

STATEMENT OF THE SEA GRANT ASSOCIATION
before the
U.S. Commission on Ocean Policy
offered by
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Mr. Chairman and Members of the Commission,

It is an honor and pleasure for me to be with you this afternoon, and I thank you for the opportunity to offer testimony regarding the National Sea Grant College Program and the network of Sea Grant Colleges that it encompasses.

The Sea Grant Association (SGA) represents the combined capabilities of over 300 academic 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, marine, and Great Lakes resources, through integrated programs of scientific research, education and training, and technical assistance.

This testimony is presented in several sections. An executive summary is provided to describe Sea Grant, its processes and program areas, and to summarize key recommendations. The main sections of the document describe Sea Grant's unique partnership role, its purpose, its value as a federal investment, program issues and needs, and examples of Sea Grant's return on investment. Finally, four recommendations are provided with the rationale for them presented in detail.

Executive Summary

The National Sea Grant College Program was created in 1966 and in just 35 years has created a remarkable track record. 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. For Sea Grant to succeed, it must be a partnership among academia, government, and the private sector. It must use a combination of research, education and outreach. It must focus on education and improving the economy and the coastal, marine, and Great Lakes environment. Sea Grant peer-reviewed science is the key to generating intellectual capital. Sea Grant serves a broad constituency. Sea Grant solves national problems and creates national opportunities. Sea Grant focuses on the coast and Great Lakes. Sea Grant is "Science Serving America's Coast."

Sea Grant has the most rigorous four-year external review process ever implemented for a government-sponsored and university-based program. Its peer-review process for research projects and for proposal-driven outreach, communication and education programs is consistent and effective. Sea Grant generates about \$1 dollar in non-federal support to leverage each \$1 dollar in federal support. Sea Grant's priority areas promote sustainable fisheries, develop responsible aquaculture, preserve, enhance and restore coastal habitat, create quality coastal community development, mitigate the effect of coastal hazards, create value through marine biotechnology and expand public literacy. Sea Grant has helped create a striped-bass aquaculture industry valued at \$25 million annually, has educated over 14,000 seafood processing plant employees and regulators to comply with newly-imposed federal regulations and patents

and companies have been created based on Sea Grant research. Sea Grant coastal storms research and education has made it possible for individual homeowners to save up to \$220 annually in insurance premiums. Thousands of graduate students educated while working on Sea Grant research projects have earned advanced degrees in science, engineering, economics, and many other areas and are now many of the nation's leaders in science, industry, and government. There are many other examples, but these few indicate the high payoff from the nation's investment in Sea Grant.

The SGA makes four recommendations regarding the future of the National Sea Grant College Program. First, the mission, structure, and function of the National Sea Grant College Program should be maintained, and should presently remain a part of NOAA. If the Commission makes recommendations that affect the location of Sea Grant, the host agency must maintain the unique state and university-based structure for the program. This structure must allow for partnerships among academia, the private sector, and government. It must allow for the combined use of research, education, and outreach. It must allow a mission focus on education, the economy, and the coastal and Great Lakes environment. Second, Sea Grant should become the nation's primary university-based research, education, training, and technical assistance program in support of coastal, marine, and Great Lakes resource use, management and conservation. Third, authorization and appropriations levels for the National Sea Grant College Program should be significantly increased to enable the program to meet the needs and expectations of its varied constituencies. Fourth, the current host for the National Sea Grant College Program is NOAA, and Sea Grant must be positioned within NOAA to most effectively contribute to the overall environmental, economic, and education goals of the agency and nation.

A Unique Federal-University-Stakeholder Partnership

The National Sea Grant College Program was created in 1966. In its 35-year history, this remarkable program has produced huge dividends nationwide. As part of the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce, the network of 31 Sea Grant programs has created within the university structure of each coastal and Great Lakes state and some territories, a Sea Grant College system that is productive, competitive, efficient, and effective.

