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THE NATIONAL SEA GRANT COLLEGE PROGRAM ACT: H.R. 5618

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

COMMITTEE ON SCIENCE AND TECHNOLOGY

HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

MAY 21, 2008

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CONTENTS

May 21, 2008

	Page
Witness List	2
Hearing Charter	3

Opening Statements

Statement by Representative Nick Lampson, Chairman, Subcommittee on Energy and Environment, Committee on Science and Technology, U.S. House of Representatives	7
Written Statement	7
Statement by Representative Bob Inglis, Ranking Minority Member, Subcommittee on Energy and Environment, Committee on Science and Technology, U.S. House of Representatives	7
Written Statement	8
Prepared Statement by Representative Jerry F. Costello, Member, Subcommittee on Energy and Environment, Committee on Science and Technology, U.S. House of Representatives	8

Witnesses:

Mr. Craig N. McLean, Deputy Assistant Administrator for Programs and Administration, Office of Oceanic and Atmospheric Research, National Oceanic and Atmospheric Administration, U.S. Department of Commerce	
Oral Statement	9
Written Statement	11
Biography	17
Mr. Paul S. Anderson, President, Sea Grant Association; Director, Maine Sea Grant College Program	
Oral Statement	18
Written Statement	19
Biography	27
Mr. M. Richard DeVoe, Executive Director, South Carolina Sea Grant Consortium	
Oral Statement	27
Written Statement	29
Biography	37
Mr. Patrick F. Riley, General Manager, Western Seafood Company, Inc., Freeport, Texas	
Oral Statement	38
Written Statement	41
Biography	43
Discussion	
Expanding H.R. 5618's Mandate	43
Technology Transfer	45
Aquaculture	46
Offshore Wind Farms	47
Conservation and Stewardship	48
Diversity of Participation	49
Matching Funds Requirement	50
Collaboration With NMFS	50
Fishing Industry Challenges	51
More on Offshore Wind Farms	52

Page

Cooperation Between Sea and Land-based Programs 54
Rainwater as a Drinking Source 56

Appendix: Additional Material for the Record

H.R. 5618, the *National Sea Grant College Program Amendments Act of 2008* 60

Statement to the Subcommittee on Fisheries and Oceans, Committee on Natural Resources, U.S. House of Representatives on April 3, 2008 by John T. Woeste, Vice Chair, National Sea Grant Review Panel, Office of Oceanic and Atmospheric Research, National Oceanic and Atmospheric Administration, U.S. Department of Commerce 71

THE NATIONAL SEA GRANT COLLEGE PROGRAM ACT: H.R. 5618

WEDNESDAY, MAY 21, 2008

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:05 a.m., in Room 2325 of the Rayburn House Office Building, Hon. Nick Lampson [Chairman of the Subcommittee] presiding.

BART GORDON, TENNESSEE
CHAIRMAN

RALPH M. HALL, TEXAS
RANKING MEMBER

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Subcommittee on Energy and Environment

Hearing on

The National Sea Grant College Program Act: H.R. 5618

Wednesday, May 21, 2008
10:00 a.m. – 12:00 p.m.
2325 Rayburn House Office Building

Witness List

Mr. Craig McLean
Deputy Assistant Administrator for Programs & Administration, Oceanic & Atmospheric Research, National Oceanic & Atmospheric Administration

Mr. Paul S. Anderson
President, Sea Grant Association, and Director, Maine Sea Grant College Program

Mr. M. Richard DeVoe
Executive Director, South Carolina Sea Grant Consortium

Mr. Patrick Riley
General Manager, Western Seafood, Freeport TX

HEARING CHARTER

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
COMMITTEE ON SCIENCE AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

The National Sea Grant College Program Act: H.R. 5618

WEDNESDAY, MAY 21, 2008
10:00 A.M.—12:00 P.M.
2325 RAYBURN HOUSE OFFICE BUILDING

Purpose

On Wednesday, May 21, 2008 the Subcommittee on Energy and Environment of the Committee on Science and Technology will hold a hearing to receive testimony on H.R. 5618, the *National Sea Grant College Program Amendments Act of 2008.*

H.R. 5618, introduced by Representative Bordallo (D–GU) Chair of the Committee on Natural Resources Subcommittee on Fisheries, Wildlife, and Oceans, reauthorizes and amends the *National Sea Grant College Program Act.* The purpose of the hearing is to receive testimony on H.R. 5618, the *National Sea Grant College Program Act of 2008.*

The hearing will focus on the legislation to reauthorize the National Sea Grant Program through fiscal year 2014. The hearing will also examine the program's major accomplishments, program activities, and the effectiveness of the extension and outreach aspects of the program.

Witnesses

- **Mr. Paul Anderson, President, Sea Grant Association and Director, Maine Sea Grant College Program,** will represent the institutions through the association of the 32 Sea Grant Programs from around the Nation. He will discuss the importance of supporting the National Sea Grant College Program, as well as the program's activities, accomplishments, contribution to NOAA's mission, and offer recommendations on how to strengthen the research, education and training components of the program.
- **Mr. Patrick Riley, General Manager of Western Seafood, Freeport, TX,** will represent the partners and stakeholders of the National Sea Grant College Program and the use of information generated through the programs extension and outreach efforts.
- **Mr. Craig McLean, Deputy Assistant Administrator for Programs & Administration, Office of Oceanic and Atmospheric Research (OAR), National Oceanic and Atmospheric Administration (NOAA),** will discuss the mission and importance of the Sea Grant Program, future plans for the program, programmatic issues, and issues the agency would like to see addressed in the bill.
- **Mr. M. Richard DeVoe, Executive Director, South Carolina Sea Grant Consortium,** will discuss the South Carolina Sea Grant program and its relationship to the overall Sea Grant program and summarize key recommendations.

Background

The National Sea Grant College Program (Sea Grant) was established in 1966 by the *National Sea Grant College Program Act* (33 U.S.C. § 1121–1131). It was last reauthorized in 2002. The Sea Grant Program is intended to be the marine, coastal, and Great Lakes counterpart to the Land Grant College system which serves the agricultural research and extension needs of each state. Each of the 32 Sea Grant programs works with the National Sea Grant office in the National Oceanic and Atmospheric Administration (NOAA) and the coastal community in their state or territory to develop research priorities to promote sustainable use and management of coastal or Great Lakes resources. The Sea Grant program is supported through a

combination of federal appropriations and through State appropriations and in-kind contributions.

The Sea Grant program is comprised of the National Oceanic and Atmospheric Administration (NOAA) National Sea Grant Office (NSGO), 32 university-based State programs, the National Sea Grant Review Panel, a National Law Center, a National Sea Grant Library and hundreds of participating institutions.

The Sea Grant network addresses key issues and opportunities in areas such as aquaculture, aquatic nuisance species, marine biotechnology, seafood safety, fisheries management, coastal business and development, coastal habitat, water quality, and coastal hazards. Sea Grant conducts priority-driven research, transfers scientific results to the public, provides educational opportunities from K–12 to graduate degrees, and conducts successful outreach programs. Sea Grant is a partnership among academia, government, and the private sector and uses a combination of research, education and outreach to improve management of the coastal, marine, and Great Lakes environment.

The National Ocean Research Priorities Plan (ORPP)

The National Science and Technology Council (NSTC) established a Joint Subcommittee on Oceans in 2003. At the direction of the President's Ocean Action Plan, this group was expanded in 2005 to include Science and Technology (JSOST). The JSOST reports to the Committee on Environment and Natural Resources in addition to the Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI). JSOST developed the National Ocean Research Priorities Plan and Implementation Strategy and released it in January 2007. The ORPP was designed to establish priorities for ocean science and technology for the next decade. Using this new interagency priorities plan for ocean science, the National Sea Grant Office in NOAA and the Sea Grant colleges nationwide have developed a new strategic plan that links Sea Grant's priorities with the larger interagency effort.

The ORPP provides guidance on how the various ocean science sectors (government, academia, industry, and non-government entities) can and should be engaged, individually or through partnerships, to address the areas of greatest research need and opportunity. Given the magnitude of the task, the report established priorities at a relatively high level and the implementation strategies were not detailed. Of specific interest to Sea Grant is that one of the actions identified in the Subcommittee on Integrated Management of Ocean Resources' (SIMOR) 2006 work plan is for Sea Grant's university network to facilitate the development of Regional Research and Information Plans. These Regional Plans will outline one mechanism for regional ORPP implementation and identify the top research and information priorities.

National Academy of Sciences Evaluation

The *National Sea Grant College Program Amendments Act of 2002* directed NOAA to contract with the National Research Council to evaluate Sea Grant's process of reviewing individual programs and recommend ways to improve the overall effectiveness of the evaluation process to ensure fairness, consistency, and enhancement of performance. The National Academy of Sciences completed its review in 2006 and issued its report, *Evaluation of the Sea Grant Program Review Process.*

The 2006 report recommended:

- strengthening the strategic planning process for the individual programs,
- increasing the interaction between the National Sea Grant Office and the individual programs, and
- improving the program rating and ranking process through annual assessments by the national office.

The Report commented on the importance of improving strategic planning. Some individual Sea Grant programs have developed strategic plans that reflect active collaboration with the National Sea Grant Office (NSGO) as well as its local constituents. However, other individual Sea Grant programs have been slow to develop strategic plans or have strategic plans that are poorly designed, poorly integrated with the national strategic plan, or lack specificity for addressing local and regional needs.

The peer review and assessment process of the Sea Grant program evolved significantly since its inception. The National Academy Report discusses the evolution of the evaluation process and makes recommendations to bring balance to the process with regards to appropriately directed competition and development of a robust national program whose foundation is the network of local programs created and main-

tained by individual Sea Grant colleges and institutions and administered by the NSGO.

The NAS report suggests there should be a balance in the assessment process with regard to producing improvement in the individual Sea Grant programs while also encouraging its strengths. The panel questions the benchmarks used in the evaluations and whether they are sufficiently ambitious. If the benchmarks are designed to reflect annually updated, quantitative measures of the significance and impact of research, outreach, and education activities, it would be easier to contrast program performance relative to other programs and to the program's past performance. The report also states that the evaluation criteria currently used do not adequately emphasize the importance of network building among individual programs and how such activities help to link the local and regional efforts into an effective nationwide program.

Some aspects of the current program evaluation process and ranking appear to have fostered an increase in competition and lowered the level of cooperation between individual Sea Grant programs. The Academy panel concluded that this tendency was not consistent with efforts to build a cooperative nationwide effort.[1]

Changes to the Sea Grant Program in H.R. 5618

H.R. 5618 reauthorizes the National Sea Grant College Program and amends several sections of the law including sections related to the interaction between the National Sea Grant Office and the individual programs; programmatic performance reviews; and strategic planning. A number of the changes are technical or clarifying in nature or alter specific cost-sharing or cost allocation formulas. A Section-by-Section of the bill is included below.

The Findings are amended by including reference to the National Ocean Research Priorities Plan and pointing to the Sea Grant program as the most appropriate program for carrying out the priorities listed in the Plan.

The bill would amend the law by adding two new definitions. The first is a "regional research and information plan" which expands Sea Grant's role to include regional and national projects conducted by two or more Sea Grant institutions. The second is the "National Ocean Research Priorities Plan and Implementation Strategy" which is a plan issued by the Joint Subcommittee on Ocean Science and Technology (JSOST).

In the 2002 authorization, our committee amended the Sea Grant review process to require the Director to evaluate each Sea Grant institute's performance and then to place the institutes into one of five categories based on their performance rating. This ranking was then to be used as the basis for allocating funding among the institutes with the best performing being rewarded with any increased appropriations made available. H.R. 5618 repeals this provision. The Director is still required to evaluate and assess the institutes.

H.R. 5618 designates the Sea Grant Review Panel as the National Sea Grant Advisory Board. The duties of the Board are to advise the Secretary and the Director on strategies for utilizing Sea Grant institutes to address ocean, coastal and Great Lakes issues; on the designation of new Sea Grant institutes; and any other matter the Secretary refers to the Board.

H.R. 5618 authorizes increases in funding levels from $66 million in fiscal year 2009 to $100 million in fiscal year 2014. This is a significant yet measured improvement over the approximately $57 million that the program has been allocated over recent years.

[1] National Academy of Sciences, National Research Council. *Evaluation of the Sea Grant Program Review Process* (2006). *http://www.nap.edu/catalog/11670.html*

H.R. 5618 SECTION–BY–SECTION

SECTION 1. SHORT TITLE

Section 1 entitles the legislation as the "National Sea Grant College Program Amendments Act of 2008."

SECTION 2. REFERENCES

Section 2 clarifies that all amendment references in the legislation are made to the National Sea Grant College Program Act (33 U.S.C. 1121 et seq.).

SECTION 3. FINDINGS AND PURPOSES

Section 3 amplifies the extension aspects of the Sea Grant program and cites the relevance of the National Ocean Research Priorities Plan and Implementation Strategy to the Sea Grant Program.

SECTION 4. DEFINITIONS

Section 4 defines key terms included within the text of the proposed legislation, including 'regional research and information plan' and 'National Ocean Research Priorities Plan and Implementation Strategy' where they appear in the bill.

SECTION 5. NATIONAL SEA GRANT COLLEGE PROGRAM, GENERALLY

Section 5 amends the Program Elements to expand Sea Grant programs to include regional and national projects among Sea Grant institutions and to add regional strategic investments in projects undertaken through Sea grant projects. Section 5 also augments the functions of the Director of the National Sea Grant College Program to include encouraging collaborations among Sea Grant colleges and institutions. This section also strikes the Sea Grant program performance ranking system for allocating additional resources on the basis of performance.

SECTION 6. PROGRAM OR PROJECT GRANTS AND CONTRACTS

Section 6 exempts the Dean John A. Knauss Marine Policy Fellowship Program from having to match grant awards in order to achieve parity between fellows placed in Congressional offices with those fellows placed in federal agencies.

This section also increases the percentage of funds exempt from the non-federal match requirement from the current one percent to five percent.

SECTION 7. EXTENSION SERVICES BY SEA GRANT COLLEGES AND SEA GRANT INSTITUTES

Section 7 clarifies that one of the requirements for designation includes an extension program (as opposed to an "advisory service").

SECTION 8. TECHNICAL CORRECTION RELATING TO FELLOWSHIPS

Section 8 updates the statutory language requiring a report every two years on efforts to include minority and economically disadvantaged students.

SECTION 9. NATIONAL SEA GRANT ADVISORY BOARD

Section 9 expands the responsibilities of the National Sea Grant Review Panel, renaming the panel as the "National Sea Grant Advisory Board" to more appropriately and accurately describe its purpose and function.

SECTION 10. AUTHORIZATION OF APPROPRIATIONS

Section 10 increases authorized funding levels from $66 million to $100 million for the period between Fiscal Year 2009 through Fiscal Year 2014.

Chairman LAMPSON. Good morning. I want to welcome everyone to today's hearing, to the *National Sea Grant College Program Act: H.R. 5618.*

H.R. 5618 was introduced by our colleague, Congresswoman Madeleine Bordallo, Chair of the Subcommittee on Fisheries, Wildlife and Oceans of the Committee on Natural Resources. The Sea Grant program is a partnership between State and Federal Government to promote the understanding, conservation and management of our ocean, coastal and Great Lakes resources.

Growth of the National Sea Grant College Program has been stunted during the last two years, and over time the flat funding level has impacted the services delivered on a daily basis to our coastal communities. With the cost of research and education rising, programs have been forced to reduce staff and a number of education and outreach activities as well. H.R. 5618 seeks to amend the Sea Grant Program to implement changes in the program recommended by the National Academy of Sciences. Some of these improvements include increasing the interaction between the National Sea Grant Office and the individual State programs as well as improving programmatic performance reviews and authorizing increased funding levels.

We have a distinguished panel of witnesses here today who will highlight the activities and accomplishments of this program and offer their recommendations as to how we can improve this important research, education and extension program. I want to thank all of our witnesses for being here today.

[The prepared statement of Chairman Lampson follows:]

PREPARED STATEMENT OF CHAIRMAN NICK LAMPSON

Good morning. I want to welcome everyone to today's hearing on the *National Sea Grant College Program Act: H.R. 5618.* H.R. 5618 was introduced by our colleague, Congresswoman Madeleine Bordallo, Chair of the Subcommittee on Fisheries, Wildlife, and Oceans of the Committee on Natural Resources.

The Sea Grant program is a partnership between State and Federal Government to promote the understanding, conservation, and management of our ocean, coastal, and Great Lakes resources.

Growth of the National Sea Grant College Program has been stunted during the last few years. Over time the flat funding level has impacted the services delivered on a daily basis to our coastal communities.

With the costs of research and education rising, programs have been forced to reduce staff and a number of education and outreach activities.

H.R. 5618 seeks to amend the Sea Grant Program to implement changes in the program recommended by the National Academy of Sciences.

Some of these improvements include increasing the interaction between the National Sea Grant Office and the individual State programs; as well as improving programmatic performance reviews and authorizing increased funding levels.

We have a distinguished panel of witnesses here today who will highlight the activities and accomplishments of this program and offer their recommendations as to how we can improve this important research, education, and extension program.

I want to thank all of our witnesses for being here today. At this time, I would like to recognize our distinguished Ranking Member, Mr. Inglis of South Carolina for his opening statement.

Chairman LAMPSON. At this time I would like to yield to my distinguished colleague from South Carolina, our Ranking Member, Mr. Inglis, for an opening statement.

Mr. INGLIS. Thank you, Mr. Chairman, and thank you for holding this hearing.

Since its inception in 1966, the National Sea Grant Program has been a successful collaborative effort of the Federal Government, State governments and universities. Under the program, these groups work together to understand, develop and conserve our coastal and ocean resources. That is particularly important for us in South Carolina and other coastal states. Currently, more than half of the U.S. population lives on the coast and that number is increasing, and coastal and ocean resources generate more than $1 trillion of the annual gross domestic product.

This reauthorization should equip the Sea Grant program to continue to provide sound science and management products to such a large part of our economy and population.

Thank you, Mr. Chairman, and I look forward to hearing from our witnesses and hearing their perspectives on this legislation and any suggestions they may have as to improvements.

[The prepared statement of Mr. Inglis follows:]

PREPARED STATEMENT OF REPRESENTATIVE BOB INGLIS

Thank you for holding this hearing, Mr. Chairman.

Since its inception in 1966, the National Sea Grant program has been a successful collaborative effort of the Federal Government, State governments, and universities. Under the program, these groups work together to understand, develop, and conserve our coastal and ocean resources.

Currently, more than half of the U.S. population lives on the coasts, and coastal and ocean resources generate more than $1 trillion of the annual GNP. This reauthorization should equip the Sea Grant program to continue to provide sound science and management products to such a large part of our economy and population.

Thank you again, Mr. Chairman. I look forward to hearing from the panelists on their perspectives of this legislation and any suggestions they may have to improve it.

Chairman LAMPSON. Thank you, Mr. Inglis.

I ask unanimous consent that all additional opening statements submitted by the Committee Members be included in the record. Without objection, so ordered.

[The prepared statement of Mr. Costello follows:]

PREPARED STATEMENT OF REPRESENTATIVE JERRY F. COSTELLO

Mr. Chairman, I appreciate the Subcommittee giving attention to this matter and the reauthorization of H.R. 5618, the *National Sea Grant College Program Act.*

The National Sea Grant College Program was established in 1966 and has since grown in stature and responsibilities since its most recent reauthorization in 2002. The program is an example of a dynamic partnership among academia, government and the private sector to improve the management of the coastal, marine and Great Lakes environment.

Unfortunately, as with many important federal programs, difficult economic times have not allowed the Sea Grant Program's budget to grow to keep up with inflation, much less be granted with a substantial increase.

I look forward to hearing our witnesses' testimony today and working with my colleagues on the Committee to improve and strengthen this important program. Thank you, Mr. Chairman, I yield back.

Chairman LAMPSON. It is my pleasure to introduce the witnesses for this morning. Mr. Craig McLean is the Deputy Assistant Administrator for Programs and Administration for Oceanic and Atmospheric Research at the National Oceanic and Atmospheric Administration, NOAA. Mr. Paul S. Anderson is the President of the Sea Grant Association and the Director of the Maine Sea Grant College Program. Mr. M. Richard DeVoe is the Executive Director

of the South Carolina Sea Grant Consortium, and Mr. Patrick Riley is the General Manager of Western Seafood in Freeport, Texas, which is my next-door neighbor. Welcome.

