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**Executive Director, South Carolina Sea Grant Consortium**

**Testimony Regarding the Reauthorization of the  
National Sea Grant College Program  
Before the Subcommittee on Energy and Environment  
Committee on Science and Technology  
United States House of Representatives  
Washington, DC  
May 21, 2008**

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Chairman Lampson, Ranking Member Inglis, and Members of the Subcommittee:

My name is M. Richard DeVoe. I am the Executive Director of the South Carolina Sea Grant Consortium. It is an honor to be with you this morning, and it is with great appreciation that I and my Sea Grant colleagues acknowledge your leadership and this Subcommittee's support for the National Sea Grant College Program. Thank you for the opportunity to express my views, from a state and regional perspective, regarding H.R. 5618, the reauthorization of the National Sea Grant College Program.

The S.C. Sea Grant Consortium is one of 31 university-based Sea Grant programs that work with coastal communities, business and industry, educational institutions, non-profits, and others to generate and deliver user-driven, science-based information on coastal and marine resource development, management, and conservation to our diverse and ever-growing constituencies throughout the nation. The Consortium consists of eight member institutions – The Citadel, Clemson University, Coastal Carolina University, College of Charleston, Medical University of South Carolina, South Carolina Department of Natural Resources, South Carolina State University, and University of South Carolina – which provide the scientific and technical expertise, facilities, and training to address coastal and marine resource issues and opportunities in our state and region.

I have been the Consortium's Director since 1997; however, I have been with S.C. Sea Grant since 1980 upon graduation from the University of Rhode Island. I have also been actively involved with the Sea Grant network through the Sea Grant Association, having served as its President in 2001 and 2002, and as chair of its External Relations Committee since 2002. In addition, I currently serve as chair of the Board of Directors for the SouthEast Coastal Ocean Observing Regional Association (SECOORA), Executive Committee member of the Board on Oceans and Atmosphere of the National Association of State Universities and Land Grant Colleges (NASULGC), and South Carolina representative on the Consortium for Ocean

Leadership. At the state level, I am a member of the Board of Directors for The Noisetette Foundation (Charleston, SC), the Slocum-Lunz Foundation, and the Lowcountry Institute (Spring Island, SC), and serve as chair of the S.C. Task Group on Harmful Algae. Thus, my comments today reflect my experiences and insights gained through my work at the national, regional, and state levels.

### **Views on H.R. 5618**

As a Sea Grant program director, I wish to state that I strongly support the intent and many of the proposed changes contained within the National Sea Grant College Program Amendments Act of 2008 (H.R. 5618). I offer the following comments on five provisions of the bill; four of which are favorable and one expressing some concern:

#### **1. Program Evaluation and Assessment**

H.R. 5618 makes significant modifications to the rating and ranking process which were added to the Sea Grant statute during the last reauthorization in 2002. The requirements in Section 3(B)(1)(A)(ii) of the National Sea Grant College Program Act Amendments of 2002 (P.L. 107-299) have inadvertently resulted in the discouragement of collaboration and reduction in sharing of “best practices” among and between state Sea Grant College programs. These requirements were initially developed to further the competitive process, but in practice, they have placed the state Sea Grant programs at odds with one another at a time when collaboration and partnering, particularly on a regional scale, is ever more important and necessary. Stipulating that no more than 25 percent of the programs can be ranked within the top two performance categories is counter-productive to Sea Grant’s goal of maintaining highest performance for all Sea Grant College programs, as well as to enhance the sharing of “best practices.”

H.R. 5618 replaces these requirements. It is important that the Sea Grant Colleges function as a nationwide network – with strong encouragement for sharing best practices, research and management results, and outreach and extension activities. I support the intent of this bill in its endorsement of the recommendations made by the National Academy of Sciences to strengthen and link the strategic planning process of Sea Grant College programs and the Sea Grant program evaluation process. I believe the new evaluation system under development by NOAA with the Office of Oceanic and Atmospheric Research and the National Sea Grant Office, which will rate the Sea Grant College programs against a set of standard metrics and not against one another, will result in improved individual Sea Grant College program performance and regional collaboration and enhanced information sharing among programs. This will translate into more effective and efficient delivery of services and products to Sea Grant’s stakeholders and the nation’s citizenry.

