



2021 STATE OF THE OYSTER REPORT

on the OYSTER RESTORATION & PROTECTION
PLAN FOR NORTH CAROLINA

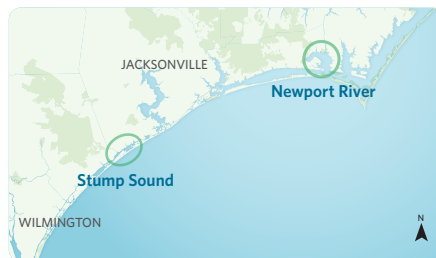
Prepared by the North Carolina Coastal Federation and Published May 2023

The Oyster Restoration and Protection Plan for North Carolina: a Blueprint for Action 2021-2025 (*Blueprint*) outlines eight strategies and corresponding actions that partners are taking to rebuild the state's oyster resources.

The work outlined in the *Blueprint* covers everything from protecting and restoring the state's important shellfishing waters, to building new oyster reefs, continuing wild harvest while expanding oyster farming activities and educating the public and other stakeholders about oysters. This annual ***State of the Oyster Report***, provides a brief overview and highlights the activities and accomplishments of the diverse partners involved in this work for the year 2021.

Water Quality

Pristine water quality is critical to the health of oysters both to support the estuarine habitat and to ensure oysters are safe for human consumption. The Shellfish Sanitation and Recreational Water Quality Section of the NC Division of Marine Fisheries (DMF) monitors water quality and reports on changes in closures. Priority actions identified in the *Blueprint* to protect and restore the critical shellfish growing areas of the state included developing watershed restoration plans for Stump Sound and the Newport River. Water quality closure metrics and progress made on these water quality protection and restoration efforts in 2021 include:



- Initiated the **Stump Sound Watershed Restoration Plan** in 2021; which is scheduled for completion in 2023.
- Secured \$613,000 in funding for the Newport River to develop a watershed restoration plan. Funding came from the general assembly (\$500,000); NC Land and Water Fund (\$74,000) and the Kenan Foundation (\$39,000).
- Developed a set of criteria** for prioritizing shellfish growing areas that need protection and restoration measures. Criteria include: the growing area's water quality trends; shellfish growing conditions and concentration of efforts; future watershed land use plans.
- Worked to ensure the state's **Coastal Habitat Protection Plan Amendment** was adopted by all three state environmental commissions and approved by the Department of Environmental Quality in 2021. The plan includes numerous cross cutting water quality protection and restoration recommendations.
- Unveiled a statewide **Nature-based Stormwater Strategies Action Plan** with recommendations to reduce flooding, protect water quality and improve resiliency.
- Increased funding for coastal protection and resilience through direct appropriations and increased availability of grant funds.
- Implemented nearly 3,000 acres of on-the-ground restoration projects at four locations in partnership with Natural Resources Conservation Service, Department of Defence and others to protect and restore water quality.

Shellfish Classification Acreage

2021

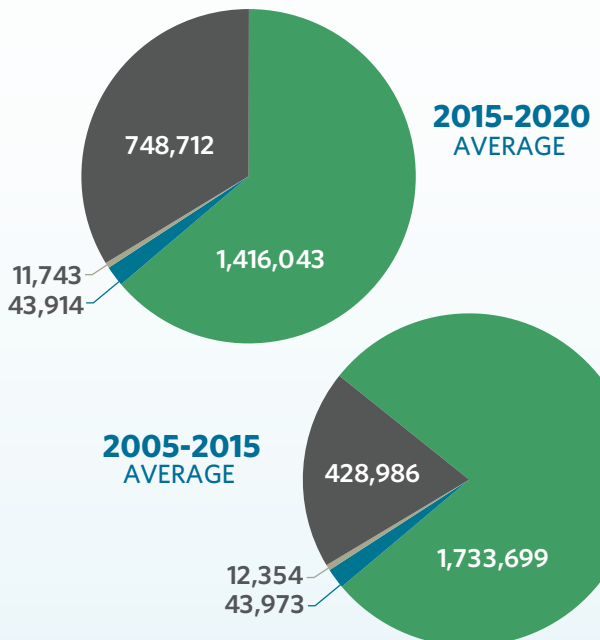
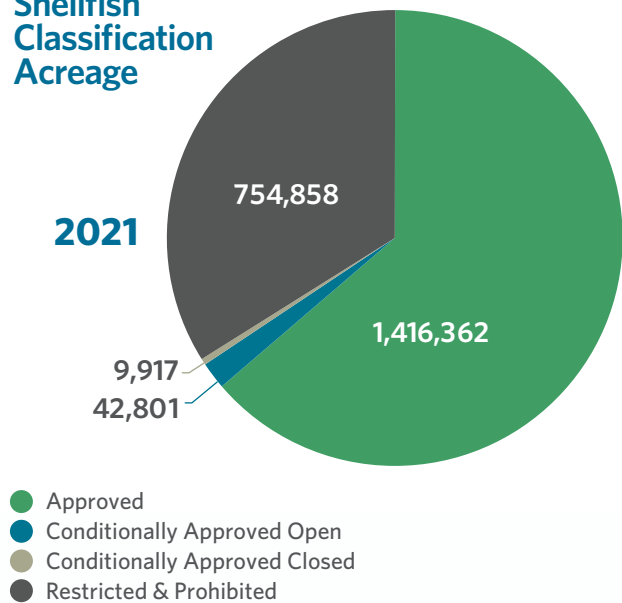


