
Georgia Sea Grant


Maryland Sea Grant


Oregon Sea Grant


University of Southern California Sea Grant


Oregon Sea Grant


Alaska Sea Grant


University of Southern California Sea Grant


Maine Sea Grant


New York Sea Grant

THE STATE OF
SEA GRANT 2012

Impacts, Challenges, Opportunities

Biennial Report to Congress by the National Sea Grant Advisory Board

Sea Grant

NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

October 2012

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The State of Sea Grant 2012: *Impacts, Challenges and Opportunities*
Biennial Report to Congress by the National Sea Grant Advisory Board, October 2012


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Amy Scaroni, graphic designer, National Sea Grant Office
Ruben Stemple, editor
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Sea Grant
National Sea Grant College Program

National Sea Grant Advisory Board

A Federal Advisory Committee

Dear Members of the Congress of the United States of America,

On behalf of the National Sea Grant Advisory Board, I am pleased to transmit the second biennial report to Congress, "The State of Sea Grant 2012," as directed by the 2008 Sea Grant Act [PL 110-394]. This 2012 report follows the format of our first biennial report, "The State of Sea Grant 2010," and provides an update on the National Sea Grant College Program over the last two years.

The Advisory Board finds the National Sea Grant College Program to be effective in responding to the needs of our coastal and Great Lakes communities, and a solid investment of public monies. The National Sea Grant College Program provides the National Oceanic and Atmospheric Administration (NOAA) with the capability to address these needs in collaboration with our finest research universities.

The Program's new Planning, Implementation and Evaluation (PIE) process, directed by Congress and recommended in a National Academies report, has been implemented and applied effectively. Over the last two years, significant progress has been made to align the state Sea Grant program strategic plans with the National Sea Grant College Program Plan. An Advisory Board committee reviewed and commented on each of the state plans to ensure NOAA's National Goals are addressed. The strategic planning process for the next National Sea Grant Plan (2014-2017) has begun. By December 31, 2012, all state Sea Grant program plans will be approved and the next National Plan adopted.

Level funding and declining purchasing power continue to limit what Sea Grant can do. The Advisory Board is concerned with this decline in resources and the resultant impact on state program funds and on the Program's overall mission. Funding for the National Sea Grant College Program should grow with rising demands. However, a more needs-based allocation plan should be considered by the National Program. The five percent cap on administrative funds is limiting the effectiveness of the National Sea Grant Office, and should be reviewed in Sea Grant's reauthorization language.

Many opportunities and challenges confront the National Sea Grant College Program within a backdrop of ecological, social and economic challenges in our coastal communities and industries. The Advisory Board remains committed to working with the Program to effectively meet the needs of our coastal and Great Lakes communities. We look forward to continuing our work with the Congress, the Office of Management and Budget, the Department of Commerce, NOAA, the National Sea Grant Office, the state Sea Grant programs and the Sea Grant Association.

Dr. Nancy N. Rabalais
Chair, National Sea Grant Advisory Board

EXECUTIVE SUMMARY

THE ADVISORY BOARD IS PLEASED TO PROVIDE THIS BIENNIAL REPORT TO CONGRESS ON "THE STATE OF SEA GRANT 2012."

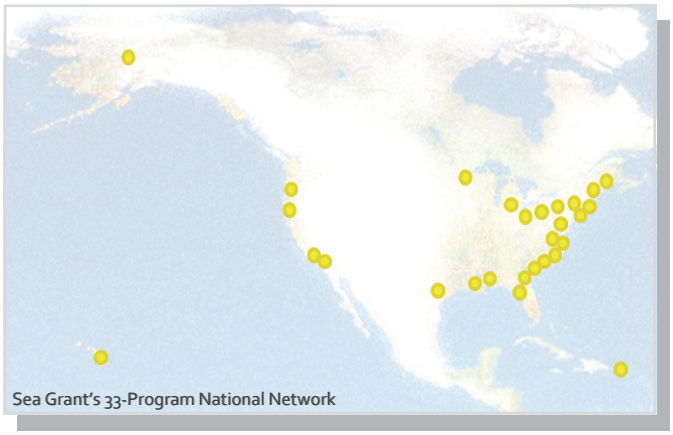
THE REPORT RESPONDS TO RECOMMENDATIONS OFFERED IN "THE STATE OF SEA GRANT 2010," PROVIDES UPDATES ON ACTIVITIES OVER THE LAST TWO YEARS, HIGHLIGHTS SOLID PROGRAM ACCOMPLISHMENTS, MAKES RECOMMENDATIONS FOR THE FUTURE AND SUGGESTS SPECIFIC FUNDING GUIDANCE.

Sea Grant Model

The National Sea Grant College Program (NSGCP) uses the best science available to inform public and private decision-making in order to advance its mission to "Enhance the practical use and conservation of coastal, marine and Great Lakes resources to create a sustainable economy and environment." Sea Grant experts address national priorities at the local level, while identifying citizens' needs in order to help guide state and national research agendas. This interchange of services and information enables Sea Grant and the National Oceanic and Atmospheric Administration (NOAA) to meet demonstrated needs, support businesses and help policy-makers make balanced, well-informed, science-based decisions.

Funding

The NSGCP (also referred to as Sea Grant and the Program) combines federal funding with match funding required of the 33 university-based state programs ($2 federal : $1 state). Many state programs garner support from universities, local businesses and non-governmental organizations. Total investments in the Sea Grant Program over the past two years have been $199M ($116M federal Sea Grant; $19M federal funding from other sources; $64M match).



Sea Grant's 33-Program National Network

The hallmarks of Sea Grant's work are:

- Quality research to answer critical questions and deliver solutions to pressing problems.
- Local technical assistance teams that share new technologies and discoveries, and empower coastal communities to plan for and address emerging local, state and national issues.
- Education programs designed to inform citizens and help prepare the next generation of scientists and resource managers.

National Strategic Plan

Sea Grant's National Strategic Plan (National Plan) establishes direction for the NSGCP to address critical national needs in coastal, ocean and Great Lakes environments. The plan outlines four cross-cutting goals and associated focus areas reflecting America's most urgent needs, NOAA priorities and Sea Grant's core strengths.

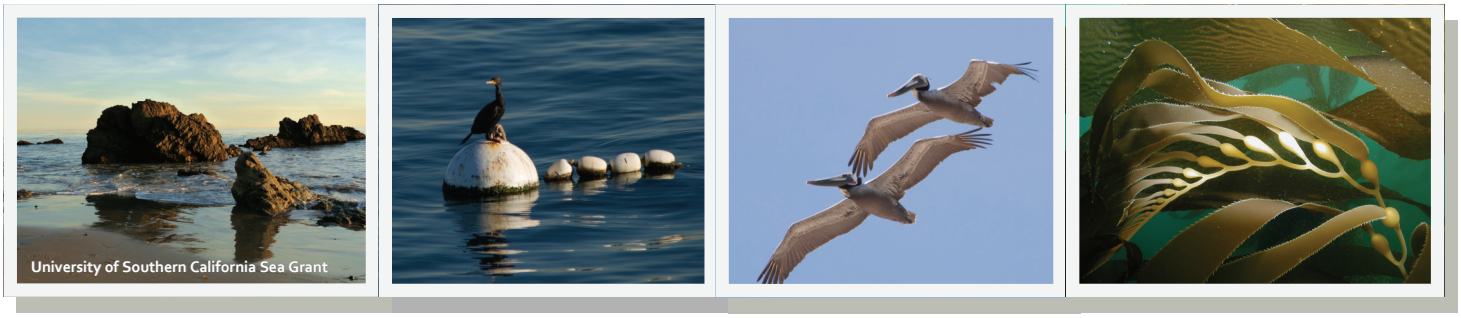
Cross-cutting goals (These goals underpin each of Sea Grant's four focus areas.):

1) Sound scientific research
2) An informed, scientifically-literate public
3) Inclusive decision-making involving a wide variety of stakeholders
4) Relevant and timely information on climate change adaptation

Focus areas:

1) Hazard Resilience in Coastal Communities
2) Healthy Coastal Ecosystems
3) Safe and Sustainable Seafood Supply
4) Sustainable Coastal Development

A committee of Advisory Board members reviewed and commented on each of the program plans to ensure NOAA's national goals were addressed.