#### **2. Enhancement of Regional Efforts**

H.R. 5618 includes provisions that would complement Sea Grant’s traditional role at the state and local levels with regional efforts. While many of the issues facing our coastal communities can only be addressed with grass-roots efforts, emerging issues related to climate change, sea level rise, ecosystem-based management of living marine resources, alternative ocean energy

development (wind, wave, and currents), among others cry out for a significant investment in integrated regional programs to develop the information base necessary to inform decision-making, enhance economic growth, conserve living and non-living resources, and enhance public awareness. Sea Grant is well-positioned and organized to assume this challenge. It has already invested in the development of regional ocean and coastal research plans across the country, bringing stakeholders to the table to identify priority needs, and using the interagency Ocean Research Priorities Plan and Implementation Strategy (National Science and Technology Council, January 2007) as the foundation for these discussions. Further, Sea Grant can play a significant role in implementing these plans with an additional investment of resources and talent; an investment that is matched with contributions from the states and universities. I applaud H.R. 5618 for recognizing the importance of regional collaboration as a key component to the success of the National Sea Grant College Program.

### **3. Flexibility in Resource Allocation**

The current Sea Grant statute (P.L. 107-299) includes within its authorization of appropriations a line for base funding along with a number of “Congressional mandates” for research on zebra mussels, oyster disease and restoration, and harmful algal blooms, as well as provides for fisheries extension. The purpose of these mandates in 2002 was to ensure that Sea Grant dollars were being explicitly used to address these topics. While I cannot and will not deny the importance of addressing the issues identified by these mandates, I support the changes in H.R. 5618 to remove these explicit mandates and instead provide an authorization for overall base funding for Sea Grant. Providing one authorization for the program as opposed to a myriad of authorizations gives the National Sea Grant Office enhanced flexibility for the management of Sea Grant resources to ensure that the most critical and timely issues are subjected to the very best science, education, and outreach given limited federal dollars. It also provides Sea Grant with the ability and agility to address emerging needs and issues much more effectively and efficiently.

### **4. Linking Sea Grant Priorities to Federal Priorities**

H.R. 5618 links the Sea Grant strategic planning and priority setting process to the federal interagency Ocean Research Priorities Plan and Implementation Strategy<sup>1</sup> released in January 2007 by the Joint Subcommittee on Ocean Science and Technology. The interagency ocean research priorities plan was greatly informed and strengthened by state and regional input provided by the Federal-State Task Force organized by the Subcommittee on Integrated Management of Ocean Resources (SIMOR) of the U.S. Committee on Ocean Policy, on which I was a member. Linking Sea Grant priorities to this interagency effort is a significant change; one that will enhance Sea Grant efforts to leverage federal resources to develop and implement joint multi-agency efforts. I submit that Sea Grant, as a proven resource and a successful Federal-State-university partnership, should be utilized whenever possible by the Federal government to address its national ocean research and outreach priorities; however, for this to become a reality, enhanced federal investment in Sea Grant is crucial.

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<sup>1</sup> Charting the Course for Ocean Science in the United States for the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy, NSTC Joint Subcommittee on Ocean Science and Technology, January, 2007

## 5. Authorization of Appropriations

While up to this point I have shared nothing but support for the provisions of H.R. 5618, I would like to register my concern about *Section 10, Authorization of Appropriations*. The authorization levels contained in H.R. 5618, particularly for Fiscal Year (FY) 2009, represent a significant reduction (of more than 33 percent) from Sea Grant's current (FY 2008) authorization level. While over the last six years the National Sea Grant College Program has not received appropriations that have come close to its authorization levels, such a significant reduction could be interpreted to say that Sea Grant will never reach such levels of appropriations, and falls short of what is truly needed to address the ever-increasing needs and opportunities that our nation's coastal, ocean, and Great Lakes resources present, as articulated in the report of the U.S. Commission on Ocean Policy (2004), in other recent analyses, and indeed in H.R. 5618. For these reasons, I ask that the Committee consider including in H.R. 5618 authorization of appropriations levels that grow to \$125 million by FY 2014.

