

OUR COAST

North Carolina Coastal Federation | NCCOAST.ORG | WINTER 2018



North Carolina
Coastal Federation
Working Together for a Healthy Coast

**Ring in 2018 with Exciting
Goals and Priorities**



Photo by Sam Bland

Dear Friend of the Coast,

The numbers are in — natural disasters in the United States caused a record-breaking \$306 billion in damages in 2017. Most of the damage was from hurricanes, accounting for \$265 billion in property losses.

Here on the North Carolina coast, we got lucky. All major storms missed our shores. But luck is no strategy, and it's going to take a lot more work to make our coast resilient to these extreme weather events that will inevitably hit our coast.

Much of the Coastal Federation's 2018 agenda aims to keep our coast a great place to live, work and play by making it more resilient in this era of climate change and sea level rise.

Scientists warn that the costly storms of 2017 illustrate how climate change can

make extreme weather events even more catastrophic.

In the next 50 years, sea level is predicted to rise at least one foot along our coast. A one-foot increase will dramatically reshape our landscapes, shores and wetlands, making it harder to grow crops and treat sewage and stormwater pollution. Our aging infrastructure will start to crumble, and low-lying communities will experience more flooding.

The predictable demise of sandcastles we build on the beach illustrates the serious threats sea level rise poses to our coast. Higher seas will erode away our barrier and estuarine shorelines at accelerating rates. Rising sea levels will also make it harder to grow trees and crops, treat sewage and stormwater pollution, and cause ongoing flooding in many coastal communities.

Farmers in Hyde County have seen firsthand the impact of saltwater encroaching inland on their trees and crops. National wildlife refuges and national and state parks and forests will face increasing management dilemmas as a result of a warming earth.

While it is vital to prevent climate changes we can still control, those efforts aren't likely to stop the Earth from growing significantly warmer for the foreseeable

future. A warmer earth guarantees higher seas and more extreme weather events for our coast.

Leo Tolstoy said, "Everyone thinks of changing the world, but no one thinks of changing himself." As coastal residents, we must find ways to adapt and live in harmony with our ever-changing coastal environment. The good news is that many climate adaptation measures provide new environmental and economic opportunities rather than added liabilities.

Already with our help, some farmers in Hyde County are updating their drainage infrastructure by combining strategies to enhance environmental protection with drainage required for their production needs — and this enables them to receive government grants and easements that help offset their infrastructure capital costs. Likewise, many living shoreline measures we design not only slow erosion but prove to be less susceptible to storm damage than bulkheads and seawalls.

We must reinvest in our communities in ways that make our coastal environment healthy and that build infrastructure designed to keep functioning over the next 50 to 100 years.

Your support is ever-critical as we embark on this year's goals. We thank you for your membership.

With best regards

—Todd Miller, Executive Director



North Carolina
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Working Together for a Healthy Coast

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COVER PHOTO: Sam Bland. *Snowy owls are rarely spotted on the North Carolina coast, but four were spotted in January this year. Bland captured this photo in 2013 at Cape Hatteras National Seashore.*

Coastal Federation adds new board member, changes leadership

Working with fellow directors and staff, the Coastal Federation's board of directors ensures effective and fiscally sound programs and operations by providing leadership, accountability, advice and direction. In November, the Coastal Federation elected two new board members. The board also elected **Joe Ramus**, retired director of the Duke University Marine Lab, as president, and **Dick Bierly**, retired corporate manager, as vice president. For a complete list of board members visit nccoast.org/board.

Kenneth S. Chestnut Sr.

Kenneth retired as president and CEO of IBG Construction Services LLC in Atlanta, a company he founded in 1998. Kenneth was also a principal with The Integral Group, the affiliated vertically integrated real estate development firm based in Atlanta. A graduate of Williston Senior High School in Wilmington, Kenneth attended Duke University and majored in civil engineering. He is a Vietnam War veteran. Kenneth served on the boards for several nonprofits in Atlanta and is a trustee emeritus on the board for Oglethorpe University. After retirement, he relocated home to Wilmington where he is senior warden at his church. Kenneth is also a commissioner for the Wilmington Housing Authority; a mentor at Williston Middle School through 100 Black Men of America; and a board member for the Cape Fear Community Land Trust.