The National Sea Grant College Program engages the nation's top universities in conducting scientific research, education, training, and extension projects designed to foster science-based decisions about the use and conservation of our coastal, marine, and Great Lakes resources. Sea Grant's mission of enhancing the practical use and conservation of these resources to create a sustainable economy and environment is achieved by:

- Conducting research to tackle priority problems and opportunities identified through interaction with coastal residents, businesses and industry, and local, regional, state and federal agencies.
- Transferring scientific research results to these constituencies and others.
- Providing training opportunities for K-12 teachers to bring the sciences into the classroom and for undergraduate and graduate students to be mentored by senior researchers.
- Informing the public about marine and coastal issues through extension and communications programs.

Sea Grant is and must be a partnership among (1) academia, (2) government, and the (3) private sector. Sea Grant is and must use a combination of (4) research, (5) education, and (6) outreach to focus on the nation's coastal, marine, and Great Lakes (7) economic, (8) environmental, and (9) education needs. It is absolutely necessary for Sea Grant to be hosted by a federal agency that allows these partners to cooperate, for the structure and conduct of the program to flourish and grow, and for the work performed

to focus on the three “E”s. Sea Grant’s partnerships make it stronger, reduce costs, and address real world problems. Sea Grant’s extension and outreach programs maximize the value of its research.

The 31 Sea Grant programs serve as the core of a dynamic national network of more than 300 participating institutions involving more than 3,000 scientists, engineers, outreach experts, educators, and students. 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.

Most decisions that affect the coastal environment are made locally, and, through Sea Grant, the Federal government has the ability to partner with state and local constituencies to address national problems at state and local levels. Moreover, many coastal issues cross state jurisdictions and need to be addressed regionally. In addition to its state-based infrastructure, Sea Grant has developed a system of regional networks that allows for organizing multi-state responses to regional/ecosystem-level problems.

Science Serving America’s Coasts

The purpose of the National Sea Grant College Program can be summarized in a single phrase: **Science Serving America’s Coasts.**

Sea Grant **science** provides the technical understanding and underpinning of all it does. Research supported by Sea Grant is based on competition, undergoes rigorous peer-review, and is geared to address the many marine and coastal challenges and opportunities that face our varied constituencies. The federal investment in Sea Grant enables a nationally coordinated network embedded in the best research universities to apply unparalleled intellectual capital to address these problems and opportunities, and it educates many of the nation’s future coastal and marine scientists. Sea Grant’s cost-effectiveness is enhanced by access to resources and facilities provided through its university partnership.

Sea Grant **serves** the nation in many ways. Sea Grant’s unmatched access to local constituencies through its extension and outreach programs ensures that federal investment is targeted at relevant issues for the benefit of NOAA and other federal agencies, state and local governments, coastal environmental managers, local fishermen, business and industry, other marine resource users, and the general public. This contact also provides an important conduit for recommendations back to Sea Grant and NOAA for needed research and improved policies and services. Sea Grant’s non-regulatory and science-based focus has established the program as an honest broker among a wide range of constituencies. In addition, Sea Grant’s marine education programs reach a variety of audiences, from K-12 teachers and students to marine-related business people to elder hostels. The matched federal investment also fills the enormous demand for expertise to tackle rapid growth, change, and pressure on coastal resources.

Sea Grant is a **national** program addressing national needs. It is a partnership of and depends on partnerships among government, academia, business, industry, scientists, and private citizens to help Americans understand and wisely use their valuable coastal, marine, and Great Lakes resources for enjoyment and long-term economic growth. This network unites 31 State Sea Grant Programs, over 300 universities, and millions of people. Sea Grant is an agent for scientific discovery, technology transfer, economic growth, resource conservation, and public education. Study after study has shown that Sea Grant returns to the taxpayers many times its annual budget in goods and services. It is government, as our citizens want it – visible, tangible, relevant, efficient, and effective.