The budgets of both the National Sea Grant Office and the state Sea Grant programs were directly impacted by the dramatic reduction of Sea Grant appropriations (by about 13 percent) starting in FY 2006. Indeed, each of the state Sea Grant programs absorbed a budget reduction of about three (3) percent during the FY 2007 cycle. The National Sea Grant Office, from what we understand, had to divert funding from national investments to core Sea Grant support to help offset what could have been much more significant reductions in state Sea Grant program support. Exacerbating this situation is the fact that a portion of each state Sea Grant program budget is devoted to core salaries and wages which, just as with federal staff salaries, rise each year due to cost-of-living increases; these also have cut into the programmatic "buying power" of the state Sea Grant programs.

These impacts have begun to directly affect our ability to deliver services to our coastal constituencies on a regular basis. Stakeholders all over the country have grown to rely on the high level of service and expertise coming out of the Sea Grant program. However, the level of Sea Grant support has not kept pace with the increasing pressures and needs of our coastal communities. In addition, the costs of research and education are rising, which under a flat funding environment means that programs are forced to reduce staff and leave numerous high-quality research and outreach projects unfunded. To put it into perspective, Sea Grant's appropriations are more than 20 percent below the buying power of its 1980 level.

The implications for Sea Grant are significant with respect to its ability to significantly contribute to the economic, environmental, and social well-being and health of our coastal regions. Currently, the Sea Grant network is severely strained and challenged to support its current activities, staff, and operations with its current budget, and has not been able to invest in new research, education, and outreach efforts to address emerging challenges in such areas as regional climate change, coastal community resiliency, and ecosystem-based management. At present, only about 12 percent of the research proposals submitted for funding to the Sea Grant program are funded due to resource constraints. In addition, Sea Grant's extension, communication, and education activities are in jeopardy. A recent report of the NOAA Science Advisory Board recognized the value of extension, education, and outreach endeavors by NOAA and called for the expansion of these activities. Sea Grant is the model program for

implementing such a request with its broad on-the-ground and highly credible network. However, it will be impossible to fulfill that policy recommendation without additional funding support for the program. Research, education, and outreach are at the heart of what Sea Grant is all about. Each component must be supported in order to meet increasing research demands and to turn that research into sound policy that keeps our citizens safe and prosperous.

Again, I urge you to include in H.R. 5618 authorization of appropriations levels that recognize the current and future needs of the program and allow the program to grow to \$125 million by FY 2014.

### **What Makes Sea Grant Unique?**

Sea Grant was created by Congress in the mid-1960s as an analog to the successful Land Grant College Program administered by the U.S. Department of Agriculture. This “College of the Seas” was created to harvest the many talents, diverse expertise, and ability to respond rapidly to issues and opportunities embodied in the nation’s top universities, to ensure the wise use and conservation of the nation’s coastal, marine, and Great Lakes resources. I would submit to you that over the past 42 years, Sea Grant has done just that, albeit with support at more than an order of magnitude less than its sister Land Grant program.

Sea Grant is unique among Federal research and outreach programs for a number of reasons:

Sea Grant is by definition a Federal-State-university partnership. Sea Grant provides planning, implementation, and administrative mechanisms by which the federal government can engage the U.S. universities in addressing critical national coastal and marine issues. Because it is a matching fund program, the states and universities have a vested role and responsibility in ensuring that Sea Grant programs and activities are conducted in an efficient and effective manner. Indeed, a great number of state Sea Grant programs actually provide more matching support than is required by law (i.e., two federal dollars to one non-federal).

