

NATIONAL SEA GRANT ADVISORY BOARD

FEBRUARY 27-28, 2014

SPRING 2014 MEETING

BRIEFING BOOK

PUBLIC COPY

GO TO WEBINAR
SILVER SPRING, MD



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Agenda



**National Sea Grant Advisory Board (NSGAB) Spring Meeting
February 27-28, 2014
AGENDA
Virtual Meeting**

Thursday, February 27, 2014

OPEN TO THE PUBLIC 10:00 am – 4:00 pm EST

- 10:00 – 10:15 Welcome, review of agenda, approval of minutes (Rollie Schmitten, Chair NSGAB)
- 10:15 – 10:30 Chair's update (R. Schmitten, NSGAB)
- 10:30 – 11:15 National Sea Grant College Program, Director's Update (Leon Cammen, Director, National Sea Grant Office - NSGO)
- 11:15 – 11:45 Sea Grant Association Update (LaDon Swann, President, Sea Grant Association)
- 11:45 – 12:00 Discussion of morning topics (R. Schmitten, NSGAB)
- 12:00 – 1:00 Break for Lunch
- 1:00 – 1:30 Site Visits (Sami Grimes, National Sea Grant Office - NSGO)
- 1:30 – 2:15 Biennial Report Update (R. Fortner, NSGAB)
- 2:15 – 2:45 Sea Grant Reauthorization Update (L. Cammen, NSGO, R. Schmitten, NSGAB)
- 2:45 – 3:00 Break
- 3:00 – 3:30 Dr. Bob Detrick, Assistant Administrator, NOAA Research
- 3:30 – 3:45 Public Comment Period
- 3:45 – 4:00 Discussion of afternoon topics and wrap-up (R. Schmitten, NSGAB)
- 4:00 Public Meeting recessed until 1:00 pm Friday, February 28, 2014
- 4:00 – 5:00 Advisory Board Business Meeting (Board Only)**

Friday, February 28, 2014

10:00 am -12:00 pm EEO/Diversity Training (Board Only)

OPEN TO THE PUBLIC 1:00 pm – 4:00 pm EST

1:00 – 2:00 Allocation Committee Update (L. Cammen, NSGO and D. Vortmann, NSGAB)

2:00 – 2:30 NSGO Website and public project and impact search update (E. Ban, NSGO)

2:30 – 3:00 Focus Area Updates (Tammy Newcomer and Elizabeth Bevan, NSGO Knauss Fellows)

3:00 – 3:30 Sea Grant Education Impacts (R. Fortner, NSGAB)

3:30 – 3:45 Pennsylvania Sea Grant College Status Request (Dorn Carlson, NSGO)

3:30 – 4:00 Discussion of afternoon topics and wrap-up (R. Schmitten, NSGAB)

4:00 Meeting Adjourned

Draft Minutes
March 2013 & September 2013



National Sea Grant Advisory Board (NSGAB) Meeting
 March 4-6, 2013
 Meeting Minutes

The Melrose Hotel
 2430 Pennsylvania Avenue NW
 Washington, DC 20037

Sunday, March 4, 2013

8:00 AM—Introductions, review agenda, approval of minutes, etc. (Dr. Nancy Rabalais, Chair, NSGAB)

Roll Call:

Board Attendees present: Nancy Rabalais, Bill Stubblefield, Rollie Schmitt, Paulinus Chigbu, Amber Mace, Rosanne Fortner, Dick West, Dale Baker, Frank Beal, Dick Vortmann, Jeremy Harris, Harry Simmons, Patty Birkholz, Leon Cammen (*Ex-Officio*).

National Sea Grant Office (NSGO): Elizabeth Ban (Designated Federal Officer), Nikola Garber, Sami Grimes, Amy Painter, Dorn Carlson, Gene Kim, Mike Liffmann, Chris Hayes, Joshua Brown, Terry Smith, Hank Hodde, Gabe Dunham, Chelsea Berg, Jonathan Eigen.

Other attendees:

Kathryn Sullivan

Robert Detrick—Assistant Administrator for the Office of Oceanic & Atmospheric Research

Craig Mclean—Deputy Assistant Administrator for the Office of Oceanic & Atmospheric Research

LaDon Swann—Sea Grant Association, President

Jennifer Maggio—National Sea Grant Office, Contractor, 2020 Company LLC

Julie Galkiewicz—National Sea Grant Office, Contractor, 2020 Company LLC

Stuart Levenbach— Office of Management & Budget

Paul Bradley— Office of Management & Budget

September Draft Minutes (H. Simmons, 2nd R. Schmitt, all approved)

Chair Update (N. Rabalais, NSGAB)

Dr. Rabalais made a few comments to the committee in regards to Sequestration and how funding will be a lot tighter, for example, travel. Dr. Rabalais reported the Biennial Report to Congress is complete and was presented to the NOAA Scientific Advisory Board, where it was well received. The next Biennial Report will be geared more towards focus teams and groups that feed into the National Program. Through these various programs, we stay connected. We don't just meet twice a year; we do things all year long. We try to keep Sea Grant in the eye of the elected officials.

National Sea Grant Office (NSGO) Report (L. Cammen, NSGO)

Dr. Cammen welcomed the New Board Members and thanked those who participated in the Performance Review Panel, the Biennial Report Committee, and the, 2014-17 Network Strategic Planning Committee. Admiral West gave a special thanks to Ms. Amy Painter for her hard work on the Biennial Report. Dr. Rabalais thanked Dr. Amy Scaroni (not present) for her help as well.

Year in Review:

Accomplishments, Planning Implementation and Evaluation (PIE) Cycle, National Grants Portfolio, Superstorm Sandy Response, NOAA Engagement and Congressional Engagement.

