NIDIS Carolinas Drought Early Warning System Pilot Program

The Climate Connection Workshop Series: Climate Variability & Impacts to South Carolina's Natural Resources

Amanda F. Brennan

September 13, 2012 ~ Charleston, SC
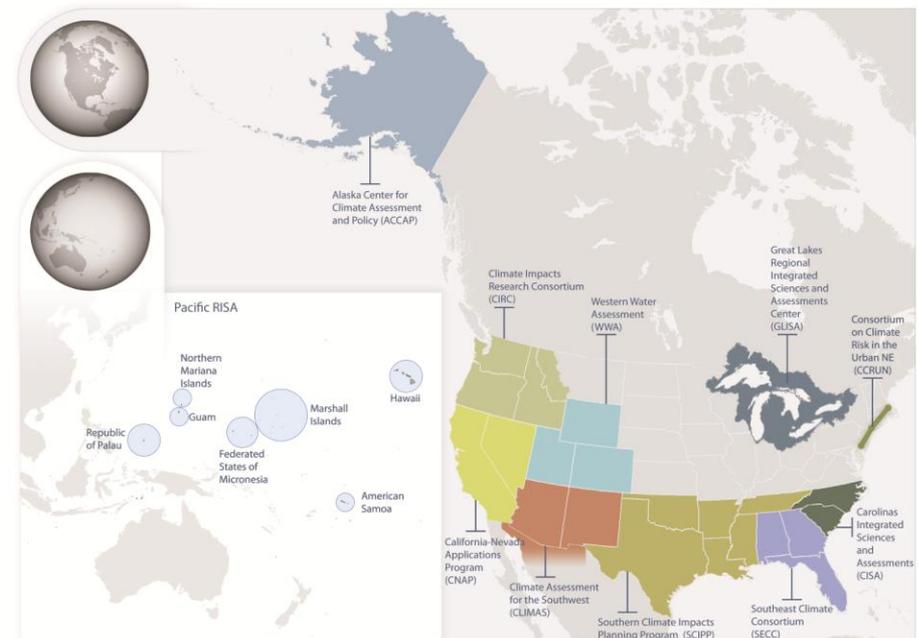
Presentation Outline

▸ CISA Background Information

▸ NIDIS Background Information

▸ NIDIS / CISA Collaborative Work

▸ Drought Early Warning System Pilot Projects

Regional Integrated Sciences & Assessments

▸ "NOAA's RISA programs support research teams that help build the nation's capacity to prepare for and adapt to climate variability and change."

▸ RISA teams work with public and private user communities to:

  ▸ Understand decision contexts

  ▸ Develop actionable knowledge

  ▸ Maintain diverse, flexible networks

  ▸ Innovate services to enhance the use of science in decision making
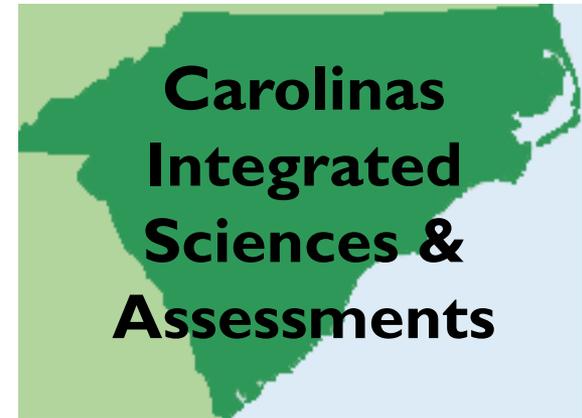

Currently Funded RISAs

cisa
carolinas integrated sciences & assessments

CISAs Core Focus Areas

- Drought
- Climate and Watershed Modeling
- Coastal Management
- Health
- Adaptation

CISA Partners

- Southeast Regional Climate Center
- NC Sea Grant
- SC Sea Grant Consortium
- NC & SC State Climate Offices
- Federal, State, and Local Agencies
- Private Sector
- Non-Governmental Organization

Carolinas Integrated Sciences & Assessments

CISA works to be a regional resource for a variety of stakeholders to incorporate climate information into water and coastal management, public health, and related decision-making processes.

