

Bayou Chico Contaminated Sediment Remediation Project

Planning Phase for Planning,
Engineering, Design, & Permitting

Distribution and Quantification of
Unconsolidated Fine-Grain Sediments

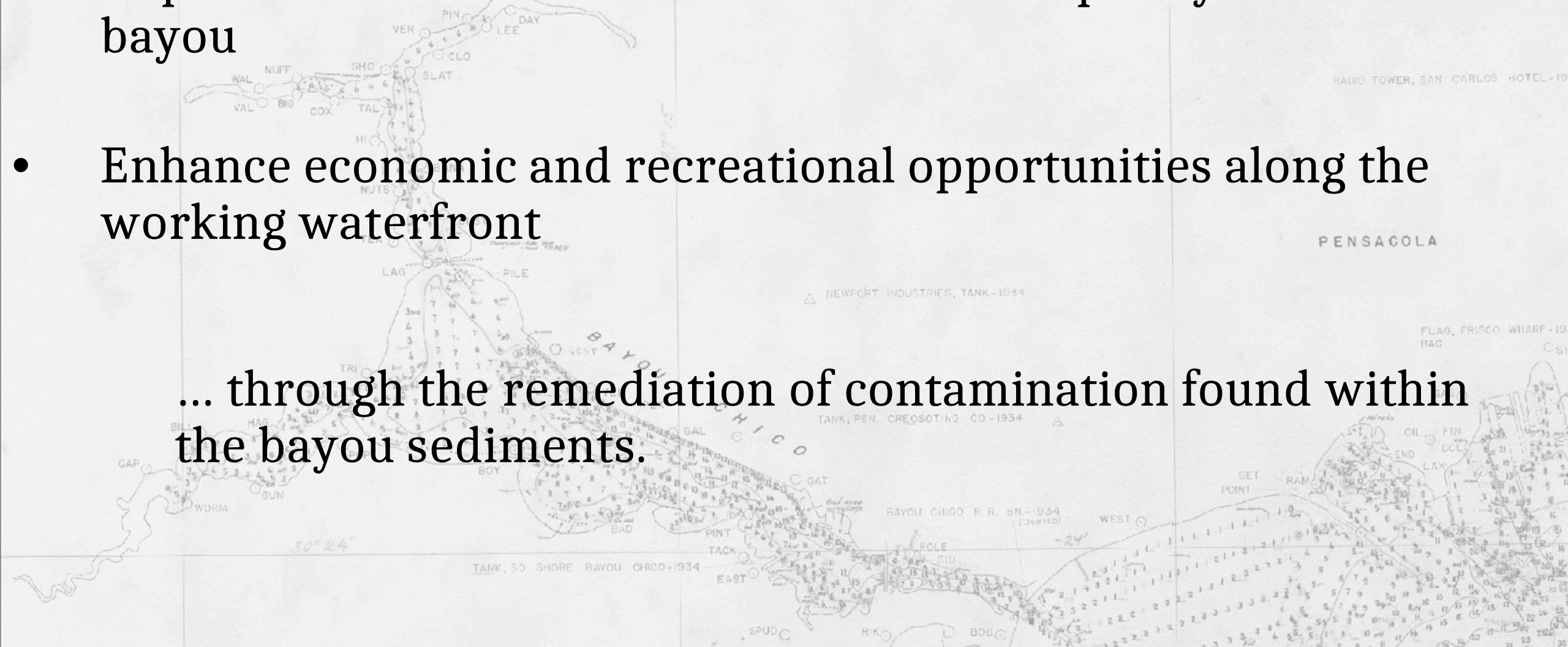
brent wipf, Manager
Escambia County Natural Resources Department
Water Quality & Land Management Division



Overall Project Purpose:

- Improve benthic habitat and surface water quality within the bayou
- Enhance economic and recreational opportunities along the working waterfront

... through the remediation of contamination found within the bayou sediments.



