



**Sea Grant**
S.C. SEA GRANT CONSORTIUM

**The Economic Impact of the
South Carolina Sea Grant Consortium**
A State-Level and Regional Perspective





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Executive Summary

- The South Carolina Sea Grant Consortium (SCSGC) is an independent state agency that was created in 1978 to manage and administer the National Oceanic and Atmospheric Administration's (NOAA) Sea Grant College Program for South Carolina and adjacent regions. This program serves as the core of a national, university-based network designed to generate and deliver science-based information to support economic opportunity, ensure wise use and conservation of the state's coastal and marine resources, and improve the social well-being of those who live, work, and play along the nation's coasts, oceans, and Great Lakes.
- The U.S. Census Bureau currently projects that the Southeastern U.S. will experience faster population growth than any other U.S. region through the year 2040. While this strong population growth has been positive for the long-run economic health of South Carolina, it also increases the importance of the SCSGC as it seeks to proactively maintain the health and vitality of the state's coastal and other natural resources as economic development initiatives continue to accelerate.
- The total annual economic impact of the SCSGC on the state of South Carolina is \$9.0 million. This is the dollar value that represents the total value of all goods and services associated (either directly or indirectly) with the economic activities of the SCSGC. This impact corresponds to \$3.6 million in labor income for South Carolinians.
- The SCSGC also facilitates program initiatives in the state of Florida. As such, in the two-state region of South Carolina and Florida, the total economic impact of the SCSGC increases to \$12.9 million, which is associated with \$5.1 million in labor income.
- The SCSGC's total economic impact of \$9.0 million in South Carolina is associated with a statewide output multiplier of 1.8. In other words, for every one hundred non-state dollars¹ spent by activities associated with the SCSGC, an additional eighty dollars in economic activity, on average, is generated elsewhere in the state.
- A return-on-investment (ROI) analysis comparing the total (direct plus economic multiplier effects) net increase in spending activity across South Carolina generated or supported by the activities of the SCSGC to the state appropriations provided by the state of South Carolina yields an ROI of 923 percent. This implies that every dollar appropriated to the SCSGC by the state of South Carolina generates or supports, on average, \$9.23 in economic output for the state.

¹ Non-state dollars refer to dollars that do not come from state appropriations.

SECTION I

Introduction and Background

The South Carolina Sea Grant Consortium (SCSGC) is an independent state agency that was created in 1978 to manage and administer the National Oceanic and Atmospheric Administration's (NOAA) Sea Grant College Program for South Carolina and adjacent regions. The National Sea Grant College Program, an agency with the U.S. Department of Commerce, is based in Silver Spring, Maryland, and oversees 34 state programs throughout the United States. These programs serve as the core of a national, university-based network designed to generate and deliver science-based information to support economic opportunity, ensure wise use and conservation of the state's coastal and marine resources, and improve the social well-being of those who live, work, and play along the nation's coasts, oceans, and Great Lakes. This national network engages over 300 of the nation's top universities to conduct scientific research, education, and outreach projects and more than 3,000 scientists, engineers, educators, and students.

In addition to its staff members, the SCSGC consists of member institutions throughout South Carolina that serve as partners in research and outreach. Additionally, an executive officer of each member institution also serves on the SCSGC board of directors. The Consortium member institutions include: Clemson University, Coastal Carolina University, College of Charleston, Francis Marion University, Medical University of South Carolina, South Carolina Department of Natural Resources, South Carolina State University, the Citadel, and the University of South Carolina. The SCSGC also networks with other universities and research facilities in neighboring Georgia and North Carolina as well as throughout the United States.

In South Carolina, the SCSGC has five primary focus areas:

- Healthy Coastal Ecosystems
- Sustainable Coastal Development and Economy
- Weather and Climate Resilience
- Sustainable Fisheries and Aquaculture
- Scientific Literacy and Workforce Development

In support of each of these focus areas, the SCSGC actively participates in coastal and ocean research and outreach, the development of formal and informal education and communication programs, the collaboration of universities and research facilities, the acquisition and management of competitive funding, and the leveraging of each project partner's resources. The SCSGC coordinates these research, extension, education, and communications efforts to ensure that they are completed successfully and benefit the stated goals of the agency.



