

APALACHICOLA BAY SYSTEM ECOSYSTEM-BASED ADAPTIVE RESTORATION AND MANAGEMENT PLAN

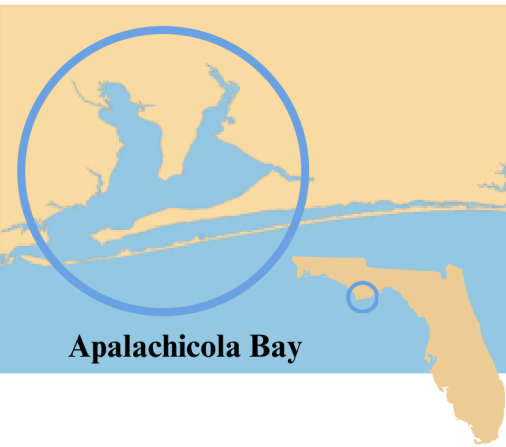
Recommendations on How to Restore and Maintain a
Healthy Apalachicola Bay System



Authored by the Apalachicola Bay System Initiative
Community Advisory Board

22 January 2024

EXECUTIVE SUMMARY



The Apalachicola Bay System Ecosystem-Based Adaptive Restoration and Management Plan is a key deliverable of the Apalachicola Bay System Initiative (ABSI), a multidisciplinary effort led by the Florida State University Coastal & Marine Laboratory (FSUCML). ABSI has been supported primarily by a grant from Triumph Gulf Coast, Inc., with contributions from Florida State University and The Pew Charitable Trusts.

The Plan was developed over the course of nearly four years by a representative group of community members formed into a Community Advisory Board (CAB). The 21 members of the CAB include local government officials as well as representatives from the seafood industry, commercial and recreational fishing industry and environmental groups, state agencies, and institutions of higher learning. Plan development by the CAB took place in collaboration with the ABSI scientific leadership team and a professional neutral facilitator (Jeff Blair, Facilitated Solutions, LLC) who provided process design and consensus building.

The plan consists of structural elements built around the following five goals:

Goal A: The Apalachicola Bay System is a healthy and productive ecosystem that includes oyster reefs in locations and with oyster abundance as similar to historical conditions as possible and supports a vibrant and sustainable oyster fishery and other economically viable activities.

Goal B: The Apalachicola Bay System is a productive, sustainably and adaptively managed system that supports sustainable oyster resources and ecosystem services such as water quality and wildlife and fisheries habitat.

Goal C: The Apalachicola Bay System Ecosystem-Based Adaptive Restoration and Management Plan is supported by the Apalachicola Bay System stakeholders and is fully funded.

Goal D: A productive and well-managed Apalachicola Bay System is supported by an actively engaged and informed stakeholder community and public.

Goal E: The broader Apalachicola Bay Region is thriving economically as a result of a fully restored Apalachicola Bay System.

Each goal has an accompanying vision theme, defined outcome, and a series of objectives. To achieve these objectives, each goal has a series of strategies with associated actions to implement these strategies.

Goal A focuses on the restoration of the Apalachicola Bay System ecosystem to promote enhanced ecological and ecosystem services including a sustainable oyster fishery. **Goal B** is more narrowly focused on establishing adaptive management of a sustainable oyster fishery in the Bay. It is anticipated that the major end-users of the elements and recommended actions defined in Goals **A** and **B** would be state agencies charged with the implementation of restoration and new management efforts. Goals **C**, **D**, and **E** involve advisory recommendations for the implementation of the restoration and management plan, outreach, and interface with all community members as well as broader economic development issues. It is anticipated that the Partnership for a Resilient Apalachicola Bay (CAB Successor Group) will be the primary end-user of these elements of the plan.



“We see oysters coming back in the Bay, but the question is how to stop them declining again after the fishery opens.”
- Shannon Hartsfield
Oysterman

Cover Page\ Top: Oystermen deploying ABSI restoration materials 2021. Left: Volunteer conducting intertidal samples. Middle: Oyster cluster from Apalachicola Bay. Right: Measuring reef size.

This Page\ Top: Apalachicola Bay system highlight graphic. Middle: Oystermen helping with restoration experiment work Bottom: ABSI technician deploying oyster restoration bags.