Planning, Implementation and Evaluation

The new Planning, Implementation and Evaluation (PIE) process directed by Congress and recommended by the National Academies has been implemented. Following the initial strategic planning phase, Site Review Teams (SRTs) visited each state Sea Grant program to assess program management and organization, stakeholder engagement and collaborative network/NOAA activities. The evaluation process continues with a National Office annual review of each program, and a comprehensive panel review of all programs that is scheduled for the fall of 2012. The next strategic planning process for the 2014-2017 National Plan is complete. By December 31, 2012, all state Sea Grant program plans will be approved, and the next National Plan adopted.

As a result of the new PIE process:

- All state strategic plans are now linked to the National Plan.
- State program performance measures and objectives are reported annually, allowing for state programs to measure progress towards their plans.
- National performance measures and metrics allow the NSGCP to track progress toward the National Plan.
- State program impacts and accomplishments are linked to state program plans.

Partnerships

The NSGCP continues to solidify its regional partnerships with each of the eight NOAA regions, bringing together academic institutions, federal, state and local government agencies, and non-governmental organizations to address regional issues. Recently, working with each of the eight NOAA regions, Sea Grant conducted research and information needs assessments. Each assessment included broad stakeholder engagement.

In the coming years, Sea Grant is committed, through regional and national initiatives, to improving the nation's ability to understand, plan for, and respond to climate variability and change along our shorelines. As a link between scientific information providers and information users, Sea Grant invests in innovative research and outreach programs that further the effectiveness of the Program's partners. There is an increasing demand for policy decisions, organizational management and decision-making that is supported by rigorous social science research. Effective use of this research has the potential to enhance public policy and improve our ability to offer citizens customized solutions to coastal problems.



North Carolina Department of Transportation

Funding Allocation

The Advisory Board recommends an assessment of funding allocation, including removal of the five percent cap on administrative functions for the National Office. We further recommend addressing allocations among federal, state and regional efforts. State programs are encouraged to meet a goal of 40 percent or more for research funding.

Findings and Recommendations

The Advisory Board finds the NSGCP to be a solid and effective investment of public monies in responding to the needs of our coastal and Great Lakes communities. Sea Grant continues to address the increasing challenges to our oceans and coasts. To maintain this direction, we recommend the following:



Maryland Sea Grant

1. **The NSGCP should continue to focus on advancing national priorities and solving problems on a local and regional basis, while remaining sensitive to local needs.**
2. **The NSGCP should continue to support tracking and reporting of the cumulative, measurable impacts of Sea Grant activities toward the achievement of national goals.**
3. **The NSGCP should continue to emphasize partnerships and collaborative efforts within the Sea Grant network and with other federal, regional, state and local agencies and organizations.**
4. **The federal budget should allocate additional resources for the NSGCP to reverse the erosion of buying power and maintain a dynamic program.**
5. **The National Sea Grant Office should review the funding structure of the NSGCP, including the allocation and distribution of funds to state programs following recommendations made in a 2011 Advisory Board report (see Appendix 2).**
6. **NOAA should continue the integration of its coastal programs to maximize its capability to address the nation's growing coastal challenges.**

INTRODUCTION

THE NATIONAL SEA GRANT COLLEGE PROGRAM (NSGCP) USES THE BEST SCIENCE AVAILABLE TO ADVANCE ITS MISSION TO

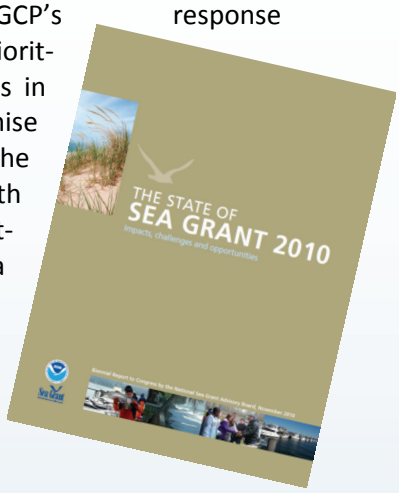
"ENHANCE THE PRACTICAL USE AND CONSERVATION OF COASTAL, MARINE AND GREAT LAKES RESOURCES TO CREATE A SUSTAINABLE ECONOMY AND ENVIRONMENT."

Sea Grant is a national network of 33 university-based state programs (Appendix 1), administered by NOAA through the National Sea Grant Office. Sea Grant is advised by the National Sea Grant Advisory Board and supported by the Sea Grant Association (SGA), an association of the academic institutions that serve as host institutions for Sea Grant programs.

In 1966, Congress established Sea Grant to unite the academic power of the nation's universities with public and private sector partners in order to sustainably capture the economic and social benefits of the oceans, coasts and Great Lakes. The NSGCP was created by Senator Claiborne Pell of Rhode Island and others who shared his interest in coastal stewardship. The Program was inspired by the success of the Land Grant model, which sets the standard for combining the resources of our universities with the needs of citizens.

The 2008 Sea Grant Act [PL 110-394] requires a biennial report to Congress. This Act also redefined the National Sea Grant Review Panel as a National Sea Grant Advisory Board under the rules of the Federal Advisory Committee Act. "The State of Sea Grant 2012" provides an opportunity to review our progress over the past two years, evaluate the recommendations that were made in 2010, and suggest ways to maximize the effectiveness of the Program. Following submission of the 2010 report to Congress, Advisory Board members visited Congress, the Office of Management and Budget (OMB) and NOAA staff to determine whether the report met the intent of Congress. Based on positive feedback from these groups, this 2012 report follows the general outline of the first biennial report, "The State of Sea Grant 2010," and provides an update on the Program.

This report includes updates of the six actions recommended in the 2010 biennial report to Congress, an assessment of recent Sea Grant accomplishments, the NSGCP's response to changes in national priorities, the challenges it faces in trying to fulfill its promise and an outlook for the future. It concludes with recommendations for actions that will enhance Sea Grant's capacity to achieve national goals. Web links to all reports cited in the document may be found in Appendix II.



