



# THE CITADEL

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JAMES B. NEAR CENTER FOR  
CLIMATE STUDIES

## ANNUAL REPORT 2021-22

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# EXECUTIVE SUMMARY

2021-22 marked the second year of the Lt. Col. James B. Near, Jr., USAF, '77 Center for Climate Studies (NCCS). The foundation of the NCCS is Objective 6.3 of *Our Mighty Citadel 2026*: “Develop The Citadel Lowcountry Climate Center”. Highlights of the year were:

1. Formal approval by the Commission on Higher Education (page 4)
2. Formal approval of a charter (page 4)
3. Refresh of institutional strategic planning (page 5)
4. Expansion of Climate Fellows and Advisory Board (pages 6-8)
5. Offering “Active Learning: Infusing Climate Change into Your Curriculum” to Citadel faculty (page 10)
6. Granting \$59,106 (a record) in climate studies research to faculty in Biology, Chemistry, Mathematical Sciences, Computer Science, and Civil Engineering (page 11)
7. Building climate scholarship with 2 refereed journal articles, 1 conference proceeding and 17 conference presentations (page 11)
8. Submitting ~1.4 million dollars in external research proposals (page 13)
9. Hosting the 1<sup>st</sup> Annual SC Sea Grant Consortium Research Symposium (page 15)
10. Part of the Charleston 2021 HeatWatch leadership team (page 15)
11. Initiating construction of the Near Center collaborative lab space (page 19)

NCCS has engaged with key climate stakeholders locally and nationally, which has led to collaborations on research proposals and connections with industry and community organizations. NCCS's short term goals are to establish a minor in Climate Studies and a symposium series. A primary challenge in achieving these goals is the lack of a dedicated administrative assistant. In summary, NCCS has built on its early successes and is gaining visibility in the state and beyond.

**The Near Center for Climate Studies was Officially Approved on June 3, 2021!**



**Scott Curtis, Ph.D., Director**  
**Near Center for Climate Studies**

# VISION & MISSION

The South Carolina Center on Higher Education formally approved the NCCS June 3, 2021 (the letter can be found in Appendix A). The NCCS serves the students and faculty of The Citadel and citizens of South Carolina by enhancing understanding of climate and its variability, change, and risks. The vision of the Center begins with the personal vision of Lt. Col. Jim Near. Near served twenty years in the USAF as a meteorologist and in fall 2014 returned to The Citadel as an adjunct professor of Physics. Near demonstrated extraordinary generosity by providing The Citadel Foundation (TCF) with a \$3.27 million gift to initiate the Center. Ever humble and not wanting to receive any recognition for his donation, he specified to TCF that his gift remain completely anonymous until his passing in March 2020.

## Vision

The Lt Col James B. Near, Jr., USAF, '77 Center for Climate Studies will be nationally recognized as an academic leader in *climate science*<sup>1</sup> and facilitating the transition of this science from research into operational use to assist in principled decision making.

## Mission

The NCCS mission is to promote climate science through education, research, transition to operations, and community engagement and the development of public-private partnerships. The scope of the Center's activities will consist of the relation of Earth's climate to (a) national security, (b) coastal environment and infrastructure, and (c) human health and welfare.

## Charter

The Charter was formally approved by the Advisory Board and Executive Committee on July 6, 2021. The Charter can be found in the 2020-21 Annual Report.



1. climate science is defined as the science of how global, regional, or local climates are maintained and change over time and their effects on the environment and society.

# STRATEGIC PLAN REFRESH

There was a refresh of the Our Mighty Citadel 2020-2026 Strategic Plan during the academic year.

The new action items, and key performance indicators are listed below. 6.3.1 and 6.3.2 will be evaluated starting in this Annual Report.

AI #	Action item description	KPI #	Key Performance Indicators	Data	Target
6.3.1	Institute minor around climate studies	6.3.1a	Minor in Climate Studies	Catalog	Approved and offered
		6.3.1b	Number of students declaring minor	Banner	5 per year
		6.3.1c	Number of students enrolled in core minor courses (spillover effect)	Banner	15 per year
6.3.2	Enhance research in climate studies	6.3.2a	Funding from the Center to faculty and students	Annual report	≥\$60,000 per year
		6.3.2b	Publications, technical reports, undergraduate research projects, or conference proceedings per year	Annual report	≥3 per year
		6.3.2c	Proposals for external funding per year	Annual report	≥1 per year
6.3.3	Develop a symposium series on relevant climate topics (2022-2023 timeframe)	6.3.3	Attendance at symposium	Annual report	20+
6.3.4	Develop a teacher workshop on infusing climate into the K-12 curriculum (2023-2024 timeframe)	6.3.4	Number of teachers served	Annual report	10+
6.3.5	Develop a summer camp on climate information and communication (2025-2026 timeframe)	6.3.5	Participation and revenue generated	Annual report	20+, at least \$4000
6.3.6	Increase operational support (2025-2026 timeframe)	6.3.6a	Endowment of CRSG grant program	TCF	\$1 million
		6.3.6b	Part-time staff or grad student help in Center Administration	Annual report	1 salaried employee

# PERSONNEL

The NCCS is comprised of an Executive Committee, Advisory Board, and Climate Fellows.

## Executive Committee

The Executive Committee is comprised of Citadel leadership and has oversight of NCCS activities as they pertain to fulfillment of the NCCS Charter.

- Dr. Darin Zimmerman (chair), Dean of Swain Family School of Science and Mathematics
- Dr. Kevin Bower, Associate Provost for Academic Affairs and Dean of General Studies
- Dr. Scott Curtis, Director of Near Center for Climate Studies
- Dr. Andrew Williams, Dean of Engineering
- Dr. Dena Garner, Assistant Provost for Research and Policy
- Dr. Kathy Zanin, Interim Head of Department of Biology
- Dr. Hank Yochum, Head of Department of Physics

\* Dr. Jeff Davis, Head of Department of Civil and Environmental Engineering, served until 11/22/2021

## Advisory Board

The Advisory Board is comprised of experts in the areas of environmental, climate, oceanic, atmospheric, and other closely allied sciences. Members may also include educators, policymakers, and leaders of the community and industry whose skills and activities would inform the Executive Committee on Center activities and direction, as well as provide networking opportunities for students and Center Fellows. At the Spring 2022 meeting seven new board members (bold font) were added to enhance expertise and allow for turnover.