Friends of the North Carolina Museum of Natural Sciences. A graduate of Davidson College and UNC School of Law, he has worked in government and the corporate sphere, and he was a professor of law for two decades. Although Tom and his wife, Dana Jennings, live in Raleigh, he has had a lifelong connection to the North Carolina coast, its people, small boats and any fish that will take a fly.

Meet our new President's Council members

The Coastal Federation's President's Council enhances our ability to forge new partnerships and provide for an environmentally and economically healthy coast. **Nancy Hanes White** of Raleigh joined the President's Council in November. **Tom Earnhardt** also joined the council in addition to his new position on the board. For more information, visit nccoast.org/presidents-council.

Nancy Hanes White

Nancy has been a leader in animal and environmental issues in North Carolina for many years. She has served on the boards of the North Carolina Nature Conservancy, the SPCA of Wake County, the North Carolina Zoo and the Museum of Natural Science. Currently, she is the vice president of the UNC Institute for the Environment Board of Visitors and is on the board of the Southern Environmental Law Center. A graduate of the University of North Carolina at Chapel Hill, Nancy and her husband Monty enjoy nature on their farm just outside of Raleigh.



Tom Earnhardt

Over the last 15 years Tom has written and produced more than 80 episodes of the statewide UNC-TV natural resource series, "Exploring North Carolina." His conservation roots run deep with service on numerous conservation boards, including Trout Unlimited, The Nature Conservancy in North Carolina and Audubon North Carolina. Tom has also served as president of the North Carolina Botanical Garden Foundation and the



Photo by Sam Bland

Mike Giles to retire in March

Mike Giles, coastal advocate at the Wrightsville Beach office, will be retiring this March after 12 years with the Coastal Federation. "We are going to miss seeing him every day," said Todd Miller, executive director. "We expect that he will still be a strong advocate for our coast when he's not out enjoying it."

Giles, 66, joined the staff in May 2006. He helped lead the eight-year fight against Titan America, which was going to build a cement plant in Castle Hayne until abandoning its plan in 2016. He has also been on the forefront in opposing offshore oil and gas exploration and led efforts against the construction of terminal groins on the coast.

"This almost 12-year experience has been a highlight of my life. Now folks will see me at Rich Inlet fishing instead of standing on the beach opposing terminal groins," Giles said. "One thing I will miss is working with the professional staff and board members who care about the coast and are part of my Coastal Federation family."

How your support creates a healthier coast

With your support, the Coastal Federation continues to make the coast a better place to live, visit, work and play. We engage people from all walks of life, both residents and visitors, to help us protect and restore the coast for current and future generations.

This is how we do our work:



Seek Environmental Justice

The Coastal Federation strives to help people from all walks of life become involved in coastal management decisions that affect their communities. Our programs serve the needs of all coastal communities, regardless of race, color, national origin or socio-economic status.

Lead By Example

Thousands of acres of special lands and waters along our coast have been restored and protected by the Coastal Federation since 1982. We manage some of these properties as laboratories for scientific investigations, classrooms for education, and for public access and recreation.



Form Partnerships

The Coastal Federation informs and unites people, communities, businesses and government agencies to form effective partnerships. We achieve long-lasting results by finding common ground among diverse groups of people, forming unlikely alliances and recruiting nontraditional partners.



Photo by Mark Hibbs

Promote Economic and Environmental Connections

A healthy coastal environment and the economy are intrinsically linked. A productive natural coast supports fisheries, farming, tourism, communities, military training and economic growth. Our work helps create jobs by putting people to work growing oysters, restoring wetlands and improving water quality.

Incorporate Coastal Resiliency into Our Work

Our coast is experiencing increased shoreline erosion, coastal flooding, saltwater intrusion and stormwater runoff. We strive to head off these effects of climate change by working toward more resilient ways to manage our coast while protecting natural habitats that help sequester and absorb carbon, decrease erosion and restore water quality.