The 2012 report is organized into the following sections:

I. Response to "State of Sea Grant 2010" Biennial Report Recommendations
II. The Sea Grant Model
IV. National Focus Areas
V. Current Activities
VI. Realizing Sea Grant's Potential
VII. Outlook and Recommendations

Last year, Sea Grant:

- ***Was instrumental in creating or retaining over 3,500 jobs and 600 businesses.***
- ***Assisted 145 coastal communities in adopting or implementing hazard resiliency practices.***
- ***Supported more than 1,700 undergraduate and graduate students to develop a diverse, highly qualified workforce (more on page 10).***

Response to *State of Sea Grant 2010*

THIS SECTION SUMMARIZES ACTIONS TAKEN IN RESPONSE TO RECOMMENDATIONS FROM THE 2010 BIENNIAL REPORT.

1. **The Sea Grant network must focus its efforts on advancing national priorities, while remaining sensitive to local needs.**

Response: The NSGCP is a national program with local application. The Program's national priorities and impacts are reinforced by the Program, Implementation and Evaluation (PIE) system, the Focus Areas (set forth in the National Plan), and network coordination and collaboration. This focus should continue.


Alaska Sea Grant


Alaska Sea Grant

2. **The ability to track and report the cumulative measurable impacts of Sea Grant activities on achieving national goals should be a high priority for Sea Grant.**

Response: A new Planning, Implementation, and Evaluation Resources (PIER) database system is significantly improved over the former information management system. It is able to track and report cumulative and measurable impacts, metrics and performance measures. State strategic plans are linked to the National Plan's focus areas and performance measures. Using this database system, state programs report performance measures and objectives annually and measure progress. The OMB praised the NSGCP for its metrics and performance measures. The new methods for tracking and ensuring compatibility with national goals should continue.

3. **NOAA coastal programs, including Sea Grant, should be more fully integrated in order to maximize NOAA's contributions to national goals.**

Response: NOAA has released its *Next Generation Strategic Plan,* which includes Resilient Coastal Communities and Economies as a long-term goal. NOAA has initiated an integration process of programs under the Agency's coastal goal and has merged the Coastal Services Center with the Office of Ocean and Coastal Resource Management. Sea Grant has participated in discussions about how to better integrate NOAA's coastal programs. However, better integration with other NOAA programs continues to be a challenge and should be a priority.


Alaska Sea Grant

4. **Sea Grant should capitalize on its nationally recognized leadership in stakeholder engagement within coastal and Great Lakes communities as federal-state-local communication and collaboration become more critical to addressing needs and responding to crises.**

Response: Sea Grant continues to solidify partnerships with each of the eight NOAA regions, and recently conducted regional assessments of research and information needs with broad stakeholder engagement from state and local governments, mayors and community groups. The Sea Grant programs and the National Sea Grant Office should continue to identify new opportunities and directions for Sea Grant initiatives, provide mechanisms to solidify Sea Grant's federal, state, regional and local identity, and enable cooperative efforts among Sea Grant and its partners at all levels.


Illinois-Indiana Sea Grant


Virginia Sea Grant

5. **Sea Grant should continue to re-examine its priorities and methods of operation in order to respond to the nation's most urgent needs.**

Response: The process of aligning individual state program strategic plans with the National Plan, initiated as part of the 2009-2013 planning process and continuing with 2014-2017 planning, provides an opportunity to re-examine priorities and operational strategies. This process should remain an iterative function of NOAA and Sea Grant.

6. **Significant additional resources should be provided to the National Sea Grant College Program in order to reverse the erosion of buying power and maintain a dynamic program with rapid response capability.**

Response: This has not occurred. Additional resources have not been forthcoming. Sea Grant's level funding and the Program's subsequent loss of buying power threaten the Sea Grant model and the NSGCP's ability to address national needs on a regional basis. The NSGCP should grow with the rising demands on coastal resources and tasking of responsibilities by Congress, the Department of Commerce and NOAA.


Georgia Sea Grant

THE SEA GRANT MODEL COMBINES RESEARCH, OUTREACH AND EDUCATION TO PROVIDE AN INTEGRATED APPROACH TO ADDRESSING COASTAL NEEDS.

On-the-ground experts, located in every coastal and Great Lakes state and in Puerto Rico and Guam, translate sound scientific information into tools, products and services that benefit coastal residents and their communities. These experts include researchers, extension agents, communicators and educators who provide the multi-dimensional capacity to respond rapidly to the needs of each region. The state programs are hosted and supported by many of our nation's leading research universities, allowing immediate access to research capability. Programs also have active advisory boards composed of local and regional experts with extensive expertise and connections to coastal communities.

THE HALLMARKS OF SEA GRANT'S WORK ARE:

Quality research to answer critical questions and generate solutions that often include new technologies.

- Sea Grant supports the work of more than 3,000 scientists and researchers in a wide variety of disciplines from over 300 institutions. When urgent new questions arise, Sea Grant can call on this network of scientists for information and science-based solutions.

A model developed by Hawai'i Sea Grant researchers is setting a new standard for tsunami inundation mapping. NEOWAVE (Non-hydrostatic Evolution of Ocean WAVE) takes into account wave breaking, wave dispersion and more, using alternative theoretical formulations and numerical schemes. After winning the 2009 Benchmark Challenge at Oregon State University, the tsunami model has received worldwide attention. Hawai'i, Puerto Rico, American Samoa, and the Gulf coast states have adopted NEOWAVE as the standard model for tsunami inundation mapping under the National Tsunami Hazard Mitigation Program.



Oregon Sea Grant


Oregon Sea Grant


Georgia Sea Grant


Alaska Sea Grant

Outreach (engagement & technical assistance) to share and explain new discoveries, engage citizens in decision-making processes, and empower stakeholders to address national, state and local issues as they emerge.

- Sea Grant provides a workforce of over 400 on-the-ground extension agents who generally reside in the communities they serve. As trusted experts, extension agents provide reliable technical and science-based information to residents to address local needs while also transferring research priorities back to their universities. Extension agents provide training and facilitation in areas such as sustainable planning and development, seafood safety, fishing gear enhancement and other topics that advance the safety and productivity of coastal-related commerce.
- Nearly 90 communications specialists engage and educate audiences through a variety of media, including print, web, video, social media, radio and television outlets.

Alaska Sea Grant worked with small-scale Alaska seafood processors to develop food products such as smoked salmon, dried salmon jerky, mustards and BBQ sauces, canned herring, military Meals-Ready-to-Eat salmon entrees, salsas, dried pollock, halibut skin dog treats, pickled fish, crab tails and salmon oil. Sea Grant also analyzed food and seafood products to ensure food safety and accurate labeling. As a result, 12 existing businesses expanded their product offerings, and four new businesses were established.


New Hampshire Sea Grant


Louisiana Sea Grant


NOAA

Education programs designed to inform citizens in coastal and Great Lakes communities and help prepare the next generation of professionals involved with our nation's coastal resources, communities and economies.

- Sea Grant plays a leading role in K-12, undergraduate, graduate, professional, technical and public education in coastal communities. Educators work closely with universities, the NOAA Office of Education, the National Marine Educators Association and other partners to develop formal education programs, workforce training and professional education.
- Sea Grant funding supports about 900 graduate students each year in coastal-related biological, natural and social sciences. Sea Grant's Knauss Marine Policy Fellowship Program has brought over 900 graduate students interested in natural resource policy to Washington, D.C. to work with federal agencies and congressional offices as part of their professional training. NOAA's National Office and the National Marine Fisheries Service established a graduate fellowship program for Ph.D. students interested in population dynamics and marine resource economics. Both fellowships have been successful in building NOAA and the nation's workforce.