- Col. Allison Dean-Love, Citadel Board of Visitors, *ex officio*
- **Mr. Allan Clum, Mount Pleasant Waterworks**
- **Mr. Joe Coates, Charleston County Emergency Management**
- Mr. Kevin Cooley, National Oceanic and Atmospheric Administration (NOAA), class of '90
- Dr. Kirstin Dow, University of South Carolina
- **Dr. Brandon Emery, Lexington Medical Center**
- **Ms. Debra Hernandez, Southeast Coastal Ocean Observing Regional Association**
- Dr. Fred Holland (chair), former Director of NOAA Hollings Marine Laboratory, class of '64
- **Dr. Albany Irick, MUSC**
- Dr. Mike Johns, Winward Environmental LLC, class of '72
- Mr. David Johnston, Hamilton Advisors LLC
- Dr. Susan Lovelace, SC Sea Grant Consortium
- **Mr. Chris Mack, Stantec, class of '18**
- Dr. Hope Mizzell, SC State Climate Office
- **Dr. Paul Sandifer, College of Charleston**
- Dr. Geoff Scott, University of South Carolina

Two Advisory Board meetings were held, one on 11/11/21 and one on 3/24/22. Minutes of these meeting can be found in Appendix B.

## Climate Fellows

There are now 34 faculty and community fellows of the James B. Near Center for Climate Studies representing four of the five Schools at The Citadel and the Department of Leadership Studies.

- Faculty Fellows
  - Dr. Jen Albert, Education
  - Dr. Patrick Bass, Mechanical Engineering
  - Dr. Mostafa Batouli, Civil and Environmental Engineering
  - Dr. Holly Bevsek, Chemistry
  - Dr. Pat Briggs, Physics
  - Dr. Kweku Brown, Civil and Environmental Engineering
  - Dr. Prosenjit Chatterjee, Cyber and Computer Science
  - Dr. Mei Chen, Mathematics
  - Dr. Mike Dorko, Chemistry
  - Dr. Sean Fournery, Public Speaking Lab Director, Leadership Studies
  - Dr. Simon Ghanat, Civil and Environmental Engineering
  - Dr. Robert Granger, Chemistry
  - Dr. Danny Gustafson, Biology
  - Dr. Ryan Integlia, Electrical and Computer Engineering
  - Dr. Deepti Joshi, Cyber and Computer Science
  - Dr. Kaelyn Leake, Physics
  - Dr. Thad Le-Vasicek, Chemistry
  - Dr. Bo Li, Mathematics
  - Dr. Michelle Lomonaco, Associate Director of Sports Medicine
  - Dr. Clinton Moran, Biology
  - Dr. Megan Moyer, Chemistry
  - Dr. Sergey Ponomarov, Marketing Supply Chain & Economics
  - Dr. Deirdre Ragan, Mechanical Engineering
  - Dr. Richard Robinson, Mathematics
  - Dr. Claudia Rocha, Biology
  - Dr. Aicko Schumann, Physics
  - Dr. Nandan Shetty, Civil and Environmental Engineering
  - Dr. Nahid Vesali, Engineering Leadership & Program Management
  - Dr. John Weinstein, Biology
  - Dr. Todd Wittman, Mathematics
  - Dr. John Zardus, Biology
  - Dr. Lisa Zuraw, Chemistry
- Community Fellows
  - Dr. Merrie Koester, USC Center for Science Education

- Student Fellows
  - The following students were bestowed the title in 2021-22: *Dennis Burns, Evan Fish, Sylvester Guillermo, Emma Larsen, Negin Shamsi, and Aaron Suttles*

There were two meeting of the Climate Fellows, one on 10/29/21 and one on 3/4/22. Fellows were updated on Center activities and reports of the four standing committees were given. The four standing committees are: Academic, Research, Engagement, and Industry. The membership and goals are given below.

## **Academic Committee**

Comprised of Fellows: Richard Robinson, Simon Ghanat, Lisa Zuraw, and Jen Albert. The charge of the Academic Committee is to propose educational and training opportunities for Citadel students and external constituents through curricular offerings, seminars and workshops, symposia, and continuing education. The committee will also engage with K-12 students and faculty.

## **Research Committee**

Comprised of Fellows: Nandan Shetty, Deepti Joshi, Clinton Moran, and Mostafa Batouli. The charge of the Research Committee is to seek research strategies and communicate external funding opportunities to the Director. They will also review internal research proposals, including the annual Climatological Research Studies Grant (CRSG) competition. Other Faculty Fellows may be invited to serve as reviewers in case of conflict of interest and/or a low committee membership. The committee will promote ethical behavior in the practice of research and innovative problem solving in climate science.

## **Engagement Committee**

Comprised of Fellows: Deirdre Ragan, Kaelyn Leake, Claudia Rocha, and Thad Le-Vasicek. The charge of the committee is to facilitate NCCS outreach to the community (individuals, groups) in climate science and related environmental disciplines. The committee will listen to climate stakeholders and seek ways the Center can provide expertise and principled science-based leadership.

## **Industry Committee**

Comprised of Fellows: Mike Dorko, Nahid Vesali, and Sergey Ponomarov. The charge of the committee is to establish industry partnerships that benefit NCCS partners and provide research, internship, and other development opportunities for Citadel students and Fellows. The committee will provide mentoring and network opportunities for students interested in climate-related careers.



# KEY PERFORMANCE INDICATORS

## Academics

- Institute Minor Around Climate Studies, 6.3.1

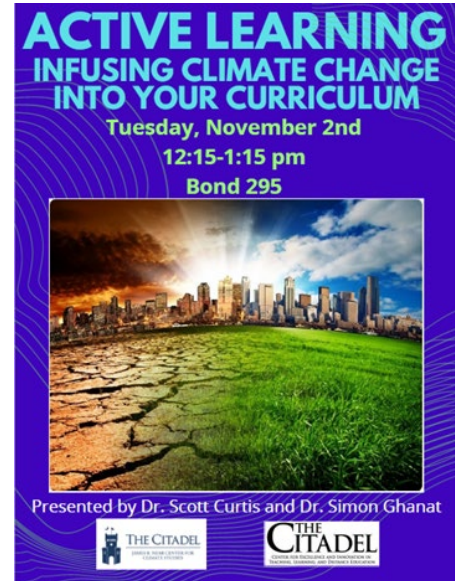
The Academic Committee met with the Director to discuss plans for an academic minor. The consensus was it should focus on breadth, rather than depth, and include a large list of “elective” courses (many with no prerequisites) to attract the maximum number of students from a variety of majors. The minor may only have one “core” course, which would be PHYS 343, Applied Climatology (if the prerequisite to PHYS 243 was removed) or PHYS 244, Extreme Weather and Climate. There was some discussion as to whether it would be more prudent and efficient to modify the current minor “Sustainability and Environmental Studies” (housed in Biology). The minor could be renamed and restructured to have a greater emphasis on climate. A formal proposal will be developed and submitted to Faculty Senate in the 2022-23 academic year.

- Other KPIs Related to Academics
  - Number of students in climate studies classes
    - The definition of “climate studies classes” is continuing to be refined, but here is a selection of classes and their enrollments that were offered more than one semester in the past four semesters.

