

# carolinas integrated sciences & assessments

## principal investigators

*Dr. Kirstin Dow*  
*University of South Carolina*

*Dr. Greg Carbone*  
*University of South Carolina*

*Dr. Elizabeth Fly*  
*CISA*  
*SC Sea Grant Consortium*

*Dr. Chip Konrad*  
*The University of North  
Carolina at Chapel Hill,  
Southeast Regional Climate  
Center*

*Dr. Daniel Tufford*  
*University of South Carolina*

## staff

*Kirsten Lackstrom*  
*Program Manager*

*Amanda Brennan*  
*Climate Outreach Specialist*

## research and project partners

- » East Carolina University
- » NC State Climate Office
- » NC Sea Grant
- » NOAA's Center for Coastal  
Environmental Health &  
Biomolecular Research
- » North Carolina State  
University
- » Northeast Regional Climate  
Center
- » SC Sea Grant Consortium
- » SC State Climatology Office
- » Southeast Regional Climate  
Center
- » The University of North  
Carolina at Chapel Hill
- » USGS SC Water Science  
Center

# cisa



CISA is 1 of 11 NOAA-funded Regional Integrated Sciences & Assessments (RISA) teams, working to integrate climate science into decision-making processes and improve society's ability to respond to climate events and stresses.

CISA's work includes cross-cutting activities that seek to advance scientific understanding of climate and hydrological processes in the Carolinas, improve the assessment of climate-related vulnerabilities and impacts, and provide timely and relevant information and tools for decision makers.

## focus on regional priorities and needs

CISA conducts applied climate research in collaboration with a wide range of stakeholders across the Carolinas, including federal, state and local agencies, resource managers, non-governmental organizations, tribal communities, and the private sector.

We integrate stakeholder priorities and needs into our projects through processes that support formal and informal engagement with decision makers.



## connect with cisa

CISA publishes a quarterly newsletter, the *Carolinas Climate Connection*, and manages the *Carolinas Climate Listserv* in order to share up-to-date information about climate research, upcoming events, funding opportunities, or other relevant news.

Contact us if you would like to subscribe to the newsletter or listserv or to request additional information about our projects and resources.

University of South Carolina  
Department of Geography  
709 Bull Street  
Columbia, SC 29208

cisa@sc.edu  
(803) 777-6875  
www.cisa.sc.edu  
www.facebook.com/usccisa  
@CarolinasRISA

# cisa focus areas

## drought

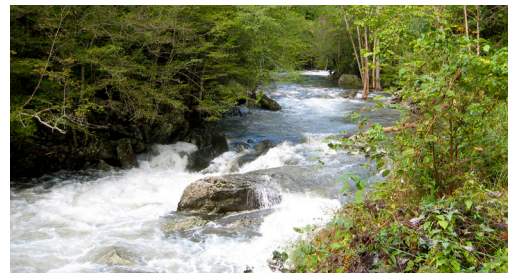
CISA's drought work seeks to improve monitoring methods, to develop a more comprehensive understanding of regional impacts, and to assess drought planning and early warning needs.

- » The Dynamic Drought Index Tool (DDIT) is a web-based drought mapping tool for the eastern U.S.
- » With support from the National Integrated Drought Information System (NIDIS), current projects focus on coastal drought: developing a real-time salinity index for coastal rivers and estuaries, using citizen science to collect drought impact information, and working with coastal interests to identify sector-specific needs.

## climate and hydrological modeling

CISA uses statistical and dynamical downscaling, and integrates downscaled climate information and hydrological models, to assess the impacts of climate variability and change in the Southeast. Researchers engage with stakeholders to make global climate information locally relevant – examples include:

- » Analyzing climate change effects on river hydrology and floodplain inundation in Congaree National Park.
- » Developing a tool to provide information about current and future salinity intrusion in Winyah Bay, SC, the frequency and duration of saltwater intrusion events, and their impacts on industry, water and sewer districts, and resource management.
- » Providing guidance about using downscaled climate model information and region-specific scenarios of temperature and precipitation change for stakeholder-led projects, including a Low Impact Development Manual for coastal SC and a climate vulnerability assessment tool for coastal resource managers.



## coastal climate

CISA assists stakeholders prepare for climate impacts on coastal communities and resources. Projects address waterfront management, sea level rise, saltwater intrusion, natural hazards, and community planning:

- » Beaufort County, SC: updated zoning and form-based codes to encourage climate resilience.
- » New Bern, Plymouth, and Manteo, NC: assessed municipal water infrastructure vulnerability to storm-related impacts and sea level rise.
- » McClellanville, SC: developed a climate education-outreach program and adaptation plan.
- » Sullivan's Island, SC, and Plymouth, NC: identified strategies to address flooding and stormwater management issues.

## health

Several projects investigate the links between climate and human health and focus on:

- » Heat stress vulnerability in NC and assessing methods to improve existing warning systems.
- » The occurrence and distribution of the bacteria *Vibrio* in the Winyah Bay estuary.
- » The climate change impacts of air pollution on morbidity in vulnerable populations in NC.
- » Developing a climate-public health toolbox which will provide researchers and health officials with a platform to study, visualize, and predict the health impacts of weather and climate events.

## adaptation

Supporting the development of adaptive capacity to address current climate variability and projected climate change is a cross-cutting element of CISA's efforts. Activities include:

- » Organizing the Carolinas Climate Resilience Conference, assisting the SC State Climate Office with climate workshops, and participating in the Southeast & Caribbean Climate Community of Practice.
- » Providing technical inputs to the 2014 National Climate Assessment and editing the resulting book, *Climate of the Southeast United States*.
- » Developing the Vulnerability and Consequence Adaptation Planning Scenario (VCAPS) process, a tool to facilitate dialogue among researchers and community representatives as they work together to plan climate adaptation and resilience projects. ([www.vcapsforplanning.org](http://www.vcapsforplanning.org))