The efforts of the SCSGC inject millions of dollars annually into local communities throughout South Carolina as well as the broader Southeastern United States. These dollars include direct investments in research and development, the formation of self-sustaining research and outreach facilities, and the creation and management of natural resource-based volunteer activities. Taken together, these activities have a sizable impact on the state of South Carolina's employment and income base, as well as on the southeastern region more broadly. They also contribute to the health of South Carolina's coastal- and ocean-based industries, such as recreation and tourism, fisheries, and aquaculture, by informing decision-makers on issues related to the use and conservation of beachfront properties and other coastal resources. Further, many of the activities of the SCSGC involve substantial research and development and contribute to the knowledge economy in South Carolina by attracting and retaining intellectual talent.

The purpose of this study is to quantify the total economic impact of the SCSGC on the state of South Carolina, as well as on the surrounding southeastern region. The economic impact of the SCSGC can be measured in three specific ways: 1) through the creation of new jobs, income, and overall economic activity that the SCSGC facilitates through the acquisition of federal funding; 2) through the creation and management of volunteer services that would otherwise have to be paid for by or within the state of South Carolina; and 3) through the support and development of educational opportunities and workforce training programs that lead to higher levels of employment and income for both current professionals and recent graduates. The total economic impact resulting from items (1) through (3) can then allow for a return-on-investment analysis for the state of South Carolina. This ROI will illustrate the economic benefits to the state of South Carolina that results from each dollar South Carolina appropriates to the SCSGC.

The remainder of this report is organized as follows: Section II describes the growth South Carolina has experienced over the past decade and the integral part its coastal resources have played in this expansion; Section III outlines the methodology that underlies this economic impact analysis, including a description of direct, indirect, and induced impacts that constitute the economic multiplier effect; Section IV highlights the main findings of this study; Section V then offers a brief conclusion.

