

# SCIENTIFIC LITERACY AND WORKFORCE DEVELOPMENT

---

## IMPACTS

### **S.C. Sea Grant Consortium Efforts Encourage Youths to be Ambassadors of Community Hurricane Resilience**

**Susan Lovelace and Amanda Guthrie, S.C. Sea Grant Consortium**

**Merrie Koester, University of South Carolina Center for Science Education**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) supported a Consortium researcher in developing and hosting a workshop to train youth educators about hurricanes. The workshop included numerous NOAA resources and culturally responsive activities for students to learn about the science behind hurricane formation and steps to be more resilient during a storm.

**RELEVANCE:** Studies on hazard risk communication reveal that unless messaging is consistent with the beliefs, needs, and goals of a given social group, it is not likely to be acted upon. With few exceptions, historically marginalized communities are at greater risk in disaster situations, while community-based organizations that serve and represent these marginalized communities are not well-linked with community-wide disaster loss reduction and preparedness efforts.

**RESPONSE:** A Consortium researcher expanded upon the Kids Teaching Flood Resilience program ([www.kidsteachingfloodresilience.com/](http://www.kidsteachingfloodresilience.com/)), developed in response to a key challenge noted in the City of Charleston's 2015 Sea Level Rise Strategy Plan. A workshop was held in September 2022 to train youth educators how to teach about hurricanes and improve science literacy and hurricane resilience.

**RESULTS:** Sixth-grade teachers from seven schools attended a workshop in September 2022 (covered topics: how to teach hurricane formation, coastal tides and storm surge, NOAA resources to track storms, and hurricane safety). The workshop activities were culturally responsive and the activities integrated art and science to enhance science literacy. Teachers implemented the training in fall 2022 and developed/enhanced several projects in Title 1 schools aimed at educating students and communities of the risks of sea-level rise.

**PARTNERS:** University of South Carolina Center for Science Education

### **S.C. Sea Grant Consortium's Environmental Education Certification Program Leads to New Paid Position**

**E.V. Bell, S.C. Sea Grant Consortium**

**RECAP:** The growth of the Palmetto Environmental Education Certification (PEEC) program necessitates the creation and hiring of an Environmental Education Association of South Carolina (EEASC) part-time executive director to assist with fiscal oversight and programmatic coordination.

**RELEVANCE:** In 2014, the S.C. Sea Grant Consortium (Consortium) provided leadership in the development of PEEC, South Carolina's first environmental education certification program. Launched in 2018, this two-year

program requires attendance at four workshops, completion of eight online modules and 90 hours of electives, and the implementation of a capstone project. Between 2018 and 2021, PEEC was fiscally administered and programmatically coordinated by the Consortium. As PEEC grows, there are future capacity considerations to support long-term sustainability.

**RESPONSE:** The EEASC (the Consortium is a long-standing board member) is a founding member of PEEC. EEASC serves as the state affiliate for the North American Association for Environmental Education. Because of the organization's growth and PEEC's mission alignment, the EEASC board of directors unanimously voted in 2021 to adopt PEEC as one of the flagship offerings. As an official offering of EEASC, the organization assumed fiscal responsibility and co-coordination of the program with the Consortium.

**RESULTS:** To meet the needs of a growing organization, EEASC launched a robust fundraising campaign in 2021 and 2022 to raise monies for the hiring of a part-time executive director. Part of the impetus to create this new position was based on the adoption of the PEEC program and the increased personnel needs to oversee the program. In 2022, EEASC formally hired their first-ever part-time executive director who spends 50% of their time on PEEC-related aspects.

**PARTNERS:** Environmental Education Association of South Carolina

## **Consortium Enters into Memorandum of Agreement to Transition the Environmental Education Certification Program to EEASC**

### **E.V. Bell, S.C. Sea Grant Consortium**

**RECAP:** A Memorandum of Agreement was signed by the S.C. Sea Grant Consortium (Consortium) and the Environmental Education Association of South Carolina (EEASC) to formalize the process by which to transfer fiscal and programmatic responsibility and coordination.

**RELEVANCE:** In 2014, the Consortium provided leadership in the development of PEEC (Palmetto Environmental Education Certification), South Carolina's first environmental education certification program. Launched in 2018, this two-year program requires attendance at four workshops, completion of eight online modules and 90 hours of electives, and the implementation of a capstone project. The Consortium fiscally administered and programmatically coordinated PEEC in 2018–2021. As PEEC continues to grow, there are future capacity considerations to support its long-term sustainability.

**RESPONSE:** The EEASC (the Consortium is a long-standing board member) is a founding member of PEEC. EEASC serves as the state affiliate for the North American Association for Environmental Education. Because of the organization's growth and PEEC's mission alignment, the EEASC board of directors unanimously voted in 2021 to adopt PEEC as one of the flagship offerings. As an official offering of EEASC, the organization assumed fiscal responsibility and co-coordination of the program with the Consortium.

