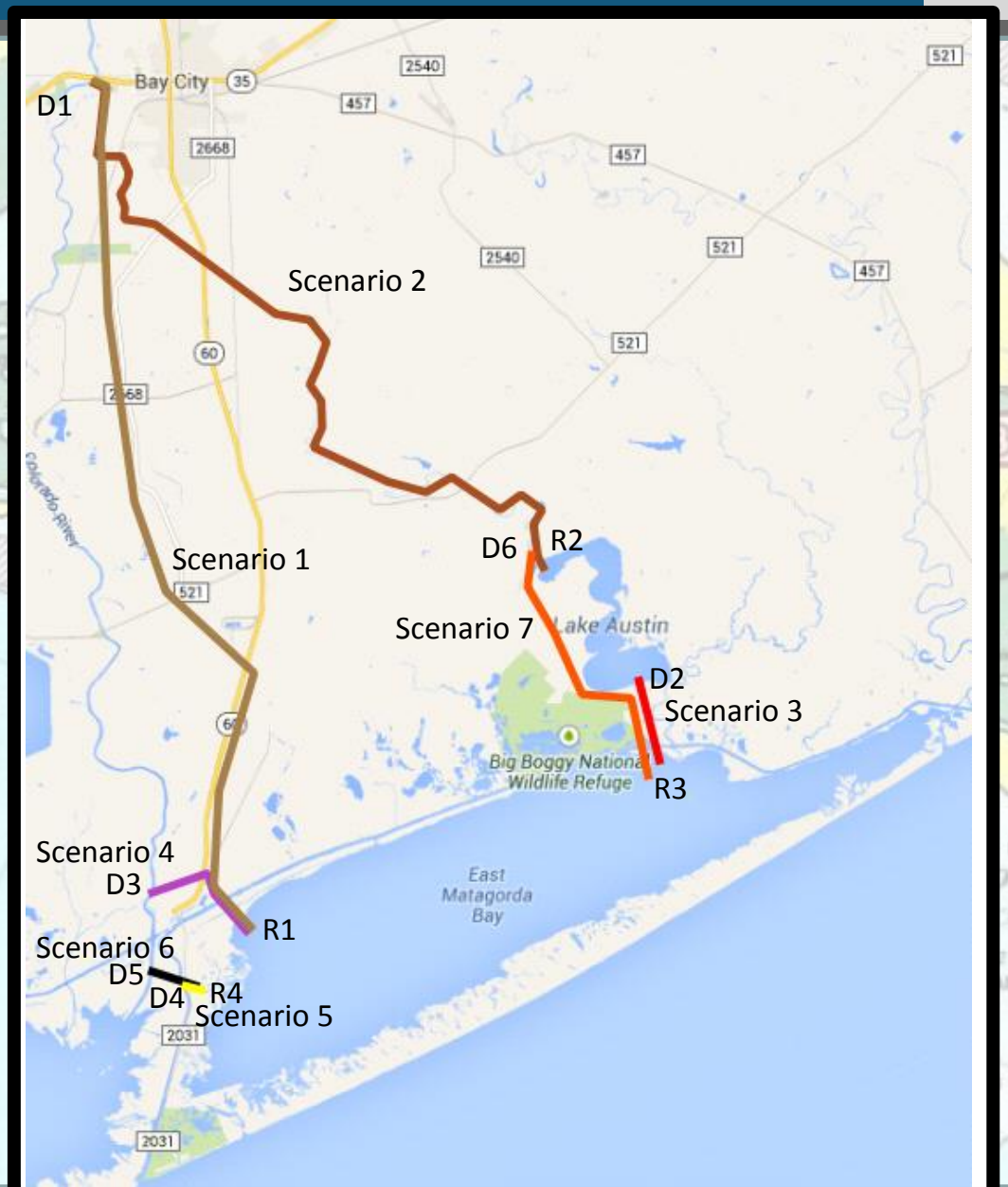
What are we addressing?

Scope

- What amount of water could provide benefits?
- Where to divert the water?
- How to convey the water?
- What are rough costs?



Possible transmission pathways



Conveyance Alternative?

Lake Austin

Conveyance Alternative?

