



## **Coastal Research and Extension Study Groups: Partners in Putting Science to Work in South Carolina**

### **Request for Mini-Proposals**

The South Carolina Sea Grant Consortium (Consortium) is seeking up to eight faculty/student research teams to partner with Consortium staff to conduct integrated research/extension projects over the next one and a half years (September 4, 2018-January 31, 2020). Research teams from Consortium member institutions are invited to submit mini-proposals for this competition. Member institutions include Clemson University, Coastal Carolina University, College of Charleston, Medical University of South Carolina, South Carolina Department of Natural Resources, South Carolina State University, The Citadel, and the University of South Carolina.

### **The Changing Face of Coastal South Carolina**

Every day, more and more people are competing for the use of the coast's natural resources. The challenge is to conserve those resources while accommodating growth, economic development, environmental quality, and the heritage and quality of life for all of the citizens of South Carolina. This is crucial because the state's abundant natural resources provide not only recreational opportunities, but also contribute to a diverse, state-wide economy. A 2016 study by Clemson University for the S.C. Department of Natural Resources documented that the state's diverse natural resource sectors contribute over \$32 billion in economic activity annually to the state's economy and are responsible for 218,719 jobs.

The Consortium's mission is to generate and provide science-based information to enhance the practical use and conservation of coastal and marine resources that foster a sustainable economy and environment for the state of South Carolina and its citizens. The Consortium strives to support, improve, and share research, education, training, and advisory services in fields related to ocean and coastal resources. More information is available on the Consortiums Web site, [www.scseagrant.org](http://www.scseagrant.org).

### **Proposal Description**

The Consortium approach integrates research, extension, and outreach, focusing on issues related to sustainable aquaculture and fisheries, weather and climate resilience, healthy coastal ecosystems, and sustainable coastal development and economy. The Consortium is implementing a two-phase competitive proposal process for this competition.

Initial Phase I mini-proposals are invited from faculty/student research teams to enhance Consortium support for specific priority program needs which be subjected to an internal review process. The faculty/student team will form a study group with



an identified Consortium staff member to complete one of the eight projects identified as important to the Consortium's stakeholders (see Appendix A). The faculty/student research team **should consult with the project's identified Consortium staff member before submitting proposals**. We encourage project mini-proposals which can become part of the student's thesis, dissertation, or capstone paper, or serve as an earned-credit internship or independent study.

After internal review, up to eight Phase I grants of \$10,000 each will be awarded to the recipient faculty/student research team through their institutional research office to conduct the project. The projects to be supported will depend upon the number and quality of proposals received.

Each project selected for funding will be conducted in a two-phase approach:

- Phase I proposals will address the information needs described in the project descriptions in Appendix A, and those selected for funding will be awarded for the period September 1, 2018 through January 31, 2019 with a budget of up to \$10,000.
- Phase II proposals will address the issues as again identified in Appendix A, and those selected for funding will be awarded for the period February 1, 2019 through January 31, 2020 with a budget of up to \$25,000.

Please note that our ability to support Phase II projects is dependent upon federal funding availability beyond January 31, 2019, and will require submission of a supplemental proposal, which should be prepared during Phase I. For all selected projects, the research team may be asked to assist in related Consortium activities such as workshops and other stakeholder engagement exercises.

Study group projects address elements in the Consortium's strategic planning areas. The topics for proposals specifically address the needs for research and extension that the Consortium has determined to be a priority at this time. Faculty at the Consortium's partner institutions will provide research guidance and expertise for graduate students in conducting the work, while Consortium staff will serve to guide the overall project, foster stakeholder engagement, and coordinate the extension and application of results. The Consortium will consider **only** those efforts that address one of the eight priority projects identified in Appendix A.

**Due to the short timeframe for conducting the Phase 1 work, the Consortium requests that mini-proposals from interested parties be submitted electronically no later than August 27 to provide sufficient time for review. Proposals will be selected by September 4 for Phase I funding.**

#### **Preparation and Submission of Proposals**

To assist with the preparation of proposals, we have provided detailed guidance (see Appendix B) to organize critical information.



Phase I proposals should be no more than five (5) pages, and must identify the faculty and undergraduate/graduate student/research assistant members of the team, their affiliation, and interest in the project; the interest and qualifications; a discussion of the proposed approach to the project; and a budget form and budget justification. The budget may provide for faculty/student time, travel, and materials to support the project; however, it may **not** be used to support abatement or be directly applied to tuition and fees. Indirect costs (IDCs) are not allowable as the projects are supported by Sea Grant funding, but could be used to meet the match requirement. The budget must include a 50% match in time, supplies, salaries, or IDCs.

