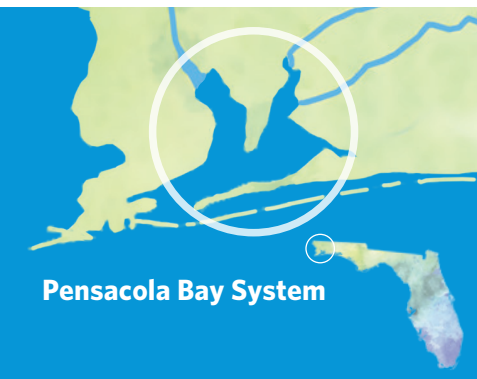




Restoring A Critical Marine Habitat

Oyster Fisheries and Habitat Management Plan
for the Pensacola Bay System

EXECUTIVE SUMMARY



A lot of decisions
made in the past
didn't really take
into account
fishermen's
perspectives very
much at all.

~ **Travis Gill,**
Aquaculture Farmer

Nearly a decade ago, a landmark study published in *Bioscience* by leading researchers revealed that shellfish habitat, namely oyster reefs, had declined by 85% worldwide. This finding was striking given the multiple and essential roles that oysters play in our marine ecosystem as a species, a fishery, and habitat creators. Oysters are not just central to providing habitat for numerous fish, shellfish, birds and other animals, they stabilize bottom sediments and support recreational and commercial fisheries.

Of particular relevance to Florida, the report underscored that oyster fisheries in the Gulf of Mexico are the last remaining opportunity to achieve both large-scale oyster reef conservation and sustainable fisheries. Unfortunately, there has been a sharp decline in both the fisheries and habitat since the study was conducted. The Pensacola Bay System in Florida's panhandle region has also experienced the same precipitous decline of oyster reef area, amounting to at least a 72% loss since the 1980's and the fishery has suffered.

The deep roots and traditions of the oyster fishery that shaped the waterfront communities in Pensacola are vanishing, and a collection of informed, invested and motivated stakeholders are taking decisive action to restore and safeguard this unique bivalve and all it can contribute to the regional community, economy and health of the environment.

This group of scientists, government and business representatives, oystermen, engineers, fisheries experts, and advocates has been undeterred in their collective goal to replenish and recover Pensacola's oyster population. An improved and sustainable future for oysters is within reach through the Oyster Fisheries and Habitat Management Plan.

Convened by The Nature Conservancy (TNC), the strategy this dedicated group developed over the course of two years represents the first ecosystem-based fisheries management plan in Florida, one that integrates a community's environmental, economic, and social well-being goals with the goals for marine resources.

The plan addresses management of the wild oyster harvest fishery and aquaculture farming in harmony with the recovery of oyster habitat, and can serve as a model for management of oyster resources not only throughout Florida's estuarine systems and the Gulf of Mexico, but across the United States and globally.