Sea Grant employs an integrated research, education, and extension approach. While many federal science agencies focus their attention primarily on supporting research, Sea Grant is unique in that it couples research and outreach together to ensure that the scientific information generated is made available to constituencies in forms that they can understand and use.

Sea Grant addresses “real” problems and opportunities for “real” people. The research that Sea Grant supports is based on user needs, which are solicited by the state Sea Grant programs through planning workshops, on-line surveys, constituent interactions, and information received by agents and specialists with the state Sea Grant Extension Service programs, and is reflected in state Sea Grant strategic plans. These feedback mechanisms ensure that Sea Grant efforts are relevant, timely, focused, and stakeholder-driven, and directly address the needs of government, business, industry, communities, education, and workforce development.

Sea Grant works at many geographic scales. The complexity of issues and opportunities affecting our nation’s coastal, ocean, and Great Lakes resources underscore the fact that one cannot apply a “one size fits all” approach to them – they need to be addressed at the appropriate

geographic scales. For example, fisheries management for the snapper-grouper complex in the South Atlantic Bight may require a strong regional approach, whereas addressing the effects of land use on ecosystems may be better addressed at the local level, where 80 percent of all land-use decisions are made. The point is that Sea Grant has the built-in flexibility to be able to serve the information needs of a diversity of users at the national, regional, state, and local levels. There are many examples of such efforts in the southeastern U.S. and in South Carolina; several are provided in the next section of my testimony.

Sea Grant is seen by its constituencies as an honest broker. Because Sea Grant programs focus on the generation and delivery of science-based information, and have no resource management or regulatory responsibilities, their staff are able to engage a wide diversity of coastal and marine interests to develop consensus or resolve resource conflicts. Sea Grant's Extension Program staff typically live in the locations where their clientele reside; they are members of the communities in which they work and have built a wealth of credibility with their audiences.

Sea Grant leverages significant resources. Since Sea Grant funding support has fallen far short of the resources the program needs to address the ever-increasing demand for its information, products, and services, State Sea Grant programs have been able to leverage their funding with other sources of support, both human and financial. In South Carolina, for example, the Sea Grant Consortium has been able to competitively secure more than \$4 million in grants to complement its Sea Grant efforts last year. Increased funding for Sea Grant will enable state Sea Grant programs to leverage even more. Also, we have been able to develop partnerships with representatives from state and federal agencies, universities, and the private sector to organize initiatives to address key resource issues. For example, the S.C. Sea Grant Consortium organized a S.C. Task Group on Harmful Algae in 1996, which has collectively developed a multi-institutional protocols for HAB monitoring and surveillance, rapid response to events, and post-event triage.

### **Resource Challenges in South Carolina and the Region**

Sea Grant is thus in a unique position to meet current and future challenges that confront resource managers, coastal communities, business and industry, and interested citizen groups throughout the United States through the generation and provision of science-based information. I have worked with my colleagues at S.C. Department of Health and Environmental Control-Office of Ocean and Coastal Resource Management (S.C. DHEC-OCRM), S.C. Department of Natural Resources-Marine Resources Division (S.C. DNR-MRD) and our counterparts in the southeastern U.S. to identify a number of these issues.

**Coastal Development.** While the southeastern region of the United States is one of the least developed in the nation, it is now the fastest growing. Four of the eight states with the highest rate of population growth from 1960-1990 were the four southeastern states. According to the Census Bureau, the four southeastern U.S. states have been recently ranked as the top thirteen fastest growing states in the nation, and one-third of the nation's 100 fastest-growing counties are in Georgia (16), Florida (14), North Carolina (3), and South Carolina (1). This growth is concentrated in coastal counties, and is outpacing our ability to understand, react, and plan for changes in environmental, social, and economic conditions. Significant impacts to the

landscape, estuarine water quality, and coastal ecosystem integrity are predicted as a result of increasing coastal urbanization due to population growth. Growth and development are already placing enormous pressure on coastal resources, watersheds, and the adjacent coastal ocean. Sea Grant is well-positioned, with an expansion of its coastal community development initiative, to enhance its role in addressing the issues that have emerged from these development pressures.