CULTURAL AND ECONOMIC VALUE OF OYSTERS

1890s



1940s



2000s



1900s



1970s



The Eastern oyster has played a significant part in the history of Apalachicola, with their economic importance increasing in the mid-19th century. At its peak, the Apalachicola oyster industry provided about **90%** of all the oysters sold in Florida and **10%** percent of those distributed throughout the United States. Oysters represent the very fabric of Apalachicola's culture and the identity of its people.

In addition to their economic worth, oysters have remarkable ecological value. They are considered keystone species, which is a species that has a strong influence on the diversity and structure of their communities. Individual oysters are capable of filtering particles from the water column at a rate of up to 50 gallons a day. This leads to improved water quality, which in turn contributes to a healthy estuary. Oyster reefs provide critical refuge, feeding grounds, and nursery habitat for many other economically and ecologically important fish and invertebrate species, and feeding habitat for shorebirds.

Oysters are also ecosystem engineers — species that physically modify, maintain or create habitats to which other species recruit. Oyster larvae settle en masse on hard substrate, including existing oyster shells, and can develop massive, architecturally complex reefs. These reefs create physical barriers that protect shorelines from the wave and storm energy that causes coastal erosion.

When oysters, a critically important species, are lost from an ecosystem, the habitat, and associated community shifts to a different state, which results in the loss of the economic and ecological services provided by that ecosystem. Protecting and restoring oyster populations is therefore vital to the health of the Apalachicola Bay System.

This Page\ First: Oyster Fishermen on a Boat in Dock at Apalachicola, Florida circa 1890. Second: Oyster Tonging circa 1900 Third: Apalachicola Fish and Oyster Company Workers Tonging for Oysters - Apalachicola, Florida, 1947. Fourth: A Boy Watches His Father Shucking Oysters on a Boat, 1972. (Photos 1 - 4 Courtesy of State Archives of Florida). Fifth: Tonging of Oysters, 2007. (Photo courtesy of Franklin County Tourism Development Council).

THE PROCESS



“The Community Advisory Board’s recommendations for the management and restoration of Apalachicola Bay are the result of consensus-building, collaboration, and an open and transparent process that provided opportunities for everyone to be heard.”

- Chad Hanson
CAB Member and
Officer with The Pew
Charitable Trusts

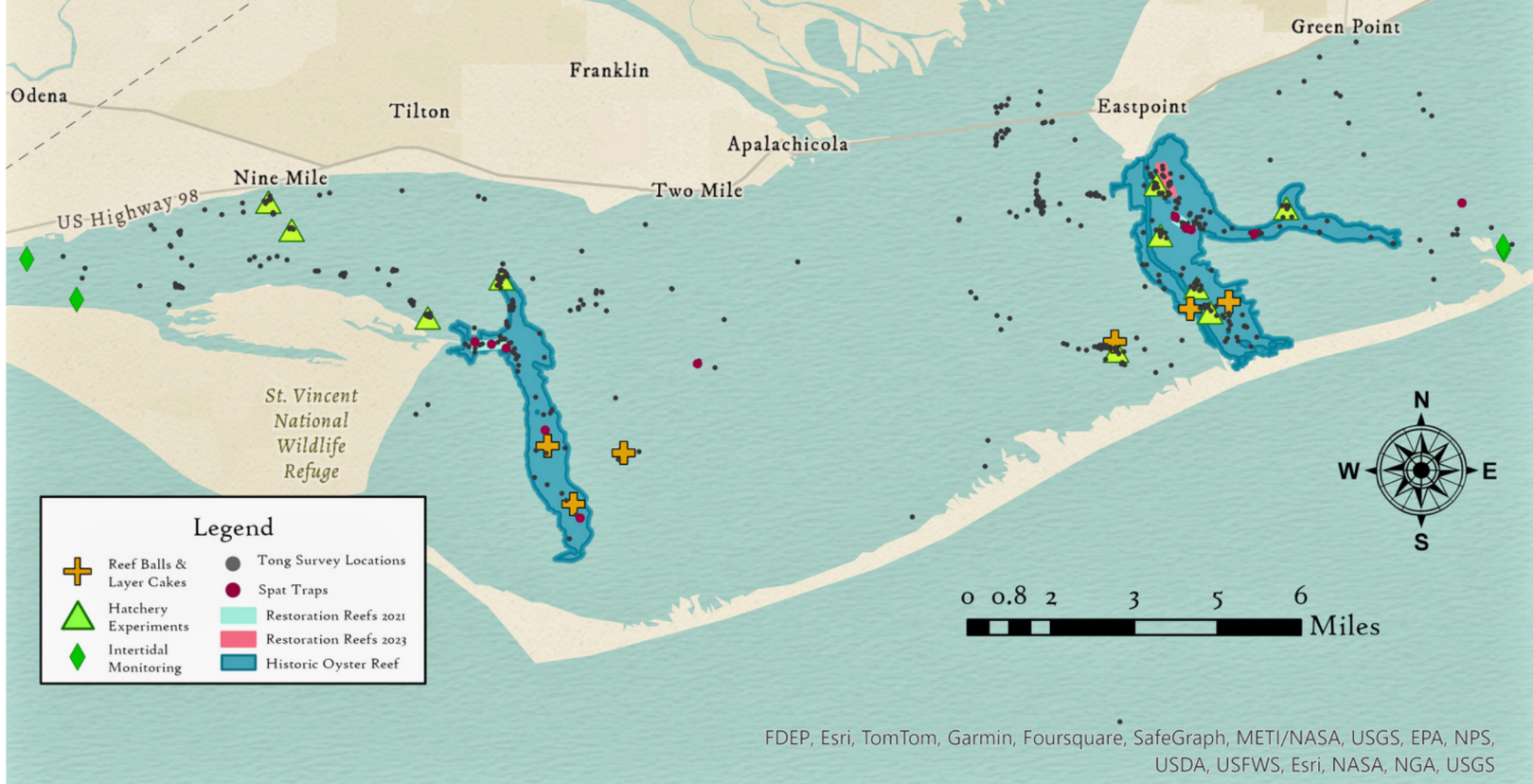
The ABSI project was built on a foundation of prior and ongoing work conducted by several entities including the FSUCML, Florida Fish and Wildlife Conservation Commission (FWC), Florida Fish and Wildlife Research Institute (FWRI), University of Florida (UF), University of South Florida (USF), Apalachicola National Estuarine Research Reserve (ANERR), the Florida Department of Environmental Protection (DEP), the Florida Department of Agriculture and Consumer Services (DACS) and The Nature Conservancy (TNC). Over the past four years, the ABSI science team has produced an extensive body of research into various aspects of the biology, ecology, and geochemistry of the ABS, including a series of experiments to evaluate restoration approaches. The ABSI project annual reports summarize the research and outreach accomplishments and can be found on the FSUCML ABSI website.