**RESULTS:** The Consortium entered into a memorandum of agreement (MOA) with EEASC in 2022, which was agreed upon by both organization's executive directors. The MOA outlined a timeline and deliverables for the transfer of fiscal and programmatic administration of the PEEC program from the Consortium to EEASC. The fiduciary aspects of the PEEC program fully transferred to EEASC in December of 2022 with the programmatic coordination to follow by 2024.

**PARTNERS:** Environmental Education Association of South Carolina

## S.C. Sea Grant Consortium's Beach Sweep/River Sweep Litter Cleanup Saves Taxpayers \$203,711 in 2022

**Susan Ferris Hill, S.C. Sea Grant Consortium**

**RECAP:** Beach Sweep/River Sweep has economic, environmental, and societal benefits. In 2022, 2,092 coastal volunteers collected over 4 tons of litter, and covered 94 miles of South Carolina's beaches, marshes, and waterways. There were 65 site captains at 39 cleanup locations in the coastal counties. The number of volunteer hours was 6,406. The dollar value of volunteers' time equals \$203,711. The state's natural resources are cleaner, safer, and more beautiful for all to enjoy.

**RELEVANCE:** Natural resources account for \$33.4 billion in annual economic output for the state (S.C. Department of Natural Resources, 2016). And according to the S.C. Department of Parks, Recreation, and Tourism, tourism spending reached \$29 billion in 2022. Clean beaches, marshes, and waterways are critical to support commercial and recreational boating and fishing, wildlife viewing, tourism, and other industries. A litter-free environment also contributes positively to quality of life.

**RESPONSE:** The S.C. Sea Grant Consortium and S.C. Department of Natural Resources organize the Beach Sweep/River Sweep litter cleanup. Through the use of volunteers, the cleanup contributes to the economic, environmental, and societal well-being of the state. Participants and the public are more informed about natural resource issues, such as litter's detrimental effects on the landscape and wildlife, and people are empowered to take action and become environmental stewards.

**RESULTS:** In 2022, 2,092 coastal volunteers collected over 4 tons of litter, covered 94 miles of beaches, marshes, and waterways, and recycled as much as possible. There were 65 site captains at 39 cleanup locations. The number of coastal volunteer hours was 6,406. The dollar value of volunteers' time equals \$203,711 (Independent Sector, 2023).

**PARTNERS:** S.C. Sea Grant Consortium and S.C. Department of Natural Resource

## ACCOMPLISHMENTS

### S.C. Sea Grant Consortium Completes First Round of Community Engaged Internship Program in South Carolina

**Matt Gorstein and Brita Jessen, S.C. Sea Grant Consortium**

**Katie Finegan, S.C. Sea Grant Consortium and Coastal Carolina University**

**Jeff Steinmetz, Francis Marion University**

**RECAP:** The S.C. Sea Grant Consortium completes first round of Community Engaged Internship (CEI) program in South Carolina, hosting three interns in the summer of 2022.

**RELEVANCE:** There is a need to broaden participation in marine and coastal professions by providing training and mentorship to the next generation of scientists, decision-makers, and citizens. Specifically, efforts toward cultivating meaningful, positive, and compensated internship experiences for students of color and those who come from underserved communities are necessary in this process.

**RESPONSE:** Following recent implementation by other Sea Grant programs, the Consortium established a

CEI Program in SC to provide opportunities for undergraduate students from marginalized and underserved communities to conduct summer community-based projects that focus on community environmental and resilience needs as aligned with the Consortium's strategic plan.

**RESULTS:** Three undergraduate summer interns worked on three separate projects in 2022. One from the College of Charleston worked on a project to code and analyze qualitative data collected through focus groups as a part of the Gullah Geechee Seafood Trail; one from Francis Marion University worked to identify locations for water level sensors in underserved communities; and one from NC State A+T worked to develop communications materials for a groundwater monitoring project in Beaufort County.

**PARTNERS:** Francis Marion University, Gullah Geechee Chamber of Commerce

## **S.C. Students Gaining Immersive Experiences in Coastal Conservation Careers**

**Julie Binz, Jessica Kinsella, and Olivia Bueno, S.C. Department of Natural Resources**

**RECAP:** S.C. Sea Grant Consortium (Consortium) staff and researchers are working with public school teachers, counselors, and state partners to develop the Coastal Conservation Careers Network, the Coastal Conservation Careers Toolkit, and engage with the STEMersion program to increase students' interest in pursuing a coastal conservation career. This project has created five full-time jobs for two months as summer internships with the South Carolina Department of Natural Resources (SCDNR) Marine Resources Division.

**RELEVANCE:** Science, technology, engineering, and math (STEM) fields lack racial, ethnic, socioeconomic, ability, and gender diversity. Underrepresented communities have limited scientific literacy, preventing students from pursuing scientific and other coastal conservation careers (such as ecotourism, fisheries, or environmental communications). Students need a STEM identity, or ability to "see themselves as scientists," to consider it professionally. Therefore, students must have hands-on experiences to maintain interest and build skills needed for a sustaining coastal career.

