



Carolinas Climate Resilience Conference

Final Report

Charlotte, NC

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Prepared By:

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Acknowledgements

The Carolinas Climate Resilience Conference represents the efforts of many individuals and organizations engaged with climate issues across the Carolinas, including the conference steering committee members¹, session organizers and moderators, reviewers, program committee members, speakers, and presenters. We are grateful to each of these individuals and organizations for their generous contributions to the event.

We also owe a debt of gratitude to USC Continuing Education and Conferences. Jim Twitty, Kate Shelton, and Sarah Long provided extensive logistical support and went above and beyond to ensure that the conference ran smoothly for all attendees and presenters.

The conference would not have been possible without the support of our very generous sponsors which include North Carolinas Sea Grant, South Carolina Sea Grant Consortium, the North Carolina Water Resources Research Institute, the North Carolina State Climate Office, Tetra Tech, Inc., the University of South Carolina School of the Earth, Ocean and Environment, the South Carolina Department of Natural Resources and State Climatology Office, and the University of South Carolina Department of Geography.

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¹ See Appendix A for list of steering committee members

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Providing opportunities for participants to interact throughout the conference was a key objective of the conference. The Carolinas Climate Resilience Conference was designed around this goal.



Conference Motivation and Background

During research to support the development of a technical input report for the Third National Climate Assessment, members of the Carolinas Integrated Sciences & Assessments (CISA) team conducted interviews with opinion leaders and decision makers across five sectors in the Carolinas (forestry, government planning and preparedness, tourism and recreation, water supply management, and natural resources management). The interviews, summarized in the report *Engaging Climate-Sensitive Sectors in the Carolinas*, revealed that decision makers depend heavily on conferences and workshops, as well as colleagues, for climate information. Conferences and workshops are important opportunities to build networks, to gain access to relevant and up-to-date sources of climate-related expertise, and to share information with trusted colleagues within and across sectors. Although a plethora of climate information is available, participants suggested that having local-, regional-, or sector-specific information is critical for incorporating climate into decision making. The conversations also indicated a lack of coordinated networks within the Carolinas providing climate-specific or climate-focused information and services. CISA set out to support these networking and information needs by convening climate information providers and users at the 2014 Carolinas Climate Resilience Conference to help disseminate relevant climate information to stakeholders in the region.

Goals for the conference included:

- Support on-the-ground resilience efforts by providing managers and regional experts with an opportunity to share lessons learned and discuss resources and tools for incorporating climate information into their work.
- Contribute to the development of a climate information network for the Carolinas.
- Provide a venue for practitioners, resource people, and researchers to share information about current activities, plans, and opportunities for collaboration.

This report details the format and content of the Carolinas Climate Resilience Conference, held in Charlotte, North Carolina, April 28 and 29, 2014. It also includes reflections based on a follow-up conversation with the conference steering committee and an evaluation survey e-mailed to all participants on Wednesday, April 30th. We received a 54% (n=106) response rate to the survey. Results are included throughout the report.

Conference Format

The Carolinas Climate Resilience Conference was intended to provide an opportunity for practitioners, researchers, and staff from local, state, and federal agencies to share information about climate-related tools, resources, experiences, and activities in the Carolinas. A major goal was to encourage participant interaction geared towards networking and exchange among climate specialists, resource people and decision makers throughout the region.

Attendees

Attendees at the Carolinas Climate Resilience Conference represented a broad range of organization types, sectors, and regions in the Carolinas as well as other states and regions throughout the Southeast. There were a total of 196 attendees at conference. 109 participants were from North Carolina and 60 participants were from South Carolina. Other states represented included²: Alabama, Arizona, Colorado, Connecticut, Florida, Georgia (10), Maryland (3), Massachusetts (3), Tennessee, Virginia, and Washington D.C. (4). Figure 1 provides a breakdown of attendees by organization type.