Number	Title	#, Fall 2020	#, Spring 2021	#, Fall 2021	#, Spring 2022
PHYS 244	Extreme Weather and Climate	NA	12	13	NA
NTSS 301	Technical Solutions to Climate Change	NA	NA	14	24
NTSS 303	Biology, Environment, and Law	16	49	24	38
BIOL 209/ NTSS 305	Environmental Science	47	NA	36	NA
CIVL 322	Intro to Env. Engineering	NA	49	NA	37
Freshman seminars	Environmental Hazards	23	21	21	20
TOTAL		86	131	108	119

- Number of K-12 faculty in the Lowcountry who infuse climate science into at least one lesson plan
  - This is consistent with KPI 6.3.4. Nothing to report in 2021-22, but NCCS may contribute to a teachers’ professional development opportunity in the near future.

- Number of Citadel faculty who infuse climate science into at least one lesson/module
  - To increase capacity in this area, the NCCS, in partnership with The Center for Excellence and Innovation in Teaching, presented “Active Learning: Infusing Climate Change into your Curriculum” on 11/2/2021. This workshop was led by Climate Fellow, Dr. Simon Ghanat and attended by ~10 faculty. Dr. Ghanat demonstrated how students can recognize climate’s impact on different environmental, engineered, and social structures through think-pair-share methodologies. These techniques were modeled by the participants. Overall, it was a successful event.



## Takeaways

It was a successful year for climate related curriculum and pedagogy at The Citadel. Progress was made in establishing a minor in Climate Studies and a prime objective of the 2022-23 year is to finalize and initiate the minor. A climate change module was created for RPED 260 instructors, which is now in the shared Canvas “sandbox” for the course. Climate Fellow Dr. Ghanat led an active learning workshop.

## Research

- Enhance Research in Climate Studies, 6.3.2
  - Funding from the Center to faculty and students (6.3.2a)
    - The Climatological Research Studies Grant (CRSG) program is administered through the NCCS and funds Citadel faculty and students in climate studies. This year marked a record in number of applications (12), number of grants (6) and money awarded (\$59,106). This KPI was achieved.

Last name	First name	Dept.	Amount	Title
Joshi	Deepti	Computer Sciences	\$12,000	A Social Sensing and Image Processing Approach for Detecting Acute and Chronic Climate Hazards
Le-Vasicek	Thaddeus	Chemistry	\$11,917	Increasing the Efficiency and Lifetime of Reusable Catalysts for Biofuel Production
Moyer	Megan	Chemistry	\$12,000	The Synthesis and Application of Porous Materials for the Improvement of Water Quality
Shetty	Nandan	Civil and Environmental Engineering	\$7,000	Quantifying the Cooling Effects of Street Trees in Charleston, SC
Wittman	Todd	Mathematical Sciences	\$5,000	Change Detection and Dimensionality Reduction in Hyperspectral Imagery
Zardus	John	Biology	\$11,189	Effects of Temperature of Barnacle Biomechanics: Larval Swimming and Adult Feeding in a Globally Important Biofouling Barnacle, <i>Amphibalanus amphirite</i>

- Publications, technical reports, undergraduate research projects, or conference proceedings per year (6.3.2b). There was a total of 2 journal articles, 1 conference paper, and 17 presentations, with the large majority co-authored by Citadel students. This production far exceeds the KPI threshold.

### *Journal Article*

- Larsen, E., S. Ghanat, and S. Curtis, 2022: Experience with active learning: The Charleston, SC, USA urban heat island effect. *Advances in Environmental and Engineering Research*, 3(2):9; doi:10.21926/aeer.2202020.
- Khatiwada, M., and S. Curtis, 2021: Precipitation trends in the Ganges-Brahmaputra-Meghna river basin, South Asia: Inconsistency in satellite-based products. *Atmosphere*, 12, 1155. <https://doi.org/10.3390/atmos12091155>.

### *Conference Paper*

- Race, B. and T. Wittman. "A comparison of dimensionality reduction techniques for hyperspectral imagery." Proceedings SPIE Defense and Commercial Sensing Conference: Algorithms, Technologies, and Applications for Multispectral and Hyperspectral Imaging XXVIII. 1209412 (2022). Orlando, Florida.

### *Presentation*

- "Bridging over troubled waters: Resilience to hydrometeorological hazards in an era of climate change" Scott Curtis: UCOWR/NIWR Annual Water Resources Conference, Greenville, SC, June 2022 (**PLENARY**).
- "Preparing for, responding to, and mitigating compound coastal water hazards for resilient rural communities" Scott Curtis: UCOWR/NIWR Annual Water Resources Conference, Greenville, SC, June 2022.
- "Temporal stability of immobilized cellulases: Functional group density dependence" Danny Swofford and Thad Le-Vasicek: American Chemical Society, San Diego, CA, March 2022.
- "Specific Activity of Enzymes Immobilized to Magnetic Nanoparticles: Dependence on Functional Group Density and Enzyme Density" Sylvester Guillermo and Thaddeus Le-Vasicek: American Chemical Society, San Diego, CA, March 2022.
- "Study of Urban Heat Island in Charleston, SC" Emma Larsen, Simon Ghanat and Scott Curtis: The Citadel 2021 SURE Research Symposium, August 2021, Charleston, SC.
- "Study of Urban Heat Island in Charleston, SC" Emma Larsen, Ezekiel Durand, Simon Ghanat, and Scott Curtis: ASCE SC Eastern Branch April 2022 meeting, Charleston, SC.
- "Study of Urban Heat Island in Charleston, SC" Emma Larsen, Simon Ghanat and Scott Curtis: Southern Conference Research Forum at Wofford University, November 2021, Spartanburg, SC.
- "Study of Urban Heat Island in Charleston, SC" Emma Larsen, Simon Ghanat and Scott Curtis: 2022 ASEE-SE Conference, March 2022 Charleston, SC.
- "Charleston's Sunny-day Flooding: A Pathway for Street-derived Microplastic and Tire Wear Particles into Coastal Waterways" Bonnie Ertel and John Weinstein. Citadel Academy of Science and Mathematics Banquet. March 24, 2022.
- "Rising Seas and Roadway Debris: Environmental Fate of Tire-Wear Microplastic Following Nuisance Flooding in Coastal South Carolina" Bonnie Ertel, John Weinstein, Marian Smith, Jaydee Edwards, Reto Gieré. Virtual oral presentation.

42nd Annual Meeting, Society of Environmental Toxicology and Chemistry - North America. SciCon4. Nov. 14-18, 2021.