And Sea Grant focuses its attention on a myriad of needs and pressures that face the nation’s **coasts**. America’s coastal and ocean resources encompass an immense area with more than 95,000 miles of

coastline and more than 3.4 million square miles of ocean within the U.S. territorial sea. Over half the nation's 280 million people live in coastal counties that comprise less than one-fifth of the total land area of the United States. The economy of these coastal counties is critical to the economic well being of the entire nation, providing a wide array of goods and services that account for at least 30% of the gross national product of the United States. Growth in population and economic activity in coastal counties is continuing with nearly 14,000 housing units being built every week, resulting in a 25% growth in coastal counties since 1970. From 1996 to 2015, our nation's coastal population is projected to increase from 141 million to 166 million.

An Investment in Performance

Sea Grant is indeed an issues- and results-based program, with remarkable achievements over its 35-year history. Sea Grant's three-pronged, integrated approach of applying scientific research, education and training, and technical assistance and outreach focused on marine, coastal, and Great Lakes issues along America's coast truly represents "Science Serving America's Coast." By basing all its activities on strong rationale, meritorious science, and application of results, Sea Grant has contributed greatly to the economic and environmental sustainability of America's coastal resources and the education of its human "capital."

In its review of the Sea Grant program in 1994, the National Research Council (NRC) pointed out management opportunities that could further strengthen Sea Grant's contribution to the Nation's coastal and ocean agenda. Most significantly, the NRC emphasized the importance of embracing solid peer-reviewed science and process across Sea Grant programs, and that view was reflected in the 1998 Sea Grant reauthorization legislation. Sea Grant took those suggestions to heart, and now all Sea Grant research, outreach, and education efforts are subject to a consistent scientific peer-review process across all state Programs. In addition, the National Sea Grant College Program has implemented the most rigorous four-year external review process ever conducted for a government sponsored university-based program. This performance review evaluates Sea Grant program management, strategic planning processes, the significance of results produced, and how results are received and used by our stakeholders.

Sea Grant represents a terrific federal value. Sea Grant Programs are required to match \$1 in non-federal funds for every \$2 of federal investment. Actually, revenues spent on Sea Grant activities nationwide from all sources totaled \$113.79 million for fiscal year 2001; the appropriation that year was \$62.25 million. This highly leveraged investment in Sea Grant is crucial to ensure appropriate federal, state, local, university, and private-sector efforts to support and enhance our burgeoning coastal economy while conserving and protecting the natural resource base upon which it depends.

Coastal, Marine, and Great Lakes Issues and Needs

The Sea Grant network has developed the following portfolio of the nation's most pressing environmental, economic, and education issues and needs that provide a solid foundation for further investment in university-based research, education, and outreach efforts and that represent Sea Grant's strategic plan for the 21st century.

Promote sustainable fisheries. Fishery landings have reached the maximum capacity of our oceans and coastal waters to produce fish. Sea Grant can collaborate even more with the National Marine Fisheries Service and the private sector to develop new approaches to fisheries management to conserve existing fish stocks and rebuild depleted fisheries. Sea Grant is uniquely situated to promote collaborations on subjects critical to decisions being made by fisheries managers on topics such as stock assessment, habitat and ecosystem health, environmental contamination, area management strategies, fish biology and

behavior, climate change, management institutions, and conflict resolution. In addition, research and extension personnel can provide fisheries managers with the socioeconomic data and analyses necessary to manage fisheries using techniques that will allow for adequate economic returns, protect fish stock size, harvest at sustainable yields, and minimize the impacts on fishermen.

Encourage the development of responsible aquaculture. The United States faces a seafood deficit amounting to \$7 billion annually; it imports more than 60 percent of the fish and shellfish it consumes. Marine aquaculture has the potential to provide up to 25 percent of all seafood consumed by its citizens within the next 20 years, and provides the “seed” for rebuilding some fishery stocks. An example is the growth of the global shrimp farming industry. According to a recent USDA report, U.S. shrimp imports were valued at \$3.8 billion in 2000. The value of imported shrimp, Atlantic salmon, and tilapia totaled \$4.6 billion. To put this in perspective, imports of these three aquaculture products in 2000 were worth as much as the combined exports of the U.S. broiler and hog industries. In addition, aquaculture of marine aquarium fishes represents a multimillion-dollar (and growing) market that can relieve fishing pressure on wild stocks, especially in coral reef habitats. Onshore, near-shore and offshore marine aquaculture offers vast potential for reducing the demand on wild fisheries. Sea Grant is particularly committed to enhancing this budding industry’s development in a socially and environmentally sound manner.