A survey of NOAA's employees revealed that 22% of the 1,500 respondents had received training through Sea Grant in the form of fellowships, internships or research positions, and 82% stated that their Sea Grant experience helped them get their NOAA job. In addition, 94% of NOAA Sea Grant alumni said Sea Grant training or support positively influenced their professional development and achievements.


New Hampshire Sea Grant

Maryland Sea Grant organized workshops to train Maryland Department of Juvenile Services teachers to operate an aquaculture system to train at-risk students in a variety of sciences, including biology, chemistry, mathematics, nutrition and small-scale engineering. Five Juvenile Youth Centers in western Maryland now use Aquaculture-in-Action to train juveniles in science and job skills. An average of 100 students per year earn their General Equivalency Diploma (GED) through the program. The Maryland Department of Labor and Licensing now awards an Aquatic Sciences Certificate to about 50 students per year.


Florida Sea Grant


Maryland Department of Natural Resources

NATIONAL FOCUS AREAS (2009-2013)

The impacts below reflect the Sea Grant model in action. The NSGCP is making significant contributions to each of its national focus areas. Highlights from the state Sea Grant programs over the last two years are below.

Focus Area: Hazard Resilience in Coastal Communities

Sea Grant provides research, training and technical assistance to help local citizens, decision-makers and businesses plan for hazardous events, and to respond and rebuild when these events occur. Sea Grant professionals assist in assessing risk by pinpointing vulnerabilities and using technologies to prepare for and mitigate hazards. Sea Grant is also able to respond quickly to coastal catastrophes.

Impacts

* Lake Champlain Sea Grant worked with the Northwest Regional Planning Commission in Vermont to educate local officials on bioengineered methods for shoreline stabilization and erosion control. As a result, three towns changed zoning regulations and construction guidelines to require use of new bioengineering methods in future shoreline construction.
* North Carolina Sea Grant specialists educated officials about potential mitigation credits for property owners who construct wind-resistant buildings. The State's Insurance Commissioner increased credits as an optional rating for wind insurance coverage, resulting in $300M in savings on premiums for 200,000 coastal policies.
* Oregon Sea Grant conducted outreach on the nature, likelihood, and impact of a potential Cascadia-Subduction-Zone earthquake and tsunami. As a result, several communities changed public safety and planning policies to include tsunami hazards in updated evacuation plans.
* Florida Sea Grant worked with the Environmental Protection Agency's Charlotte Harbor National Estuary Program (NEP) to develop policies for integrating sea level rise adaptation strategies into coastal comprehensive plans. The Punta Gorda City Commission adopted the framework and is the first designated climate-ready community within the Charlotte Harbor NEP.
* After the Deepwater Horizon oil spill, Mississippi-Alabama Sea Grant's engagement with coastal communities helped keep water-dependent businesses afloat. Researchers found a way to increase production from inland shrimp farms, resulting in an economic impact of $175,000. Through a Sea Grant-supported pilot oyster farm, a new business sector brought in $15,000 in 2010 and paved the way for additional oyster farms.

Lifesaving Sea Grant Mobile Technology Device Aids Rip Current Identification and Benefits the National Weather Service

Rip currents are a highly dangerous natural phenomenon. However, they receive far less publicity than other natural hazards because they are not well understood. In preparation for the summer and in time for "Rip Current Awareness Week" (June 3, 2012), the New Jersey Sea Grant Consortium debuted a mobile device technology to collect and distribute up-to-the-minute rip current data and related information. This smartphone app helps lifeguards identify and catalog rip current occurrences on their own beaches, while giving them a glimpse at what neighboring communities are experiencing in real time. The application could prove invaluable to both local lifeguards and the National Weather Service (NWS). The NWS plans to use the collected information to evaluate its rip current forecasts. The information will help scientists understand more about when and where rip currents occur, and under what conditions they are most prevalent.


Oregon Sea Grant

Sea Grant Helps to Improve U.S. Ballast Water Policies and Management

In response to shipping industry requests for assistance to better understand ballast water regulations, Minnesota Sea Grant, along with the International Joint Commission and the Great Lakes St. Lawrence Seaway Development Corp., helped develop the Great Lakes Ballast Water Collaborative (GLBWC). Through the GLBWC, Sea Grant influenced state and federal ballast water policies by facilitating meetings and providing scientific information that helped stakeholders understand ballast water issues. Minnesota Sea Grant reports from these meetings have been cited by agencies including the USGS, EPA-Science Advisory Board, Environment Canada, state governments and the International Maritime Organization of the U.N. Ballast water regulations have been incorporated in Wisconsin and California.

Focus Area: Healthy Coastal Ecosystems

Sea Grant is leading efforts to understand and maintain healthy ecosystems. Sea Grant professionals work to support ecosystem-based approaches to managing the coastal environment, including restoring the function and productivity of degraded ecosystems and promoting stewardship of healthy ones.

Impacts

* South Carolina Sea Grant and its partners worked with landowners to eradicate 1,500 acres of the invasive marsh plant, *Phragmites*, along the state's coastal waters.
* A one-acre dune restored by Connecticut Sea Grant and partners passed its first major test during Tropical Storm Irene, migrating landward and growing, while protecting a marsh that provides up to $114,000 in storm damage protection annually.
* New Puerto Rico Sea Grant research enables the detection of human fecal contamination in as little as three to six hours (previously 36 hours). This near real-time assessment of beach contamination will contribute significantly to public safety and the coastal economy.
* Delaware Sea Grant sponsored research into the identification and cultivation of native Atlantic seashore mallow as a marketable alternative to current salt intolerant crops in light of rising sea level. The plant appears to be not only a harvestable crop as a source of biofuel and animal feed, but also acts as a coastal shoreline stabilizer.
* Louisiana Sea Grant is working with Floating Islands Environmental Solutions, Inc. (FIES) in Baton Rouge to develop a floating matrix composed of recycled plastic drinking bottles that will help stabilize marsh and island areas. Sea Grant has provided FIES with expertise on surface water treatments, regulatory issues and nutrient removal, and the company now plans to expand.



Focus Area: Safe and Sustainable Seafood Supply

Sea Grant is working to ensure a sustainable supply of seafood by partnering with fishermen and fisheries managers to enhance the productivity and management of wild fisheries and exploring sustainable aquaculture techniques. Sea Grant professionals work with fishermen to develop innovative approaches, business practices and techniques that ensure financial competitiveness and environmental responsibility. Training and technical assistance programs establish and maintain safety standards for seafood in order to ensure that consumers receive safe, high quality product.