An interdisciplinary audience was targeted to allow for discussion across sectors and to encourage dialogue about opportunities for collaboration. Feedback from participants during and after the conference suggests that this goal was achieved. One survey respondent noted:

The conference provided me a very valuable picture of the specific climate-related actions that are in place at the state/local level. The mix of urban planners, academic researchers, policy makers, local and state government, [and] climatologists allowed for a great connection and discussions between professionals that usually have little opportunity to come together.

Steering committee members and evaluation survey respondents suggested targeting more local practitioners for future conferences in order to help bridge the gap between science and implementation.

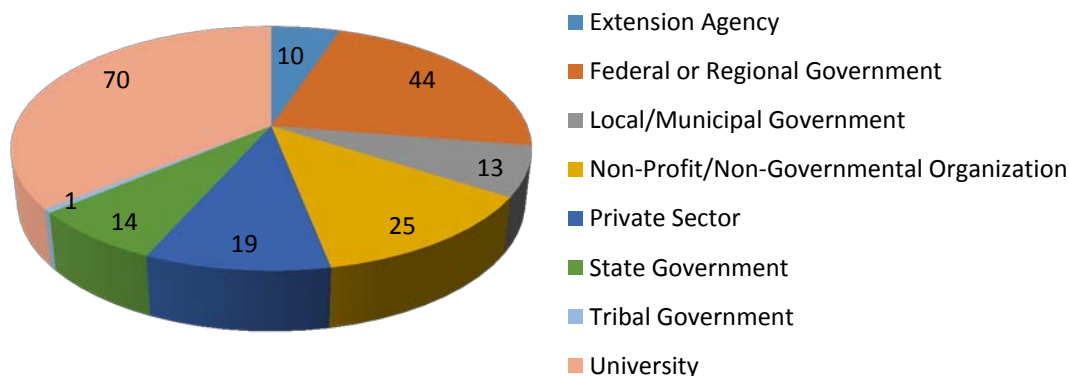


Figure 1: Conference Participant Organization Types

² One attendee from each state listed unless otherwise noted.

Bingo cards were included in each attendee's conference packet. The spaces on the card were filled with items such as "uses climate information as a regular part of their job", "is a speaker at one of the conference plenary sessions", and "has developed a tool to assist decision makers in addressing climate threats."



As participants mingled during breaks and the networking reception, they were asked to find individuals who met the various criteria on the card. A drawing was held during lunch on Tuesday to award prizes to those who participated.



Networking Focus

We worked to achieve conference networking goals through an agenda which allowed for various discussion opportunities, audience polling questions, and interactive presentation formats. The conference agenda included ample time for discussion during breaks and lunches. A poster and networking reception was held on Monday evening to encourage additional networking among conference participants.

We solicited audience feedback during breaks, lunches and the reception using the online audience polling software, PollEverwhere.com. Questions were posed to encourage attendees to think about the main themes of the conference such as what they consider to be characteristics of resilient communities, the greatest climate-related risks facing the Carolinas, barriers to addressing those risks, and information or resources that might help to build more resilient communities. Although the majority of conference evaluation respondents (54%) indicated that audience polling contributed positively to the conference (see Figure 4), few conference attendees (<10%) actively participated. Comments from survey respondents also suggested that continued use of the software during future events may prove more successful as participants become more familiar with the technology.

Plenary speakers and session presenters were asked to use approaches to sharing research findings or project information which encouraged audience participation and dialogue. During the opening and closing plenaries short discussion breaks were taken between speakers to allow participants to talk with others at their tables about information shared by presenters or to consider specific questions related to the plenary topic.

Many of the ideas for presentation formats used during concurrent sessions were drawn from [The Social Coast Forum](http://TheSocialCoastForum.com). This bi-annual conference, first held in 2012 and hosted by the NOAA Coastal Services Center, focuses on application and integration of social science in coastal decision making. Formats at the Carolinas Climate Resilience Conference included "Ask the Climatologists" discussions which encouraged people to bring questions for a group of climatologists, "Connecting the Dots" presentations where presenters were to come with questions to elicit feedback from the audience, round table discussions, and tool demonstrations. More information on each of these presentation formats can be found on the [Program](#) page of the conference website.