You will each have five minutes for your spoken testimony. Your written testimony will be included in the record for the hearing. When you all complete your testimony, we will begin with questions. Each Member will have five minutes to question the panel.

Mr. McLean, we will begin with you, and please start.

STATEMENT OF MR. CRAIG N. MCLEAN, DEPUTY ASSISTANT ADMINISTRATOR FOR PROGRAMS AND ADMINISTRATION, OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Mr. MCLEAN. Thank you, Mr. Chairman. Good morning Ranking Member Inglis, and Mr. Bartlett, good morning. I am pleased to be here this morning to discuss the National Sea Grant College Program. It is a very important program to NOAA.

Sea Grant is an integral part of NOAA's mission to understand and predict the Earth's environment and to conserve and manage coastal, marine and Great Lakes resources. Sea Grant is a national network comprised of the NOAA National Sea Grant Panel, the Sea Grant Office, 32 university-sponsored programs, the Sea Grant Law Library and the Sea Grant Law Center, fellowship programs and hundreds of participating institutions. Each Sea Grant State program is established through competition and receives evaluation every four years. By linking university resources and expertise with local communities and user groups, Sea Grant promotes the effective transfer of science-based information in support of decision-making. In short, Sea Grant takes complex information and shows people how to use it and how to solve real problems.

Sea Grant also expands the reach and effectiveness of other NOAA programs and other partners by leveraging additional funds. Sea Grant Programs are required to match every $2 of federal funding with $1 of contributory funding and many states far exceed this match. In 2006, for example, State Sea Grant programs provided $27 million of matching funds for their NOAA awards and stimulated contributions of an additional $62 million from a variety of State and federal sources.

Over the past two years, we have aggressively responded to the recommendations of the 2006 National Research Council report on Sea Grant. The program is developing a more coordinated strategic plan for the next five years and will address issues affecting coastal regions locally and nationally.

In the future, Sea Grant will also play a critical role in identifying the coastal and constituent needs for climate research, climate services and climate-related information. This will be a very important contribution for Sea Grant.

NOAA is supportive of efforts to reauthorize the National Sea Grant College Program Act, and in fact, the Administration is transmitting to Congress the proposed bill that the Administration has to offer and perhaps it may have even arrived as early as last night.

The Administration's reauthorizing bill and H.R. 5618, the *National Sea Grant College Program Amendments Act of 2008,* take very similar approaches to strengthening this program. Both bills promote Sea Grant program investments in national activities by increasing the non-match funding pool. The Administration bill proposes an increase in the non-match funding pool from one percent to five percent and includes the entire Knauss Fellowship Program.

Both bills retain the requirements to evaluate and assess the performance of State Sea Grant programs but removes the rigid ranking requirements amongst the states. This change would remove any disincentive to cooperation in the National Research Council report as it had identified and thereby facilitate the development of regional collaborations among the Sea Grant programs.

Both bills seek to strength Sea Grant programs by elevating the role and functions of the National Sea Grant Review Panel. Over the past 30 years, the role of the panel has evolved with Sea Grant's influence and effectiveness. Consistent with the recommendations of the National Research Council report, both bills propose to change the duties of the panel on providing strategic advice regarding the national program as well as providing an assessment of the overall effectiveness of the program.

The Administration's proposed reauthorization bill and H.R. 5618 do have nominal differences, and one of them is the size of the cap on Administration funding to support the program and on the matching fund requirements in order to support the development of regional and national partnerships. The Administration bill advances Sea Grant's capacity for regional and national leadership by adjusting the cap of Administration funding from five to seven percent, which is responsive to the NRC's report recommendation to allocate resources sufficient to allow the NOAA National Sea Grant Program Office to accomplish its mission of oversight, leadership and guidance of the program.

The National Sea Grant Office today is about half the size it was 15 years ago in terms of staff, and the seniority of that staff has diminished as well. The increasing in funding for the National Sea Grant College Office will strengthen the core of the Sea Grant network. To promote Sea Grant's involvement in regional and national partnerships, the Administration bill proposes exempting these partnership activities from the matching fund requirements. We recognize the significance of the matching fund requirement as a means to leveraging funding. However, the requirement has at times made it difficult to form regional and national partnerships and interagency collaborations. The proposed change would allow Sea Grant programs to collaborate with a broader array of partners to address issues that are best addressed regionally and nationally.

In closing, Sea Grant is an effective program and it addresses the right problems defined by constituents, produces meaningful science and relates directly to the attainment of NOAA's mission objectives. Sea Grant's ability to leverage resources and address issues in partnership and with other entities is truly unique in government. The reauthorization of Sea Grant is important to NOAA and we look forward to working with you as the legislation moves through Congress. Together we can ensure that the National Sea

Grant College Program continues to generate practical solutions based on sound science that address real problems in real places.

Thank you, and I look forward to addressing your questions.

[The prepared statement of Mr. McLean follows:]

PREPARED STATEMENT OF CRAIG N. MCLEAN

I am Craig McLean, Deputy Assistant Administrator for Programs and Administration of the Office of Oceanic and Atmospheric Research, within the National Oceanic and Atmospheric Administration (NOAA). The Office of Oceanic and Atmospheric Research conducts and sponsors the scientific research, environmental studies, and technology development needed to improve NOAA's operations and applications, and broaden our understanding of the Earth's atmosphere and oceans. NOAA's National Sea Grant College Program is contained within the Office of Oceanic and Atmospheric Research. The National Sea Grant College Program is NOAA's primary university-based program in support of coastal resource use and conservation. Sea Grant's research, outreach, and education programs promote better understanding, stewardship, and use of America's coastal resources.

I am pleased to be here to tell you about the National Sea Grant College Program. Today, I will discuss Sea Grant's vision and mission, what lies ahead for the program, the issues we would like to see addressed in its upcoming reauthorization, and why this program is important to NOAA.

Sea Grant's Vision and Mission

Sea Grant's legislative charge (33 U.S.C. 1121) is "to increase the understanding, assessment, development, utilization, and conservation of the Nation's ocean, coastal, and Great Lakes resources by providing assistance to promote a strong education base, responsive research and training activities, broad and prompt dissemination of knowledge and techniques, and multi-disciplinary approaches to environmental problems."

The National Sea Grant College Program envisions a future where people live along our coasts in harmony with the natural resources that attracted and continue to sustain them. This is a vision of our nation's coasts in which we use our natural resources in ways that capture the economic and recreational benefits they offer, while preserving their quality and abundance for future generations.

Sea Grant is an integral part of NOAA's mission and instrumental in helping the agency achieve its objectives in coastal communities throughout the United States and our territories. Sea Grant's research, outreach and education activities are connected to NOAA's mission, which is to understand and predict changes in Earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social, and environmental needs.

The National Sea Grant College Program

The National Sea Grant College Program was created 42 years ago to unite the academic power of the Nation's universities with a wide range of public and private sector partners. Sea Grant brings together government, universities and citizens living and working in our nation's coastal and Great Lakes states and territories to respond to problems and opportunities in these complex and dynamic environments. Through these partnerships, Sea Grant provides integrated research, and outreach and education programs aimed at creating tangible benefits for ocean, coastal and Great Lakes environments and communities.

Sea Grant is a national network comprised of NOAA's National Sea Grant Office, 32 university-based State programs, the National Sea Grant Review Panel, a National Law Center, a National Sea Grant Library and hundreds of participating institutions. Each Sea Grant program is established through a competitive process and reviewed every four years. The Sea Grant network enables NOAA and the Nation to harness the best science, technology and human expertise to balance human and environmental needs in coastal regions.

Sea Grant's alliance with major research universities provides support to more than 3,000 scientists, outreach specialists, educators, and students every year. Collectively, Sea Grant has formed partnerships with over 4,000 organizations to help reach its mission goals. Sea Grant's university-based programs develop future scientists and managers to conduct research and to guide the responsible management of our nation's coastal, ocean, and Great Lakes resources. As a pioneer in what is referred to as "translational research: from discovery to application," Sea Grant strives for unbiased, science-based information that is accessible to all. The diverse capabilities of Sea Grant's network of State programs enable the organization to be

creative and responsive in generating policy-relevant research and in disseminating scientific and technological discoveries to a wide array of audiences. Because it is science-based, non-regulatory, and has an established presence in local communities, Sea Grant is a trusted broker, working to increase coastal, ocean and Great Lakes literacy among decision-makers and the public as a whole. Sea Grant's commitment to these core values is vital to achieving its mission.

With its strong research capabilities, local knowledge and on-the-ground workforce, Sea Grant is ready to identify and capitalize on opportunities, and to generate practical solutions. Sea Grant extension, with its unique relationship with coastal partners, helps identify key local and regional issues for the university-based programs whose resources are directed to solve these problems. Extension is defined as the effective transfer of science-based information by university specialists and agents to support decision-making by individuals, groups or institutions. Extension agents link university resources and expertise with local communities and user groups. In short, these specialists take complex information and show people how to use it to solve problems. For example, Sea Grant was successful in working with the city of Cleveland, Ohio to construct artificial reefs from the rubble of the old Cleveland Municipal Stadium in the near-shore zone of Lake Erie. Estimates indicate that these reefs attract 12 to 66 times as many fish as the surrounding non-reef areas and produce approximately $1 million of economic benefit annually. This is just one example of how Sea Grant agents work with communities in order to share expertise and solve problems.

Sea Grant also expands the reach and effectiveness of NOAA and other partners in planning for and managing the future of America's ocean, coastal and Great Lakes resources by leveraging additional funds. Sea Grant programs are required to match every $2 of federal funding with $1 of non-federal funds, and many State programs far exceed this match. The match required for federal funding also ensures this country receives significant benefit from each dollar invested by the Federal Government in Sea Grant.

The success of Sea Grant's approach to coastal resource use and stewardship is being recognized globally. Other countries are using the Sea Grant model when designing their own programs for engaging universities in marine research through granting programs, outreach, and education. With the assistance of Sea Grant, Korea has developed its own Sea Grant program and Indonesia has created a Sea Partnership Program with a network that extends country-wide.

Sea Grant's Work

Sea Grant addresses emerging issues at local, regional and national levels through its integrated national network by bringing decades of experience and expertise through its scientists, extension agents, educators and communicators located in every coastal and Great Lakes state, Puerto Rico and the U.S. Pacific island territories.

By investing in mission-priority research, Sea Grant addresses issues such as growth in coastal communities, hurricane preparedness and response, coastal storms and tsunamis, invasive species, development of drugs and industrial materials from marine resources, fish and shellfish farming and seafood safety. Each year, Sea Grant supports some 400 research projects investigating a wide variety of marine and coastal topics, and produces more than 700 peer-reviewed journal articles and book chapters.

While research is a crucial component of Sea Grant, transferring the results of research to the people who can benefit from this knowledge is equally important. Sea Grant's network of more than 300 extension experts work with coastal communities and decision-makers to provide informal education and transfer new technologies. These extension experts work with communities in countless ways, including:

- helping fish farmers develop environmentally-sound shellfish farming practices;
- explaining the impacts of land use on water quality; and
- providing technical assistance to communities planning for and dealing with hurricanes and other natural hazards.

Education is an integral part of Sea Grant's outreach program. A network of 30 Sea Grant educators work with K–12 teachers to bring environmental sciences into the classroom and the classroom out into the natural environment. Sea Grant's support for higher education over three decades of service has trained more than 12,000 college and graduate students, preparing them to be the next generation of coastal stewards. More than 650 alumni within the Dean John A. Knauss Marine Policy

Fellowship program now hold positions in NOAA, other partner agencies, the industry sector, and non-governmental organizations. This strong workforce is needed to solve the major environmental challenges that face the Nation and the planet.

Each program within the Sea Grant network has a dedicated communications staff that works to deliver accurate, reliable, science-based information. Through newsletters, brochures, posters, articles, web sites, books, radio, videotape, and other media, Sea Grant's network of more than 100 communicators have earned their reputations as honest brokers of information about marine and coastal issues. In recent years, Sea Grant communications experts have created products ranging from environmental radio podcasts and video documentaries to informational guides and books about the history and science of the Nation's coastal regions.

Sea Grant's place-based programs throughout the Nation give the organization the flexibility to respond to emerging needs. Sea Grant worked throughout coastal Louisiana following Hurricanes Katrina and Rita to help coastal communities recover. The recovery of Louisiana's Plaquemines Parish following Hurricanes Katrina and Rita was an example of Sea Grant's ability to respond to these disasters. Sea Grant's work in Louisiana included partnerships with the private sector. Investment firm Goldman Sachs Group Inc. sent 30 volunteers and donated $50,000 to the Sea Grant-led volunteer efforts. The funding helped Sea Grant extension agents organize volunteer workers who came into the city and put them in touch with people with the greatest needs to help Plaquemines Parrish recover in time for fishing season. In addition, Sea Grant worked with energy firm Royal Dutch Shell plc and partners to facilitate the donation of an industrial ice house to serve Cameron Parish. The ice house was a critical component of the re-vitalization of the Louisiana seafood industry.

Sea Grant's research efforts have catalyzed a greater understanding of our coastal resources. Sea Grant's investment in biotechnology, for instance, has led to the development of novel marine products and processes. Impacts from this research extend from the marine and aquatic realm to dimensions of human health and safety. A Great Lakes Sea Grant researcher invented two new technologies to mass produce anti-toxins and gauge infections. One will harvest a human antidote to counter bioterrorism; the other technology detects deadly pathogens like salmonella, E. coli, and cholera. This patent-pending biosensor process can detect the state of more than 50 pathogens within minutes.

Another Sea Grant research project eliminated organic contaminants from menhaden oil. Fish oil is an important ingredient in pet foods and aquaculture feeds, but organic contaminants have kept the processed product from being sold in lucrative international markets. The research demonstrated a simple refining process to eliminate dioxin and other impurities from crude fish oil allowing a fish oil producer operating in the Gulf of Mexico to deliver a product that meets European Union specifications. A Sea Grant investment of less than $50,000 saved 200 jobs in Louisiana and helped boost U.S. exports.

Sea Grant conducts socioeconomic research to help coastal managers formulate policies that minimize the negative ecological impacts of coastal development and coastal resource use. For example, Sea Grant worked with the Rhode Island Coastal Resources Management Council to help them develop an innovative Urban Coastal Greenway Policy that provides a new level of flexibility to a previously rigid coastal development regulatory structure—both in terms of environmental protection and in building and landscape aesthetics. The policy enabled the partners to collaborate more closely with developers on their plans during the application process, and to tailor the plans to best benefit the coastal environment, the developer and the public alike. As a result, Sea Grant and its partners have been able to secure almost two miles of new public access along the urban shore, while still maintaining the economic integrity of development plans and the environmental quality of a critical portion of northern Narragansett Bay.

Sea Grant helps the seafood industry increase quality and safety, add value, lower costs and expand seafood supplies and markets, with more than 30 years of experience working in every coastal and Great Lake state and involving every type of seafood product. Since 2001, training courses led by Sea Grant extension and others with the National Seafood Hazard Analysis and Critical Control Point (HACCP) Alliance (an intergovernmental partnership with industry and academia) have reached about 5,000 U.S. processing plants, 6,000 importers and international suppliers and 14,000 employees and regulators. The U.S. Department of Health and Human Services estimates that the HACCP program has prevented between 20,000 and 60,000 seafood-related illnesses a year, translating into savings of about $155 million annually. In one survey of seafood businesses, 77 percent reported that they could not have met FDA regulations without the HACCP training programs. Sea Grant extension staff have also extended HACCP protocols to address invasive species, offering

training to aquaculturists in the Great Lakes in order to prevent the spread of highly destructive aquatic invasive species.

Sea Grant researchers and outreach specialists are uniquely situated to promote collaborations on subjects critical to decisions being made by fisheries managers on a variety of topics from stock assessment, habitat and ecosystem health, environmental contamination and conflict resolution, among many others. For example, Sea Grant researchers have developed a revolutionary, rapid and reliable method of DNA analysis to identify shark species from fins, carcasses and other body parts. This one-step forensics technique allows for the identification of U.S. fishing vessels suspected of catching and selling protected species such as the dusky and the great white shark. This technology helped federal prosecutors confirm the presence of prohibited species in four of five investigations, resulting in fines of more than $100,000 and creating further deterrence for illegal fishing activities. Thus far, the Sea Grant research team has fully developed and tested DNA markers for 18 U.S. Atlantic shark species.

Recognizing the demand for fisheries extension services and the complexity of fisheries issues, the National Sea Grant Office and NOAA's National Marine Fisheries Service (NMFS) were asked by Congress to develop a program to improve communications with and among fisheries constituents. The partnership between Sea Grant and NMFS was enhanced by developing a regionally-coordinated, constituent-based fisheries extension program. The initial Sea Grant investment of $5 million led to:

- a partnership between NMFS and the U.S. Fish and Wildlife Service to reduce seabird bycatch in the Bering Sea and Gulf of Alaska, an activity that led to new fishing regulations and circumvented potential lawsuits that might have shut down a $200 million fishery;
- the Eliminator Trawl designed to catch underutilized haddock, likely resulting in economic gains of $30 million—a design for which Rhode Island Sea Grant extension agents were awarded the grand prize in the 2007 World Wildlife Federation's International Smart Gear Competition; and
- a partnership between the National Marine Fisheries Service Southeast Fisheries Center and Sea Grant extension agents to deliver training programs and to distribute 1,000 bycatch reduction devices to fishermen in the Gulf of Mexico.

This list of just some examples of accomplishments demonstrates many of the Sea Grant capabilities that have earned it a reputation as a highly effective national program.

Future of Sea Grant

National Strategic Planning

Sea Grant is currently completing its national strategic planning process for 2009 to 2013. This five-year strategic plan establishes direction for the Sea Grant network to address critical national needs in coastal, ocean and Great Lakes environments. The plan capitalizes on Sea Grant's unique capacities and strengths, allows for flexibility and creativity on the part of State Sea Grant programs, and supports a broad range of priorities in NOAA's strategic plan, and NOAA's 20-Year Research Vision and Five-Year Research Plan.

Over the next five years, Sea Grant will concentrate effort in four focus areas: healthy coastal ecosystems, sustainable coastal development, a safe and sustainable seafood supply, and hazard resilience in coastal communities. These four interrelated focus areas emerged from diverse stakeholder input, including advice from the Sea Grant Review Panel, during the strategic planning process as areas of critical importance to the health and vitality of the Nation's coastal resources and communities. These areas reflect issues of major importance to NOAA and are areas in which Sea Grant has made substantial contributions in the past and is positioned to make contributions in the future. In addition, these focus areas are consistent with the work of the NOAA coastal program integration effort which is working to improve coordination in the development and delivery of services within NOAA's coastal programs.

Sea Grant's new strategic plan will address timely issues affecting coastal regions, including issues related to climate change, coastal hazards and coastal development. Sea Grant's extension staff, with diverse backgrounds and coastal specialties, will play a critical role in identifying local needs for climate research and information. Sea Grant extension staff can serve as intermediaries between NOAA's climate researchers and coastal decision-makers, helping to define and deliver NOAA's climate

tools and products that are needed at the local level. In this way, Sea Grant's work complements the outreach efforts of other NOAA programs, such as the National Integrated Drought Information System and the Regional Integrated Sciences and Assessments program, with Sea Grant maintaining a specific focus on coastal communities. Sea Grant is committed to support research and outreach to effectively apply innovative techniques to restore degraded ecosystems. Also, Sea Grant has recognized the need to invest in research that evaluates the environmental and socioeconomic trade-offs involved in coastal planning and decision-making.

Sea Grant is one of many partners working to address these complex and interrelated issues. Using partnerships to accomplish shared goals is a strategy inherent to Sea Grant and key to its successes.

Regional Plans

Consistent with the President's *U.S. Ocean Action Plan,* and the recommendations of the U.S. Commission on Ocean Policy, NOAA has committed to adopting ecosystem-based approaches to management to achieve balance among ecological, environmental and social influences in our nation's coastal, ocean and Great Lakes regions. In order to advance this effort, regional coordinators of Sea Grant programs are facilitating planning efforts to aid in the transition toward regional ecosystem-based management. Sea Grant is engaging a wide array of stakeholders to develop a "bottom-up" needs assessment by identifying research and information gaps, developing prioritized management-based regional research and information plans, coordinating technology and information transfer to appropriate end users, and providing an ongoing platform for coordination, collaboration, and resource-sharing among participants.