**Mapping Marine Resources.** Proper management and use of the region's living and non-living marine resources requires that that region undertake a comprehensive mapping and research program. Presently, less than five percent (5 percent) of the coastal ocean region of the southeastern U.S. has been mapped. A comprehensive assessment of (1) existing ocean infrastructure (e.g., pipelines, cables, channels, etc.), (2) sources and quality of sand resources for beach nourishment projects, (3) critical fisheries habitat, including documentation of hard bottom areas and other important habitats, and (4) potential offshore energy sources, including natural gas, is necessary to identify the potential for multiple use conflicts and allow for comprehensive planning for an expanding range of ocean activities. Therefore, a significant need exists for standardized, integrated, and accessible spatial data for the management of marine resources in our region. Management of the region's ocean and coastal resources is dependent on developing the scientific understanding of the processes that control resource behavior, and their fate is essential to maintaining healthy ecosystems and providing renewable, enjoyable, and safe resources to the public. Sea Grant has the capacity in its universities to generate and disseminate such information to the resource management community.

**Healthy Fisheries and Habitat.** The South Atlantic Fishery Management Council, through a partnership of State agencies, Federal agencies, universities, and conservation organizations, is developing a Fishery Ecosystem Plan and Comprehensive Ecosystem Amendment for the South Atlantic region. This effort will meet existing and anticipated mandates in the Magnuson-Steven Fishery Conservation and Management Act, the Ecosystem Principals Report to Congress, and the President's Ocean Action Plan developed in response to the U.S. Commission on Ocean Policy. Goals include maintaining and improving (1) ecosystem structure and function, (2) economic, social, and cultural benefits from resources, and (3) biological, economic, and cultural diversity in the South Atlantic Region. Ecosystem-based management has been embraced by the Regional Council, but will require a significant investment in research and outreach to implement it. Again, this is an effort to which Sea Grant can greatly contribute.

**Watershed-Coastal Ocean Linkages.** From the interior basins to the coastal margins, natural processes and human activities in the southeastern U.S. are affected by water flow, and its role in determining the transport and fate of materials and the structure of ecosystems. Inputs of freshwater from rivers, ground water, and rainfall vary spatially and temporally. Associated with the volumes of water delivered to the coastal ocean are variable loads of sediment, nutrients, and pollutants. The inputs of freshwater and materials interact with the coastal ocean to influence processes such as local circulation patterns, sediment accumulation and transport, shoreline dynamics, and habitat quality and stability for marine and estuarine species.

**Disaster-Resilient Communities.** Hurricanes and other coastal hazards are a major concern in the southeastern U.S., threatening hundreds of coastal communities, a multi-billion dollar tourism industry, coastal and watershed development and infrastructure, the fishing industry, and

traditional coastal enterprises. In the wake of Hurricane Hugo, which struck the South Carolina coast in 1989, over \$5 billion in damages to coastal residences and industry underscored the vulnerability of coastal development to natural processes. The more significant impacts, both human and structural, that occurred as a result of Hurricanes Andrew, Katrina, Rita, and Wilma have since underscored the need for the southeast region to greatly enhance its understanding of ocean and weather dynamics and improve its prediction and forecasting capabilities. Longer-term phenomena, such as climate change and sea level rise, have also emerged as critical issues for coastal resource managers and coastal communities. Each of the southeastern states has initiated activities that focus on the needs of the states in light of emerging concerns about these long-term coastal hazards.

**Prospects for Nearshore and Offshore Energy Development.** In 2006, the U.S. Congress passed an energy bill to increase the ability of the nation to become more energy self-sufficient. Strategies include opening additional coastal ocean and offshore areas to further oil and gas development, as well as pursuing alternative energy solutions through wind, wave, current, biofuels, and others. For example, off the southeastern U.S. coast, there is industry interest in natural gas deposits, companies are exploring the feasibility of siting offshore wind energy facilities, and the potential for wave and current energy is now being discussed.

