

SUSTAINABLE COASTAL DEVELOPMENT AND ECONOMY

ACCOMPLISHMENTS

S.C. Sea Grant Consortium Reinvigorates S.C. Clean Marina Program and Hosts Certification Workshop

Shelly McComb and April Turner, S.C. Sea Grant Consortium

Recap: The S.C. Sea Grant Consortium and partners recently took over coordination of the South Carolina Clean Marina Program. After nearly three years of dormancy, the first certification workshop was held in August 2021. This momentum is expected to continue into the following years to certify more marinas in South Carolina.

Relevance: South Carolina's Clean Marina Program promotes environmentally friendly practices to reduce pollution from marinas and improve local water quality. The workshop provides a hands-on engagement to educate marina operators about the program and best practices.

Response: The South Carolina Clean Marina Program's technical advisory committee recognized a need to continue development of the program and promote clean management practices. The workshop was planned in a central location with nearly all committee members in attendance.

Results: A certification workshop was held in August 2021 at the S.C. Department of Natural Resources' Outdoor Classroom at Fort Johnson. Representatives from 11 marinas were in attendance, with five marinas seeking recertification and six marinas seeking certification for the first time. The planning, organization, and administration provided by the Consortium for this workshop is estimated to have provided an economic benefit of \$3,689 based on registration fees, travel costs, and opportunity costs of time.

S.C. Sea Grant Consortium Updates S.C. Clean Marina Program Guidebook and Checklist

Shelly McComb, April Turner, and Crystal Narayana, S.C. Sea Grant Consortium

Recap: The S.C. Sea Grant Consortium and Partners revised the S.C. Clean Marina Program's Guidebook and Checklist through research of relevant best management practices and applicability to marina operations.

Relevance: The S.C. Clean Marina Program's Guidebook serves as an extensive resource for marina managers to understand what practices constitute a certified S.C. Clean Marina. It complements the S.C. Clean Marina Program's Checklist, which assists marina managers in inspecting their facility once they have an understanding of the overall requirements.

Response: The S.C. Clean Marina Program's technical advisory committee recognized a need to modernize both the Guidebook and Checklist to reflect regulations and best management practices in 2021.

Results: The Guidebook was extensively updated with input from the technical advisory committee and proofread by the S.C. Sea Grant Consortium Communications team. Newly printed copies were distributed to all members of

the technical advisory committee. Items on the Checklist correspond to page numbers in the Guidebook for ease of cross referencing.

S.C. Sea Grant Consortium Updates S.C. Clean Marina Program Website and Begins a Periodic Newsletter

Shelly McComb, April Turner, and Crystal Narayana, S.C. Sea Grant Consortium

Recap: The S.C. Sea Grant Consortium and partners designed a new website for the S.C. Clean Marina Program and launched a periodic newsletter to actively engage with certified marinas and partners.

Relevance: The reinvigoration of the S.C. Clean Marina Program required a revitalized means of sharing new and emerging information and promoting the program.

Response: The S.C. Clean Marina Program's technical advisory committee recognized a need to inform and engage with the marina management and regulation audience. The Consortium led the development of a new website to serve as a central resource for all Clean Marina Program content and a newsletter that will provide more detailed stories related to the program.

Results: The S.C. Clean Marina Program's website officially launched in the summer of 2021. Content includes a map of all certified marinas in the state, resources like the guidebook and checklist, overview of the certification process, and technical advisory committee contact information. The newsletter highlighted the recent certification workshop, introduced the technical advisory committee, cross-referenced the website, and provided information about abandoned vessel removal.

S.C. Sea Grant Consortium and Partners Provide Accredited Training Program to Real Estate Professionals

Susan Lovelace, April Turner, Emmi Palenbaum, S.C. Sea Grant Consortium

Recap: The S.C. Sea Grant Consortium and partners taught a series of accredited continuing education courses for 284 real estate professionals, with nine virtual trainings providing information and resources about important coastal issues for agents to share with clients.