These regional plans will include clear statements of the major regional, ocean and coastal management issues, outlines of existing scientific and informational resources, analyses of the information necessary to address the critical issues, and a prioritized list of actions to be taken. Each final plan will include a prioritized list of forecast products that would aid in the transition toward regional ecosystem-based management. Eight regions are currently participating in this planning process (Gulf of Maine, Great Lakes, Insular Pacific, Alaska, Pacific Northwest, Pacific Southwest, Gulf of Mexico, and the South Atlantic) and their plans will be completed by the end of FY 2008. The remaining three regions (New York Bight, Mid-Atlantic and the Caribbean) are beginning the process in FY 2008, with plans scheduled for completion by the end of FY 2010.

Although the planning process is not complete, every region has identified climate change impacts as a top priority for research, including research that refines predictive models to regional and local scales, and consideration of socioeconomic and ecological effects. Beyond this issue, priorities are as diverse as the different regions' geological and ecological signatures. The Insular Pacific region prioritizes beach and reef restoration research, in the Great Lakes the priority is aquatic invasive species, in the Northeast the priority is storm safety, and along the Pacific coast the priority is ocean observation systems for better assessing the land-sea connection. Each region must include an outreach component in their plan, ensuring timely delivery of pertinent technologies and tools to the appropriate users.

Sea Grant Reauthorization

The *National Sea Grant College Program Act* (Act) was first enacted in 1966 and has been amended nine times, most recently in 2002. The current reauthorization expires at the end of fiscal year 2008. NOAA is supportive of efforts to reauthorize this Act as the National Sea Grant College Program has achieved significant accomplishments nationwide in promoting research, education, training, and advisory service activities that have increased the understanding, assessment, development, utilization and conservation of the Nation's ocean, coastal and Great Lakes resources.

The Administration will shortly transmit to Congress proposed legislation to reauthorize the National Sea Grant College Program. In preparing the proposed legislation, the National Sea Grant Office reviewed the program's successes and the challenges encountered since the program's last reauthorization in 2002. The resulting Administration bill proposes changes to advance Sea Grant's capability to address regional and national issues, enhance NOAA's ability to administer and provide guidance to the Sea Grant program, and redefine the role of the National Sea Grant Review Panel.

The Administration's reauthorization bill and *National Sea Grant College Program Amendments Act of 2008* (H.R. 5618) in many instances take similar approaches to strengthening the Sea Grant program.

Both bills promote continued Sea Grant program investment in national activities by increasing the non-match funding pool. Specifically, the Administration bill proposes increasing the non-match funding pool from 1 percent to five percent, including the Knauss Fellowship Program.

This proposed change will enhance the quality of the Sea Grant network by allowing the Sea Grant program to enhance its support for national facilities such as the Sea Grant Law Center, and enhance its ability to respond rapidly to emerging issues, such as recovery from a hurricane, at the local and regional level.

Both bills promote greater partnership opportunities among State Sea Grant programs by adjusting the current requirements for how the State programs are evaluated. In the last reauthorization (2002) a requirement was added that State programs be ranked based on their relative performance and any new funding for existing programs be awarded based on those rankings. While the intent was to provide a competitive opportunity for individual programs to receive additional funding based on merit, the National Research Council's 2006 report, *"Evaluation of the Sea Grant Program Review Process,"* pointed out that as an unintended consequence the 2002 amendment also created a financial disincentive for programs to work cooperatively and to form regional partnerships with each other. The Administration's bill and H.R. 5618 both remove the requirement to rate programs within five categories of performance. Both bills retain the requirement to evaluate and assess the performance of State Sea Grant programs, but remove the relative ranking requirement in order to facilitate the development of regional collaborations among the Sea Grant programs.

Both bills seek to strengthen the Sea Grant program by elevating the role and functions of the National Sea Grant Review Panel. The National Sea Grant Review Panel (Panel) was established in 1976 to provide advice on all applications submitted to Sea Grant for funding, on the Sea Grant fellowship program, on the designation and operation of Sea Grant colleges and on the development and application of planning guidelines and priorities. Over the past 30 years, the role of the Panel has evolved in consonance with the evolution of Sea Grant's influence and effectiveness. The Panel no longer reviews funding or fellowship applications and the designation of new Sea Grant colleges happens rarely as the Sea Grant network of colleges in our coastal and Great Lakes states is virtually complete. The 2006 National Research Council report called for the Panel to be "better positioned to comment on issues of broader significance to the overall program," and stated the Panel's sole function should be "to promote the effectiveness of the program as a whole." Both bills propose changes that focus the duties of the Panel on providing strategic advice regarding the national program, as well as providing assessment of the overall effectiveness of the program. These proposed changes will better enable the Panel to address the needs of the program as it has evolved since 1976.

The Administration's proposed reauthorization bill and H.R. 5618 do differ on the issue of the size of the cap on administrative funding and on the matching funding requirement with regards to regional and national partnerships.

The Administration bill advances Sea Grant's capacity for regional and national leadership by adjusting the cap on administrative funding, while H.R. 5618 does not make any adjustments to the cap. Specifically, the Administration bill proposes increasing the administrative cap from five percent to seven percent. Staffing in NOAA's National Sea Grant Office (NSGO) is about half what it was 15 years ago despite the expansion of the network of Sea Grant Programs. The 2006 National Research Council report found that "the NSGO does not currently play a sufficient role in ongoing program assistance, monitoring, communication, and assessment" and recommended that the Secretary of Commerce "take steps to ensure that sufficient human and fiscal resources are available to allow robust, ongoing and meaningful interaction" among the NSGO, the State programs, and their home institutions. By increasing the resources available to NOAA for administration of the Sea Grant Program, the Administration's bill would allow for approximately eight to ten additional full time employees to be hired at the NSGO. The increase in staffing for the NSGO would strengthen the core of the entire Sea Grant network by allowing us to: more quickly process, review and approve programs' omnibus and other program grant applications; increase NOAA's participation in State program strategic and annual planning processes; enhance program oversight and evaluation; and improve communication and collaboration among Sea Grant, other NOAA programs, and other federal agencies and non-governmental organizations.

Both the Administration's bill and H.R. 5618 seek to promote Sea Grant's involvement in regional and national partnerships. However, the Administration's bill specifically proposes exempting regional and national partnerships, as well as interagency cooperation, from the matching funding requirement as a means to achieve the goal of greater Sea Grant involvement in these activities. Sea Grant programs

currently form regional and national partnerships in a limited capacity due to constraints of the matching requirement. We recognize the significance of the matching requirement, as it ensures we leverage significant funds from each federal dollar that is invested; however, the requirement has, at times, made it difficult to form regional and national partnerships and interagency collaborations. This change would enhance the ability of the State programs to form effective and lasting strategic partnerships. Currently, Sea Grant cannot provide significant funding to potential partners without match. This becomes an obstacle to forming partnerships when potential partners (i.e., local and State agencies, private partners) do not have matching funds available. By exempting these activities from the matching requirement, Sea Grant programs would be able to collaborate with a broader array of partners to address issues such climate change impacts on coastal communities and ecosystems, sustainable development, fisheries, hazard resilience, and invasive species—issues that are best addressed regionally and nationally.

In general, the Administration's proposed reauthorization bill and H.R. 5618 have more similarities than differences. The reauthorization of Sea Grant is important to NOAA as we continue to understand, assess, develop, utilize and conserve our coastal and Great Lakes resources. We look forward to working with the Subcommittee on Energy and Environment as the legislation moves through Congress.

Conclusion

In summary, Sea Grant is working to realize its vision for a future where people live along our coasts in harmony with the natural resources that attracted and continue to sustain them. This is a vision of our nation's coasts in which we use our natural resources in ways that capture the economic and recreational benefits they offer, while preserving their quality and abundance for future generations. This work allows Sea Grant to serve NOAA's mission goal to protect, restore and manage the use of coastal and ocean resources effectively.

Sea Grant has demonstrated an ability to leverage resources and engage issues in partnership with other entities; this program has proven itself to be an effective investment of taxpayer dollars. Looking ahead, the Sea Grant network of universities provides a national infrastructure with the ability to adapt and respond to emerging issues. I look forward to working with you to ensure that the National Sea Grant College Program continues to generate practical solutions to real problems in real places.

Thank you for inviting me to testify on the National Sea Grant College Program. I thank you also for your interest in and support of NOAA's National Sea Grant College Program.

BIOGRAPHY FOR CRAIG N. MCLEAN

Craig McLean is the Deputy for NOAA's Oceanic and Atmospheric Research Programs and Administration. He is responsible for daily operations and administration of NOAA's research enterprise, and the execution of NOAA programs including the Climate program, National Sea Grant, and Ocean Exploration.

He has previously served in NOAA as Executive Officer of the National Ocean Service, and was the founding Director of NOAA's Office of Ocean Exploration. McLean served in uniform for nearly 25 years, retiring from NOAA's Commissioned Corps in the grade of Captain after service at sea, underwater, and in operational, legal, and marine resource management positions. McLean served aboard hydrographic, oceanographic, and fisheries research ships and was the first commanding officer of NOAA's largest fisheries research vessel, the 224-foot Gordon Gunter.

A life-long diver, he began exploring deep shipwrecks through decompression diving while in junior high school. These experiences have taken him to the Amazon River searching for freshwater dolphins, and to the RMS Titanic searching for solutions in shipwreck management.

Craig McLean is also an attorney and has practiced marine resource law for NOAA. He has been awarded the Departmental Silver and Bronze Medals, the NOAA Corps Commendation Medal, Special Achievement Medal, and recognized as the NOAA 2005 Senior Leader of the Year. He is a Fellow in the Explorers Club, Chairman of the Marine Law and Policy Committee of the Marine Technology Society, and is Chairman of the Board of the Sea-Space Symposium.

Chairman LAMPSON. Thank you, Mr. McLean.

Mr. Anderson, five minutes.

STATEMENT OF MR. PAUL S. ANDERSON, PRESIDENT, SEA GRANT ASSOCIATION; DIRECTOR, MAINE SEA GRANT COLLEGE PROGRAM

Mr. ANDERSON. Good morning, Chairman Lampson, Ranking Member Inglis and Committee Members. My name is Paul Anderson. I am the Director of the Maine Sea Grant College Program at the University of Maine and I appear today on behalf of the Sea Grant Association in my capacity as president to offer our perspective on H.R. 5618.

It is an honor to represent the nationwide network of Sea Grant colleges at this hearing, and it is with great appreciation that we acknowledge your leadership and the Subcommittee's long history of support for the National Sea Grant College Program.

I have a formal statement that I ask to be included in the record for this hearing. The SGA, Sea Grant Association, represents the combined capabilities of over 300 university and research institutions nationwide in the National Sea Grant College Program. The SGA enables these institutions to coordinate their activities and to prioritize action at the regional and national levels and offers a unified voice on critical coastal ocean and Great Lakes issues.

Just as our nation's land grant institutions have revolutionized agriculture, so too are the Sea Grant colleges steering our nation toward the productive and sustainable use of our coastal ocean and Great Lakes resources through integrated and competitive programs of scientific research, education, training and technical assistance.

I want to start by providing an example, if I might, from my home State of Maine on how the Sea Grant program has significantly contributed towards a sustainable environment and economy. I think you might find this story interesting. Like many of our coastal states, Maine is a seafood producing state, and with both wild capture and cultured fish and shellfish. Also like many coastal states, Maine is a popular destination for visitors with a significant tourism industry. The Sea Grant program has been working nationally with these two very large economic sectors to ensure compatibility and economic success for both.

There are, however, challenges between these sectors and conflicts between them, and I would like to tell you about an innovative solution to a conflict between the recreational boating or sailing community, and part of the Maine industry that wants to grow blue mussels. You have all enjoyed blue mussels perhaps on your dinner plate. When this grower proposed to put his growing operation, a floating raft structure, in the vicinity of where the boating community does much of their sailing, they called Sea Grant because it was an issue. We brought the conflicting parties together along with a mechanical engineer from the University and we helped to develop a device that allows the raft structure to sink below the water level on demand and then, with the push of a button, to return the structure to the surface and harvest and maintain the operation, out of sight, out of mind, so to speak. Much like your garage door opener, the device now has a patent pending and the periodic regattas in that area continue. This is just one example of how Sea Grant operates as an honest broker, bringing to-

gether varying needs and perspectives and applying science and creativity to identify collaborative solutions to complex problems.

It is an unrealized potential of Sea Grant, as illustrated by this example, that provides the context for our comments on H.R. 5618. The SGA strongly endorses the intent and many of the proposed changes contained in H.R. 5618, and we pledge to do our part to help towards the bill's enactment.

First, we support the adjustments offered in H.R. 5618 regarding program ranking and performance assessment and response to the NRC, the National Research Council's report that you just heard about. We are also pleased with the bill's emphasis on regional collaboration. We are particularly pleased to see that the bill provides enhanced flexibility in the allocation and overall management of resources within the program and which will allow for both program stability and our responsiveness. I think it is the responsiveness that is really something that is particularly keen with the Sea Grant program. And we strongly support the language of the Sea Grant planning and priority-setting process to the interagency Ocean Research Priorities Plan, as was also just described.

However, we do have one concern and that is the authorization level that is contained in H.R. 5618. It represents a significant reduction, perhaps up to 33 percent compared to Sea Grant's fiscal year 2008, or current, authorization levels. Funding for the Sea Grant program has not kept pace, as you mentioned earlier, Mr. Chairman, with the extraordinary growth in coastal population and development and the resulting increasing demands on our programming. At the current fiscal year 2009 level proposed by the Administration for the Sea Grant program, we would be asked to operate at its lowest level in a 42-year history. So I said all that to say that we do feel that these declining trends in appropriations would be exacerbated by a parallel reduction in our authorization levels and we hope the Committee will consider that.

We recommend—the SGA recommends that the National Sea Grant College Program be reauthorized at levels that would grow to $125 million by the year 2014. With this, Sea Grant would be better positioned to address a number of critical coastal issues including coastal hazard resiliency, sustainable coastal development, the health of our coastal ecosystems and sustainable seafood. These are the four focus areas of our current and future strategic plan.

To conclude, Chairman and Members of the Subcommittee, the Sea Grant Association has a vision for the Sea Grant College Program to become NOAA's primary university-based research, education and technical assistance program in support of marine resource management and conservation. We believe that H.R. 5618 moves Sea Grant in that direction and we are supportive of the bill in many ways and will work to support its enactment.

Thank you for your time today, and I would be glad to answer any questions.

[The prepared statement of Mr. Anderson follows:]

PREPARED STATEMENT OF PAUL S. ANDERSON

Mr. Chairman and Members of the Subcommittee:

My name is Paul Anderson. I am the Director of the Maine Sea Grant College Program in Orono, Maine; but I appear today as President of the Sea Grant Association (SGA).

It is an honor to represent the nationwide network of Sea Grant professionals at this hearing, and it is with great appreciation that we—all of us in the Sea Grant Association—acknowledge this subcommittee's long history of support for the National Sea Grant College Program. Thank you for the opportunity to express these views regarding to the reauthorization of the National Sea Grant College Program.

The Sea Grant Association (SGA) represents the combined capabilities of over 300 university and research institutions nationwide that participate in the National Sea Grant College Program. The SGA enables these institutions to coordinate their activities, to prioritize action at the regional and national levels, and to offer a unified voice on critical coastal, ocean, and Great Lakes issues. Just as our nation's Land Grant institutions have revolutionized agriculture, so too are the Sea Grant Colleges steering our nation toward the productive and sustainable use of our coastal, oceanic, and Great Lakes resources through integrated and competitive programs of scientific research, education, training, and technical assistance.

The National Sea Grant College Program (Sea Grant) was last reauthorized six years ago, after extensive review and with overwhelming support by both Houses of Congress, through the *National Sea Grant College Program Amendments Act of 2002* (P.L. 107–299).

The SGA strongly endorses the intent and many of the proposed changes contained within the Sea Grant reauthorization bill that is currently being considered before this subcommittee, the *National Sea Grant College Program Amendments Act of 2008* (H.R. 5618). Over the last several months, the SGA and members of the National Sea Grant Review Panel have discussed many of the issues associated with reauthorization. As a result of that process, we reached a substantial amount of consensus and we are pleased that much of that consensus is reflected in H.R. 5618.

We specifically support the way the bill addresses the following issues:

- Adjustments in the rating and ranking process which were part of the last reauthorization bill;
- Additional emphasis on regional collaboration;
- Enhanced flexibility in the management and resource allocations within the program;
- Strengthening of the review process consistent with the recommendations made by the National Academy of Sciences; and
- Linkage of the Sea Grant strategic planning and priority setting process to the overarching interagency ocean research priorities and implementation plan[1] released in January 2007 by the Joint Subcommittee on Ocean Science and Technology.

However, we are concerned that the authorization levels contained in H.R. 5618 represent a significant reduction (of more than 33 percent) compared to the authorization levels included in current law for fiscal year 2008 (P.L. 107–299), and fall short of what is needed to address the ever-increasing needs and opportunities that our nation's coastal, ocean, and Great Lakes resources present. Several coastal regions under U.S. jurisdiction have limited or no Sea Grant program coverage at present, and there are significant stretches of the U.S. coastline that receive little or no attention from our on-the-ground Sea Grant Extension network of agents and specialists. Additionally, existing coastal and Great Lakes Sea Grant programs receive many more high quality and user-driven projects than they can fund.

Therefore, we would like to offer our perspective on the funding needs for this important national program. The SGA recommends that the National Sea Grant College Program be reauthorized at a level of funding that grows to $125 million by FY 2014. This will enable Sea Grant to support a robust, competitive, merit-based research program tied to extension, communication, and education in which science-based information is used to address societal problems and opportunities as they relate to management, conservation, and sustainable use of our coastal, marine, and Great Lakes resources.

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[1] 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.

The Public Policy Context for Ocean and Coastal Issues

The interface between science and policy is precisely where the Sea Grant program applies its precious resources. As the program makes decisions on funding of research and outreach projects, issues that are acutely important to Sea Grant's local, regional, and national constituencies receive priority attention. Extension and educational resources are deployed in ways that enhance the relevance and impact of the science and discoveries that result from Sea Grant-funded research.

There is a growing demand from our diverse network of stakeholders, resource managers, and decision-makers for scientifically-sound information upon which sound decisions addressing many of today's complex problems can be made. Sea Grant's integrated science and outreach approach incorporates up-to-date and ongoing dialogue with its constituencies to identify the most important and timely issues of national importance facing our communities, states and regions. Technological and scientific approaches, though desirable, cannot solve all of society's problems, and Sea Grant's ability to embed itself within the communities it serves enables the program to interact directly with people who live, work, and play along our nation's coastal regions, thereby ensuring that the utility and impact of investments made by the Sea Grant program are relevant and significant. Sea Grant's work is always fresh. Although the program has been in place for more than 40 years, Sea Grant's constant attention to societal needs through stakeholder interactions allows it to be nimble and responsive, while also maintaining the rigor and reliability of a strategic enterprise.

An increased investment in Sea Grant is an investment in America's economic future. Attempts to balance our booming coastal economy with its associated impacts on the coastal and marine environment upon which it depends have raised the stakes for effective government action. The coastal regions of the United States contribute more than 50 percent of the Nation's Gross Domestic Product (GDP), according to a recent study by the Federal Reserve. The oceans, in one way or another, account for one out of every six jobs nationwide. Tax revenues in coastal areas are among the fastest growing revenue sources for State and local governments. In fact, the collective economic impact of the coastal economy far exceeds U.S. agriculture, and yet federal investments in Sea Grant colleges and universities are an order of magnitude smaller than investments in the Land Grant college and university system funded by the U.S. Department of Agriculture for land-based activities, the program on which Sea Grant was modeled.

In more recent years, the work of two major national commissions[2] have brought into focus the importance of our oceans and coasts to our nation's natural heritage, security, and economy. With an offshore ocean jurisdiction larger than the total land mass of the United States, U.S. waters support rich and diverse systems of ocean life, provide a protective buffer, and support important commerce, trade, energy, and mineral resources.