**Environmental Education and Public Awareness.** Population trends for the southeast U.S. region, and the limited information that exists on its coastal ocean resources, suggests that there are many more people living in the southeastern United States that have little knowledge of or experience with the dynamic nature of our region's ecosystems, hurricane and storm patterns, shoreline and beaches, and other coastal ocean-related phenomena. A regional partnership is needed to foster a "sense of place" among southeastern coastal residents, and to clarify links between the health of the coastal and ocean ecosystem and their quality of life; an effort that Sea Grant can foster. An informed population is a prepared population.

### **Selected Sea Grant Highlights in South Carolina and the Region**

There is great potential and inertia with the Sea Grant College program network to play a much more significant role in addressing critical coastal, marine, and Great Lakes issues and opportunities throughout the nation with an increase in program support. Nevertheless, Sea Grant continues to produce significant results for its extremely diverse and varied constituencies at the regional, state, and local levels on behalf of the federal and state governments and the over 300 universities it engages.

The Sea Grant program has significantly contributed towards a sustainable environment and economy through integrated programs of research, education, and outreach in my own state of South Carolina, as the following regional and state-level examples illustrate.

#### **Regional Sea Grant Highlights**

**Establishing the Southeast Regional Association for Ocean Observing.** The S.C. Sea Grant Consortium is serving as the lead organization, under the terms of a grant awarded by the NOAA Coastal Services Center, to foster the establishment of a "Regional Association"

for the coastal ocean observing system network in the Southeastern coastal ocean region of the United States to integrate coastal ocean observing capabilities and provide regional data and information. The Southeast Coastal Ocean Observations Regional Association, (SECOORA: see <http://secoora.org>), with Consortium leadership and assistance, is providing administrative, operational, and budgetary support for SECOORA, which has been incorporated as a 501(c)(3) non-profit corporation with 42 dues-paying member organizations from NC, SC, GA, and FL.

**Improving Flood Detection and Warning Capabilities.** Riverine and coastal flooding associated with hurricanes, tropical storms, and other forces of nature cause significant loss of property and economic hardship each year. To help communities in South Carolina, North Carolina and beyond, the S.C. Sea Grant Consortium and its partners, the National Sea Grant Office, North Carolina Sea Grant, and the NOAA National Severe Storms Laboratory (NSSL), are leading a regional project, CI-FLOW (Coastal/Inland Flood Observation and Warning), to pilot a new flood detection and monitoring system. Test results are being used in conjunction with NOAA National Weather Service flood tools to improve flash flood detection and warning capabilities. CI-FLOW is also being integrated by N.C. State University researchers into a hurricane storm surge model to provide more accurate inputs from riverine flooding, as well as being transferred to Sea Grant programs in the Gulf of Mexico for flood applications there.

**Multi-disciplinary Team's Findings Published in Book by Springer-Verlag.**

Understanding how coastal growth and development impacts natural resources helps decision makers guide development for both economic benefit and conservation of our natural resource heritage. Results of the South Atlantic Bight Land Use – Coastal Ecosystem Study (LU-CES), a multidisciplinary research program initiated by the S.C. Sea Grant Consortium with funding from the NOAA Coastal Ocean Program, have formed the basis for a recently published book by Springer-Verlag titled *Changing Land-Use Patterns in the Coastal Zone: Managing Environmental Quality in Rapidly Growing Regions*, edited by Gary S. Kleppel, M. Richard DeVoe, and Mac V. Rawson. South Carolina and Georgia Sea Grant extension and communications staff wrote the chapter introductions, which provide the reader with a summary of each chapter written in layman's terms. The book is part of the Springer Series on Environmental Management, and up to two dozen investigators from a range of marine-related science disciplines contributed to the text by writing chapters. Due to its multidisciplinary and collaborative nature, the book should become a landmark in the area of understanding coastal estuarine ecosystem dynamics and the nature of anthropogenic inputs. To date, almost 1,000 copies of the book have been sold.

