

OUR COAST



North Carolina
Coastal Federation
Working Together for a Healthy Coast

OUR 2023 GOALS

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UPCOMING EVENTS!

LETTER FROM THE DIRECTOR

Dear Friends of Our Coast,

Salt marshes in North Carolina are on the move. They are changing because of extreme weather and rising sea levels.

These marshes are some of the most valuable and productive fish habitats in the world. They are “factories” that produce the fish and shellfish that supply both commercial and recreational fisheries.

Salt marshes sequester carbon and help control global warming. At the same time, these marshes protect shorelines from erosion, provide buffers that help maintain water quality, and they make coastal communities more resilient to flooding.

The North Carolina Coastal Federation is currently developing a conservation plan to help safeguard salt marshes at least through 2050. The goal is to maintain their current level of productivity and ecological values. This plan will be completed this summer, and it will then be used as a guide for conservation priorities.

So far, we’ve mapped salt marshes along the entire coast to estimate what will happen to them over the next three decades. In our work, we assume a 1.5-foot rise in sea level during this period, which is a moderate prediction based on what climate scientists are telling us.

For the entire coast, these maps indicate that salt marsh acreage will increase north of Morehead City and decrease south of there. Overall, the good news is that for our entire coast, salt marsh acreage will increase by about 180,000 acres as the sea level rises.

However, there’s really bad news for tidal marshes south of Morehead City. The acreage of salt marshes dramatically declines from Bogue Sound in Carteret County to South Carolina.

Marshes will expand along the northern half of the coast because they can migrate inland over adjacent and vast low-lying lands. Many existing forests, fields, and freshwater wetlands will become salty marshes over the upcoming decades. We can’t simply stop the migration of salt marshes into low-lying lands. Dikes

and pumps can hold the rising sea back for a while, but eventually saltwater finds its way inland infiltrating directly through soils, up streams, and through the thousands of miles of existing drainage ditches and canals.

Strategic management efforts that protect low-lying properties from more intense land uses so that there’s room for this inevitable salt marsh migration will make these changes less disruptive to coastal communities.

Investing in working land and wetland restoration easement programs keeps these lands from sprouting houses and other land uses that create unresolvable conflicts with salt marsh migration.

We are fortunate to have several existing federal- and state-funded programs that do both types of easements, and they can be used to protect these corridors to help reduce the potential for major negative economic and cultural consequences from this migration.

South of Carteret County, dramatic losses in salt marsh acreage will occur because there’s so little low-elevation land adjacent to estuaries to allow salt marshes to migrate inland. That’s bad news for existing tidal marshes that now exist in and around these estuaries. These tidal marshes will drown and then turn into open water as the sea level rises. This will cause even more shoreline erosion as these protective marshes disappear.

Everything possible must be done to maintain existing marshes for as long as possible. Living shorelines and the strategic use of dredge spoils to elevate some marshes are tools that help to conserve existing marshes. We should anticipate that demand for these nature-based strategies by adjacent riparian property owners will intensify as marshes disappear at increasing rates and scales.

All these various management measures buy additional time to adapt to climate changes and more extreme weather events. However, it’s clear that the long-term survival of salt marshes ultimately depends less on these adaptation measures, and more on taking effective



actions to better control global warming so the seas don’t rise so high, and we have fewer extreme weather events.

None of these needed management measures are easy or inexpensive to accomplish.

I’m optimistic that our coastal communities can adapt to a 1.5-foot rise in sea level over the next three decades. Looking further into the future, I’m pessimistic about our prospects of handling the greater magnitudes of sea level rise that many experts predict will occur by 2100.

Adaptation measures buy us time to get our act together to really address the root causes of climate change and global warming that we can control. We need to use this time wisely. Our coastal communities face tidal waves of perilous impacts if sea level rise is unchecked.

The Federation has many programs that help our coastal communities adapt to sea level rise. We also continue to push for more effective policies and programs that result in clean energy and reduced greenhouse gas pollution.

