

GULF RESEARCH PROGRAM

Project Title: Can Deliberative Discussions Lay a Foundation for Integrated Decision-Making Networks Under Pressure from Changes in Population, Climate and Energy Needs?

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Awardee: South Carolina Sea Grant Consortium

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I. PROJECT SUMMARY (from proposal)

Coastal South Carolina faces many challenges related to population growth, climate change, and energy development. Developing policies to address these challenge requires some degree of technical and scientific expertise, while at the same time robust responses to these challenges require support from multiple stakeholders, including the public. The inherent tension between policies that have a scientific basis yet require consensus among diverse stakeholders can often lead to gridlock and the absence of action. This project aims to explore a decision-making approach based on informed deliberation between experts, stakeholders, decision-makers, and the public that could avoid the potential for gridlock. Decision-making processes for managing the coastal environment have evolved over time and become more complex with increased pressure from exploding populations and subsequent development, changes in weather variability and sea level rise. The risks and uncertainties, both the near and long term, are heightened by controversial activities such as energy development, mineral and sand extraction.

The overall goal of this project is to determine the efficacy of using a deliberative process in coastal resources decision-making, particularly when it comes to issues associated with climate change and increasing population.

Objectives include:

- Assessing effectiveness of small group engagement of residents, local and state natural resources decision-makers, civic and nongovernmental organization leaders, county and municipal staff and officials, and appropriate business leaders in deliberating current issues in coastal planning and management.
- Prioritizing issues and tasks associated with climate resilience, including seafood security, water resources, environmental and human health, natural resources and biodiversity, access to coastal waters and beaches, and energy development in an inclusive process.

II. PROJECT SUMMARY (from final report)

In coastal South Carolina, change is happening and it is happening fast. With large numbers of people moving to the coast, rising sea levels, and a growing energy industry, South Carolina's decision makers are tasked with creating policies concerning these burgeoning issues. Lack of communication between scientists, local decision-makers and the public sometimes causes misunderstandings and divisive opinions amongst coastal South Carolina's diverse group of stakeholders. This, in turn, may cause inaction from our decision-makers. Deliberative discussion has been used in a wide range of settings to help citizens, experts and public officials have respectful, productive discussions. The Coastal Future Forums provided opportunities for SC coastal county residents to deliberatively discuss environmental health, biodiversity, living marine resources and ocean energy and sand resources, all within context of changing climate and population. Participants in each of the forums were given the opportunity to listen to presentations by experts on the coastal issues and, in small groups, then discuss, in facilitated small groups, how issues could be addressed or resolved. Towards the end of the forum, each of the small groups reported on their discussions. Participants completed pre- and –post discussion surveys to allow researchers to examine if participant's views were affected or if they felt better informed as a result of the deliberative forum. Analysis will be used to provide decision-makers with an improved understanding of their constituents' priorities and needs as well as helping us learn about the information and processes needed for public deliberation on coastal issues.

III. PROJECT RESULTS

Accomplishments

Coastal South Carolina faces many challenges related to population growth, climate change, and energy development. Developing policies to address these challenge requires some degree of technical and scientific expertise, while at the same time robust responses to these challenges require support from multiple stakeholders, including the public. The inherent tension between policies that have a scientific basis yet require consensus among diverse stakeholders can often lead to gridlock and the absence of action. However, it is not clear that the current decision-making processes of coastal communities are sufficient in terms of inclusiveness of relevant stakeholders or effectiveness of results. This project aimed to explore a decision-making approach based on informed deliberation between experts, stakeholders, decision-makers, and the public that could lessen the potential for gridlock.

Our group set out to examine how existing models of deliberation and dialogue could be applied to the context of coastal community resilience, and how those inputs from citizen dialogue could be synthesized to provide input to resource managers and policy makers in coastal South Carolina. To address this, we convened a community deliberative forum to bring together concerned citizens from several areas in

coastal SC to learn more about environmental challenges in the region and discuss potential solutions. In doing so we created a network of constituents that could support each other in providing input to the decision-making process.