Figure 2 summarizes feedback from evaluation survey respondents on the conference sessions and interactive formats. Specific discussion with steering committee members during a conference follow-up call indicated that more guidance to speakers on the intended interactive nature of the conference might further build upon the success of these formats for future events.

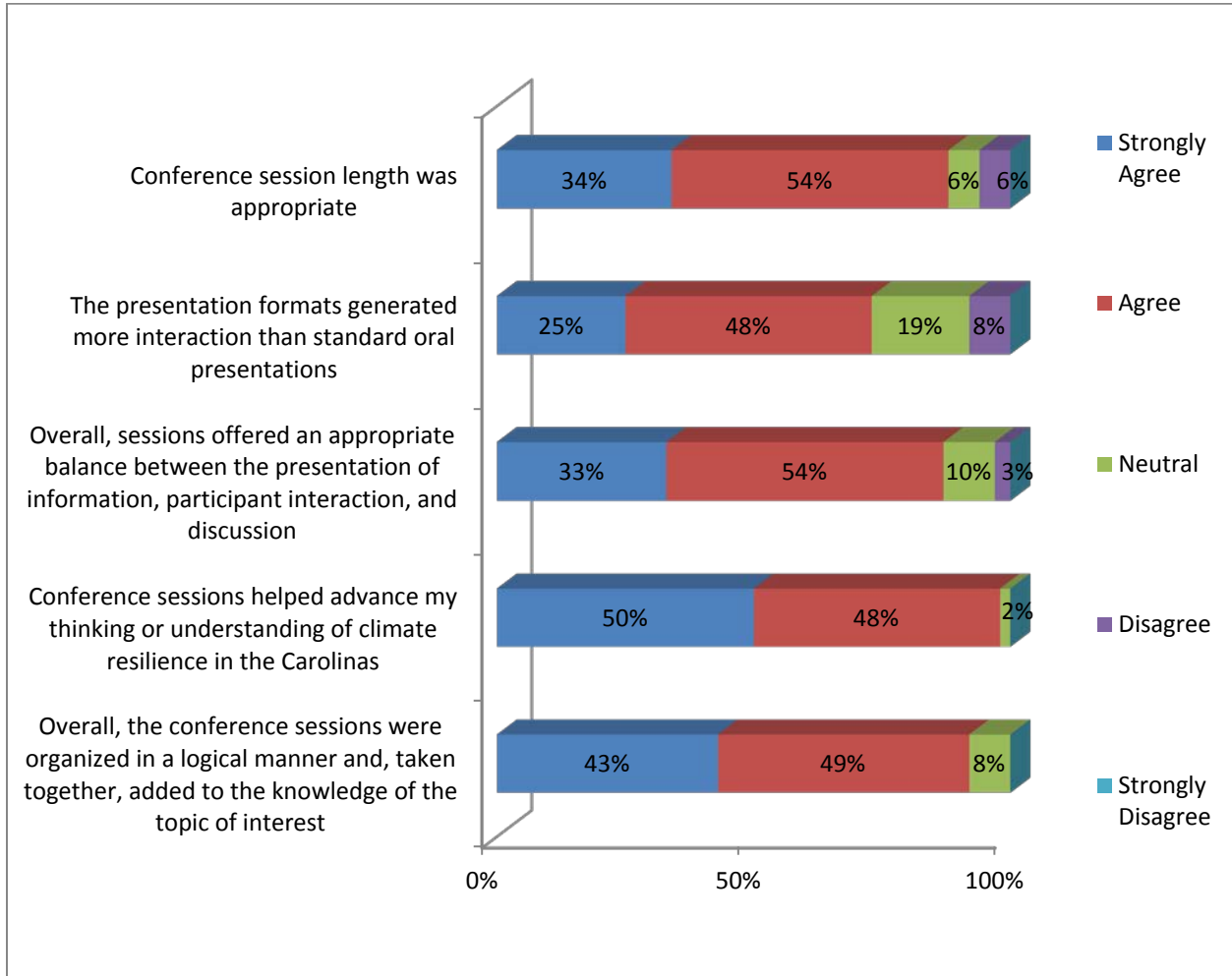


Figure 2: Concurrent Session Evaluation Survey Responses

Topics and Content

Because the Carolinas Climate Resilience Conference was intended to appeal to an interdisciplinary audience from a broad range of organizations, plenaries and concurrent sessions covered a variety of topics rather than focusing on specific sectors or geographic areas. Major themes of the concurrent sessions included:

- Alternative fuels and energy policies
- Climate communications
- Climate data and information
- Public health impacts of climate
- Resilient communities and infrastructure design
- Sea level rise
- Water, land, and natural resources management

Presentations were organized in sessions around these main themes. Feedback from survey respondents indicated that conference sessions were organized in a logical manner and, taken together, added to the attendee's knowledge of the topic. In addition, respondents also indicated that sessions helped advance thinking or understanding of climate resilience in the Carolinas (see Figure 2 above).

Speakers in the opening plenary discussed what it means for a community to be resilient to climate variability and change and shared examples of actions their organizations are taking to build resilience. The speakers represented perspectives from local government, the business community, and a local advocacy group. Speakers included:

- Frank Knapp, President and CEO of the South Carolina Small Business Chamber of Commerce
- Allison Hardin, Planner with the City of Myrtle Beach, SC
- Phil Prete, Senior Planner with the City of Wilmington, NC
- Skip Stiles, Executive Director of Wetlands Watch