**RESPONSE:** Consortium staff and partners built the Coastal Conservation Careers Network encompassing several school districts, S.C. Chamber of Commerce, Gullah Geechee National Heritage Corridor, and South Carolina Aquarium. The team hosted a focus group with educators to discuss early careers in coastal conservation. The Coastal Conservation Careers Toolkit (developed as a website for youth and mentors) will include conservation organizations in SC, types of careers, scholarship and college information, and skills needed to pursue a conservation career.

**RESULTS:** In addition to over 1,500 students participating in coastal education and career showcases, five college students participated in a summer internship with the S.C. Department of Natural Resources, working for Coastal Reserves and Outreach, Reef Fish Survey, Inshore Fisheries, South Carolina Oyster Recycling and Enhancement, and Mariculture sections. Interns received weekly professional training such as resume writing, boat trailering, oyster reef building, and job searching. All mentors received training on cultural humility and inter-generational mentorship.

**PARTNERS:** South Carolina Aquarium, S.C. Department of Commerce

## S.C. Sea Grant Consortium Builds Capacity Within Heritage Academy and Helps Them Apply for Federal Funding

**Matt Gorstein and EV Bell, S.C. Sea Grant Consortium**

**Alana Jenkins, Heritage Academy**

**Marilyn Hemingway, Gullah Geechee Chamber of Commerce**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) partnership with the Gullah Geechee Chamber of Commerce (Chamber) results in more partnerships and more avenues for organizations led by members of underserved communities to apply for federal funding.

**RELEVANCE:** Communities in the Beaufort area have been impacted by climate hazards and extreme weather conditions. Also relevant is how sea-level rise, coastal development, and privatization of water-adjacent land are limiting access to traditional fishing and harvesting grounds of Gullah Geechee community members. This threatens community way of life and well-being from a subsistence and cultural perspective as agriculture and fishing are important to both livelihood and culture.

**RESPONSE:** The Consortium developed a partnership with the Heritage Academy, a place-based charter school slated to open in 2024 to apply for funding from the NOAA Office of Education to implement a place-based environmental literacy course. The Consortium assisted the Heritage Academy in the grant writing, concept development, and budgeting process—culminating in their first successfully submitted federal grant application for \$391,000 through the Chamber as the fiscal sponsor.

**RESULTS:** The proposal received favorable reviews, and is on the waitlist to receive funding.

**PARTNERS:** Heritage Academy, Gullah Geechee Chamber of Commerce

## S.C. Sea Grant Consortium Extension Team Contributes to Multiple Trainings at Annual ACE Basin NERR Symposium

**Matt Gorstein and Brooke R. Saari, S.C. Sea Grant Consortium**

**C. Guinn Wallover, Clemson University**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) extension team lead two roundtable trainings at the ACE Basin NERR symposium—one on best practices for researchers engaging with extension professionals and another on estimating the economic benefits of workshops and trainings conducted by coastal science outreach programs.

**RELEVANCE:** Building effective and meaningful coastal science projects that have direct user outcomes require ample planning and coordination throughout. If a research team is not familiar with the end users they are producing products for, successful outcomes are less likely. Additionally, organizations that conduct coastal science outreach programs have to report on their work, often times including information on economic benefits.

**RESPONSE:** Members of the Consortium extension team worked to develop resources and best practices for researchers to use when engaging extension professional in their area; and the team developed a training and list of resources to use when estimating the economic benefits of workshops and trainings—with the goal in mind of using of these metrics in communications products and for reporting requirements.

**RESULTS:** Twenty-five participants attended each of the trainings.

**PARTNERS:** SCDNR Ace Basin National Estuarine Research Reserve, Clemson University

## **S.C. Sea Grant Consortium Launches “Careers” Microsite to Broaden Reach to Diverse Undergraduate and Graduate Students**

**Louis Heyward, S.C. Sea Grant Consortium**

**RECAP:** Developed by the Consortium’s Diversity, Equity, and Inclusion Workgroup to reach a diverse population of undergraduate and graduate students about job opportunities at the S.C. Sea Grant Consortium, the new “Careers” website provides information about jobs, fellowships, and internships, as well as an opportunity to match students with a mentor on the Consortium staff. Mentors answer questions about what Sea Grant and related jobs are needed, career and fellowship opportunities, and education requirements.

**RELEVANCE:** There is a need to engage a diverse population of undergraduate and graduate students in S.C. Sea Grant Consortium’s research, fellowships, internships, mentorships, and professional staff opportunities (including 45 business management, accounting, communications, graphic design, and human resources positions). There is also an increasing demand for a workforce skilled in Science, Technology, Engineering, Art, and Math (STEAM) disciplines to accommodate the industrial growth of South Carolina and to meet workforce needs in ocean science fields.

**RESPONSE:** In September 2021, the Consortium’s Diversity, Equity and Inclusion Workgroup launched a “Careers” microsite ([careers.scseagrant.org](https://careers.scseagrant.org)) for undergraduate and graduate students who may be interested in job opportunities, fellowships, internships, and locating a mentor in their field of study. The website introduces students to the Consortium, lists member institutions, describes the variety of job needs in Sea Grant, and encourages students to be matched with a mentor on staff.