Impacts

* Texas Sea Grant-sponsored experimental trawl gear has resulted in 20-39 percent fuel savings for Texas shrimp fishermen. To date, more than 85% of the Cameron County, Texas shrimp fleet (132 vessels) has switched to the new fuel-saving trawl gear. Since 2008, county-wide fuel savings were estimated to be 7.3 million gallons of diesel, valued at $17.8M. An estimated 200 jobs were saved because without these fuel savings, many of the vessels would have remained idle.
* Oregon Sea Grant funding has helped educate thousands of surimi professionals and facilitated the development of two U.S. patents for heating devices that ensure safer seafood processing and contribute millions of dollars to the seafood industry.
* California Sea Grant is overseeing a captive broodstock program for coho salmon in the Russian River system north of San Francisco Bay. In March 2011, an estimated 192 adults returned to the region to spawn, compared with 3 or 4 adults per year for the last decade. By November 2011, there were 5,375 wild "young-of-the-year" coho in 18 of 23 tributaries surveyed between May and September.
* Michigan Sea Grant established a business relationship with a large seafood processing company, enabling producers to sell fish frames, pin bone meat and small fish for use in kosher products. The processing company pays $12,000 per truckload. This new revenue has allowed Michigan fishers to make a profit from waste they had previously been paying to store and send to the landfill.
* Maine Sea Grant worked with the Maine Lobstermen's Association to apply on behalf of all Maine lobstermen to the United States Department of Agriculture's Trade Adjustment Assistance Program. More than 2,600 lobstermen are participating in this business development and financial assistance program, which has the potential to provide $9.1M to Maine's fishing families by the end of the program in 2013.

Sea Grant develops efficient, effective electronic reporting for recreational fishing data

With funding from North Carolina Sea Grant, a fishery specialist and a programmer designed a pilot project called RecText, to test their electronic reporting method for recreational angler catches. Initially, six charter boat captains used cell phones to text their fishing reports to an online database using Twitter. Data collected through RecText may contribute valuable information to state and federal resource managers about the health of game fish populations. Maryland and National Marine Fisheries Service officials are utilizing RecText by testing operational adaptations of the system.



Sea Grant recycles millions of pounds of plastic, saving jobs, money and the environment

Ohio Sea Grant's Clean Marinas Program partnered with Mondo Polymers of Marietta, Ohio, to recycle shrink wrap. Since 2007, ***more than 1.2 million pounds of shrink wrap*** *and greenhouse plastic from over 120 coastal marinas were* ***recycled into guardrails*** *that are now protecting over 225 miles of the state's highways. This effort* ***created jobs,*** *saved individual marinas an average of $700 per year in disposal costs, and produced a reusable, cheaper product for Ohio taxpayers. With help from Ohio Sea Grant,* ***five other states replicated Ohio's innovative program,*** *which resulted in the collection of* ***500,000 pounds of plastic.***

Last year, Sea Grant programs throughout the nation certified 804 Clean Marinas.

Focus Area: Sustainable Coastal Development

Sea Grant professionals provide science-based information and strategies designed to enhance waterfront economic activities and to preserve cultural traditions. Sea Grant provides legal analysis and technical assistance to ensure public access to beaches and waterfronts, and engages coastal communities and decision-makers in sustainable planning processes.

Impacts

* Rhode Island Sea Grant worked with the state's Coastal Resources Management Council to develop and implement Special Area Management Plans (SAMPs). SAMPs are scientific ecosystem-based management plans that comprehensively review ecosystems, regulatory environments and social structures and propose guidance on regulations to be adopted by the state. On July 22, 2011, Rhode Island's 7th SAMP became the largest ever, covering nearly 1,500 square miles.
* University of Southern California Sea Grant worked with the former Public Works Commissioner and the Bureau of Sanitation to develop a low-impact development ordinance designed to balance multiple uses and optimize environmental stability. The ordinance was endorsed by the Los Angeles City Council and signed by the Mayor.
* A Wisconsin Sea Grant researcher developed an analytical approach for defining the physicochemical forms of methylmercury, copper and cadmium in water. This model enables more accurate estimation of bioconcentration factors and toxicity of these metals. The model was adopted by the U.S. EPA to predict the toxicity of trace elements to various organisms in areas targeted for contaminant remediation.
* Virginia Sea Grant supported the marine recreational boating industry by providing research and training to support access to funds under the Department of Interior Boating Infrastructure Grant Program (BIG). BIG competitive applications have helped generate almost $1M of new investment at Commonwealth marinas. This funding translated into $2.1M in economic impact to Virginia, which was further increased by $600,000 in match from local marinas and communities, for a total impact of $2.7M during 2010-2011.

THE NSGCP IS SUPPORTING IMPLEMENTATION OF THE NATIONAL OCEAN POLICY, PREPARING FOR REAUTHORIZATION OF THE SEA GRANT ACT AND DEVELOPING A NEW STRATEGIC PLAN.

United States National Ocean Policy

The recently released National Ocean Policy represents the work of many individuals representing a broad range of stakeholders from federal, regional, state and local governments and organizations. The National Ocean Policy highlights ecosystem-based management, the development of emerging sustainable resources such as aquaculture and renewable energy, coastal and ocean literacy and workforce development, and habitat restoration, all of which are also featured prominently in Sea Grant's National Plan. The policy recognizes the need for engagement with coastal and inland stakeholders in all facets of policy development and implementation, and the important role of social science. For the past few years, Sea Grant has been working with coastal communities to help them plan for an uncertain future and find ways to mitigate changes such as rising sea level and increased coastal flooding—a need also highlighted by the National Ocean Policy. These are some of the ways Sea Grant has responded to, and in many instances anticipated, the priorities of the National Ocean Policy.

Reauthorization

The National Sea Grant College Program Act was first enacted in 1966 and was most recently amended in 2008 (PL 110–394). In preparation for the 2015 reauthorization, the Advisory Board, the National Office and the SGA are reviewing congressional guidance, current Sea Grant policies and Sea Grant successes in implementing the National Ocean Policy. Sea Grant will be prepared to assist Congress in developing proposed language for the 2015 reauthorization of the NSGCP.

Strategic Planning Process: 2014-2017 National Sea Grant Plan

Sea Grant is completing its 2014-2017 strategic planning process with a National Strategic Planning Committee with members from the Advisory Board, the National Office, the SGA and NOAA. The state Sea Grant programs are providing input from their stakeholders to inform the National Plan. This approach enables the state program plans and the National Plan to be developed in tandem and to reflect a broad array of stakeholder needs, with the goal of developing an integrated National Plan with a discrete set of national performance measures that will be common to both sets of plans. State Sea Grant programs will still have the flexibility to add performance measures unique to their local needs.

In November, a subcommittee of the Advisory Board will review the 2014-2017 state plans to ensure sufficient rigor and alignment with the National Plan. The National Plan will be adopted by the end of 2012, with performance targets for 2014-2017. The timing of this process will allow Sea Grant programs to issue Requests for Proposals (RFPs) for 2014-2015 that reflect priorities from the new plans.

Leveraging federal dollars for greater impact
Sea Grant is required to match every $2 of federal funding with $1 of non-federal funds. Total investments in the Sea Grant Program over the past two years have been $199M ($116M federal Sea Grant; $19M federal funds from other sources; $64M match). By leveraging federal funds, Sea Grant expands its reach and effectiveness in planning for and managing the future of America's ocean, coastal and Great Lakes resources.

SOCIAL SCIENCE

There has been an increasing demand, within and outside NOAA, to merge social science research with the physical and biological sciences that are the foundation of the Sea Grant Program. Effective use of social science research can guide and improve scientific research, enhance public policy, and improve our ability to offer citizens customized solutions to coastal problems.

