



## Your Link to Research and Resources for a Healthier Coast

**\$4 million**

in economic benefits to North Carolina  
and the East Coast

**34 college students**

in new degree-related careers

**11,902 students**

engaged from Pre-K to 12th grade

**210 jobs**

created or sustained across varied fields

**600,000 acres**

of restored habitat

**23 communities**

with new hazard resilience practices





Kevin Reopelle/  
City of Jacksonville Media Services

## Confirming the Science of Marsh Restoration

Marshes are critical habitats that protect coastal waters, but researchers sought to better understand the capacity of these ecosystems to filter nutrients and sediment. Sea Grant funded a collaborative team of researchers and partners from the City of Jacksonville to study how restored marshes in the Wilson Bay area of the New River trap nutrients, compared with nearby natural marshes. City officials are using the results to advise their successful restoration program and to educate students and the public who visit the Sturgeon City educational center.

## Safeguarding a Critical Drinking Water Source

Water treatment officials worked with Sea Grant-funded researchers to measure levels of a toxin called microcystin — produced by cyanobacteria — along the Cape Fear River, part of a system that serves 1.5 million people. Results showed that levels were below federal guidelines for drinking water and recreational use. The researchers also developed a groundbreaking model of cyanobacterial growth. Local and state officials are using this research to better understand their source water and to devise strategies to manage water quality.



Ken Blevins/Star-News



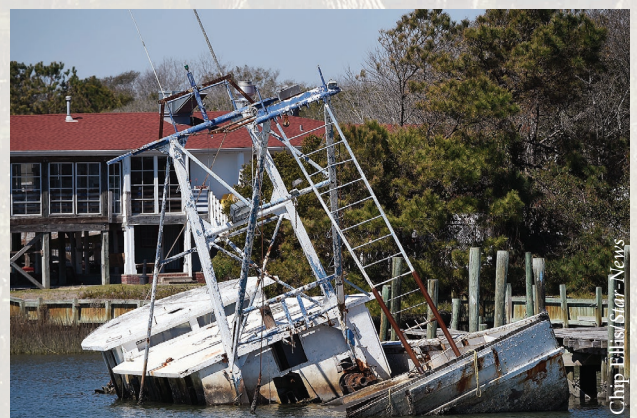
Scott Sauer

## Providing Expertise on Flood Mitigation

Across eastern North Carolina, tremendous flooding occurred with Hurricane Matthew in 2016. The Town of Windsor and Bertie County are among communities that lacked capacity and technical staff to identify factors that exacerbated flooding. Nor could they identify or evaluate potential mitigation measures. Sea Grant led an effort to bring local leaders along the Cashie River into research by university experts. Their work provides a template for watershed and riverine flood models, as well as analyses of mitigation strategies. State emergency managers and transportation officials now are applying the template to the larger river basins, such as the Neuse.

## Tackling Marine Debris Challenges

Abandoned and derelict vessels cause oil and hazardous waste pollution, pose safety and navigational hazards, and damage aquatic and shoreline habitat. After Sea Grant facilitated a meeting on behalf of Brunswick County to address the problem, commissioners passed a new ordinance for managing abandoned and derelict craft. The project was the latest in our commitment to clean up waterways. Other initiatives included working with state partners to canvass coastal waters and then remove derelict crab pots, as well as providing key expertise for the state's marine debris reduction plan.



Chip Ellis/Star-News



## Ensuring Safe Seafood at Many Levels

Nutritional awareness and changing consumer tastes have increased demand for North Carolina seafood. Thus, a safe food supply is critical to the industry and consumers. Sea Grant provides instruction on seafood safety to the state's county-based environmental health specialists as part of their certification requirements. Sea Grant researchers also identified the risks of *Vibrio*, bacteria associated with undercooked seafood that can cause illness if ingested. Officials in turn cited these findings when proposing a seafood pathology position, which the state of North Carolina then created.



Vanda Lewis

## Growing the Shellfish Aquaculture Industry

Shellfish mariculture has been growing along our coast, but methods to assess industry development and trends have been lacking. Educational opportunities for potential shellfish growers also have been limited. Sea Grant developed an annual survey that now gauges the state's industry, providing a report that many stakeholder groups use. Our research and outreach also have included identifying financing options for shellfish farmers; hosting regional educational workshops for 170 current and potential farmers; testing culture gear with native strains of oysters; and considering opportunities for growing clams and scallops.