- “Us and the Creek - Becoming who you are” Merrie Koester, South Carolina Marine Educators Association, SC Aquarium, November 6, 2021.
  - “Being in a Situation: The Art and Science of Resilience” Merrie Koester, Monmouth University Sustainability Education Conference, Virtual, March 25, 2022
  - “Kids Teaching Flood Resilience: A Call to Action” Merrie Koester, EJ Strong Coalition Meeting, sponsored by SC DHEC, USC School of Public Health, and LAMC, North Charleston, SC, April 29, 2022.
  - “Kids Teaching Flood Resilience: Centering Youth as Ambassadors of Community Hurricane Resilience” Merrie Koester, 1<sup>st</sup> SC Sea Grant Consortium Research Symposium, May 2022.
  - “The James B. Near Center for Climate Studies at The Citadel: A summary of coastal research and engagement” Scott Curtis, 1<sup>st</sup> SC Sea Grant Consortium Research Symposium, May 2022.
  - “Cooling Effects of Trees in Charleston, SC” Dennis Burns and Zachery Campbell, 1<sup>st</sup> SC Sea Grant Consortium Research Symposium, May 2022.
  - “Charleston Street Flooding is More Than Just a Nuisance: A Pathway for Microplastic Particles into Our Coastal Waterways” Bonnie Ertel and John Weinstein. 1<sup>st</sup> SC Sea Grant Consortium Research Symposium, May 2022.
  - “Comparison of Dimensionality Reduction Techniques for Hyperspectral Imagery” Todd Wittman. 1<sup>st</sup> SC Sea Grant Consortium Research Symposium, May 2022.
- Proposals for external funding per year (6.3.2c). There was a total of 3 proposals submitted. All three are pending. This meets the KPI.

Short Title	Citadel PI	Program	Funded?	Extent	Direct Funds	F&A
Focused CoPe: Water Quality and Human Health Action Research Networks	Scott Curtis	NSF	PENDING	8/1/2022-7/31/2027	\$313,242	\$121,823
Intended and Unintended Consequences of Buyout Programs	Scott Curtis	NOAA	PENDING	9/1/2022-8/31/2024	\$20,553	\$4,974
The Coastal Hydrologic and Atmospheric Urban Laboratory: Enabling Climate Science Through Observation Networks	Scott Curtis	DOE	PENDING	9/1/2022-8/31/2027	\$652,196	\$275,263

## Takeaways

It was a successful year for climate research at The Citadel. Three grants were submitted totaling almost \$1.4 million and research was conducted and disseminated by many students and faculty. The NCCS Climatological Research Studies Grant competition was open for all faculty across campus and generated a record number of applications, projects awarded, and funding. For the first time the NCCS is funding a project outside the Swain Family School of Science and Mathematics (in Engineering). NCCS continues to publish and present research at an accelerated rate. The Director was invited to give a plenary talk on Water Resilience to the 2022 Universities Council on Water Resources meeting to over 200 participants.

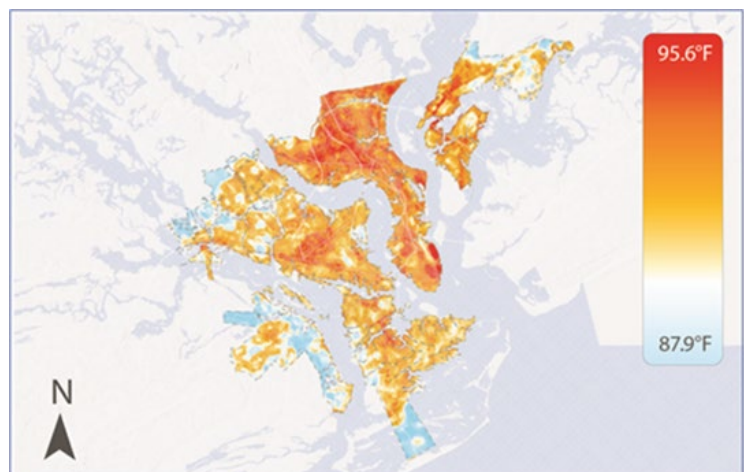
## Engagement

- Develop a Symposium on Relevant Climate Topics, 6.3.3

This is targeted for 2022-23 and we are currently developing plans for a research panel to be held in conjunction with the grand opening of the Climate Center space (see page 19). However, the NCCS was fortunate to be approached by SC Sea Grant Consortium to host its inaugural Research Symposium at The Citadel. The event, held over two days, was opened by General Walters and Provost Selden and attracted over 100 members of the South Carolina coastal science and management communities. There were 12 oral presentations, 23 poster presentations, a panel on “Intentional Intersection of Diversity Equity and Inclusion (DEI) and Research for Impactful Outcomes” and a training session on “Incorporating DEI in Collaborative Research”. Overall, it was a success, and more information can be found in Appendix C.



- Other KPIs Related to Engagement
  - Number of climate events organized by Citadel students and faculty and open to the public
    - The NCCS helped organize and execute the NOAA HeatWatch event on July 31, 2021. Curtis and several Climate Fellows: Emma Larsen (student), Bonnie Ertel (student), Kweku Brown, Simon Ghanat, and Deirdre Ragan





participated as a volunteers, collecting temperature and humidity information in a predesignated section of the city. The NCCS continues to partner with the HeatWatch team and the city in analyzing the data and leveraging the work into vulnerability assessments and mitigation efforts.

- The NCCS was a sponsor for the SC Aquarium Brittlebank Sweep on February 26, 2022. There were 51 volunteers, including Curtis and Climate Fellows Bonnie Ertel (student) and Dierdre Ragan, and several Citadel honors students. Volunteers collected 4,817 pieces of debris from the waterfront, the majority consisting of plastic.



- Number of guest speakers on climate related topics
  - None this year.
- Number of community presentations/workshops by Citadel faculty on climate related topics
  - Dr. Merrie Koester presented her film “Never Say Whatever, Especially in a Hurricane”, produced by Kids Teaching Flood Resilience at Simmons Pinckney Middle School.
  - Dr. John Weinstein gave an invited lecture to the South Carolina Aquarium Virtual Workshop: The Road to Plastic-Free Waters.
  - Dr. Scott Curtis presented “Taking Climate Action in Charleston: Climate Action Plan 2021-2026” to Kiwanis of Charleston.
  - Dr. Scott Curtis presented “The Citadel’s Climate Center: Working with the Lowcountry to Identify and Manage Climate Threats” to College of Charleston, Center for Creative Retirement.
  - Dr. Scott Curtis presented “Climate Change: Impacts on Charleston County” to the Charleston County Resilience Committee



