

## NOAA In Your State

# South Carolina

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***NOAA*** is an agency that enriches life through science. Our reach goes from the surface of the sun to the depths of the ocean floor as we work to keep citizens informed of the changing environment around them. From daily weather forecasts, severe storm warnings, and climate monitoring to fisheries management, coastal restoration and supporting marine commerce, NOAA's products and services support economic vitality and affect more than one-third of America's gross domestic product. NOAA's dedicated scientists use cutting-edge research and high-tech instrumentation to provide citizens, planners, emergency managers and other decision makers with reliable information they need when they need it.

*The following is a summary of NOAA programs based in, and focused on, your state or territory. The entries are listed by statewide, region, and then by congressional districts and cities or towns.*

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### SC

#### Statewide

##### **National Marine Fisheries Service (NMFS) - [Restoration Center](#)**

NMFS Restoration Center works with 16 local partners in South Carolina to rebuild native oyster beds, establish wetland buffers, and restore tidal wetlands. Nineteen projects, including more than 100 oyster reefs, have been constructed since 1999, through our Community-based Restoration Program 4,000 volunteers have contributed their efforts to restore the state's coastal habitat. Through the Damage Assessment Remediation and Restoration Program, the Restoration Center collaborates with other agencies, industry, and citizens to protect and restore coastal marine resources in South Carolina threatened or injured by oil spills, releases of hazardous substances, and vessel groundings.

##### **National Marine Fisheries Service (NMFS) - [Southeast Regional Office](#) and [Southeast Fisheries Science Center](#)**

NMFS studies, protects and conserves living marine resources to promote healthy, functioning marine ecosystems, afford economic opportunities and enhance the quality of life for the American public. NMFS' Southeast Regional Office (headquartered in Saint Petersburg, FL) and Southeast Fisheries Science Center (headquartered in Miami, FL) are responsible for living marine resources in federal waters of the Gulf of Mexico, South Atlantic and U.S. Caribbean. Using the authorities provided by the *Magnuson-Stevens Fishery Conservation and Management Act*, *Endangered Species Act*, *Marine Mammal Protection Act* and other federal statutes, the Southeast Regional Office and Southeast Fisheries Science Center partner to assess and predict the status of fish stocks, marine mammals and other protected resources,

develop and ensure compliance with fishery regulations, restore and protect habitat, and recover threatened and endangered species in waters off South Carolina and throughout the Southeast Region.

The Southeast Regional Office conducts mandated essential fish habitat consultations associated with extensive energy and coastal development activities, participates in state and regional habitat planning and restoration efforts, provides assistance during hazardous material incidents and hurricane events, and participates in the planning processes for major federal water development projects. The Southeast Fisheries Science Center implements a multi-disciplinary science and research program in support of living marine resource management. The Science Center develops the scientific information required for fishery resource conservation; fishery development and utilization; habitat conservation; the protection of marine mammals, sea turtles and other protected species; impact analyses and environmental assessments for management plans and/or international negotiations; and pursues research to answer specific needs in areas of population dynamics, fishery economics, fishery engineering, food science, and fishery biology.

#### **National Weather Service (NWS) - [Automated Surface Observing Systems Stations](#)**

The Automated Surface Observing Systems (ASOS) program is a joint effort of the National Weather Service (NWS), the Federal Aviation Administration (FAA), and the Department of Defense (DOD). ASOS serves as the Nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. ASOS works non-stop, updating observations every minute, 24 hours a day, every day of the year observing basic weather elements, such as cloud cover, precipitation, wind, sea level pressure, and conditions, such as rain, snow, freezing rain, thunderstorms, and fog. There are 15 ASOS stations in South Carolina.

#### **National Weather Service (NWS) - [Cooperative Observer Program Sites](#)**

The National Weather Service (NWS) Cooperative Observer Program (COOP) is truly the Nation's weather and climate observing network of, by and for the people. More than 10,000 volunteers take observations on farms, in urban and suburban areas, National Parks, seashores, and mountaintops. The data are representative of where people live, work and play. The COOP was formally created in 1890 under the NWS Organic Act to provide observational meteorological data, usually consisting of daily maximum and minimum temperatures, snowfall, and 24-hour precipitation totals, required to define the climate of the United States and to help measure long-term climate changes, and to provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS. The data are also used by other federal (including the Department of Homeland Security), state and local entities, as well as private companies (such as the energy and insurance industries). In some cases, the data are used to make billions of dollars' worth of decisions. For example, the energy sector uses COOP data to calculate the Heating and Cooling Degree Days which are used to determine individuals' energy bills monthly. There are 103 COOP sites in South Carolina.