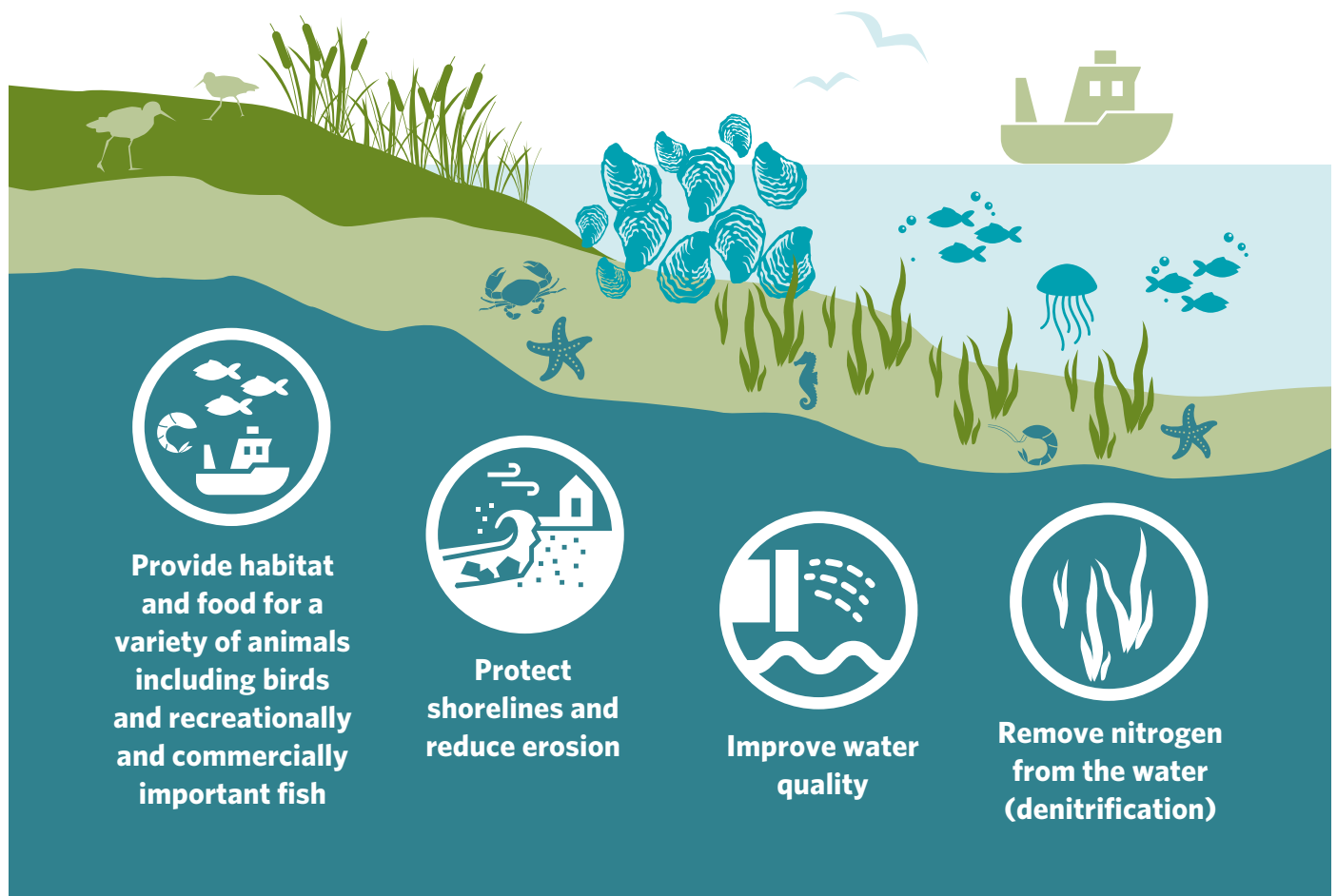
Building back a thriving oyster fishery is critical to ensuring a prosperous working waterfront and the ecological health of the bay — through this effort, we are on our way to replenishing our oyster reefs for the betterment of our natural environment.

COVER TOP TO BOTTOM LEFT TO RIGHT Pensacola East Bay © Devin Ford; Volunteer holding oysters © Jennifer Emerling; Oyster shells to be used as the foundation for new oyster reefs © Carlton Ward Jr.; A Tricolored Heron hunts for small fish among the exposed oyster reefs © Erika Nortemann/TNC; THIS PAGE Pensacola Bay Oyster Company dock © Anne Birch/TNC

OYSTERS: MORE THAN MEETS THE EYE

Ecosystem Services

Oysters are unique among fisheries and coastal habitats – they are a species, a fishery, and as one of the most important ‘fish making’ habitats, they also create reefs that provide a suite of valuable ecosystem services:



“The bay system has changed pretty drastically over my 50 years of working on it. When I was a young feller with my grandfather, I’d see 20-25 boats oystering every day in Escambia Bay. If an oysterman could catch ten 50 pound sacks of oysters a day we could have some oystermen working the bay.”

~ **Pasco Gibson**, *Oysterman*

Cultural & Economic Value

Oyster restoration and management can also have a positive impact on the local economy and have deep roots in the cultural history of our coast:

- The loss of oyster habitat and production has impacted the fishing community reliant on oyster harvesting as their main source of income.
- In 2016, the EPA estimated the annual value to the public of oyster reef habitat in the Pensacola Bay System to be \$1.7 million.
- The loss of oyster reefs erodes the community's cultural heritage and a way of life shaped by oyster fishing across many generations.
- Without oyster reefs, there is a trickle-down effect leading to a decline in biodiversity and the overall health and productivity of the bay system.
- Increasing the number of oysters in the bay system for harvesting, aquaculture and habitat has a domino effect on the community's economy and culture – an increase in commercial fishing activity that grows oyster harvester and farmer income can create an uptick in the sales of associated industries (e.g., restaurants, fuel, boat repairs), and boost tourism and local revenue for the community.