Preserve, enhance, and restore coastal, marine, and Great Lakes resources. Growth along the nation’s coasts has exacerbated coastal pollution and associated problems such as harmful algal blooms, “dead zones,” nuisance species invasions, coral reef die-offs, and related effects. Sea Grant can determine the impacts of natural and man-made change on coastal, marine, and Great Lakes ecosystems, and develop innovative approaches to protect these habitats from further degradation and reverse the changes that have occurred. Sea Grant will emphasize the role of the land in determining the quality of coastal waters and will provide coastal managers with the scientific and technological tools they need to address regional and local problems.

Support quality community development in coastal areas. Coastal communities depend on healthy ecosystems and economies for their survival. Research to better understand the inter-connectivity between the economy and the environment, and outreach to expand the scientific understanding of community planners, business leaders, and citizens, needs to be greatly expanded. Among Sea Grant's assets are ready access to the university social science community (not available elsewhere in NOAA), an existing state and local infrastructure to deliver programs at the community level, and existing or emerging programs in such areas as waterfront renewal, brownfield redevelopment, tourism development, transportation planning, ports development, community non-point source pollution abatement, and planning and zoning, which all are catalysts for growth. Sea Grant’s emerging Coastal Community Development Program will focus on helping communities that are experiencing a decline of their resource-dependent industries and/or are facing complex requirements associated with environmental regulation to develop robust, sustainable economies.

Mitigate coastal hazards. Over the past 20 years, 44 weather-related disasters with overall damage costs exceeding \$1 billion each struck the United States. Thirty-eight of these occurred during the 1988-1999 period with total damage costs exceeding \$170 billion. Insurance companies paid out more than \$91.8 billion in losses from weather-related natural disasters in the 1990s, close to four times the weather-related claims settled during the 1980s. Even so, some \$2 trillion in insured property currently lies within 30 kilometers of the Atlantic coast alone, exposed to the threat of hazard damage. Nationwide, coastal erosion is responsible for approximately \$500 million per year in property loss to coastal property owners, including damage to structures and loss of land. To mitigate coastal erosion, the federal government spends an average of \$150 million every year on beach nourishment and other shoreline erosion control measures. Despite these efforts, over the next 60 years, erosion may claim one out of four

houses within 500 feet of the U.S. shoreline. Sea Grant efforts can and will enhance preparedness and reduce losses of human life, property, and environmental resources from coastal natural hazards.

Create value through marine biotechnology. As one of the fastest-changing areas of modern science, biotechnology has revolutionized research and the economy. The recent completion of the human genome project has created a wealth of scientific and commercial opportunity. Though not yet well developed, the potential applications of marine biological technologies promise oceans of opportunity. An increased investment in this area is critical to enable marine researchers to apply today's rapid advances in molecular biology to the marine environment. Marine plants, animals, and microorganisms produce a myriad of unique biochemicals not found on land, and marine natural products derived from them have demonstrated potential to treat diseases such as cancer and inflammatory disorders. Even so, most drugs currently on the market have been derived from land-based organisms. There is a vast potential for developing new drugs from the sea. At the same time, these technologies offer equally important opportunities in the environmental arena. Molecular biology has provided environmental managers, seafood processors, and the aquaculture industry with an accessible toolbox that enables them to make better decisions on critical resource and economic issues. The next generation of technology for monitoring of biological processes and remediation of pollutants will be based on the application of these new biological technologies. Sea Grant has led the Federal effort to target biotechnology research to seek solutions to pressing problems, to develop novel applications, and ultimately to realize the immense economic potential of this emerging field.