Lake Austin

Simplest option to infuse fresher water

Short Pipeline

Another option during hypersaline periods

Very Short Pipeline

Salinity Goals

Macro-benthos

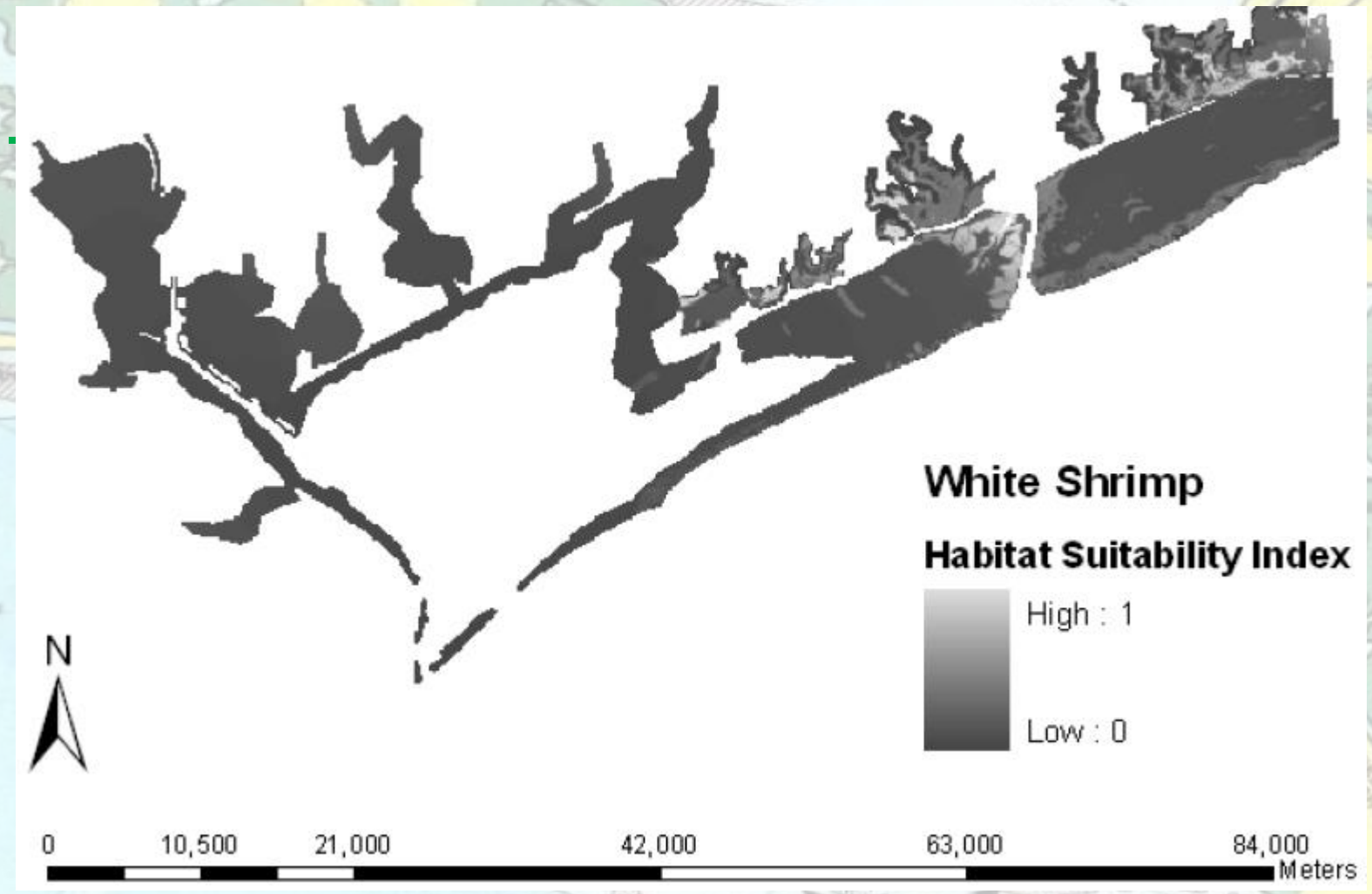
- Reduce extended periods of salinity greater than 30 ppt
  - Macrobenthos (Palmer et al.)
  - Oysters – 2 year average (MBHE)

Salinity Goals

- Promote “Fair” salinity ranges during particular months (MBHE)
  - 20-23 ppt
    - Atlantic Croaker (Jan-Jun)
    - Gulf Menhaden (Apr-Aug)
  - 20-25 ppt
    - White Shrimp (Jul-Nov)
    - Blue Crab (Feb-Jun)
  - 30-32 ppt
    - Brown Shrimp (Apr-Jul)