- Dr. Scott Curtis presented “The Lt. Col. James B. Near Jr. USAF ’77 Center for Climate Studies” to The Citadel Club of Charleston
- Number of community Fellows in the Center
  - There has not been growth in this area. There is still one community fellow: Dr. Merrie Koester
- The Citadel Office of Communications and Marketing (OCM) worked closely with NCCS to promote stories, especially related to the HeatWatch event.
  - CBS, News19 Columbia, SC, May 25, 2022 Interviewed in news story: “Citizen scientists’ needed to help map Columbia’s heat this summer”
  - The Post & Courier, Charleston, SC, December 17, 2021 Quoted in news story: “Infrastructure bill could mean more funding for tree planting, canopy cover in SC”
  - The Post & Courier, Letter to the Editor, Charleston, SC, September 7, 2021 “The heat we’re now experiencing is a bit different”
  - The Post & Courier, Charleston, SC, August 22, 2021 Quoted in news story: “Floods, pollution and other impacts of climate change can cause pediatric health issues”
  - The Post & Courier, Charleston, SC, August 5, 2021 Quoted in news story: “Volunteers measure scorching summer heat to aid research: National Heat Watch to show where action needed to protect vulnerable populations”
  - NBC, News2 Charleston, July 27, 2021 Interviewed in news story: “Local groups, city leaders discuss ways to help waterway pollution”

## Takeaways

The NCCS in its second year of operation has developed more solid partnerships and is being approached for thought leadership. For example, during 2021-22 the Director was part of the Charleston HeatWatch leadership team; a member of the Transition Board of the Charleston Resilience Network; on the Advisory Committee for the Sea Grant Coastal Resilience/DoD Liaison; and one of the city’s Climate Ambassadors. The opening of the Climate Center space will provide further opportunities to engage with community members.

## Industry

- Other KPIs Related to Industry
  - Number of climate related internships provided to Citadel students
    - Nothing to report.
  - Number of climate career mentoring workshops attended by Citadel students
    - Nothing to report.
  - Number of industry Fellows in the Center
    - None

## Takeaways

The NCCS Advisory Board recognizes the importance of nurturing public-private partnerships (built into the mission statement) and added Chris Mack of Stantec and Dr. Albany Irick of MUSC. Two New Advisory Board Committees: Development/Fundraising (chaired by Col. Dean-Love) and Internship (chaired by Dr. Mizzell) will also assist with fulfilling the industry KPIs. Furthermore, the NCCS Industry Committee added Dr. Sergey Ponomarov from the Tommy and Victoria Baker School of Business, which should open up new avenues into industry partnerships.

# OTHER MISSION RELATED ACTIVITIES

## The Approval and Construction of the Near Center

- The design (see pictures below) and cost (see table on next page) of the Near Center for Climate Studies space (formerly Grimsley 126) was approved and construction (see pictures below) began in May 2022.



DESCRIPTION	COMMENTS	AMOUNT TO DATE		
<b>DESIGN &amp; PROFESSIONAL FEES</b>				
Architectural Fees	includes engineering fees & cost estimates	\$ 32,000	\$31,980.00	
Third Party Inspections		\$ 3,250	\$3,250.00	Inspe
<b>TOTAL DESIGN &amp; PROFESSIONAL FEES</b>		<b>\$ 35,250</b>		
<b>CONSTRUCTION</b>				
Construction	based on costs of recent renovations	\$ 120,000	\$147,413.00	
			\$8,451.57	IT (demo
AV Upgrades	based on Duckett Anatomage	\$ 35,000	\$49,419.51	
			\$7,768.45	
Climate Technology	estimate until type of technology determined, sent an inquiry on SOS Explorer	\$ 20,000	\$10,300.00	SOS
Furniture	based on Bastin Innovation Lab	\$ 35,000	\$34,759.55	Fur
<b>TOTAL CONSTRUCTION</b>		<b>\$ 210,000</b>		
<b>10% CONSTRUCTION CONTINGENCY</b>		\$ 21,000		
<b>CONSTRUCTION TOTAL</b>		<b>\$ 231,000</b>		
<b>PROJECT TOTAL</b>		<b>\$ 266,250</b>	<b>\$293,342.08</b>	

## Marketing Products

- NCCS now has a roll-up banner to display at conferences, seminars, and other events. See image on page 4. The Center is working with the School's Digital Communications Coordinator on updates to the web page and possibly a trifold brochure.

# BUDGET

This estimate of the 2021-22 budget is derived from Banner/Ellucian.

- Dr. John Lining Professorship
  - Revenue: Funded by TCF Program for Climatological Studies Endowment listed on TCF Grant Summary. Budget to be established with TCF Grant budget entries
  - Expenses:
    - Director Stipend: \$10,200.05 + \$4,356.14 (fringe)
    - Two Advisory Board Meetings: \$906.75
    - Center Banner: \$333.79
    - Registration for SC Sea Grant Symposium: \$75.89
    - Pay for students participating in HeatWatch: \$150
    - Sponsorship of the Charleston Resilience Network: \$2,000\*
    - NCCS construction: \$300,000\*
- TCF - Climatological Research Grant
  - Revenue: Funded by Near Gift held at TCF. Billing will occur quarterly for actual expenses. Budget to be established with TCF Grant budget expenditures
  - Expenses:
    - 2021 Climatological Research Studies Grant: \$59,106 (maximum)\*
    - Salary above Physics base salary: \$27,343.15 + \$11,729.47 (fringe)

\* Not yet encumbered

# GOALS & CHALLENGES

- **Administration and Communication**

One of the biggest challenges in 2021-22 was not having dedicated administrative assistance for the NCCS. Currently the Center is partially supported by the Dean of the Swain Family School of Science and Mathematics' office and the Department of Physics' office, but the Director spends an inordinate amount of time on administrative tasks. A staff assistant would benefit NCCS in several ways:

- Keeping records of revenues and budgetary expenses
- Engaging with TCF in managing proposals, grants, and gifts
- Accurately measuring KPIs by gathering data from Climate Fellows
- Communicating important NCCS meetings and events to Fellows and the larger Citadel community
- Working with OCM to promote NCCS successes and connect with alumni (through press releases, newsletters, and an up-to-date website)

The importance is attested by new strategic plan initiative 6.3.6: increase operational support.

- **Revenue Generation**

The cost of the NCCS space has greatly depleted available funds. To ameliorate this, the Advisory Board has developed a Fundraising Committee led by Col. Dean-Love, with Dr. Scott. The Center will seek out corporate sponsors for future events. F&A is another way to increase funds and for awards issued to the Director, 25% would be transferred from the Dean to the NCCS and 25% would go directly to the Director. It is unclear if the Center will receive a portion of F&A from external awards to other Climate Fellows.

# APPENDICES

- Appendix A

**R. Wes Hayes, Jr.**  
*Chairman*

**Rusty L. Monhollon, Ph.D.**  
*President & Executive Director*



August 25, 2021

General Glenn M. Walters, USMC, President  
The Citadel  
President's Office, 171 Moultrie St.  
Charleston, SC 29409

Dear President Walters:

This letter is to confirm that at its meeting on June 3, 2021, the South Carolina Commission on Higher Education approved the proposal for the Lt. Col. James B. Near, Jr., USAF '77 Center for Climate Studies at The Citadel, to be implemented August.