Kathy Jacobs gave the keynote address on Tuesday morning. She shared information on the development of the Third National Climate Assessment (NCA), highlighted findings for the Southeast, and outlined plans for a sustained assessment process. She engaged the audience at the end of her talk by asking how participants felt the NCA might better reach out to their communities to share findings and promote action.

During the closing plenary a panel of speakers shared different communication strategies to address climate variability and change. The intention of this plenary was to empower attendees to take action in a region where attitudes and beliefs about climate change can often deter efforts. These speakers presented through different formats including sharing lessons learned from a children's story, highlighting opportunities for engaging elected officials, considering how climate change will affect our emotional connections to National Parks, and even through performing a climate change song. The conference closed with volunteers from the audience sharing their own plans to take action using lessons learned over the two day event.

Closing plenary speakers were:

- Jim Gandy, Chief Meteorologist for WLTX News 19 in Columbia, SC
- David Shelley, Education Coordinator at Congaree National Park
- Kelly Spratt, Local Government Liaison for GA Sea Grant
- Tim Watkins, Science and Education Coordinator for the National Park Service’s Climate Change Response Program
- Jessica Whitehead, Coastal Hazards Adaptation Specialist for NC Sea Grant

Conference evaluation respondents were also very positive in their feedback regarding the opening and closing plenaries and keynote address. The majority of respondents indicated that the plenaries provided valuable information and ideas. In addition, the keynote address was noted as helpful in providing information on national efforts to build climate resilience and relevant to attendees’ work. Figure 3 shows results from the conference evaluation survey with respect to participant impressions of the plenary sessions and keynote address.