- More than $1 trillion, or one-tenth, of the Nation's annual GDP is generated within near-shore areas, the relatively narrow strip of land immediately adjacent to the coast. Looking at all coastal watershed counties, the contribution swells to over $6.1 trillion, more than half of the Nation's GDP;
- In 2003, ocean-related economic activity contributed more than $119 billion to American prosperity and supported over 2.2 million jobs. Roughly three-quarters of the jobs and half the economic value were produced by ocean-related tourism and recreation. More than 13 million jobs are related to trade transported by the network of inland waterways and ports that support U.S. waterborne commerce;
- Annually, the Nation's ports handle more than $700 billion in goods, and the cruise industry and its passengers account for $11 billion in spending;
- The commercial fishing industry's total value exceeds $28 billion annually, with the recreational saltwater fishing industry valued at around $20 billion, and the annual U.S. retail trade in ornamental fish worth another $3 billion; and
- Nationwide retail expenditures on recreational boating exceeded $30 billion in 2002.

[2] An Ocean Blueprint for the 21st Century, U.S. Commission on Ocean Policy, April 20, 2004; America's Living Oceans: Charting a Course for Sea Change, Pew Oceans Commission, June 2, 2003.

Sea Grant's Place in the Public Policy Context

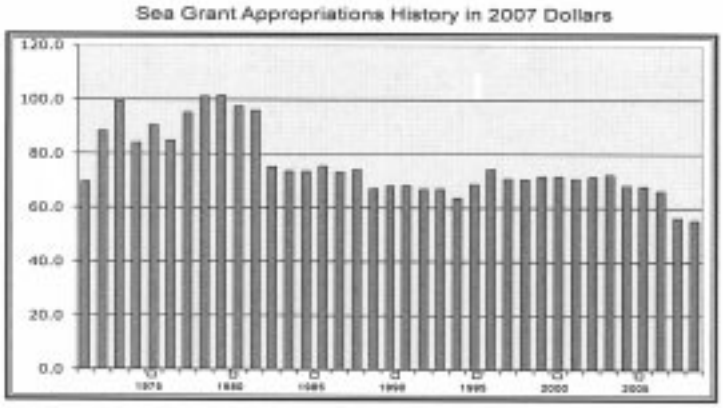
Sea Grant is an important federal program that assists decision-makers in addressing these increasingly pressing issues. Sea Grant is a productive and effective federal-State-university partnership which supports competitive, merit-based, and integrated research, education, and extension programs at many of our nation's outstanding university and research institutions. Over 300 institutions and more than 3,000 scientists, engineers, educators, students, and outreach experts participate in the program each year. Sea Grant provides its constituents with relevant science-based information and technical assistance that addresses ocean, coastal, and Great Lakes resource issues and opportunities of national significance at the national, regional, State, and local levels. Sea Grant thus supports the mission of its parent agency—the National Oceanic and Atmospheric Administration (NOAA)—as well as the needs of ocean, coastal and Great Lakes communities, with an overall goal of fostering economic and environmental sustainability on a national level.

This successful partnership program, in which the federal contribution is matched with non-federal resources on a two to one basis, relies on stakeholder engagement to ensure that Sea Grant resources are deployed strategically and that outcomes are relevant. Sea Grant emphasizes the application of objective, science-based information and collaborative problem-solving to address complex societal issues. I have attached a list of users, stakeholders, and beneficiaries that attest to the value of the products and services produced via the Sea Grant program.

Sea Grant Is Under Budgetary Stress

The growth of the National Sea Grant College Program has not been commensurate with the extraordinary growth in coastal population and development, and the concomitant increase in demands for Sea Grant program services by our coastal constituents. In fact, the Sea Grant budget has not kept pace with inflation over the last two decades, much less expanded to meet the wealth of new challenges and opportunities that face our country.

The FY 2008 budget for the Sea Grant program is $57.1 million. The Administration's budget request for FY 2009 would reduce this national program to $54.997 million—a four percent reduction at a time when the NOAA budget as a whole is proposed to grow by five percent. At the level proposed by the Administration, the Sea Grant program would be asked to operate at its lowest level in its 42-year history in real terms (see the following chart). Sea Grant's appropriations are over 20 percent below the buying power of its 1980 level and we have seen staff reductions on the order of 25 percent.



This decline in federal support has had serious ramifications for the Sea Grant program. At present, only about 12 percent of the proposals submitted to the Sea Grant program can be funded due to resource constraints. In contrast, the success rate for proposal support at the National Science Foundation is just over 20 percent. Sea Grant directors estimate that they have enough high quality meritorious pro-

posals—of importance to the program's mission and relevant to stakeholder needs—to fund 25 percent of the proposals submitted.

Currently, about $30 million of Sea Grant's $57.1 million budget is used to support research. The research portion of the Sea Grant program budget could easily and justifiably be doubled to between $60 million to $80 million annually to support important research efforts that currently go unfunded to generate answers to the many questions and provide new knowledge and technologies needed by ocean and coastal resource decision-makers, business and industry, and coastal communities.

The balance of the Sea Grant budget supports the program's extension, education, and outreach efforts. The uniqueness and success of the Sea Grant program is based on its ability to integrate its research, education, and extension efforts, ensuring that research results are intimately tied to the needs of our citizens. The current level of expenditure for extension, communication, and education in the Sea Grant program is approximately $25 million. A recent report of the NOAA Science Advisory Board[3] called on NOAA to substantially expand its extension, outreach, and education activities. Sea Grant has the experience and the "on-the-ground" network to fulfill that policy recommendation immediately if sufficient additional budget support from NOAA was forthcoming. As Sea Grant's research program expands to meet increasing demands, so too must the tools that put these research results in the hands of stakeholders so that they can be utilized. The Sea Grant extension, communication, and education function should therefore likewise be increased commensurate with increased research funding to between $40 million to $50 million to maintain this critical balance of Sea Grant program support.

Sea Grant's Alignment with Federal Interagency Ocean Research Priorities

Another justification for increased federal support for Sea Grant's core functions relate to the recommendations put forth in recent ocean, coastal, and Great Lakes policy and planning activities in NOAA and other federal agencies. In January 2007, the Federal Government released its interagency ocean research priorities plan, titled *Charting the Course for Ocean Science in the United States for the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy.* That document lays out the key priorities for interagency ocean research over the next ten years. Priorities identified in that report include:

- Stewardship of Natural and Cultural Ocean Resources—which includes efforts involving sustainable resources, such as fisheries and alternative energy sources, and non-renewable resources, such as fossil fuels and minerals;
- Increasing Coastal Community Resilience to Natural Hazards—including research and education into causes, impacts, and the adaptation and mitigation from natural physical hazards, such as hurricanes and tsunamis, community and ecosystem vulnerability, and hazard mitigation;
- Enabling Marine Operations—which includes efforts to determine the impacts of marine operations, including transportation, energy exploration and development, and aquaculture, on the environment; and the impacts of the environment on marine operations;
- The Ocean's Role in Climate—to examine the impact of climate change on our ocean and coastal regions, understanding changes and impacts on ecosystems particularly on a regional basis so as to better prepare national, State, local, and regional decision-makers to adapt and mitigate to regional climate change challenges;
- Improving Ecosystem Health—which examines natural and human-induced changes and impacts to ecosystems and methods to monitor and address impacts; and
- Enhancing Human Health—which is a focus on efforts to identify and assess ocean-related risks to human health and identify and develop ocean products for human well-being.

Common among these themes is the need to develop tools necessary to pursue research and to effectively translate the results of that research in ways that are useful to resource managers, policy-makers, and the general public. Society's ability to fully develop the understanding needed to address key ocean and coastal-related issues and to apply existing understanding to support meaningful decision-making and ocean literacy depends on the generation of science-based information, develop-

[3] Engaging NOAA's Constituents: A Report from the NOAA Science Advisory Board, March 2008.

ment of technology, and continued intellectual innovation—three key functions of the Sea Grant program.

Consistent with the overarching interagency ocean research priorities report and as a result of its on-going strategic planning process, Sea Grant has honed its strategic programmatic efforts to emphasize the following focus areas in the coming years:

- Sustainable Coastal Development—Decades of population migration to the coast have transformed our coastal landscapes and greatly intensified demand on finite coastal resources. New housing developments, recreation facilities, energy development activities, port expansions and other business activities are bringing more people, jobs and recreational opportunities to coastal communities. They are also increasing the pressure on coastal lands, water supply, traditional coastal businesses, and on the coastal culture and way of life. To accommodate more people and activity and resolve the growing number of conflicts, we must develop new policies and management approaches to balance the conservation and use of coastal, ocean and Great Lakes resources. Sea Grant's well-established role as an honest broker and source of unbiased information make it a key player in responding to the needs for sound information identified by decision-makers, for convening stakeholders to seek common ground, and for facilitating the development and implementation of new coastal policies, plans, management approaches, and conflict resolution strategies related to sustainable coastal and economic development.
- Healthy Coastal Ecosystems—Intensified development along the coast and related human activities are leading to water quality degradation, wetlands loss, invasive species, and a host of other challenges that need to be understood and addressed in order to restore and maintain healthy ecosystems that are the foundation for quality-of-life of our citizens and for economic development along the Nation's coasts. Ecosystem-based management, reduction and mitigation of anthropogenic impacts, protection of critical areas, and regional habitat restoration are some of the avenues that must be addressed to meet these challenges. Sea Grant's research, education and outreach initiatives can continue to play a major role in building our understanding of how these natural systems function, in advancing regional problem solving, and in supporting resource managers and decision-makers at all levels of government in moving toward an ecosystem-based approach to managing coastal, ocean and Great Lakes resources.
- Coastal Hazard Resiliency—Global warming, sea level rise, increased number and intensity of coastal storms, and other climate- and weather-related phenomena are putting more people and property at risk along the Nation's coasts with major implications for human safety, ecosystem health, and the economic vitality of our coastal communities. It is essential that residents and leaders in coastal communities understand these risks, learn what they can do to reduce their vulnerability, and respond quickly and effectively to these events. Sea Grant—with its strong research, education, and outreach capacity—can play a major role in developing tools and technologies for disaster resiliency and in assisting local citizens, decision-makers, and businesses plan, prepare, respond, and rebuild in the face of these short- and long-term hazards events.
- Sustainable Safe Seafood Supply—The U.S. has witnessed the decline of many of its major fisheries at the same time that seafood consumption is on the rise, resulting in a seafood trade deficit of about $9 billion a year. Overfishing, habitat degradation, and increasing competition among coastal users have put our nation's fishing industry in great jeopardy. Seafood safety is a growing concern as international trade increases and fish diseases and contamination become bigger problems. Aquaculture is opening up new opportunities to meet the growing domestic seafood demand, but it must be conducted in a sustainable and economically viable manner in order for its full potential to be realized. Sea Grant continues to play a key role in advancing our understanding of the nature of these problems and opportunities and in employing its research, education, and extension capabilities to support informed public and private decision-making and resource management activities that will lead to an enhanced, sustainable supply of safe seafood into the future.

Conclusion—Enhanced Federal Funding for Sea Grant is Justified

Mr. Chairman and Members of the Subcommittee, the Sea Grant Association has a vision for the National Sea Grant College Program, to become NOAA's primary

university-based research, education, extension and outreach, and technical assistance program for coastal, marine, and Great Lakes resources.

The Sea Grant program—with its excellent track record, its distributed network, its objective approach to problem-solving, its strong integrity-backed ties to hundreds of stakeholders all across the country, its integrated approach that ensures its research efforts are tied to serving the needs of national, State, regional, and local decision-makers, and a revamped strategic planning and programmatic review process—is uniquely positioned to meet the growing needs of the Nation in implementing its ocean, coast, and Great Lakes agenda. To do so, based on current and emerging requirements we believe it is in the national interest to enhance the National Sea Grant College Program to a level of $125 million by fiscal year 2014.

Sea Grant's strategic planning efforts and rigorous program evaluation processes foster excellence and accountability. Coupled with an updated authorization that reflects and supports the real needs of the program, Sea Grant can continue and expand its efforts to address an ever-increasing suite of resource issues facing the Nation's coastal areas, foster innovative economic development efforts, and educate and train the Nation's future coastal, ocean, and Great Lakes workforce.

We believe that H.R. 5618 moves the Sea Grant program in that direction and we are supportive of the bill in many ways and will work in support of its enactment. We believe it is important, however, for the Congress to provide the National Sea Grant College Program with 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.

The SGA looks forward to working with you this year on Sea Grant reauthorization. Thank you again for the opportunity to testify on behalf of all of the Sea Grant Colleges nationwide. I would be glad to address any questions the Subcommittee may have.

The Sea Grant Association is a non-profit organization dedicated to furthering the Sea Grant program concept. The SGA's regular membership consists of the institutions that participate in the National Sea Grant College Program, located within the National Oceanic and Atmospheric Administration (NOAA). SGA provides the mechanism for these institutions to coordinate their activities, to set program priorities at both the regional and national level, and to provide a unified voice for these institutions on issues of importance to the oceans, coasts and Great Lakes. The SGA advocates for greater understanding, use, and conservation of marine, coastal and Great Lakes resources.

Sea Grant Stakeholders, Beneficiaries and Supporters

[illegible]

* *The above organizations and individuals represent a snapshot of the stakeholders and constituents of the National Sea Grant College Program; they have expressed their support for an annual Sea Grant appropriation of $72 million for the current fiscal year.*

BIOGRAPHY FOR PAUL S. ANDERSON

Paul Anderson is currently the Director and Extension Program Leader of the Maine Sea Grant College Program. At Sea Grant, Mr. Anderson is both the Director of the Program and leader of the Marine Extension Team, a group of 10 Sea Grant and University of Maine Cooperative Extension staff members who are based all along the Maine coast. Maine Sea Grant's administrative unit is based at the University of Maine in Orono, Maine but the extension staff members that Paul supervises are located along Maine's coast in various locations.

Before Paul joined Sea Grant in 1999, he spent 10 years working for the Maine Department of Marine Resources, first as the chief microbiologist and then as the Director of the Public Health Division. He has been involved in all aspects of seafood safety and environmental monitoring in both the United States and abroad. In this capacity, he has traveled to the Philippines, China and most recently in South Africa, Namibia and Angola.

Paul has had the privilege of holding leadership positions in his work in Maine as well as nationally. In 2006, he chaired the Governor's Task Force on Marine Aquaculture, and is serving his 5th term as President of the Maine Fisherman's Forum. He has participated on many other similar activities in Maine with both the public and private sector as Chair, convener and facilitator. Mr. Anderson is currently serving a two-year term as President of the Sea Grant Association.

Mr. Anderson holds both B.S. and M.S. degrees in Microbiology from the University of Maine. In his free time, Paul enjoys his family including his three sons and his wife's three children. When not working, Paul enjoys organic gardening, and playing music with his friends in Maine.

Chairman LAMPSON. Thank you, Mr. Anderson.

Mr. DeVoe.

STATEMENT OF MR. M. RICHARD DEVOE, EXECUTIVE DIRECTOR, SOUTH CAROLINA SEA GRANT CONSORTIUM

Mr. DEVOE. Chairman Lampson, Ranking Member Inglis, Members of the Subcommittee and staff, it is my pleasure to be here with you this morning. Good morning. My name is Rick DeVoe. I am Executive Director of the South Carolina Sea Grant Consortium. I also want to offer my great appreciation to this subcommittee and to the Committee in general for the support of the Committee for Sea Grant and the National Sea Grant College Program. Thank you for the opportunity to be here and express my views from a State and regional perspective regarding H.R. 5618, the reauthorization of the National Sea Grant College Program.

The South Carolina Sea Grant Consortium is one of 31 university-based Sea Grant programs that work with coastal communities, business and industry, educational institutions, nonprofits and others to generate and deliver user-driven, science-based information on coastal and marine resource development, management and conservation throughout the Nation. The Consortium in South Carolina consists of eight member institutions: The Citadel, Clemson University, Coastal Carolina University, the College of Charleston, the Medical University of South Carolina, South Carolina Department of Natural Resources, the South Carolina State University, which is our MSI university in the state, and the University of South Carolina. They all provide the scientific and technical expertise, facilities and training to address coastal and marine resource issues and opportunities in my state and indeed region-wide. The Sea Grant program nationally does represent more than 300 universities at any one time in engaging them in dealing with issues that we face on a day-to-day basis along our coasts, oceans and Great Lakes.

I have been the Consortium's director since 1997. However, I have been with South Carolina Sea Grant since 1980 upon graduation from the University of Rhode Island. My comments today reflect my experience from insights gained through my work at the national, regional and State levels. I want to start by giving one example of many that I have included in my written testimony of Sea Grant's effectiveness in South Carolina and in the region and focus on an example from the upstate of South Carolina, if I may.

Recognizing that the influence of the oceans extends well inland from the coast and that activities in upland areas can have impacts on the coast, the Consortium awarded a small grant to the Roper Mountain Science Center in Greenville, South Carolina, 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 ultimately to the development of the marine and ecology labs at the Center. In 2006, Roper Mountain Science Center had over 90,000 students and over 20,000 attended lessons in the natural science building, which houses the two labs. And last year, the Consortium supported a grant for education presentation equipment needed for lessons in the new marine lab. I have attached a letter from the Center to my written testimony, that provides additional details about this partnership. So my message here is that Sea Grant is a coastal and marine program but it certainly does extend its reach well inland from the coast and affects a lot of lives and activities.

As a Sea Grant Program Director, I want 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* in H.R. 5618. I am not going to be redundant with my colleague to my right but we, again from a State and regional perspective, endorse provisions of the bill that do make significant modifications to the rating and ranking program. This has constrained competition—excuse me—it has created competition among our programs as opposed to fostering program excellence throughout the country. It includes provisions that would actually enhance Sea Grant's ability to work at a regional level. We do have our footprints at the State level but this provides an opportunity for us to further formalize regional partnerships in line, for instance, with various alliances that have been created around the country with governors and the states, in the West Coast, for instance, in the Gulf of Mexico and elsewhere.

It provides an authorization of overall base funding for Sea Grant which allows for program flexibility, as Paul Anderson had mentioned, and we are now better tied with this bill to the priorities of the national level in terms of research and outreach for coastal ocean and Great Lakes resources.

I indeed, again from the State level, want to echo our concerns about the authorization levels in the bill. They are much lower than they are currently and there could be a perception that with that reduction in authorization levels that there may be less confidence in the program. I would hope that we don't think that way and we would like to be able to feel that we could obtain those levels actually under the current situation, that we might be able to obtain those levels in the future.

I would like to end my presentation with my thoughts on why I feel the National Sea Grant College Program is uniquely positioned to address many coastal marine challenges and opportunities that we face. Sea Grant is by definition a federal-State-university partnership. Sea Grant employs integrated research, education and extension program that makes us unique in the Federal Government. Sea Grant addresses real problems and opportunities for real people. We work in response to the needs and opportunities that are presented to us. Sea Grant works at many geographic scales, and we can do that now and we can do that within enhanced support. Sea Grant is seen by its constituencies as an honest broker, which allows us to get into discussions that otherwise we may not be there and help foster decisions and outcomes, and Sea Grant leverages significant resources.

To conclude, I believe that H.R. 5618 moves Sea Grant in the right direction. It is important, however, that Sea Grant be provided with the resources it needs to meet the ever-increasing challenges ahead.

Thank you again for the opportunity to testify, and I will be glad to address any questions the Subcommittee may have. Thank you.

[The prepared statement of Mr. DeVoe follows:]

PREPARED STATEMENT OF M. RICHARD DEVOE

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 Noisette 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 com-

ments 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[1] 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.

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

[1] 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.

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 out-pacing 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 (five 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 Near-shore 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 multi-disciplinary 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 S.C. 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.

ROPER MOUNTAIN SCIENCE CENTER
Greenville County Schools

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

BIOGRAPHY FOR M. RICHARD DEVOE

Rick DeVoe joined the S.C. Sea Grant Consortium in 1980, and has served as its Executive Director since 1997. Rick is also a Research Associate of the Belle W. Baruch Institute for Marine Biology and Coastal Research at the University of South Carolina, and Associate Faculty Member of the Graduate Program in Marine Biology and Adjunct Faculty Member with the Marine Environmental Studies Graduate Program at the College of Charleston. In addition to managing Sea Grant efforts in South Carolina, Rick's professional interests focus on coastal and marine resource policy, science-to-management linkages, science communication and education, and State and regional coastal ocean planning and policy.