Expand public literacy. Virtually every serious study of national goals for the new millennium underscores the critical importance of education to national prosperity. The challenges facing this country require instilling environmental values, behaviors, and literacy in the decision-making public while developing a highly skilled, technologically capable workforce. Sea Grant efforts have and will continue to contribute to improving marine and aquatic science literacy by enhancing education among formal K-12, undergraduate and graduate students, and informal sessions with both children and adults. Increased value in marine and aquatic science education by the American public is critical to national security, economic development, and the overall quality of life for everyone.

A Commitment to Results

There are many examples of Sea Grant's return on investment, and this is particularly evident in the southeastern United States. For instance,

- As a result of Sea Grant research and extension efforts, hybrid striped bass pond culture has expanded in just 10 years from a small demonstration project to an industry producing 10 million pounds of fish valued at \$25 million annually.
- Sea Grant promotes new construction techniques such as hurricane clips, cross-braced pile construction, and changes in roof and window design that have saved millions in repairs. Homes built in accordance with Sea Grant models can save an estimated \$220 annually in insurance premiums, or \$15,000 over the 70-year life span of the average home.
- When FDA regulations were imposed on the seafood industry, Sea Grant was there to provide the needed education and training through HACCP to over 5,000 U.S. processing plants and more than 14,000 domestic processing plant employees and regulators have been trained, resulting in 20,000 to 60,000 fewer seafood-related illnesses a year and a saving of as much as \$115 million annually.

- Sea Grant has been instrumental in the development and construction of wetlands on all four coasts. Wetland loss mitigation strategies have both created and restored valuable wetlands, while allowing significant coastal development – a single project was valued in excess of \$100 million. In addition, the largest wetland restoration and enhancement project in the United States was conducted in New Jersey and Delaware, involving more than 17,000 acres of salt marsh.
- The high volume of crab wastes generated by crab processing plants in the mid-Atlantic and southeastern U.S. is of considerable concern. Most landfills will no longer take this dense tonnage because crab chum releases ammonia and nitrates that can seep through soil, potentially polluting shallow aquifers, streams and creeks. Researchers working with support from the National Sea Grant Marine Biotechnology Initiative and Maryland Sea Grant have developed industrial scale processes for remediation of crab waste. While composting of crab waste is feasible, greater profits can be realized from purified chemical products such as chitosan, a derivative of chitin that has numerous high value industrial uses. Using novel enzyme technologies, studies were conducted to discover how the structure of chitosan could be controllably altered to allow manufacturers to tailor its properties for a variety of uses. These efforts have led to patents and ChitinWorks, a new independent company focused on producing chitosan from crab waste, in Cambridge, Maryland.
- Sea Grant researchers have developed new fisheries models to determine which habitats are best suited for three important species of finfish in the Southeast and Gulf states – red drum, snook, and flounder. The new models take into account factors such as food, dissolved oxygen, temperature, salinity and pH levels — and thus evaluate the potential for a species to thrive in a given area, even if those fish are not currently there. The flounder work has led to collaborations with leading flounder researchers in Japan and use of the model by the Japanese government. The habitat modeling may be used in various fisheries management efforts, such as to identify areas as potential sanctuaries or to identify areas where enhancement of particular species would be most successful.
- The Mid-Atlantic Sea Grant programs have developed a far-reaching education and outreach effort focused on the harmful dinoflagellate *Pfiesteria piscicida*. Included is an extensive web site (<http://www.pfiesteria.seagrant.org/>) as well as a detailed resource guide. These efforts provide clear information regarding this particular organisms as well as links to the broader subject of harmful algal blooms in coastal waters.
- Sea Grant scientists and extension specialists from several East and Gulf coast states (Virginia, South Carolina, Mississippi, and Texas Sea Grant programs) and two commercial fish culture companies in South Carolina and Massachusetts, have developed and implemented collaborative regional R&D projects for culturing cobia, a popular recreational fish that is sought after in the market place. Through the development of spawning and rearing techniques, industry will be able to produce this fast-growing fish for human food as well as for release in support of maintaining wild stocks of the species, resulting in jobs and improved resource management.