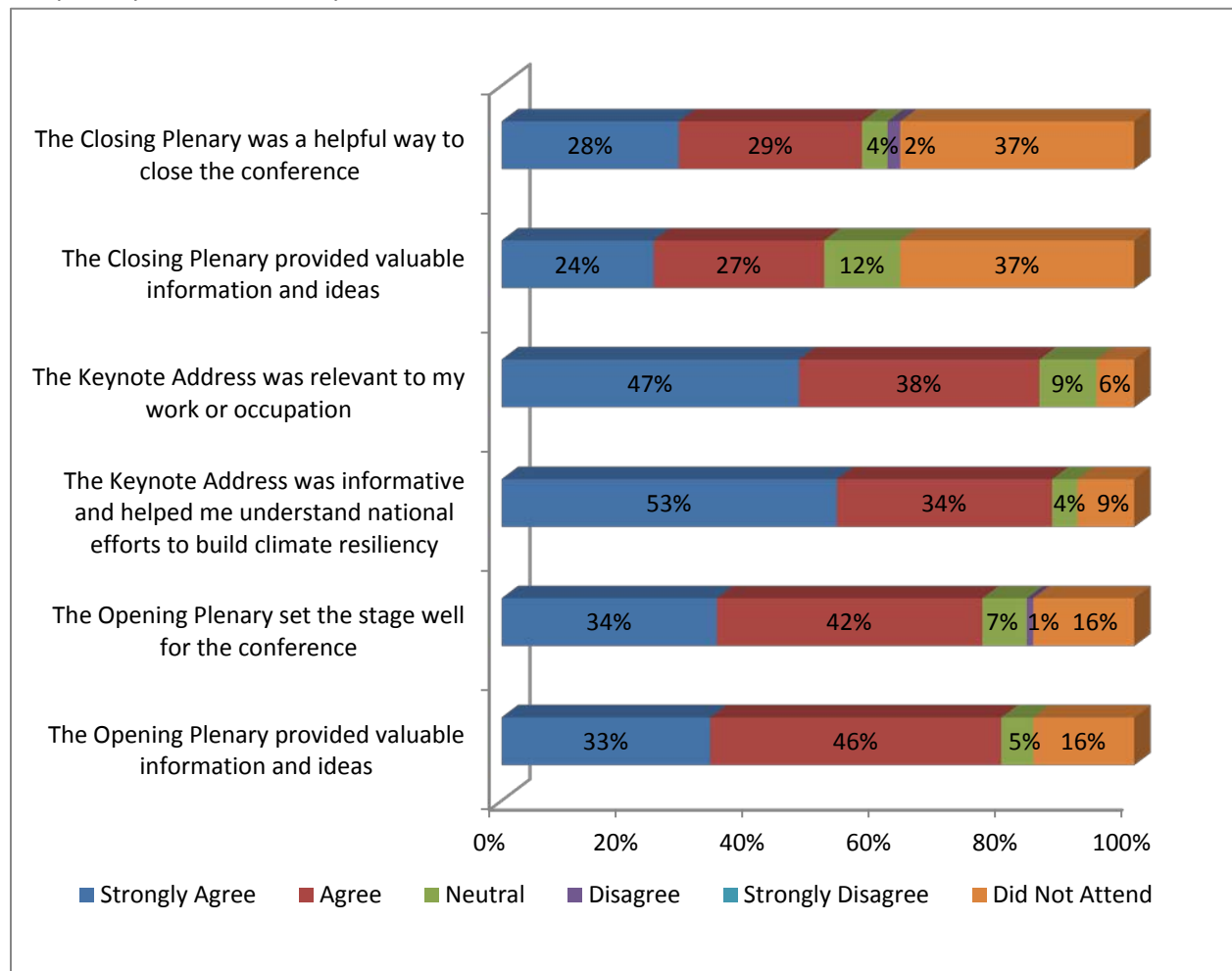


Figure 3: Plenary and Keynote Address Evaluation Survey Responses

General Conference Feedback

In addition to requesting information about specific components of the conference, we asked participants to provide feedback on their general impressions of the conference as a whole. Feedback was overwhelmingly positive. Results from general conference questions are below in Figure 4.