**RESULTS:** During this reporting period 27 students contacted the Consortium via the Career microsite. In total 61 students have reached out to the S.C. Sea Grant Consortium via the website, and each of these individuals were contacted by Sea Grant staff. As a result, the majority of these students were given consults regarding their career paths, and 19 have been paired with a Sea Grant mentor. The students contacted have been interested in water conservation, economics, environmental policy, environmental law, and public health.

## **S.C. Sea Grant Consortium Educator Wins 2022 SCMEA President’s Choice Award**

**E.V. Bell, S.C. Sea Grant Consortium**

**RECAP:** The S.C. Sea Grant Consortium’s (Consortium) marine education specialist won her third President’s Choice Award from the South Carolina Marine Educators Association (SCMEA).

**RELEVANCE:** The SCMEA provides opportunities for learning about and connecting with the coastal environment. Established in 1988, SCMEA operates via a board of directors, of which the Consortium has served in a leadership capacity for many years. The Consortium also supports SCMEA classroom grants and scholarships, maintains professional membership and representation within the organization, and actively participates during the annual conference by presenting on current projects.

**RESPONSE:** During the annual SCMEA conference, two awards are given out to current members, one of which is the President’s Choice Award. This award is given out at the discretion of the current president to a member they want to recognize for their contributions to the organization.

**RESULTS:** The 2022 President's Choice Award was given to the Consortium's marine education specialist for her assistance to the organization with the conference, mentorship of board members, and collaborative project planning with other environmental education organizations.

**PARTNERS:** South Carolina Marine Educators Association

## **S.C. Sea Grant Consortium Awards Two Diversity Scholarships for Palmetto Environmental Education Certification Course**

**E.V. Bell, S.C. Sea Grant Consortium**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) awards two diversity, equity, and inclusion scholarships for participation in the 2022–2024 Palmetto Environmental Education Certification (PEEC) course.

**RELEVANCE:** Based on 2019 U.S. Census Bureau data, 37.4% of SC identifies as a person of color; however, a lack of diversity persists within the careers of environmental sciences, education, and interpretation. In 2018, the PEEC program launched SC's first environmental education certification program for formal/nonformal educators. One of the goals of PEEC is to support diversity in the environmental education field. In 2021, PEEC was adopted by the Environmental Education Association of South Carolina (EEASC).

**RESPONSE:** On behalf of the EEASC, the Consortium secured funding from the North American Association for Environmental Education (NAAEE) ee360 grant program in 2021 to support a variety of environmental education efforts. A portion of the funding was earmarked for two diversity scholarships for participation in the PEEC program. The scholarship amount totaled \$1,200 and covered the registration cost of the two-year course for two individuals.

**RESULTS:** The two diversity scholarships were awarded upon review of the applicants to the 2022–2024 cohort. The criteria for the awards was based on a variety of factors including: completion of the general PEEC application, letter of recommendation, whether an individual identified as part of a historically marginalized group, and/or if their primary teaching audiences identified as such.

**PARTNERS:** Environmental Education Association of South Carolina

## **Consortium Graduates 11 Educators from the Environmental Education Certification Program and Welcomes New Cohort**

**E.V. Bell and Morgan Treon, S.C. Sea Grant Consortium**

**RECAP:** The Palmetto Environmental Education Certification (PEEC) program graduates 11 educators from the 2020–2022 cohort and accepts 15 educators for the 2022–2024 cohort. As of 2021, PEEC was formally adopted as a program offering of the Environmental Education Association of South Carolina.

**RELEVANCE:** In 2014, the S.C. Sea Grant Consortium (Consortium) disseminated a state-wide needs assessment to gauge interest in an environmental education certification program. Based on 2014–2018 results, a Consortium-led team of 15 individuals (representing various state, higher education, non-profit organizations) developed the state's first environmental education certification course, PEEC. This two-year program requires attendance at four workshops, completion of eight online modules and 90 hours of electives, and the implementation of a capstone project.



**RESPONSE:** PEEC graduated its first cohort of 13 educators in August 2020 after pivoting mid-course to an online format due to COVID-19. In August 2022, a second cohort of 11 educators received their PEEC certification, which brings the total PEEC graduates to 24. The application period opened in August 2022 for the third cohort (2022–2024).

**RESULTS:** More than 30 applications were submitted for the third PEEC cohort (2022–2024). The application materials (online application, self-assessment, and letter of recommendation) were distributed to an external review team for their feedback and scoring. Based on those results, invitations to join the upcoming current cohort were extended to 15 formal and nonformal educators.

**PARTNERS:** Environmental Education Association of South Carolina, Charleston County Park and Recreation Commission, Francis Marion University, College of Charleston, S.C. Department of Natural Resources, Lynches River County Park

## **S.C. Sea Grant Consortium Engages 100 Volunteers in Community Science Salt Marsh Restoration Project**

**E.V. Bell, S.C. Sea Grant Consortium**

**Peter Kingsley-Smith, Ph.D., S.C. Department of Natural Resources**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) coordinated the engagement of more than 100 volunteers in salt marsh restoration activities within the Charleston watershed.