Identified Project Funding Sources:

- Planning, Engineering, Design, & Permitting for Remediation Plan

\$335,000 from subrecipient agreement from FDEP for funds awarded by the Gulf Coast Ecosystem Restoration Council (GCERC) (POT 2 Federal Funds)

- Implementation of Remediation Plan

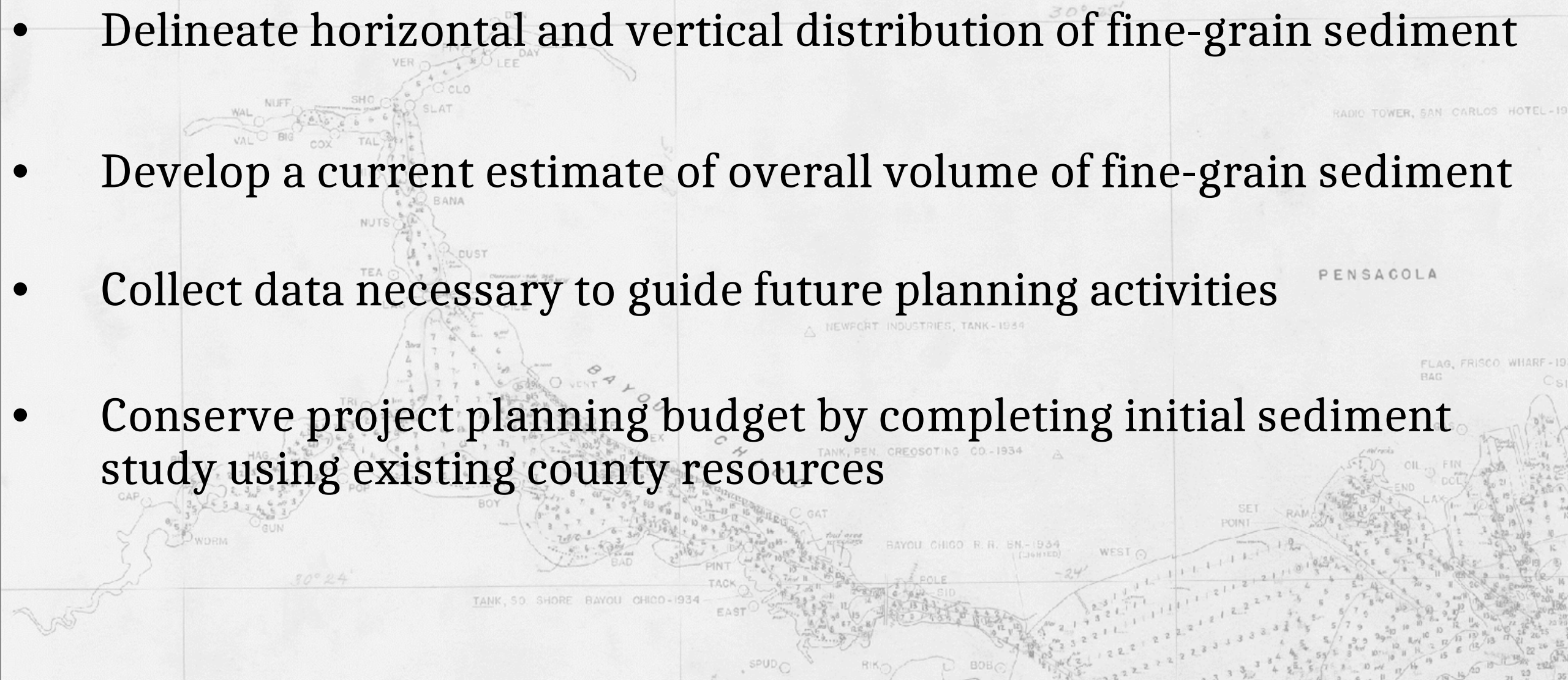
\$12± million from Escambia County Board of County Commissioners submittal to the Florida State Expenditure Plan (Pot 3 State Funds)

What did we already know?