Our first activity was to survey a representative sample of coastal and non-coastal South Carolinians. The survey focused on residents' awareness and understanding of important coastal issues. We asked questions about points-of-view and values. The survey also served as a recruitment tool for the Our Coastal Future Forum. Coastal participants in the survey, invited decision-makers and public managers, and others recruited through social media, listservs, flyers, talks and one-on-one conversations were invited and attended the large event, Our Coastal Future Forum (OCFF), held in late October of 2017. Those not recruited through the survey completed it in applying for the Forum. One week prior to attending the forum, participants received an electronic version of the briefing book that was used to inform them on the important issues to be discussed at the forums. This enabled and encouraged discussion on the topics because the participants had time to process the information and form thoughts/opinions.

Participants in each of the forums were given printed copies of the briefing book, developed for the project, and the opportunity to listen to presentations by experts on the coastal issues. They divided into eight small groups, each with a facilitator trained in deliberative discussion, a research field note taker and at least one local government participant to discuss how each issue could be addressed or resolved. Towards the end of the forums, each of the small groups reported on their discussions. Participants then completed a follow-up survey to note whether their views were affected or if they felt better informed. Analysis of these surveys will be used to provide decision-makers with an improved understanding of their constituents' priorities and needs.

The large Forum had 90 participants from all of the coastal counties that divided into 8 small groups for deliberation. We followed up with smaller Forums of 12-16 participants in each of our three geographic areas that focused on single issues as well as a Forum with realty professionals to learn about the issues and solutions that they hear from clients. These forums were held in the coastal region of South Carolina. The initial large Forum was a two-day event held in Charleston, SC, on Friday, October 20, in the afternoon and all-day on Saturday, October 21, 2017. The two-day forum covered Biodiversity and Living Marine Resources, Ocean Mineral and Energy Resources, and Environmental Health, topics that affect much of coastal South Carolina as a whole and all within the context of a changing climate. In 2018 the research group organized three smaller forums, each held in different regions of along South Carolina's coast, focusing on topics pertinent to the area. The small-group forums were held in Myrtle Beach, May 2, 2018, on Ocean Mineral and Energy Resources in a Changing Climate, Charleston, May 8, 2018 on Biodiversity in a Changing Climate, in Beaufort, May 17, 2018, on Environmental Health in a Changing Climate and with the realty profession September 26, 2018. With the exception of the realty profession workshop (process changed due to Hurricane Florence) participants took pre- and –post surveys. An Our Coastal Future Forum Newsletter was sent to participants in February 2018 and another is planned in the near future. Analysis is on-going, but initial analysis of the survey data indicates that views about coastal issues are driven by values-based worldviews as much as, if not more than proximity to the coast. In addition, public support for increased use of renewable energy and decreased use of fossil-fuel is high even among those who do not believe climate change is happening. Finally, the views of forum participants on several key

issues shifted after deliberation. Our results indicate that people were able to learn more about these issues and have thoughtful, well-reasoned discussions about them, as well as generate ideas for how communities can become more resilient to the changes and challenges faced in coastal regions. The analysis of our results is continuing, and we hope to generate more ideas about how to address problems like climate change resilience through community deliberation in the future. The initial results were presented at several conferences and publications are in development. Additionally, a loose network of participants was formed. For example, one Forum participant remarked that she hadn't been able to find anyone to discuss these matters and she wanted to stay in touch with others.

Implications

The project has led to discussions of follow-up research exploring the utility of deliberative forums for addressing climate change and adaptation in both coastal and inland areas. These discussions have already led to one grant proposal to study climate deliberation in South Carolina and Oklahoma, and we plan on pursuing additional research opportunities. This project could also have important implications for climate-related deliberation practices and the science of deliberation research. Our initial results suggest that an approach of discussing climate change impacts and resilience solutions can lead to productive discussion, and may be more effective than focusing on the causes of climate change. The decision-makers that participated appreciated hearing what their constituents thought about the issues, but also where there was confusion, misunderstanding or differences in interpretation between citizens and municipal staff and officials. With few exceptions, all participants would appreciate a continuation of this series over time. For Sea Grant an implication is that we need to build capacity to facilitate regular Forums. We are also still analyzing data from the forum and hope to generate additional scientific findings in the very near future.