At the national level, Rick currently chairs the External Relations Committee of the Sea Grant Association (SGA), and previously served SGA's President. He is a member of the Executive Committee of the Board on Oceans and Atmosphere of the National Association of State Universities and Land Grant Colleges, the Federal-State Task Team of the National Science and Technology Council's Subcommittee on Integrated Management of Ocean Resources (SIMOR), the External Linkages Advisory Committee of the Oceans and Human Health Center at NOAA Hollings Marine Laboratory (Charleston, SC), and the Board of The Coastal Society. He also is an Executive Committee member of the National Federation of Regional Associations (for Ocean Observing; NFRA), chairs the Board of Directors of the SouthEast Coastal Ocean Observing Regional Association (SECOORA) and is a member of the Board of Advisors for the Southeast Center for Ocean Sciences Education Excellence (COSEE–Southeast). Rick also represents South Carolina as a member of the Consortium for Ocean Leadership. He has had the pleasure of serving in the past as President of the U.S. Chapter of the World Aquaculture Association (now the U.S. Aquaculture Society) and the National Shellfisheries Association.

Rick is co-editor of two books, and has authored seven book chapters and six peer-reviewed publications. He earned degrees from Fairleigh Dickinson University (B.S., marine biology), CUNY/City College of New York (M.A., biological oceanography), and the University of Rhode Island (M.M.A., marine policy).

Chairman LAMPSON. Thank you, Mr. DeVoe.

And Mr. Riley, you are recognized for five minutes.

STATEMENT OF MR. PATRICK F. RILEY, GENERAL MANAGER, WESTERN SEAFOOD COMPANY, INC., FREEPORT, TEXAS

Mr. RILEY. Mr. Chairman, Ranking Member Inglis, Members of the Subcommittee, thank you for inviting me here today to address this body in reference to H.R. 5618, National Sea Grant College Program.

First, let me say that my testimony here today is reflective of the experiences that I have encountered while engaged in the Gulf and South Atlantic shrimp fisheries. I would be remiss if I did not point out this interaction only offers a small sampling of the activities the Sea Grant College program is involved in across this great nation as a whole.

My first encounter with Sea Grant came in an educational setting. When I was in elementary school, I was in the fifth grade and was attending a career fair that the school was hosting to get youth to think about their future. This is where I first met Charlie Moss with Texas Sea Grant. He was a Brazoria County Extension agent and had a booth highlighting commercial fishing. This was of great interest to me since my father was an owner-operator of a Gulf shrimp trawler for decades. While I must have been a certain pest to Mr. Moss, he diligently answered the myriad of questions that I and others threw at him. This type of educational work continues today and was highlighted with a field trip on May 8 of this year of the kindergarten students from O.M. Roberts that participated in an annual field trip to the beach. I was there and participated as a volunteer father helping pull the biological sampling seine to collect specimens for the students to look at. For the vast majority of these students, this is the first and perhaps the only interaction they will have with aquatic life in living form that is literally at their doorsteps on the beaches of coastal Texas. The field trip has become a much-anticipated rite of passage for the students of OMR and its success is in great part due to the participation of Sea Grant and the current Brazoria County Extension agent, Mr. Rich Tillman.

In much the same vein, the research vessel Karma, better known as the Floating Classroom, has helped tens of thousands of Texans, most of whom are students from the fourth through the 12th grade, who come to gain a higher appreciation of the vast ecological significance of our coastal estuaries and near-shore waters since its arrival in 2002.

My professional interaction with Sea Grant has been both immense and rewarding. At Western Seafood, we have been actively involved with different Sea Grant-led or -sponsored initiatives since the mid-1970s. Almost all of these initiatives and projects involve two common themes. The first of these becoming more efficient with our time, our production and resources we are harvesting. The second theme is helping us use our innate knowledge as fisherman to become better stewards of our marine environment.

In its early years, Sea Grant worked with fisherman such as my father to develop a very successful hang log trawl obstruction book. Through cooperative effort with the shrimp industry, over 12,000 hangs were identified from the Rio Grande River to the mouth of the Mississippi. It should be stressed that this information was usually kept confidential among fisherman but the cooperative spirit of Sea Grant convinced captains to share their personal information so that every producer would have access to the collective industry wisdom. This hang book has become a bible aboard trawlers until the introduction of more sophisticated navigation systems. It is credited with significantly reducing gear loss or damage from bottom obstructions and has literally saved the industry hundreds of millions of dollars.

One of the first major breakthroughs that dealt with production efficiency was introduced at the quad rig trawl. Prior to that time, shrimp trawlers typically pulled one net on each side of the vessel. With the advent of the quad rig, it allowed operators to pull four smaller nets, reducing drag and fuel consumption while increasing the amount of area covered due to overall increase of head rope sweep of the nets involved. Production could be increased while costs of inputs actually went down. This work was pioneered by Sea Grant fishery specialist Gary Graham working closely with industry.

In the mid to late 1980s, another hurdle was jumped with the help of Sea Grant. Implementation of turtle excluder devices, or TEDs, was a very controversial issue. The vast majority of industry participants did not want anything to do with these devices and the National Marine Fisheries Service, or NMFS, was having a very difficult time implementing their use. At this time Sea Grant stepped in to diffuse a very volatile situation. Using the goodwill built up over the last two decades of successful interaction with industry, fishery specialists worked to calm fears of the fisherman and worked with a few "high liners" to show the gear would not be as adverse to the operation as it once feared. Once these trials showed success, the fleet started to adopt these devices, and within a very short period of time came into compliance with NMFS regulations.

When bycatch became a major issue in the mid-1990s in the industry, Sea Grant was there to help the industry not only become compliant with new federal mandates but also encouraged develop-

ment of industry-based solutions to the problem. As a result, the most efficient device that is legal today, Jones-Davis, was developed by two fishermen. At the same time, Sea Grant specialists in the Gulf of Mexico spearheaded a massive effort that resulted in the shrimp fishery have what some have called the greatest data set of catch characterization of any fishery in the United States.

Sea Grant remains in the forefront regarding efforts to make our fishery more economically sustainable and efficient. During 1990, the Texas Sea Grant Program pioneered with Allied Chemical Company to evaluate the use of technologically advanced trawl fibers. As a result, over 500 trawlers converted to the use of Spectra netting, which significantly increased trawl strength while creating less drag in the water. This transferred to better fuel efficiency and its application is now being used worldwide. Today Sea Grant is demonstrating less expensive high-technological fiber, Sapphire, which has been rapidly adopted by shrimp vessels for its strength and contributions to energy efficiency.

During a 2001 trip to Iceland to visit vendors of processing equipment that we utilize in our shore-side operations, I became introduced to the hydrodynamic trawl door. I was intrigued by the concept, and in 2004 started to seek out partnering manufacturers around the world so we could introduce these new trawl doors in the Gulf shrimp fishery. When I found no interest in doing so, I purchased an off-the-shelf model from an Icelandic company. When I was planning the sea trial, I contacted fishery specialist Gary Graham to see if he was interested in going along. He did, and what he witnessed was pure failure, but he was supportive and urged me to continue. Two months later, we regrouped with another size door and went on a second sea trial. Gary accompanied us then and we came back successful in most regards. We still had a production equivalency program to deal with but overcame this in short order. After numerous trials and modifications to these new doors, we were able to show catch rates that were equal to that of traditional gear but with a fuel savings of 30 percent. At this time, Sea Grant stepped in with technology transfer in mind.

Gary Graham and Sea Grant economist Mike Haby were able to secure funding from USDA and the Texas governor's energy office to fund two pilot demonstration programs. These projects funded the purchase of new high-efficiency trawl doors, high-strength netting for cooperative research and demonstrations within the shrimp industry for a scientifically based and statistically reviewed study to document the potential fuel savings the gear would produce. This effort alone introduced the gear to fisheries as a whole and lended it credibility. It is through this effort this gear is being adopted rapidly by industry. Today in the ports of Brownsville and Port Isabel in south Texas, 50 percent of the 180 to 190 active vessels in the fishery will have converted to this gear prior to opening of our Texas shrimp season on July 15. One could extrapolate this savings could approach two million gallons of fuel in just these two ports based on historical consumption averages of the fleet. At $4 a gallon, this will have a significant impact on the continued viability of fishing in south Texas.

In conclusion, I would like to stress Sea Grant is a unique program that has provided a vital research and outreach link for the

fishery. The savings to the fishery in the Texas program has consistently contributed through its research and educational efforts that far exceeded the costs for funding this worthwhile organization. I would ask that you continue to endorse Sea Grant and that serious support be directed towards its continued existence. Thank you for your time and consideration regarding my testimony.

[The prepared statement of Mr. Riley follows:]

PREPARED STATEMENT OF PATRICK F. RILEY

Mr. Chairman and Members of the Subcommittee, thank you for inviting me here today to address this body in reference to H.R. 5618, *National Sea Grant College Program Act.*

First, let me say that my testimony here today is reflective of the experiences that I have encountered while engaged in the Gulf and South Atlantic Shrimp fisheries and I would be remiss if I did not point out that this interaction only offers a small sampling of activities that the Sea Grant College program is involved in across this great nation as a whole.

My first encounter with Sea Grant came in the educational setting while I was in elementary school. I was in the 5th grade and was attending a Career Fair that the school was hosting to get youth thinking about their future. This is where I first met Charlie Moss with Texas Sea Grant. He was the Brazoria County Extension Agent and had a booth highlighting commercial fishing. This was of great interest to me since my father was an owner/operator of a gulf shrimp trawler for decades. While I must have been a certain pest to Mr. Moss, he diligently answered the myriad of questions that I and others threw at him. This type of educational work continues today and was highlighted with a field trip on May 8th of this year when kindergarten students from O.M. Roberts participated in an annual Field trip to the beach. I was there and participated as a volunteer father helping pull a biological sampling seine to collect specimens for the students to look at. For the vast majority of these students, this is the first and perhaps the only interaction that they will have with aquatic life in a living form that is literally at their doorstep on the beaches of coastal Texas. This field trip has become a much anticipated right of passage for the students of O.M.R. and it's success is in great part due to the participation of Sea Grant and the current Brazoria County Extension Agent, Mr. Rich Tillman.

In much the same vane, the R/V Karma, better known as the Floating Classroom, has helped tens of thousands of Texans, most of whom are students from the 4th through 12th grade, who come to gain a higher appreciation of the vast ecological significance of our coastal estuaries and near-shore waters since its arrival in 2002.

My professional interaction with Sea Grant has been both immense and rewarding. At Western Seafood, we have been actively involved with different Sea Grant led or sponsored initiatives since the mid 1970's. Almost all of these initiatives and projects involved two common themes. The first of these is becoming more efficient with our time, our production costs, and the resources we are harvesting. The second theme is helping us use our innate knowledge as fishermen to become better stewards of our marine environment.

In its early years, Sea Grant worked with fishermen such as my father to develop a very successful hang log of trawl obstructions. Through cooperative efforts with the shrimp industry over 12,000 hangs were identified from the Rio Grande River to the Mouth of the Mississippi. It should be stressed that this information was usually kept confidential among fishermen, but the cooperative spirit of Sea Grant convinced captains to share their personal information so that every producer would have access to this collective industry wisdom. This hang log became a "Bible" aboard trawlers until the introduction of more sophisticated navigation systems. It is credited with significantly reducing gear lost or damaged from bottom obstructions, and has literally saved the industry hundreds of millions of dollars.

One of the first major breakthroughs that dealt with production efficiency was the introduction of the Quad-Rig trawl. Prior to that time, shrimp trawlers typically pulled one large net on each side of the vessel. With the advent of the Quad rig, it allowed operators to pull four smaller nets, reducing drag and fuel consumption, while increasing the amount of area covered due to an overall increase of head rope sweep of the nets involved. Production could be increased while costs of inputs actually went down. This work was pioneered by Sea Grant Fisheries Specialist Gary Graham working closely with industry.

In the mid to late 1980's another hurdle was jumped with the help of Sea Grant. The implementation of Turtle Excluder Devices (TEDs) was a controversial issue. The vast majority of industry participants did not want anything to do with these devices, and the National Marine Fisheries Services (NMFS) was having a very difficult time implementing their use. At this time, Sea Grant stepped in to diffuse a very volatile situation. Using the goodwill built up over the last two decades of successful interaction with the industry, Fishery Specialists worked to calm fears of the fisherman and worked with a few "High Liners" to show that the gear would not be as adverse to their operations as once feared. Once these trials showed success, the fleet started to adopt the devices and within a very short period of time came into full compliance of NMFS regulations.

When bycatch became a major issue in the mid 1990's in the industry, Sea Grant was there to help industry not only become compliant with new Federal Mandates, but also encouraged development of industry based solutions to the problem. As a result, the most efficient device that is legal today, the Jones-Davis, was developed by two fishermen. At this same time Sea Grant Fisheries Specialist in the Gulf of Mexico spearheaded a massive effort that resulted in the shrimp fishery having what some have called the greatest data set of catch characterization of any fishery in the United States.

Sea Grant remains in the forefront regarding efforts to make our fishery more economically sustainable and efficient. During 1990 the Texas Sea Grant Program pioneered with Allied Chemical Company to evaluate the use of technologically advanced trawl fibers. As a result, over 500 trawlers converted to the use of Spectra netting which significantly increased trawl strength while creating less drag in the water. This transferred to better fuel efficiency and its application is now being used worldwide. Today, Sea Grant is demonstrating a less expensive high-technological fiber, Sapphire, which is being rapidly adopted by shrimp vessels for its strength and contributions to energy efficiency.

During a 2001 trip to Iceland to visit vendors of processing equipment that we utilize in our shore-side operations, I became introduced to the Hydro Dynamic trawl door. I was intrigued by the concept and in 2004 started to seek out partnering manufacturers around the world so we could introduce these new trawl doors in the Gulf shrimp fishery. When I found none interested in doing so, I purchased an off the shelf model from an Icelandic company. When I was planning the sea trial I contacted Fisheries Specialist Gary Graham to see if he was interested in going along. He did and what he witnessed was pure failure, but he was supportive and urged me to continue. Two months later we regrouped with another size door and went on a second sea trial. Gary accompanied us and we came back successful, in most regards. We still had a production equivalency problem to deal with, but we overcame this in short order. After numerous trials and modifications to these new trawl doors, we where able to show catch rates that were equal to that of traditional gear, but with a fuel savings of 30 percent. At this time, Sea Grant stepped in with technology transfer in mind.

Gary Graham and Sea Grant Economist Mike Haby were able to secure funding from USDA and the Texas Governor's Energy office to fund two pilot demonstration programs. These projects funded the purchase of new high efficiency trawl doors and high strength netting for cooperative research and demonstrations within the shrimp industry for a scientifically based and statistically reviewed study to document the potential savings the gear would produce. This effort alone introduced the gear to the fishery as a whole and lended it credibility. It is through this effort that the gear is being adopted rapidly by industry. Today in the ports of Brownsville and Port Isabel in south Texas, 50 percent of the 180–190 active vessels in the fishery will have converted to this gear prior to the opening of our Texas Shrimp Season on July 15th. One could extrapolate that the savings could approach two million gallons of fuel in just these two ports based on historical consumption averages of the fleet. At $4.00 per gallon, this will have a significant impact of the continued viability of fishing in south Texas.

In conclusion, I would like to stress that Sea Grant is a unique program that has provided a vital research and outreach link for the fishery. The savings to the fishery that the Texas program has consistently contributed through its research and educational efforts have far exceeded the costs for funding this worthwhile organization. I would ask that you continue to endorse Sea Grant and that serious support be directed toward its continued existence. Thank you for your time and consideration regarding my testimony.

BIOGRAPHY FOR PATRICK F. RILEY

Personal:

I am a life-long resident of Southern Brazoria County. I was raised in Clute, Texas by Mike and Lynda Riley. Currently live in Lake Jackson, Texas with wife Marlena and children Michael (5) and Macie (2).

Education:

1993—Graduated Brazoswood High School, Clute, Texas

1993–1994—Attended Brazosport College, Lake Jackson, Texas

1994–1997—Attended Texas A&M University, College Station, Texas

Professional Experience:

- General Manager of large family owned vertically integrated shrimp producing/processing company.
- Manage day to day operations of company owned/operated vessels.
- Manage day to day operations of unloading facility in Freeport, Texas.
- Over see operations of Marine & Industrial Specialties, our marine hardware business.
- Over see operation of Freeport Diesel, our Caterpillar, Twin Disc, and Isuzu Marine engines dealership.
- Manage day to day operations of Ice Dock Inc. Our marine fuel, lube, and ice terminal.
- Manage State and federally mandated spill response/avoidance program for Ice Dock Inc.
- Work with management team on marketing strategies to maximize product value.
- Collaborated with researchers and resource managers on State and federal level to gather best available science.
- Collaborated with researchers and NMFS to evaluate and gather data on alternative gear such as, but not limited to, BRD's, TED's, Net and Cod end configurations, etc.
- Implemented and directed Company funded research and development of new fishing gear and techniques to enhance harvesting efficiency.
- Work with Sea Grant Institutions in the Gulf and South Atlantic regions to disseminate data from company research and expand the use of technologically advanced gear and techniques into the industry.
- Work with manufactures globally to adapt and introduce gear and technological advances into the industry.
- Member of Ad Hoc Shrimp Effort Management AP.
- Winner of the 2008 NOAA NMFS Sustainable Fisheries Leadership Award in the Stewardship & Sustainability Category.
- Prior to full-time employment with Western in 1997, I worked for the company during summer and holiday breaks throughout College and High School. I also worked for my father as a deckhand on the F/V Lynda Riley during summers prior to that starting at the age of eight. One could say I have seen and done all as it relates to the shrimping business.

DISCUSSION

Chairman LAMPSON. Thank you very much.

At this time we will go into our first round of questioning, and the Chair will recognize himself for five minutes for that first set of questions.

EXPANDING H.R. 5618'S MANDATE

I have a question for the whole panel, if some of you would comment, anyone who cares to. H.R. 5618 expands the Sea Grant program's mandate beyond its State and local focus to include regional and national issues. What is the benefit of expanding the mandate

and how will the Sea Grant programs maintain their connections to the current State and local constituents, and aren't you already undertaking some regionally and nationally research and extension projects now? Go ahead, Mr. McLean, if you would like.

Mr. MCLEAN. Thank you, Mr. Chairman. I think that as the U.S. Commission on Ocean Policy recognized in terms of listening to a great number of citizens, a great number of constituents and encapsulating the challenges that are ahead of us in the marine and coastal environment, the regional approach to the solutions that arise within localized communities, coastal communities, these challenges and tasks are best approached regionally. The challenges don't know geopolitical lines, they don't know State borders and the like, and for us to be approaching them regionally is a very logical approach. The work that we have ongoing today in more broad-based application of science is not quite bringing home the value of the Sea Grant program. I think by relying on Sea Grant to be the leader in a regional solution to the scientific and technical challenges that we have today, we have a well-practiced methodology that you have heard from the witnesses in terms of its effectiveness and its efficiency.

I would also like to highlight the leadership that the Sea Grant program and each of the member institutions is showing by helping to lead a regional interpretation and a regional prioritization of what is now a national ocean research priority plan that was finally developed after many years of the ocean and coastal community wanting many different things. We now have a priority that we can come to you with, and identify what is the most important and we can concentrate our efforts in that regard. Sea Grant is leading the development of regional prioritization of these challenges so that we as a nation can have an agreed-upon path forward. I think the institution is very important to the success of that effort.

Chairman LAMPSON. Okay.

Mr. ANDERSON. Just on your second point, Mr. Chairman, yes, the regional planning approach that the Sea Grant College Program has undertaken over the last couple of years is yielding regionally specific prioritization of issues and research approaches to the national Ocean Research Plan and by doing so, we are able to bring each of the states in a region, for instance, my region, the Northeast, several states are involved and the Sea Grant programs bring to that discussion the varying complexions of those issues from each of the state's perspectives, but as soon as we get into that room and around that table and talk about these, we realize that there is more commonality with the challenges than there are differences and by me speaking for the University of Maine, for example, and sitting down with the director from MIT, you know, we are able to bring skill sets from all these different research institutions and universities from around our region to contemplate more innovative and interdisciplinary approaches to what these problems are, and as was just stated, those problem transcend geographic boundaries. So the regional approach really has been somewhat common in the Sea Grant enterprise, and now by formalizing this and making some explicit steps in that direction, I think we can really get some work done.

Chairman LAMPSON. Okay. Mr. DeVoe.