**SouthEast Center for Ocean Sciences Education Excellence.** The SouthEast Center for Ocean Sciences Education Excellence (COSEE-SE), one of 10 regional centers supported by the National Science Foundation nation-wide, has been established at the S.C. Sea Grant Consortium through a multi-year grant from the NSF, with additional funding from NOAA Office of Ocean Exploration and the NOAA Coastal Services Center. The role of COSEE-SE is to foster educator-scientist interactions, increase access and preparation of culturally diverse populations, promote regional networking and collaboration, and improve science education and ocean literacy for all citizens. To date, COSEE-SE has partnered with more

than 75 organizations to engage more than 2,500 teachers from NC, SC, and GA in enhancing their capabilities in incorporating ocean sciences in the classroom.

### **South Carolina Sea Grant Highlights**

**Bringing Marine Science to the Upstate.** Recognizing that the influence of the oceans extends well inland from the coast, and that activities in upland areas can have impacts on coastal, the Roper Mountain Science Center (RMSC) in Greenville, SC secured a small grant of just \$1,500 from the Consortium in the mid-1980s to assemble a “touch-tank” so that children in the upstate could become more familiar with sea life. According to the center, this modest investment by Sea Grant led to the development of the Marine Lab and the Ecology Lab at the Center. The Center is now in the process of developing education exhibits in the labs, and in the coming year 8,000 students and teachers will attend formal lessons in the Marine Lab. Each lesson will focus on the South Carolina Science Curriculum Standards. Students from 29 school districts in 14 counties visit the Roper Center, and 11,000 other children will see the Marine Lab at designated public times. The Consortium continues to support the Roper Mountain Science Center and assist with new exhibits to enhance teaching skills and experiences. Last year, the Consortium supported a grant for education presentation equipment needed for lessons in the new Marine Lab. I have attached to this testimony a letter from Dr. Brandis Hartsell, Curator, Marine and Earth Sciences at RMSC, which provides more detail about this exciting partnership.

**Securing Residential Structures in the Face of Coastal Hazards.** With Sea Grant support, Dr. Ed Sutt, while a graduate student at Clemson University, studied better ways to secure residential home structures under threat from hurricanes and earthquakes. He discovered that house failures often start with a broken window. High winds then inflate the house and cause the roof to lift from its frame. In response, and based on initial Sea Grant support, Dr. Sutt, now with Stanley Works, invented a nail made of carbon-steel alloy, with a wider head than other nails, barbs that hold the shaft firmly in the frame to prevent pullout, and a twist below the nail head to fill the space that the barbs open to hold the nail in place. Tests, during which the new nail was subjected to hurricane force winds, revealed the nail held at 20,000 pounds: at 9,000 pounds, regular nails begin to pull out of the framework. Dr. Sutt’s invention, known as the Hurri-Quake® nail, was voted the 2006 Grand Award Winner for the "Innovation of the Year" by the national magazine, *Popular Science*.

**Enhancing Red Drum Stocks.** Sea Grant-supported stock enhancement research on the state’s top gamefish, red drum, has demonstrated that red drum can be spawned in captivity, released into coastal estuaries, and make significant contributions to natural coastal populations. This research is being conducted in South Carolina by SC Department of Natural Resources-Marine Resources Division scientists. As a result of Sea Grant support, stock enhancement is now a recognized management tool for red drum in South Carolina. In addition, methodologies developed during the research - utilizing state-of-the-art chemical and genetic marking techniques - are now being implemented as the primary marking and detection technique by S.C. DNR for all fish stocked in South Carolina waters.

**Conservation Plan Helps Jasper County Prepare for Growth.** Jasper County, like many South Carolina communities, is growing at a rapid pace. Planning and managing that growth is important to support and conserve the natural resources that enhance economic development. In August of 2004, the S.C. Sea Grant Consortium, in conjunction with the Jasper Soil and Water Conservation District (JSWCD), the USDA-Natural Resources Conservation Service (NRCS), and the S.C. Department of Natural Resources, began a countywide conservation planning effort. In November 2006, the plan was submitted to the County for incorporation into the Natural Resource Element of their Comprehensive Land Use Plan. A print version was published in June 2007 and is also available on CD-ROM and on the S.C. Sea Grant Consortium Web site.