Baxter Miller

## Enhancing Education for Untapped Students

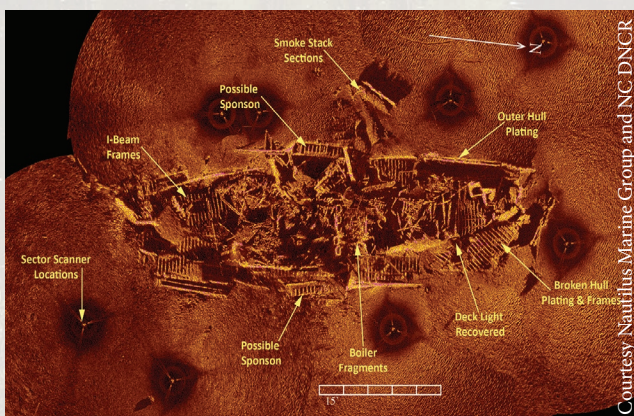
When a doctoral student sampled water in three N.C. counties, results showed antibiotic pollution levels that could potentially lead to drug resistance. This Sea Grant-funded project is an example of innovative research conducted through joint fellowships with the state's Water Resources Research Institute. The fellowship also builds expertise within and on behalf of underserved populations. Our commitment to untapped communities also is evident in a project that investigated sea level rise in marshes. First-generation Chowan University students from diverse backgrounds gained critical experience and engaged with mentors during hands-on fieldwork and lab research.



Courtney Bo Dame

## Preserving North Carolina's Maritime History

North Carolina has a rich maritime history. Civil War shipwrecks provide opportunities to better understand state and national history, educate students, and create economic opportunities. A Sea Grant-funded team used remote-sensing equipment to record the wrecks of two blockade runners: the *Condor* and the *Agnes E. Fry*. The *Condor* has become the state's first Heritage Dive Site and today also provides graduate students with research opportunities in underwater site preservation. The site has created new ecotourism opportunities along the coast and has brought the state's maritime history to new audiences.



Courtesy Nautilus Marine Group and NCDNCR



# What Is North Carolina Sea Grant?

Since 1970, North Carolina Sea Grant has been a valuable resource for scientists, educators, local officials, government agencies, coastal businesses and the public to gain scientifically sound information about the state's coastal ecosystems. As part of the National Sea Grant Network, we receive federal funding through the U.S. Department of Commerce's National Oceanic and Atmospheric Administration.

## Our Mission and Vision

**MISSION:** Through integrated, unbiased research and outreach efforts, North Carolina Sea Grant enhances sustainable use and conservation of ocean, coastal and watershed resources to benefit communities, economies and ecosystems.

**VISION:** North Carolina Sea Grant is a key leader in addressing the state's urgent and long-term needs in ocean, coastal and watershed resource management. The program shares sound science, develops educational excellence, and builds extensive and effective partnerships.

Access our strategic plan, as well as a video about our program, at [ncseagrant.org](http://ncseagrant.org).

## How We Work

We lead and support innovative programs that reflect key concepts:

- Healthy coastal ecosystems are the foundation for life along the coast.
- The future of our natural, cultural and economic resources depends on an informed citizenry and skilled workforce.
- With increasing population growth and seafood consumption, ensuring safe and sustainable domestic fisheries and aquaculture operations is paramount.
- Coastal communities face high-stakes decisions regarding coastal hazards and economic resilience.

By powering university-based research, North Carolina Sea Grant answers complex questions about the state's diverse coastal ecosystems and meets the needs of coastal communities. Our work fuels outreach and education programs, and supports dozens of undergraduate and graduate students through fellowships and other opportunities. Our varied communications efforts include *Coastwatch* magazine.

## Where We Work

North Carolina Sea Grant is part of the University of North Carolina system. With headquarters at North Carolina State University, we also have coastal offices in Manteo, Morehead City and Wilmington. Our researchers come from public and private universities across the state, often working in collaboration with hundreds of partners, including local, state and federal agencies, businesses and community organizations.

### North Carolina Sea Grant Offices

1 Raleigh Office  
919/515-2454

2 Manteo Office  
252/475-3663

3 Morehead City Office  
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4 Wilmington Office  
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Numbers represented in this snapshot are from the 2017-2018 reporting period.