#### **National Weather Service (NWS) - [NOAA Weather Radio All Hazards Transmitters](#)**

NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service (NWS) forecast office. NWR broadcasts official NWS warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "All Hazards" radio network, making it the single source for comprehensive weather and emergency information. In conjunction with federal, state, and local emergency managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural (such as earthquakes or avalanches), environmental (such as chemical releases or oil spills), and public safety (such as AMBER alerts or 911 Telephone outages). Known as the "Voice of NOAA's National Weather Service," NWR is provided as a public service by the NWS. NWR includes 1,100 transmitters covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. There are 16 NWR transmitters in South Carolina.

**Office of Oceanic and Atmospheric Research (OAR) – [South Carolina Sea Grant College Program](#)**

NOAA's National Sea Grant College Program is a federal-university partnership that integrates research, education and outreach. Sea Grant forms a network of 33 programs in all U.S. coastal and Great Lakes states, Puerto Rico, Lake Champlain, and Guam. The South Carolina Sea Grant Consortium is a statewide program that generates and provides science-based information to enhance the practical use and conservation of coastal and marine resources that foster a sustainable economy and environment. The Consortium develops balanced and integrated scientific research, as well as formal and informal education, extension, and communications programs, which are driven by stakeholders' needs at the local, state, and regional levels. A 30-member Program Advisory Board and extension specialists' advisory committees help prioritize research and outreach projects. Five focus areas guide research, education, and outreach programs: understanding coastal and ocean ecosystems; supporting sustainable coastal development and economies; enhancing hazard resilience in coastal communities; promoting sustainable fisheries and aquaculture industries; and fostering scientific literacy and workforce development.

***Coastal***

**National Marine Fisheries Service (NMFS) - [Deep-Sea Coral Research and Technology Program](#)**

Deep-sea coral habitats are complex structures that provide habitat for many diverse fish and invertebrate communities including commercially important species such as grouper, snapper, sea bass, rockfish, and crab. The Deep Sea Coral Research and Technology Program is the nation's resource for information on deep-sea coral and sponge ecosystems. The Program—called for in the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act—worked with other NOAA offices and external partners to conduct research cruises off the Southeastern U.S. This field research also provided targeted analyses of:

- Existing information about deep-sea coral ecosystems.
- The distribution and intensity of fishing activities that may damage deep-sea corals in federal waters.
- Coral and sponge bycatch in fisheries.

Findings will not only improve knowledge about deep-sea life off the Southeastern U.S., but will also inform the South Atlantic Fishery Management Council's efforts to manage commercial and recreational fisheries that depend on these and other important habitats.

**National Marine Fisheries Service (NMFS) - [Species Recovery Program](#)**

Under the authority of section 6 of the Endangered Species Act, the Cooperation with States Program brings states, NMFS, and other partners together to recover threatened and endangered species. Competitive grants are awarded to states through the Species Recovery Grants to States Program to support management, monitoring, research and outreach efforts for species that spend all or a portion of their life cycle in state waters. The funded work is designed to prevent extinctions or reverse the decline of species, and restore ecosystems and their related socioeconomic benefits. Twenty-five coastal states, including South Carolina and U.S. territories currently participate in this program.

The South Carolina Department of Natural Resources is in the final year of a 3-year \$1.6million joint grant with the Georgia Department of Natural Resources to assess the population of loggerhead turtles and implement high priority recovery actions. The Department is also in the final year of a 3-year \$825k grant to assess the spatial and temporal distribution of Atlantic sturgeon in waters off South Carolina and Georgia.

**National Marine Fisheries Service (NMFS) - [National Marine Mammal Stranding Network](#) and [John H. Prescott Marine Mammal Rescue Assistance Grant Program](#)**

The National Marine Mammal Stranding Network and its trained professionals respond to dead or live marine mammals in distress that are stranded, entangled, out of habitat or otherwise in peril. Our long-standing partnership with the Network provides valuable environmental intelligence, helping NOAA establish links among the health of marine mammals, coastal ecosystems, and coastal communities as well as develop effective conservation programs for marine mammal populations in the wild. There are two stranding network members in the state. NOAA Fisheries funds eligible members of the Stranding Network through the competitive John H. Prescott Marine Mammal Rescue Assistance Grant Program. Since 2001, \$48.2 million has been awarded to 552 grantees who raised over \$15.9 million in matching funds. In FY15, 34 grantees received \$2.7million with one award going to Coastal Carolina University.