Relevance: With South Carolina coastal population growth continuing at a rapid pace, real estate professionals (REPs) are often the primary contact for new residents and business owners. REPs continue to be a key audience for new information and resource sharing. In addition to their connection to coastal newcomers, REPs have incentive to serve as advocates for natural resource policies and decisions because their industry relies on healthy coastal resources and resilient communities.

Response: In an effort to provide science-based information on important issues, the Consortium and S.C. Coastal Information Network partners continued teaching Calling the Coast Home, a series of four courses offered to coastal real estate professionals as continuing education electives. Additional instructors were certified to teach these accredited course modules, which cover the topics of coastal ecosystem/biodiversity, water quality, flooding and flood maps, and building regulations in coastal zone critical areas.

Results: Nine accredited courses were taught virtually by the Consortium and partners throughout the year with 284 real estate professionals participating in one of the four course modules offered. Course materials and

resources are available on the S.C. Coastal Information Network website. The Consortium's effort for these trainings is estimated to have provided an economic benefit of \$9,993 based on the provision of continuing education credits at a discounted rate and opportunity costs of time.

Consortium and Partners Offer Training on Implementing Low Impact Development on Challenging Sites

April Turner, S.C. Sea Grant Consortium

Recap: In an effort to remove barriers to low impact development (LID) implementation in coastal South Carolina, the S.C. Sea Grant Consortium co-organized a virtual workshop providing training focused on strategies to overcome design constraints on sites with challenging conditions.

Relevance: Many coastal decision-makers, stormwater engineers, and design professionals find it challenging to implement low impact development (LID) techniques for mitigating stormwater impacts. They need expertise, guidance, and resources to remove barriers to implementing LID practices on the community level, neighborhood scale, and site scale. Recent informal assessments revealed that training is still needed to introduce new users to the coastal S.C. LID manual, demonstrate its utility, and dispel lingering perceptions surrounding the use of LID.

Response: Building on previous LID workshops focused on using the coastal SC LID manual tools, the Consortium and partners organized an online training held April 7, 2021, addressing how to overcome barriers to implementing LID for challenging sites (e.g., poorly drained soils, shallow water table, or high impervious area). This two-hour training included presentations addressing specific design practices, demonstration design exercises for different site conditions, and local case studies.

Results: Over 100 participants, including engineers, landscape architects, municipal staff and other stormwater design professionals, attended the workshop. Participants performed site design application exercises and learned about local case studies to overcome barriers to implementing LID on sites with challenging conditions. Evaluations indicated 93% of attendees thought participating was a good use of their time. Over 78% indicated the workshop increased their LID knowledge.

S.C. Sea Grant Consortium Assists Nature-based Tourism Industries Coping with the Impacts of the COVID Pandemic

April Turner, S.C. Sea Grant Consortium

Recap: With funding from a Direct Marketing Support grant, the S.C. Sea Grant Consortium helped develop and implement marketing strategies to deal with the impacts of the COVID pandemic on the S.C. Nature-Based Tourism Association and its small business members, ultimately enhancing the resilience of the nature-based tourism industry.

Relevance: Nature-based tourism businesses rely heavily on visitors to our state's communities for their business. As a result of the shutdowns caused by the pandemic, many small businesses from this sector experienced service disruption and financial burdens. As the tourism market recovers, it is important that this industry remains visible in the marketplace so that locals and visitors are aware of sustainable nature-based and outdoor recreation opportunities.

Response: Using funding from a Direct Marketing Support grant (\$22,500) to assist with the recovery and enhance resilience of small nature-based businesses, the Consortium has been working with regional tourism experts and agencies to develop and implement market strategies. Project efforts are focused on identifying ways to strengthen this sustainable sector now and into the future.