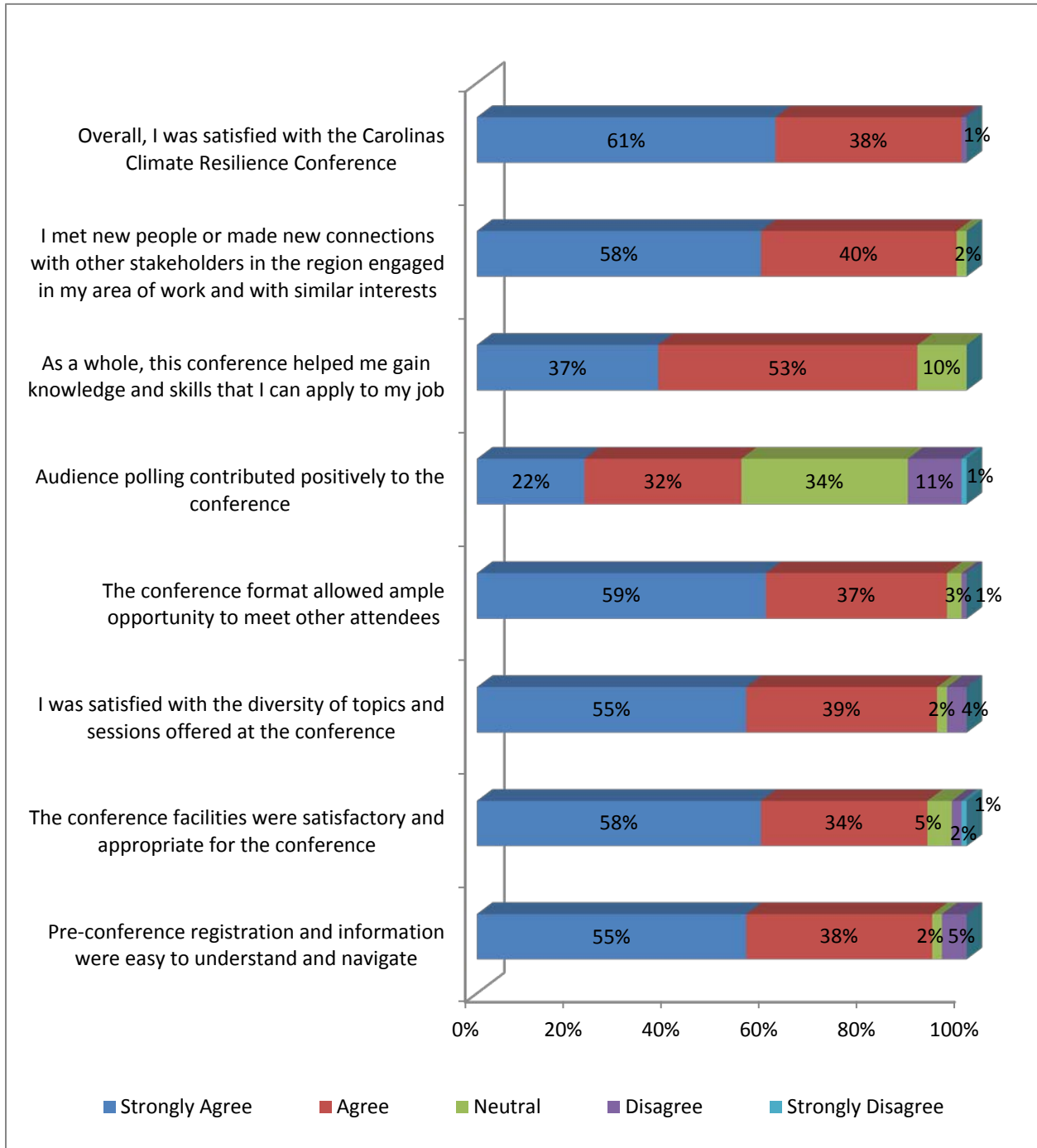


Figure 4: General Conference Feedback Evaluation Responses

Finally, we were interested to know how attending the conference might influence participants in the future so we asked participants to share with us what they might change or do as a result of attending the Carolinas Climate Resilience Conference. Many participants identified the networking and future work with potential new partners as a key take-away from the conference.

Most valuable part of the conference was making new contacts. I learned about organizations that I hadn't been familiar with before and discovered tools that I didn't know about prior to the conference. I now have many new potential partners to consider when working on climate adaptation.