cisa
carolinas integrated sciences & assessments

CISA Project Partners

East Carolina University	• Water resources scenarios
NOAA, Center for Coastal Environmental Health & Biomolecular Research	• Monitoring Carolina estuaries for *Vibrio*
Northeast Regional Climate Center	• Enhancement of the Dynamic Drought Index Tool (DDIT)
USGS, SC Water Science Center	• Assessment of the impact of saltwater intrusion in the Carolinas
North Carolina State Climate Office	• Drought Sensitivity Testing
South Carolina State Climate Office	• Climate Connection Workshop Series
National Integrated Drought Information System (NIDIS)	• Workshop planning and partnership on drought and coastal ecosystems

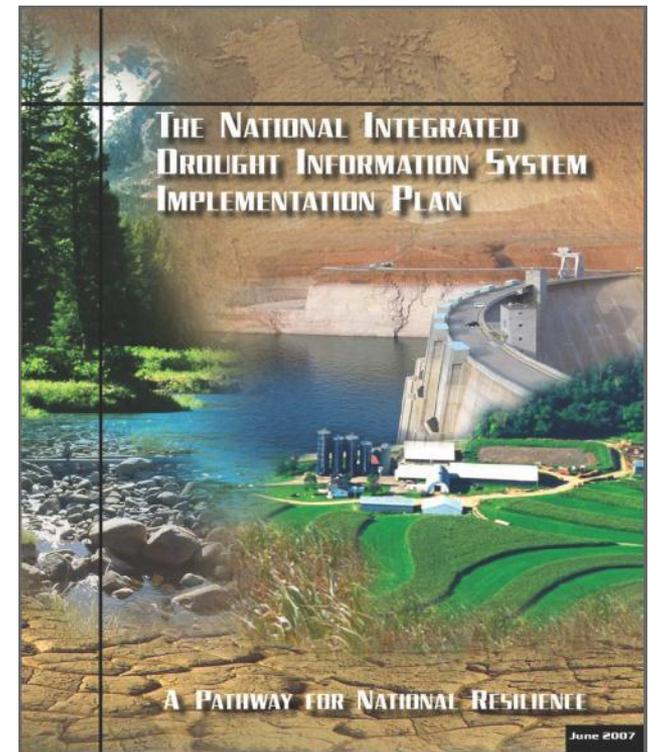**cisa**
carolinas integrated sciences & assessments

National Integrated Drought Information System

Drought Early Warning and Information Systems

About NIDIS
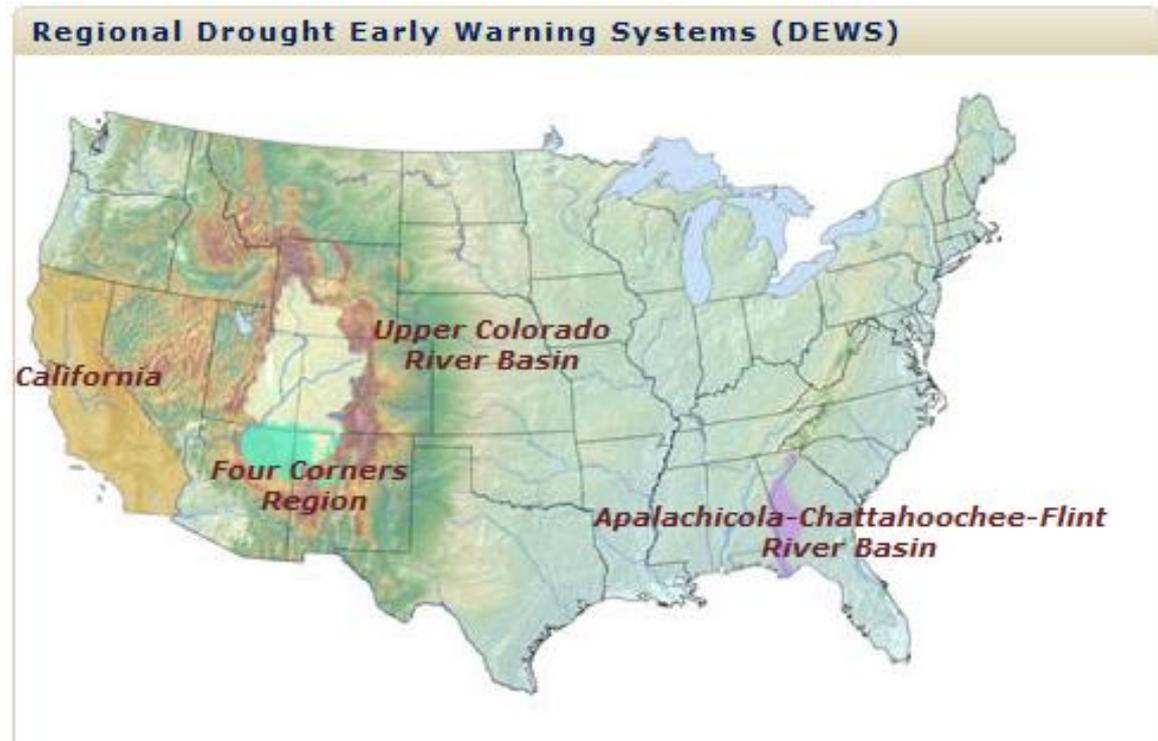
- ## Established by the 2006 NIDIS Act
  - "To enable the nation to move from a reactive to a more proactive approach to managing drought risks and impacts"

