

National Fish and Wildlife Foundation

Gulf Environmental Benefit Fund

Pensacola Workshop Summary Report

Easygrants ID: 49540
Project Title: Florida Gulf Environmental Benefit Fund Restoration Strategy - Submerged Habitat Assessment (FL)
Organization: Florida Fish and Wildlife Conservation Commission
Project Term: 59-3105845
Workshop Dates: January 29-30, 2016

Introduction: *Describe the overall goals/purpose of the workshops.*

The workshop in Pensacola was designed to bring together seagrass experts from Perdido Bay and Pensacola Bay with the hope of locating published and unpublished datasets related to seagrass loss and recovery. Locating modern and historical fine-scale aerial imagery that could be used to map seagrass loss and provide a timeline of loss, and information on the status and trends of seagrass beds were additional objectives of the workshop. Finally, communication and collaboration among project partners and other organizations collecting data within our target estuaries were established.

Prior to attending the workshop, experts were assigned “pre-workshop homework” (see below). As outlined in the agenda provided, the first day of the workshop was broken into two parts. In the morning, experts presented information regarding sediment, water quality, and roadblocks to seagrass recovery. In the second part of the day, attendees participated in a discussion about each of the seven stressors outlined in the project proposal. The second day of the workshop was designed to discuss final details or thoughts regarding each estuary.

Overall the workshop was highly successful and met the objectives described in Task 6 below. We obtained historical data regarding seagrass loss and obstacles to recovery in Perdido and Pensacola bays. With the information received from the attendees, we were able to create a seagrass bibliography outlining potential sediment, water quality, and aerial imagery sources from which we can obtain historical data for each estuary.

Seagrass Workshop

Date: January 29th, 2016 8:30-11:30, January 30th 8:30-11:30

Location: Gulf Islands National Seashore Ft. Pickens Auditorium.

Pre-workshop homework

Our project goal is to facilitate natural recovery of seagrasses in our target estuaries, recognizing that the roadblocks to seagrass recovery are not necessarily the same as the reasons for historical seagrass loss. To that end, we want to inventory and locate all publications and data related to seagrass loss and recovery in these estuaries. Please list seagrass, sediment, and water quality related projects in which you have been involved. For each project, please list resulting reports and scientific papers. For each project, please indicate where data, imagery, and other work products reside and in what format.

Finally, based on your expert knowledge of each system:

What caused historical seagrass losses?

When did seagrass losses begin?

Where is seagrass loss continuing?

Where is recovery occurring?

In your expert opinion, what is the most important roadblock to seagrass recovery? List multiple barriers if appropriate.

Agenda Perdido & Pensacola Bay Seagrass Workshop 2016

Date: Friday, 29 January, 8:30 AM - 4:30 PM
Saturday, 30 January, 8:30 AM - 11:30 AM

Location: Gulf Islands National Seashore Ft. Pickens Auditorium.

Friday Morning

8:15 - 8:30.....Early bird coffee

8:30 - 8:40.....Introductions

8:40 – 9:00.....Overview of Project – Paul Carlson

9:00 – 9:20.....History of the Bay Systems – Ernie Rivers & Jackie Lane

Keynote Presentations

9:20 – 9:45..... Historical changes in seagrass coverage in Perdido and Pensacola Bay

Systems and causal factors – Mike Lewis/Chips Kirschenfeld

9:45 – 10:10.....Current assessment of seagrass coverage – Ken Heck or Beth Fugate (?)

10:00 – 10:30.....Current trends in water clarity, nutrient loads and salinity – Jim Hagy

10:30 – 10:45.....Coffee Break

10:45 – 11:15.....Hurricane impacts (Donald Ray & Glenn Butts)

11:15 – 11: 45.....Seagrass Restoration (impact of Living Shoreline projects) – Beth Fugate

11:45- 1:00 PM.....Lunch

1:00 – 1:30.....Potential impact of Oil spill funded Projects – Chips/Robert Turpin (?)