Truly, the payoff from investment in Sea Grant research and outreach has been outstanding and promises to remain so, given continued and expanded investment in the Sea Grant program.

A Vision for the Future

The Sea Grant Association respectfully offers the following recommendations for consideration by the U.S. Commission on Ocean Policy.

Recommendation #1. *It is the position of the Sea Grant Association that the mission, structure, and function of the National Sea Grant College Program (NSGCP) be maintained, and that NSGCP should presently remain a part of NOAA within the U.S. Department of Commerce.*

The OMB may propose the transfer of funding for the National Sea Grant College Program to the National Science Foundation in FY03. This would likely eliminate the strong state and university-based nature of this successful program, terminate its outreach function, and destroy its effective transfer of new scientific knowledge to coastal citizens, industries, and governments. Recently introduced reauthorization legislation (H.R. 3389) for the National Sea Grant College Program is pending in Congress. This bill will continue the program for five years based on its current structure, conduct and performance, and within NOAA. The U.S. Commission on Ocean Policy will be issuing major recommendations that affect all ocean-related federal agencies, including NOAA, its status as a federal agency, and the placement of its programs, both within and outside of NOAA. The SGA believes that no change should be considered in mission, structure, and function of the Sea Grant program, and the location of the National Sea Grant College Program, pending the completion of these processes.

Congress passed Public Law 105-160 in 1998 to authorize the National Sea Grant College Program through FY2003. This legislation was passed with the unanimous consent of Congress. Over 100 members of the House of Representatives and over 20 members of the Senate co-sponsored the legislation. The bi-partisan support for this legislation continued Sea Grant as a part of NOAA within the U.S. Department of Commerce. Sea Grant, moreover, has linked more closely with other NOAA offices to increase the accountability, effectiveness, and efficiencies of its and all of NOAA's programs.

Sea Grant's university base has enabled it to be a partner with NOAA (and before that NSF), and with other federal resource and environmental units, state and local governments, business and industry, and conservation groups. For Sea Grant to be successful it requires a host in government that allows for partnerships among academia, the private sector and government, that allows for the combined use of research, education and outreach, and that focuses on education, the economy and the coastal environment. It also must be positioned in that host unit at an adequately high position to enhance its effectiveness and efficiency. No purely government program has the depth and breadth of partnerships that Sea Grant does.

Recommendation #2. *Sea Grant should become the nation's primary university-based research, education, training, and technical assistance program in support of coastal, marine, and Great Lakes resource use, management, and conservation.*

NOAA has historically been concerned that the strong state and local connections that are the foundation of the Sea Grant Program threaten its influence over Sea Grant programs. As a result, NOAA has often looked to other structures and programs to accomplish tasks that could more efficiently fall within the Sea Grant purview. Sea Grant's network should be perceived for what it truly represents, an excellent resource to the federal government, the Congress, and this nation's citizens in helping meet their coastal, marine, and Great Lakes objectives. Sea Grant is successful because it combines the functions of quality peer reviewed research with fact-base public education.

Sea Grant has been successful in addressing common property resource issues because it has close ties and partnerships with federal, regional, and local governments and with many affected constituencies. Sea Grant has access to the best intellectual capital in the nation because of its university base, and has brought innovative approaches to longstanding issues. Without its issue orientation, its peer-reviewed

science, and its established and trusted ties to business, government, and citizen constituencies, Sea Grant could not be successful. To be successful, Sea Grant needs the commitment, financial resources, and a host agency that understands that, especially for issues involving both the development and conservation of public resources.

Many of the marine and coastal issues facing the nation are affected by decisions that are made nationally, regionally, and locally. The impacts of these decisions many times reach across state borders and thus there is a strong national interest. To ensure success at the level envisioned by its federal legislation, Sea Grant requires both the resources from and status within the federal government to ensure that the success of the Sea Grant program not just in the context of its own agency mission, but also in its success in contributing to the national agenda as expressed in legislation shared by other agencies.