**National Marine Fisheries Service (NMFS) - [Sea Turtle Salvage and Stranding Network](#)**

The Sea Turtle Stranding and Salvage Network (STSSN) was formally established in 1980 to collect information on and document strandings of marine turtles along the U.S. Gulf of Mexico and Atlantic coasts. The network, which includes federal, state and private partners, encompasses the coastal areas of the eighteen-state region from Maine to Texas, and includes portions of the U.S. Caribbean. Data gathered by the Network helps inform bycatch reduction efforts, track factors affecting turtle health, and provide other information needed for sea turtle management and population recovery.

**National Ocean Service (NOS) - [Coastal and Estuarine Land Conservation Program](#)**

The Coastal and Estuarine Land Conservation Program brings conservation partners together to protect coastal and estuarine lands considered important for their ecological, conservation, recreational, historical, or aesthetic values. To date the program has protected more than 100,000 acres of land with program funds and over 16,000 acres with an in-kind match. The program provides state and local governments with matching funds to purchase coastal and estuarine lands or obtain conservation easements for important lands threatened by development. Three projects have been completed in South Carolina, and these lands are protected in perpetuity.

**National Ocean Service (NOS) – [National Coastal Zone Management Program](#)**

Through a unique federal-state partnership, NOAA's Office for Coastal Management works with the South Carolina Department of Health and Environmental Control to implement the National Coastal Zone Management Program in South Carolina. NOAA provides the state coastal management program with financial and technical assistance to further the goals of the Coastal Zone Management Act and ensure coastal waters and lands are used in a balanced way to support jobs, reduce use conflicts, and sustain natural resources.

**National Ocean Service (NOS) – [Regional Coastal Resilience Grant Award](#)**

These grants help coastal communities prepare for and recover from extreme weather events, climate hazards, and changing ocean conditions. The focus is on comprehensive regional approaches that use science-based solutions and rely on collaborative partnerships. This approach expands reach and impact, thereby ensuring maximum success. The NOAA Office for Coastal Management awarded \$803,713 to the Coastal States Stewardship Foundation for a wide number of Southeast partners to facilitate future disaster recovery efforts across more than 30 coastal communities in North Carolina, South Carolina, Georgia, and Florida. Also in South Carolina, the NOAA Office for Coastal Management awarded \$510,319 to the South Carolina Sea Grant Consortium, on behalf of the Charleston Resilience Network, to improve understanding of the vulnerability of critical infrastructure to water-related hazards, share science-based information among stakeholders, and enhance long-term planning that leads to resilience in the Charleston, South Carolina region. The region will benefit from the resulting risk assessments and the implementation of improved-upon resilience plans and strategies.

**National Ocean Service (NOS) - [Scientific Support Coordinator and Regional Resource Coordinator](#)**

NOAA's Office of Response and Restoration (OR&R) brings decades of experience, technical expertise and scientific analysis in response to oil and hazardous chemical spills. In addition to events that draw the national eye like Hurricane Sandy, OR&R also supports response to local emergencies. Nine regionally based Scientific Support Coordinators (SSCs) harness the input of a multi-disciplinary team to address issues such as oil slick trajectory forecasting, environmental tradeoffs, best practices, resources at risk, oil science and properties, and chemical hazard assessment to reduce risks to coastal habitats and resources. The SSC works directly with U.S. Coast Guard and the U.S. Environmental Protection Agency to provide critical scientific support to the Federal On-Scene Coordinator. OR&R also helps develop preparedness plans that identify spill response actions with the greatest environmental benefit and trains hundreds of members of the response community each year on the scientific and technical aspects of spills. OR&R's Regional Resource Coordinators (RRCs) provide scientific and technical expertise and timely response to oil spills or hazardous materials releases to collect information, samples, and evidence that are time dependent and critical to support natural resource damage assessments throughout the coastal US. RRCs work on multi-disciplinary scientific, economic, and legal teams and are responsible for determining and quantifying injuries to NOAA trust natural resources through determination of injuries and pathway, and demonstration of causal mechanisms. The goal of the RRCs efforts is to determine, often through the Damage Assessment, Remediation, and Restoration Program, the appropriate amount and type of restoration required to restore injured NOAA trust resources and compensate the public for their lost use.