1:30--- 3:00Item by item map and literature discussion of “Roadblocks”

- 1) Light stress
- 2) Salinity pulses
- 3) Stratification and anoxia
- 4) Wind, wave, and tidal action
- 5) Sediment toxicity
- 6) Animal disturbance
- 7) Prop scarring

Where in the Pensacola and Perdido systems might each of these stressors be operating (maps)? Are there data and publications that have documented these stressors?

3:00—3:30.....Break

3:30 – 4:30.....Similarities and differences between Perdido and Pensacola, Synthesis

and Discussion

Saturday Morning

Assessing and summarizing new data sources/information

Remaining Data Gaps

Information needed to guide future restoration

Public workshop goals

Task-by-Task Summary

The focus of these workshops was to assess existing information for Pensacola Bay and Perdido Bay. Tasks 1, 2 & 3 were the primary focus of our discussions, and thus comprise the bulk of this report.

Task 1: *Determine estuary and site-specific roadblocks to SAV recovery for Perdido Bay, Pensacola Bay, Choctawhatchee Bay, St. Andrew Bay, and the Econfinia and Suwannee regions of the Big Bend.*

One major stressor that has led to seagrass loss and now inhibits recovery is light stress. Generally, a healthy seagrass bed needs about 22% of surface light. However, stressed or recovering seagrass beds need more light to support growth of new tissue. Low light levels in Pensacola Bay is attributed to runoff from the Escambia River watershed which brings in massive amounts of clay and other suspended solids. Historic information about the cutting and dredging of the Intracoastal Waterway beginning in 1940 was presented at the meeting. This constant dredging increases turbidity and the amount of total suspended solids in the water column. An attendee provided anecdotal accounts of large rafts of *Gracilaria spp.*, *Hypnea spp.* and other macroalgae growing in and among the already stressed seagrass beds. It was also brought to our attention that the Navarre waste water treatment plant discharges effluent into Pensacola Bay. Finally, Ken Heck, from Dauphin Island Sea Laboratory spoke about light attenuation data available since 2012 for Perdido Bay.

Salinity stratification and pulsing in Perdido Bay and Pensacola Bay can hinder regrowth of seagrass beds. The Environmental Protection Agency (EPA), University of West Florida, and Friends of Perdido have been collecting continuous salinity data since 2002, and these data were discussed. Personnel from Escambia County offered information regarding a shellfish dataset that includes data on salinity fluctuations through the bays.

