DEPARTMENT *of the* INTERIOR
**SE CLIMATE SCIENCE CENTER**






## ADAPTING TO GLOBAL CHANGE

*The question is no longer whether "global" changes in land use and climate will happen. Instead, the question is whether the Earth's inhabitants will be able to manage such changes in a way that enhances the sustainability of the coupled human and natural systems on which the integrity of life on Earth depends. Detecting and understanding these changes and understanding the day to day and long term priorities that we seek to safeguard will provide a framework for adapting to these global changes: resisting degradation in these systems when possible, fostering resilience to the degree practical, and working toward the transformation of these coupled systems when necessary, to facilitate the transition of these coupled systems to new, sustainable states.*

*- GERARD MCMAHON, SE CSC DIRECTOR*

## ACCOMPLISHMENTS

The Department of the Interior Southeastern Climate Science Center (**SE CSC**) provides scientific information, tools and techniques that land, water, wildlife and cultural resource managers and other interested parties can apply to anticipate, monitor and adapt to climate and ecologically-driven responses at regional-to-local scales. We are pleased to report on some our activities that contribute to these objectives.

- Funded and supported 24 science projects
- Funded 19 Global Change Fellowships for graduate students in six colleges at NCSU
- SE CSC funded research was featured in 35 publications
- Published the Science and Operational Plan for the Center
- Developed a Strategic Annual Plan for Science Planning
- Hosted a regional Science Planning Workshop in St. Petersburg, Fla.
- Created quarterly review process of science funded projects
- Developed partnerships with six Landscape Conservation Cooperatives
- Held the inaugural Stakeholder Advisory Council Meeting in cooperation with the Southeast Natural Resources Leadership Group in Chattanooga, Tenn.

## MEET THE SE CSC TEAM

**Gerard McMahon**
*SE CSC Director*

**Adam Terando**
*Research Scientist*

**Damian Shea**
*SE CSC University Director*

**Elda Varela Minder**
*Research Associate*

**Ryan Boyles**
*University Deputy Director*

**Mitch Eaton**
*Research Ecologist*

**Aranzazu Lascurain**
*Program Coordinator*

**Cari Sasser Furiness**
*Research Associate*

## SE CLIMATE SCIENCE CENTER


## FY13 NEW PROJECTS

The SE Climate Science Center announced its FY2013 climate science research funds. The ten funded studies, plus one that will be conducted jointly with the Northeast CSC, will focus on how climate change will affect natural resources, and management actions that can be taken to help offset such change.

Development of a SECAS Conservation Decision Guidance Library
*- Nils Peterson and Fred Cubbage, NCSU*

Understanding Conservation Management Decisions in the Face of Sea-Level Rise Along the U.S. Atlantic Coast *- Damian Shea, NCSU*

Developing Multi-Model Ensemble Projections of Ecologically Relevant Climate Variables for Puerto Rico and the US Caribbean *- Ryan Boyles, NCSU*

Evaluation and Downscaling of CMIP5 Climate Simulations for the Southeast U.S.
*- Phil Mote, Oregon State University; and John Abatzoglou, University of Idaho*

Tree Eaters: Predicting the Response of Herbivores to the Integrated Effects of Urban and Global Change *- Rob Dunn, NCSU*

Measuring Effects of Restoration and Ecological Change on Bird Populations in the GOM: A Strategy for Monitoring Bird Populations and Habitats as Indicators of Ecosystem Function and Health *- Mitch Eaton, SE CSC*

Application of Structured Decision Making for Delivery of Instream Flow Ecology For Water Governance Decisions in the Southeastern U.S.
*- Elise Irwin, AL USGS Cooperative F&W Research Unit; and Rachel Pawlitz, SE Ecological Science Center*

An Adaptive Landscape Planning and Decision Framework for Gopher Tortoise (*Gopherus polyphemus*) Conservation *- Clint Moore, University of Georgia*

Dynamic Reserve Design in the Face of Climate Change and Urbanization
*- Stephanie S. Romanach, USGS Southeast Ecological Science Center*

Structured Decision-Making to Facilitate Multi-Stakeholder Coastal Conservation and Restoration under Climate Change Uncertainties: Case Study on Barrier Islands of the Northern Gulf of Mexico
*- Gregory D. Steyer, USGS National Wetlands Research Center*

## GLOBAL CHANGE FELLOWS

The SE Climate Science Center selected seven NC State University graduate students to serve as Global Change Fellows for the 2013-14 academic year. The Global Change Fellowship is a program designed to provide financial, scientific, and professional development support for graduate students who are interested in multidisciplinary research related to climate and global change. Congratulations to these exemplary students of change.

**STEVEN GRODSKY**
Steve is helping to understand the potential environmental consequences of harvesting wood biomass for use in green energy production.

**MICHAEL JUST**
Michael is investigating how climate interacts with fire to regulate wetland vegetation in longleaf pine landscapes.

**AYSE KARANCI**
Ayse will be exploring the impacts of sea level rise and vulnerability on coastal landforms.

**JENNIFER NIEMUTH**
Jennifer is studying the physiologic basis of cold stun in sea turtles to better understand their susceptibility to climate change and to predict future cold stuns events.

**KARA SMITH**
Kara is focusing on criteria for combining multiple downscaled climate model datasets to produce metrics that can be used in ecological models and related management decisions.

**TYSON WEPPRICH**
Tyson is researching how insects will respond to climate change and urbanization.

**DAVID ZIETLOW**
David is studying energy and water balances of contrasting forest types in the lower North Carolina coastal plain with a focus on the effects of land use and climate change on evapotranspiration.

NC STATE UNIVERSITY

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USGS science for a changing world