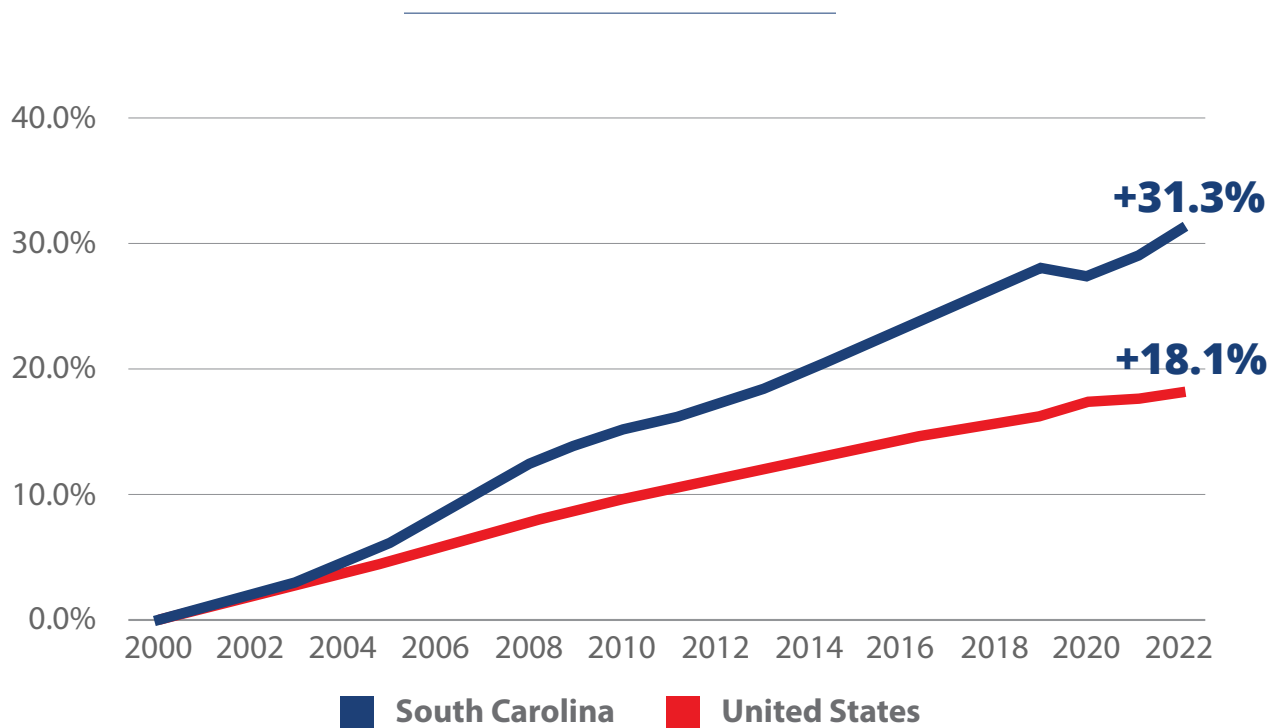
SECTION II

South Carolina's Economic Growth in the 21st Century

South Carolina has been once of the fastest growing states in the nation over the past two decades as individuals have been attracted to the state's plentiful job opportunities, relatively low cost of living, and abundant natural resources. South Carolina's population growth has consistently outpaced the national average, particularly in the years following the Great Recession that took place between 2007 and 2009. As **Figure 1** shows, South Carolina's total population has increased by 31.3 percent between 2000 and 2022 compared to 18.1 percent for the U.S. over the same time period.

