

The Indian River Lagoon (IRL)

A wind-driven, seagrass-based ecosystem, the Indian River Lagoon is home to over 4,000 species of flora and fauna, making it one of the most biodiverse estuaries in North America.

In 1990, Congress designated the IRL as an Estuary of National Significance, one of 28 found within the continental United States.

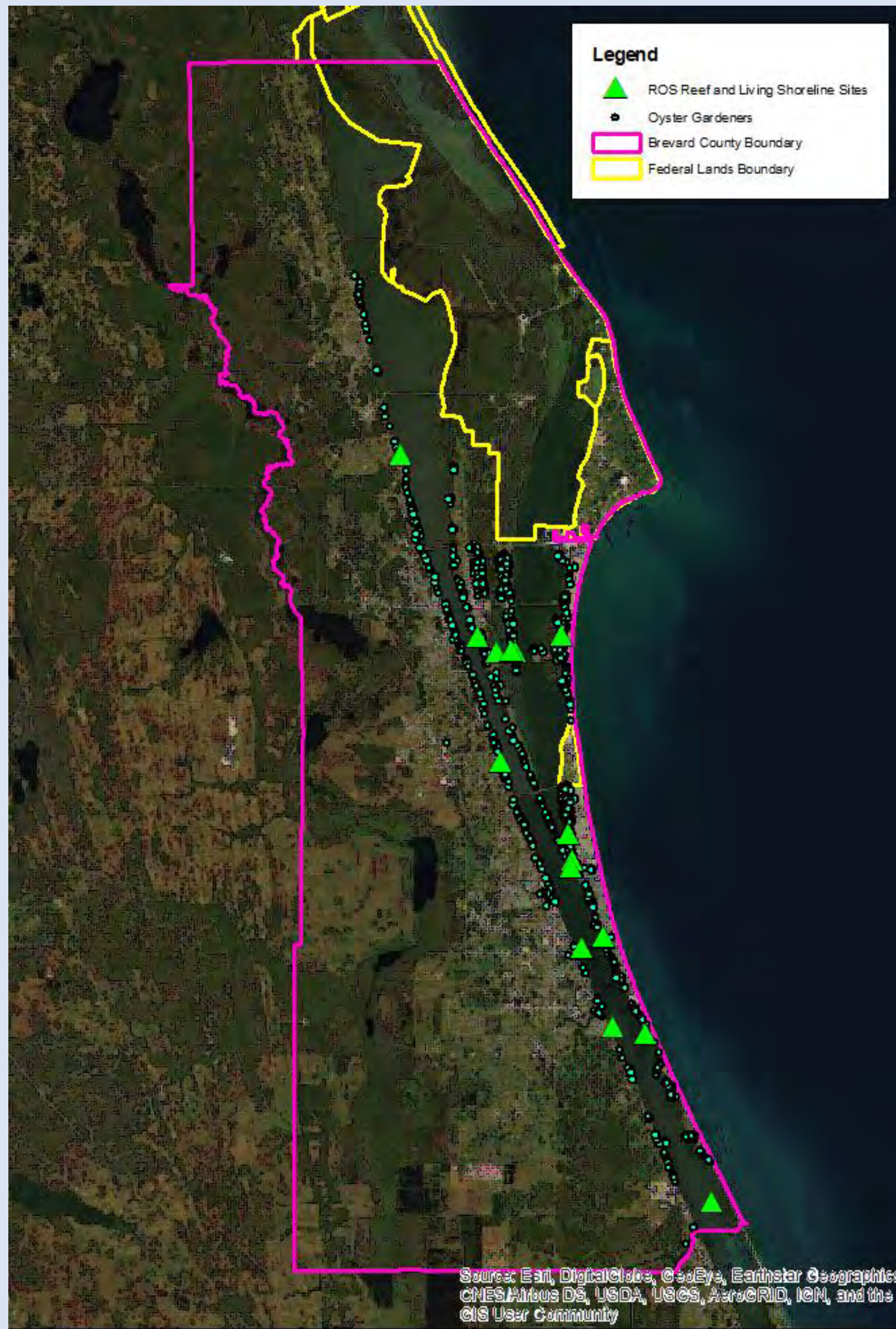
Of the 156-mile long lagoon, 71 percent of its surface area is found within Brevard County. As human development continues to impact the IRL, eutrophication and declining water quality have caused harmful algal blooms, affecting a variety of species.