Sea Grant programs are conducting 68 competitively funded social science projects, including collaborative regional projects in New England, the Gulf of Mexico and the Pacific. The two-year projects are funded at a total of $9.6M in federal funding and $4.6M in match funding for 2012 and 2013, including a contribution of $0.7M from NOAA's Coastal Services Center and the Environmental Protection Agency for the Gulf of Mexico.


University of Southern California Sea Grant


Virginia Sea Grant


North Carolina Sea Grant

Projects include:

- Delaware Sea Grant is investigating the economic impact of offshore wind farms on coastal tourism and beach use in the region.
- Maine Sea Grant, through the seafood links project, is promoting sustainable seafood in the state.
- South Carolina Sea Grant is assessing socio-ecological relationships and environmental values in the face of demographic changes in its coastal communities.

Sea Grant Helps Small-Scale Fisherman Thrive in a Challenging Economy

A movement is underway to preserve the jobs and livelihoods of fishermen, to open new markets for locally caught seafood and deliver fresh, safe and sustainable catch to consumers. Sea Grant programs, in partnership with small-scale fishermen, are at the forefront of this Local Catch movement.

Sea Grant has conducted social science market research and pioneered innovative direct marketing, branding and business strategies that are creating new revenue streams and opportunities for fishermen. These efforts are creating competitive advantages over foreign producers, preserving valuable fishing jobs and maintaining a proud cultural heritage and way of life in coastal communities throughout the country. Sea Grant programs are working with fishermen and industry to establish Community Supported Fisheries (CSF) and brand identities for locally-caught fish, both of which are helping fishermen sell their catch directly to consumers. These business models were the focus of a May 2012 Sea Grant-sponsored roundtable and Congressional briefing, and a CSF summit supported by Sea Grant and the National Marine Fisheries Service held in May 2012 in Portsmouth, New Hampshire.

CLIMATE ADAPTATION

Sea Grant is committed to improving the nation's ability to understand, plan for and respond to climate variability and change along our shorelines. As a dynamic link between the scientific community and coastal stakeholders, Sea Grant is invested in innovative research and outreach programs that further the effectiveness of the Program's federal, state, regional and local partners.

In 2010, the National Office initiated the Coastal Communities Climate Adaptation Initiative (CCCAI), a grants competition available to Sea Grant programs to conduct rapid-response, community-based demonstration projects that enhance climate adaptation. The primary objectives are to provide the communities with sufficient information to consider alternatives, enable them to make well-informed decisions, and ultimately to develop and implement customized solutions.



Oregon Sea Grant

Currently, Sea Grant programs are conducting 35 competitively funded climate-related research projects. These two-year projects are funded at a total of $4.1M in federal funding and $2.0M in match funding for 2012 and 2013.

Projects include:

- Woods Hole Oceanographic Institution Sea Grant is supporting a project to determine the impact of transgenerational exposure of bay scallops to ocean acidification.
- Georgia Sea Grant is working to prioritize geospatial risks for climate adaptation outreach in that state.
- New Jersey Sea Grant is leading a project investigating economic vulnerability to changing climate conditions in an effort to promote adaptation, resilience and sustainability.


NOAA

PARTNERSHIPS



By working across institutional and geographic boundaries, the NSGCP is able to leverage its talents, capabilities and resources. Several regional governors' associations have invited Sea Grant to serve as the lead coordinating body for regional coastal science priorities. Others, such as the Gulf of Mexico Alliance, rely heavily on Sea Grant involvement.

At the national level, Sea Grant partners with the National Marine Fisheries Service, the National Weather Service, the National Ocean Service and the Office of Oceanic and Atmospheric Research in order to advance NOAA's mission. This year, Sea Grant is working with the National Weather Service on its Weather-Ready Nation initiative to help communities prepare for and recover from weather-related disasters. Sea Grant is conducting extension and outreach activities for NOAA's Coastal Storms Program in the Gulf of Mexico and Pacific regions and will soon be involved in the Great Lakes.

The NSGCP continues to solidify regional partnerships with the eight NOAA regions, bringing together academic institutions, federal, state and local government agencies, and non-governmental organizations to address regional issues. Sea Grant and NOAA's Office of Program Planning and Integration have called for projects that support Sea Grant's National Plan 2009-2013 and the NOAA FY2012 Annual Guidance Memorandum. These initiatives address topics including: climate adaptation, marine debris, sustainable seafood, inundation forecasts, coastal and marine spatial planning, Arctic research and management, Gulf of Mexico restoration and ecosystem-based management. For FY 2012, regional proposals addressed topics such as marine debris, sustainable coastal development, NOAA Weather-Ready Nation, improving inundation forecasts and responding to whale entanglement.

Sea Grant also has ongoing national partnerships with other federal agencies, including the **Environmental Protection Agency,** the **United States Department of Agriculture** and the **Federal Emergency Management Agency** on topics ranging from the safe disposal of unused medications to climate extension to disaster recovery.

Last year, Sea Grant volunteers contributed more than 300,000 hours of service.

Sea Grant and Partners Team Up to Help Working Waterfronts Prosper

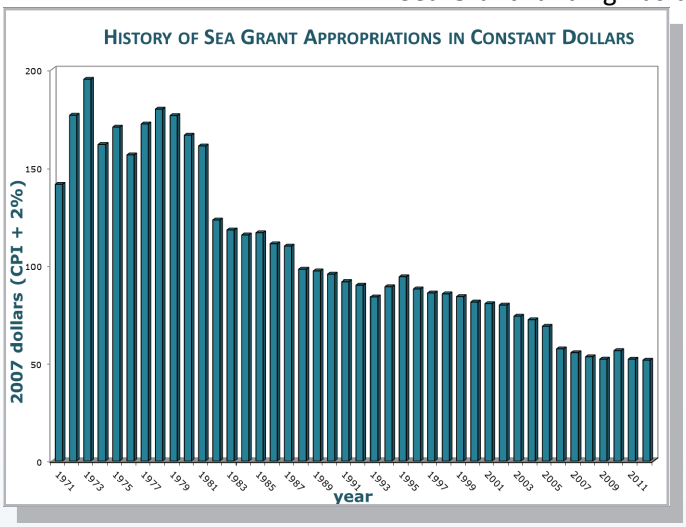
In October 2011, the U.S. Commerce Department's Economic Development Administration (EDA) awarded a $297,643 grant to the Island Institute of Rockland, Maine, to identify and disseminate best practices to help Working Waterfronts achieve long-term economic prosperity. The research will identify strategies, practical methods, and financial mechanisms to address current economic challenges and maintain the economic resilience and diversity of coastal communities. This project is a collaborative effort among the Island Institute, the Maine, Virginia, and Florida Sea Grant College Programs, the National Sea Grant Law Center, the Urban Harbors Institute and Coastal Enterprises, Inc.

The National Sea Grant College Program has made progress in promoting its small programs.

We are pleased to report that Guam and Lake Champlain Sea Grant have met the requirements for designation as Sea Grant "Coherent Area Programs." Coherent Area Program status is followed by Sea Grant Institutional Program status, the last step prior to formal designation as a Sea Grant College. With satisfactory performance, Guam and Lake Champlain Sea Grant will be assured of continued NOAA funding and expanded programmatic responsibilities.