Photo by John Bauerlein



Advocate

The Coastal Federation builds public and political support for compatible land and water uses that protect coastal water quality, critical habitat and public access. We seek laws, appropriations, policies and permit decisions that are in the best interest of the North Carolina coast and the communities that depend on it.

Educate

The Coastal Federation's education programs reach students, families and working professionals to establish a bond between people and the coast. Engaging in hands-on education through volunteering at a restoration workday or exploring a marsh helps people grow as coastal stewards and informed decision makers.



Photo by Sam Bland

Inform

Coastal Review Online (CRO), a daily, nonprofit news service, covers the environmental news of the North Carolina coast. *CRO* is a member of the North Carolina Press Association and serves as a public information resource. Written by professional journalists, *CRO* covers all sides of the issue and meets the highest standards of fairness and accuracy.

Restore and Protect

The Coastal Federation restores and protects critically important coastal habitats and water quality. We put into action our collaboration, advocacy and education efforts to ensure a clean and healthy coast for all. We coordinate and engage with neighborhoods, local governments, engineers, contractors, landowners and volunteers to complete both small- and large-scale restoration projects.



Coastal water quality that supports fishing, swimming and a vibrant coastal economy.

There are no easy answers to pollution problems that plague coastal waters. Degradation of water quality took decades to occur and is caused by landscape modifications. Buildings, highways, parking lots, yards, farms and drained forests prevent rain from soaking into the ground. When downpours occur, cities, subdivisions and fields can generate large volumes of polluted runoff. About 25 percent of North Carolina shellfishing waters are polluted with bacteria, and most of the coast is now off-limits to shellfishing and swimming after big rain events.



GOAL 1

Learn more at nccoast.org/stormwater.

To combat these problems, the Coastal Federation will:

- Install urban retrofit projects in 2018 that will reduce half a million gallons of polluted runoff from flowing into coastal waters each year.
- Promote land-use practices that replicate natural hydrology, and find opportunities to retrofit existing land uses that affect water quality.
- Develop watershed restoration plans that estimate runoff volume that must be eliminated to restore water quality and that identify cost-effective pollution reduction projects.
- Promote innovative measures that improve the operation and long-term maintenance of permitted stormwater management systems.
- Educate and train property owners, businesses and students about ways to prevent and reduce polluted runoff.
- Begin the restoration of at least 5,000 acres of wetlands along the coast in 2018.

Towns adopt plans to address runoff

Town officials along the coast have been working with the Coastal Federation on collaborative plans that provide a framework for reducing stormwater runoff that flows into local waterways.

In Swansboro, the Coastal Federation recently worked with town representatives, Hammocks Beach State Park, the White Oak-New Riverkeeper Alliance and residents to develop a watershed restoration plan for the town. In February 2017, the town commissioners unanimously approved the plan.

A watershed restoration plan quantifies the volume of stormwater runoff a community needs to reduce in

order to decrease pollutant loads into local waterways. It suggests best management practices (BMPs) that help achieve the goals set out in the plan.

Just months after the plan was approved, the Coastal Federation and town were awarded a \$172,397 Environmental Protection Agency grant to fund restoration projects. In 2018 the Coastal Federation will design and construct a series of BMPs, including 40 permeable parking spaces and other techniques on the town hall campus.

“If we do not protect our water resources, we stand the chance of losing what attracts people to our area — our clean waterways and pristine coastlines,” said Scott Chase, Swansboro town manager.



Above: Swansboro Elementary School has already taken steps to address local water quality with its rain garden.

The town of Beaufort is also implementing a plan. The Beaufort Stormwater Advisory Committee, made up of the North Carolina Coastal Reserve & National Estuarine Research Reserve; UNC Institute of Marine Sciences; the N.C. Division of Energy, Mineral and Land Resources; and others, collaborated with the Eastern Carolina Council and the Coastal Federation to develop the plan.

The plan was unanimously approved in August 2017. Commissioner Sharon Harker said she was first interested in the plan because of flooding reduction. She has since learned more about the town's water quality issues and hopes to see the community get involved.