Figure 1: The Shellfish Sanitation and Recreational Water Quality Section of the Division of Marine Fisheries monitors the health of the state's waters for public safety. Closures are issued based on harmful bacterial levels or stormwater inputs in sensitive areas. Note: in 2015 314,710 acres were administratively closed in Albemarle Sound due to staff cuts and the closure of laboratory space for processing water quality samples.

(Data courtesy Andy Haines, NC DMF Shellfish Sanitation and Water Quality Section, Environmental Program Supervisor, October 2022).

Oyster Sanctuaries

Oyster Sanctuaries are a restoration strategy that combines protection from harvest with habitat restoration in key coastal waters. The *Blueprint* outlines a goal to build an additional 100 acres of oyster sanctuary by 2025.

2021 Progress Includes:

- Added **Cedar Island** as an oyster sanctuary, bringing the total number of sanctuaries that the DMF manages to 14 and covering 395 acres in Pamlico Sound.
- **Constructed 23 acres** of sanctuary: 20 acres at Cedar Island and 3 acres at Swan Island, using 24,600 tons of material.
- Monitored the health of the sanctuaries and found that oyster densities at Cedar Island, one year post construction, showed 1,527 oysters per meter squared (data courtesy Bennett Paradis, DMF Sanctuary Biologist, August 2022). NOAA considers anything over 50 oysters per meter squared to be successful.

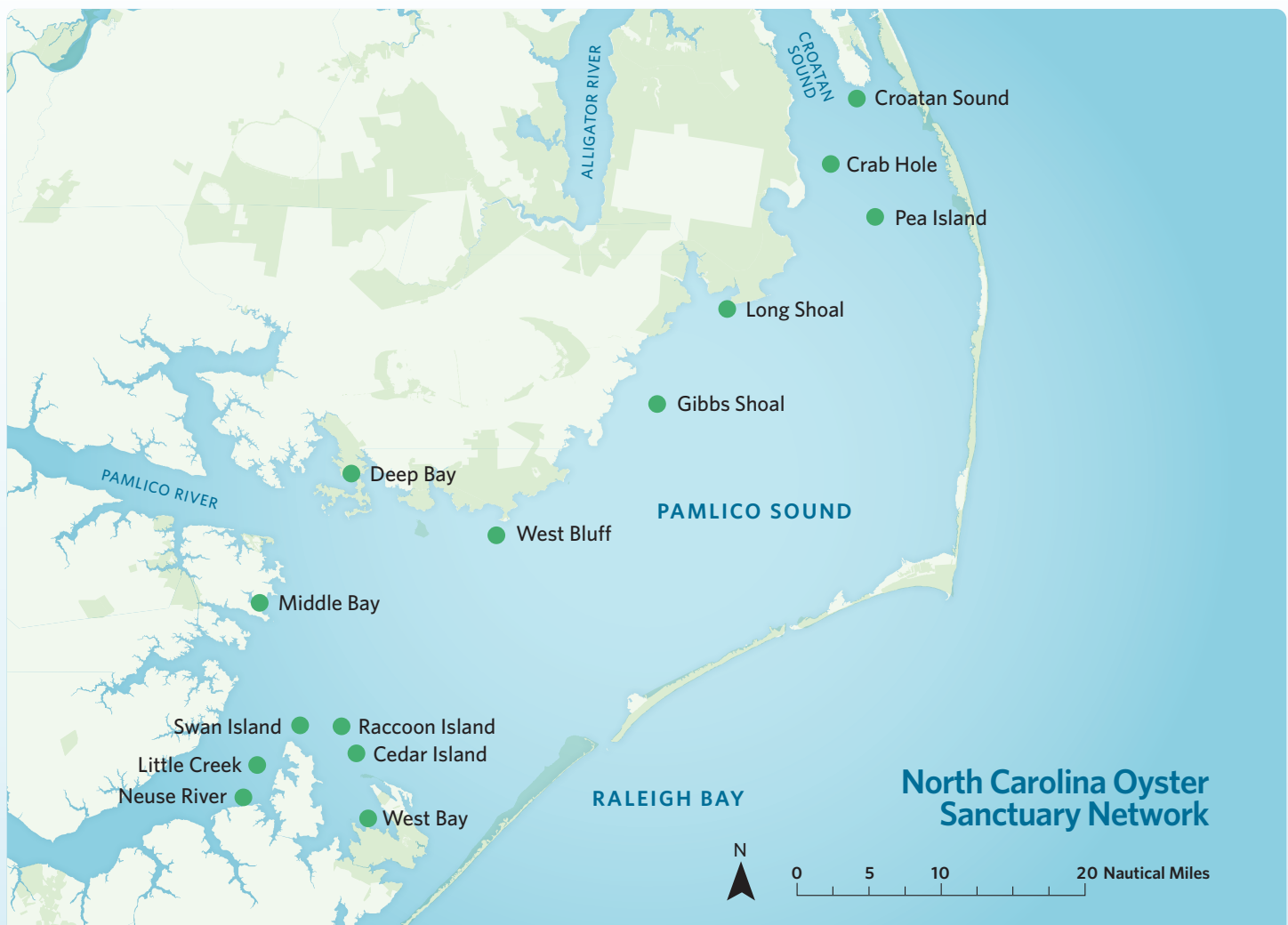
- Secured \$2,100,000 in funding from the NC General Assembly (\$1,350,000) and National Oceanic and Atmospheric Administration (\$750,000) to build additional acreage in 2022.

