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 on Drought
- NIDIS Carolinas Drought Early Warning System Pilot Projects
“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
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

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 Project Partners

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<td>• Water resources scenarios</td>
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<td>NOAA, Center for Coastal Environmental Health &amp; Biomolecular Research</td>
<td>• Monitoring Carolina estuaries for <em>Vibrio</em></td>
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<td>Northeast Regional Climate Center</td>
<td>• Enhancement of the Dynamic Drought Index Tool (DDIT)</td>
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<td>USGS, SC Water Science Center</td>
<td>• Assessment of the impact of saltwater intrusion in the Carolinas</td>
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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
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
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, including an internet portal and standardized products (databases, forecasts, Geographic Information Systems (GIS), maps, etc.)

- 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

- Anticipated 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’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)
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

- 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 Inlet 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
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
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
  - Collaborate with work being done on the North American Drought Indices and Definitions Study
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
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.
Thank You!

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

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