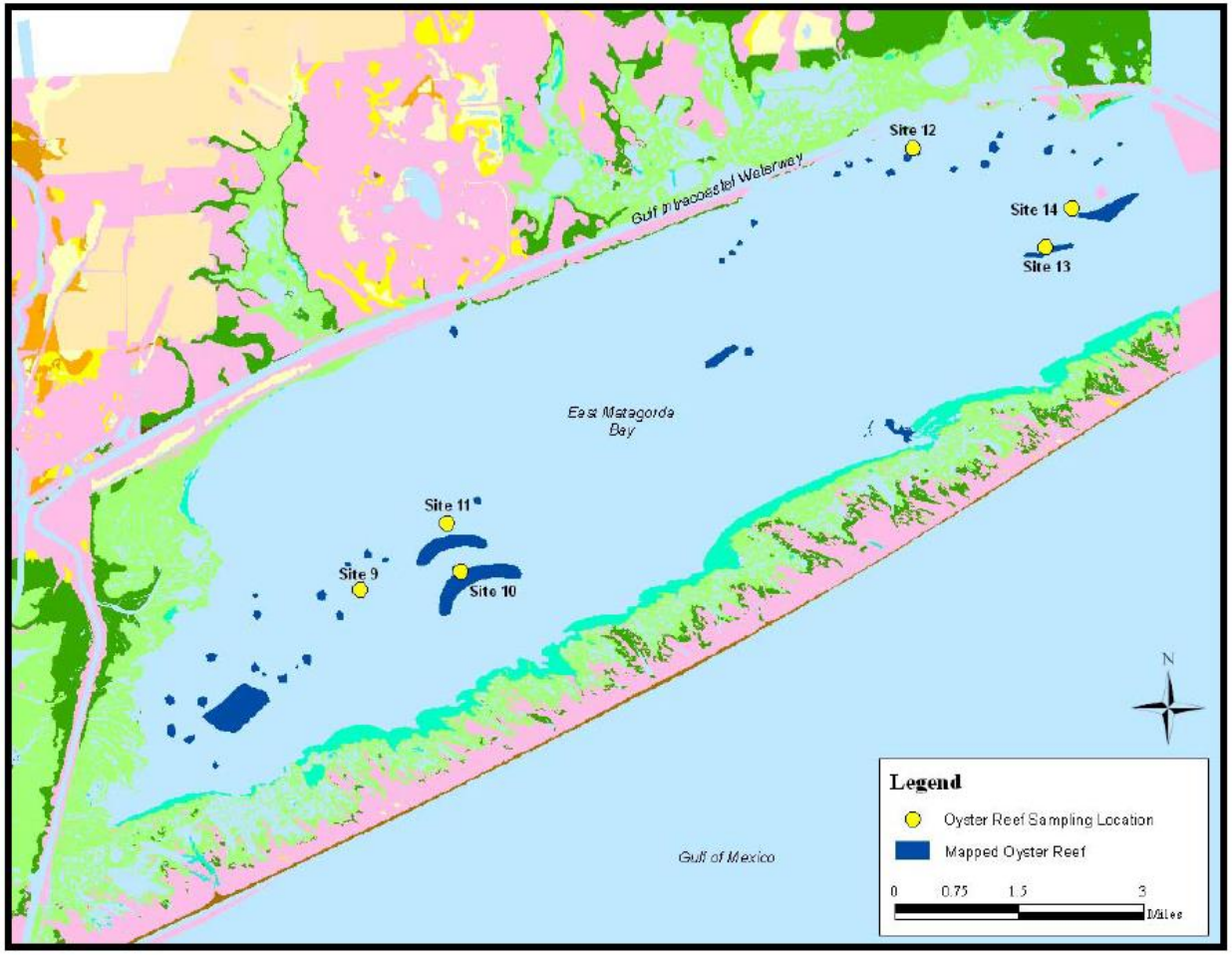
Salinity Habitat Interface Tool

Suitability



East Matagorda Bay

Habitat

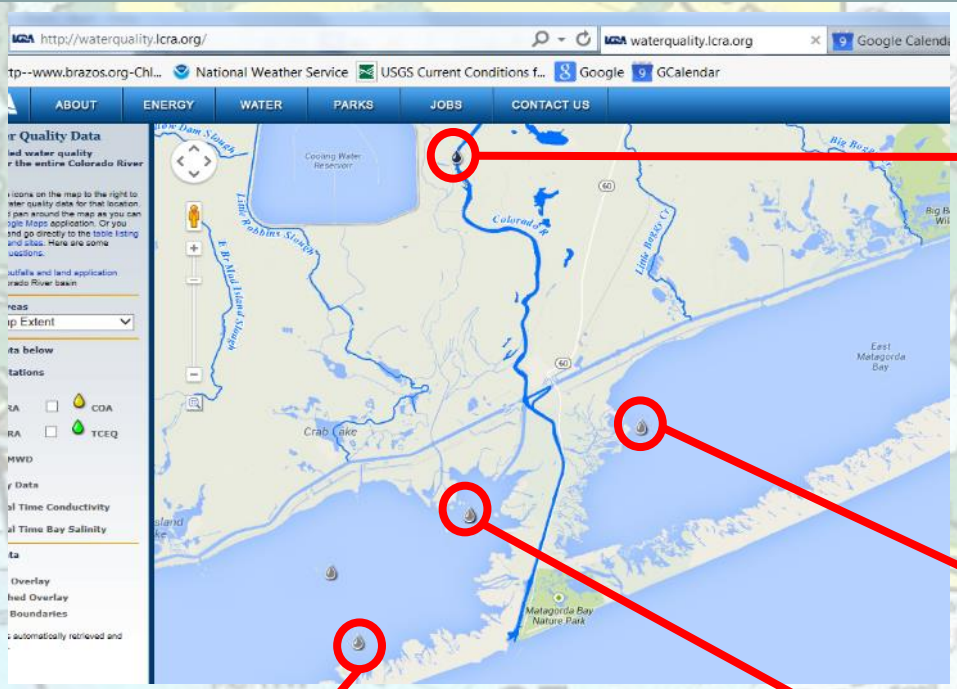


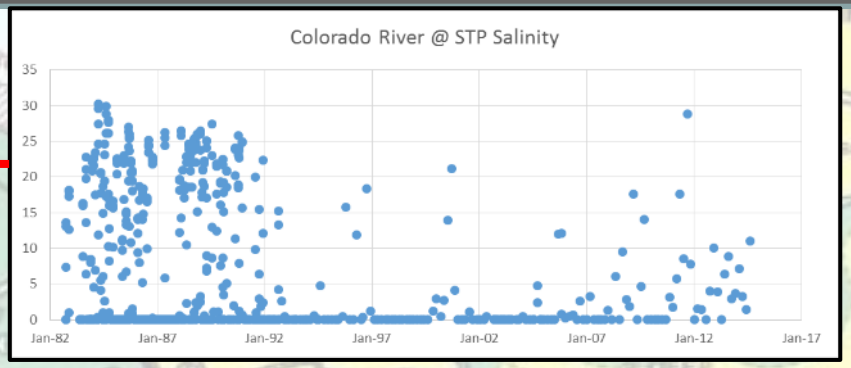
Legend

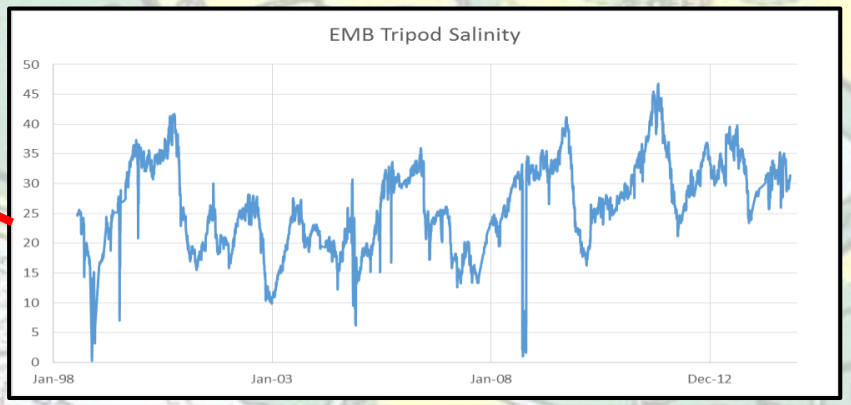
- Agricultural Wetland
- Aquatic Vegetation
- Forested Wetland
- High Estuarine Marsh
- High Intermediate Marsh
- Jetty
- Leveed DMPA
- Low Estuarine Marsh
- Low Intermediate Marsh
- Estuarine Bay Bottom
- Intermediate Bay Bottom
- Marine Bay Bottom
- Oyster Reef
- Aquatic Vegetation
- Intermediate Shoreline
- Marine Shoreline
- Shrub-scrub Wetland
- Shrub-scrub Wetland
- Tidal Flats/Shoreline
- Upland
- Not Available