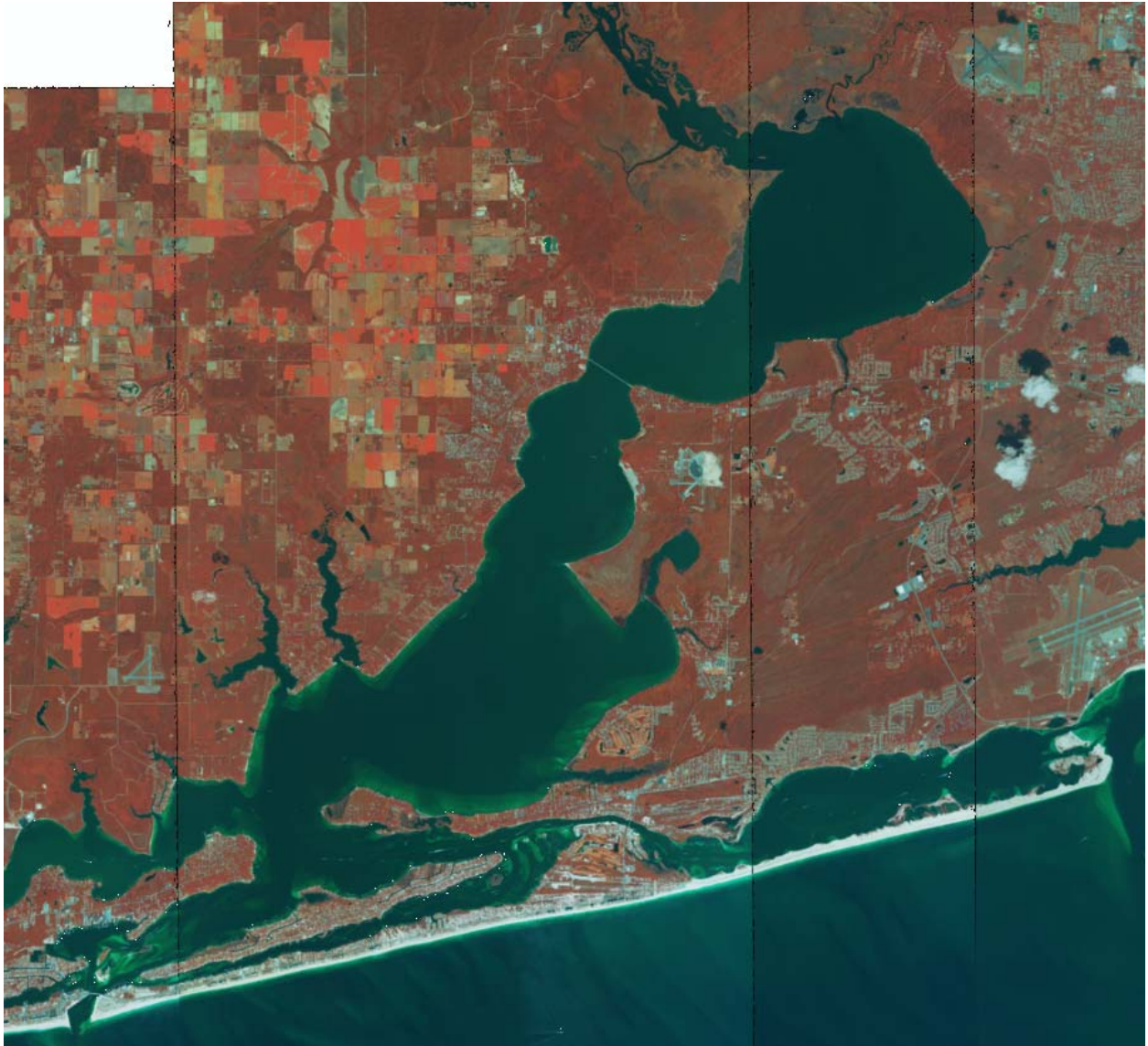
Project Greenshores, conducted by Escambia County, showed that high wind and wave energy along Pensacola Bay's broad littoral shelf is a major constraint of seagrass recovery. The project, which created breakwaters on the northern side of Pensacola Bay, led to recolonization by early successional seagrass species. High wind energy, along with sediment deposition, can bury already stressed *Thalassia testudinum* shoots. Shoreline alteration along the southern end of Pensacola Bay from beach, with gradual incline, to seawall may be increasing wave action due to energy reflection off the wall. As the wind energy increases, so does sediment resuspension, reducing light needed for seagrass maintenance and recovery.