Results: The rapid response activities provided direct support to develop and build marketing strategies for a statewide nonprofit organization, the South Carolina Nature-Based Tourism Association (SCNBTA) and its small business members. SCNBTA members, including outdoor outfitters/guide operations, benefitted from promotion through the enhanced website and marketing products (e.g., updated rack cards, decals, membership flyers). Other successes included the recruitment campaign, increasing SCNBTA membership by 50% during the year, and professional development opportunities for SCNBTA members.

S.C. Sea Grant Consortium Manages S.C. Coastal Information Network to Coordinate Efforts from Various Entities

April Turner, S.C. Sea Grant Consortium

Recap: S.C. Sea Grant Consortium managed the SC Coastal Information Network, which enhances coordination of outreach efforts and the strategic dissemination of information to coastal communities, including low impact development workshops, accredited continuing education courses for real estate professionals, and the newly redesigned S.C. Low Impact Development Atlas.

Relevance: Communication and coordination among agencies and organizations in coastal South Carolina providing outreach education to coastal communities has been challenging in the past. Information providers were often unaware of other similar outreach efforts underway targeting community leaders, local government staff, and residents. There was a need to avoid duplication of efforts, leverage scarce resources, and maximize program benefits.

Response: The Consortium organized the South Carolina Coastal Information Network (SCCIN) to improve communication and coordination among coastal outreach providers in 2006. The Network consists of more than 20 representatives from federal and state agencies, regional and local governments, and private organizations. Working with SCCIN partners, the network has expanded to serve its common audiences in a more organized, coordinated, and efficient manner while providing quality training programs and resources to constituents.

Results: The Consortium's most recent collaborations with SCCIN partners include S.C. Low Impact Development Manual workshops, accredited continuing education courses for real estate professionals, and the redesigned S.C. Low Impact Development Atlas. The Consortium continued to facilitate and organize virtual network meetings (April 4 and September 30) and maintain the SCCIN website event calendar and resource portal (www.sccoastalinfo.org), with over 6,000 page views from visitors accessing the site's resources, training opportunities, and other events.

S.C. Sea Grant Consortium Provides Leadership to Nature-Based Tourism in South Carolina

April Turner, S.C. Sea Grant Consortium

Recap: Through the activities of the Coastal Communities specialist, the Consortium has continued to support the S.C. Nature-Based Tourism Association, providing technical assistance, conference planning, and small business

promotion to help ensure the economic viability and resource sustainability of the South Carolina nature-based tourism industry in light of steadily growing demand.

Relevance: Tourism is an important economic driver for South Carolina, with an estimated \$18.5 billion impact in 2020. Despite COVID pandemic impacts, the demand for nature-based tourism and outdoor recreation soared in 2021. People are increasingly drawn to the state, with both residents and tourists taking advantage of the opportunities the state's natural and cultural resources provide. It is more important than ever to help ensure an economically viable and sustainable nature-based tourism industry in South Carolina.

Response: The Consortium supports sustainable statewide, nature-based tourism and outdoor recreation through its involvement with the S.C. Nature-Based Tourism Association (SCNBTA). The Consortium's Coastal Communities (CC) specialist serves on the SCNBTA Board of Directors, providing technical guidance and leadership service, including website administration and program planning for the quarterly board meetings, annual conferences and workshops, as well as coordinating and developing marketing and membership strategies.

Results: As the conference co-chair, the Consortium's Coastal Communities specialist organized and facilitated the association's virtual 2021 conference. Throughout the year, she served as website administrator, updating content and assisting new members with creating user profiles and getting the most out of website features and other SCNBTA benefits. She also continues to serve on the membership and marketing/communication committees, focusing on producing the newsletter and member marketing and promotion.

S.C. Sea Grant Consortium Helps Lead National Sea Grant Tourism Effort to Build Partnerships

April Turner, S.C. Sea Grant Consortium

Recap: S.C. Sea Grant Consortium, Georgia Sea Grant, Hawaii Sea Grant, and Oregon Sea Grant staffers led an effort to encourage greater integration and participation among members of the National Extension Network, including an extension tourism training organized as a part of the NET Conference in November 2021.