Figure 1: Cumulative Population Growth, 2000-2022

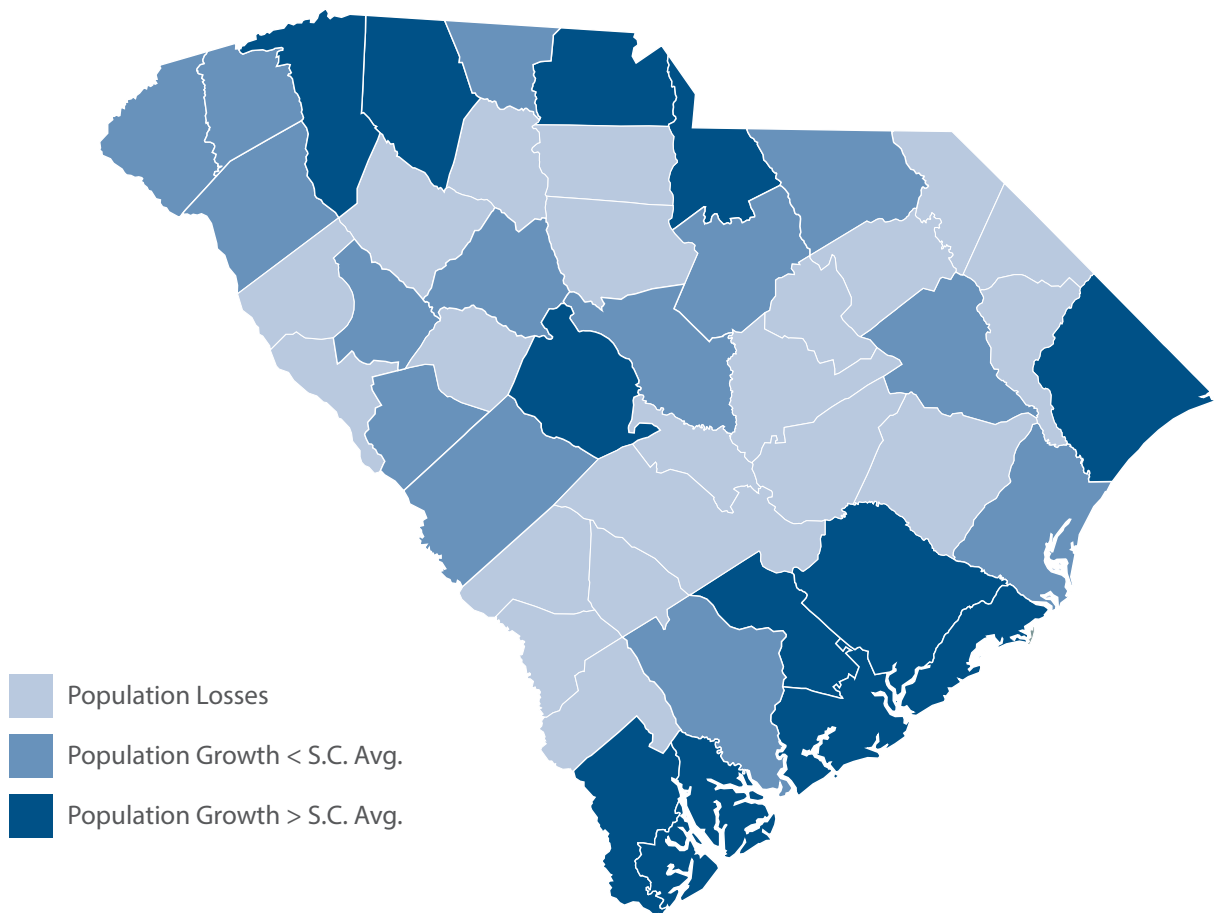
Source: U.S. Census Bureau



This population growth has been notably concentrated in the metropolitan areas of the state, especially along South Carolina's coastline, as shown in **Figure 2**. Horry County, situated along South Carolina's northeast coast, experienced the strongest population growth over this time period. Horry County nearly doubled its number of residents from roughly 198,000 in 2000 to over 383,000 by 2022.