**RELEVANCE:** Salt marshes in South Carolina face pressure from rising seas and increasing coastal populations. Living shoreline projects can mitigate impacts, revitalize degraded areas, and provide stewardship opportunities. In 2019, the Consortium, Clemson University, and the South Carolina Aquarium partnered with the S.C. Department of Natural Resources (SCDNR) on a National Oceanic and Atmospheric Administration-funded living shoreline project that engages Charleston-area community members in oyster and *Spartina alterniflora* restoration and supports the development of new resources.

**RESPONSE:** The Consortium coordinated community volunteer events related to *Spartina alterniflora* cultivation, transplanting, and long-term monitoring at a restoration location within the Charleston watershed. These events included: recruitment of volunteers, *S. alterniflora* seed collection and planting, transplanting of mature *S. alterniflora* plants to designated restoration areas, and monitoring efforts documenting the establishment and growth of the transplanted plants.

**RESULTS:** More 100 volunteers participated in nine community events resulting in the planting of 6,175 *S. alterniflora* plants for a total of .91 acres of restored marsh for the entire project.

**PARTNERS:** S.C. Department of Natural Resources, Clemson University, and South Carolina Aquarium

## **S.C. Sea Grant Consortium Hosts First Science-Educator Symposium**

**E.V. Bell, S.C. Sea Grant Consortium**

**RECAP:** More than 70 scientists and educators attended the first REconnect (Researcher-Educator) Symposium hosted at the South Carolina Aquarium in partnership with the S.C. Sea Grant Consortium (Consortium).



**RELEVANCE:** Within South Carolina, there are few opportunities that provide a platform for a two-way exchange of information between scientists and educators. Coastal scientists are not often aware of opportunities to extend their research and resources to educators; conversely, educators are often not aware of the scientific experts and opportunities in their area. Providing a platform where both educators and scientists can exchange information, needs, and ideas provides a wholesome and transformative learning experience for all participants.

**RESPONSE:** The Consortium partnered with the South Carolina Aquarium to host the first Reconnect Symposium. Hands-on displays, specimens, demonstrations, and other engaging methods to convey research topics were encouraged. The Consortium created a “Scientist Tip Sheet” for best information delivery practices. Research aligned with the 2021 *College and Career Ready Science Standards* and scientists’ abstracts available via QR code. Educators were provided scientists’ backgrounds, alignment of research to the state standards, and suggested ways to facilitate conversation.

**RESULTS:** Seventeen scientists representing nine organizations and more than 55 formal and nonformal educators from across the state attended the first REconnect Symposium hosted by the S.C. Sea Grant Consortium and the South Carolina Aquarium in July 2022 at the aquarium.

**PARTNERS:** South Carolina Aquarium

## **S.C. Sea Grant Consortium Provides Quarterly Diversity Staff Trainings**

**Marlena Davis, S.C. Sea Grant Consortium**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) provided quarterly staff trainings on topics related to incorporating diversity, equity, and inclusion (DEI) into agency-wide and program-specific projects.

**RELEVANCE:** Increasing diversity among staff members, stakeholders, and end-users continues to challenge not only the Consortium but geosciences-based organizations across the country. Along with increasing diversity, ensuring that programs, resources, and opportunities are equitable and inclusive adds important layers for consideration and implementation. Diversity statistics continue to be low among career geoscientists, and end-users of scientific information for personal and community decision-making are often not reflective of the larger community.

**RESPONSE:** In June 2020, the Consortium initiated efforts to create an agency-wide diversity plan based on input from staff. Of interest to the majority of staff were diversity training opportunities for personal and professional growth. Using this feedback, four diversity staff trainings were scheduled: March 2022, Agency directed DEI work plan review; May 2022, Consortium’s Research Symposium (Part 1) and Reflection (Part 2); August 2022, LGBTQ Awareness.

**RESULTS:** During the 2022, four diversity, equity, and inclusion trainings were held for Consortium staff, during which more than 75% of staff attended.

## **S.C. Sea Grant Consortium Launches New Diversity, Equity, and Inclusion Staff Enrichment Opportunity**

**Marlena Davis, E.V. Bell, Louis Heyward, and Emmi Palenbaum, S.C. Sea Grant Consortium**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) created an Employee Resource Group (ERG) as part of the

agency's efforts to broaden their diversity, equity, and inclusion efforts.

**RELEVANCE:** Increasing diversity among staff members, stakeholders, and end-users continues to challenge not only the Consortium but country-wide geosciences-based organizations. Along with increasing diversity, developing a culture of inclusivity and equity ensuring that programs, resources, and opportunities are equitable and inclusive adds important layers for consideration and implementation. Diversity statistics continue to be low among career geoscientists, and end-users of scientific information for personal and community decision-making are often not reflective of the larger community.

**RESPONSE:** In June 2020, the Consortium initiated efforts to create an agency-wide diversity plan based on input from staff (which was voted on and accepted by the board of directors in September 2020). The majority of staff were interested in diversity training and engagement opportunities for personal and professional growth. Using this feedback, an employee resource group was developed to provide enrichment opportunities for staff to celebrate and explore the diversity within our community and staff.