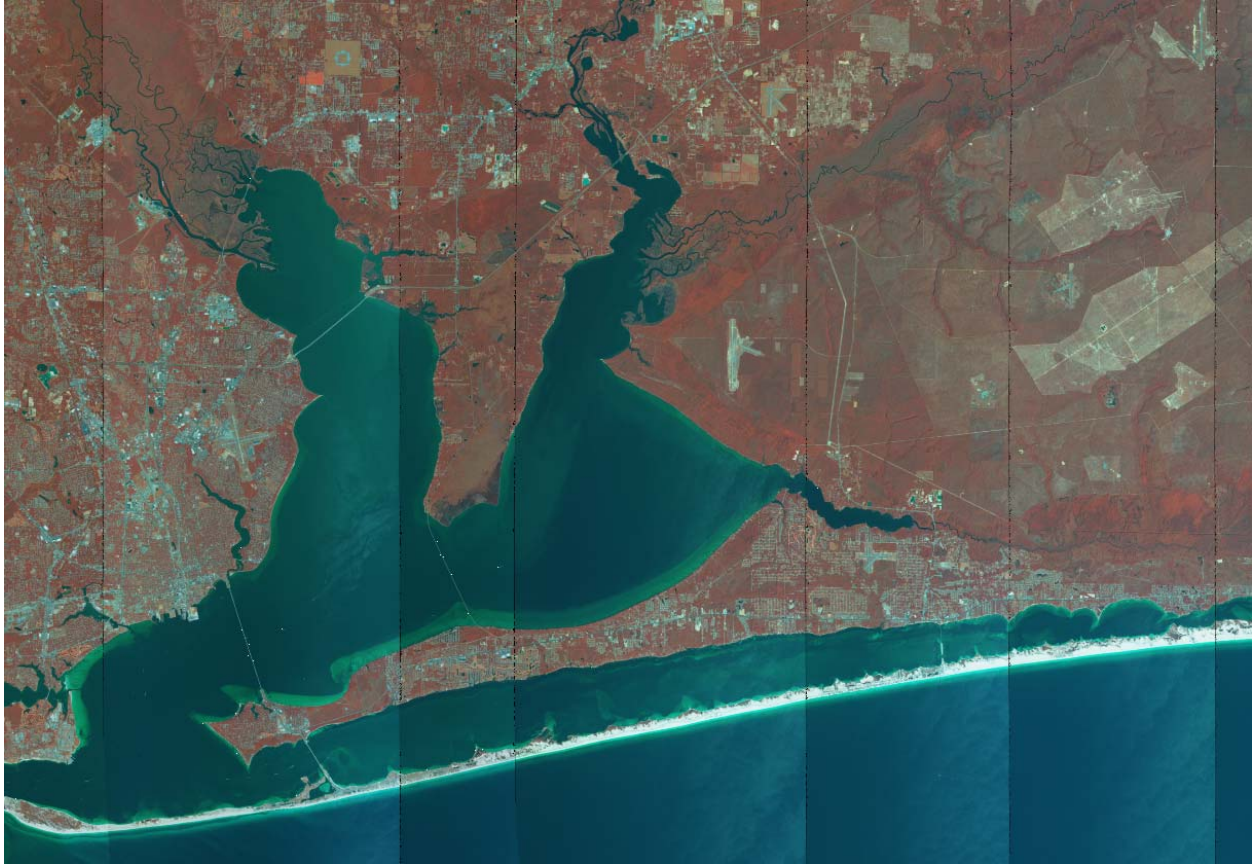
Sediment toxicity in the bays was briefly discussed by Mike Lewis, from EPA, who conducted a toxicity study. The effects of discharge from the Navarre waste water treatment facility into Santa Rosa requires further investigation; increases in sediment toxicity as a result of this discharge are a concern.

Physical and animal disturbance was addressed primarily by Ken Heck, a project partner from Dauphin Island Sea Laboratory. He discussed the topic of "tropicalization" or the trend of tropical species moving northward as warming continues. Seagrass grazers, such as parrot fish and green turtles, have been steadily "tropicalizing" and are now frequently seen in Perdido and Pensacola bays. Information on cownose rays will be mined from FWC Fisheries Independent Monitoring surveys. Propeller scars caused by boats was also discussed as a constraint to seagrass recovery. Ken Heck has conducted a "bird stake" project to increase recovery in the scar. It utilizes passive fertilizer in guano produced from a bird perched on the stake, but is best for phosphorus limited environments.

Task 2: *Perform SAV assessment and evaluate fine-scale aerial imagery for funded restoration projects.*

The maps below are were created from aerial imagery flown in 2015 by the U.S. Department of Agriculture (USDA) National Agricultural Imagery Program (NAIP). The first map shows Perdido Bay and the second map is of Pensacola Bay.