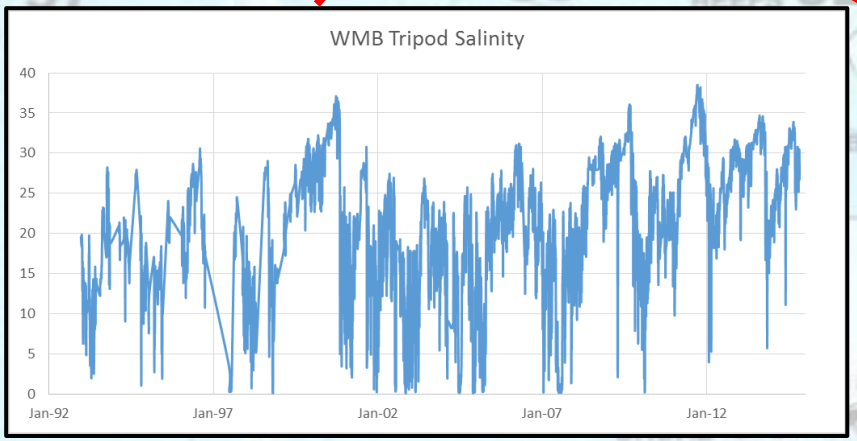
Salinity

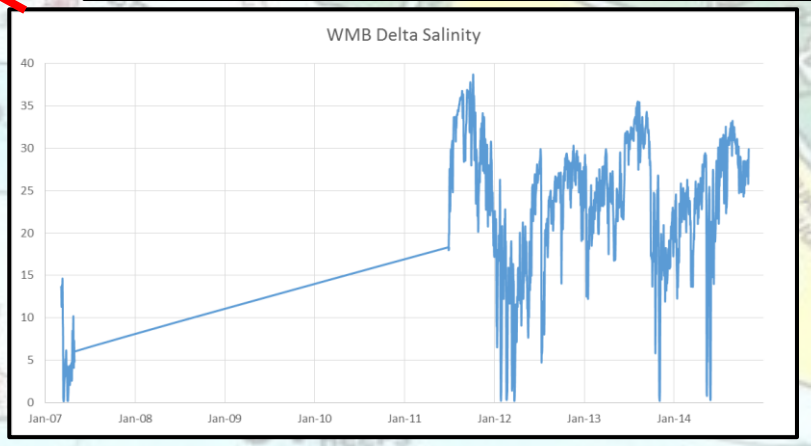
Data





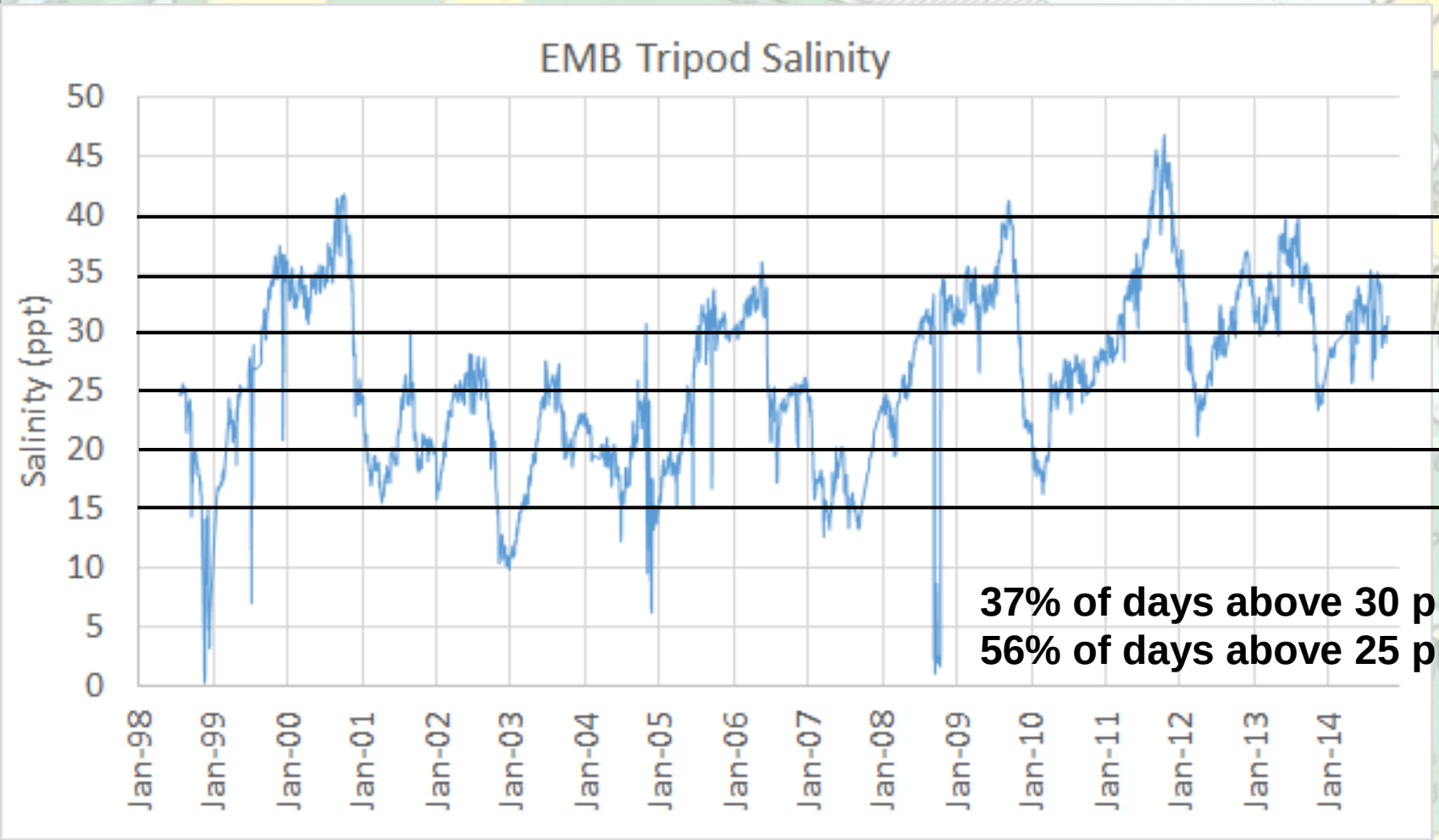






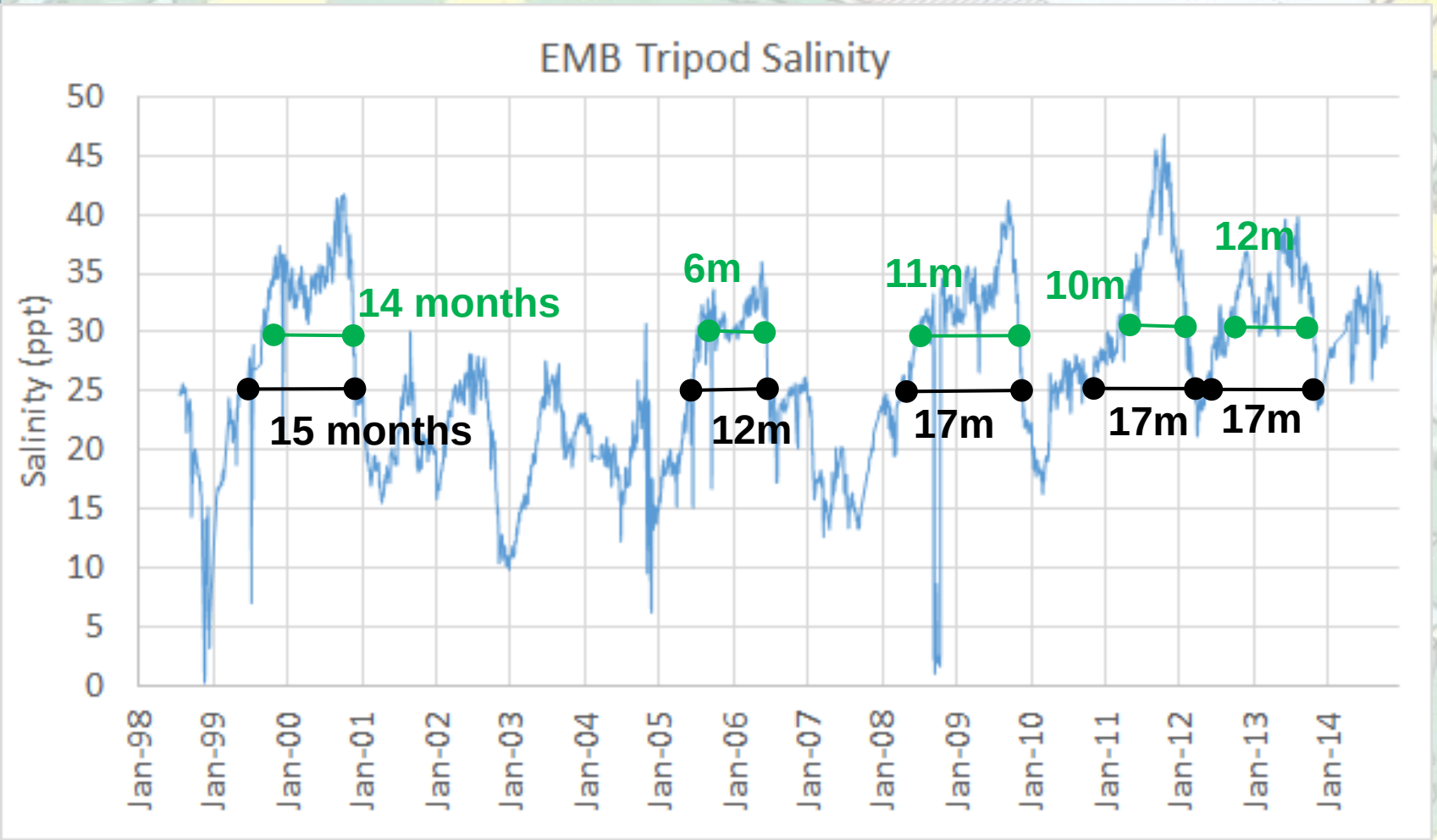
Salinity

Frequency



Salinity

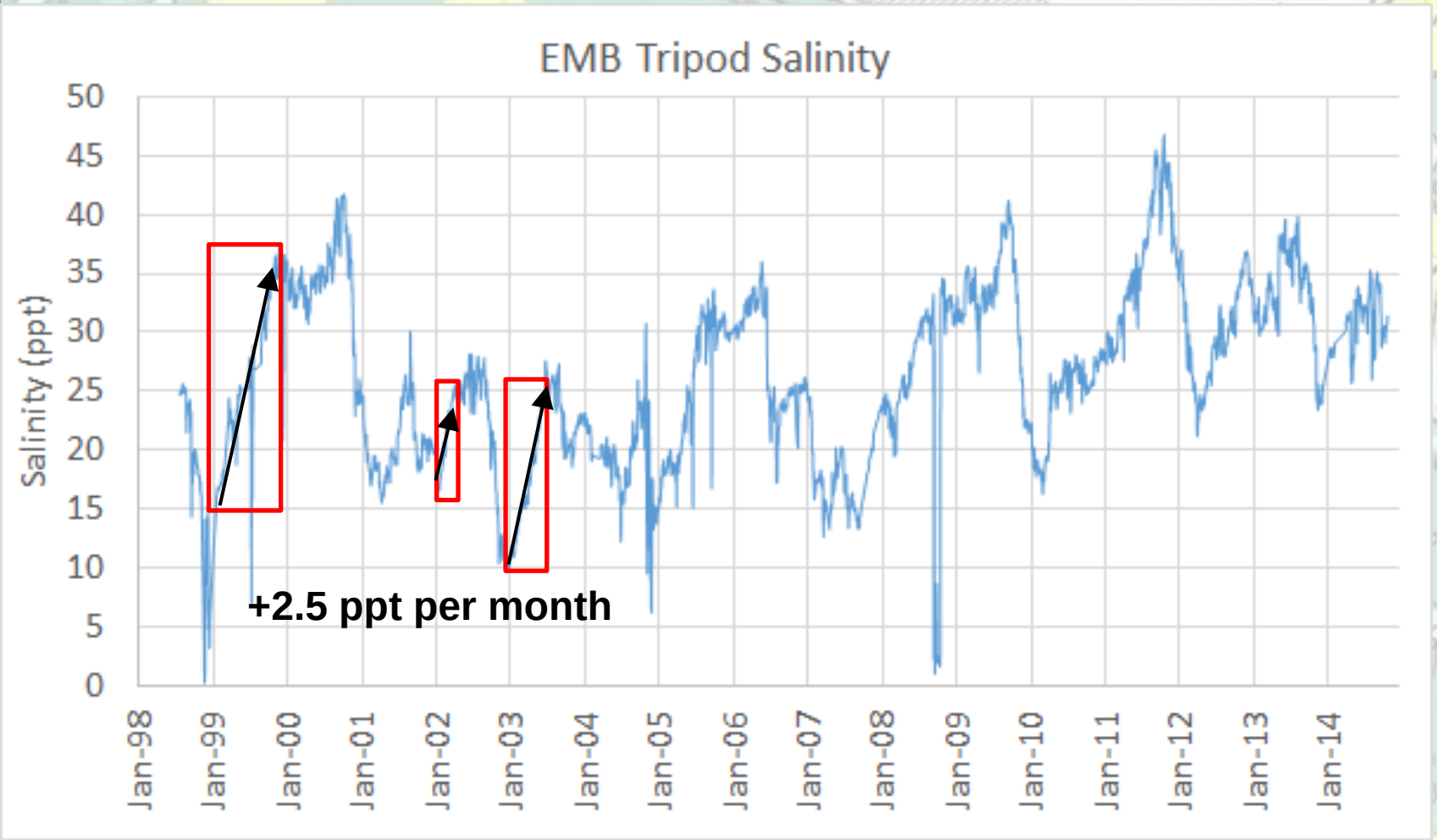