We need your help to make this work succeed so that the natural and human resources of our coast are protected. We have pursued these strategies for the past 40 years and with your help will continue to do so in the decades to come.

Frank Miller



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OUR GOALS FOR 2023

The start of a new year is here and as an organization, the North Carolina Coastal Federation is gearing up to keep our coast a wonderful place to live, visit, work, and play. Throughout 2023, we will continue our commitment to protect and restore our coast's environment to maintain and improve our coastal economy and way of life.

As we embark on our fifth decade as an organization, we keep at the forefront of our work our ability to adapt and prioritize our work relying upon our: (1) strong foundation of past accomplishments; (2) attention paid to the most fundamental ongoing and emerging coastal issues that have potentially irreversible negative consequences for our coast; and (3) agility to help people from all walks of life work together to use proven and cutting-edge, real-world strategies and practices.

Each year hundreds of diverse stakeholders help us plan and execute our work. Most recently, these stakeholders have played an integral role in developing the: (1) Nature-based Stormwater Strategies Action Plan, (2) N.C. Marine Debris Action Plan, (3) Oyster Restoration and Protection Plan: A Blueprint for Action, (4) Coastal Habitat Protection Plan update, and (5) numerous watershed management and restoration plans. Once final, these plans enable us to prioritize and carry out tangible actions that make our coast healthier, cleaner, and more productive.

In the following pages we share our goals and priorities for 2023 related to our key program areas of water quality, living shorelines, thriving oysters, marine debris, and coastal management.

GOAL: IMPROVE COASTAL WATER QUALITY & REDUCE FLOODING

Since 2021, when the Federation worked with partners to develop the Nature-based Stormwater Strategies Action Plan, we've made strategies to collect, soak in and filter stormwater runoff a key priority of our work and have made great progress in implementing many of the plan's recommendations.

Much of that progress is being made possible through support from the North Carolina General Assembly which allocated hundreds of millions of dollars to improve water quality, and reduce flooding with nature-based stormwater strategies.

But the work is far from over, and now it's up to us and our private and government partners to take the next steps and use these expanded resources.

One focus in 2023 will be to continue to create and implement watershed restoration and action plans in priority watersheds such as the Stump Sound and Newport River watersheds where it is critical that we reduce flooding and restore water quality to protect the economic and environmental values of these important coastal regions.

The Federation's water quality program Water Resource Engineer Bree Charron shares some of our key priorities for 2023.

Charron said urban stormwater retrofits and wetland restoration will be some of the projects her team will be focused on completing.

At University of North Carolina Wilmington, where our successful multi-year partnership has resulted in thousands

of gallons of runoff reduction, the Federation will be installing more pervious pavement and another rain garden.

The Federation also will restore 10 acres of wetlands at Carolina Beach State Park and oversee hundreds of acres of wetland restoration in Hyde County.

The policy team will be working hard to implement a clear water quality standard to promote seagrass habitat and create a state conservation plan for salt marsh habitat.

The Federation also will be engaged in the development of an updated Uniform Floodplain Management Policy for North Carolina as called for by Gov. Roy Cooper in his Executive Order 266 which was released in 2022.

The order calls for revisions to the current policy for state construction in a floodplain and to develop requirements for the construction of new state buildings outside of a floodplain that is at risk of flooding. We will promote nature-based strategies as a key component of the policy.

In addition, we will be developing a Resiliency and Climate Adaptation Plan for the 33 counties that make up the Eastern North Carolina Sentinel Landscape. We will use our work in 2022 to identify climate-related threats, key stakeholders and capacity needs to inform the development of the plan.

"In 2022 we made huge strides in advancing our water quality goal. We look forward to putting more projects in the ground in 2023 with the help of all our



wonderful partners," Charron said.

Nature-based stormwater strategies include land acquisition, conservation easements, wetland restoration, stormwater retrofits, and other best management practices.

Implementing solutions like this can help to reduce the nutrient and bacteria loadings that end up in our coastal waterways.

Showcasing these projects helps advance nature-based strategies as standard practice by providing valuable opportunities for developers, design professionals, contractors, elected and appointed officials, farmers, and landowners to better understand, utilize, and promote nature-based strategies.