A key component of the ABSI project is to involve community members in a meaningful consensus-building process for the development of an ecosystem-based oyster management and restoration plan. This was accomplished through the CAB, which was also tasked with providing input into this process. The CAB met publicly 28 times over the course of nearly four years. A consensus process was used to achieve objectives at each meeting. The effort first focused on the development of management and restoration vision themes, goals, outcomes, objectives, and performance measures. A set of strategies for each goal was then developed with relevant performance measures followed by a prioritization exercise for each set of strategies. Decision support tools were then used to test support for strategies linked to oyster management and fisheries. Finally, strategies in the plan framework were subjected to rounds of acceptability ranking exercises ultimately producing an approved draft Restoration and Management Plan, which was out for public review and comment for over one year. In addition to the CAB meetings, ABSI hosted four oystermen’s workshops, and three community workshops, and hosted booths at several local events. These workshops were imperative to ensure local knowledge and perspectives were included in the recommendations and final Plan.

A local community group will replace the existing CAB and will monitor progress in the implementation of the adaptive management and restoration plan. This body has recently been constituted and is called the Partnership for a Resilient Apalachicola Bay (The Partnership). Anita Grove, City Commissioner of Apalachicola, states, “Funding for the coordinator position is critical as we transfer from the development phase of the restoration management plan to the implementation phase. The coordinator will ensure that the local community remains at the table advancing the restoration and management of the Bay. Buy-in from the local community is vital as their knowledge of the Bay and commitment to the process will help ensure success.”



This Page\ Top: Snapshot of a CAB community workshop.
Bottom: Group photo of the CAB members.



FDEP, Esri, TomTom, Garmin, Foursquare, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

SCIENCE AND RESEARCH

For the past four years, ABSI has conducted extensive research into different aspects of Apalachicola Bay ecology, with the overarching goal of generating scientifically defensible data to inform the restoration and management of the Apalachicola Bay System. This effort has included generation of high-resolution hydrodynamic models that help us understand how river flow, wind, tides and currents influence environmental conditions in the Bay, and ultimately how these drive oyster larval dispersal and habitat suitability patterns. Research on oyster physiology and how different life stages are affected by environmental extremes and disease levels help understand effects of local stressors. A series of bay-wide surveys have shown the severely degraded condition of the once productive oyster reefs, and small scale restoration experiments have helped identify the best approaches for large scale restoration efforts.