We believe that these types of deliberative events can be effective stakeholder engagement tools in other communities. Our Coastal Future Forums are easily transferred to other states, regions and for other issues. Including local municipal staff or officials in the discussion groups allowed the deliberators to quickly assess how actions might be accomplished in their community. Researchers could easily follow our methods to learn about the differences in knowledge and issues in their regions. Much of the information detailed in this report will be available from the Consortium website.

The research results may lead to a better understanding of what drives opinion differences on issues important to coastal communities as well as ways to overcome those differences such as policy approaches that are supported by a majority of the public and how deliberation can work to bridge divides. Local decision-makers have had the chance to discuss environmental issues and solutions with area residents, while all of the participants have had a chance to learn what information and resources area available to them.

Unexpected Results

N/A

Project Relevance

The following audiences would be most interested in the results of this project:

- Researchers

- Community Leaders
- State Government Officials
- Federal Government Officials
- Non-Profit Private Sector
- For-Profit Private Sector

Developing environmental-related policies to protect and enhance community well-being and resilience requires some degree of technical and scientific expertise, while at the same time robust responses to these challenges require support from multiple stakeholders, including the public. The inherent tension between policies that have a scientific basis yet require consensus among diverse stakeholders can often lead to gridlock and the absence of action. This project explored deliberation as a method to involve stakeholders in the development of policy for their communities. Community, government and non-profit leaders long for increased citizen environmental literacy and involvement in decision-making. This project explored a method for increasing that involvement in a constructive environment. Researchers are interested in knowing more about how people discuss scientific information and if deliberation assists them in changing their views.

Education and Training

Number of students, postdoctoral scholars, or educational components involved in the project:

- Undergraduate students: 2
- Graduate students: 10
- Postdoctoral scholars: 0
- Other educational components: 126

Other: Participants in the Our Coastal Future Forums including residents and staff from municipalities and state environmental agencies.

IV. DATA AND INFORMATION PRODUCTS

This project produced data and information products of the following types:

- Data

DATA

Data Management Report:

See attached Data Management Report.

Relationships Between Data Sets:

This project included a number of data collections to help us better understand how the knowledge and beliefs of our participants changed, if any, as a result of their Our Coastal Future Forum experience as well as to understand our coastal constituency within the context of the state and national populations.

Surveys

National: Included respondents from a national, 50 state survey; fielded in October of 2017.

Coastal communities: included respondents from coastal communities in the south east and gulf coast region including the states of Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Texas. It was fielded in October of 2018.

South Carolina: included respondents from the state of South Carolina, fielded in August and September of 2017.

South Carolina coastal communities: included respondents from South Carolina's eight coastal counties including Beaufort, Berkely, Charleston, Colleton, Dorchester, Georgetown, Horry, and Jasper counties. The survey was fielded in August and September of 2017 and was used to find participants for the October forum.

Forum participants. Included respondents that participated in the large October 2017 forum and any of the three smaller forums in 2018. Responses were collected both before and after the forums.

Deliberative coding data — At the event, a group of undergraduate and graduate student coders were present to document and evaluate the small group discussions. The coders had a short qualitative notes training session as well as training on the coding sheet. This data includes both qualitative notes as well as a quantitative evaluation of the deliberation of most of the small groups. This data adds richness to the transcripts of small groups as well as evaluations of the entire forum. In addition, research team members Reedy and Anderson observed the forum and took field notes on the process.

Additional Documentation Produced to Describe Data:

N/A

Other Activities to Make Data Discoverable:

This project and its data, along with some preliminary research results, were described in an internal presentation in the Center for Risk and Crisis Management and its affiliates at the University of Oklahoma, where research team members Reedy and Anderson are employed. We hope our OU colleagues will be interested in contributing to research on this project in the future. In addition, we will note our archived data in research presentations at academic conferences and in research manuscripts when appropriate. Other results were presented by Susan Lovelace at the 2018 Oceans Sciences Meeting in Portland Oregon, Bucking the Trend, Civil Discussion to Reach Consensus, by Matt Nowlin at the 2018 Social Coast Forum in Charleston South Carolina, Collaboration and Coastal Governance: Engaging Stakeholders on Coastal Issues, by Susan Lovelace, also at the 2018 Social Coast Forum, Bucking the Trend, Civil Discussion to Agreement? and by Lee Bundrick at the 2018 Carolinas Climate Resilience Conference in Columbia South Carolina, Deliberative Decision Making on Issues in a Changing Climate.