Living Shorelines

Living shorelines are environmentally friendly shoreline stabilization techniques that help reduce shoreline erosion while simultaneously protecting and restoring valuable habitat. When constructed in areas suitable for oyster settlement and growth, they provide intertidal habitat for oysters. The *Blueprint* outlines a goal to expand the use of living shorelines to become the most commonly used shoreline stabilization method in estuaries that support oyster habitat.

2021 Progress Includes:

- Constructed a total of **4,554 feet (roughly 0.9 miles) of living shoreline** at 30 sites using granite rock, recycled oyster shell,





marl, Quick Reef™, Biomason and oyster castles. Ninety-five percent of these projects were constructed in oyster growing waters building an additional 0.6 acres of oyster habitat.

- Advocated for and secured language in the **2021 CHPP Amendment** to work for the protection of oyster sills from harvest.
- Held **four statewide trainings** on living shorelines targeting a diversity of audiences: one technical training targeted marine contractors, engineers, consultants and agency staff; two workshops were provided to real estate professionals; and one training for 25 NC Division of Soil and Water staff was conducted.

Shell Recycling

Oyster shells are a valuable resource used to build new oyster reefs. Voluntary shell recycling efforts collect shell to use in oyster restoration activities. The *Blueprint* outlines a goal to create a coordinated oyster shell recycling program to provide 5 percent of the material needed to support oyster restoration, translating to roughly 16,750 bushels of shell.

2021 Progress Includes:

- **Collected 3,518 bushels of shell** through Coastal Federation shell recycling efforts.
- Maintained 21 public shell drop-off locations in six, out of 20, coastal counties.

- Used all the shells collected in reef building activities. Specifically, 1,900 bushels of recycled shell were used by DMF in cultch planting and the remainder were used in living shoreline projects.

Sustainable Wild Harvest

Maintaining a sustainable wild oyster fishery is important to North Carolina. Ensuring wild harvest remains sustainable refers to the idea that there are adequate oyster reefs to perpetuate the population and therefore perpetuate wild harvest opportunities. Establishing a methodology to inform a stock assessment for the population is a major focus of the *Blueprint*.

2021 Progress Includes:

- Refined and tested a stock assessment methodology developed by DMF, NC State University, The Nature Conservancy and oyster harvesters. The methodology is expected to be finalized in 2023.

2021 WILD HARVEST

50,484
BUSHELS

81%
OCCURRED FROM
CORE SOUND SOUTH
TO THE STATE LINE

HARVEST FROM
PRIVATE LEASES
WAS 3.5 TIMES
THAT OF WILD
HARVEST

Data courtesy Meredith Whitten, NC Division of Marine Fisheries fisheries biologist, October 2022.