- ## NIDIS Components
  - NIDIS Program Office
  - US Drought Portal
  - Drought Early Warning Pilots

cisa
carolinas integrated sciences & assessments

NIDIS Early Warning System Pilots

- Upper Colorado River Basin

- Four Corners Region

- Apalachicola-Chattahoochee-Flint River Basin

- Critical areas in California

- Coastal Ecosystems in the Carolinas

Regional Drought Early Warning Systems (DEWS)

- **cisa**
  carolinas integrated sciences & assessments

NIDIS Drought Early Warning Information System Objectives

- Coordinate national drought monitoring and forecasting systems

- Provide an interactive drought information clearinghouse and delivery system for products and services

- Design mechanisms for improving and incorporating information to support coordinated preparedness and planning

Elements of a
Drought Early Warning System

- Monitoring
  - Hydrological and Meteorological

- Forecasting/Outlook
  - Onset, intensification and recovery

- Management Triggers
  - Assumes a drought plan is in place

- Assessing and Anticipating Impacts

- Effective communication to stakeholders
  - Coordination of current activities

Pilot Program Iterative Process

Planning

Understand drought in the region

Stakeholder Meetings - exchange of ideas and information; relationship building

Blueprint for DEWS – how can we build on what is already there?

Implementation

Launch activities, such as drought assessment , webinars, creation of new products

Re-evaluate after about 1 year – decide what activities to continue or modify

Sustainability options for the project

cisa
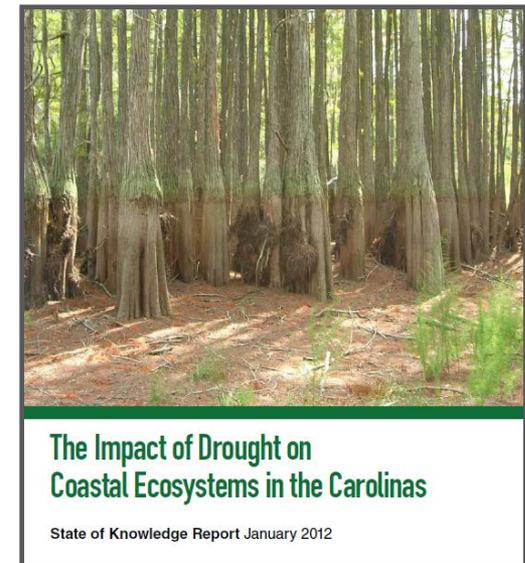carolinas integrated sciences & assessments

CISA's Work to Support NIDIS

- ▶ **Spring 2010**
  - ▶ Stakeholder workshop held to identify needs for a drought early warning system

- ▶ **State of Knowledge Report**
  - ▶ *The Impact of Drought on Coastal Ecosystems In the Carolinas* (Gilbert et al., 2012)

The Impact of Drought on Coastal Ecosystems in the Carolinas

State of Knowledge Report January 2012

CISA's Work to Support NIDIS

‣ Spring 2012

  ‣ Steering committee meeting at Fort Johnson, May 1, 2012

  ‣ Identified interested organizations, agencies, and individuals for the scoping workshop

  ‣ Developed topics around which to generate pilot project ideas

‣ July 31 – August 1, 2012 ~ Wilmington, NC

  ‣ Drought Early Warning System Scoping Workshop

  ‣ Goal: To develop pilot project ideas for a drought early warning system for coastal ecosystems in the Carolinas