Phase II proposals should be more detailed but not exceed ten (10) pages, and must identify the faculty, affiliation, and interest in the project, and the undergraduate/graduate student/research assistant members and their interest and qualifications; a discussion of the proposed approach to the project; and a budget form and budget justification. Phase II budgets may provide primarily for student time, travel, and materials to support the project; however, it may **not** be used to support abatement or be directly applied to tuition and fees. Indirect costs (IDCs) are not allowable as the projects are supported by Sea Grant funding, but could be used to meet the match requirement. The budget must include a 50% match in time, supplies, salaries, or IDCs.

<b>Timeline</b>	<b>Milestones</b>
July 24, 2018	RFP released
August 27, 2018	Phase I proposals due to Consortium
September 4, 2018-January 31, 2019	Phase I of the project conducted
January 11, 2019	Phase II proposals due to Consortium
February 28, 2019	Phase I products and progress reports due
February 1, 2019 – January 31, 2020	Phase II of the project conducted (pending funding availability)
March 31, 2020	Final products and reports due

Electronic copies (in Microsoft Word and Excel; **please do not submit PDFs**) of the proposal documents must be submitted by August 27, 2018 via e-mail with the subject line “Mini-Proposal Submission” to:

Susannah Sheldon  
 Research and Fellowships Manager  
 S.C. Sea Grant Consortium  
 E: [Susannah.Sheldon@scseagrant.org](mailto:Susannah.Sheldon@scseagrant.org)



**Questions about individual projects should be addressed to the Consortium staff member affiliated with the project listed in the project descriptions in Appendix A.**

Appendices:

- A. Study Group Project Topics
- B. Preparing the Proposal



## Appendix A

### Study Group Project Topics

#### Areas of Interest

##### **Demographic and Land-use Change Projections for Coastal South Carolina**

Population growth and increasing tourism are placing greater pressure on the state's natural resources and coastal infrastructure, especially at the ever-widening margins of our urbanized areas. For example, the arrival of Boeing, Daimler, and Volvo to the Charleston tri-county area has exacerbated the rate of growth, which will depend on high quality natural resources, resilient infrastructure, and the social welfare and well-being of the South Carolina coast and its people. Where we put people and how we accommodate their needs for critical infrastructure, transportation, jobs, and quality of life are questions facing South Carolina decision-makers along the coast and inland, and indeed across the southeastern U.S. The most recent analyses were conducted prior to the 2009 recession; a contemporary view of the changing demographics of the South Carolina coast is long overdue.

*Proposals are sought to:*

- Phase I (Max \$10K) – Evaluate the extensive suite of existing data which illustrate present and future changes in coastal population growth, land use, and land cover, including projections of environmental, economic, and demographic effects, especially in light of rising sea levels at the local level. Develop and submit a 12-month research proposal plan to analyze and refine detailed population growth/land-use change projection analyses covering the next 30-years and produce maps/visualizations for use in outreach and awareness efforts.
- Phase II (Max \$25K, pending availability of funding) – Conduct the 12-month study and develop project reports and outreach materials (in concert with Consortium staff).

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##### **Vulnerability of Stormwater Management Ponds to Sea Level Rise and Flooding**

Stormwater ponds are recognized as serving both water quantity and water quality functions. Traditionally engineered with the objective to control flooding, they serve as best management practices to collect the first flush of rain water runoff and along with it the sediment and contaminants it has picked up as it crosses roofs,



yards and roads. Depending on conditions ponds can protect neighborhoods from flooding during and have often become social and aesthetic amenities as they can offer water views and common ground. The S.C. Sea Grant Consortium facilitates a Stormwater Pond Research and Management Collaborative to better understand how these ponds function in our coastal system and the maintenance needed for optimum performance. A recent study supported by the Consortium found, using 2013 imagery, over 9,300 ponds created to catch stormwater for golf, commercial or residential development in the eight coastal counties. While regulations are concerned with the connectivity between ponds and natural waters such as wetlands, creeks, rivers and estuaries, sea level rise is not taken into account when permitting ponds that are expected to function for the lifetime of the communities. Beaufort County, using, in part, information collected in a Consortium-sponsored sea level rise adaptation study in the area implemented a code change in requiring stormwater pond engineering design to factor in sea level rise and building outlets at heights to allow outflow based on 30-year projections of sea level rise. However, little is known about the vulnerability of ponds to sea level rise from perspectives of outflow to receiving waters and changes in groundwater due to sea level rise.

*Proposals are sought to:*

- Phase I (Max \$10K) – Conduct a preliminary assessment of how sea level rise and increased coastal flooding might impact the state’s 10,000 residential-based stormwater ponds, the number one best management practices for controlling stormwater runoff in coastal development, identifying existing mapping, 3-D visualization, and other existing tools. Develop and submit a 12-month research proposal plan to analyze and refine the relationship between flooding trends, existing pond elevations, and future pond construction over the next 30 years based on current and future growth patterns, and produce high resolution maps/visualizations for use in outreach and awareness efforts.
- Phase II (Max \$25K, pending availability of funding) – Conduct the 12-month study and develop project reports and outreach materials (in concert with Consortium staff).