The following table lists the chronology of the center approval process.

Center Proposal Received	02/10/21
ACAP Consideration	03/25/21
CAAL Consideration	05/13/21
CHE Consideration	06/03/21

Please do not hesitate to contact Dr. Argentin Anderson, Interim Director of the Office of Academic Affairs, should you have questions about the Commission's action.

Sincerely,

Rusty Monhollon, Ph.D.  
President and Executive Director

cc: Dr. Sally Selden, Provost and Dean of the College  
Dr. Karin Roof, Director of Accreditation and Assessment  
Inventory file  
Program file



803-737-2260

1122 Lady St, Ste 400  
Columbia, SC 29201



- **Appendix B**

Minutes of the Advisory Board (AB) Meeting

10:30-3:00, November 11, 2021

Present: Scott Curtis (Director), Fred Holland (Chairperson), Allison Dean Love, Kevin Cooley, Kirstin Dow, Mike Johns, David Johnston, Susan Lovelace, Hope Mizzell, and Geoff Scott.

Representatives of the Citadel Administration (Provost Brig. Gen. Sally Selden), and the Dean of the Swain Family School of Science and Mathematics (Col. Darin Zimmerman) provided a welcome. After introductions (most had not met in person), Dr. Holland emphasized the main purposes of the meeting were to: obtain a status report on the activities of the NCCS, review the activities of and discuss the recommendations of the engagement committee, review the activities of the membership committee including recommendations of new NCCS Advisory Board members.

Dr. Curtis informed the Advisory Board that NCCS had been approved by the SC Board of Higher Education and provided an overview of the state of the Center. He noted NCCS now had 31 faculty fellows and 17 student fellows. Dr. Curtis also discussed plans for a new research/collaboration space for NCCS, infrastructure, highlights from the 2020-21 Annual Report, and provided updates in the areas of research, teaching, and engagement.

MG Steve Smith (Director of the Swain Center for Corporate Engagement and Engaged Scholarship) described the mission of this new Center, which facilitates collaboration between The Citadel's external partners and students and faculty through engaged scholarship experiences.

Dr. Kaelyn Leake (NCCS faculty fellow) gave a brief presentation of her current research activities designing and implementing a cost-effective tidal observational platform to measure water level, flow, and temperature.

Dr. Simon Ghanat (NCCS faculty fellow) gave a brief presentation about a training session he conducted for faculty on November 2, 2021 demonstrating how climate science could be incorporated into their current classes. He demonstrated think-pair-share activities that explored how climate change will impact contact stresses and strength of soils.

Mr. Evan Fish (NCCS student fellow) provided an overview of his senior research project modeling solar radiation with satellite data.

Dr. Johns then summarized the Engagement Committee's report (Appendix 2). The committee activities focused on identification of target audiences for NCCS engagement, which were classified into academic, governmental, NGO, civic, and professional. Several examples of organizations were identified for each category. The Engagement Committee specifically emphasized the importance of engaging with minority community groups.



In the discussion that followed, AB members suggested engaging with churches and faith-based organizations and possibly the local/regional agricultural community. Another organization that should be the focus of NCCS engagement efforts that was identified was the Citadel Alumni Association. The Engagement Committee also suggested the NCCS develop tools and materials to effectively disseminate information and raise awareness of local/regional climate issues and solutions. Ideas for materials included a “canned” PowerPoint presentation about the Center, one-page information sheets on Lowcountry climate threats, and a library of links and resources connected to the Center’s web page. They also suggested developing a “tag line” for the mission statement that would be displayed on all Center materials and communication.

In the AB discussion that followed, the Nature Conservancy, American Rivers, and Lowcountry Alliance for Model Communities were identified as priority engagements. Dr. Johns supported OS Climate <https://os-climate.org/> as a potential partner and Col. Love suggested engaging local insurance and re-insurance businesses and noted her goal was to raise millions of dollars for the NCCS to sustain its activities. Pollution and the relationship between climate extremes and Superfund sites in the Lowcountry was identified by Dr. Dow as an important emphasis area.

Next the Membership Committee presented their report (Appendix 3) and recommendation of seven new board members based on the Mission of the NCCS and gaps the committee identified in the expertise of the current AB:

- **Ms. Debra Lee Hernandez (Executive Director of the Southeast Coastal Ocean Observing Regional Association (SECOORA))**
- **Dr. Albany Cromer (Human Capital Director of Technology and Human Resources for MUSC)**
- **Mr. Joe Coates (Interim Director of the Charleston County Emergency Management Department)**
- **Dr. Paul Sandifer (Director of the Center for Coastal Environment and Human Health at the College of Charleston)**
- **Mr. Allen Clum (General Manager of Mount Pleasant Waterworks)**
- **Mr. Chris Mack (Regional Director and Coastal Engineering Leader of Stantec)**
- **Dr. Brandon Emery (General Pediatrician and Founding Member of the South Carolina Health Professionals for Climate Action)**

The justification for each selection was provided, and a discussion of each recommendation followed. A motion was made and seconded to approve all nominees. The motion was approved unanimously. There was some discussion that there needs to be a pause on additional AB members until a) the scope of the NCCS is clearly defined (see next paragraph) and b) the strategic balance between members who can speak to local operations and climate strategies versus members with national insights and connections for fundraising is duly considered.

Regarding the scope of the NCCS, several AB members expressed a perceived sense that the Center could take on too many activities and be stretched thin. In a follow-up email, Dr. Dow wanted to have the record show the following: “The NCCS Director has successfully generated so much activity, interest and opportunities, but as a faculty member knowing the array of responsibilities he has, it looks to me like the Director will need additional dedicated hands to continue to exceed expectations

and take advantage of future opportunities.” Col. Dean Love also sent some thoughts in an email, which are attached as Appendix 1.

The AB noted that the emphasis and focus on “National Security” was perceived as being broad and could be defined both domestically and internationally. Dr. Curtis emphasized his position that the Center was designed for the Lowcountry and his focus will be on local military installations threatened by climate events (consistent with this is his involvement in SERPPAS and the Sea Grant-DoD Liaison).

Finally, there was some discussion of holding a speaker series or workshop, likely in Fall 2022. This was tabled for the Spring meeting.

#### Action Items:

Dr. Curtis and Dr. Holland will prepare minutes for the AB meeting and circulate them to the AB by 15 December 2021.

Dr. Curtis will convene a meeting of the Executive Committee to relay the outcomes of the Advisory Board meeting. The Executive Committee will also review the list of potential AB members and (with the approval of the Provost) extend formal invitations.