Workshop Steering Committee & Participant Organizations

- Audubon South Carolina
- Beaufort-Jasper Water & Sewer Authority
- DOI Southeast Climate Science Center
- East Carolina University
- Gullah/Geechee Nation
- Lumbee Tribe of North Carolina
- National Climatic Data Center
- National Drought Mitigation Center*
- NC Coastal Reserve & National Estuarine Research Reserve
- NC DENR, Division of Coastal Management
- NC DENR, Division of Water Resources
- NC Department of Health & Human Services, Division of Public Health
- NC Department of Public Safety, Division of Emergency Management
- NC Sea Grant*
- NC State Climate Office*
- NC Water Resources Research Institute
- NOAA Center for Coastal Environmental Health & Biomolecular Research*
- NOAA Fisheries, Southeast Regional Office*
- NOAA National Centers for Coastal Ocean Science, Center for Human Health Risk*

- NOAA National Weather Service
- NOAA Regional Climate Services, Eastern Region*
- NOAA Southeast and Caribbean Regional Team*
- North Inlet - Winyah Bay National Estuarine Research Reserve
- Pocosin Lakes National Wildlife Refuge
- South Atlantic Landscape Conservation Cooperative
- SC Sea Grant Consortium*
- SC State Climate Office*
- Southeast Regional Climate Science Center*
- The Nature Conservancy, NC & SC*
- US Army Corps of Engineers
- US EPA, Region 4*
- UNC Wilmington, Center for Marine Science
- USC Public Health Research Center, Dept. of Environmental Health Sciences
- US Fish & Wildlife Service, SC Coastal Program*
- US Fish & Wildlife Services, SC Lowcountry Refuges Complex*
- US Marine Corps, Camp Lejeune
- USGS NC Water Science Center
- USGS SC Water Science Center*

* Steering Committee Member Organization

cisa
carolinas integrated sciences & assessments

Scoping Workshop

▸ Speaker presentations to discuss implications of drought in coastal ecosystems

▸ World Café style breakout sessions to brainstorm pilot project ideas

▸ Participants used the Turning Technologies Audience Response System to vote for pilot project ideas

▸ 4 projects were chosen to move forward

cisa
carolinas integrated sciences & assessments

NIDIS Carolinas Early Warning System Pilot Projects

Evaluation of Drought Indicators and Indices

Seafood Safety Forecast

Drought Forecasting Communications

Drought Impacts Reporting

Evaluation of Drought Indicators & Indices

‣ Project Goals

    ‣ Determine which current drought indicators and indices are appropriate for assessing drought in coastal ecosystems

    ‣ Investigate the benefits and feasibility of creating a drought index based on real-time salinity data

Seafood Safety Forecast

‣ Project Goal

  ‣ Provide an early warning system for commercial, recreational and subsistence fishermen who harvest drought-sensitive seafood in both fresh and salt waters in the coastal regions of the Carolinas

Photo: SC DNR, Oyster Bed
http://www.dnr.sc.gov/news/yr2010/sept27/sept27_oyster.html

cisa
carolinas integrated sciences & assessments

Drought Forecasting Communications

- Project Goals
  - Introduce stakeholders to current products used for drought forecasting, step them through the process of how a drought outlook is prepared, and educate them on the caveats and uncertainties in the outlook

  - Ascertain what additional drought forecasting products stakeholders need and what time scales are of most interest to them

Drought Impacts Reporting

▸ Project Goal

   ▸ Assess ways in which drought impacts might be monitored through stakeholders and citizen science engagement and investigate ways to improve the communication of coastal ecosystem drought impacts

Next Steps

- The workshop report has been completed and will be available online

- For each pilot project:

  - Steering committee conference calls are underway

  - Specific sectors and geographic focus areas are being refined

  - Potential partnerships and existing resources are being identified

  - Project action plans will be developed

cisa
carolinas integrated sciences & assessments

Thank You!

Amanda F. Brennan

abrennan@sc.edu

(803) 777-6875

CISA Website

http://www.cisa.sc.edu/

NIDIS Carolinas Website

http://www.drought.gov/portal/server.pt/community/carolinas

cisa
carolinas integrated sciences & assessments