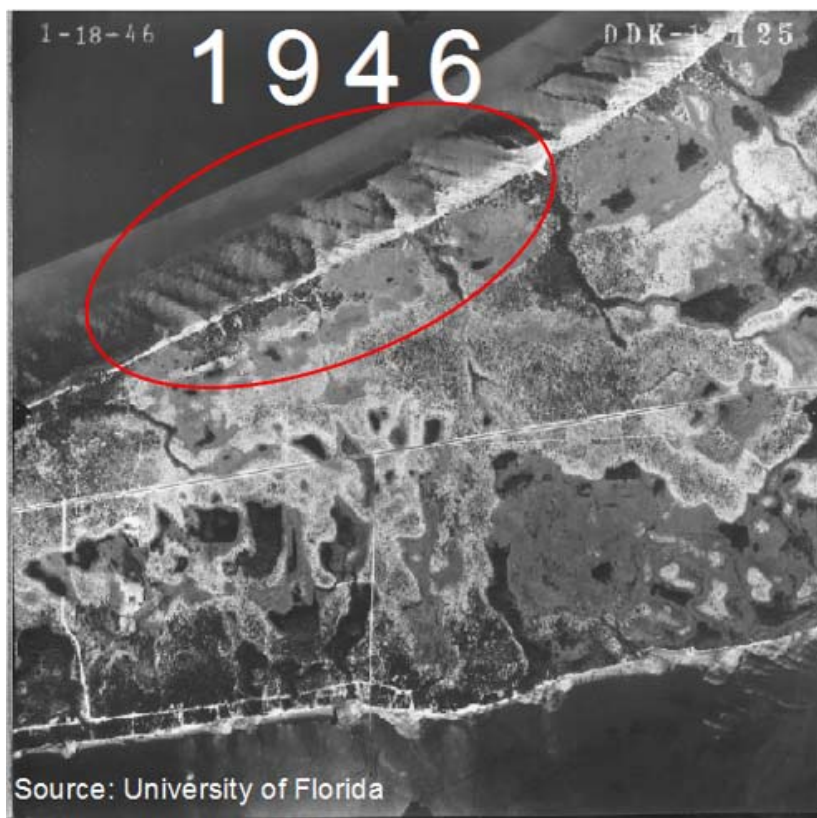




Task 3: Assemble and create, where necessary, current and past status and trends maps for SAV throughout the project area and identify and prioritize restorable SAV habitat throughout the project area.

Below are two posters created for the workshop displaying immense seagrass loss in two locations in Pensacola Bay. Also shown at the workshop were maps outlining historical seagrass beds created by the National Wetland Center. We are currently locating the shapefiles of these maps. The National War Archive was suggested as a source for historical aerial imagery obtained by the Air Force during WWII.





Pensacola Bay Seagrass



Task 4: *Using available data supplemented by field sampling, build estuary and site-specific time series of optical water quality data for the period 2002-2015.*

Data collected through field sampling was not discussed because this effort is just getting started. However, optical water quality data for 2002-2015 can be obtained from the EPA, Dauphin Island Sea Laboratory, and Friends of Perdido as described under Task 1.

Task 5: *Build a user-friendly website for retrieval of current and historical water clarity data throughout the project area, relying heavily on the 13-year MODIS satellite water clarity time series.*

This task was not discussed because our project partner at USF is currently working on integrating the Panhandle estuaries into the MODIS website.

Task 6: *Conduct joint workshops and incorporate up-to-date SAV information produced in Tasks 5 and 7 for restoration planning in the Big Bend region and Panhandle estuaries, respectively.*

The Pensacola workshop was one of the three workshops fulfilling this task. We discussed the possibility of developing another Project Greenshores restoration plan for the southern side of Pensacola Bay.

Task 7: *Based on elements 1-6 above, build an online, distributable, and spatial SAV recovery potential (SRP) model, showing roadblocks and recommended restoration strategies in all estuaries to inform restoration project planning and selection. Distribute all project data online as shapefiles and Google Earth kml files. Develop specific project recommendations for SAV recovery in each estuary.*

This task was briefly outlined while introducing the overall project to the group; building of the model is underway. The location to place all the future shapefiles and Google Earth kml files for public access was discussed.