Figure 2: Population Growth by County, 2000-2022

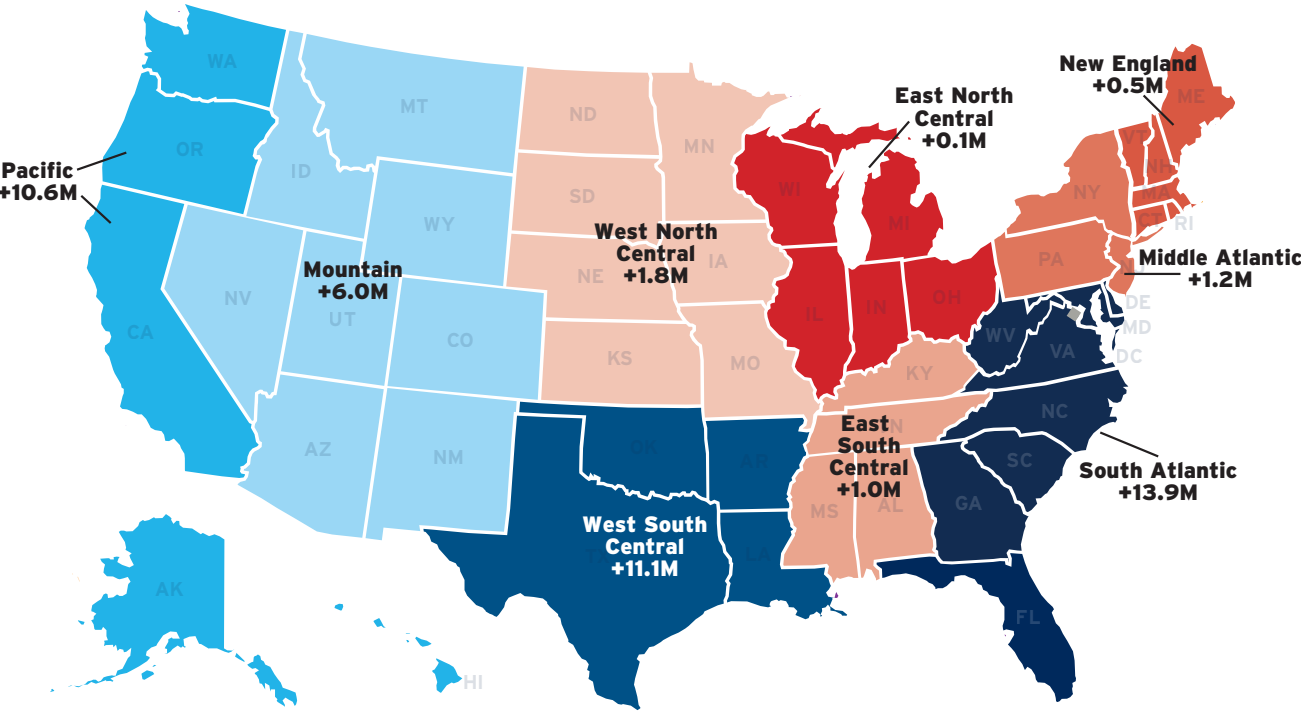
Source: U.S. Census Bureau



While this strong population growth has been positive for the long-run economic health of South Carolina, it also increases the importance of proactively maintaining the health and vitality of the state’s coastal and other natural resources as economic development initiatives continue to accelerate. This is one of the primary objectives of the SCSGC and partner agencies such as the South Carolina Department of Natural Resources. South Carolina’s current population trends are expected to continue throughout the rest of the decade as migration patterns reveal a consistent movement of U.S. residents to both the southern and the western regions of the country and away from the midwest and northeast. **Figure 3** provides population projections through 2040 by U.S. Census Region, which reveal that it is the Southeastern United States that is likely to experience the most population growth during this period. Thus, the importance of balancing conservation and economic development efforts will continue to grow in the coming years.

Figure 3: Projected Population Growth through 2040 by U.S. Census Region

Source: U.S. Census Bureau



SECTION III

Methodology

The economic impact of any organization is based on how it increases the demand for goods and services in its local region that would not have existed otherwise. Economic impacts are typically broken down into direct, indirect, and induced effects. The direct effect of an organization refers to the initial change in economic activity, which results from expenditures that the organization makes within the local economy. For instance, a new business may purchase machinery and equipment from a local manufacturer or hire workers from the local labor market. In both cases, the business is increasing demand for suppliers and workers and thus stimulating economic activity through these expenditures.

The indirect effect refers to impacts that result from additional rounds of spending that occur due to inter-industry linkages between local firms. For example, if SCSGC were to purchase computer hardware, then the computer hardware vendor would experience an increase in demand, thus requiring it to purchase additional supplies and equipment from its own suppliers. As a result, the computer hardware vendor supplier would also see an increase in demand. These additional rounds of spending continue on and ripple through the supply chain and affect many industries in the region.

The induced effect refers to impacts that result from additional rounds of spending that occur due to increases in household income. For instance, when the SCSGC purchases computer hardware, this leads to an increase in demand for the computer hardware vendor. As a result, some of the computer hardware vendor staff may see an increase in their income levels. Part of this additional income will then be spent in the local economy on items such as food, housing, or entertainment. These industries will then see an increase in demand for their goods and services, which will lead to an increase in incomes for some of their employees, a portion of which will also be spent locally.



These successive rounds of indirect and induced spending do not go on indefinitely, which is why a specific value can be calculated for each of them. In each round of spending, money is “leaked out” for a variety of reasons. For example, employees may save some of their income or spend a portion of it outside of the local area. In order to estimate the total economic impact of an organization, economic multipliers are used.

An economic multiplier can be used to determine the total economic impact (direct, indirect, induced) that results from an initial change in economic activity (the direct impact). Multipliers vary by region size, industry size, and the size of the local supplier network. Multipliers are typically used to calculate the impact on employment, labor income, and economic output—three standard measures used by economists when quantifying the contribution of any organization to a local economy.

To estimate the impact of the SCSGC in this study, detailed structural models (known as input-output models) of the South Carolina and Florida economies were used, which contain specific information on economic linkages between different industries at the county-level. The input-output modeling software IMPLAN was utilized in combination with other customized regional forecasting models that were developed. This allows for the inclusion of additional local data, industry knowledge, and ongoing economic growth trends. All raw data for this analysis was provided by the SCSGC.



SECTION IV

Primary Results

The SCSGC contributes to the state of South Carolina and the regional economy in three primary ways. First, the SCSGC is responsible for seeking out and acquiring competitive external grant funding to support scientific research, education, extension, communications, and training programs. One of the primary sources of economic growth in a region is the ability to attract new spending activity from outside of that region, and external funding is one such source. When external dollars are injected into a local economy, they increase the demand for various goods and services in that region over what it would likely have been otherwise. This increase in demand then facilitates the need for increases in employment and wages. The total external funding acquired by the SCSGC in the 2022-2023 fiscal year was \$5,686,880. Approximately 73.3 percent of this external funding received by the SCSGC was for programs located within South Carolina; another 23.8 percent was for programs in Florida; and the remaining 2.9 percent was for programs in other southeastern states.