Sensitive, Confidential, or Proprietary Data:

N/A

INFORMATION PRODUCTS

Information Products Report:

See attached Information Products Report.

Citations for Project Publications, Reports and Monographs, and Workshop and Conference Proceedings:

N/A

Websites and Data Portals:

N/A

Additional Documentation Produced to Describe Information Products:

N/A

Other Activities to Make Information Products Accessible and Discoverable:

N/A

Confidential, Proprietary, Specially Licensed Information Products:

N/A

V. PUBLIC INTEREST AND COMMUNICATIONS

Most Unique or Innovative Aspect of the Project

Our Coastal Future Forum builds on deliberative discussion by including scientists and local decision-makers. The researchers included national, state and regional surveys to understand the context behind the public's and participants' knowledge and beliefs. The format of the Forum allows for small, single issue discussions or can be scaled up to bring a large group together.

Most Exciting or Surprising Thing Learned During the Project

One of the greatest impacts of this project was the empowering effects of a deliberative process on participants. Several of the participants were kind enough to inform the research team of their furthered action including how their participation and networking opportunities facilitated at the forum were used later in their home communities. The ideas and content generated at the forum by the participants was later used as a spring board for action in informing smaller community meetings.

Most Important Outcome or Benefit of Project

Our Coastal Future Forum provided participants with a sense of community and empowerment as they worked together to identify pressing coastal issues and solutions. Many became very comfortable discussing topics with environmental scientists and local decision-makers in a comfortable and engaging setting. They learned where they could go for information and to have impact in decision-making. Local decision-makers and environmental scientists, in turn, learned about the questions and issues important to SC residents so that they can better implement solutions to pressing problems. Our researchers gained knowledge about the use of deliberative decision-making models to bridge deep social and ideological divides in the public in addressing environmental problems, especially larger-scale ones like climate change.

Communications, Outreach, and Dissemination Activities of Project

Press Release listed at bottom, August 10, 2017.

Susan Lovelace participated in a taped interview for the local FOX affiliate to promote the larger Our Coastal Future Forum in September 2017.

Media hits included:

https://www.moultrienews.com/community-news/our-coastal-future-forum-set-for-oct/article_d63b0b72-7e9f-11e7-9737-f766808b76dc.html

<http://www.southatlanticlcc.org/event/our-coastal-future-forum/>
https://www.cisa.sc.edu/Newsletter/CCC%20Newsletter_3rd%20Quarter%202017.pdf

Link to the OCFF web page

<https://myemail.constantcontact.com/Ripple-Effect--School-is-in-Session-.html?soid=1106449307932&aid=HQCb0LXRvUI>

Ashley Cooper Stormwater Education Consortium newsletter

<https://globalchange.ncsu.edu/august-2017-newsletter/>

Global Change Forum, Upcoming Events section (N.C. State, SE Climate Science Center, SE Regional Climate Hub)

<https://www.sccoastalinfo.org/events/our-coastal-future-forum-myrtle-beach-small-group/>

S.C. Coastal Information Network, Myrtle Beach announcement

<https://www.sccoastalinfo.org/events/our-coastal-future-forum-charleston-small-group/>

S.C. Coastal Information Network, Charleston announcement

<http://riley.cofc.edu/2016-2017-annual-report/RC%202017-18%20Annual%20Report.pdf>