**RESULTS:** As part of the ERG's efforts, a lunch series, "Courageous Conversations," is hosted on a monthly or bi-monthly basis. During this time, staff are invited (optional) to join during their lunch break to discuss different DEI-related topics. To facilitate these discussions, conversations cards are used that provide suggested topics. During this reporting period, there have been three "Courageous Conversations" hosted for between 8 and 15 staff.

## **S.C. Sea Grant Consortium's Youth Salt Marsh Restoration Program Included in Two-Year, Title 1 Education Program**

**E.V. Bell and Morgan Treon, S.C. Sea Grant Consortium**  
**Michael Hodges, S.C. Department of Natural Resources**

**RECAP:** The S.C. Sea Grant Consortium's (Consortium) From Seeds to Shoreline® (S2S) program serves as foundational component in a two-year education initiative at a Title 1 Elementary School, Edith L. Frierson Elementary School (Frierson)—a rural, Title 1 school that is located less than one mile from the nearest salt marsh and has a majority historically marginalized student body.

**RELEVANCE:** Opportunities for schools—that are socio-economically disadvantaged (e.g., Title 1 status) and/or host a predominantly historically marginalized population—to connect environmental education with recreational fishing are limited across S.C. While there are salt marsh ecosystem-focused environmental education programs as well as a multitude of recreational fishing businesses, there is little collaboration. Combining environmental education and ethical recreational fishing practices deepens not only youth environmental stewardship, it connects on a cultural level (for many S.C. communities).

**RESPONSE:** In 2022, the S.C. Department of Natural Resources (in partnership with the Consortium, Coastal Conservation Association, Ocean Aid 360, and recreational fishing businesses) submitted a proposal to the National Oceanic and Atmospheric Administration's (NOAA) Restoration Center to support a two-year program working with Frierson to provide salt marsh education and recreational fishing opportunities. The Consortium's S2S youth salt marsh restoration program is the foundation of the education effort, where students cultivate and transplant *Spartina alterniflora*.

**RESULTS:** The S.C. Department of Natural Resources received \$155,000 in funding from NOAA to support the two-year habitat restoration and recreational fishing education project at Frierson. The project launched in fall

2022 with partners leading a variety of classroom salt marsh education activities and journaling for 150 PreK–5 grade students. Through the S2S program, the students planted *Spartina alterniflora* seedlings at a campus-located greenhouse and will cultivate these seedlings to transplant in spring 2023.

**PARTNERS:** S.C. Department of Natural Resources, Edith L. Frierson Elementary School, National Oceanic and Atmospheric Administration

## **S.C. Sea Grant Consortium's *The Lettered Olive* E-newsletter Keeps Educators Informed on Opportunities and Resources**

**E.V. Bell and Susan Ferris Hill, S.C. Sea Grant Consortium**

**RECAP:** Five issues of the *The Lettered Olive* education e-newsletter were produced and delivered to 812 individual stakeholders with an average open rate of 37% and click-through rate of 3.8%.

**RELEVANCE:** There is a need to deliver timely, frequent, and effective communication to formal and nonformal educators across the state regarding the S.C. Sea Grant Consortium's (Consortium) professional development opportunities, K-12 student resources, and employment opportunities.

**RESPONSE:** The communications and education services staff continue to produce and deliver *The Lettered Olive* (the Consortium's education e-newsletter) to 812 individuals through the platform Constant Contact. Each newsletter begins with a short feature about a native plant or animal species found within the coastal plain and follows with information regarding upcoming workshop trainings, educator and student resources, grant and employment opportunities, and other relevant information.

**RESULTS:** Five issues of *The Lettered Olive* education e-newsletter were produced and delivered during FY22-23. The average open rate was 37%, mirroring the industry average. The click rate was 3.8%, which was nearly double the industry average of 2%.

## **S.C. Sea Grant Consortium Designs and Edits 58 Products to Support Mission**

**Susan Ferris Hill, Crystal Narayana, and E.V. Bell, S.C. Sea Grant Consortium**

**RECAP:** The S.C. Sea Grant Consortium designed, edited, and facilitated the development of 58 products in support of the agency programs and focus areas. Digital communications and news products as well as flyers, brochures, reports, and guides were produced to support programs and projects conducted by Consortium staff, researchers, and partners.

**RELEVANCE:** As South Carolina's coastal population continues to grow and experiences the impact of climate change, there is a continuous need to build public awareness, understanding, and scientific literacy about the complexities of living, working, and playing in coastal South Carolina. The future of the conservation and management of coastal resources depends on a robust effort to foster stewardship and increase public awareness about the societal value and ecological function of South Carolina's coastal resources.

**RESPONSE:** S.C. Sea Grant Consortium's Communications and Education Team assisted with the development of 58 products to support administration, extension, communications, and education programs.