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### **Value of South Carolina’s Fishing Industries**

The South Carolina commercial fishing industry (fish, oysters, clams, shrimp, and crabs) remains an important component of our local waterfronts, coastal economies, and ways of life. Estimates suggest that the state’s commercial fisheries generated \$88 million (ex-vessel value) and provided 1,495 jobs (NOAA, 2011);



there are some 2,200 commercial saltwater and wholesale seafood dealer licenses. South Carolina's shellfish aquaculture industry is made up of established clam growers and new oyster farmers, a sector that doubled its number of businesses last year. Recreational fishing and boating make an ever-larger contribution to the state's economy. According to S.C. Department of Natural Resources (SCDNR), the annual impact of marine recreational fishing in the state exceeds \$590 million. As of June 30, 2015, more than 2,964,343 individual saltwater stamps/licenses have been sold to marine recreational anglers since the state started issuing licenses back in 1992.

*Proposals are sought to:*

- Phase I (Max \$10K) – Conduct an analysis and synthesis of existing relevant information to provide an assessment of the economic impact value of the South Carolina seafood industry overall, and document the value of three main segments of the industry (commercial fisheries, marine aquaculture, and marine recreational fisheries). Such an analysis should include a gap analysis of the availability/assessment of economic impact data regarding the seafood industry as a whole and in each of the three segments. Develop and submit a 12-month research proposal plan to address information needs/gaps in existing economic impact information related to the seafood industry.
- Phase II (Max \$25K, pending availability of funding) – Conduct the 12-month study and develop project reports and outreach materials (in concert with Consortium staff).

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### **Economic impact of coastal nature-based tourism for the state of South Carolina**

In a 2016 Clemson University report, researchers found that the total impact of natural resources to the state economy increased by 15 percent over the past decade to \$33.4 billion, while the total number of resource-based sector jobs decreased by 7 percent to 218,719 jobs. Tourism is now a \$20.1 billion industry in South Carolina, with its eight coastal counties accounting for approximately 65 percent of that total. However, there is very limited data on nature-based tourism's contribution to the either the state or the coastal economies, as well as a lack of research focusing on the value and potential for growth of the nature-based sector. Many nature-based tourism providers believe that communities are under-marketed as nature-based tourism destinations. To justify initiatives which might encourage the development of nature-based tourism businesses in all segments of society and



to promote activities and protect significant habitats, cultures, and services for future nature-based tourism, it is critical to have recent data and analysis services.

*Proposals are sought to:*

- Phase I (Max \$10K) – Conduct a preliminary analysis and synthesis of existing information to develop an initial estimate of the overall economic impact value of the South Carolina nature-based tourism industry. Identify gaps in the availability/assessment of economic impact data regarding the industry. Develop and submit a 12-month research proposal plan to conduct a thorough analysis and synthesis of relevant information to assess the economic value of South Carolina’s nature-based tourism industry with particular attention to coastal counties and to put the value of the coastal counties’ nature-based tourism into the context of tourism value in all coastal counties.
- Phase II (Max \$25K, pending availability of funding) – Conduct the 12-month study and develop project reports and outreach materials (in concert with Consortium staff).

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**Economic Assessment of the Value of the State’s Coastal Resources in Fostering Coastal Resilience (up to three projects to be supported)**

The economic and societal value of South Carolina’s coastal resources and the benefits and functions they provide are not well-documented, especially to the services they afford to communities, businesses, and individuals in the form of coastal resilience. This information is critical if sustainable use and conservation of these resources and services are to continue. Lacking are data on the economic and social values of coastal resources to shoreline protection and storm damage reduction such as those provided by beaches, barrier islands, sea islands, salt marshes, coastal freshwater wetlands, and other ecologically important natural features of the South Carolina coastal environment, as well as information to determine what might be lost or would have to be replaced if the resource in question is diminished by natural (e.g., storms, sea level rise) or anthropogenic (e.g., population growth, coastal development, deforestation) forces.

1. Beaches

*Proposals are sought to:*

- Phase I (Max \$10K) – Conduct a thorough analysis and synthesis of existing information to estimate an overall economic impact value of South Carolina’s





**beaches to coastal resilience.** Identify gaps in the availability/assessment of economic impact data regarding beaches. Develop and submit a 12-month research proposal plan to address information needs/gaps in existing information related to beaches.

- Phase II (Max \$25K, pending availability of funding) – Conduct the 12-month study and develop project reports and outreach materials (in concert with Consortium staff).

