

Determining Changes in the Distribution of Oyster Habitats in Southwest Florida Using Archived Maps and Charts of Federal Agencies

Submitted by:

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Background

A key issue in oyster bar restoration is to establish a historical baseline showing pre-development location and extent of this hard-bottom habitat within a bay system. This project will provide index maps showing the geographical extent of large-scale maps and smooth sheets compiled by the U.S. Army Corps of Engineers and Coast & Geodetic Survey during the 19th and 20th centuries covering the southwest Florida coast. These historic source documents will be used to compile geographic information system (GIS) coverages for two pilot areas: Little Sarasota Bay and the Manatee River. A cartographic analysis will be undertaken to show changes in the distribution of oyster bars from 1879-80 to the present time: 1879-80 to 1953-55 will be derived from maps compiled by the University of Florida Sea Grant Team; the 1953-55 to 2000' period depends upon receiving a GIS coverage of the present distribution of oyster bars. This methodology should be useful in evaluating oyster habitat restoration in other areas of southwest Florida.

List of Deliverables

1. Generalized map of southwest Florida showing the geographical extent of U.S. Army Corps of Engineers survey maps for the period 1880-1939.
2. Generalized map of southwest Florida showing the geographical extent of U.S. Coast & Geodetic Survey Topographic (T) and Hydrographic (H) Sheets for the period 1855 – 1976.
3. Pilot Study 1: Little Sarasota Bay (Blackburn Pt. to Stickney Pt.)
 - 3.1 Oyster Bar Distribution in 1889

Sources:
Map of Sarasota Bay, Fla., July 19 – Aug. 7, 1889, 1:6,000, compiled by Capt. W.M. Black and J.B. Bacon, U.S. Army Corps of Engineers (for oyster bar depiction)
Little Sarasota Bay, Florida, 1883, 1:20,000, U.S. Coast & Geodetic Survey, Topographic (T-1517b) and Hydrographic (H-1559b) Sheets (for shoreline control)

Map interpretation, digitizing, shoreline matching of USACOE map to USC&GS sheets, georeferencing from Bessel Ellipsoid to Albers Projection,
Layout and design of map in ArcView geographic information system (GIS)
 - 3.2 Oyster Bar Distribution in 1955

Sources:
Florida West Coast, Little Sarasota & Blackburn Bays:
Venice Inlet to Midnight Pass, Feb – May 1955, 1:10,000, U.S. Coast & Geodetic Survey, Hydrographic (H-8154) Sheet
Vamo to Ringling Causeway, Jan 1954 – Mar 1955, 1:10,000, U.S. Coast & Geodetic Survey, Hydrographic (H-8098) Sheet

Map interpretation, digitizing, geo-referencing from North American Datum 27 to Albers Projection, Layout and design of map in Arc View geographic information system (GIS)

3.3. Change Analysis in Oyster Bar Distribution

Sources: 1889 and 1955 GIS coverages compiled above; contemporary oyster bar distribution from air photo interpretation as a GIS coverage, provided by the Sarasota Bay National Estuary Program

Cartographic analysis, presentation in map and graph formats, with area (acreage, percentage) statistics, showing the following trends: no change (oyster, water, land), oyster to water, oyster to land, water to land, land to water

Budget

The cost of this project is itemized below.

1.	Map of Army Corps of Engineers survey areas in southwest Florida.	\$500
2.	Map of U.S. Coast & Geodetic Survey survey areas in southwest Florida	\$500
3.	Pilot Study 1: Little Sarasota Bay	
	3.1 Oyster Bar Distribution in 1889	\$1,200
	3.2 Oyster Bar Distribution in 1955	\$1,200
	3.3 Change Analysis in Oyster Bar Distribution	\$1,200
	Subtotal Direct Cost for Sarasota NEP	\$4,600
	Indirect @5%	\$230
	Total Cost	\$4,830

Personnel

John Stevely, Sea Grant Marine Agent is the Principal Investigator and will provide overall project administration (1303 17th W, Palmetto, FL 34221; 941-722-4524, jmstevely@mail.ifas.ufl.edu). Gustavo Antonini will carry out the map interpretation and polygon digitizing. David Fann will be responsible for map scanning, geo-referencing, layout and design of maps in ArcView, and preparation of maps/graphs/summary statistics.