The next AB meeting is tentatively scheduled for Thursday, March 24, 2022. Agenda items will include: 1) on-boarding new AB members, 2) deliberating a workshop hosted by NCCS, 3) discussing climate-related curriculum

**Date:** 5 April 2022

**Subject:** Minutes of 24 March 2022 Advisory Board Meeting of the Near Center for Climate Studies

**Members Present:** Scott Curtis (Director), Fred Holland (Chairperson), David Johnston, Kevin Cooley, Hope Mizzell, Mike Johns, Geoff Scott, Allison Dean Love, Kirstin Dow, Debra Hernandez, Albany Irick, Joe Coates, Paul Sandifer, Allan Clum, Chris Mack, Brandon Emery

**Prepared by:** Fred Holland (Chairperson, Advisory Board) & Scott Curtis (Director, Climate Center)

**Welcome:** Dr. Darin Zimmerman, Dean of the Swain Family School of Science and Mathematics (SFSSM), provided a brief welcome, emphasizing the importance of understanding and communicating the consequences of climate change on coastal environments to future generations and development of a role for SFSSM and The Citadel in this critical arena.

**Introduction of New Members:** The seven (7) newly elected members to the Climate Center introduced themselves and provided an overview of their background and described how they felt they could contribute to the mission and goals of the Near Center for Climate Studies (NCCS).

*Joe Coates* (Director of the Charleston County Emergency Management Department (CCEMD)) noted his strong commitment to The Citadel and stated he viewed his role on the Advisory Board was to function as liaison with CCEMD, including providing internships for Citadel students and increasing public awareness of NCCS.

*Dr. Brandon Emery* (Pediatrician and Founding Member of South Carolina Health Professionals for Climate Action) stated he viewed his role was to assist the NCCS in translating technical information about climate impacts on human health into information that could improve public responsiveness. He would also provide a link between NCCS and the midlands.

*Dr. Albany Irick* (Human Capital Director of Technology and Human Resources at the Medical University of South Carolina) viewed her role as bringing information about NCCS and climate change to the public, especially seniors. She agreed to serve on the Engagement Committee. She would also provide a link between NCCS and MUSC.

*Mr. Chris Mack* (Regional Director and Coastal Engineering Leader at Stantec) stated he had two degrees from The Citadel and had a strong background in coastal engineering with the Charleston District of USACE and FEMA seeking solutions to climate change. He viewed his role with NCCS as assisting the public in understand engineering solutions to climate resilience (e.g., living shorelines).

*Ms. Debra Hernandez* (Executive Director of the Southeastern Coastal Ocean Observing Regional Association (SECOORA)) stated she was responsible for managing the coastal ocean observing data for the Southeast US. SECOORA's mission is to observe, understand, and increase awareness of the coastal ocean and promote knowledge, economic and environmental health through strong regional partnerships. She stated her presence provided a link between SERCOORA and the NCCS. Debra also noted SECOORA hosts student competitions and provides student travel scholarships to present findings at science meetings.

*Dr. Paul Sandifer* (Director of the Center for Coastal Environmental and Human Health at the College of Charleston) noted he was a marine scientist that had held scientific advisory and management positions at SCDNR and NOAA. He is currently working with the NIEHS Center for Oceans and Human Health and Climate Change Interactions at USC. His current activities were related to community engagement, environmental justice, and flooding. His involvement with NCCS would provide a link to oceans and human health researchers and activities.

*Mr. Allan Clum* (General Manager of Mount Pleasant Waterworks) stated he was responsible for management of over \$2 billion in infrastructure that provided water and wastewater services to Mount Pleasant. His management role was related to public health and the environment. He viewed his role on the Council as a link between the "boots on the ground" water and sewer providers and NCCS.

**Progress Report from Scott Curtis (Director NCCS):** Dr. Scott Curtis provided an update of NCCS activities occurring since fall 2021 including:

- An overview of the important role of NCCS in The Citadel Strategic Plan and related Key Performance Indicators (KPI).
- The design of a 735 sq. ft. NCCS space including new technology and furniture. The expected completion date is Fall 2022. Adjacent classrooms are available for breakout sessions during meetings/symposia.
- The creation of a rollup banner for NCCS.
- Plans for a minor in Climate Studies.
- A gift opportunity (through TCF) to endow the Climatological Research Studies Grant program: \$60,000 awarded annually for four to six research projects.
- Planning for a proposed climate symposium concurrent with the opening of the new NCCS space in Fall 2022. Details and speakers are being determined.
- Developing a K-12 teacher climate change workshop with The Citadel STEM Center.
- Evaluating plans for creating a climate change summer camp for high school students.

Debra Hernandez noted that SECOORA had developed a middle-school climate curriculum that she could provide to NCCS as an example of what others were doing in this area.

**Engagement Discussion:** Dr. Mike Johns started a discussion on engagement by providing a brief overview of the Engagement Committee activities and an overview of the committee's report from Fall 2021.

Paul Sandifer suggested that Dr. Merrie Koester, a NCCS Fellow at Burke High School, could play an important role in NCCS engagement initiatives. Merrie is a local science teacher specializing in building partnerships between higher education, local secondary schools, community programs, and civic leaders to effect positive change in historically underserved schools and communities

Chris Mack indicated that a board game for high school students call "Game of Floods" which he had access to was being used as a tool for engaging high school students in understanding flood resilience. He stated he could make this tool available to NCCS.

Scott Curtis reported that a symposium on climate change was being planned in combination with the opening of NCCS space in Fall 2022. Speakers and topics to be included in the symposium are being evaluated, but a previously planned panel "Climate Change and Its Impact on Health and Healthcare", cancelled by COVID, is a strong contender (especially given the current make-up of the Board and recent activities of the Center). Board members were requested to report back to Scott with their thoughts and suggestions.

A link to Scott Curtis' complete presentation is available at [https://citadelits-my.sharepoint.com/:p/g/personal/wcurtis1\\_nation\\_citadel\\_edu/ESx1LPWd-cFEmAzFULe-2IEBHnKyXUzTDA5Ca6fEEVAWZg?e=iQPv9R](https://citadelits-my.sharepoint.com/:p/g/personal/wcurtis1_nation_citadel_edu/ESx1LPWd-cFEmAzFULe-2IEBHnKyXUzTDA5Ca6fEEVAWZg?e=iQPv9R)

**National Security Goal:** Kevin Cooley and Scott Curtis suggested that the National Security focus of NCCS was a unique and an important element of the NCCS mission. A consensus of the Advisory Board agreed, and suggested NCCS national security efforts should focus on and involve assets in SC (e.g., Naval Information Warfare Systems Command (formerly SPAWAR), Marine Corps Recruit Depot Parris Island, Beaufort Naval Air Station, U.S. Coast Guard Base Charleston, Port of Charleston). All agreed that the Advisory Board should seek to include a representative from the national security and climate change community on the Advisory Board. Also, the Board suggested that because of SFSSM's expertise in the cybersecurity arena NCCS should emphasize cyber security as part of its national security activities.