## 2. Salt Marshes/Tidal Creeks/Tidal Freshwater Wetlands

*Proposals are sought to:*

- Phase I (Max \$10K) – Conduct a thorough analysis and synthesis of relevant information to estimate an overall economic impact value of South Carolina’s **coastal marshes and wetlands** to coastal resilience. Identify gaps in the availability/assessment of economic impact data regarding coastal marshes and wetlands. Develop and submit a 12-month research proposal plan to address information needs/gaps in existing information related to coastal marshes and wetlands.
- Phase II (Max \$25K, pending availability of funding) – Conduct the 12-month study and develop project reports and outreach materials (in concert with Consortium staff).

## 3. Barrier and Sea Islands

*Proposals are sought to:*

- Phase I (Max \$10K) – Conduct a thorough analysis and synthesis of relevant information to estimate an overall economic impact value of South Carolina’s **barrier islands** to coastal resilience. Identify gaps in the availability/assessment of economic impact data regarding barrier and sea islands. Develop and submit a 12-month research proposal plan to address information needs/gaps in existing information related to barrier and sea islands.
- Phase II (Max \$25K, pending availability of funding) – Conduct the 12-month study and develop project reports and outreach materials (in concert with Consortium staff).

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## **Fostering Diverse Working Waterfronts along the South Carolina Coast**

Traditional, water-dependent uses of coastal waterfront property are drastically changing as more of the U.S. population moves to the coast, and pressure for “highest and best use” development increases. For example, commercial fishermen are finding it more difficult to find and afford docking space, fuel, and ice. Sustaining traditional working waterfronts and balancing the changing needs of coastal communities is a challenge for individual property owners, commercial and recreational fishermen, developers, and resource managers. Solutions are needed to help preserve the historical profiles of coastal communities while allowing for community-driven economic development. Traditional forms of fishing, boat building, and indigenous ways of gathering one’s sustenance and livelihood from the land (e.g., sweetgrass basket-making) are disappearing along the South Carolina coast.

### *Proposals are sought to:*

- Phase I (Max \$10K) – Document the apparent decline in South Carolina’s traditional coastal economic activities and identify options for sustaining access and opportunities for these uses. Develop and submit a 12-month research proposal plan to address information needs/gaps related to working waterfronts (see below).
- Phase II (Max \$25K, pending availability of funding) – Conduct an analysis of economic incentives and policy alternatives that could be implemented to preserve waterfront access for traditional uses (e.g., commercial fishing, aquaculture, small maritime businesses), public beach/water access, and other public uses in South Carolina, and develop project reports and outreach materials for municipalities, state governments, and non-profits (in concert with Consortium staff).

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## Appendix B

### **Preparing the Proposal**

A two-phased proposal approach will be followed. Applicants are responsible for determining appropriate budgets, outcomes, and deliverables for each phase.

Phase I mini-proposals should be prepared according to the following outline and include a narrative of up to five pages, single-spaced with one-inch margins and 12-point font. Proposals will be accepted no later than August 27, 2018. Proposal forms (proposal endorsement, project summary, annual milestone chart, vitae, and budget) are available at <http://www.scseagrant.org/Content/?cid=127>.

#### **Instructions for Preparing Mini-Proposals**

The Full Proposal should be assembled according to this outline:

1. Proposal Endorsement (form)
2. Project Summary (form)
3. Narrative, to include the following sections:
  - a. Proposal Title
  - b. Investigator Names and Affiliations
  - c. Introduction/Background/Rationale
  - d. Objectives
  - e. Detailed Methods, including 5-month timeline
  - f. Expected Outcomes and Anticipated Benefits
  - g. Related Work
  - h. Data Sharing Plan
  - i. References
4. Vitae (form)
5. Budget (form)
6. Budget Justification (Word format)

Phase II proposals should be prepared according to the following outline and include a narrative of up to 10 pages, single-spaced with one-inch margins and 12-point font. Proposals will be accepted no later than January 11, 2019. Proposal forms (proposal endorsement, project summary, annual milestone chart, vitae, and budget) are available at <http://www.scseagrant.org/Content/?cid=127>.

#### **Instructions for Preparing Full Proposals**

The Full Proposal should be assembled according to this outline:

1. Proposal Endorsement (form)
2. Project Summary (form)
3. Narrative, to include the following sections:
  - a. Proposal Title
  - b. Investigator Names and Affiliations
  - c. Introduction/Background/Rationale
  - d. Objectives
  - e. Detailed Methods
  - f. Targeted Audiences/Engagement/Outreach/Education



- g. Information Products/Deliverables
  - h. Expected Outcomes and Anticipated Benefits
  - i. Related Work
  - j. Data Sharing Plan
  - k. References
4. Annual Milestone Chart (form)
  5. Vitae (form)
  6. Budget (form)
  7. Detailed Budget Justification (Word format)