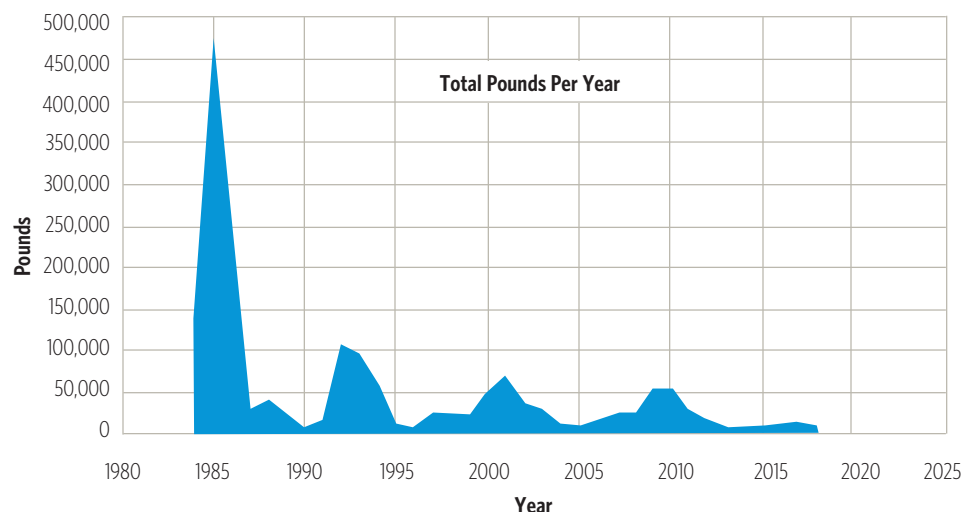
"The biggest threat to the Pensacola Bay fishery, oyster, fish and all, is us, man. Development not being monitored with respect to the stormwater runoff, that's going to be the killer of our oysters."

~ Calvin Sullivan,
Oysterman

Mapping the Precipitous Decline of Oysters

Oyster reefs were once widely distributed throughout the Pensacola Bay System, providing habitat for recreationally and commercially important sportfish and shellfish, services such as water clarification and nutrient removal, and substrate stabilization. They have experienced substantial decline over the last several decades and a recent survey of oyster habitat has found very few reefs with live oysters.

Oysters Landed in Pensacola 1984-2018 (FWC)



THE OYSTER FISHERIES AND HABITAT MANAGEMENT PLAN AT WORK

Community-centric Approach

The Oyster Fisheries and Habitat Management Plan was designed using a collaborative and consensus-based process to ensure that all stakeholders had an equal voice and hand in developing – and implementing – a shared roadmap for recovery.



TNC worked with the Florida Fish and Wildlife Conservation Commission (FWC) and the Florida Department of Agriculture and Consumer Services (FDACS) Division of Aquaculture on how to initiate oyster planning at a bay-scale in the absence of a state plan.

With support from the local community, TNC designed and managed the overall planning process. This included convening the meetings, providing the science and data needed to inform the plan, contracting Facilitated Solutions, LLC – neutral facilitators with 30 years of experience – to conduct the meetings, and draft the final plan. Twelve Steering Committee meetings and two workshops with area watermen were held over 18 months with members collectively donating more than 800 hours of their time.

The result is a model for community ownership and management based on the best available science. The plan is designed to be an adaptable and ever-evolving document that is regularly revised as more data is collected, work is completed, and underlying conditions change.

Participants in the plan's development include:

- Oyster harvesters and aquaculture farmers
- State and local government agencies
- Northwest Florida Water Management District
- Economic and development interests
- University and consultant scientists
- Community organizations, including Pensacola and Perdido Bays Estuary Program