Mr. DEVOE. Just a quick comment. The need to look at issues and opportunities and resources on a regional basis is profound, as the Ocean Commission has pointed out. However, the reason Sea Grant will maintain its legs on the ground in the State and local levels is because a lot of decision-making occurs at that level. Eighty percent of all land use decisions are made at a municipal or local level. So we have to understand these issues from a broader perspective and the research needs to focus on climate change or sea level rise in a broader perspective. But there are nuances at a State and local level that need to be dealt with. The management structures and the policy structures are really at the State level. We don't manage regionally, we manage state by state. So what we are trying to do is add to the mix of tools and information to allow this decision-making to occur at a variety of scales.

TECHNOLOGY TRANSFER

Chairman LAMPSON. Mr. Riley, I want to get you to talk a little differently than that, if I may. Give me your perspective on Sea Grant from, I guess, for the role that it plays in providing technical assistance and information to your industry. I know you gave a little bit of comments on that during your prepared remarks. What specific examples can you provide regarding tangible benefits that your community has received over the years from the Sea Grant activities?

Mr. RILEY. Well, of late it has been technology transfer, but there are too numerous to really mention in this forum. I would like to get back to you in writing on that. But take, for instance, as you all well know, the business I am in, the shrimp business is pretty tough these days, and going back into 2003, when Sea Grant became aware of USDA money being available to commercial fisherman through the Trade Adjustment Assistance Program, there were some qualifications to that, being that to receive that funding, these fisherman had to be trained, and Texas Sea Grant along with that of all the others along the Gulf Coast and up the East Coast involved with shrimp fishery, Texas in particular set out a program, held 28 workshops from Port Arthur to Brownsville, trained 2,300 or so—this is by memory—2,300 or so eligible fishermen and were able to get them over 11, or close to $11 million in direct assistance, and that is pretty significant. And these are individual fishermen, not boat owners and things like that, because there was income qualifications to that. A lot of ownership did not qualify for this, you know, assistance, so this was directly to crews and captains and things of that nature. And without that training and without even, you know, getting the knowledge out or getting the word out, you know, a lot of this would have gone unrealized.

And then you have today in our effort throughout the industry to become more efficient, and what we have kind of started in-house at Western has really ballooned into something, you know, pretty big with the numbers I have given you on fuel cost reduction. Sea Grant is working together on a regional basis and you have got guys from Texas going to North Carolina, which I accompanied them on that trip for a week of workshops for fishermen there, and the same thing is happening in Mississippi and there is,

you know, all kind of feelers coming out from Louisiana and other Gulf states to get that kind of program running. So I mean, they do work well together in the extension end of it, and far as technology transfer, it is a good thing.

Chairman LAMPSON. Thank you very much.

I will now recognize Mr. Inglis for five minutes.

AQUACULTURE

Mr. INGLIS. Thank you, Mr. Chairman.

I am interested in a number of things that I have heard in the testimony and seen in our charter. One is aquaculture, which I guess is something that we have begun in Sea Grant, right? I guess, Mr. DeVoe, we are pursuing that in South Carolina in various places.

Mr. DEVOE. We are, yes, sir. And Sea Grant has supported a lot of research in aquaculture in the Southeast and in South Carolina. We still have a viable but small marine shrimp aquaculture industry. Back in the 1980s, crawfish farming came to South Carolina and actually it was some interaction between our Sea Grant extension specialist in aquaculture, Jack Whetstone, who met up with a fellow who has passed away since, but Larry Delabratante from Louisiana, and brought the ability to culture—brought the technology to culture, to grow crawfish in ponds to South Carolina. In South Carolina, though, the primary type of aquaculture that goes on is shellfish aquaculture so we have strong clam aquaculture, and there is work looking at trying to develop a single oyster aquaculture industry. As you know, our oysters are clusters naturally, but for single oyster aquaculture, which gets a premium price, that is being pursued. So there are a lot of opportunities there.

Mr. INGLIS. And some of those opportunities may involve things that Mr. McLean mentioned, the pretty nifty idea of submerging the barge and growing things there, especially with the pond-grown shrimp, Mr. Riley might hop in here because my brother also has a shrimp boat and he tells us, you know, you got to watch what you are eating when you are eating shrimp because the shrimp that you are eating may be absolutely chock full of antibiotics from wherever it has come from if it is grown in a pond. And so I suppose I am a little bit concerned about that, you know, and I wonder, do we do research on that at Sea Grant or does Sea Grant look at more the ocean-based shrimping rather than, say, pond-raised shrimp?

Mr. DEVOE. I will say that Sea Grant's investment in aquaculture in the last decade has focused on sustainable shrimp culture and sustainable aquaculture in general. The issues with respect to, you know, what is in the shrimp that we eat that is cultured I think really plays out in the international scene and the importation of shrimp from overseas, which most consumers are buying because they are so cheap and it has affected the ability of the United States culture industry, and I am not—I mean, I am just saying. But it certainly has affected the viability, the economic viability of our domestic shrimp industry as well. So I think the focus has been in the last decade or so is trying to—they call it biosecurity to try to maintain a crop, if I could use that term, for the

shrimp that does not contain the kinds of constituents that we might see coming in from overseas.

Mr. INGLIS. And maintaining that crop in the ocean, I guess, has another—speaking of antibiotics and pharmaceuticals, I take it we are doing some research on that sort of thing too through Sea Grant on whether sewage effluent is actually affecting the reproduction of shrimp and other kinds of species. Is that something that Sea Grant does or, do you have any research going on in that?

Mr. DEVOE. I think that varies, depending on what region of the country you look. I know I can only speak for South Carolina, my region. The issues of stormwater runoff are extremely important, even though we are a relatively flat state, I mean, in terms of slope. There is still, during rainfall events, we will get a lot of runoff, and there are a lot of materials that do run off into our systems. We are concerned about that because the species that inhabit our estuaries and our tidal creeks tend to spend their youngest portions of their lives up in the upper headwaters of those creeks and that is where the connections are between the land and what is running off in the water.

Coliform bacteria is of particular concern in terms of water quality and so there have been a number of programs throughout the country through Sea Grant's coastal community program to look at ways to manage stormwater on site or on land through various low-impact development scenarios and other things to try to minimize the flow of that water off land into our fragile estuaries.

OFFSHORE WIND FARMS

Mr. INGLIS. I grew up on one of those estuaries actually in Bluffton, South Carolina.

One last question if I got time. Wind farms, Sea Grant does work on how those may work offshore?

Mr. ANDERSON. Ocean-based wind farms?

Mr. INGLIS. Right

Mr. ANDERSON. I think again, like Mr. DeVoe said, that depends on the region and the states that are involved. Some of our parts of our country are way ahead of others in terms of harvesting wind. Speaking for my region, there are engineers who have said that the Gulf of Maine is the Middle East of wind and that we have to start harvesting wind up there. There is a lot of wind. So there are indeed some explorations going on to do this kind of thing that may or may not be in State waters but certainly in federal waters, and some of the technologies that we will need to come to bear on that, the water is too deep up there. They will have to be tethered and floating structures, which requires a tremendous amount of new thinking around engineering, and I expect my program to be approached by that class of scientists in the coming years and we will entertain research proposals and try to feed some money into that important issue if we have the money to feed.

Mr. INGLIS. Thank you.

Thank you, Mr. Chairman.

Chairman LAMPSON. Thank you, Mr. Inglis. I was thinking but I will hold my tongue for a bit.

Mr. Bartlett, you are recognized.

CONSERVATION AND STEWARDSHIP

Mr. BARTLETT. Thank you very much for your testimony. I received both my master's and my doctorate from a university that had a land grant college, and I don't know all the reasons why the College of Agriculture was one of the better schools in the university, and although my degree was from the College of Arts and Sciences, I took many of my courses in the School of Agriculture because they had better teachers and better courses. My course in advanced embryology was reproduction in poultry, for instance. Well, as a result of this focus, more than 50 years ago our university, the School of Agriculture, had an enormous focus on conservation and stewardship of our land.

My perception is that we have related to our waters, both the lakes and the oceans, as if they were endless opportunities for exploitation rather than resources that require conservation and stewardship, and I am wondering if you believe the Sea Grant program will eventually have the same kind of focus on our waters for conservation and stewardship that the land grant colleges have brought to our land masses. I think there is increasing evidence that if we don't have that kind of focus, the opportunities for exploitation are going to be diminished in the future. What do you see?

Mr. MCLEAN. Mr. Bartlett, if I may, I think that the direction that the Sea Grant program is going in, and to a certain demonstrated extent has been, is to achieve a balance between the productivity of oceans and coastal environments and then to make sure that that productivity is in fact sustainable. It can only be sustainable by having an appropriately targeted conservation ethic and I think the research that Sea Grant undertakes is targeted to be community responsive and constituent responsive. Most of our coastal constituents are very aware of the facts around us regarding water quality and the availability of healthful seafood resources or other harvestable resources that come from the sea. I think conservation and productivity are very closely tied. The science that Sea Grant does reinforces this message and I think the new direction, or I should say, the enhanced direction of our strategic plan from Sea Grant and the individual Sea Grant institutes, the 32 institutes that comprise the program, are really targeting that direction that we need to be sustainable, we need to be conservation-minded but we also need to balance that with the productivity of the coastal communities and even the products that are shipped inland to other parts that are away from the coast. But our coast is our engine and we need to protect it. We need to protect it in terms of the resources, its sustainability and the coastal communities that rely on it. I appreciate your acknowledgement of that area.

Mr. DEVOE. I would like to, if I may, offer a perspective. Sea Grant was created in the 1960s and it was to foster wise use and conservation of coastal, marine and Great Lakes resources. So I think the ethic that you describe is embodied in the program and it has been since the beginning. I think what we are dealing with today is—not today but over the last few decades—is the fact that the coast and the oceans and the Great Lakes have become much more—more and more attractive for people to come live, work and

play along, and the challenge that we have as the Sea Grant program but also all of us have, you know, as stewards of these areas is to try to deal with that emerging pressure, those emerging pressures to try to maintain that balance as we move forward. It is not that we don't have a philosophy, but the challenges for us as a relatively modest program relative to the land grant system, which is more than order of magnitude higher in funding that the Sea Grant program is, does provide those challenges for us and may be one of the reasons why we would really like to see some more support for the program at the federal level and which we can then leverage that support at the State and local level.

Mr. RILEY. I can say that with the work that Sea Grant has done, especially in Texas and those involved in it, that they have shepherded the fishing community, which I am involved in, into becoming more sustainable and ecologically friendly. We are a little bit unique in the company I am managing in that we are diversified and have the funds available to do a little bit of research and become more efficient in our own harvesting, and at times some of that research has paved the way for Sea Grant to get out into industry as, you know, a greater whole and they have done an excellent job of trying to foster an attitude amongst commercial shrimpers in the Gulf to become more aware, become more sustainable. Of course, the key word these days in any fishing enterprise is sustainability but they have done an excellent job of, you know, fostering that line of thought and getting it out into industry.

Mr. BARTLETT. Thank you very much, Mr. Chairman.

DIVERSITY OF PARTICIPATION

Chairman LAMPSON. Thank you, Mr. Bartlett.

Our second round, and I will recognize myself for five minutes.

Mr. McLean, in the last reauthorization, the language was added to the provision on fellowships to ensure equal access for minority and economically disadvantaged students. How successful was the Sea Grant program or has it been in their efforts to involve minority-serving institutions and in the efforts to increase the diversity of students participating in the Sea Grant program?

Mr. MCLEAN. Thank you, Mr. Chairman. The addition of that language is a very important opportunity for us. We recognize in our workforce that we do not have currently in the ocean and coastal professions the construct of full representation throughout the image of America in our own workforce and we are working very hard to change the distribution, the appeal and the availability of opportunities to students from all universities and all areas. We have linkages with minority-serving institutions in the Sea Grant program, in particularly in the southern end in the southeast area of South Carolina State, which was mentioned earlier, is a minority-serving institute and is part of the South Carolina Sea Grant Institute and also we have Jackson State in Mississippi and I have worked personally very closely with Jackson State in bringing scientists aboard our NOAA ships and throughout our science programs. I don't have a statistic or a number that I could report to you but I can assure you that our efforts are ongoing. I appreciate the opportunity that that language has given us in order to sustain our efforts to recruit a broad spectrum of stu-

dents, and we even go further. We note that a few short years ago the distribution of women, for example, in the Sea Grant fellowship, in the Knauss Fellowship Program was approaching 50/50 in its distribution and I am happy to recognize now that the responsiveness in the students that we are placing in the Knauss fellowship are now 75 percent female, and we are trying to attain the same sort of positive growth in the direction of under-represented communities of students in our workforce and we think that the Sea Grant fellowships are a marvelous way to accomplish that.

We have additional programs in NOAA that the Congress has supported routinely, and they represent educational partnership programs where we directly tie with additional minority-serving institutes. We have created Centers of Excellence in schools that are developing their programs in particular academic disciplines that reach NOAA sciences and NOAA-related sciences atmospherically and oceanically. We are working hard in that direction, and I think you can appreciate the change, the size of the rudder that we need to be turning is quite significant but we are working earnestly at it.

MATCHING FUNDS REQUIREMENT

Chairman LAMPSON. Thank you. One of the provisions of the Administration's proposal is the matching fund requirements for the regional and national partnerships. The Administration is proposing that the partnerships as well as the interagency cooperation be exempt from the matching fund requirement. The matching fund requirement has provided leverage for the State programs to achieve all that they have thus far. So without these matching funds, where is the funding going to come from to do these collaborative projects? Anyone?

Mr. ANDERSON. Well, I will speak to that. The matching component of the Sea Grant program has long been a hallmark of its construct and it is an important way for bringing our universities and our states to the issues. Some of the challenges of doing institutional arrangements and regional approaches that we have talked about earlier in the hearing have been encumbered by this matching requirement because administratively we end up with negotiations and some delicacies between institutions and between states about trying to meet these administrative obligations of matching and the fiscal arrangements that have to be set up to accommodate for that. Sometimes they become a distraction to the real science and the real approach that we ought to be taking so I think that there is value to considering this exemption so that we are able to focus on the work to be done and be able to bring the right players to the table and we still have the opportunity through our institutional arrangements to bring other resources to bear and make sure that it is an efficient arrangement. But I think that that is some of the motive behind this change.

COLLABORATION WITH NMFS

Chairman LAMPSON. How close do you all work with the National Marine Fisheries Service?

Mr. ANDERSON. I think that varies around the country but in some cases very, very closely, helping them with training and education of their council members. There has been many collaborative research science projects with some of the fisheries' management councils. I think that that relationship varies around the regions and based on some particularly challenging issues that some of our regions have had. Sea Grant is a science, unbiased—science-based, unbiased broker and a convener and I think the fisheries' councils have recognized that and brought us in when they can to help us.

Chairman LAMPSON. Do we need to work on that more so? There is concern, and I would like for you to comment, if you don't mind, Mr. Riley, on some of this because I know that there are a lot of fishermen, particularly in the western Gulf of Mexico, who are concerned about some of the work that NMFS has done as far as snapper and snapper seasons and I know that that is the case in other places, and I know that your industry gets some of the brunt of some of the problem. But is there a way that—some say that NMFS has too many folks that sit at desks and laboratories and don't know enough about what is happening on the water and it sounds like you guys know more about what is going on in the water. Is there a way to build that collaboration to a greater extent?

Mr. RILEY. I think in our case, especially with Texas Sea Grant and others around the Gulf, they have collaborated well with National Marine Fisheries Service, especially out of Pascagoula with the harvesting lab there. They have done so much on development of better TEDs, more efficient, you know, BRDs, or Bycatch Reduction Devices, which speaks to that snapper problem. But the problem is twofold in that snapper issue, and we would be here all day talking about that, but National Marine Fisheries Service I think bears too much of the brunt for what the Gulf Council in that particular setting has done. The National Marine Fisheries Service has used some sound science, at the time it was the best available science, which has changed, to make recommendations, and in that particular situation, the Gulf Council has not always heeded those recommendations and have set harvest levels above what even National Marine Fisheries Service was recommending. So, you know, they have become a scapegoat on that issue. But I do know that there is great collaboration right now of getting new BRDs out in the industry and the harvesting lab, which has purchased several thousand of three different types of devices, it is using the Sea Grant college program and the Gulf and South Atlantic Fisheries Foundation to get those out to the individual fishermen in different ports and that is a pretty good program to introduce them to some of these more efficient BRDs. Otherwise they would not be doing on their own just due to the cost constraints involved.

FISHING INDUSTRY CHALLENGES

Chairman LAMPSON. I am way over my time, but if you would just comment briefly as you can for me on the challenges that you face in this industry that you are involved with, and whether or not Sea Grant is well positioned to help address some of those issues in the future.

Mr. RILEY. Well, the biggest two challenges we face are high cost of inputs and low cost of product that we are putting on the market due to, you know, global competition. Nobody in this room is doing very well with $4-a-gallon diesel, and Sea Grant has been doing a great job of getting some of this gear that we kind of developed in-house but getting it out to the fishery as a whole to keep them, you know, fishing at a sustainable level. If you take the 30 percent mark at $4 a gallon, that boat can operate as if it is using fuel at $2.80 a gallon, and that is pretty significant.

And also in the development and research we are doing on these BRDs, we are starting to have an issue now of crewing issues. We can't find willing participants to get on these boats for the lengths of time we are asking them to do it, and we are understaffed at times during high-volume periods, and it would behoove us to become more efficient with what we bring up, basically bring more of the target species up and eliminate anything else before it gets on the back deck to make it easier on the crews, and that is one aspect we have kind of taken in-house at Western, and Sea Grant has done an excellent job through their Fishery Extension Service to, you know, foster that kind of thinking too amongst others.

MORE ON OFFSHORE WIND FARMS

Chairman LAMPSON. Thank you. Thank you very much.

Mr. Inglis.

Mr. INGLIS. Thank you, Mr. Chairman.

Back to the offshore wind farm concept, I understand that Minerals Management Service very recently, May 19, closed public comment and competing nominations for interim leases for data collection and research for some five-year leases. It is pretty exciting to be moving forward in that. And one of the challenges, as I understand it, is transmitting the power—if you do it offshore, transmitting the power back to shore is pretty expensive and you lose some energy that way. Any research you know that is going on in that regard or perhaps somehow storing the energy some other way or turning it into something else out there and then bringing it in some way besides a power line?

Mr. MCLEAN. It is not an area that NOAA is actively working in although I think the nature of the assessments that Sea Grant science has supported is to identify where are the most wind-prone areas that could be reliable generators of wind, and I believe that also in Oregon Sea Grant there are projects that are looking at wave-generated energies. But in terms of the actual electrical engineering component of that challenge, that would exceed our expertise.

Mr. ANDERSON. I am sorry to say that I am not familiar with any particular institutions, certainly not mine, that are working in that world, it is probably superconductivity kinds of research, but I am sure somewhere there is.

Mr. DEVOE. No, I am not familiar with that either, sir.

Mr. ANDERSON. I could look into that for you and get back to you if you would like.

Mr. INGLIS. I guess probably a place that you all may get more involved is, there are issues involving species, impact on species about having the wind farms out there and that sort of thing. Of

course, I suppose if you are looking at fisheries, it is a great opportunity because suddenly they got a place to live. But I guess for birds and that sort of thing, there is a little bit of a challenge. Anybody know of any research that you all are doing in that regard?

Mr. ANDERSON. I will just say that you are certainly correct that that is an avenue that Sea Grant programs can help to bring some researchers and other science capacity to those issues around the conflict, the conflicting use, and certainly in the Northeast there have been some issues around a wind farm offshore near Cape Cod. I believe our colleagues in Massachusetts, the Sea Grant community and others, have been helping to bring those perspectives to the table and try to help these people sort out, yes, the science and what are the technical challenges that we have to address but also the other social science conflicts and Sea Grant's deep experience of bringing people together to help them understand and work through perspectives, so that we can learn to understand why other people have a differing perspective. Because in some ways, I think you are quite right, that is going to be one of the big challenges of getting these kinds of new innovative energy generation systems up and running, whether they are on the ocean or terrestrial.