The second major contribution of the SCSGC is through the organization and management of volunteer activities. The largest of these activities, Beach Sweep/River Sweep, was organized in 1988 and provides systematic maintenance and cleanup services for the beaches, marshes, and waterways of South Carolina on an annual basis. Beach Sweep/River Sweep is a joint program of the SCSGC and S.C. Department of Natural Resources (DNR). The SCSGC focuses its efforts on coastal beaches, marshes, and water while DNR focuses on inland waterways.

A second volunteer effort consists of the Clean Marinas Program, which operates in partnership with DNR and the South Carolina Department of Health and Environmental Control (DHEC). The Clean Marinas Program is designed to protect and improve local water quality by reducing pollution from marinas. The SCSGC provides the primary management of the program to organize workshops, oversee the website, build promotional content, and coordinate and oversee a technical advisory committee.

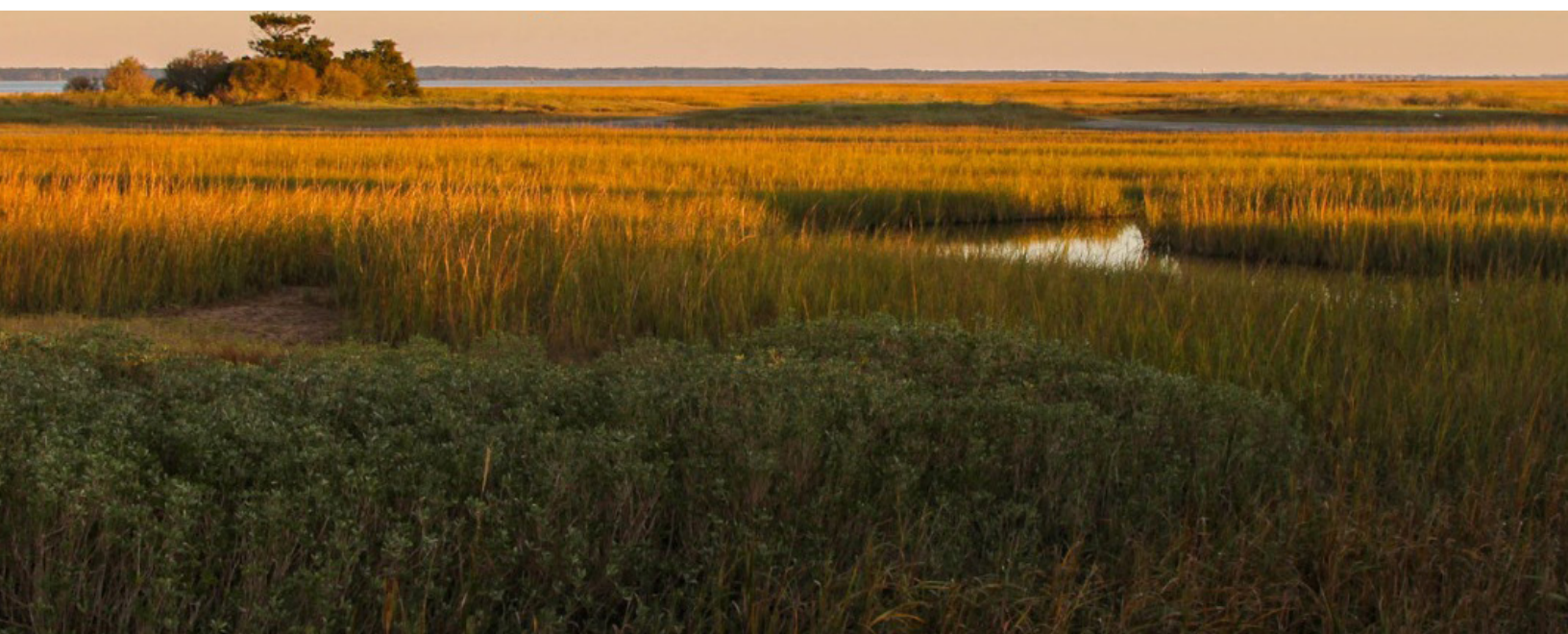




Image source: S.C. Sea Grant Consortium

The Community Science Salt Marsh Restoration and Monitoring Project represents a third volunteer effort that engages communities to support habitat resiliency. Volunteers are trained in data collection methods and participate in salt marsh restoration by creating oyster reefs and by cultivating & transplanting smooth cordgrass. This four-year initiative supported through the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), and in partnership with SCDNR, South Carolina Aquarium, and Clemson University Cooperative Extension, is also part of a larger K-12 based salt marsh restoration program called "From Seeds to Shoreline."