Recommendation #3. *Authorization and appropriations levels for the National Sea Grant College Program should be significantly increased to enable the program to meet the needs and expectations of its varied constituencies.*

The issues to be addressed in coastal, marine, and Great Lakes resource management are immense and the investment in Sea Grant has not been commensurate with the demands for science-based information created by increased growth in coastal population and development. Yet the 1994 National Research Council (NRC) review of the National Sea Grant College Program pointed out that Sea Grant has been virtually the only source of funding in the U.S. for marine policy research and a major contributor to the fields of marine aquaculture, coastal and estuarine research, marine fisheries management, seafood safety, marine biotechnology, marine engineering, and coastal technology development, and this list is not exhaustive.

Several independent studies have concluded that Sea Grant has not realized its potential because of limited funding. As far back as 1981, the Heritage Foundation evaluated the Department of Commerce and concluded: “*Sea Grant has an impressive record of success, primarily because it is based largely on local priorities and needs ... Sea Grant funding should be increased 10 percent per year in real terms for the next five years.*” In its 1994 review of the National Sea Grant College Program, the NRC was emphatic in stating: “*A steady increase in funding is necessary if the program’s potential contributions to the Nation’s economic and environmental health are to be realized.*” The Board on Oceans and Atmosphere (BOA) of the National Association of State Universities and Land Grant Colleges (NASULGC) echoed these findings when it stated in 2000: “*The Sea Grant Program represents NOAA’s largest university-based research, extension and education activities. This program represents a unique opportunity for the Agency to engage constituencies that will be increasingly important to its evolving mission. We would urge that the...Administration develop an agenda to specifically utilize and expand the resource base of this program so as to better engage university capabilities in helping the Agency fulfill its responsibilities.*”

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 have raised the stakes for effective government action. By 2010, U.S. foreign trade in goods is expected to double to \$5 trillion, with ocean-going cargo increasing by 30 percent. Coastal tourism and recreation account for 85 percent of all U.S. tourism revenues. The oceans, in one way or another, account for one out of every six jobs. 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 much smaller than investments in the Land Grant college and university system funded by the U.S. Department of Agriculture.

Sea Grant is built on the Land Grant model, its highly successful counterpart. Although 54% of the U. S. population lives on the coast, funding for Sea Grant is only 3% of equivalent federal funding for university Land Grant programs. Sea Grant's enabling legislation envisioned other federal agencies accessing university expertise through the Sea Grant administrative structure, but Sea Grant's "pass-through" capabilities have been underutilized by other agencies. Funding limitations have contributed significantly to the difficulty of creating strong interagency partnerships.

The general case for growth is compelling, but despite an unprecedented high demand for coastal and ocean science and information and Sea Grant's unique ability to provide solutions to coastal problems, funding has not kept pace with demand for services. 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. Sea Grant's appropriations are over 20 percent below the buying power of its 1980 appropriation. From fiscal year 1986 to fiscal year 1999, Sea Grant's program-wide staff size declined 25 percent.

Sea Grant is at heart a science-based program that engages the university community through partnership in providing consistently high-quality and relevant research, ranging from highly focused projects that develop innovative solutions for immediate and pressing needs to more forward-looking activities that anticipate the needs of society five to ten years down the road. Over the past few years, the review process has been streamlined and improved to increase the ability of Sea Grant to support research projects most critical to mission objectives. However, each of our state and national competitions continues to receive many times more highly-rated projects than could possibly be supported. For example, the 1999 fisheries habitat research competition received requests for almost 20 times the available funds, and the requests for the aquaculture competition were about 50 times the available funds. Clearly the capacity is there for Sea Grant to provide much more useful science-based information than current funding levels allow.