**RESULTS:** Fifty-eight digital and printed products included mini-websites, guides, reports, workshop flyers,

brochures, e-newsletters, and magazines. Programs supported include From Seeds to Shoreline, Beach Sweep/ River Sweep, and the Healthy Ponds Series, as well as products for programmatic areas (including nature-based tourism, sustainable development, water quality, weather and climate vulnerability and resilience, and fisheries and aquaculture).

## S.C. Sea Grant Consortium Produces Graphics That Inspire Participation

### Crystal Narayana, S.C. Sea Grant Consortium

**RECAP:** The S.C. Sea Grant Consortium produced graphics and branded products to support programs and the agency's mission.

**RELEVANCE:** Well-designed, attractive products increase their use in educational settings and promote participating in programs. Branded designs enhance the reach of the S.C. Sea Grant Consortium and promote the brand as a source of science-based information that can be relied on.

**RESPONSE:** Communications staff worked with extension staff and their partners to design 32 promotional items including flyers, handouts, and signs, and designed 4 guides and reports as well as supporting materials such as charts and social media tiles.

**RESULTS:** Communications staff consistently produced collateral products that meet the recognition and educational needs of programs. This included materials for programs such as the SCSGC Research Symposium, S.C. Nature Based Tourism Association, From Seeds to Shoreline, and the Healthy Ponds Series. Publications designed included *Beaufort County Long Term Resilience Strategy Report*, *South Carolina Commercial Fisheries Infrastructure Needs Assessment*, and *Benefits of Increased Mariculture*.

## S.C. Sea Grant Consortium Website Continues to Expand in Content and Access

### Susan Ferris Hill and Crystal Narayana, S.C. Sea Grant Consortium

**RECAP:** The S.C. Sea Grant Consortium added 32 news articles and 73 content pages to the website ([www.scseagrant.org](http://www.scseagrant.org)), a source of science-based information for decision-makers and the public. In FY22-23, the website received 127,192 page views, a 5.8% increase from FY21-22.

**RELEVANCE:** Decision-makers and the public should be informed about the coastal and marine environment and related community issues. The S.C. Sea Grant Consortium website continues to be a significant source of this information. The website provides information about Consortium-funded and partnered research, education, and outreach programs.

**RESPONSE:** The Communications staff maintained the Consortium's website ([www.scseagrant.org](http://www.scseagrant.org)) and updated the content regularly with input from staff and Consortium member institutions. Additions included news articles, research project updates, and information about extension and education projects. Information about projects were added as they were started (with reports, data, and other information added as they were produced). *Coastal Heritage*, an issue-based magazine written in long form, although a print product, was also formatted for online reading.

**RESULTS:** The website received 127,192 page views, a 5.8% increase from FY21-22. The *Coastal Heritage* publications drew over 51,000 views, with *Coastal Heritage's* "Carolina's Gold Coast: The Culture of Rice and Slavery" receiving the

most at 13,869. In addition, 32 news articles and 73 content pages were added to the website this reporting year.

## **S.C. Sea Grant Consortium's *CoastalScience@Work* E-newsletter Builds Awareness of Agency's Programmatic Efforts**

**Susan Ferris Hill and E.V. Bell, S.C. Sea Grant Consortium**

**RECAP:** Nine issues of *CoastalScience@Work* e-newsletters were produced and delivered to an average of 970 individual subscribers. The average open rate was 44.6% and the average click-through rate was 4.2%, both of which are considerably higher than averages for all industries.

**RELEVANCE:** There is a need to deliver timely, frequent, and effective communications to inform target audiences and the general public about the Consortium's science-based products, programs, and staff and institutional changes.

**RESPONSE:** The Communications and Education Services staff continue to produce and deliver *CoastalScience@Work*, the Consortium's e-newsletter, to an average of 970 individual subscribers through the platform Constant Contact. Email lists are segmented and include the Board of Directors and alternates; Program Advisory Board; VIPs; Extension and Education advisory committees; research and finance liaisons; National Sea Grant Office; member institution PIOs; S.C. African American Heritage Commission members; S.C. General Assembly members; U.S. Congressional staff; Consortium staff; and the general public.

**RESULTS:** Nine issues of *CoastalScience@Work* were produced and delivered to an average of 970 individual subscribers during FY22-23. The average open rate was 44.6%, which is over 20% higher than the average of 37% for all industries. The average click-through rate is 4.2%, which is about 50% higher than the average click-through rate of 2% for all industries.

## **S.C. Sea Grant Consortium Fosters Student Support Through Internships, Fellowships, and Research Opportunities**

**Susannah Sheldon, Susan Lovelace, Matt Gorstein, and Brita Jessen, S.C. Sea Grant Consortium**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) continues to substantially contribute to workforce development through internships, fellowships, and research opportunities.

**RELEVANCE:** Supporting undergraduate and graduate students and early career professionals in earth and marine sciences leads to an informed, engaged, and well-trained workforce. The Consortium is involved in initiatives that support educational and professional development for these individuals.