In total, the SCSGC projects resulted in more than 6,600 volunteer hours in the 2023 fiscal year (FY23) devoted to maintenance, cleanup, and resiliency efforts. In order to determine the economic impact of this volunteer time, an average hourly wage rate of \$28.11² was assigned to each volunteer hour and totaled.

The third major contribution of the SCSGC is that it actively contributes to the knowledge economy through its educational and workforce-training programs, direct student aid, and pro-bono consulting services. Each year, the SCSGC facilitates or partners with other organizations to facilitate dozens of workshops, conferences, symposiums, and continuing education courses that cover various topics related to conservation. These include planning for flood resilience; providing workforce training opportunities for coastal industries such as fisheries, aquaculture, real estate agents, and stormwater pond managers; and facilitating the use of marine science in decision making and in the classroom. One program of note led by the SCSGC is the "Calling the Coast Home" continuing education series for real estate agents in coastal South Carolina, winner of the 2022 National Sea Grant Superior Outreach Programming Award (SOPA). The SCSGC works with public and private partners to equip real estate agents with the latest knowledge in flood maps, storm evacuation routes, sea level projections, dock building regulations, and other useful resources to pass along to their clients, many of which are moving to coastal South Carolina from out of state locales. The economic value of these services to attendees can be modeled in a similar fashion to the volunteer activities previously cited by using average wage levels as the primary metric for estimating the cost that attendees would likely have had to pay for similar programs and services elsewhere.

² <https://independentsector.org/wp-content/uploads/2023/04/Value-of-Volunteer-Time-by-State-2001-2022.pdf>

The SCSGC also directly supports selected students in furthering their graduate studies. As these students complete their programs and are hired for jobs in their field of study, they earn higher wages as a result. Thus, the economic impact of the SCSGC resulting from this student support can be estimated by calculating the higher demand that is directly generated as a result of the higher incomes the students earn and then spend in the local economy following graduation.

The total economic impact of all SCSGC activities on the states of South Carolina and Florida are displayed in **Table 1**. In sum, the SCSGC generates an annual economic impact of \$12.9 million across the two-state region, which is associated with 74 jobs and \$5.1 million in labor income.

Table 1: Economic Impact of SCSGC in South Carolina and Florida

DESCRIPTION	TOTAL EMPLOYMENT	TOTAL LABOR INCOME	TOTAL IMPACT
Direct Effect	36	\$2,985,125	\$6,291,909
Indirect Effect	17	\$1,031,322	\$2,801,985
Induced Effect	21	\$1,124,604	\$3,819,300
Total Impact	74	\$5,141,051	\$12,913,194

The approximately \$6.3 million in direct economic output leads to an additional \$2.8 million in indirect effects, which is the estimated total dollar value of the increased demand for goods and services of local suppliers that result from all direct activities associated with the SCSGC. This direct output also leads to \$3.8 million in induced effects, which represents the additional household spending that occurs across a wide-variety of industries within the two-state region.

The economic impacts at the state-level are highlighted in **Tables 2-3**.³ In South Carolina, the SCSGC generates an annual economic impact of \$9.0 million, which is associated with 52 jobs and \$3.6 million in labor income. The economic multiplier associated with this volume of economic activity in South Carolina is 1.8. This implies that for every \$100 spent on activities associated with the SCSGC, an average of \$80 in additional economic activity is generated statewide. In the state of Florida, the SCSGC’s annual economic impact approximates \$3.0 million, which is associated with 18 jobs and \$1.3 million in labor income.