Finally, as science becomes increasingly more complex, professional outreach staff is needed more than ever to synthesize and promulgate needed information. With its established extension network, Sea Grant is uniquely positioned to be the two-way conduit between the providers and users of information. Indeed, Sea Grant's greatest asset may be the trust that has been developed and nurtured through 35 years as an "honest broker." Sea Grant's science is credible and its outreach staff is trusted because Sea Grant is university-based, neutral, and objective. Yet, an external review of the Sea Grant Extension Program conducted in 2000 concluded that Sea Grant's current work force of 300 extension specialists "is insufficient to address adequately the issues raised along the extensive reaches of the nation's coastlines."

Congress has recognized the continued success of Sea Grant and in December 2000 introduced H.R.3389 to reauthorize the program at significantly higher levels for an additional five years. Sea Grant has not achieved significant increases in appropriations like other science programs -- for example, in the National Science Foundation. However, it appears that Congress and the federal government are both recognizing that inadequate funding is a problem, and are taking steps to support the National Sea Grant College Program at an elevated level. This bill substantially increases the authorized level of appropriations for Sea Grant and consolidates several university-based NOAA programs under Sea Grant as a way to achieve increased efficiencies, and enhances the effectiveness and application of the nation's coastal, marine, and Great Lakes research and outreach programs.

Recommendation #4. *The National Sea Grant College Program should be positioned within NOAA so as to most effectively contribute to the overall environmental, economic, and education goals of the agency and the nation.*

The primary organizational challenge facing the Sea Grant Program is its current position within NOAA and its resulting lack of capacity to assist in setting NOAA priorities, function across line offices, and better assist the agency in the emerging need to improve its engagement of constituents and the public. According to the 1994 NRC review, *“Sea Grant is not properly positioned within NOAA to fulfill the objective of the National Sea Grant College Program Act or to contribute in efficient and effective ways to NOAA’s missions. Sea Grant’s location within a Line Office focused on research inhibits Sea Grant’s non-research activities and makes it difficult for the program to function across Line Office boundaries.”* Further, NRC recommends that *“NSGCP should be relocated within NOAA to report directly to the Office of the Administrator.”*

NOAA has historically been concerned that the strong state and local connections that are the foundation of the Sea Grant Program threaten its influence over Sea Grant programs. As a result, NOAA has often looked to other structures and programs to accomplish tasks that could more efficiently fall within the Sea Grant purview. Sea Grant’s network should be perceived for what it truly represents, an excellent resource to NOAA, the Congress, and the nation’s citizenry in helping meet their coastal, marine, and Great Lakes objectives.

The Administration should consolidate NOAA university-based coastal and ocean programs under one Assistant Administrator, and designate Sea Grant as the lead office. Consolidation of NOAA university-based coastal and ocean programs would provide needed leadership in an increasingly complex arena and would also be more efficient and cost-effective. Consolidated programs and more direct access to the Administrator will allow NOAA to better tap Sea Grant’s unique grassroots contacts, the intellectual capacity of its universities, and its close working relationships with the scientific community and Congress to assist in providing science-based solutions to real-world problems.

Sea Grant: An Investment in the Future

In summary, Sea Grant offers numerous economic opportunities, problem-solving processes, and programmatic efficiencies for the federal government to achieve its marine and coastal science agenda. Based on Sea Grant’s remarkable capabilities, strategic and intellectual assets, and core processes, organizational repositioning within the federal government and significant new investment in Sea Grant are justified and required.

As you can see, Mr. Chairman and Members of the Commission, Sea Grant is not just another government program. It is **Science Serving America’s Coast**, a program that makes a significant and positive difference in the lives of citizens who depend on our shorelines and oceans. Sea Grant makes a difference by ensuring that – through rigorous scientific inquiry, directed educational outreach, technology transfer, and a focus on sustainability – the nation’s invaluable coastal, marine, and Great Lakes resources will continue to provide benefits for future generations.

The SGA looks forward to working with you, Mr. Chairman, and members and staff of the commission. Thank you again for the opportunity to testify before you this morning, and I will be glad to address any questions that you may have.