**RESPONSE:** Sixty-two Knauss SC fellows have been selected since 1984, and 20 SC coastal management fellows have been placed since 1997. The Consortium and the S.C. Space Grant Consortium partners to support the Kathryn D. Sullivan Earth and Marine Science Fellowship, to increase trained scientists and to enable graduate students to conduct NASA- and NOAA-related research. Additionally, Community Engaged Internships, Margaret A. Davidson Resilience Scholars Program, and the Minorities in Aquaculture Internship Program were implemented.

**RESULTS:** In 2022, the Consortium supported 35 undergraduates, 32 master's-level students, and 11 Ph.D. students in conjunction with Consortium-funded research, internships, and fellowships. Forty-five were new to Sea Grant support and 33 received continued support. Four of the graduate students were Consortium interns. Two Sea

Grant-nominated student were selected for the Knauss fellowship and another, the Sullivan award. Student support has improved student and early professional ocean and coastal literacy, while encouraging success in securing employment.

## **S.C. Sea Grant Consortium Expands Audience Engagement Through Social Media**

**Emmi Palenbaum, S.C. Sea Grant Consortium**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) has built and significantly expanded an online social media presence for information sharing among the audiences the Consortium serves, including South Carolina residents, community leaders, educators, partnering agencies and organizations, and member institutions. In 2022, the Consortium's Facebook page gained 532 followers to reach a total of 1,900, increasing engagement 39%. Instagram saw a 109.5% increase in following, totaling nearly 600.

**RELEVANCE:** The Consortium continues to grow audience following and engagement across Facebook, Twitter, and Instagram (among groups such as residents, community leaders, educators, partnering agencies and organizations, and member institutions). This intentional effort on social media broadens the reach of science-based information and increases awareness of relevant Consortium-led events, research, educational programs, and connections to statewide and coastal communities.

**RESPONSE:** Following the relaunch of existing social media platforms and the addition of Instagram in 2021, the Consortium has enhanced continuity and consistency across all platforms to create a cohesive digital identity and voice. Platforms and content are strategically managed by the coastal public information coordinator, a new role hired within the communications and education services department in September 2022.

**RESULTS:** In 2022, the Consortium's Facebook page gained 532 followers to reach a total of 1,900, increasing engagement 39%. Instagram saw a 109.5% increase in following, totaling nearly 600. Content consistently performed highest towards the end of the calendar year, indicating a trend of continued growth into the future. The Consortium also plans to explore opportunities to expand into additional social media platforms.

## **To Improve Transparency and Accountability, Consortium Creates Coastal Public Information Coordinator Position**

**Susan Lovelace and Emmi Palenbaum, S.C. Sea Grant Consortium**

**RECAP:** The S.C. Sea Grant Consortium (Consortium) secures funding from the S.C. Legislature to create and hire a coastal public information coordinator position to improve accountability and transparency of the Consortium's activities with our constituents.

**RELEVANCE:** The state of S.C. is increasing in population. There is increasing need to communicate the results of science that will enable residents to improve their environmental, social, safety, and economic conditions through maintaining a high-quality coastal environment. Additionally, in a changing and challenging communications environment, it is important to identify best practices for reaching all of our stakeholders and constituents, taking the lead on development of social media and video content for the Consortium.

**RESPONSE:** The Consortium management team developed a proposed position and (after approval of our Board of Director's chairman) engaged the Governor's office and the S.C. Legislature to explain the need and benefits for this position.

**RESULTS:** The Legislature provided and funded a permanent state position to provide additional communications for the Consortium. The Consortium advertised and interviewed well-qualified applicants for the position. Emmi Palenbaum, a former consortium extension graduate assistant, successfully competed for the position.

## **S.C. Sea Grant Consortium Researchers Create STEAM-centered Performances to Engage Children in Ocean Science**

**Michael Childress, Clemson University**

**Meghnaa Tallapragada, Temple University**

**Brian Thill, South Carolina Aquarium**

**Kathy Prosser, Educational Entertainment, LLC**

**RECAP:** The Something Very Fishy STEAM program engaged children in a positive, informal learning environment where they experienced ocean literacy principles through music, theater, a virtual field trip, and meeting university students portraying different careers in marine science.

**RELEVANCE:** Elementary school students can build their interest and capacity to address climate change issues through career choices. An emerging approach to teaching this complex topic is to create an informal space where scientists interact with children and teachers as ambassadors rather than as an authority. By motivating children and their families to take actions in ocean conservation, significant strides can be made to address climate change and encourage future careers in science.

**RESPONSE:** To increase climate and ocean awareness in elementary schools (grades K-5), S.C. Sea Grant Consortium-funded researchers developed an informal musical theater marine science STEAM program called Something Very Fishy that combines a musical theater performance with an imaginary field trip under the ocean manned by university students studying marine science education. Exhibitions were provided in-person or virtually.

**RESULTS:** A comparison of pre-post program assessments demonstrates that after attending the program, children were more likely to include humans and human artifacts as part of their ocean drawings and were more likely to select STEM and arts careers in a follow-up survey. Summaries were given at two national meetings and the S.C. Sea Grant Consortium Research Symposium and a book chapter is in press.

**PARTNERS:** Temple University, Florida State University, South Carolina Aquarium, S.C. Space Grant, S.C. Arts Commission