**National Ocean Service (NOS) - [Atlantic Environmental Response Management Application](#)**

Assessing important spatial information and designing successful restoration projects rely upon interpreting and mapping geographic information, including the location, duration, and impacts from oil spills, other hazardous materials, or debris released into the environment. Atlantic Environmental Response Management Application (ERMA<sup>®</sup>) is an online mapping tool that integrates both static and real-time data, such as Environmental Sensitivity Index (ESI) maps, ship locations, weather, and ocean currents, in a centralized, easy-to-use format for environmental responders and decision makers. In 2012, Atlantic ERMA was employed as the Command Operational Picture for the U.S. Coast Guard's pollution response to Tropical Storm Sandy.

**National Ocean Service (NOS) - [Marine Debris Projects and Partnerships](#)**

The NOAA Marine Debris Program (MDP) leads national and international efforts to research, prevent, and reduce the impacts of marine debris. The program supports marine debris removal, education and outreach, and research projects in partnership with state and local agencies, tribes, non-governmental organizations, academia, and industry. The MDP is partnering with the South Carolina Department of Natural Resources through a Fishing for Energy Partnership Grant to engage recreational boaters and commercial crabbers to reduce derelict crab traps. The MDP is partnering with the South Carolina Department of Health and Environmental Control to implement a pilot project to reduce cigarette litter in Folly Beach. The MDP is also partnering with the National Park Service and Clemson University to analyze beach sediments to assess the abundance and distribution of microplastics in 30 coastal U.S. National Parks

**National Ocean Service (NOS) - [Southeast Coastal Ocean Observing Regional Association](#)**

The U.S. Integrated Ocean Observing System (IOOS<sup>®</sup>) is an operational system and a network of regional partners responsible for regional observations, data management, modeling and analysis, education and outreach, and research and development. The overarching purpose of U.S. IOOS is to address regional and national needs for ocean, coast, and Great Lakes data and information. The Southeast Coastal Ocean Observing Regional Association (SECOORA), one of the 11 IOOS regional coastal ocean observing systems, coordinates coastal and ocean observing activities, and facilitates continuous dialogue among stakeholders so that the benefits of a sustained coastal and ocean observing system can be realized. SECOORA's vision is to protect people by providing comprehensive information and tools, conserve the marine environment by providing ocean current, wind, and ecosystem condition information, and enhance the coastal economy by providing information and models to facilitate more effective decision-making.

### **National Weather Service (NWS) - [Buoys](#)**

The National Weather Service (NWS), through its National Data Buoy Center (NDBC), develops, deploys, operates, and maintains the current national data buoy network of moored and drifting weather buoys and land stations that serve all of the Nation's coastal states and territories. Within this network, 110 of the buoys and 51 of the land stations are maintained directly by NDBC. Located at NASA's Stennis Space Center in Mississippi, supports weather and marine warning and forecast services in real time by providing deep ocean and coastal meteorological and oceanographic observations. These data provide valuable information used by NWS supercomputers to produce computer-generated model forecasts of the atmosphere and climate. NDBC manages the Volunteer Observing Ship program to acquire additional meteorological and oceanographic observations supporting NWS mission requirements. NDBC also supports operational and research programs of NOAA and other national and international organizations.

### **SC-1**

#### **[Charleston](#)**

### **National Marine Fisheries Service (NMFS) - [Office of Law Enforcement](#)**

NOAA's Office of Law Enforcement is the only conservation enforcement program (Federal or State) that is exclusively dedicated to Federal fisheries and marine resource enforcement. Its mission is to protect global marine resources by enforcing domestic laws and international treaties and obligations dedicated to protecting wildlife and their natural habitat. Our special agents and enforcement officers ensure compliance with these laws and take enforcement action if there are violations. Additionally, the Cooperative Enforcement Program allows NOAA the ability to leverage the resources and assistance of 27 coast states and U.S. territorial marine conservation law enforcement agencies in direct support of the Federal enforcement mission. Effective fisheries law enforcement is critical to creating a level playing field for U.S. fishermen and enabling sustainable fisheries to support vibrant coastal communities. The Charleston field office, located in North Charleston, is part of the Office of Law Enforcement's Southeast Division.