Relevance: Tourism plays a significant role in the economies of coastal and Great Lakes states, with significant contributions to jobs, tax revenues, and quality of life. Science-based management of tourism in coastal communities is vital. Sea Grant has the opportunity to greatly increase the well-being of coastal communities by taking on a prominent role in tourism and outdoor recreation management science and community training through its research, extension and outreach, and communication programs.

Response: Building on the previous work of the National Sea Grant 2018-2028 Sustainable Coastal Tourism Vision Plan, the S.C. Sea Grant Consortium, in Partnership with the Georgia, Hawaii, and Oregon Sea Grant state Programs, secured grant funding from the National Sea Grant Office (\$133,828) to further vision plan goals and recommendations.

Results: With this funding support, project partners continued to work with the NET Design Team to reestablish and strengthen relationships with Land Grant Extension engaged in tourism-related programming. An extension tourism training was organized and implemented as a part of the NET Conference in November 2021, attended by 17 Sea Grant program staff from across the country.

S.C. Sea Grant Consortium Writes Successful Grant Proposal to Implement Gullah Geechee Environmental and Energy Conference

Matt Gorstein, S.C. Sea Grant Consortium

Marilyn Hemingway, Gullah Geechee Chamber of Commerce

Recap: S.C. Sea Grant Consortium develops partnership with the Gullah Geechee Chamber of Commerce and helps them apply for, and get awarded, funding to implement the 2021 Gullah Geechee Environmental and Energy Conference.

Relevance: People of color in South Carolina have often been disenfranchised and under-resourced, leading to an awareness gap on what these changing environmental conditions mean for the long term sustainability of their communities, as well as what adaptation solutions are optimal for their local context. Engaging frontline communities, especially historically underserved communities, is imperative to enhancing resilience to climate change.

Response: The Consortium identified a suitable funding opportunity through the Climate Reality Project and assisted the Chamber in submitting a successful grant proposal to implement the 2021 Gullah Geechee Environmental and Energy Conference. The conference's goal was to enhance climate change awareness and environmental literacy amongst black, indigenous and people of color communities in coastal South Carolina to advocate for socially optimal and sustainable adaptation solutions in their communities.

Results: The Gullah Geechee Environmental and Energy Conference was held in October of 2021, providing a forum for knowledge between community members, community leaders, and experts in climate change impacts and sustainable planning, including scientists, planners, extension specialists, and advocates.

S.C. Sea Grant Consortium Ocean Economy Report Wins S.C. Notable State Document Award

Matt Gorstein and Crystal Narayana, S.C. Sea Grant Consortium

Recap: In 2020, S.C. Sea Grant Consortium published Assessing South Carolina's Ocean Economy report to detail the status, trends, and future outlook for South Carolina's ocean economy. This report won an S.C. Notable State Document Award in 2021.

Relevance: Documenting and monitoring the market and non-market economic benefits of ocean and coastal natural resources is important when evaluating policy decisions, and for understanding the level of dependence that a given coastal community may have on ocean and coastal natural resources. South Carolina's ocean and coasts support a wide variety of industries including commercial fishing, recreational fishing, aquaculture, tourism, ports/harbors, shipbuilding, and sand mining.

Response: Assessing South Carolina's Ocean Economy was published in 2020. This report provided an overview of South Carolina's ocean economy based on the data available; expanded upon NOAA information to examine other market and non-market economic values; identified ocean economy sectors for potential future growth; and discussed how the health of natural resources provides a foundation for economic activities along the coast. This past year, the report's infographic was updated with new data.

Results: The report helped quantify and explain the impact of the ocean economy in South Carolina. By honoring

the report as one of the top 12 state government documents of 2020, the S.C. State Library recognized the importance of the information and how well it was presented.

S.C. Sea Grant Consortium Assistant Director Contributes to Two Podcasts by Discussing Ocean Economy

Matt Gorstein, S.C. Sea Grant Consortium

Recap: Matt Gorstein, S.C. Sea Grant Consortium's Assistant Director for Development and Extension, was featured on two podcasts related to South Carolina's Ocean Economy – the S.C. Business Review and the American Shorelines Podcast Working Waterfront Series.