David Johnston indicated that the Membership Committee has discussed national security membership on the Advisory Board at length during their deliberations including trying to recruit Rear Admiral Ann Phillips, USN (Ret), a former member of the Center for Climate and Security's Advisory Board, and former Special Assistant to the Governor of Virginia for Coastal Adaptation and Protection. Unfortunately, Ann did not have time to join our group this spring. David will determine if she is interested now as she may have more time after Virginia elected a new governor.

Board members identified two other potential national security representatives that should be considered by the Membership Committee for inclusion on the Advisory Board including retired Vice Admiral Paul Gaffney, Arnold School of Public Health at USC, and Sherry Goodman of the Wilson

Center. The membership committee was requested to discuss the above suggestions and report back to the Advisory Board by the fall meeting.

**Tag Line:** Most members of Advisory Board agreed that NCCS would benefit from a tag line that linked NCCS to the region and The Citadel. Several members suggested that including phrases like “principled leadership in climate issues” in the tag line potentially had negative connotations for future partners working on similar issues. For example, potential partners may feel NCCS is implying that their initiatives and activities were not based on principled leadership.

A vigorous discussion on whether to use the phrase “climate change” or “climate sciences” followed. The Board generally supported the use of either phrase in a tag line. Several members, however, felt strongly that NCCS could demonstrate principled leadership by using the phrase climate change in its tag line.

Paul Sandifer proposed that “Climate solutions for the Southeast Coast” may be a good starting point for developing a NCCS tag line. The notion of “solutions” was generally well accepted as it fit with NCCS’s mission of transitioning research to operations. Advisory Board members were requested to think about potential tag lines and share them through email.

**Curriculum:** Kirstin Dow brought up the need to think carefully about climate coursework and designing the minor to enhance climate literacy at The Citadel. Since time was short, it was decided to explore this topic further at the Fall 2022 meeting.

**Committees:** During a discussion of future committees, the Advisory Board generally agreed the Board needed to establish two new committees including a:

- (1) *Development or Fundraising Committee* which would be responsible for working with the NCCS Director to identify and seek funding that supported the NCCS mission. COL Allison Dean Love agreed to chair this committee. Geoff Scott agreed to participate on this committee. **Additional volunteers are needed for this committee.**
- (2) *Internship Committee* which would be responsible for working with the NCCS Director to identify, procure, and coordinate internships for students in climate sciences. Dr. Hope Mizzell agreed to Chair this committee. **Additional volunteers are needed for this committee.**

The remaining NCCS Advisory Committees are:

- Membership Committee - David Johnston (chair), Susan Lovelace, Fred Holland.
- Engagement Committee - Mike Johns (chair), Kirstin Dow, Geoff Scott, Albany Irick.

Advisory Board members agreed that everyone should serve on at least one committee for at least one year of their 2-year term. Each Board member is responsible for contacting Scott Curtis indicating which committee they would like to serve on or if additional committees are needed. Committee chairpersons were also requested to convene at least one meeting before the next meeting of the Advisory Board.

**Action Items:**

- Council members were requested to suggest topics, speakers, and format for the proposed Fall Climate Change Symposium. Anyone interesting in working on or participating in this symposium should contact Scott Curtis.
- Advisory Board members were requested to notify Scott Curtis about which committee they desired to serve on by June 1, 2022
- Committee chairpersons of the Development and Internship committees, including Scott Curtis, will convene a committee meeting to define their charge.
- The Membership Committee will convene a meeting to develop plans for recruiting at least one national security representative to the NCCS Advisory Board.
- The Engagement Committee will convene to develop a marketing strategy, especially geared towards industry, vulnerable communities, and military installations in the Lowcountry.



- Appendix C



## *CoastalScience@Work*

**Update from the S.C. Sea Grant Consortium - Issue 29**

**June 3, 2022**



### **Research Symposium a Success!**

Over 100 members of the S.C. coastal science and management communities came together at the Consortium's inaugural [Research Symposium](#) on May 11-12 to share knowledge and explore the vital intersection of science and diversity, equity, and inclusion. The theme of the symposium, *Science + Inclusion = Solutions*, was interspersed throughout the program, co-hosted by [The Citadel's James B. Near Center for Climate Studies](#). The keynote speaker was [Claudia Benitez-Nelson](#), associate dean for Instruction, Community Engagement, and Research at University of South Carolina, who addressed "Bridging Research and Diversity, Equity, and Inclusion in Coastal Marine Ecosystems." A mixture of round-table discussions and



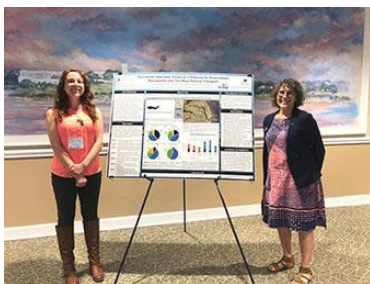
presentations by researchers allowed participants to network in person after a long period of remote connections. Students and professionals delivered poster presentations at an evening reception, with a special address from Rick DeVoe, the Consortium's former executive director, on the importance of student research and mentoring.



The symposium also highlighted needs and opportunities to enhance diversity in coastal- and marine-science fields. An engaging panel discussion focused on the "Intentional Intersection of DEI and Research for Impactful Outcomes." Panel members were Alli Crandell, interim director of the [Joyner Institute for Gullah and African Diaspora Studies](#) at Coastal Carolina University; Marilyn Hemmingway, president and CEO of the [Gullah Geechee Chamber of Commerce](#); Charissa Owens, director of [Diversity Education and Training at the College of Charleston](#); and Atiya Stokes-Brown, vice president for [Diversity, Equity, and Inclusion at Coastal Carolina University](#).



An immersive training, "Incorporating DEI in Collaborative Research," was facilitated by Latesha Murray with [University of South Carolina's S.C. Collaborative on Race](#), after which working groups convened to reflect on insights gained from the panel discussion and training session.



The closing reception featured the "M. Richard DeVoe Student Poster Award," which went to Shannon Bley, a graduate student in [marine biology at College of Charleston](#), for her poster titled, "Stormwater Detention Ponds as a Pathway for Downstream Microplastic and Tire Wear Particle Transport."

The Consortium will continue its work to promote [Diversity, Equity, and Inclusion](#) at all levels of research and engagement, which was further enhanced by information gained through this symposium. Based on enthusiastic reviews, the Consortium intends to host a symposium for the S.C. research community annually. For more information, contact [Brita Jessen](#), Interdisciplinary Research and Partnerships lead, [via email](#) or by phone at (843) 953-6417.

*Special thanks to Brita Jessen for writing this article and to Emmi Palenbaum, graduate assistant, for providing photos.*

Interested in coastal research, education, and outreach? Join our email list to receive Consortium news, publication announcements, and upcoming events!

[JOIN OUR EMAIL LIST](#)

Feel free to forward this email to a friend or colleague.

Thank you!



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