Declining Resources

The Advisory Board is concerned with the decline in resources and the subsequent negative impact on state program funds and on the NSGCP's overall mission. The Program's output in terms of applied research, planning for sustainable coastal communities and support for other NOAA and state-based functions remains strong, but is being compromised in the face of declining resources, especially at the state level. At a minimum, the NSGCP's budget should grow with the rising demands on coastal resources and tasking of responsibilities by Congress, the Department of Commerce and NOAA. Additionally, we recommend the development of a more needs-based allocation plan.



Administrative Cap

The five percent cap on administrative funds for the National Office has had a negative impact on the staffing and expertise in this office and should be reconsidered in an overall examination of funding guidance. The Advisory Board reviewed the National Office staffing in 2008. Our report identified that the five percent legislative cap coupled with a flat budget is leading to fewer, less experienced staff members in the face of increasing NOAA demand. Over the past seven years, the National Office has lost one-third of its FTEs and all four of its GS-15 positions. Presently, this office has less than half the staff it had in 1991: 29 full-time equivalent staff positions in 1991 versus 14 today. Based on this report, the Board recommends that the five percent cap be lifted to aid in staffing of the National Office, which is responsible for the oversight of more than $60 M in public funds. This change should be reconsidered in Sea Grant's reauthorization language for 2015.

Buying Power

The "State of Sea Grant 2010" biennial report to Congress noted that "The buying power of federal Sea Grant funding has decreased steadily over the last two decades, leaving state Sea Grant programs with only about one-third of the buying power they had in the early 1980s. While a review of annual appropriations over time shows a modest rise in federal allocations for Sea Grant, those same dollars, when adjusted for inflation, show a significant decline in federal support and buying power." This loss of buying power was described in detail in *Sea Grant Research: A Report of the Sea Grant Advisory Board*, 2009.

In response to the decline in buying power, the Advisory Board formed a sub-committee to review individual state program funding allocations and to update the process for determining the annual base funding for all programs in 2011. The National Office has established a follow-on "Allocation Committee" with members from the Sea Grant network to develop a revised program base funding policy.

OUTLOOK AND RECOMMENDATIONS

OUTLOOK

The NSGCP has been a valuable asset to this nation for almost 50 years. As our Great Lakes and coastal economic and environmental challenges increase, Sea Grant remains vital to solving these problems and responding to national needs on a regional, state and local basis.

Sea Grant has addressed the issues identified by this Advisory Board in our 2010 report to Congress. Despite the erosion of funding, Sea Grant programs are stepping up to partner, collaborate, innovate and find efficiencies to carry on their vital mission of research, education and outreach. Our coastal issues are only going to become more complex. Sea Grant has proven its ability to respond immediately to regional and national crises by drawing on the knowledge of local experts who are closely tied to coastal communities, and who bring to bear the resources of our nation's finest research universities.

Sea Grant will concentrate its energies where it can best advance national priorities. The Program will continue to use its model of integrated research, outreach and education to translate sound scientific information into tools, products and services that benefit the country and its coastal communities. Sea Grant will concentrate these efforts on identified national priorities such as climate adaptation, coastal community development and response to coastal hazards, where its ability to facilitate honest exchange of information, informed decision-making and rapid response are most valuable. It will continue to educate the next generation of informed citizens, environmental professionals and the ocean-coastal-Great Lakes related workforce.


Alaska Sea Grant

Sea Grant Invests in a Renewable Future

Through its research and outreach investments, Sea Grant is working to address many of the challenges of offshore renewable energy development, including stakeholder concerns, environmental impacts and regulatory and legal issues that will influence national policies. Offshore wind energy shows potential as a critical contribution to the nation's energy portfolio, providing a clean and inexhaustible resource that could support coastal communities. Sea Grant is currently involved with offshore wind projects proposed in Rhode Island, Maine, North Carolina, Delaware, New Hampshire and Michigan.

Ocean waves have the potential to produce low-cost electricity with minimal impacts to the environment. The majority of Sea Grant research in ocean wave energy is focused in Oregon, with additional investments in New Hampshire and Maine. This research shows promise for small-scale energy development for local communities.

Like ocean wave energy technology, tidal energy development is a potential source of predictable and regular renewable energy. Tidal energy faces challenges posed by coastline or ocean conditions. Massachusetts, New Hampshire and Hawai'i Sea Grant are invested in tidal energy research.

RECOMMENDATIONS

The Advisory Board finds the NSGCP to be an effective and solid investment of public monies in responding to the needs of our coastal and Great Lakes communities. We believe that advancing the important mission of Sea Grant will require clear demonstration of the NSGCP's contributions toward achieving national goals and a more effective integration and coordination of the nation's coastal agencies and programs. For the nation to achieve maximum benefit from the NSGCP, new strategically-directed resources are required.


Oregon Sea Grant

1. **The NSGCP should continue to focus on advancing national priorities and solving problems on a local and regional basis, while remaining sensitive to the needs of local communities.**

   Sea Grant is a national program built on a foundation of strong federal-state-university partnerships. The new Planning, Implementation and Evaluation (PIE) system adopted in 2009 is a commitment on the part of the National Office and the state programs to undertake significant coordination and accountability activities, while responding to the most urgent priorities at regional, state and local levels. The Advisory Board has found significant progress in this area since our 2010 report to Congress.

2. **The NSGCP should continue to support tracking and reporting of the cumulative, measurable impacts of Sea Grant activities toward the achievement of national goals.**

   The National Office has made significant progress in developing effective performance metrics, even drawing praise from the OMB. A new Planning, Implementation, and Evaluation Resources (PIER) database system is significantly improved over the former information management system. The system is able to track and report cumulative, measurable impacts, metrics and performance measures. State strategic plans are linked to the National Plan's focus areas and performance measures, enabling state programs to report performance measures and objectives annually, submit them to the PIER system and measure progress.

3. **The NSGCP should continue to emphasize partnerships and collaborative efforts within the Sea Grant network and with other federal, regional, state and local agencies and organizations.**

   There has been significant progress within the Sea Grant network on establishing program and regional partnerships. The Site Review Teams noted this progress in collaborative activities. The NSGCP must continue to identify regional issues that can be more effectively resolved through partnerships with other Sea Grant programs, other NOAA programs, other federal programs and state and local agencies. These partnerships will be even more important as federal funding continues to erode.

4. **The federal budget should allocate additional resources for the NSGCP to reverse the erosion of buying power and maintain a dynamic program.**

   Twenty years of level funding combined with significant inflation have left the state Sea Grant programs and the National Office with substantial reductions in buying power that continues to erode Sea Grant's capacity to address increasing challenges to our Great Lakes and coastal communities. This has had pronounced effects on the National Office's ability to provide leadership and coordination and the ability of the state programs to leverage additional funds and carry out their responsibilities. Sea Grant urgently needs additional funding to continue its critical 21st century leadership and involvement in coastal crisis response and management.