Table 2: Economic Impact of SCSGC in South Carolina

DESCRIPTION	TOTAL EMPLOYMENT	TOTAL LABOR INCOME	TOTAL IMPACT
Direct Effect	27	\$2,339,723	\$4,937,108
Indirect Effect	12	\$666,847	\$1,844,723
Induced Effect	13	\$628,336	\$2,245,260
Total Impact	52	\$3,634,906	\$9,027,091

³ Note that due to economic spillover effects, the combined, two-state impact of the SCSGC shown in Table 1 will slightly exceed the sum of the state-level impacts shown in Tables 2 and 3.

Table 3: Economic Impact of SCSGC in Florida

DESCRIPTION	TOTAL EMPLOYMENT	TOTAL LABOR INCOME	TOTAL IMPACT
Direct Effect	9	\$716,808	\$1,354,801
Indirect Effect	4	\$254,437	\$688,106
Induced Effect	5	\$284,055	\$954,722
Total Impact	18	\$1,255,300	\$2,997,629

To put the economic impact of the SCSGC into perspective, it is useful to complete a straightforward return-on-investment (ROI) analysis for the state of South Carolina. During FY23, the state of South Carolina contributed \$977,879 in state appropriations to the SCSGC for program management and administration. Unlike federal funding or other spending activity that comes from outside of South Carolina, state funded expenditures that are supported by state tax revenue do not directly create new economic activity. Rather, they re-allocate economic activity from one sector of the economy to another. Thus, the external funding that the SCSGC generates (and the total economic activity that goes along with it) can be compared to the state appropriations that it receives to determine an accurate ROI for the state of South Carolina. **Table 4** provides this comparison.

Table 4 – SCSGC Return-on-Investment Summary: FY23

DESCRIPTION	SOUTH CAROLINA	TWO-STATE REGION
Total Annual Economic Impact	\$9,027,091	\$12,913,194
FY23 State Funding	\$977,879	\$977,879
Return-on-Investment	\$9.23	\$13.21

When comparing the total economic activity in South Carolina in FY23 that is derived from the SCSGC (\$9,027,091) to the state appropriations in FY23, the resulting ROI is 923 percent. This implies that, on average, for each dollar appropriated to the SCSGC, the SCSGC facilitates approximately \$9.23 in new economic activity in South Carolina. Similarly, the ROI that results from comparing the total economic activity in the two-state region in FY23 that is derived from the SCSGC to its state appropriations is 1,321 percent. Thus, on average, for every dollar that is appropriated to the SCSGC by the state of South Carolina, the SCSGC generates or supports approximately \$13.21 in new economic activity in the two-state region.

For each dollar appropriated to the SCSGC, the SCSGC facilitates approximately \$9.23 in new economic activity in South Carolina.

SECTION V

Conclusion

It is critically important to South Carolina's economy that the state's diverse coastal and ocean resources be sustainably utilized and managed. The coastal region of South Carolina is vital for the ongoing economic health of coastal communities, coastal tourism and recreation industries, fisheries and aquaculture operations, seaport activity, traditional waterfront uses, and many other business and social activities that depend on the state's coastal and ocean resources. The primary purpose of the SCSGC is to generate and provide science-based information to enhance the practical use and conservation of coastal and marine resources that fosters a sustainable economy and environment for the businesses that depend on them and for the people who enjoy them.

Through acquiring external funding for research and development, coordinating volunteer activities, and creating independent regional research, extension, education, and workforce training programs, in FY23 the SCSGC contributed to or supported over \$9.0 million in economic activity for the state of South Carolina and nearly \$13.0 million in economic activity for the two-state region of South Carolina and Florida. This is associated with an increase in labor income of \$3.6 million for South Carolinians and \$5.1 million for the two-state region as a whole.

Yet perhaps most striking is the ROI that this economic activity implies for South Carolina. For FY23, comparing the \$9.0 million in economic activity with the \$977,879 in state appropriations yields an ROI of 923 percent. In other words, the SCSGC generates or supports approximately \$9.23 worth of new economic activity within South Carolina for every dollar allocated to the SCSGC in state appropriations.

Thus, the SCSGC not only provides a value to the many coastal industries, businesses, and organizations of South Carolina by providing science-based information on the state's coastal resources to support sustained use, but also through its own, independent impact of \$9.0 million in economic output that generates new jobs and incomes for South Carolinians.





www.scseagrants.org