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Responsibility

As North Carolina restores oyster reefs, a case for regenerative aquaculture grows

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By Responsible Seafood Advocate

Restoring oyster reefs in North Carolina boosts the economy, strengthens ecosystems and showcases value of regenerative aquaculture

A decade-long effort to restore oyster reefs in North Carolina's Pamlico Sound is yielding significant economic and environmental benefits, **according to a new report from the North Carolina Coastal Federation (<https://www.nccoast.org/resource/nc-oyster-sanctuaries-growing-coastal-communities/>)**. For every dollar invested in restoring oyster sanctuary reefs, the state sees a return of \$1.70 – a finding that underscores the value of regenerative aquaculture.

Between 2013 and 2023, the NOAA's Office of Habitat Conservation, the North Carolina Division of Marine Fisheries and local partners directed \$20 million toward building a network of oyster sanctuaries.

Independent researchers from RTI International assessed the impact of the 400-acre Senator Jean Preston Oyster Sanctuary Network and found that the investment supported 143 jobs, generated \$34



A new report shows restoring oyster reefs in North Carolina boosts the economy, strengthens ecosystems and showcases the value of regenerative aquaculture. Credit: Stevens Towing/NOAA.

million in revenue for North Carolina businesses and provided \$8.7 million in wages and benefits.

“Investing in oyster reef restoration means investing in all of the benefits these reefs provide and the benefits of the restoration work itself,” said NOAA Marine Habitat Resource Specialist Stephanie Krug. “This report is vital in telling that story.”

A banner for Best Seafood Practices. On the left, there are two small images: a fisherman in a yellow protective suit and a fishing boat on the ocean. To the right of these images is the text: "A comprehensive solution for the wild seafood supply chain." Further right is a list of three checked items: "Crew rights", "Food safety", and "Environmental responsibility". On the far right is the Best Seafood Practices logo, which consists of a stylized eye icon and the text "Best Seafood Practices". Below the logo is a button that says "LEARN MORE" with a right-pointing arrow.

(<https://bspcertification.org/>).

The long-term benefits of North Carolina’s oyster restoration efforts extend well beyond immediate economic gains. Researchers estimate that by 2048, the restored reefs will generate \$38 million in ecosystem services, bolstering both marine life and coastal resilience.

Healthy oyster reefs serve as natural infrastructure, supporting commercial and recreational fisheries by providing habitat for species such as blue crab, shrimp, flounder and sea bass. They also play a critical role in water filtration, removing pollutants, sediment and excess algae, which helps improve water quality and clarity. Additionally, the reefs act as natural barriers, reducing wave energy and mitigating the impact of storm surges, ultimately helping to protect the coastline from erosion.



Here comes the sun: Oyster and algae growers harness solar power

A look at three aquaculture companies that are figuring out how to solve their production problems by using solar power in innovative ways.



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While fishing is prohibited within the sanctuary reefs, their impact extends far beyond their boundaries. These protected oyster populations contribute to the broader oyster reef network by producing larvae that drift on currents throughout the Pamlico Sound, seeding other harvestable reefs. Though sanctuary reefs account for just 6 percent of the Sound's oyster reef footprint, they generate an estimated 25 percent of its oyster larvae, reinforcing the health and productivity of North Carolina's broader shellfish industry.

Over the last century, North Carolina lost more than 90 percent of its oyster reef area. Investing in reef restoration in Pamlico Sound is vital to preserving the benefits oysters provide.

"This network protects nearly 350 million oysters," says North Carolina Coastal Federation Oyster Program Director Erin Fleckenstein. "These reefs serve as an insurance policy to our oyster populations."

In 2023, NOAA's Office of Habitat Conservation awarded the Federation an additional \$14.9 million to expand the sanctuary network to 500 acres by 2026.

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