“The more I learned how important it was to restore and protect water quality, the more engaged I became,” she said. “I firmly believe the more we continue to talk about the importance of protecting and restoring our water quality, the more people will be engaged to act.”

GOAL 2

Natural and productive estuarine shorelines.

For decades, the response to control erosion on North Carolina's estuarine shorelines has been to build bulkheads or place stone riprap along problem areas. This shoreline hardening and the resulting loss of vegetated buffers has degraded habitats and reduced stormwater runoff absorption. The consequences of hardening become more severe as sea levels rise. Additionally, the spread of an invasive wetland plant species, *Phragmites australis* (common reed), could disrupt the ecology of fringing shoreline wetlands as it outcompetes natural marsh vegetation.

Living shorelines, techniques that use more natural

approaches such as salt marsh and oyster restoration to reduce wave impact, offer an effective and environmentally friendly solution. However, outdated laws and rules, lack of demand and too few specialized contractors have prevented the widespread use of living shorelines. We're changing that.

The Coastal Federation will work to make living shorelines the go-to erosion control approach in the following ways:

- Promote the use of living shorelines at suitable locations.
- Partner with schools, contractors, businesses, private property owners and federal, state and local governments to build 4,525 linear feet of living shorelines to demonstrate their utility.
- Increase public awareness and work on regulatory reform so that consumer demand creates a vibrant market for contractors to build living shorelines.
- Provide coastwide trainings on living shorelines for contractors, design professionals and state agency staff.
- Promote the adoption of a coordinated coastwide strategy to manage the spread of *Phragmites*.

Stay updated with our latest work at nccoast.org/livingshorelines.

Coastal residents take smart steps to protect their shorelines

Through the Coastal Federation's cost share program funded by the National Oceanic and Atmospheric Administration (NOAA) Coastal Ecosystem Resiliency Grant, homeowners have lined up to naturally protect their waterfront properties from erosion and storm damage.

This program is led by Dr. Lexia Weaver, coastal scientist for the Coastal Federation's Ocean office, with assistance from staff members in all three offices.

Kurt Wargin, program participant, said he and his wife were sold on living shorelines after seeing the damage storms can cause to seawalls and similar hardened erosion techniques. Their shoreline, made of marsh grass and bags of recycled oysters, was completed in March 2017.

"The erosion area appears to have been stabilized and I believe we are seeing an increase in marine life around the oyster

shells. The marsh grass that was 'plugged' is healthy and thriving," he said.

Paula Roberson, a Coastal Federation volunteer and homeowner who lives on the mouth of the White Oak River, said the decision to build a living shoreline was a natural one for her. Her property has been in her family since 1950. Her family never considered hardened structures, but they needed to control the erosion that was eating away at the marsh grass.

"It's a great erosion protector, it's so good for the water quality, and it gives the marine life another breeding ground and places to live and hide," Roberson said.

Roberson praised the work of Coastal Federation staff and volunteers as well as Josh Merritt, Bas Kimlinger and Grainger Coughtrey, tree planting contractors from Carolina Silvics, a forestry and natural



Left: Grainger Coughtrey and Josh Merritt of Carolina Silvics. Not pictured: Bas Kimlinger.

resources contracting firm. The NOAA funding enabled the Coastal Federation to hire and train the contractors to assemble and deploy oyster shell bags. They now help with many shoreline projects.

Mary-Margaret McKinney, president of Carolina Silvics, said living shorelines are a "natural extension" of their natural resources management services.

"Working with Lexia, we have refined the process to provide coastal landowners with a turn-key project including permitting; oyster bag preparation and installation; and marsh grass planting that is very cost-effective compared to traditional shoreline stabilization, while increasing the function and aesthetics of their shorelines," she said.

Mariculture at work

Ryan Bethea is the owner and operator of Oysters Carolina, a mariculture operation based on Harkers Island in Down East Carteret County. He won Oyster of the Year at the 2016 North Carolina Seafood Festival, and his oysters are often described as the saltiest people have ever had.