Through our efforts, we will engage with a multitude of stakeholders for their help and participation in reducing the volume and rate of stormwater runoff that reaches our coastal waters, thereby keeping watersheds much more functional and resilient in holding and infiltrating rainfall.

GOAL: A COAST WITHOUT MARINE DEBRIS



Over the past year, the Federation, along with our contractors and volunteers, has removed 419 tons, which is 837,240 pounds, of marine debris, abandoned and derelict boats, and lost fishing gear from our coast.

Large-scale coastwide cleanup efforts such as this began after the devastation of Hurricane Florence in 2018 and received additional support from several grants through the recommendations in the 2020 North Carolina Marine Debris Action Plan.

In 2022, the Federation also was successful in encouraging several beach towns to ban the use of unencapsulated polystyrene in the construction of new floating docks that were a major source of debris after past hurricanes.

Thanks to support from the North Carolina General Assembly, North Carolina Commercial Fishing Resource Fund Grant Program, National Oceanic and Atmospheric Administration, or NOAA, and the National Fish and Wildlife Foundation Marine Debris Program, our cleanup efforts will continue while we seek additional legislative appropriations and state and federal grants to continue this impactful work for our coast.

This will ensure that we are prepared to scale up our efforts should another hurricane or major storm litter our coast again with damaged docks and lumber, boats, and lost fishing gear.

The Federation also will use data

collected by volunteers, research, and recommendations from the N.C. Marine Debris Action Plan to continue to raise public awareness about invisible microplastics that are consumed by fish, birds, and people.

In the coming year, the Federation also will work on marine debris prevention by advocating for more storm-resilient building practices, maintenance, and regulatory enforcement for water-dependent structures.

We also will collaborate with government agencies to enhance programs, rules, and collaboration to reduce the number of abandoned boats and debris.

Coastal Scientist and Marine Debris Program Director Ted Wilgis explained that the Federation worked with partners to remove

and clean up 21 abandoned and derelict vessels, or ADVs, in 2022, bringing the total ADVs removed since 2021 to 99, with an estimate of another 10-50 more this coming year.

“Thanks to all our partner agencies, contractors, local governments, volunteers, and funders we are starting 2023 with great momentum and capacity that we will strive to continue throughout the year with tons more debris collected, ADVs removed, and prevention efforts strengthened,” Wilgis said.

Since 2017, the Federation also has been working closely with commercial fishermen and women to locate and remove marine debris from our coastal waterways.

With their invaluable help, we were able to remove more than 2,034 tons or 4,067,020 pounds of debris.

In the coming year, we plan to continue utilizing their knowledge of the coast and their hard work to remove even more debris.

In addition, we will continue to annually evaluate and publicize research needs to help document and measure trends regarding marine debris problems and needs.

We will also conduct extensive education and outreach about the prevention and removal of marine debris to instill a stronger conservation ethic on the issue throughout coastal communities.



GOAL: KEEP ESTUARINE SHORELINES HEALTHY & PRODUCTIVE

The use of living shorelines instead of bulkheads reduces erosion so that coastal habitats are productive for fish and shellfish, and waterfront properties are more resilient to storms and sea level rise.

The estuarine shorelines that extend for 12,000 miles along the North Carolina coast are some of the most productive and valuable fish and wildlife habitats on Earth.

The Federation hopes to keep these habitats intact and productive in the face of rising sea levels and more extreme weather.

For more than 20 years, we have demonstrated how living shorelines can both maintain these productive habitats while also reducing erosion to protect waterfront properties, and these projects have been extensively studied by researchers and are proven to work even during major storm events.

The North Carolina General Assembly, and other state and federal funding agencies have currently invested over \$18 million to promote and build living shorelines along our coast. That money translates to miles of living shorelines being built on city, county, military, state park, harbor, and private properties.