### **National Marine Fisheries Service (NMFS) - [Habitat Conservation Division](#)**

The Charleston Field Office is co-located with other NOAA facilities on the grounds of the South Carolina Department of Natural Resources campus near Charleston Harbor. This Office oversees NMFS's habitat protection programs in the South Atlantic and U.S. Caribbean, and implements NMFS's habitat protection programs in South Carolina and Georgia, including the adjacent waters of the Atlantic Ocean. In addition to conducting mandated essential fish habitat consultations associated with extensive energy and coastal development activities, the Office participates in state and regional habitat conservation planning and restoration efforts, the planning processes for major federal water development projects such as port expansions, and restores diadromous fish habitat by working with the Federal Energy Regulatory Commission on hydropower licenses, ensuring fish passage, and with stakeholders to remove dams no longer needed.

### **National Ocean Service (NOS) - [Center for Coastal Environmental Health & Biomolecular Research](#)**

Conducts research on the health and functioning of coastal ecosystems, and the implications for human health. The Center's broad scientific expertise includes environmental chemistry, toxicology, microbiology, molecular biology, and ecology. CCEHBR conducts advance field and laboratory research on harmful algal blooms, pollutant impacts on coastal resources, diseases, and other environmental impacts. This research evaluates the condition of the Nation's oceans and coasts, including particularly sensitive areas that NOAA manages through marine sanctuaries and marine protected areas (MPAs).

### **National Ocean Service (NOS) - [Center for Human Health Risk](#)**

The Center's research mission is to develop advanced analytical tools for assessing impacts on coastal ecosystems and human health. Major research programs include: ecosystem assessments of impacts of changing land use and environmental conditions on coastal ecosystems and human health and wellbeing; marine animal health assessments, disease surveillance, epidemiology, immunology, and population modeling and associated correlations to ecosystem and human health; human dimensions research that integrates social, ecological, and health sciences to establish the links between ecosystem health and human health and well-being; genomics and bioinformatics research exploring linkages between land development, harmful algal blooms, animal health, and human health impacts; and natural product identification and evaluation focusing on algal species. The lab is a partnership between NCCOS, National Institute of Standards and Technology, Medical University of South Carolina, South Carolina Department of Natural Resources, and College of Charleston. Researchers from all partner institutions work side-by-side, combining expertise to conduct research they could not accomplish otherwise. The resulting synergy among the partner scientists results in exciting and innovative approaches that address NOS, the Medical University of South Carolina, National Institute of Standards and Technology, College of Charleston, and South Carolina Department of Natural Resources.

### **National Ocean Service (NOS) - [Charleston Harbor PORTS®](#)**

A Physical Oceanographic Real-Time System (PORTS®) is operated cooperatively with the South Carolina State Port Authority in Charleston Harbor. A new air gap sensor was installed on the Don Holt Bridge to enhance navigation safety and continue business development at the Port of Charleston.

### **National Ocean Service (NOS) - [Navigation Manager](#)**

NOAA's navigation managers work directly with pilots, port authorities, and recreational boating organizations in South Carolina. They help identify the navigational challenges facing marine transportation in South Carolina and provide NOAA's resources and services that promote safe and efficient navigation. Navigation managers are on call to provide expertise and NOAA navigation response coordination in case of severe coastal weather events or other marine emergencies. The Office of Coast Survey has a navigation manager in Charleston, SC co-located at the NOAA Office for Coastal Management to support mariners and stakeholders in the Southeast region.

### **National Ocean Service (NOS) - [ACE Basin National Estuarine Research Reserve](#)**

The 94,641 acre ACE Basin Research Reserve, designated in 1992 and managed by the South Carolina Department of Natural Resources, is a protected area focused on long-term research, monitoring, stewardship, and education. The program's research enhances the protection of the site's commercial and recreational uses by monitoring water quality, providing information about important plant and animal species, and evaluating the overall health of the ACE (Ashepoo-Combahee-Edisto) Basin ecosystem. Through its education programs the program provides timely information to coastal decision makers, lawmakers, teachers, students and the public.