“Science can help us facilitate oyster population recovery, and restoration can be implemented with funding, but only the oysters can recreate a functioning ecosystem, and that will take time.”

- **Sandra Brooke, Ph.D.**
 FSUCML Research Faculty and ABSI Principal Investigator



This Page\ Top: GIS map of Apalachicola Bay
 Bottom Left: ABSI field work in Apalachicola Bay.
 Bottom Right: Deploying artificial reef layer cakes in Apalachicola Bay.

THE PLAN FRAMEWORK



**A HEALTHY AND
PRODUCTIVE BAY
ECOSYSTEM**



**SUSTAINABLE
MANAGEMENT
OF OYSTER
RESOURCES**



A

**Strategy and Action
Example - GOAL A**

B

**A HEALTHY AND
PRODUCTIVE BAY
ECOSYSTEM**

VISION: The Apalachicola Bay System is sustainably managed to ensure the ecosystem is productive and economically viable.

OUTCOME: By 2030, the Apalachicola Bay System is a healthy, productive ecosystem that supports a viable oyster fishery and other economic opportunities.

7 Strategies, 33 Actions

STRATEGY: Establish monitoring methods that can be used to help restore and manage the Apalachicola Bay System, including oysters.

5 ACTIONS

Develop Ecosystem Service targets to guide restoration

Assess use of spat on shell for restoration

Conduct restoration experiments to identify best material and location

Create ecosystem models to inform management

Restore and create reef structures

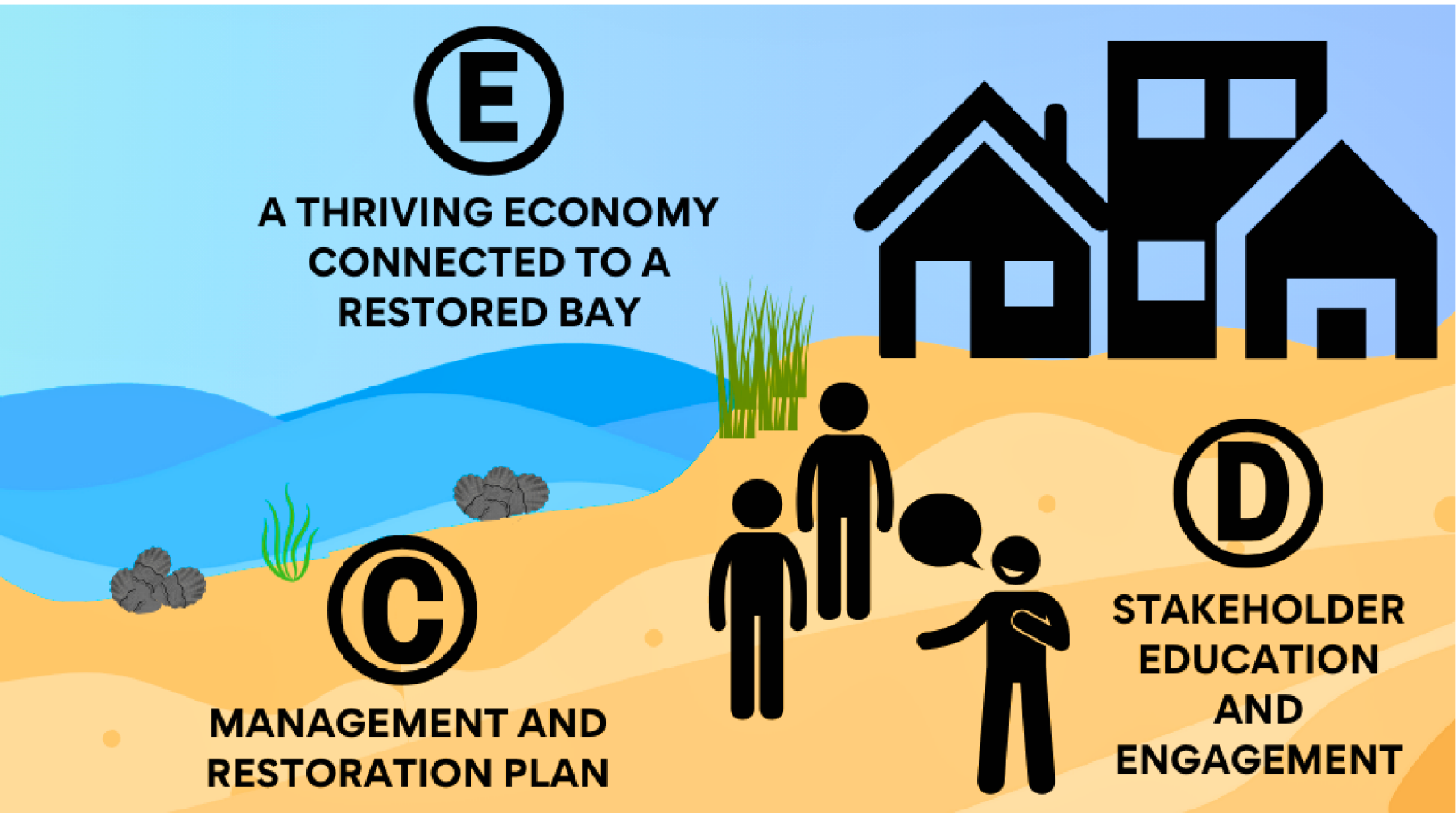
**SUSTAINABLE
MANAGEMENT OF
OYSTER RESOURCES**