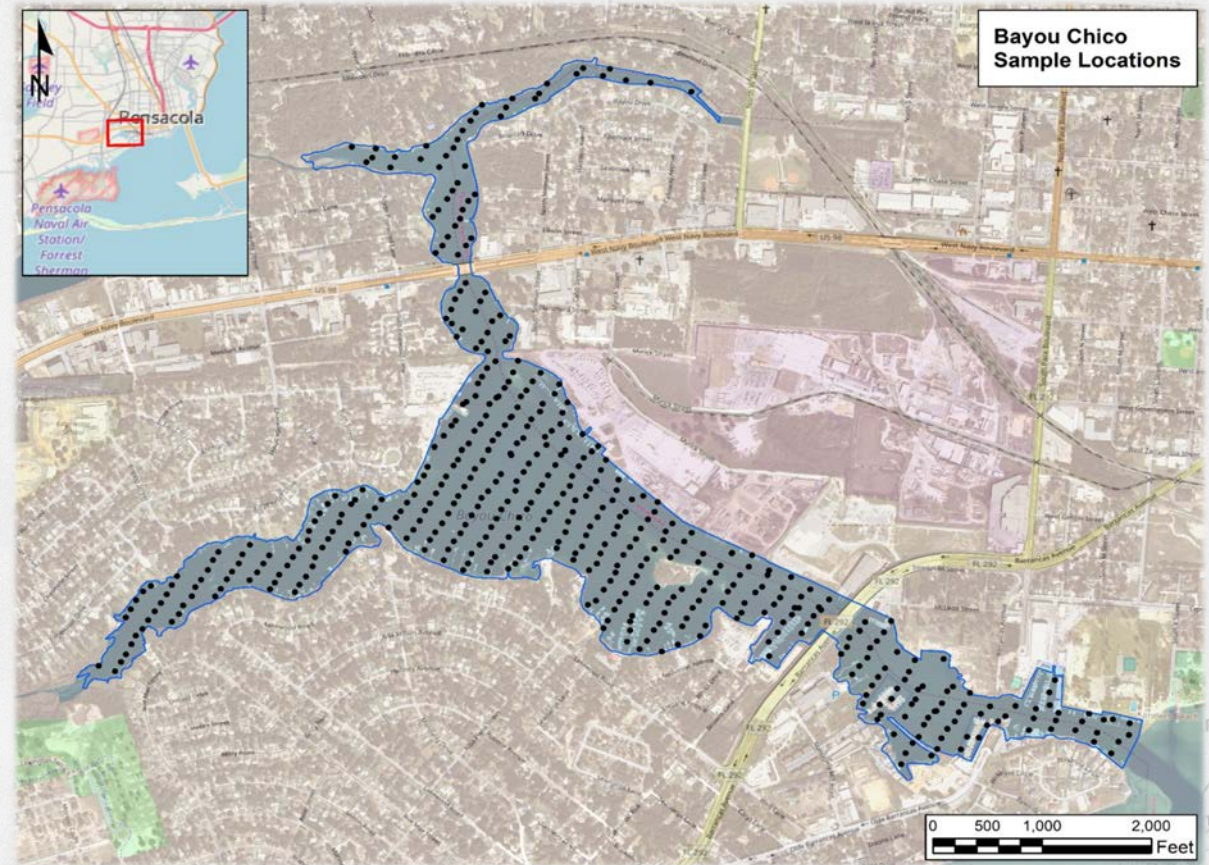
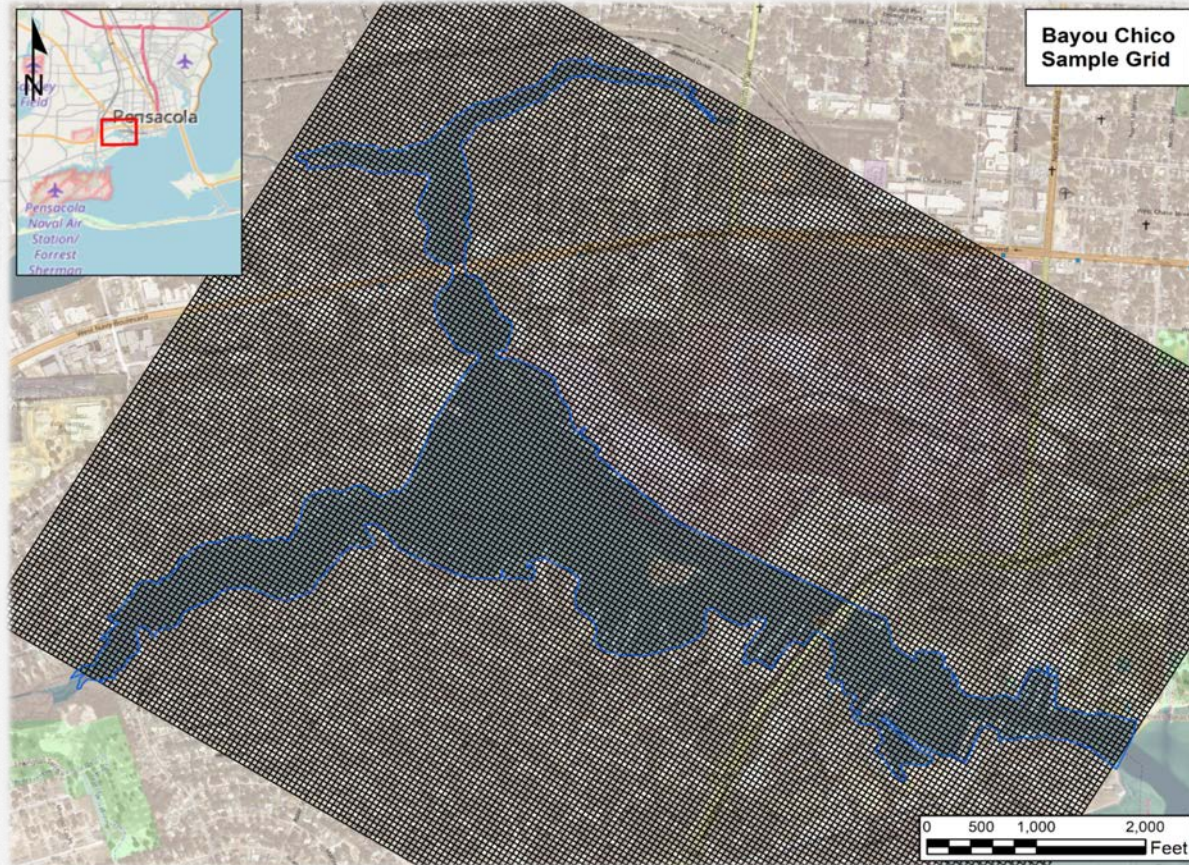
- Bayou sediments contain elevated concentrations of legacy contaminants (metals, nutrients, PAHs, pesticides, PCBs, dioxins)
- Mapping fine-grain sediments would be an important initial project step since contaminants are far more likely to be associated with silts, clay, and organic material than with sandy substrate
- General idea about the location and amount of fine-grain sediment from a 1970s era study
- Direct physical measurement of fine-grain sediment likely required since using typical acoustic remote sensing methods did not work