"The Selfless Shellfish"

One of the Indian River Lagoon's native species, the Eastern Oyster (*Crassostrea virginica*) serves a vital role as a keystone species, while providing a suite of other benefits.

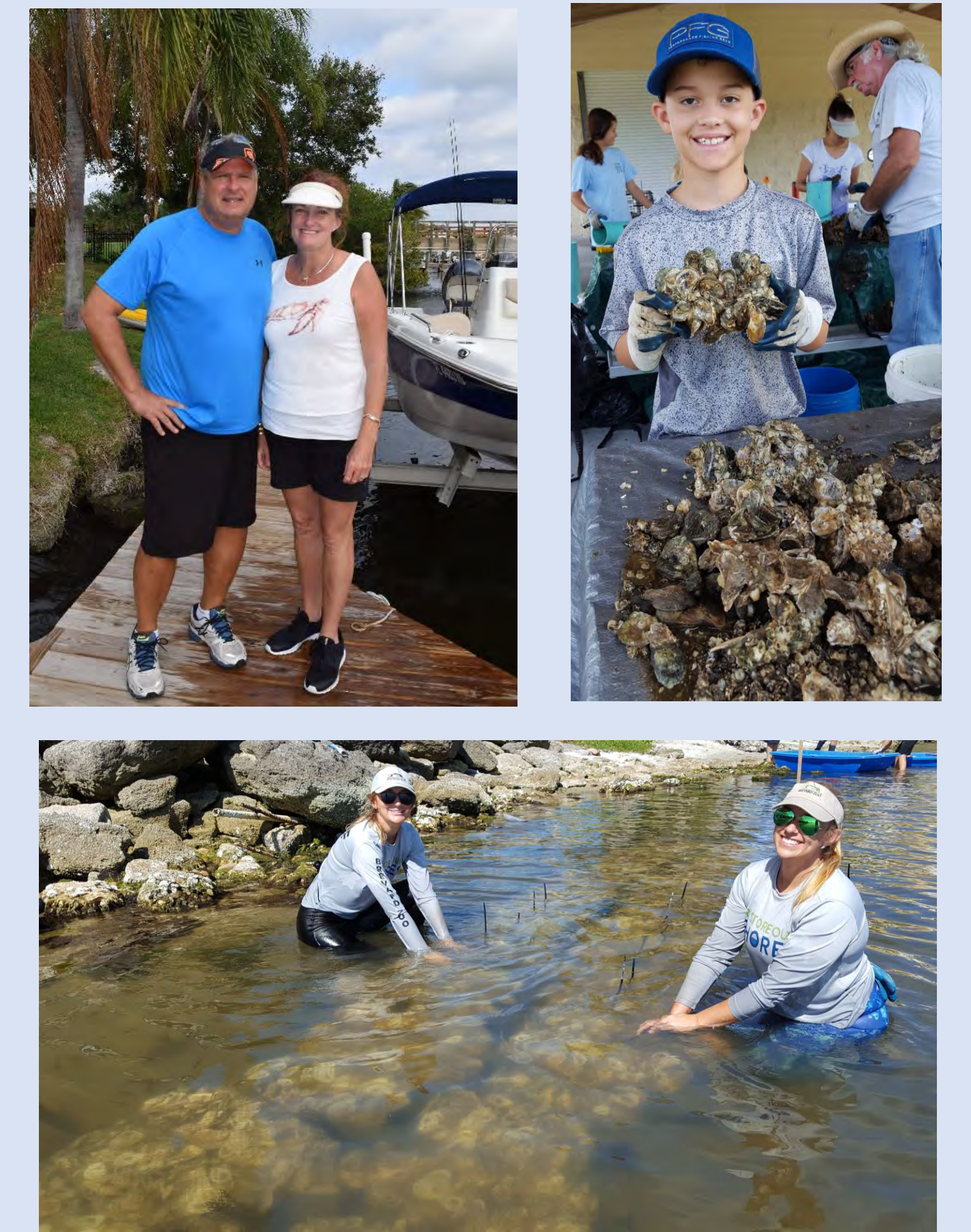
- Storm surge attenuation
- Erosion control
- Food and habitat for 300+ species
- Water filtration
- Nutrient sequestration

In Brevard County's section of the IRL, threats to oysters include overharvesting, habitat loss and reduced water quality.