The conference was a fantastic opportunity to meet new people and learn about synergistic efforts in the region. I will be following up with many new colleagues after the event.

Survey respondents also described how they would use and share the knowledge gained during the conference in their workplace, communities, and homes. These responses ranged from specific tools or resources that will be taken back to the workplace to more general information use such as changes in communications strategies or integrating stakeholder feedback into decision making processes.

I have begun educating myself on aspects of climate change (other than sea level rise which we consider currently in our projects) which I did not previously consider. I also have begun researching some of the outreach strategies employed by the Sea Grant program to adapt into our processes.

At the conference I met wonderful people who share similar interests in climate adaptation, and I learned state of the art methods to enhance climate resiliency. As a result of the conference, I will promote climate resilience in my region in a more comprehensive way.

As a business, we will continue to look for opportunities to be able to provide climate change consulting expertise to our clients – it was good to hear about the various initiatives that groups are considering.

“As politicians debate the existence and causes of climate change, some Carolinas communities are preparing to live with it.”

This is the opening line of an article written by Bruce Henderson, environmental reporter for The Charlotte Observer. Mr. Henderson attended the conference on Monday, April 28th to listen and learn about how attendees are addressing climate variability and change in the Carolinas.

Read the full article [here](#).



Next Steps

CISA is pleased to have helped facilitate networking around climate-related issues in the Carolinas through the Carolinas Climate Resilience Conference. Our hope is that the momentum at the conference will continue into the future. CISA will work to support this momentum through continued stakeholder engagement around our core focus areas which include adaptation, climate and watershed modeling, coastal climate, climate and public health, and drought. We will also continue to build upon various communications and outreach efforts such as the Carolinas Climate Listserv and the CISA quarterly newsletter. We plan to host the next Carolinas Climate Resilience Conference in 2016.

Appendix A: Steering Committee Members

Member	Organization	Title	City	State
Alex Beck	Irmo Chapin Recreation Commission	Park Ranger	Irmo	SC
Phil Berke	UNC Chapel Hill, Institute for the Environment	Deputy Director	Chapel Hill	NC
Amanda Brennan	Carolinas Integrated Sciences & Assessments	Climate Outreach Specialist	Columbia	SC
Carol Boggs	University of South Carolina, School of Earth, Ocean, and Environment	Director	Columbia	SC
Ryan Boyles	NC State Climate Office	State Climatologist	Raleigh	NC
Otis Brown	Cooperative Institute for Climate & Satellites – NC (CICS-NC)	Director	Asheville	NC
Trevor Clements	Tetra Tech	Water Resources Director	Wake Forest	NC
Mary Culver	NOAA Coastal Services Center, Coastal Learning Services	Program Manager	Charleston	SC
Rick DeVoe	SC Sea Grant Consortium	Executive Director	Charleston	SC
Kirstin Dow	Carolinas Integrated Sciences & Assessments, University of South Carolina Department of Geography	Professor	Columbia	SC
Jim Gandy	News19 WLTX Columbia	Chief Meteorologist	Columbia	SC
Kirsten Lackstrom	Carolinas Integrated Sciences & Assessments	Program Manager	Columbia	SC
Gerald McMahon	DOI Southeast Climate Science Center	Director	Raleigh	NC
Steve McNulty	USDA Forest Service, Eastern Forest Environmental Threat Assessment Center	Team Leader, Ecologist	Raleigh	NC
Hope Mizzell	SC State Climatology Office	State Climatologist	Columbia	SC