- DMF is preparing for the start of the *Oyster Fisheries Management Plan* amendment process. This process will take several years and is expected to address many of the strategies and actions outlined in the *Blueprint*.
- DMF piloted a methodology, using remote sensing technology, to assess oyster population size and health in intertidal areas.

Cultch Planting

Cultch-planted reefs are built throughout the state's shellfish waters to restore commercially harvested reefs. These reefs are built with limestone marl, recycled shells or other suitable materials, collectively referred to as "cultch". Goals of the *Blueprint* are to build 200 acres of cultch planted reefs to support wild harvest and to study the existing program-making recommendations to improve the program's return on investment.

2021 Progress Includes:

- DMF initiated review of their **shellfish management area** (SMA) designation. The SMA rule framework was identified as a key tool for cultch planting management.
- DMF updated their **cultch planting monitoring technique** to include a more spatially explicit method. The old technique was phased out in 2021.

2021 CULTCH PLANTING

334,875
BUSHELS

48
ACRES

9
SITES

Four of the sites are in Onslow County, two in Carteret, one in Pamlico, one in Hyde and one in Dare County.

Data courtesy Jason Peters, NC Division of Marine Fisheries enhancement program supervisor, March 2023

- DMF **secured funding** to replace their cultch planting mothership (formerly the West Bay).

Shellfish Aquaculture

Shellfish aquaculture, or shellfish farming, allows growers to meet demand for shellfish products, provides economic development opportunities along the coast, and when properly sited, leases can provide many environmental benefits such as: filtering water and providing habitat for a variety of estuarine species. The *Blueprint* outlines a goal of growing the shellfish aquaculture industry to a \$45 million industry by 2025.

2021 AQUACULTURE

\$27
million
INDUSTRY
VALUE

\$4.5
million
FARMGATE
VALUE

426
LEASES

1,812
ACRES

TOP 3 COUNTIES WITH
SHELLFISH FARMS: ONSLOW,
HYDE & CARTERET

Data courtesy Meredith Whitten, NC Division of Marine Fisheries fisheries biologist, October 2022.

2021 Progress Includes:

- Funds to support a **low-interest loan program** for shellfish growers were secured from the NC General Assembly.
- A **Shellfish Lease Restoration Permit** was developed, allowing farmed oysters, seed or larger, to be used for restoration projects with a proclamation.
- Major hurdles in developing a **crop insurance** program for oyster growers were overcome. A pilot insurance program will be launched in 2022.
- DMF developed a **Shellfish Cultivation Lease Review Committee** that will assist in reviewing contested lease applications. This included drafting language to amend state

fisheries rules to allow for this committee in the appeals process and outlined their standard operating procedures.

- DMF implemented findings from their study on how to **reduce user conflicts** in shellfish cultivation. This led them to amend three of the eleven lease rules. The amendment was adopted and went into effect August 2022.
- The state **Aquaculture Development Conference** included a panel discussion on storm preparedness and gear management to limit loss and marine debris. A virtual webinar on the topic was conducted for 60 individuals later in the year.
- UNC-Wilmington researchers received funding from NC Sea Grant to assist growers in **developing farm and market tools**. Some of the needed tools identified include establishing a business incubator, with mentorship for entry level and established farmers, as well as online tools for farm business management.

Education and Outreach

Outreach and engagement allow for the involvement of many stakeholders in the development and implementation of the *Blueprint*. The *Blueprint* identifies an overarching goal of

creating communication and outreach strategies that engage stakeholders and the general public to actively support its goals, strategies and actions.

2021 Progress Includes:

- Released the *Blueprint* in April 2021 and announced its release through a variety of media efforts including a press conference, interviews, news stories and social media campaigns.
- Grew the **NC Oyster Trail**, an ecotoursim effort by NC Sea Grant, Coastal Federation and the NC Shellfish Growers Association, to include 60 businesses statewide. This effort aims to educate tourists on the value and importance of NC oysters and oyster farms.
- Carteret Community College provided three trainings through their **NC Shellfish Farming Academy** for new or established shellfish farmers. Thirty-five participants graduated, roughly 80 percent of the enrollment.
- NC Sea Grant, NC Shellfish Growers Association and Coastal Federation launched a **webinar series for shellfish growers** focused on timely topics to help growers. Three webinars covering Seed Selection; Biofouling; and Marketing and Distribution were held in 2021.





Partners involved in the Blueprint effort in 2021 included:



NORTH CAROLINA
DEPARTMENT of
COMMERCE



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