Mr. DEVOE. If I may, just one brief comment on that. One thing is that—two things. One is that the kind of research that would be needed to, you know, enhance transfer of energy from offshore to onshore probably would exceed the capacity of the Sea Grant program as a whole. I just think it is very high-level and very expensive, very important, you know, type of research and I support what Paul and Craig have said about that. It is traditionally not an area that Sea Grant has engaged. However, a play on a little bit of what Paul mentioned is the fact that what—any kind of offshore energy development will require an onshore base of operation. So we will be dealing with these issues if they emerge, if this potential is actually realized, whether it is wind or waves or currents or maybe even back to traditional, you know, gas exploration, that sort of thing. It is going to have some effect on the coasts, and that is not a qualitative comment. It is just, it is going to have some effect on the coasts because they are going to need an on-land coastal base of operation. I think that is where we are going to be able to play a much more significant role in working with communities to help them think about how they want to shape that development. One of the provisions of the energy bill, if I am not mistaken, and I might be really off on this because I am not that familiar with it, was that there—and I don't think this component passed, was a requirement that an onshore base of operation could be identified but couldn't sway more than 50 miles one direction or another, and that puts a huge, sort of a huge challenge to that community or those communities that are within that zone to try to accommodate that kind of development. So the onshore connection is, in my mind, in my opinion, and we have acknowledged it in our strategic plan, is something that we will probably have to do as a state or have to deal with as a state and the best way to do that, as has been mentioned, is to bring the partners to the table and try to work through these challenges.

Mr. INGLIS. If you could work through as you did the turtle extruder question and bring those parties together, then there is hope.

Mr. DEVOE. That might be easier.

Mr. INGLIS. Yes, that would be easier, I think.

Thank you, Mr. Chairman.

Chairman LAMPSON. Mr. Bartlett, further questions?

COOPERATION BETWEEN SEA AND LAND-BASED PROGRAMS

Mr. BARTLETT. Thank you very much.

There is an old adage that says what is everybody's responsibility is nobody's responsibility, and this reality impacts you in two different venues. On the land side, you quite literally get dumped on. Most of my district, the water flows into the Chesapeake Bay. I have no land bordering the Chesapeake Bay but we are acutely aware of what we do on our land really impacts the health of the bay. Then when you get out into the oceans, our territorial waters run, depending upon where you sit, three miles or 20 miles, I guess, and that is only a tiny percent of the whole oceans out there and so the health of our national waters depends a great deal on internationally what is going on in the rest of the ocean. What kind of success are you having at forging partnerships on the land side so that you don't get dumped on and on the ocean side so that we don't get depleted because of excess harvesting by others?

Mr. ANDERSON. I will speak to one particular partnership that the National Sea Grant Program was able to cultivate with the EPA over the last couple of years, and more speaking to how coastal communities or even communities up in the watershed such as yours are planning their development, planning their futures around honoring ecosystem principles. We call this smart growth, and that is the jargon that is being kicked around, but nationally, Sea Grant created a partnership program with EPA and both institutions with some NOAA money and EPA money were able to get going some competitive programs around the country to start bringing communities together and say all right, where are we going to have these kinds of activities, you know, thinking about things like impervious surfaces and agricultural development and other kinds of stormwater treatment, stormwater management, and try to do that in a collaborative, interdisciplinary way because oftentimes, as Mr. DeVoe referred to earlier, whereas a lot of our really important coastal decisions around ecological health are happening in a town and a municipality. We need to bring municipalities together and get them to think about these issues because they are living in a watershed together and so the smart growth program is just one example of trying to bring those towns together and learn some science principles and learn some best management practices, and Sea Grant has been—we really—our role in that was bringing all the players together. You have heard that in all of our little stories here this morning, that our role is convening and getting people to understand one another's perspectives. So that is perhaps an example of something that we are trying to do to effect what you are talking about.

Mr. BARTLETT. Let me give you just one example of something that we do on the land which I think is really dumb, which impacts

the quality of our waters. If you are not near a municipality so that you have public water and sewer, the only land that you can develop is by definition farmland because it can't slope more than 25 percent or they won't perk it, and it has to perk or they won't let you build on it. Land that slopes less than 25 percent and perks is by definition farmland, isn't it? And then when you put in a septic system, by law, they require you to take the effluent and inject it into the ground under the root zone of plants, and then they are distressed that there is an increase in nitrogen level because this nutrient which the plants would happily take up is now by law injected into the ground. It is not a recycling system. It is a disposal system and it is spawned of ignorance. What can you all do to change that? And by the way, you don't need either a well or ground which perks to build a house. More than enough water falls on the roof of your house to meet all of your needs for the year if you husband it. You don't have to be really rationing very much. And we now have composting toilets so that you could build your house out on the middle of the freeway when that gets abandoned because gas is too expensive. You could live very happily there. You know, what can you all do to bring some sanity to our land-based programs so that we aren't polluting the groundwater?

Mr. MCLEAN. Mr. Bartlett, thank you for that question. I can't promise you an exact solution but I could demonstrate the methodology that the Sea Grant program has taken in order to unite the heartland of the country with the coastal community and how what happens in the heart of the country or in the center of the country is being deposited, for example, in the Gulf of Mexico and where we have certain introductions of materials that aren't naturally occurring and they are having an environmental consequence in the Gulf of Mexico. In Oklahoma, in Norman, Oklahoma, we have established a position for a Sea Grant extension agent, and although Oklahoma's time as a maritime state is quite dated, geological epochs ago, and the fossil evidence is of course there, we are very proud to see that Sea Grant had the leadership and the forward thinking to be bringing a representative, an outreach representative who can communicate the challenges of the farming community to the coastal community and the coastal community back to the farming community. We are also looking there, and the purpose for this person's arrival was to build understanding for coastal resiliency, hazard resiliency, but certainly one of the threats to the coastal community are depositions, dumping and the like that takes place in other locations.

But my point is to impress upon you the flexibility of the Sea Grant program and how we can bring various fields of knowledge to communities that aren't normally running into that conversation and I am hopeful that we could be doing more of this in the future.

Mr. BARTLETT. Thank you.

Chairman LAMPSON. Thank you, Mr. Bartlett.

Mr. Akin, would you like to be recognized?

Mr. AKIN. I didn't have any questions for the moment, especially after Roscoe's eloquence here.

RAINWATER AS A DRINKING SOURCE

Mr. BARTLETT. Mr. Chairman, if I could have just a moment to note something. I wanted to do a development where we were using rainwater from your house and it went into a cistern and the State people told me oh, you can't do that, you can't use rainwater. I said help me understand this. The rain falls on the hog lot and then the water goes from the hog lot into the creek and the creek goes into the reservoir and you pull it out of the reservoir and treat it a little and tell me that is drinking water. I said can I please have the water before it goes through the hog lot.

Now, we really have some really silly regulations, and I hope that through your interest in maintaining the quality of our waters that you can counsel with our land people that they get some sanity into their regulations.

Chairman LAMPSON. Mr. DeVoe, you wanted to make a comment?

Mr. DEVOE. Thank you, just to comment on that, just to follow on with Mr. McLean's comment about Norman, Oklahoma. The Sea Grant program has established recently, formally established, a coastal communities program, and what the national office has done is, provided some limited resources, which I think a lot of our programs have leveraged, to develop capacity to have a special extension person but not in fisheries but in coastal development, and every state is addressing their issues, you know, in the way that is most appropriate for their states. But we have mechanisms in place throughout the Sea Grant network now where these are folks who are planners or they may have expertise in stormwater management or some aspect of development. Paul mentioned the smart growth thing, low-impact developments, some of these new ways of trying to deal with both existing developments and trying to minimize runoff or new developments, to try to incorporate technology into the development of those.

But I would submit to you that as frustrating as this is to me and a lot of us, is that science only goes so far. We can provide as much of the best information with the best rationale that we could ever come up with and these decisions are not just science decisions. There are other considerations that decision-makers have to take into account when they make those. So I think we try as best we can to present the best information that we can generate through our universities and get it to you and other decision-makers in a fashion that is usable and understandable and then we sort of have to sit back and see what happens and see how the process works out.

Our engagement with citizens and schools is a way to build that public awareness and it may be through a public perspective, there may be ways to change perceptions and also decision-making. But it is one of the challenges that we face as a science and information organization.

Chairman LAMPSON. And I guess Mr. Bartlett would look for common sense in some of these things.

Mr. BARTLETT. I would. There is not a whole lot of that out there.

Chairman LAMPSON. Mr. Akin.

Mr. AKIN. Just a comment for the benefit of Mr. Bartlett, we lived 25 years in a house where our water supply was off the roof in a big cistern. The only thing we got wrong was, it was an asbestos roof.

Chairman LAMPSON. Thank you all for appearing here today. We very much appreciate the time that you have taken with us.

Under the rules of the Committee, the record will be held open for two weeks for Members to submit additional statements and any additional questions that they might have for the witnesses. This hearing is now adjourned.

[Whereupon, at 11:18 a.m., the Subcommittee was adjourned.]

Appendix:

Additional Material for the Record

I

110TH CONGRESS
2D SESSION

H. R. 5618

To reauthorize and amend the National Sea Grant College Program Act, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 13, 2008

Ms. BORDALLO (for herself, Mr. FALEOMAVAEGA, Mr. SAXTON, Mr. ABERCROMBIE, Mr. GILCHREST, and Mr. FARR) introduced the following bill; which was referred to the Committee on Natural Resources

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A BILL

To reauthorize and amend the National Sea Grant College Program Act, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Sea Grant College Program Amendments Act of 2008".

SEC. 2. REFERENCES.

Except as otherwise expressly provided therein, whenever in this Act an amendment or repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to

a section or other provision of the National Sea Grant College Program Act (33 U.S.C. 1121 et seq.).

SEC. 3. FINDINGS AND PURPOSE.

(a) FINDINGS.—Section 202(a) (33 U.S.C. 1121(a)) is amended—

(1) by amending paragraph (1)(D) to read as follows:

"(D) encourage the development of preparation, forecast, analysis, mitigation, response, and recovery systems for coastal hazards;";

(2) in paragraph (2) by striking "program of research, education," and inserting "program of integrated research, education, extension,"; and

(3) by striking paragraph (6) and inserting the following:

"(6) The National Ocean Research Priorities Plan and Implementation Strategy issued by the National Science and Technology Council's Joint Subcommittee on Ocean Science and Technology on January 26, 2007, identifies research priorities for compelling areas of interaction between society and the ocean, and calls for the engagement of a broad array of ocean science sectors (government, academia, industry, and non-government entities) to ad-

dress the areas of greatest research need and opportunity.

"(7) The National Oceanic and Atmospheric Administration, through the national sea grant college program, offers the most suitable locus and means for such commitment and engagement through the promotion of activities that will result in greater such understanding, assessment, development, utilization, and conservation. The most cost-effective way to promote such activities is through continued and increased Federal support of the establishment, development, and operation of programs and projects by sea grant colleges, sea grant institutes, and other institutions, including strong collaborations between Administration scientists and research and outreach personnel at academic institutions.".

(b) PURPOSE.—Section 202(c) (33 U.S.C. 1121(c)) is amended by striking "to promote research, education, training, and advisory service activities" and inserting "to promote integrated research, education, training, and extension activities".

SEC. 4. DEFINITIONS.

(a) AMENDMENTS.—Section 203 (33 U.S.C. 1122) is amended—

(1) in paragraph (11) by striking "advisory services" and inserting "extension services";

(2) in each of paragraphs (12) and (13) by striking "(33 U.S.C. 1126)"; and

(3) by adding at the end the following:

"(17) The term 'regional research and information plan' means a plan developed by one or more sea grant colleges or sea grant institutes that identifies regional priorities to implement the National Ocean Research Priorities Plan and Implementation Strategy.

"(18) The term 'National Ocean Research Priorities Plan and Implementation Strategy' means such plan and strategy issued by the National Science and Technology Council's Joint Subcommittee on Ocean Science and Technology on January 26, 2007.".

(b) REPEAL.—Section 307 of the Flower Garden National Marine Sanctuary Act (Public Law 102–251; 106 Stat. 66) is repealed.

SEC. 5. NATIONAL SEA GRANT COLLEGE PROGRAM, GENERALLY.

(a) PROGRAM ELEMENTS.—Section 204(b) (33 U.S.C. 1123(b)) is amended—

(1) by amending in paragraph (1) to read as follows:

"(1) sea grant programs that comprise a national sea grant college program network, including international projects conducted within such programs and regional and national projects conducted among such programs;";

(2) by amending paragraph (2) to read as follows:

"(2) administration of the national sea grant college program and this title by the national sea grant office and the Administration;"; and

(3) by amending paragraph (4) to read as follows:

"(4) any regional or national strategic investments in fields relating to ocean, coastal, and Great Lakes resources developed in consultation with the board and with the approval of the sea grant colleges and the sea grant institutes.".

(b) TECHNICAL CORRECTION.—Section 204(c)(1) (33 U.S.C. 1123(c)(1)) is amended by striking "Within 6 months of the date of enactment of the National Sea Grant College Program Reauthorization Act of 1998, the" and inserting "The".

(c) FUNCTIONS OF DIRECTOR OF NATIONAL SEA GRANT COLLEGE PROGRAM.—Section 204(d) (33 U.S.C. 1123(d)) is amended—

(1) in paragraph (2)(A), by striking "long range";

(2) in paragraph (3)(A)—

(A) by striking "(A)(i) evaluate" and inserting "(A) evaluate and assess";

(B) by striking "activities; and" and inserting "activities;"; and

(C) by striking clause (ii); and

(3) in paragraph (3)(B)—

(A) by redesignating clauses (ii) through (iv) as clauses (iii) through (v), respectively, and by inserting after clause (i) the following:

"(ii) encourage collaborations among sea grant colleges and sea grant institutes to address regional and national priorities established under subsection (c)(1);"; and

(B) in clause (iii) (as so redesignated) by striking "encourage" and inserting "ensuring".

SEC. 6. PROGRAM OR PROJECT GRANTS AND CONTRACTS.

(a) EXEMPTION FROM LIMITATION ON COST SHARE.—Section 205(a) (33 U.S.C. 1124(a)) is amended in the matter following paragraph (2), by striking "section

204(c)(4)(F)" and inserting "section 204(d) or that are appropriated under section 208(b)".

(b) SPECIAL GRANTS; MAXIMUM AMOUNT.—Section 205(b) (33 U.S.C. 1124(b)) is amended by striking the matter following paragraph (3) and inserting the following:

"The total amount that may be provided for grants under this subsection during any fiscal year shall not exceed an amount equal to 5 percent of the total funds appropriated for such year under section 212.".

SEC. 7. EXTENSION SERVICES BY SEA GRANT COLLEGES AND SEA GRANT INSTITUTES.

Section 207(a) (33 U.S.C. 1126(a)) is amended in each of paragraphs (2)(B) and (3)(B) by striking "advisory services" and inserting "extension services".

SEC. 8. TECHNICAL CORRECTION RELATING TO FELLOWSHIPS.

Section 208(a) (33 U.S.C. 1127(a)) is amended by striking "Not later than 1 year after the date of the enactment of the National Sea Grant College Program Act Amendments of 2002, and every 2 years thereafter," and inserting "Every 2 years,".

SEC. 9. NATIONAL SEA GRANT ADVISORY BOARD.

(a) REDESIGNATION OF SEA GRANT REVIEW PANEL AS BOARD.—

1 (1) REDESIGNATION.—The sea grant review
2 panel established by section 209 of the National Sea
3 Grant College Program Act (33 U.S.C. 1128), as in
4 effect before the date of the enactment of this Act,
5 is redesignated as the National Sea Grant Advisory
6 Board.
7 (2) MEMBERSHIP NOT AFFECTED.—An indi-
8 vidual serving as a member of the sea grant review
9 panel immediately before the enactment of this Act
10 may continue to serve as a member of the National
11 Sea Grant Advisory Board until the expiration of
12 such member's term under section 209(c) of such
13 Act (33 U.S.C. 1128(c).
14 (3) REFERENCES.—Any reference in a law,
15 map, regulation, document, paper, or other record of
16 the United States to such sea grant review panel is
17 deemed to be a reference to the National Sea Grant
18 Advisory Board.
19 (4) CONFORMING AMENDMENTS.—
20 (A) IN GENERAL.—Section 209 (33 U.S.C.
21 1128) is amended by striking so much as pre-
22 cedes subsection (b) and inserting the following:

1 **"SEC. 209. NATIONAL SEA GRANT ADVISORY BOARD.**

2 "(a) ESTABLISHMENT.—There shall be an inde-
3 pendent committee to be known as the National Sea Grant
4 Advisory Board.".

5 (B) DEFINITION.—Section 203(9) (33
6 U.S.C. 1122(9)) is amended to read as follows:
7 "(9) The term 'Board' means the National Sea
8 Grant Advisory Board established under section
9 209.";

10 (C) OTHER PROVISIONS.—The following
11 provisions are each amended by striking
12 "panel" each place it appears and inserting
13 "Board":

14 (i) Section 204 (33 U.S.C. 1123).
15 (ii) Section 207 (33 U.S.C. 1126).
16 (iii) Section 209 (33 U.S.C. 1128).

17 (b) DUTIES.—Section 209(b) (33 U.S.C. 1128(b)) is
18 amended to read as follows:

19 "(b) DUTIES.—

20 "(1) IN GENERAL.—The Board shall advise the
21 Secretary and the Director concerning—

22 "(A) strategies for utilizing the sea grant
23 college program to address the Nation's highest
24 priorities regarding the understanding, assess-
25 ment, development, utilization, and conservation
26 of ocean, coastal, and Great Lakes resources;

"(B) the designation of sea grant colleges and sea grant institutes; and

"(C) such other matters as the Secretary refers to the Board for review and advice.

"(2) BIENNIAL REPORT.—The Board shall report to the Congress every two years on the state of the national sea grant college program. The Board shall indicate in each such report the progress made toward meeting the priorities identified in the strategic plan in effect under section 204(c). The Secretary shall make available to the Board such information, personnel, and administrative services and assistance as it may reasonably require to carry out its duties under this title.".

(c) EXTENSION OF TERM.—Section 209(c)(3) (33 U.S.C. 1128(c)) is amended by striking the second sentence and inserting the following: "The Director may extend the term of office of a voting member of the Board once by up to 1 year.".

(d) ESTABLISHMENT OF SUBCOMMITTEES.—Section 204(c) (33 U.S.C. 1123(c)) is amended by adding at the end the following:

"(8) The Board may establish such subcommittees as are reasonably necessary to carry out its duties under sub-

1 section (b). Such subcommittees may include individuals
2 who are not Board members.".

3 **SEC. 10. AUTHORIZATION OF APPROPRIATIONS.**

4 (a) AUTHORIZATION.—Section 212(a) (33 U.S.C.
5 1131(a)) is amended to read as follows:

6 "(a) AUTHORIZATION.—There are authorized to be
7 appropriated to the Secretary to carry out this title—

8 "(1) $66,000,000 for fiscal year 2009;
9 "(2) $72,800,000 for fiscal year 2010;
10 "(3) $79,600,000 for fiscal year 2011;
11 "(4) $86,400,000 for fiscal year 2012;
12 "(5) $93,200,000 for fiscal year 2013; and
13 "(6) $100,000,000 for fiscal year 2014.".

14 (b) REPEAL OF DISTRIBUTION REQUIREMENT.—Sec-
15 tion 212 (33 U.S.C. 1131) is amended by striking sub-
16 section (c), and by redesignating subsections (d) and (e)
17 as subsections (c) and (d), respectively.

○

STATEMENT OF JOHN T. WOESTE
VICE CHAIR, NATIONAL SEA GRANT REVIEW PANEL,
OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH,
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,
U.S. DEPARTMENT OF COMMERCE

BEFORE THE SUBCOMMITTEE ON FISHERIES AND OCEANS
COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

APRIL 3, 2008

I am Dr. John T. Woeste, Professor Emeritus and retired Dean of the University of Florida's Institute of Food and Agriculture Sciences. I serve as Vice Chair of the National Sea Grant Review Panel, a Federal Advisory Committee comprised of 15 individuals who advise the Secretary of Commerce through the Under Secretary of Commerce for Oceans and Atmosphere, and the Director of the National Sea Grant College Program on scientific and administrative policy. The Panel functions as an advisory body in accordance with the *Federal Advisory Committee Act* (FACA). The National Sea Grant College Program is NOAA's primary university-based program in support of coastal resource use and conservation. Sea Grant's research, outreach and education programs promote better understanding, conservation and use of America's marine and coastal resources.

I am pleased to be here today to tell you about the National Sea Grant College Program. Specifically, I will discuss the role of the National Sea Grant Review Panel (Panel), Sea Grant's leadership and the program's return on investment, enhancements to Sea Grant's evaluation process, the importance of continuing this vibrant program, and the Panel's role in the future.