5. **The National Sea Grant Office should review the funding structure of the NSGCP, including the allocation and distribution of funds to state programs, following recommendations made in a 2011 Advisory Board report (see Appendix 2).**

   The erosion of buying power over the last twenty years has highlighted the inequity in base funding allocation to individual programs. The allocation policy has been in effect since 2003 without change and, as currently configured, is stifling the viability of the Sea Grant Program. The Advisory Board reviewed the current allocation policy and recommended a revised policy in 2011. The National Office has established a follow-on "Allocation Committee" with members from the Sea Grant network to work on the revision.

6. **NOAA should continue the integration of its coastal programs to maximize its capability to address the nation's growing coastal challenges.**

   It is essential in an era of limited resources that NOAA build on the specific strengths of existing coastal programs, use them to meet emerging needs and provide clear direction on future roles and responsibilities.


Guam Sea Grant

APPENDIX I.

Sea Grant Program Regions

GREAT LAKES REGION

Illinois-Indiana Sea Grant College Program

Lake Champlain Sea Grant Coherent Area Program

Michigan Sea Grant College Program

Minnesota Sea Grant College Program

New York Sea Grant Institute

Ohio Sea Grant College Program

Pennsylvania Sea Grant Institutional Program

Wisconsin Sea Grant Institute

NORTHEAST REGION

Connecticut Sea Grant College Program

Lake Champlain Sea Grant Coherent Area Program

Maine Sea Grant College Program

Massachusetts Institute of Technology Sea Grant College Program

Woods Hole Oceanographic Institution Sea Grant Institutional Program

New Hampshire Sea Grant College Program

New York Sea Grant Institute

Rhode Island Sea Grant College Program

MID-ATLANTIC REGION

Delaware Sea Grant College Program

Maryland Sea Grant College Program

New Jersey Sea Grant Consortium

Virginia Sea Grant Institutional Program

SOUTHEAST/CARIBBEAN REGION

Florida Sea Grant College Program

Georgia Sea Grant College Program

North Carolina Sea Grant College Program

Puerto Rico Sea Grant College Program

South Carolina Sea Grant Consortium

GULF OF MEXICO REGION

Florida Sea Grant College Program

Louisiana Sea Grant College Program

Mississippi-Alabama Sea Grant Consortium

National Sea Grant Law Center

Texas Sea Grant College Program

PACIFIC REGION

Alaska Sea Grant College Program

California Sea Grant College Program

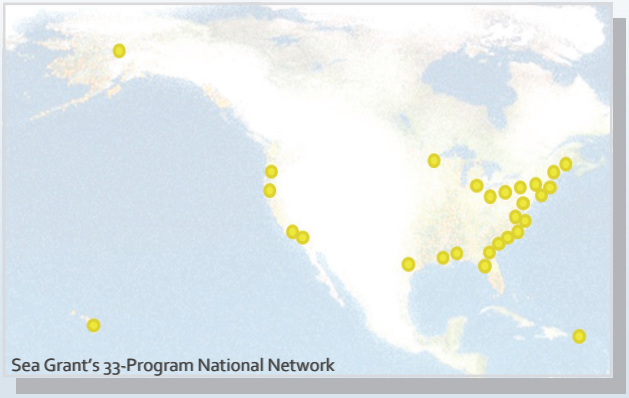
University of Southern California Sea Grant Institutional Program

Hawaii Sea Grant College Program

Oregon Sea Grant College Program

Washington Sea Grant College Program

Guam Sea Grant Coherent Area Program



Sea Grant's 33-Program National Network

APPENDIX II.

The following reports are referenced in this document.

The State of Sea Grant 2010, Biennial Report to Congress, 2010
http://www.seagrant.noaa.gov/leadership/advisoryboard/The_State_of_Sea_Grant_Biennial_Report_2010.pdf

NOAA Sea Grant Strategic Plan 2009-2013: Meeting the Challenge, National Sea Grant College Program, 2009
http://www.seagrant.noaa.gov/other/admininfo/documents/0209_stratplan.pdf

Allocation Committee Recommendations, National Sea Grant Advisory Board, 2011
http://www.seagrant.noaa.gov/leadership/advisoryboard/Reports Allocation_CommitteeII_2011_Principles & Framework.pdf

Sea Grant Authorizing Legislation, as amended by the National Sea Grant College Program Amendments Act of 2008 (Public Law No: 110-394)
http://www.seagrant.noaa.gov/other/admininfo/Legislation/SG%20Reauthorization%20-%20FY2009-14.pdf#page=13

National Sea Grant Performance Measures and Metrics
http://www.seagrant.noaa.gov/other/admininfo.html

Sea Grant Research: A Report of the National Sea Grant Advisory Board, Sea Grant Advisory Board, 2009
http://www.seagrant.noaa.gov/leadership/advisoryboard/Reports/Research%20Final%20Report_2009.pdf

Staffing the National Sea Grant Office, Sea Grant Review Panel Administrative Committee, 2008
http://www.seagrant.noaa.gov/leadership/advisoryboard/ARC_Report_50208.pdf

Building Sea Grant: The Role of the National Sea Grant Office, Sea Grant Review Panel, 2002
http://www.seagrant.noaa.gov/GreenBook/gb_documents/pdf_otherfiles/ducereport.pdf

Evaluation of the Sea Grant Review Process, National Research Council, National Academy of Sciences, 2006
http://www.seagrant.noaa.gov/other/rit/NRC_evaluation.pdf

Sea Grant: Training America's Marine, Coastal and Great Lakes Scientists
http://seagrant.soest.hawaii.edu/sites/seagrant.soest.hawaii.edu/files/publications/noaa_seagrant_alumni brochuretrifold.pdf

APPENDIX III.

Sea Grant Program Impacts

http://www.seagrant.noaa.gov/leadership/biennialreport.html

National Sea Grant College Program

FY2012 Performance Measures and Metrics

As a result of *Sea Grant* activities, the Nation achieved…

Economic Benefits

$170M	In Economic Benefit
630	Businesses Created or Retained
3,800	Jobs Created or Retained



Healthy Coastal Ecosystems

480	Ecosystem-Based Management (EBM) Tools, Technologies, and Information Services developed
470	EBM Tools used by Sea Grant customers
4,400	Resource managers use EBM
670,000	Acres of degraded ecosystems restored



Hazard Resilience in Coastal Communities

450	Communities trained in resilience
150	Communities improved resilience



Research

230	Proposals funded
400	Peer-reviewed publications



Safe and Sustainable Seafood Supply

9,900	Fishers adopted responsible harvesting techniques
56,000	Stakeholders modified practices based on increased knowledge of safety, sustainability, and health
1,500	Hazard Analysis & Critical Control Points (HACCP) certifications



Sustainable Coastal Development

900	Communities implemented sustainable development practices/policies
800	*Annual* Clean Marina Certifications (since 1995*)*



Education, Outreach, and Extension

310,000	Volunteer hours
1,000	Undergraduate students supported
150	Undergraduate degrees awarded
950	Graduate students supported
200	Graduate degrees awarded

THE STATE OF
SEA GRANT 2012:
Impacts, Challenges, Opportunities

Biennial Report to Congress by the National Sea Grant Advisory Board


North Carolina Sea Grant


Alaska Sea Grant


Alaska Sea Grant


North Carolina Sea Grant


Georgia Sea Grant

Sea Grant

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA
U.S. DEPARTMENT OF COMMERCE

October 2012