Bethea started growing oysters in early 2015. He saw mariculture as a way to protect North Carolina's natural resources and water quality.

"I've always been a real pro-North Carolina kind of person, really into the environment, and it hit me like a ton of bricks — this could be your way to make a difference for our state, environmentally and for the people of our state," he said.

Oyster mariculture is a growing industry in North Carolina. The Coastal Federation and partners have ambitious goals, including the development of a 10-year strategic plan to grow oyster mariculture to a 100-million-dollar industry that includes tourism draws like an Oyster Trail.

Bethea said he is seeing more and more restaurants offer North Carolina oysters since he's gotten involved in the industry. To continue its growth, he said education is important.

"We need education because many people have no idea about oysters ... People just need to be educated that they're safe, especially in our state," he said. "We grow them in sustainable ways, and they don't even have any negative impact — and probably leave a positive footprint on the environment."



Oysters that thrive and support vibrant fisheries and habitat, good water quality and a strong coastal economy.

Oysters in North Carolina's coastal waters have declined by an estimated 50-90 percent in the last 100 years due to overharvest, disease and polluted waters. The Coastal Federation and its partners are restoring these populations by executing the *Oyster Restoration and Protection Plan: A Blueprint for Action 2015-2020*, which contains seven goals that provide a framework for oyster restoration and the advancement of oyster mariculture.

Oyster restoration and oyster mariculture benefit both the environment and economy. Oysters filter water and provide habitat for recreationally and commercially important fish, so replenishing oysters through restoration efforts is vitally important. Mariculture and restoration work also provide full-time and seasonal jobs for contractors, fishermen, seafood dealers, restaurants and others. Clean water supports a billion-dollar tourism industry and healthy coastal communities.

The Coastal Federation and its partners will promote oyster restoration and mariculture by working on the following:

- Construct new acres of oyster reef by 2020 as part of the 50 Million Oyster Initiative, with 15 acres planned for 2018 at the Swan Island Oyster Sanctuary.
- Develop a cost-effective oyster shell recycling program.
- Maintain and expand the cultch planting program through public-private partnerships and funding from the North Carolina General Assembly.
- Expand the oyster mariculture industry along the coast as a green industry and a way to increase people's investment in protecting coastal water quality.
- Continue to engage fishermen, legislators, researchers, students, agencies and the public in the development and execution of these plans.

We need your help to succeed:

- Write letters to your legislators encouraging their support of oysters.
- Volunteer at an oyster reef construction event at nccoast.org/events.
- Adopt an oyster at nccoast.org/adopt.
- Subscribe to "On the Half Shell," a quarterly e-newsletter published by the Coastal Federation and its partners all about North Carolina oyster work, at ncoysters.org.

Visit nccoast.org/oysters to learn more.



GOAL 4

Effective coastal management that protects and restores the North Carolina coast.

The Coastal Federation advocates for effective coastal management decisions that protect the North Carolina coast and its communities. Federal, state and local laws; policies and rules; and public and political pressures all influence coastal management. Sometimes laws are too inadequate to address emerging coastal issues, and agencies and programs that deal with these problems are often understaffed and underfunded. Climate change is putting the already vulnerable coast at greater risk of flooding and erosion. Political pressure to make decisions for immediate gain can have severe long-term consequences. An educated and engaged public is necessary to ensure that the coastal environment is protected and restored. Environmental journalism is a critical component of public engagement.

To ensure effective coastal management, the Coastal Federation and partners will work to:

- Partner to develop better water quality monitoring that detects emerging contaminants as continued work on the GenX issue.
- Prevent offshore oil and gas exploration from occurring off the Atlantic Coast, as it could threaten the coastal environment and economy.
- Streamline the permitting process for living shorelines so they can be more easily installed.
- Obtain funding for a shellfish sanitation lab in northeastern North Carolina to ensure that shellfish waters are closely monitored.
- Prevent the construction of terminal groins at Figure Eight Island and Holden Beach to keep the coast public and accessible.
- Provide for safe navigation through inlets by supporting effective and consistent dredging programs rather than construction of jetties and groins.