### **Summary – Enhanced Federal Support for Sea Grant is Critical**

Mr. Chairman and members of the Subcommittee, I join with my Sea Grant colleagues around the country to suggest that the National Sea Grant College Program should **become NOAA’s primary university-based research, education, extension and outreach, and technical assistance program for coastal, marine, and Great Lakes resources.** However, to achieve this end will require a significant infusion of federal (and thus non-federal matching) support to enhance the National Sea Grant College Program to a level of \$125 million by fiscal year 2014.

I believe it is critical for the Congress to provide the National Sea Grant College Program with the resources necessary to build on the program’s record of success and promise with a reauthorization of appropriations that matches both the immediate and long-term needs of all who live and work along the nation’s coastlines, and one that represents the initial step in achieving a broader vision for the program as proposed in this testimony.

Thank you again for the opportunity to testify on behalf of the S.C. Sea Grant Consortium. I will be glad to address any questions the Subcommittee may have.



May 19, 2008

The Honorable Nicholas V. Lampson, Chairman  
Subcommittee on Energy and Environment  
Committee on Science and Technology  
U.S. House of Representatives  
Washington, DC 20515

The Honorable Bob Inglis, Ranking Member  
Subcommittee on Energy and Environment  
Committee on Science and Technology  
U.S. House of Representatives  
Washington, DC 20515

Dear Mr. Chairman and Congressman Inglis:

I'm writing this letter in support of H.R. 5618, the National Sea Grant College Program Amendments Act of 2008. The South Carolina Sea Grant Consortium has been instrumental in the financial support and implementation of educational programs at Roper Mountain Science Center (RMSC), a Greenville County School District facility that offers standards-based interactive science classes to 74,000 public and private school students.

When the science center first developed the concept of a sea life room, the S.C. Sea Grant Consortium contributed a significant portion of the funds we needed to create a place where upstate students could learn about the marine environment and have perhaps their first and only contact with ocean animals.

Every year, the Southeast Center for Ocean Science Education Excellence (COSEE-SE), a regional program administered by the S.C. Sea Grant Consortium, provides monetary support for an Ocean Awareness Day, a full-day workshop for local teachers interested in incorporating or enhancing a study of marine science. RMSC has hosted this workshop for the past three years, always with full attendance.

This summer, I'll be attending the COSEE-SE Ocean Education Leadership Institute in Wilmington, North Carolina, where teachers will be provided with the latest information about undersea research in the South Atlantic Bight. As with other Sea Grant-sponsored educational opportunities, I'm certain the experiences I take away from the workshop will prove to be an invaluable method of enrichment for RMSC marine studies students.

The S.C. Sea Grant Consortium's most recent contribution made it possible for the science center's marine lab to acquire an ocean observation buoy, with a complete complement of meteorological instrumentation, and a computer touch-screen kiosk outfitted with a child-friendly "investigation" program specifically designed to interface with the buoy. I'm looking forward to including this new oceanographic component in our school programs.

The National Geographic Society, the National Oceanic and Atmospheric Administration, COSEE, and the National Marine Educators Association are among the many coordinators and sponsors of the Ocean Literacy program, the prime directive of which is to include a study of the marine ecosystem at all levels of learning and as part of every state's educational standards. In view of the inherent value of the S.C. Sea Grant program as an avenue for educators and their students to fulfill this goal, I urge you to offer your support for an increase in federal funding for the Sea Grant program so that it may continue, unrestricted by a lack of monies, to support ocean science literacy and play a part in the future health of our planet.

Sincerely,

Brandis Hartsell, Ph.D  
Curator, Marine and Earth Sciences  
Roper Mountain Science Center