Oyster Gardening Project Achievements

- Over 1,400 Brevard County residents have been trained as "oyster foster parents"
- Over 463,000 oysters have been raised by Oyster Gardeners since 2014
- 16 reefs have been constructed with gardened oysters throughout Brevard County
- Strong, positive community involvement and support by Brevard County residents and local government



Date	Event	Result
2007	The Oyster Mats project created by UCF, begins work in CANA with TNC	Positive
2009	Brevard Zoo becomes part of Oyster Mats work in CANA, TNC phases out	Positive
2009-2016	Brevard Zoo engages 45,000+ volunteers in hands-on restoration	Positive
2011	Algal superbloom in Brevard County, 60 percent of seagrasses lost	Negative
2011	Secondary algal bloom	Negative
2012	First appearance of brown tide bloom in Indian River Lagoon	Negative
2013	Brown tide bloom, unusual mortality events in birds, marine mammals	Negative
2014	Pilot oyster restoration project launched with Brevard County, Brevard Zoo and UCF	Positive
2014	Shuck & Share shell recycling program begins in Volusia County	Positive
2015	Brown tide bloom	Negative
2016	Oyster Mats project goal accomplished by restoring 77 reefs, Brevard Zoo phases out	Positive
2016	Brown tide bloom, record-breaking fish kill in Brevard County	Negative
2016	The Oyster Gardening project reaches 1,000 trained Oyster Gardeners	Positive
2016	Brevard County residents pass Save Our Indian River Lagoon (SOIRL) ½ cent sales tax	Positive
2017	Restore Our Shores (ROS) team builds first Living Shoreline demonstration sites	Positive
2018	Brown tide bloom	Negative
2018	Subpar spat production forces Oyster Gardening to change hatchery partnership	Negative
2018-Present	Permitting roadblocks delay ROS restoration projects	Negative
Present	Restore Our Shores program increasing efforts to conquer 20 miles of living shoreline in Brevard County	Unknown

How to Be an Oyster Gardener

The Oyster Gardening project recruits lagoon-front residents to act as "oyster foster parents" by growing juvenile oysters from their docks. Non-waterfront residents may also participate by becoming Oyster Buddies and assisting Oyster Gardeners at their properties.

Each volunteer cares for oyster spat (baby oysters) on shell, numbering any where from a few dozen to over 2,000 spat, over a 6-9 month gardening season.

The Oyster Gardeners perform weekly inspections of their oysters and conduct general maintenance of the rectangular cages (habitats) containing the developing oysters.

Habitat Maintenance

- Allow the habitats to desiccate for 6-9 hours in partial sunlight
- Remove excess fouling and sediment build-up from habitats using scrub brush, plastic scraper or other tools
- Remove predators from habitats
- Rinse habitats and oysters with freshwater
- Rotate habitats to reduce oyster growth onto habitat structure



Lessons Learned

- Brevard County has a lack of historical and current oyster data
 - Without baseline information, reef site selection was random with success uncertain
- Each Oyster Gardening season has experienced obstacles, whether environmental or human-caused
 - Maintaining regular communications with volunteers and setting expectations keeps spirits high during obstacles
- The state/federal permit application process for Florida is not in-sync with Indian River Lagoon restoration projects
 - Bringing government stakeholders into restoration planning process is crucial
- Current restoration methodologies and materials may not be universally successful
 - Research into biodegradable options is ongoing, have not yet found a new, long-term option
- The desire to improve Brevard County's water quality has the ability to band together a community
 - Within a conservative county of a conservative state, the people still chose to tax themselves to save the IRL

Looking Ahead...

- As other Brevard County organizations join the fight to restore the Indian River Lagoon, what path will the Oyster Gardening project take?
- The Restore Our Shores program plans to incorporate greater amounts of native shoreline vegetation plantings and seagrasses along with oyster reef construction.
 - The SOIRL plan requires 20 miles of constructed oyster reef, which will necessitate the Oyster Gardening project to significantly increase its seasonal production.
 - Discussions will be needed to determine whether the quantity of actively participating Oyster Gardeners, the quantity of spat on shell generated by the hatchery or both will need to increase
 - Instead of each Oyster Gardening season lasting 6-9 months, will each year contain multiple gardening seasons?

Acknowledgements

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