Goals of Planning Phase Sediment Survey:

- Delineate horizontal and vertical distribution of fine-grain sediment
- Develop a current estimate of overall volume of fine-grain sediment
- Collect data necessary to guide future planning activities
- Conserve project planning budget by completing initial sediment study using existing county resources



Sediment Survey Sampling Station Selection:

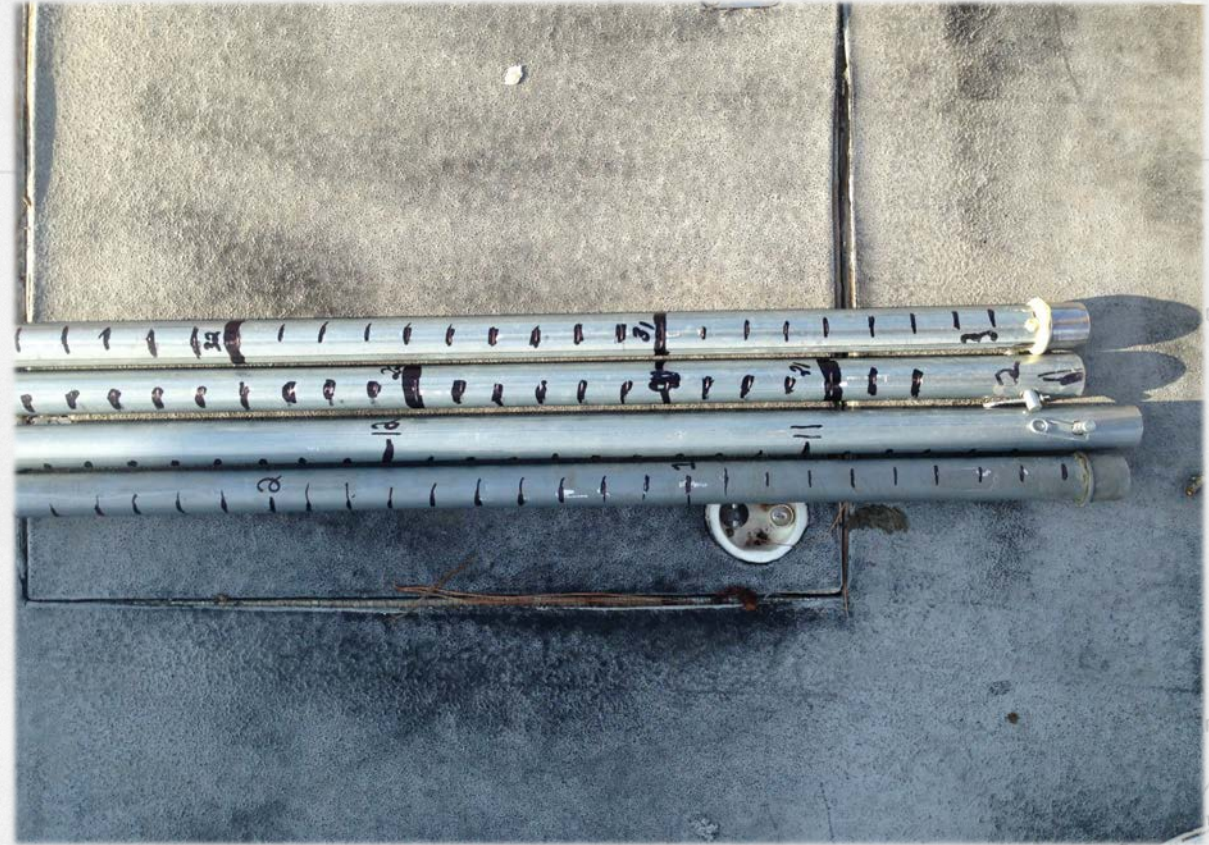


Sampling stations initially selected along shore parallel transects using 50' x 50' fishnet grid

Sediment Survey Sampling:



County Sampling Vessel
Navigating to Station



Graduated Sampling Probe

Sediment Survey Sampling:



Measuring Sediment Surface



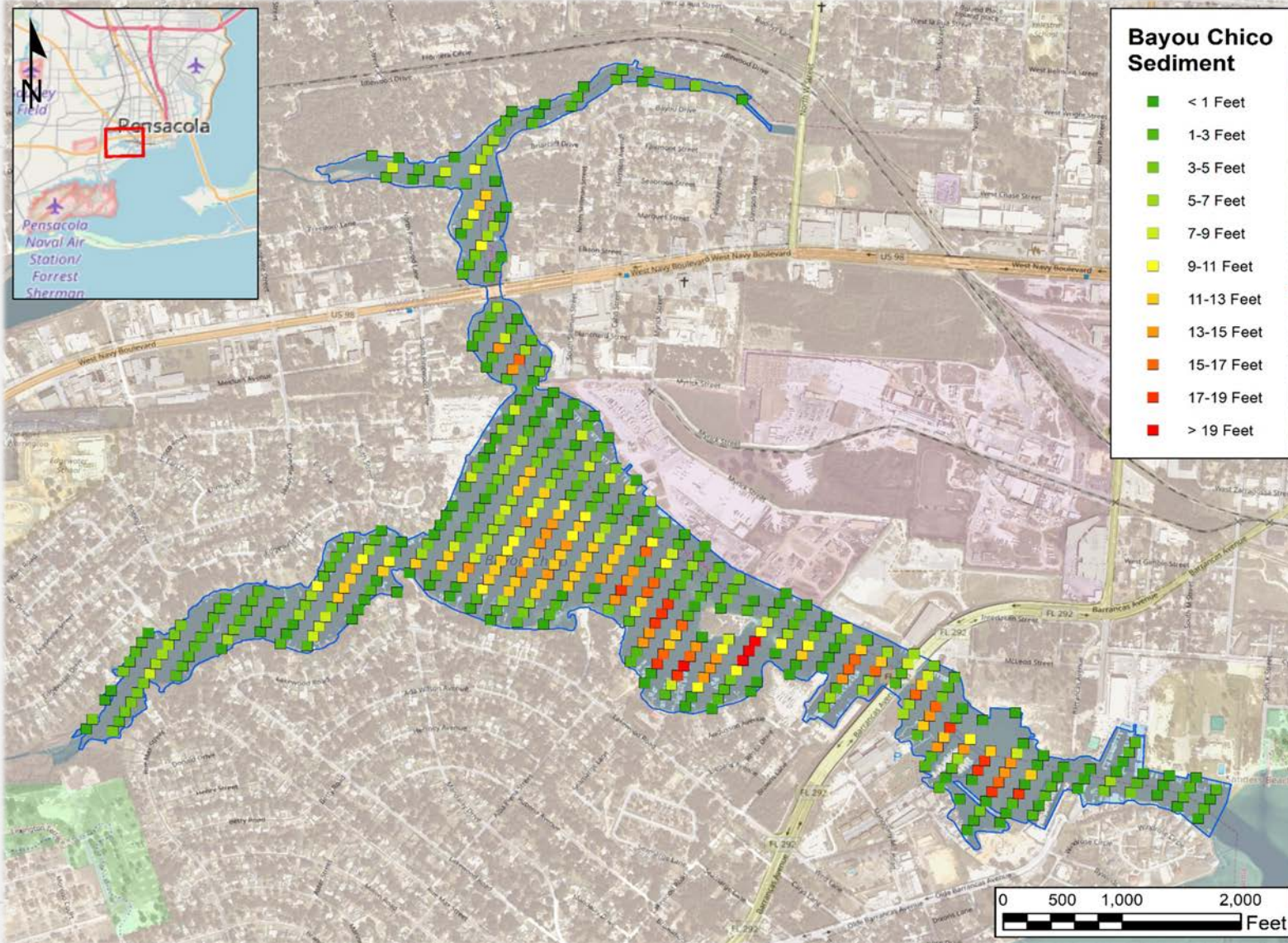
Measuring Sediment Extent

Sediment Survey Sampling:



Fine-Grain Sediments Measured & Data Recorded
at 485 Stations throughout the Bayou

Data Analysis:



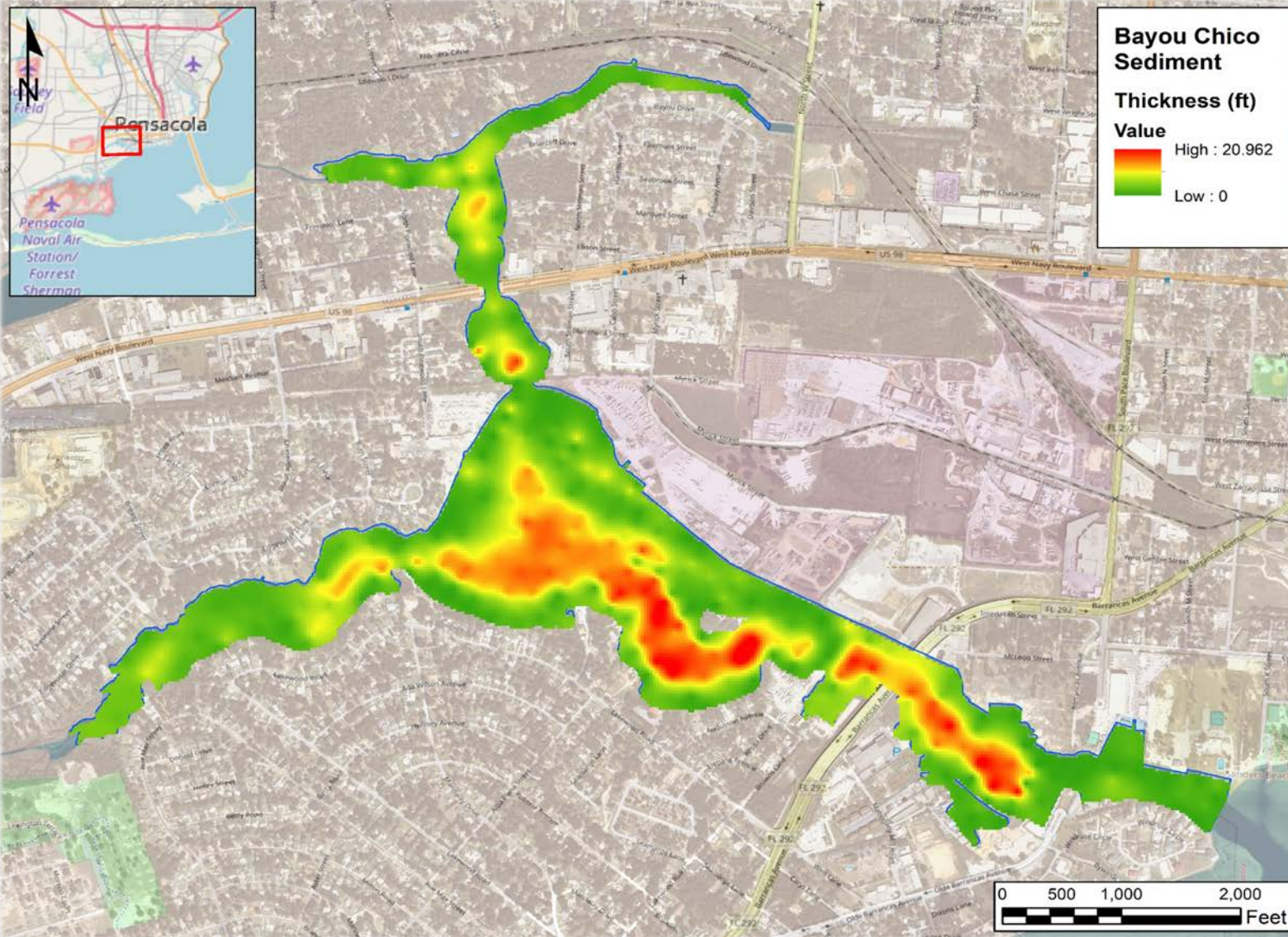
Thickness of Bayou Chico
Fine-Grain Sediments:

$n = 485$

Range: < 0.1 – 21.4 feet

Mean: 5.4 feet

Data Analysis:



Distribution &
Quantification using
Geospatial Interpolation:

Majority of material
located in two areas west
of navigational channel

Total volume estimated at
2,034,994 or 2.0 million
cubic yards

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Next Steps?

- Volume and distribution of fine-grain sediments does NOT equate to volume or distribution of contamination.
- An analysis of contamination types, concentrations, vertical / horizontal distribution, and cost-benefit will be necessary to calculate the actual volume and distribution of sediment to be remediated.

Questions?



brent wipf, Manager
Natural Resources Department
Water Quality & Land Management

Telephone: (850) 595-3445
Email: bawipf@myescambia.com

Download Complete Sediment Survey Report at
www.myescambia.com/RestoringBayouChico