Duration



% Rank
97pctl
88pctl
63pctl
44pctl
22pctl
05pctl

Salinity

Rebound



% Rank

97pctl

88pctl

63pctl

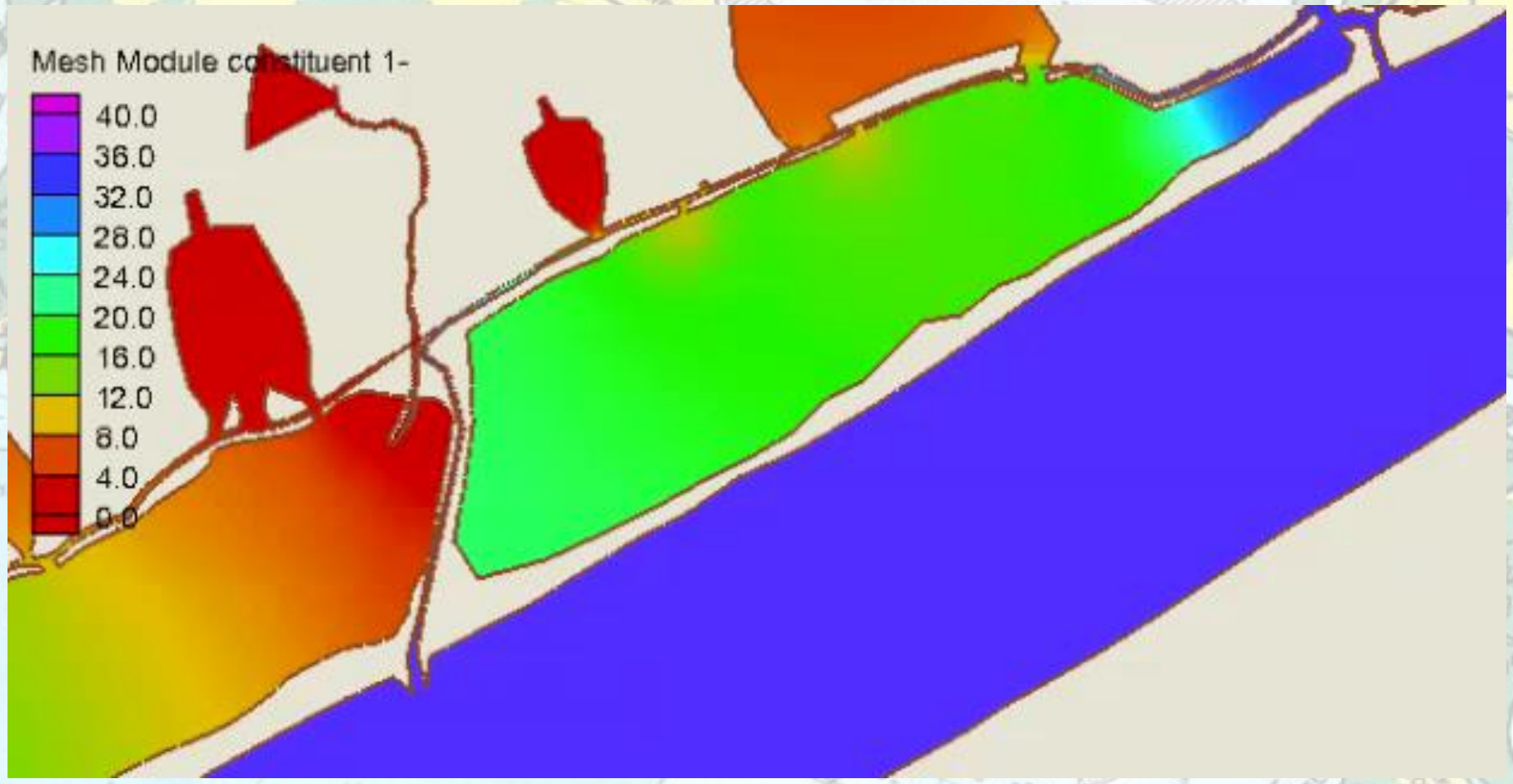
44pctl

22pctl

05pctl

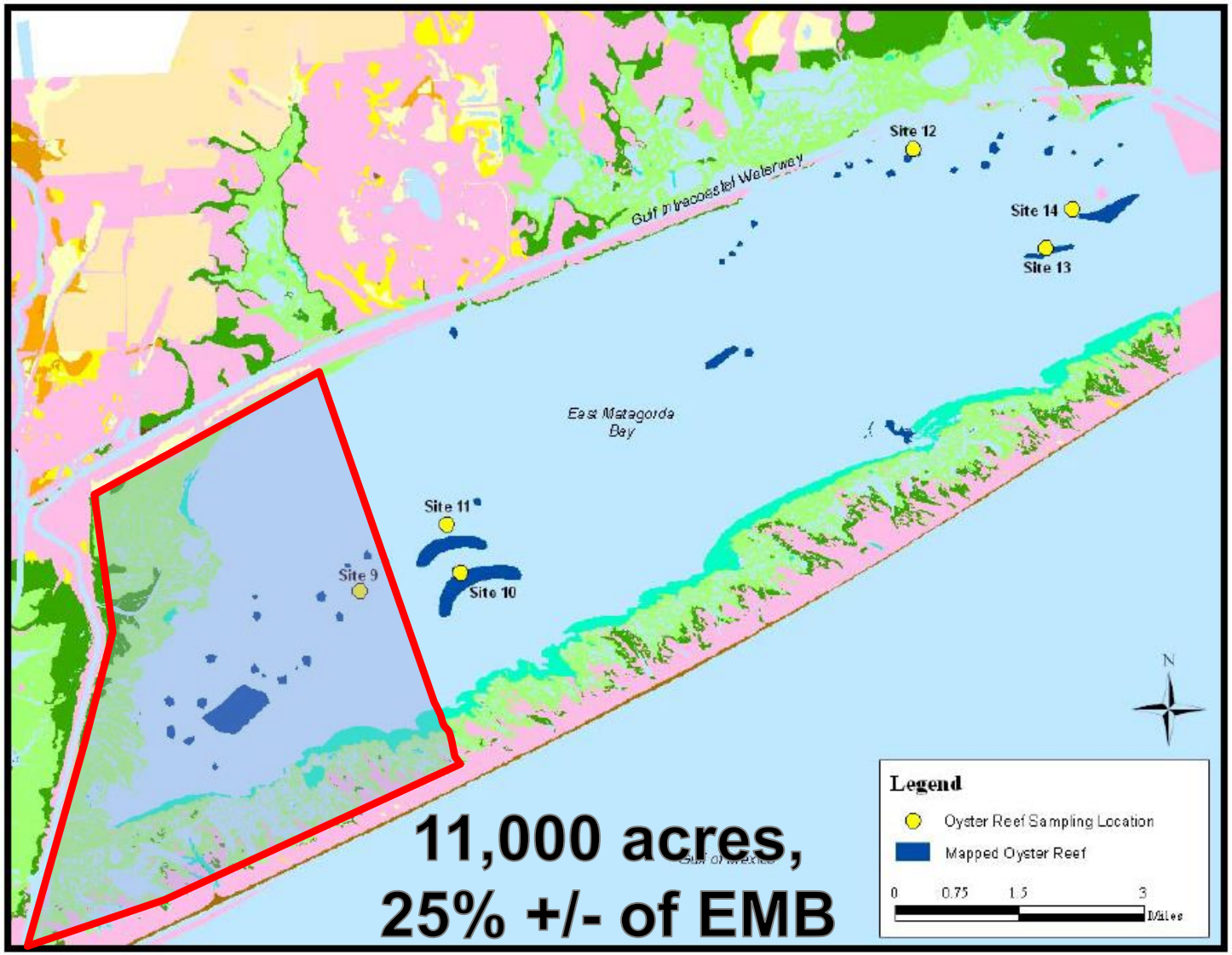
MBHE Salinity Model