Raye Nilius	US Fish and Wildlife Service, South Carolina Lowcountry Refuges Complex	Project Leader	Awendaw	SC
Robert Osborne	Black & Veatch	Water Resources Engineer	Greenville	SC
Jim Prosser	Centralina Council of Governments	Executive Director	Charlotte	NC
Linda Rimer	US EPA Region 4	Liaison to NC & SC	Raleigh	NC
David Shelley	US National Park Service, Congaree National Park	Education Coordinator	Columbia	SC
Gavin Smith	UNC Chapel Hill, Center for the Study of Natural Hazards & Disasters	Executive Director	Chapel Hill	NC
Lauren Thie	NC Department of Health & Human Services, Division of Public Health	Epidemiologist	Raleigh	NC
Susan White	NC Sea Grant and NC Water Resources Research Institute	Executive Director	Raleigh	NC

Appendix B: Conference Agenda

Monday, April 28

8:00		Registration Open			
8:45-6:30		Exhibits Open			
8:45-10:15		<p>Welcome: Kirstin Dow</p> <p>Opening Plenary: Local Actions to Enhance Climate Resilience in the Carolinas Allison Hardin, Frank Knapp, Phil Prete, Skip Stiles</p>			
10:15-10:30		Break			
10:30-12:00		Concurrent Sessions			
A. Rising Waters: How to Use Sea Level Rise Information & Maps	B. Upgrade Your Climate Toolbox: Demonstrating Practical Resources	C. Assessing Water Resources in a Changing Climate	D. Hopeful Perspectives on Climate Change	E. Rebuilding Resiliently: Post-Disaster Recovery & Design	F. Alternative Fuels & Advanced Transportation Technologies in the Carolinas
12:00-1:30		Lunch Break			
		Climate Change & National Parks: A Video Festival (12:45-1:15)			
1:30-3:00		Concurrent Sessions			
A. Climate in the Carolinas	B. Round Table: Bridging Regional Resources & Building Resilience Networks	C. Advances in Water Resources Management	D. Beating the Heat: Climate, Public Health & Heat Vulnerability	E. Local Action: Climate Adaptation Planning in the Carolinas	F. Protecting Coastal Assets: Shoreline Management in the Carolinas
3:00-3:15		Break			
3:15-4:45		Concurrent Sessions			
A. Moving from Global to Local: What Regional Climate Models Can Tell Us	B. Round Table: Southeast & Caribbean Climate Community of Practice	C. Strategies to Prepare our Natural and Cultural Resources for Change	D. Protecting Vulnerable Populations in a Changing Climate	E. Climate, Weather & Tourism in the Carolinas	F. Reducing the Impact of Emissions from Nonroad Sources
5:00-6:30		Poster Exhibit & Networking Reception			

Tuesday, April 29

8:00

Registration Open

8:45-4:45

Exhibits Open

8:45-10:00

Welcome: Kirstin Dow

Keynote Address: The National climate Assessment: Innovation and Adaptation
Kathy Jacobs, Director of the National Climate Assessment

10:00-10:15

Break

10:15-12:00

Concurrent Sessions

A. Carolina Connections: Bringing National Climate Assessment Findings Home

B. Community-Level Adaptation Planning: VCAPS Introduction & Training

C. Managing Runoff: Low Impact Development & Stormwater Control

D. From Fish to Forests: Managing & Protecting Natural Resources in a Changing Climate

E. Climate Communications: Creating Messages that Resonate

F. Clean Energy in the Carolinas: Policies & Opportunities for Climate Resilience & Mitigation

12:00-1:30

Lunch Break

Climate Change & National Parks: A Video Festival (12:45-1:15)

1:30-3:00

Concurrent Sessions

A. What's Up with Strange Weather? Climate Variability & Extremes

B. Upgrade Your Climate Toolbox: Demonstrating Practical Resources

C. Shifting Sands & Seas: Responding to Climate Challenges in Coastal Habitats

D. Growing the Future: Climate-Resilient Agriculture

E. Integrating Climate Change into Sustainability Planning

F. The Air We Breathe: Climate, Public Health & Air Quality

3:00-3:15

Break

3:15-4:45

Closing Plenary: Climate Communications in the Carolinas
Jim Gandy, David Shelley, Kelly Spratt, Tim Watkins, Jessica Whitehead