Learn more at nccoast.org/coastalmanagement.

OPPOSE OFFSHORE OIL

In January, the Bureau of Ocean Energy Management released its draft 2019-2024 National Outer Continental Shelf Oil and Gas Leasing Program. This draft program includes nearly all of the U.S. coast, including North Carolina. The public comment period runs until **March 9**. Go to nccoast.org/oil for talking points and a link to the comment submission form.

Coastal Federation and partners advocate for monitoring program

After the discovery of GenX in the Cape Fear region, there has been a renewed focus on water quality in the state and at the General Assembly.

Dr. Lee Ferguson, an engineering professor at Duke University, collaborated with other scientists to encourage better statewide water quality monitoring. His goal is to create an ongoing monitoring system for early detection of contamination and a process that would allow for immediate testing of contaminants. Similar programs in a few other states and around the world have proven effective in better regulating hazardous contaminants in drinking water supplies once they have been detected.

Ferguson said that the N.C. Department of Environmental Quality's (DEQ) current monitoring programs are suited for traditional contaminants, like coliform bacteria or nutrients. GenX and other emerging contaminants, however, are not as likely to be picked up.

He thinks North Carolina is well-suited to undertake this type of expanded monitoring program because of the expertise at its universities, DEQ and at the Environmental Protection Agency lab in the Triangle.

At a meeting at the General Assembly's House Select Committee on Water Quality in September 2017, Ferguson proposed a program that would use the expertise of the state's universities to help monitor for contaminants. The program is still in draft form, and Ferguson hopes that after soliciting comments from interested parties, the legislature will be able to get a fuller look at it in late spring.

"What's new here is that we can use a much broader and more sensitive analytical technique to monitor a large swath of emerging contaminants," he said.

The General Assembly continues discussing GenX legislation and other ways to address emerging contaminants. Stay updated at nccoast.org/raleighreport.

A coast that is free of marine debris.

Marine debris, or litter that has made its way into and around coastal waterways, is dangerous to fish, birds, wildlife and people. The vast amount of trash results from storms, accidents or simple carelessness. Debris can result from lost fishing gear, damage to structures caused by storms, abandoned or lost vessels, accidental or intentional spills and people who toss away or lose their trash in waterways.

To reduce marine debris, the Coastal Federation will:

- Educate people to discourage littering and recruit help in cleaning up coastal areas.
- Organize cleanups with volunteers, contractors and commercial and recreational fishermen to remove lost crab pots and significant existing debris from waterways. We will continue to seek funding from the General Assembly for the Lost Fishing Gear Recovery Project, which just completed its fifth year.
- Advocate for better building codes, vessel removal ordinances and fishing guidance that better defend the coast from storm damage and that discourage fishing gear abandonment.
- Develop and promote a collaborative coastwide strategy for reducing marine debris.