2002



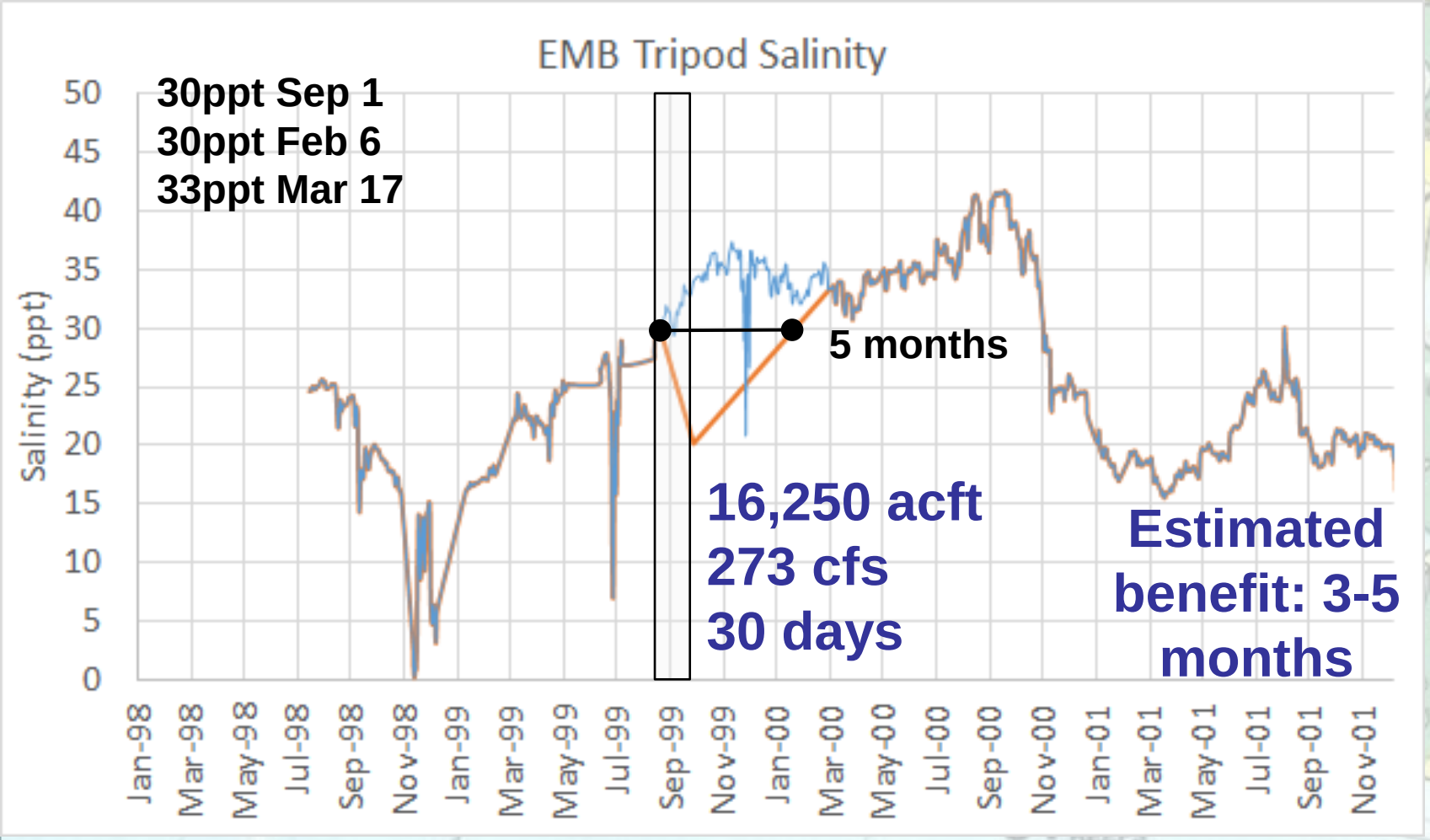
East Matagorda Bay

Evaluation Area



Salinity

Added Inflow



% Rank

97pctl
88pctl
63pctl
44pctl
22pctl
05pctl

Summary

Inflow

- 16,250 ac-ft of freshwater
- Positive impact
- 25% of EMB
- Three to five months

Next steps

Factors

- Environmental benefits
  - Timing and amount
- Cost (capital and O&M)
- Salinity of source water
- Freshwater flow available
- Permitting
- Summary
- Recommendations

We welcome your input!

What do you think?

- Colorado/Lavaca BBASC
- Texas Water Development Board
- Meadows Center for Water and the Environment
- US Army Corps of Engineers
- Other Stakeholders

Tim Osting
Aqua Strategies Inc.
tosting@aquastrategies.com
Tel: (512) 627-1563

AquaStrategies