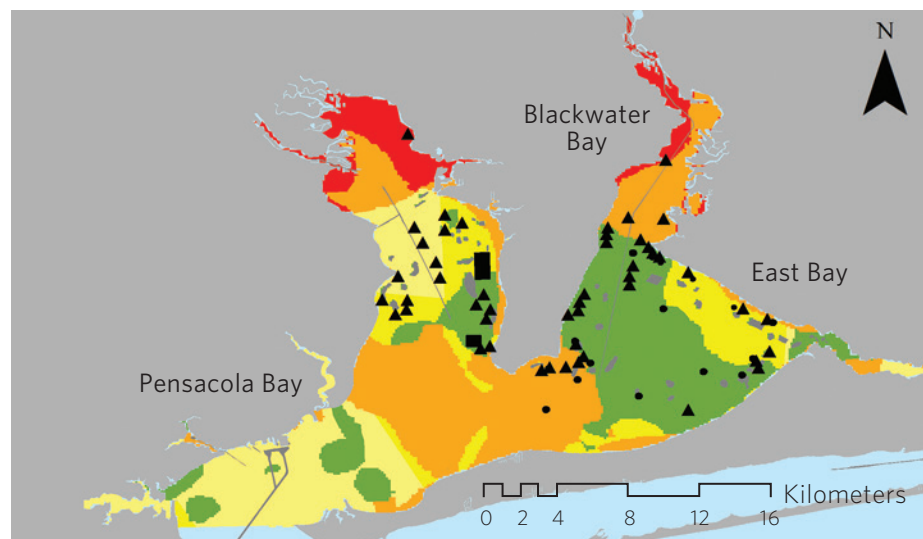
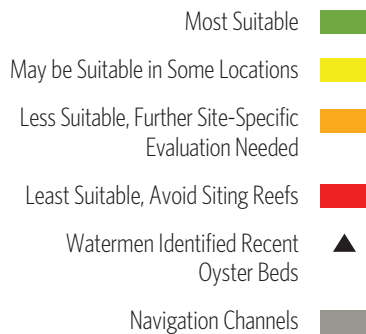


East Bay oysters, people would drive 100 miles just to get a bag of them. They're known to be one of the best in the country. That's a fact.

~ **Tommy Pugh,**
Oysterman

THIS PAGE LEFT TO RIGHT Oyster fishermen with map © Andrea Graves/TNC; Pensacola Bay Oysters © Anne Birch/TNC

Pensacola Bay Oyster Habitat Suitability Model



Informed by Science

As a science-led organization, TNC was able to apply their expertise in aiding the working group to develop a plan based on sound science and data. TNC developed an Oyster Habitat Suitability Model (HSM) that identifies the most promising areas for oyster reef restoration, wild oyster harvest and aquaculture, and ecosystem services regeneration. This model informed the plan and related strategies and will continue to evolve as work progresses and more information becomes available.

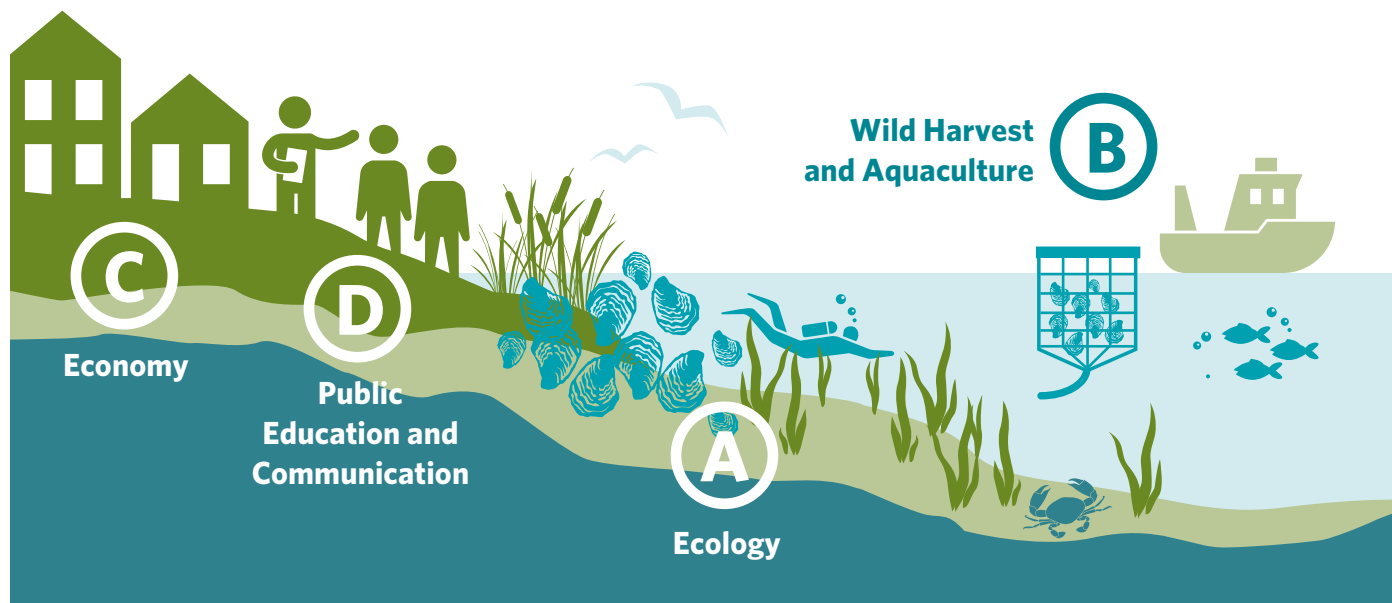
Scientists from the working group and invited experts offered a science-based perspective and the data necessary to evaluate, inform and ground the decisions being made by the stakeholders.