In 2022, we constructed 1.2 miles of living shorelines at 34 sites using granite rocks, 8,449 bags of recycled oyster shells, 1,676 marl bags, 17,432 QuickReef™ units, 240 feet of the vertical sill, and 747 feet of OysterCatcher™. A total of 21,804 wetland plants were also planted at 11 sites.



In the coming year, the Federation will continue its incredibly successful living shoreline cost-share program for sound front properties, and work to build large-scale living shorelines including over 2,000 feet at Fort Macon State Park.

We will also continue to seek funding to encourage the use of living shorelines as we further develop consumer demand for these projects and the capacity and expertise of marine contractors to build them.

Our living shoreline program director, Dr. Lexia Weaver said the growing demand for both small and large living shoreline projects continues to help further the overarching goal of the Federation to make living shorelines the “go-to” approach for shoreline protection.

“Although we have significantly expanded the use of living shorelines in the state, continued education is needed to increase the awareness of this more effective, economical, and longer-term shoreline stabilization method,” Weaver explained.

As part of this work, our staff will continue to test environmentally acceptable materials for future use in living shoreline construction.

This year we also plan to continue offering education and training to some of our appointed officials as well as contractors, and real estate agents.

The Federation will work with researchers to better understand the relationship between living shorelines, sea level rise, water quality, and seagrass habitats.

We also will seek ways to protect permitted oyster sills from being damaged by the harvest of oysters.



GOAL: ABUNDANT OYSTERS THAT SUPPORT THE ENVIRONMENT & ECONOMY



Abundant oysters in North Carolina's estuaries are essential for a productive and sustainable coast. Our native eastern oyster benefits our coastal ecology and economy by providing critical habitat for fish, filtering water, and their harvest infuses millions of dollars into the economy.

In 2021, the Federation released, along with its partners, the fourth edition of the "Oyster Restoration and Protection Plan for North Carolina: A Blueprint for Action" that now guides work on oysters until 2025.

In the coming year, we plan to continue to partner and collaborate with our statewide Oyster Steering Committee to implement the goals and actions that are outlined in that Blueprint. We're also working to secure the funding that will help us build nearly 100 acres of oyster sanctuary, which will complete the 500-acre Senator Jean Preston Oyster Sanctuary Network.

In 2023, our staff will partner with the Division of Marine Fisheries to build 5 to 10 acres of oyster habitat and we will support their efforts to construct a total of 40 acres coastwide. Five to 10 acres of that being protected habitat and the remaining 35 acres will be a harvestable reef. This work will further our goal of making natural oysters more sustainable- balancing the need for both protected and harvestable areas to be built.

Throughout the coming year, we're hoping to double our oyster shell recycling program, collecting at least 5,000 bushels of shell. In 2022, we recycled nearly 3,000 bushels of shell. Those shells remain an

important element in carrying out our restoration work on both living shorelines and oyster reefs.

Another major target for this year is to see the completion and move to implementation of the Newport River and Stump Sound watershed plans. These two waterbodies are critical shellfishing sites, for both wild harvest and oyster farming, that are very threatened by pollution.

The watershed restoration plans outline cross-cutting ways to reduce water pollution entering these areas. The ultimate objective of these plans is to reverse the degradation, ensuring they can remain healthy and productive shellfishing waters for generations to come.

A continuing effort we have this year

is our work to stimulate the shellfish mariculture industry to create a \$45 million industry by 2025, including establishing an aquaculture hub for shellfish farms in Carteret County. We also will aggressively promote oysters as a living shoreline strategy in oyster-growing waters to enhance coastal resilience.

"In a collaborative and supportive way, North Carolina is clearly emerging as a national leader in both oyster restoration and mariculture work. Our statewide partners continue to bring to light new ideas on the best ways to restore wild oysters and ensure smart and sustainable growth of the oyster farming industry," explained Erin Fleckenstein, Coastal Scientist and oyster program lead for the Federation. "We have outlined ambitious goals and work that needs the continued collaboration and support of all our partners- local, state, and national to make a reality in the coming years."

But all of these efforts depend on both public and political support, and the Federation will keep this work in the spotlight by promoting the N.C. Oyster Trail, and with annual reports, workshops, legislative outreach, and public awareness and engagement programs.