College of Charleston Riley Center for Livable Communities annual report article

<http://foxcharleston.com/news-now/sc-sea-grant-consortium/>

Fox 24 News Now program

<http://today.cofc.edu/2016/11/10/national-academy-sciences-climate-change/>

College of Charleston news article

FOR IMMEDIATE RELEASE

August 10, 2017

RE: Our Coastal Future Forum Set for October 20-21

Contact: Joey Holleman, (843) 953-2090 or joey.holleman@scseagrant.org

Charleston, S.C. – The S.C. Sea Grant Consortium invites coastal South Carolina residents to attend the Our Coastal Future Forum in October to discuss environmental issues important to the future of our coastal communities. At the event, participants will learn from experts and researchers about topics

such as fisheries, biodiversity, coastal habitat, coastal energy production and environmental health. After the brief information session, participants will discuss the topics with fellow residents, government officials, scientists and natural resource managers and prioritize actions to address these issues. There will be small group discussion sessions and a final session with all participants. The results of the forum will be shared with coastal natural resource managers, county staff and municipal staff.

The event is ticket only and will be held at the Trident Technical College Convention Center in North Charleston from 5:00 p.m. to 8:00 p.m. on Friday, October 20, and from 8:00 a.m. to 4:30 p.m. on Saturday, October 21. The forum will be hosted by the S.C. Sea Grant Consortium and research partners from College of Charleston and University of Oklahoma. The research goal is to learn more about how deliberative discussion impacts the decision-making process in South Carolina. Participants will receive a stipend for travel to the event.

Due to space limits, please apply by September 1. Contact Stacey Weinstock or Lee Bundrick at OCFF@scseagrant.org or call (843) 953-2081. Late applications may be accepted. To learn more about the event, visit the Our Coastal Future Forum website at www.scseagrant.org/content/?cid=937.

The S.C. Sea Grant Consortium promoted the activities on our Facebook and Twitter accounts. Our local communities promoted the activities on their social media accounts.

Data Report

Data Type	Digital Resource Type	Title	File Name	Creators	Point of Contact	Publication Year	Repository Name	DOI or Persistent URL	Keywords	Publications
Education and Training	Tabular/Spreadsheet	Gravity Tests	GravityRawData.txt	Galieli, Galileo; Newton, Isaac	Lab Manager labmanager@science.edu 123-456-7890	1700	Really Big Digital Repository	doi: 10.1000/grav.1000	Gravity, object mass, force	doi: 10.1000/grav.1000.000, doi: 55.1097/science.4567
Education and Training	Text	Our Coastal Future Forum Briefing Book (SCSGC-H-17-06)	OCFF-Briefing-Book-Updated.pdf	Lovelace, Susan; Bundrick, Lee; Weinstock, Stacey; Hollemon, Joey; Gayes, Paul; Reichert, Paul; Sandifer, Paul; Scott, Geoff; Ferris Hill, Susan	PI- susan.lovelace@scseagrant.org t.org 843-991-7630	2017		http://www.scseagrant.org/pdf_files/OCFF-Briefing-Book-Updated.pdf	environmental health, biodiversity, living marine resources, energy and mineral resources, climate change	
Education and Training	Text	Ocean Mineral and Energy Resources in a Changing Climate (SCSGC-H-18-04)	OCFF-Briefing-Book-Myrtle-Beach.pdf	Lovelace, Susan; Bundrick, Lee; Weinstock, Stacey; Hollemon, Joey; Gayes, Paul; Ferris Hill, Susan	PI- susan.lovelace@scseagrant.org t.org 843-991-7630	2018		http://www.scseagrant.org/pdf_files/OCFF-Briefing-Book-Myrtle-Beach.pdf	energy, sand, minerals, climate change	
Education and Training	Text	Biodiversity in a Changing Climate (SCSGC-H-18-05)	OCFF-Briefing-Book-Charleston.pdf	Lovelace, Susan; Bundrick, Lee; Weinstock, Stacey; Hollemon, Joey; Sandifer, Paul; Scott, Geoff; Ferris Hill, Susan	PI- susan.lovelace@scseagrant.org t.org 843-991-7630	2018	ICPSR	http://www.scseagrant.org/pdf_files/OCFF-Briefing-Book-Charleston.pdf	biodiversity, health, well-being, fish, oysters	
Education and Training	Text	Environmental Health in a Changing Climate (SCSGC-H-18-06)	OCFF-Briefing-Book-Beaufort.pdf	Lovelace, Susan; Bundrick, Lee; Weinstock, Stacey; Hollemon, Joey; Scott, Geoff; Ferris Hill, Susan	PI- susan.lovelace@scseagrant.org t.org 843-991-7630	2018	ICPSR	http://www.scseagrant.org/pdf_files/OCFF-Briefing-Book-Beaufort.pdf	environmental health, water quality, microbiology, climate change	
Social/Cultural	Text	Our Coastal Future Surveys: Master Codebook with Survey	OCFSurveysMasterCodebookwithsurveys.pdf	Bundrick; Lee; Nowlin, Matt	Nowlin, Matt nowlinmc@cofc.edu (843) 953-0279 Nowlin, Matt nowlinmc@cofc.edu (843) 953-0280	2018	ICPSR		codebook	
Social/Cultural	Tabular/Spreadsheet	SC State Survey	Scstate.sav	Nowlin; Matt	Nowlin, Matt nowlinmc@cofc.edu (843) 953-0281	2018	ICPSR	do not have yet, project ID with ICPSR is 107511	climate, environment, health, well-being	
Social/Cultural	Tabular/Spreadsheet	Participant Panel	ForumParticipants.sav	Nowlin; Matt	Nowlin, Matt nowlinmc@cofc.edu (843) 953-0283	2018	ICPSR	do not have yet, project ID with ICPSR is 107512	climate, environment, health, well-being	
Social/Cultural	Tabular/Spreadsheet	national data	nationalData.sav	Nowlin; Matt	Nowlin, Matt nowlinmc@cofc.edu (843) 953-0284	2018	ICPSR	do not have yet, project ID with ICPSR is 107513	climate, environment, health, well-being	
Social/Cultural	Tabular/Spreadsheet	SC Coastal counties data	Sccounty.sav	Nowlin; Matt	Nowlin, Matt nowlinmc@cofc.edu (843) 953-0284	2018	ICPSR	do not have yet, project ID with ICPSR is 107514	climate, environment, health, well-being, environmental health, biodiversity, living marine resources, energy and mineral resources, climate change	
Education and Training	Text	Our Coastal Future Forum Newsletter	OCFF Newsletter W18	Lovelace, Susan; Bundrick, Lee	PI- susan.lovelace@scseagrant.org t.org 843-991-7630	2018	ICPSR	do not have yet, project ID with ICPSR is 107515	resources, climate change	