Implementation Milestones

The Pensacola and Perdido Bays Estuary Program (PPBEP) is integrating the top priority strategies of the plan into their first Comprehensive Conservation and Management Plan and has created an Oyster Sub-Committee, composed of working group members and others. The sub-committee will guide the plan's implementation and make sure it is actionable and adaptable. With a plan in place, the community of the Pensacola Bay System is in a prime position to leverage funding sources such as Deepwater Horizon oil spill settlement funds and other public and private sources to advance the goal of restoring Pensacola Bay's water quality and oyster fishery and habitat.

THIS PAGE Suitability Model © TNC; Oyster reef close-up © Anne Birch/TNC; Working Group meeting © Anne Birch/TNC

Key Elements and Outcomes



A: Ecology

A Healthy and Productive Oyster Reef Ecosystem

Focuses on the importance of oyster habitat to the overall health of the Pensacola Bay System.

Outcome: By 2030, the oyster reef ecosystem within the bay is managed in a sustainable manner providing measurable ecosystem services.

B: Wild Harvest and Aquaculture

The Management and Regulation of the Oyster Fishery and Aquaculture Industry

Focuses the recovery and management of the wild harvest fishery and management of the aquaculture industry such that long-term sustainability is achieved, and these elements complement the restoration of oyster habitat.

Outcome: By 2030, oyster reefs in the Pensacola Bay System support a sustainably managed and productive fishery and aquaculture industry supported by stakeholders, using the best available science and monitoring to manage and regulate fishery and aquaculture activities in a fair and equitable manner.

C: Economy

A Thriving Economy Connected to the Pensacola Bay System

Focuses on the importance of oysters to the economy and culture of the Pensacola Bay System.

Outcome: By 2030, recovery of the Pensacola Bay ecosystem spurred by restoration of oyster reef ecosystems and a sustainable oyster fishery and development of aquaculture has led to a thriving economy that provides opportunities for sustainable and responsible industry, development, business, recreation and tourism.

D: Public Education and Communication

An Engaged and Informed Public and Decision-Makers

Focuses on enhancing and creating education and outreach opportunities to inform constituents about the importance of oysters, to the health of the bay and the community.

Outcome: By 2030, the Pensacola Bay System stakeholders are informed of the importance of sustaining the health of the Bay System and work actively to invest in and implement the plan.



How You Can Help

Getting Involved and Supporting the Oyster Fisheries in the Pensacola Bay System

- Read the plan. <https://www.ppbeep.org/the-plan/oyster-plan>
- Subscribe to the Pensacola and Perdido Bays Estuary Program (PPBEP) for updates and volunteer opportunities <https://www.ppbeep.org/get-involved/subscribe>
- Follow the progress of the Oyster Sub-Committee and other committees of the PPBEP <https://www.ppbeep.org/about/committees>
- Follow the progress of the TNC-led oyster restoration project in the Pensacola Bay System www.nature.org/floridaoysters
- Help with Oyster Shell Recycling programs in Escambia and Santa Rosa Counties and/or support restaurants who donate oyster shells to these programs <https://www.santarosa.fl.gov/758/Oyster-Shell-Recycling-Program>
- Eat sustainable harvested oysters from the Pensacola area. There are several oyster aquaculture farms in the Pensacola Bay System – support them by buying local. Ask the restaurants you frequent if they buy local and if not, encourage them to.
- Support TNC's efforts to restore the bay and its oysters with your donations: nature.org/giveflorida



The Nature Conservancy 

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THIS PAGE TOP TO BOTTOM: Escrimano Point with East Bay to right and Blackwater Bay to the left of the point © Devin Ford/TNC; Pensacola East Bay © Jacobs