### **National Ocean Service (NOS) - [Office for Coastal Management](#)**

NOAA's Office for Coastal Management provides national leadership, strategic direction, and services for the coastal management community. Major initiatives housed within this organization include the Coral Reef Conservation Program; the National Coastal Zone Management Program; the National Estuarine Research Reserve, and the Digital Coast. The primary offices are located in Charleston, South Carolina and Silver Spring, Maryland. Satellite office and other field staff are located throughout the coastal zone.

**National Ocean Service (NOS) - [Marine Debris Regional Coordinator](#)**

The NOAA Marine Debris Program (MDP) supports national and international efforts to research, prevent, and reduce the impacts of marine debris. The Southeast Regional Coordinator, based in Charleston, supports coordination efforts with regional stakeholders, provides support to grant-funded projects, tracks progress of projects, and conducts regional marine debris outreach to local audiences. The Southeast Region is exploring the development of a regional Marine Debris Reduction Plan.

**Office of Oceanic and Atmospheric Research (OAR) - [Carbon Cycle Gases and Halocarbons](#)**

NOAA's Earth System Research Laboratory Global Monitoring Division (ESRL/GMD) operates a small aircraft-based North American network of sampling sites to measure vertical profiles of important greenhouse gas concentrations. Air is sampled above the surface up to approximately 25,000 feet above sea level using a relatively small, light, and economical automated system developed by ESRL researchers. These air samples are delivered to ESRL/GMD in Boulder, Colorado for measurements of CO<sub>2</sub>, CH<sub>4</sub>, and other greenhouse gases. This data will improve understanding and models of the global carbon cycle. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer so it can protect us from the sun's ultraviolet radiation.

**Office of Marine and Aviation Operations (OMAO) - NOAA Ships [Ronald H. Brown](#) and [Nancy Foster](#)**

The NOAA Ships *Ronald H. Brown* and *Nancy Foster* are homeported in Charleston and managed by the OMAO Marine Operations Center-Atlantic in Norfolk, Virginia. The NOAA Ship *Ronald H. Brown* primarily supports the science and research missions of NOAA's Office of Oceanic and Atmospheric Research plus a wide range of academic research institutions. The NOAA Ship *Nancy Foster* operates in support of NOAA's Office for Coastal Management and the National Sea Grant College Program. Both vessels are operated under the direction of officers from the NOAA Commissioned Officer Corps. The NOAA Corps today provides a cadre of professionals trained in engineering, earth sciences, oceanography, meteorology, fisheries science, and other related disciplines. Officers operate ships, fly aircraft, manage research projects, conduct diving operations, and serve in staff positions throughout NOAA.

**[Georgetown](#)**

**National Ocean Service (NOS) - [Centralized Data Management Office](#)**

Monitoring data for each National Estuarine Research Reserve are available from the Centralized Data Management Office. Each reserve uses automated data loggers to monitor physical and chemical variables, collecting data at a minimum of four stations, at 15-minute intervals. Data collections include water temperature, water depth, salinity, pH, dissolved oxygen, and turbidity (cloudiness or clarity). These parameters are important indicators of habitat quality.

**National Ocean Service (NOS) - [North Inlet-- Winyah Bay National Estuarine Research Reserve](#)**

The 18,916 acre North Inlet-Winyah Bay Research Reserve, designated in 1992 and managed by the University of South Carolina, is composed of salt marshes and the ocean-dominated tidal creeks of the North Inlet estuary, and the brackish waters and marshes of the adjacent Winyah Bay estuary. These estuarine areas are protected for long-term research and monitoring, stewardship, and education. The program provides year-round educational programs for adults and children on coastal issues, as well as public forums and seminars, many of which draw on data collected by the reserve. A comprehensive research program, which includes studies of molecular processes and studies of climate change impacts on estuaries, takes place here.



### ***McClellanville***

#### **National Environmental Satellite, Data, and Information Service (NESDIS) and Office of Oceanic and Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

The U.S. Climate Reference Network (USCRN) is an operationally viable research network of 135 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS).

### ***Springmaid Pier***

#### **National Ocean Service (NOS) - [National Water Level Observation Network](#)**

The National Ocean Service (NOS) operates two long-term, continuously operating tide stations in the state of South Carolina that provide data and information on tidal datums and relative sea level trends, and are capable of producing real-time data for storm surge warning. These stations are located at Springmaid Pier and Charleston. NOS also operates a long-term station at Oyster Landing (North Inlet Estuary) in cooperation with the Baruch Institute, University of South Carolina and the North Inlet Winyah Bay National Estuarine Research Reserve. Each station is associated with a set of tidal benchmarks installed in the ground that is used to reference the height of the water levels and helps connect the water level to land.