VISION: A sustainably managed and enforced wild oyster fishery with a management plan that protects the resource and provides fair access to stakeholders.

OUTCOME: By 2030, a science-driven plan will be in place to sustainably manage oyster resources in the Apalachicola Bay System.

9 Strategies, 40 Actions

KEY ELEMENTS



C

D

E

MANAGEMENT AND RESTORATION PLAN

VISION: The Apalachicola Bay System Ecosystem-Based Adaptive Restoration and Management Plan is developed with support from stakeholders who will help implement the Plan.

OUTCOME: By 2030, the Apalachicola Bay System will be a productive and sustainably managed ecosystem with an Ecosystem-Based Adaptive Restoration and Management Plan.

2 Strategies, 13 Actions

STAKEHOLDER EDUCATION AND ENGAGEMENT

VISION: Community members support the implementation of best management practices and serve as a communication hub between stakeholders and management.

OUTCOME: By 2030 the public are aware of the importance of sustaining the health of the Apalachicola Bay System and are working together to implement the Plan.

2 Strategies, 6 Actions

A THRIVING ECONOMY CONNECTED TO A RESTORED BAY

VISION: Apalachicola Bay sustains commercial fisheries, aquaculture, tourism and other development opportunities that support a strong economy and resilient coastal community.

OUTCOME: By 2030 Apalachicola Bay is thriving economically due to a restored Apalachicola Bay System.

2 Strategies, 9 Actions



COMMUNITY ADVISORY BOARD MEMBERS

- Georgia Ackerman** - Apalachicola Riverkeeper
- Micheal Allen** - University of Florida, Institute of Food and Agricultural Sciences (IFAS) Nature Coast Biological Station
- Ottice D. Amison** - Franklin County Commission
- David Barber** - Barber’s Seafood
- Frank Gidus** - Coastal Conservation Association, Florida
- Anita Grove** - Apalachicola City Commission
- Chad Hanson** - The Pew Charitable Trusts
- Jenna Harper** - Apalachicola National Estuarine Research Reserve
- Shannon Hartsfield** - Seafood Management Assistant Resource and Recovery Team
- Becca Hatchell** - Florida Fish and Wildlife Conservation Commission (FWC) Marine & Estuarine Habitat Conservation & Restoration
- Gayle Johnson** - Indian Lagoon Oyster Company
- Katie Konchar** - The Nature Conservancy
- Erik Lovstrand** - Florida Sea Grant Extension
- Chuck Marks** - Acentria Insurance
- Steve Rash** - Water Street Seafood
- Devin Resko** - FWC, Marine Fisheries Management
- Alex Reed** - Florida Department of Environmental Protection, Office of Resilience and Coastal Protection
- Portia Sapp, Carrie Jones (alt.)** - Florida Department of Agriculture and Consumer Services
- Grayson Shepard** - Charter Guide
- Chadwick Taylor, Ken Jones (alt.)** - Riparian County Stakeholder Coalition
- Paul Thurman** - Northwest Florida Water Management District

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This Page\ Top: Looking at Apalachicola’s East Bay from Eastpoint (Photo courtesy of Apalachicola National Estuarine Research Reserve)