GOAL 5

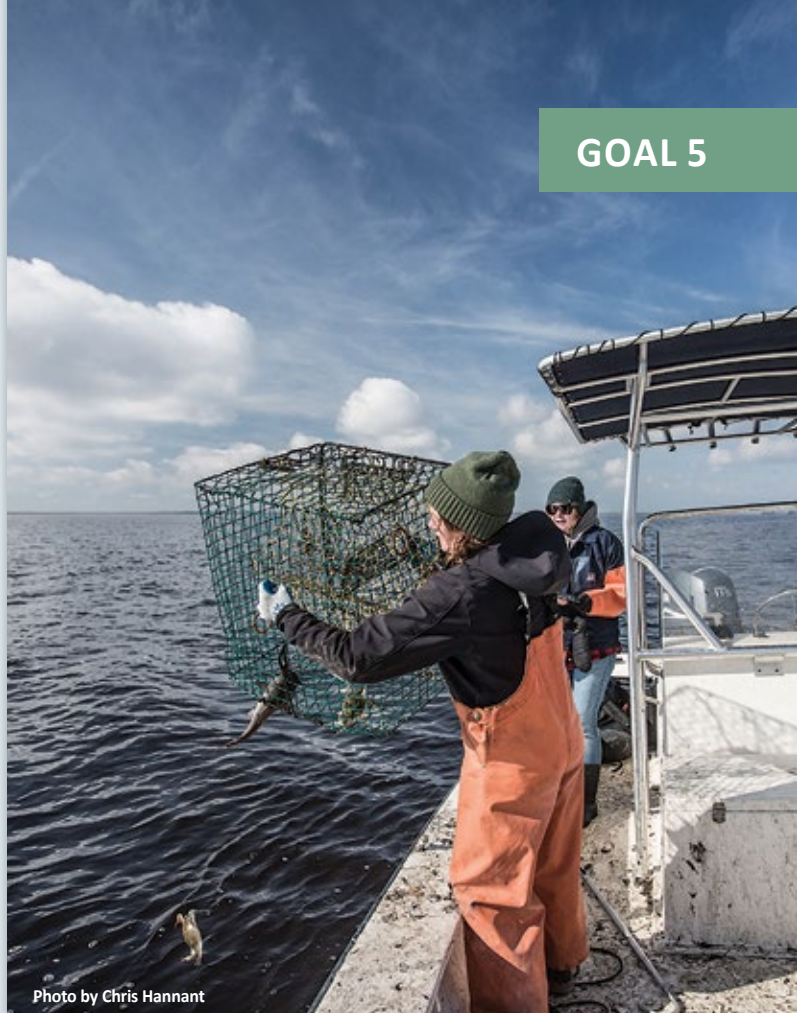


Photo by Chris Hannant

Visit nccoast.org/marinedebris to learn more.

Working with shellfish growers to reduce marine debris

There is currently no list of practices that shellfish growers can access to learn more about how to best manage their operations to prevent monetary losses and marine debris.

But thanks to a grant from the National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program, the Coastal Federation is leading an effort to develop a manual of best management practices (BMPs) for aquaculture operations with assistance from NOAA and North Carolina Sea Grant.

These practices will keep aquaculture operation sites clean both during operation and once they are no longer in business. Bree Charron, coastal specialist and project lead, said the manual will offer voluntary practices that growers can adopt.

"We're confident that growers will want to incorporate these measures into their work since protecting the natural resources they rely on is important to them," Charron said.

Dr. Chuck Weirich, marine aquaculture specialist with North Carolina Sea Grant, said the manual is a proactive way to save growers money, protect the environment and educate the public.

"There's always a potential for these culture materials, due to negligence or storms such as hurricanes and nor'easters, if they're not situated properly or rigged properly they can always break off and this is something that the producers don't want to see, primarily because of monetary loss," Weirich said. "But we also want to make sure that producers are aware that this can be a problem to the environment and also be an eyesore to the general public."

The stakeholder group hosted a meeting for shellfish growers to offer their input on the plan in early February. The manual

is set to be complete by April. Once it's complete, it will be available online and will be used at workshops and classes.

The NOAA grant also funded the cleanup of an abandoned clam-growing site in eastern Carteret County. Debris was creating navigation hazards and littering marsh, seagrass beds and oyster beds. With the help of volunteers in November 2017, the Coastal Federation was able to clear most of the shoreline. Brooks Dredging and Marine Construction completed the cleanup by clearing an additional 590,000 pounds in December.

The goal is for the manual to prevent similar situations from happening in the future. Weirich said the BMPs will help develop the industry in a viable way.

"We want to develop this industry, but we want to do it in a responsible and a sustainable fashion so it can be sustainable in the future," Weirich said.



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Photo by Chris Hannant

Hop on board — it's all hands on deck to protect the coast.

To join or renew your annual membership, visit nccoast.org/membership.

You can also renew by mailing a check to 3609 N.C. 24 (Ocean), Newport, NC 28570.

Your membership helps keep our coastal waters clean and safe for boating, fishing and swimming.

Questions? Call us at 252-393-8185 or send us an email at nccf@nccoast.org.



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E V E N T S

There's always something happening at the Coastal Federation. For information on volunteer opportunities, fundraisers and more, visit nccoast.org/events.