Relevance: Documenting and monitoring the market and non-market economic benefits of ocean and coastal natural resources is important when evaluating policy decisions, and for understanding the level of dependence a given coastal community may have on ocean and coastal natural resources. South Carolina's ocean and coasts support a wide variety of industries including commercial fishing, recreational fishing, aquaculture, tourism, ports/harbors, shipbuilding, and sand mining.

Response: After the Consortium published Assessing South Carolina's Ocean Economy in 2020, Matt Gorstein had opportunities to promote and disseminate the report through various mediums, including podcasts. Gorstein was interviewed as a coastal economics expert on the S.C. Business Review and the American Shorelines Podcast Working Waterfront Series. Special consideration was given to non-market ecosystem service benefits.

S.C. Sea Grant Consortium publishes The Economic Benefits of South Carolina's Beaches and Barrier Islands

Matt Gorstein, S.C. Sea Grant Consortium

Recap: An outreach document, methods appendix, and fact sheet to document the economic benefits of beaches and barrier islands in South Carolina was drafted, reviewed by external experts, and published by S.C. Sea Grant Consortium in 2021.

Relevance: South Carolina's beaches and barrier islands, including beaches, dunes, and wetlands, produce a wide variety of benefits, contributing to the culture, lifestyle, and well-being of its residents. South Carolina's beaches and barrier islands provide jobs, recreational opportunities, coastal protection, critical habitat for bird and turtle species, and aesthetic beauty, among other ecosystem services.

Response: S.C. Sea Grant Consortium conducted an investigation of existing data and literature to better characterize the estimated economic benefits of the state's beaches and barrier islands, including both market and non-market benefits. Ecosystem service valuation studies are selected for benefit transfer based on the appropriateness of the estimates for South Carolina. Employing this method allows us to estimate the economic benefits of beaches and barrier islands in South Carolina at statewide scale.

Results: The Consortium estimated value ranges for the following ecosystem services provided by beaches and barrier islands in South Carolina: Recreation (\$1.52 billion - \$3.09 billion per year); coastal protection provided by wetlands (\$329 million - \$447 million per year); carbon storage (\$1.72 million - \$5.12 million per year); water quality protection (\$66.54 million - \$83.08 million per year); water supply protection (\$4.21 million - \$5.33 million per year);

and the presence of sea turtle habitat (\$8.80 million - \$12.55 million per year).

S.C. Sea Grant Consortium Supports the New S.C. Office of Resilience

Susan Lovelace, S.C. Sea Grant Consortium

Recap: The S.C. Sea Grant Consortium serves as a member of the advisory committee and supports the new S.C. Office of Resilience, as it develops a state-wide resilience plan. The Consortium facilitates access to coastal data and planning best practices in S.C. and other regions.

Relevance: The S.C. Office of Resilience was established by the S.C. legislature July 1, 2021 to develop and implement a Strategic Statewide Resilience and Risk Reduction Plan and to operate both the Disaster Relief and Resilience Reserve Fund and the South Carolina Resilience Revolving Fund. The Consortium was included in the legislation as a member of the advisory committee for the resilience plan.

Response: The Consortium has served as a coastal sounding board for planners and provides connections to resilience offices in other states and to similar resilience plans. Due to the experience of Consortium staff and researchers in climate changes and impacts, vulnerability and hazard assessment, adaptation planning and sea level rise, staff have served on all SCOR subcommittees, including those focused on data, environment, community services/equity, infrastructure, and economic activity.

Results: The South Carolina Office of Resilience (SCOR), supported by the Consortium, is developing a resilience plan for the state that includes impacts of our changing climate, particularly rain intensity and sea level rise. The Consortium works with the SCOR to provide outreach and engagement in coastal areas and will assist SCOR in implementing the plan.