A statewide oyster summit is planned for May 2023, which will engage legislators, state and federal agencies, researchers, oyster growers and harvesters, as well as interested oyster stakeholders.

The summit will highlight progress being made on all efforts outlined in the Oyster Blueprint and chart the path to success, ensuring the goals outlined in the fourth edition of the Blueprint are realized.



GOAL: COASTAL MANAGEMENT THAT PROTECTS & RESTORES

Every day people make critical decisions that shape the future of our coast. These decision-makers include lawmakers, government officials, business and industry leaders, academics, and the public.

At the Federation, we remain committed to informing and shaping those decisions so that they result in long-term outcomes that improve our wonderful coast.

Over the next year, our organization will seek to advance laws, appropriations, rules, policies, and permit decisions that support and help implement our goals related to water quality, flooding, resiliency, living shorelines, oysters, and marine debris.

In 2022, our Coastal Advocacy team was critical in getting four coastal towns to ban the use of unencapsulated polystyrene in floating dock construction, and this year we hope to build on that momentum.

Enhanced building code requirements for docks and piers, as well as continued efforts with the Division of Coastal Management to better regulate the location of structures on beaches seaward of the vegetation line to help prevent them from becoming marine debris and polluting our waterways and beaches.

We will strive to improve policies that we have worked on for many years, while at the same time addressing emerging issues like the need to reduce nutrients in our

coastal waters and promote clean energy that will help to mitigate sea level rise so that our salt marshes and other critical coastal habitats are protected.

For example, offshore wind is a key clean energy source that could mitigate the harmful effects of carbon pollution on North Carolina's communities, natural systems, and wildlife but it must be done responsibly.

We will work with regulators, wind developers, and other stakeholders to ensure strict industry regulations that avoid, minimize and mitigate environmental impacts.

"A primary tenet of the Federation is that the coast belongs to us all and that every informed opinion matters when it comes to decisions that affect it. It is our job as advocates to ensure these decisions are in the best interest of our coast for all communities, not only now, but for generations to come," explained Coastal Advocate and coastal management program director Kerri Allen.

As we've always done, the Federation will interact with all levels of government, reach out and engage stakeholders and decision-makers, use the best science and technology to inform our work, work within legal authorities and standards, and make sure that everyone is heard as public policies are formulated and then carried out.

We will also use our own capacity to



report the news to more than 2.5 million households through Coastal Review as well as our partnership with WRAL-TV and other television stations to help inform the public about important coastal issues and policies and to provide accountability for the good, bad, or even sometimes ugly outcomes of decisions that affect our lives and our precious coastal environment.





North Carolina Coastal Federation

Working Together for a Healthy Coast

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Margaux Kerr joined the Federation in January 2023 as a Coastal Resiliency Planner and Manager. Her duties focus on coastal resiliency and restoration initiatives being conducted out of the Wanchese Office. She graduated from East Carolina University in 2012 where she received a Bachelor of Science in Urban and Regional Planning with concentrations in Environmental Sciences and Recreation and

Leisure. After graduating, she moved to Wrightsville Beach where she was a volunteer for the Federation. Margaux then accepted a position in the northern Outer Banks and started work in 2015 with Currituck County as a development technician and then in 2016 became a town planner and Coastal Area Management Act local permit officer for Nags Head. She is a Certified Flood Manager and Certified Zoning Official.

Margaux's primary responsibilities include planning and managing projects that protect and restore living shorelines, wetlands, water quality, and reduce flooding. In her free time, she enjoys the outdoors and surfing.

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Celebrate the Coast in 2023!

We hope you'll join us for these upcoming events.

- **February 4th:** Hatteras Island Oyster Roast
- **March 11th:** Southeast Oyster Roast
- **May 9th & 10th:** Oyster Summit
- **August 5th:** Pelican Awards and Taste of the Coast
- **October 6th:** Wine and Brine



An Oyster Valentine

For Valentine's Day, give your sweetie adopted oysters!

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