The Panel recognizes the vision and important role that past Congresses have played in enacting the *Sea Grant Act* and its subsequent reauthorizations. Thank you for your support of this program, for your recognition of the importance of sustainable coasts to the U.S., and for your confidence in Sea Grant as part of achieving that vision.

Establishment of the Sea Grant Review Panel

The Sea Grant Review Panel was established by the Secretary of Commerce as directed by Section 209 of the *National Sea Grant Program Act of 1976*. The Panel advises the Secretary of Commerce acting through the Under Secretary of Commerce for Oceans and Atmosphere and the Director of the National Sea Grant College Program with respect to: Applications or proposals for, and performance under, grants and contracts awarded; the Sea Grant fellowship program; the designation and operation of Sea Grant Colleges and Sea Grant institutes, and the operation of Sea Grant programs; the formulation and application of the planning guidelines and priorities established by the Secretary; and other matters as the Secretary, Under Secretary, or Director refer to the Panel for review and advice. The body consists of fifteen voting members appointed by the Secretary.

The Panel, in its advisory role, worked closely with the National Sea Grant Office and the Sea Grant Directors, through the Sea Grant Association (SGA), to address areas of concern related to this reauthorization, and to seek consensus on the issues. A series of joint meetings and conversations helped to philosophically align Sea Grant's three leadership bodies and generate widespread consensus on proposed positions. The Panel also considered several reports relevant to the legislation: *"Building Sea Grant: The Role of the National Sea Grant Office,"* a 2002 Panel report providing a review and analysis of the organization, administration, and management of the NSGO; and, the National Research Council (NRC) report, *"Evaluation of the Sea Grant Review Process"* (2006), which assessed the impact of Sea Grant's evaluation process and procedures on the organization as a whole. As the National Sea Grant College Program implements the NRC report and realizes its new national strategic plan, "NOAA National Sea Grant College Program, Strategic Action Agenda 2009–2013: Meeting the Challenge," collaboration among the three leadership bodies will be further enhanced, better positioning the program as a powerful and coordinated national leader in research and education for the sustainable development of Great Lakes, marine and coastal resources.

Sea Grant Leadership

The National Sea Grant College Program has become a leader in advancing the science and practice of managing our coastal and marine resources. The program last had its legislation reauthorized unanimously by Congress in November 2002 with a virtual doubling of its authorized appropriation.

In order to meet some of the greatest challenges confronting our nation—namely, urbanization and coastal development—Sea Grant has become strategically flexible, creating organizational adaptability and responsiveness through an open, empowered, distributed management structure focused on results and service to constituents. These management changes, implemented over the past decade, have enhanced Sea Grant's efficiency, effectiveness, overall performance and user input. There is now a mind set of accountability against exacting performance criteria. As a result, Sea Grant's reputation has grown accordingly. The organization's performance scores have demonstrably improved, indicating that Sea Grant is effectively getting resources to problems—the right problems as defined by both NOAA's mission and constituent input.

A major report from the Pew Oceans Commission (2003) noted, ". . . a growing crisis in America's oceans and along our coasts," and identified nine major threats to oceans—several of which Sea Grant is well-positioned to address. The National Sea Grant Law Center contributed its legal expertise to the Commission, and several Sea Grant studies are also cited in the report.

The environmental challenges and Sea Grant's role in the emerging U.S. ocean agenda were also well defined in the U.S. Commission on Ocean Policy (USCOP) report published in late summer of 2004. Sea Grant received almost 50 citations in the USCOP report, including a specific call for increases in budget and high praise for Sea Grant's educational activities. Sea Grant was also one of the few programs named in the President's 2005 Ocean Action Plan in response to that report. This recognition is eloquent testimony to Sea Grant's growing impact on national ocean policy and research.

As you are well aware, the National Ocean Research Priorities Plan (ORPP) and Implementation Strategy issued by the National Science and Technology Council's Joint Subcommittee on Ocean Science and Technology on January 26, 2007, identifies research priorities and calls for the engagement of a broad array of ocean science sectors to address high priority research needs and opportunities. Sea Grant is ideally suited to implement regional ORPP and national priorities. Presently, Sea Grant is developing regional research plans to support these priorities. These regional research and information planning efforts will consider the full scope of issues outlined in the U.S. Ocean Commission Report and Ocean Research Priorities Plan and will include other local, State, regional, federal, and non-governmental agencies.

As further testament to Sea Grant's strong leadership, Dr. Ronald C. Baird, former Director of the National Sea Grant College Program, was awarded two Presidential Rank Awards for Meritorious Executives (2000 and 2006) for his work in helping to position the United States as a world leader in marine research and the sustainable development of coastal resources. Dr. Baird would be the first to assert that the great achievements of the National Sea Grant College Program contributed to his successful nominations.

Sea Grant's scientific capabilities and forward-thinking, innovative, stakeholder-focused organizational culture, coupled with performance-based accountability, have earned it a reputation as a highly effective national program. Strong leadership and an ability to develop partnerships and coalitions among federal, academic and private sector organizations to address critical, complex issues, characterizes the Sea Grant program, and resides at the core of this nation's ability to manage our coastal resources as we confront unprecedented population growth and development.

Sea Grant's Program Evaluation Process and Return on Investment

In 1994, the National Research Council (NRC), which functions under the auspices of the National Academy of Sciences, reviewed the National Sea Grant College Program. The NRC recommended several actions, including carrying out systematic, periodic reviews of the individual programs. In response, Sea Grant developed an evaluation process that relied heavily on detailed site reviews carried out by an external Program Assessment Team every four years, beginning in 1998.

The NSGO, in consultation with the National Sea Grant Review Panel and the Sea Grant programs, implemented this new program evaluation protocol. From 1998 through 2007, the Panel conducted 59 program reviews and provided over 500 review recommendations designed to enhance and improve the performance of each Sea Grant program. At present, the Panel is pleased to report that approximately

95 percent of the program review recommendations have been implemented, resulting in a healthy, relevant, rigorously assessed and highly productive National Sea Grant College Program.

This program evaluation process, together with the successful implementation of program review recommendations, has produced, and continues to produce, substantial improvements in the design, direction, operation and management of the individual State Sea Grant programs that comprise the National Sea Grant College Program. The Panel's intensive, on-site reviews of every program have affirmed our belief in the quality of the Sea Grant programs, and formed a solid basis for our conviction that Sea Grant's work is relevant and indispensable to achieving the Nation's vision for the future.

As a result of Sea Grant's performance-based evaluation protocol, linking performance to merit-based resource incentives, there is now greatly increased accountability, and a strong commitment to continuous program improvement. The organization's capacity to produce quality science and to support informed decision-making with research information is formidable and demonstrative of Sea Grant's commitment to relevant service in the interest of our nation.

Performance metrics based on impacts provide accountability for Sea Grant's research, education and outreach programs. Sea Grant's commitment to engaging the best scientific expertise within coastal and Great Lakes states and regions has resulted in exemplary performance and results. As a result, Sea Grant impacts have brought meaningful benefits to the Nation, and they have demonstrated a significant return on the federal dollar. One recent example, among many, makes the point. A protective mesh for clams developed by Sea Grant researchers and applied by the industry has resulted in an increased yield valued at almost $40 million per year to the New England clam industry.

Most impressive, however, is Sea Grant's return on investment to U.S. taxpayers. Sea Grant has long been known for its economic contributions and positive return on investment. The organization's non-federal matching requirement results in substantial leveraging of additional effort. Each Sea Grant program must generate matching funds equal to at least 50 percent of the federal investment. The Sea Grant programs' ability to consistently produce match funding is a testament to their responsiveness as well as to their relevance to the needs of stakeholder and interest groups. Additional financial leverage is achieved through cooperative partnerships with federal and State agencies. This ability to leverage resources and engage issues in partnership with other entities, is, we believe, unparalleled in government.

Sea Grant also mobilizes volunteers to participate in efforts such as beach cleanups, aquatic invasive species awareness programs and water quality monitoring efforts. In one state alone, Sea Grant saved taxpayers $120,000 in the annual Beach Sweep/River Sweep litter cleanup program. Over the past 14 years, more than 75,000 volunteers have collected 728 tons of trash and have saved State taxpayers more than $1.6 million as part of that effort. Collectively, thanks to Sea Grant extension efforts in 2007, 15 Sea Grant programs worked with citizens in their communities who generated a total of 32,205 volunteer hours.

The Panel is proud that the National Sea Grant College Program is one of few federal programs to have implemented such a rigorous and progressive evaluation protocol—a protocol that both promotes accountability and ensures ongoing and continuing improvement—and a protocol so esteemed that it has significantly influenced internal evaluation procedures currently utilized by several other federal programs. Through this evaluation process and its advisory oversight, the Panel has sought to ensure that Sea Grant investments address the ever-emerging needs of the United States public and of the ecosystems in which they reside.

National Research Council Review (2006)

The *National Sea Grant College Program Act Amendments of 2002* (P.L. 107–299) directed the National Oceanic and Atmospheric Administration (NOAA) to contract with the NRC a second time, ten years after its 1994 report, to conduct a review of the evaluation process and make appropriate recommendations to improve its overall effectiveness.

The subsequent NRC report, *"Evaluation of the Sea Grant Review Process"* (2006), assessed the impact of the new procedures and evaluation process on Sea Grant as a whole. Among the areas considered were: the quality of work produced by the program; its responsiveness to national, regional and local needs; and, the quality of its leadership, management and reputation. The NRC committee was also asked to make recommendations for improving the overall effectiveness of the evaluation process to ensure fairness, consistency and enhancement of performance. The NRC

report includes recommendations that guide the improvement of an already successful evaluation program.

The NRC concluded "real improvements have occurred" in the National Sea Grant College Program since changes instituted after the last NRC evaluation in 1994. The NRC further stated that the program evaluation process established in 1998 "has led to improvements to the overall program."

Sea Grant's Response to the NRC

In response to the set of 24 NRC recommendations, Sea Grant is developing a five-year national strategic plan and an Integrated Planning, Implementation and Evaluation (PIE) System. The PIE system reflects substantial input from the Panel and the Sea Grant network through a variety of formal and informal processes.

The new integrated planning and assessment system is strongly endorsed by the Panel, in large part because it not only builds upon the former program assessment process, but it introduces several new concepts designed to better integrate Sea Grant planning and management to produce significant outcomes, fulfill program accountability expectations and retain the initiative for continued program improvement. In keeping with the NRC's intent, the Panel strongly agrees that a rigorous and competitive program evaluation process is critical to Sea Grant's success as a strong, vibrant and accountable program.

The National Sea Grant College Program has long placed a premium on careful planning and rigorous evaluation at the State program level to ensure that Sea Grant would have the greatest impact at the constituent level. By developing a system that capitalizes on these capabilities at the national level, Sea Grant will be able to enhance its impact as a national program. The Panel also feels that better integration of planning, implementation and evaluation activities will maximize Sea Grant's efficiency at all levels, making the best use of limited resources and providing increased benefits to the public. More specifically, the new system is intended to separate aspects of the evaluation process focused on program improvement from those designed to rate performance, to encourage collaboration, to reward performance, to provide accountability, to retain program flexibility to address local issues, and to increase efficiency.

Ranking Sea Grant Programs

The NRC expressed concern about the narrow focus on ranking programs and distributing competitive funds as impediments to the NSGO's oversight role in improving individual programs. The Panel agrees with the NRC's conclusions and invites Congress to consider removing the statutory provisions for "ranking" programs as directed in Section 1123, *National Sea Grant College Act Amendments of 2002* (P.L. 107–299) ("rate the programs according to their relative performance into no less than five categories, with each of the two best-performing categories containing no more than 25 percent of the programs.").

The ranking component included in the current legislation needs to be eliminated because it has had the unintended consequence of providing a powerful disincentive for collaboration within the Sea Grant network. We are also concerned that the requirement could impede desired regional and national cooperation.

Sea Grant's Buying Power

The Panel also wishes to express concern over another impediment to Sea Grant's success. Despite rigorous reviews and accountability measures, and a strong, proven program that represents a sound investment of public funds, Sea Grant's buying power continues to erode. If this trend continues, the promise and potential of Sea Grant's contributions and impacts to our nation will all but diminish.

The Panel believes that Congress got it right in 2002 when it last authorized the Sea Grant program at its 2008 authorized amount, which totals $103,000,000 (Section 1131(a)). The Panel believes that this amount is necessary to meet our nation's ever growing marine and coastal needs, and to realize Sea Grant's promise as a leader in helping our citizens address the issues with science-based information and useful technologies. We note, Madam Chairwoman that the current appropriation is $57,100,000, and that the appropriation has been no greater than $61,889,000 since the 2002 Reauthorization.

To illustrate the long-term erosion of Sea Grant's buying power, I refer you to three charts at the end of this document that show Sea Grant's funding history since 1970. Chart 1 shows Sea Grant's appropriated funds per year, and except for the past three years the data depicts a modest rise in Sea Grant's appropriations over this 38-year period. Chart 2 shows Sea Grant's annual appropriations in 2007 dollars after adjusting for inflation by applying the Consumer Price Index (CPI). By

adjusting for inflation, Chart 2 shows a modest but steady decline in Sea Grant's buying power since 1980. Most analysts agree that the deflator for research and development has risen faster than the CPI. Chart 3 shows Sea Grant's appropriations in 2007 dollars by using a CPI plus 2% deflator, which represents a hypothetical but realistic deflator for research and development expenditures. Chart 3 more clearly illustrates the serious and significant decline in Sea Grant buying power since 1980. Currently, Sea Grant would require a $190,000,000 appropriation to have the level of buying power it had in 1972, its peak year when adjusted for inflation. As a result of recent in-depth analysis, the Panel has become very concerned about the trends, contributing factors and appropriate measures to reverse these declines in the face of mounting concerns for our nation's coastal and marine resources.

Strong National Leadership

This disappointing fiscal trend has limited Sea Grant's ability to apply its unique combination of resources to address the ever-growing challenges facing the marine and coastal environment and the coastal economies dependent on this environment. Additionally, because of the five percent legislative cap on the administration of programs imposed by current legislation, the National Sea Grant Office currently has 40 percent fewer staff than it had in 1991 (29.0 vs. 17.4 Full-Time Equivalents).

The Panel reviewed the role of the National Sea Grant Office twice since 2002, (Duce, 2002; and, Heath, in preparation for implementation of the national strategic plan and PIE system). Both reviews concluded that staff erosion has seriously diminished the NSGO's ability to provide the national leadership necessary to adequately support the Sea Grant network, and to represent the network within NOAA and at the national level. The Panel's analysis shows that an increase in the cap on the administration of programs from the current level of five percent to the higher level of seven percent is necessary to enable the NSGO to effectively fulfill its program leadership and inter-agency coordination roles. Shorting those roles, we fear, misses opportunities for the meaningful linkage of federal agency resources with optimum program integration and partnership efforts and opportunities addressing pressing national concerns.

Sea Grant must increase its participation and leadership for ocean and coastal issues at the national level—a fundamental responsibility of the NSGO. Over the past several years, the NSGO has been unable to initiate and maintain the same level of strategic partnerships with other federal agencies and NGOs as in years past. If Sea Grant's "beltway" presence continues to diminish, the Panel is concerned that significant opportunities to leverage resources will be lost, and that in the long-term, Sea Grant's visibility, reputation and capacity will suffer.

Enhancing the NSGO's capabilities is not possible with the current five percent cap. In order to provide strategic leadership and effective program administration and support, Sea Grant's stature and participation at the national level must be enhanced significantly. As Sea Grant implements its new national strategic plan and the recommendations of the NRC, there will be strategic focus areas that require national leadership and coordination, and a rigorous evaluation process to oversee and manage—roles that will require attention by specialized NSGO staff, often on a daily basis, and with appropriate level of expertise.

The Panel's Role in the Future

The Panel is currently revisiting its operational focus and mission in order to evaluate relevant, appropriate and emerging challenges, and to determine how to position Sea Grant to meet these challenges. As part of this process, the Panel will transition into an even stronger advisory role, bringing the significant knowledge and prominent expertise of its members to bear on issues critical to Sea Grant's success. We are particularly interested in examining how Sea Grant can use its unique capabilities to further the national interest. To answer this question, the Panel is examining several issues of importance to Sea Grant as part of its portfolio. These issues include: how to strengthen Sea Grant's research capabilities, how to couple Sea Grant's outreach capabilities with NOAA's climate applications programs and how to further the use of social sciences to solve coastal problems. Over the coming year, as Sea Grant begins implementation of its national strategic plan and enhances its robust program evaluation system, the Panel will be involved in an advisory capacity—serving on strategic plan focus area teams, participating in program site reviews, and offering high-level guidance and expertise in areas critical to Sea Grant's mission. Integral to this process, is sufficient "hands on" Panel engagement to facilitate a well-informed understanding of the goals, operations, issues and accomplishments of the network programs.

Conclusion

In closing, we believe that Sea Grant is vital to NOAA's mission, to U.S. ocean science and to our nation's vision. This is an efficient and effective program, offering a proven place-based infrastructure, and engaging the academic capacity of our universities and colleges in generating products and science-based solutions needed by our nation's citizenry. Sea Grant engages our youth in exploration of the marine sciences, supports advanced academic training for a cadre of future professionals, and provides exceptional opportunities for early career leadership development. The Panel would like to thank the House for holding this hearing. We are grateful for your support of and confidence in the National Sea Grant College Program. We urge you to consider raising the administrative cap. This concludes my remarks, Madam Chairwoman and Members of the Subcommittee. Thank you for the opportunity to be here today. I would be pleased to provide additional information and to answer any questions you may have.

Appropriated dollars

Chart 1: National Sea Grant College Program Appropriations by Year (1970-2007)

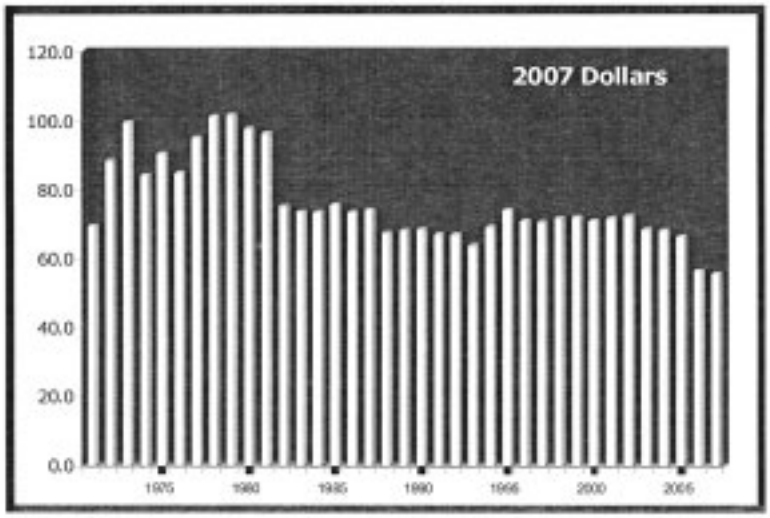

Chart 2: National Sea Grant College Program Appropriations by Year (1970-2007), adjusted for inflation using the Consumer Price Index

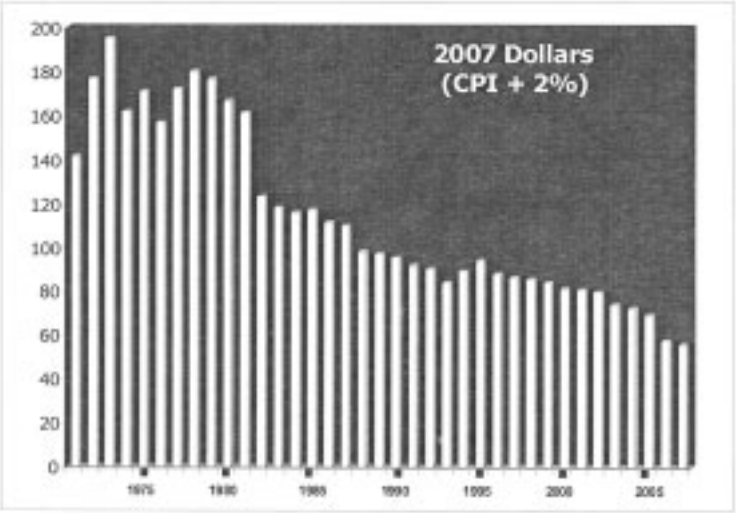

Chart 3: National Sea Grant College Program
Appropriations by Year (1970-2007), adjusted for inflation using the Consumer Price Index plus 2%, a rough proxy for science and technology inflation

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