Information Products Report

InfoProductType	DigitalResourceType	Title	FileName	Creators	PublicationYear	Publisher	RepositoryName	DOIorPersistentURL	DatasetReference
Models and Simulations									
Curricula (for education or training)	Text	Our Coastal Future Forum Briefing Book (SCSGC-H-17-06)	OCFF-Briefing-Book-Updated.pdf	Lovelace, Susan; Bundrick, Lee; Weinstock, Stacey; Hollemon, Joey; Gayes, Paul; Reichert, Paul; Sandifer, Paul; Scott, Geoff; Ferris Hill, Susan	2017	South Carolina Sea Grant Consortium	ICPSR		
		Ocean Mineral and Energy Resources in a Changing Climate (SCSGC-H-18-04)	OCFF-Briefing-Book-Myrtle-Beach.pdf	Lovelace, Susan; Bundrick, Lee; Weinstock, Stacey; Hollemon, Joey; Gayes, Paul; Ferris Hill, Susan	2018	South Carolina Sea Grant Consortium	ICPSR		
		Biodiversity in a Changing Climate (SCSGC-H-18-05)	OCFF-Briefing-Book-Charleston.pdf	Lovelace, Susan; Bundrick, Lee; Weinstock, Stacey; Hollemon, Joey; Sandifer, Paul; Scott, Geoff; Ferris Hill, Susan	2018	South Carolina Sea Grant Consortium	ICPSR		
		Environmental Health in a Changing Climate (SCSGC-H-18-06)	OCFF-Briefing-Book-Beaufort.pdf	Lovelace, Susan; Bundrick, Lee; Weinstock, Stacey; Hollemon, Joey; Scott, Geoff; Ferris Hill, Susan	2018	South Carolina Sea Grant Consortium	ICPSR		