### ***SC-2***

#### ***Blackville***

#### **National Environmental Satellite, Data, and Information Service (NESDIS) and Office of Oceanic and Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

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#### **National Weather Service (NWS) - [Weather Forecast Office](#)**

Located at the Columbia Metropolitan Airport complex, this NWS Weather Forecast Office (WFO) is staffed around-the-clock every day, and provides the best possible weather, water, and climate forecasts and warnings to residents of central South Carolina. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards.

Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and on-site, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts such as those following the Joplin and Moore tornadoes, Hurricanes Katrina and Sandy, and the Sept. 11, 2001, terrorist attacks in New York City and Washington D.C. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs, which helps build strong working relationships with local partners in emergency management, government, the media and academic communities. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions. The radar data enables forecasters to issue warnings for tornadoes, severe thunderstorms, and flash floods.

### ***Beech Island***

#### **Office of Oceanic and Atmospheric Research (OAR) - [Tall Tower Carbon Measurements](#)**

NOAA's Earth System Research Laboratory Global Monitoring Division (ESRL) operates trace gas monitoring sites at tall television transmitter towers in eight states, including South Carolina. The sites were established to extend ESRL/GMD's monitoring network into the interior of North America in order to provide data to aid estimation of the net carbon balance of the continent. Variations of trace gases, especially carbon dioxide (CO<sub>2</sub>), are largest near the ground, so existing tall (> 400 meters) transmitter towers are utilized as platforms for in situ and flask sampling for atmospheric trace gases. The tower site in South Carolina is operated by the Savannah River National Laboratory.

### ***SC-4***

#### ***Greenville/Spartanburg***

#### **National Weather Service (NWS) - [Weather Forecast Office](#)**

Located at the Greenville/Spartanburg International Airport, this NWS Weather Forecast Office (WFO) is staffed around-the-clock every day, and provides the best possible weather, water, and climate forecasts and warnings to residents of upstate South Carolina, western and central North Carolina, and extreme northeast Georgia. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards.

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### ***SC-6***

#### ***Charleston***

#### **National Weather Service (NWS) - [Weather Forecast Office](#)**

Located in Charleston, this NWS Weather Forecast Office (WFO) is staffed around-the-clock every day, and provides the best possible weather, water, and climate forecasts and warnings to residents of southeast South Carolina, and northeast Georgia. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards.

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**NOAA Chief Information Officer - [N-Wave NOAA Science Network](#)**

N-Wave is NOAA's science network connecting NOAA, academic, and state research network communities to data and resources needed to advance environmental science.

**NOAA Office of Education - [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP) provides grants and in-kind support to build the capacity of institutions and networks to advance NOAA's mission through formal (K-12) and informal education at national, regional, and local levels. In South Carolina, ELP supports the South Carolina Aquarium (Charleston), a member of the Coastal Ecosystem Learning Center (CELC) Network, a consortium of 25 aquariums and marine science education centers with a reach of over 20 million people. The CELC Network works with NOAA and each member institution to engage the public in protecting coastal and marine ecosystems.

**[Columbia](#)**

**Office of Oceanic and Atmospheric Research (OAR) - [Carolinas Integrated Sciences and Assessments](#)**

The Carolinas Integrated Sciences and Assessments (CISA) was established as a cooperative agreement between NOAA's Climate Program Office and University of South Carolina. CISA conducts applied research in North Carolina and South Carolina that incorporates climate information into water, health and coastal management and decision making. The team investigates how decision makers currently use climate information to manage water and how such use could be expanded most beneficially. CISA's research includes drought monitoring and assessment, watershed modeling, coastal climatology, adaptation, and climate assessment activities for the Carolinas. Researchers at CISA work in collaboration with stakeholders to identify and develop effective methods of providing climate science, data, and education around these issues. Cooperating Institutions are University of South Carolina, Southeast Regional Climate Center, and South Carolina State Climate Office with funding from NOAA's Regional Integrated Sciences and Assessments (RISA) Program.

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# South Carolina



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