Sea Grant FY2012 PM's & Metrics:

It was noted there will be a joint committee with the SGA to try and collect accurate measurements between degrees awarded and students supported.

Outlook Year Ahead:

It was noted that NOAA is developing its 5 year Research Plan that reacts to the recommendations. Dr. Kathy Sullivan will be responsible for reacting to the report.

Budget Update:

Currently the NSGO is delaying RFP's. The window is bumping up against Grants Online and the NSGO needs to put out the RFPs or there is no way to award possible funding. The NSGO will hold the results of the competition until funding becomes available. The NSGO will either add funding in or fund half this year and half next year. Programs will be notified in a timely manner if the NSGO doesn't receive funding.

Outlook- FY 13 Appropriations:

Sea Grant has 3 budget lines and the NSGO would like to see them combined as one total. It has an impact on base funding and currently Congress hasn't been separating the budget.

Outlook-Competitions:

This year the NSGO plans to fund 4 regions instead of 8 for the Regional Collaboration Grants. Projects will be larger and more competitive.

Outlook-Aquaculture:

Extension projects are planned for this year.

Outlook-Community Climate Adaptation:

The plan for the NSGO is to fund ten projects through base funding. If there is a 5% sequester, other funding will have to be found. Program participants of the 30K and 100K will meet next week in Santa Monica to review the progress of these projects.

Sea Grant Association (SGA) Report & SGA Ad Hoc Growth Team (L. Swann, President, SGA)

Reviewed Past President Pennock; SGA Past Presidents; 2013 Board of Directors; SGA Standing Committee; 2009-13 Focus Teams; Sea Grant Growth Committee.

Sea Grant Week 2014 will be Clearwater Beach, FL September 8-12, 2014

Dr. Stubblefield believes marketing is the key to growth and the NSGO needs help. This cannot be done without effective partnerships and resources which is needed to have a continual presence in the Administration.

SGA Ad Hoc Growth Team: Dr. Swann reported the committee would like input on the growth and strategies and what needs to be included.

Discussion

The group discussed the need to look for external funding and not just federal funding. It was noted that the SGA is a 501(c) (3) and is currently looking into funding from the Kresge Foundation. The group encouraged growth and in looking at new ways of leveraging funds including local funding from mayors, county commissions, partnerships, etc. There needs to be a plan on how to receive funding from other areas. A good way to do this would be to find out how other programs are receiving external funds and ask them to share their stories and ideas. Currently the NSGO hasn't looked into private sector funding, but is interested in looking into. It was suggested to look further into C-3 and outside funding. OMB suggested Sea Grant look into what is organic in the new and emerging themes and what can be marketed. Fisheries extension is an area that is not crowded and isn't mentioned enough.

Office of Management and Budget (OMB) Panel (S. Levenbach and P. Bradley, OMB)

Dr. Rabalais introduced Dr. Levenbach and Dr. Bradley.

OMB: Dr. Levenbach reported the decisions that impact NOAA are indirectly impacted by other areas. Dr. Stubblefield asked if it would be advantageous to put NOAA in the Department of Interior. Dr. Levenbach replied this has been discussed.

Normal Budget Timeline: Dr. Bradley reported it is helpful to put into context how the budget is formulated from OMB to Congress. At any given point in time the agency is working on 3 budgets: current to execute, coming budget year and the initial stages of implementing the first out year budget.

Current Budget Timeline: Dr. Bradley reported several dates were given, but nothing is final. Dr. Levenbach noted the best time to come into OMB is around September to talk about the budget. We should also consider what tools OMB has. They are able to do pass backs. Sometimes there are management actions. These are some issues we might see

within NOAA with respect to Sea Grant. This is helpful to put together a budget. It is important to know it isn't just a number, it is management.

Budget Structure Drive to decision making: Dr. Levenbach noted budget lines are important especially during sequester and general context. Funding is tracked through the budget line. It is the unit in which we negotiate agencies. The more budget lines, the more OMB and the Hill will have control over the agencies budget. NOAA has the most budget lines and money can't move across the budget lines without congressional approval. It is important during sequester because it impacts how it is being allocated.

Balancing: Dr. Levenbach reported the burden is on OMB to demonstrate how the budget should be shifted around or cut to get within guidance. An issue with budgets is that the Agency's' mission overlaps.

How Does OMB Prioritize: OMB noted it is hard to know what is going on with all programs, but it is important to know who is using their funds and who can make the most significant impact.

Discussion:

Dr. Bradley noted the impacts and reporting used by Sea Grant are exemplary. They are really important within OMB and an invaluable way to look at each aspect of a program and quantitatively see how effective the program is. Dr. Bradley gave examples of Sea Grant's performance measures. They are an important tool in the OMB decision making process. It is important that it be quantitatively measured. The more rigorous back up Sea Grant's impacts the more effective of a program is it. Dr. Levenbach also reported performance measures are very valuable in the budget context. There are a lot of decisions being made in a very short time. Dr. Bradley replied the performance measures on the report are fantastic and gives a great sense that it isn't just numbers, but the range of what is important for the different National Sea Grant College Program (NSGCP) communities in the nation.

Sea Grant Reauthorization Planning (R. Schmitten, NSGAB)

There is an upcoming NSGCP Reauthorization program in FY-15. Given the political climate it has been discussed whether the NSGO should be reauthorized again. The first time in forty years we haven't rolled over the reauthorization. OMB suggested creating a one page bill that reauthorizes the program. It doesn't require a lot of effort and minimizes what can be done. There are a lot of risks with the current state of the Hill. If the NSGO is looking to make policy changes to the reauthorization as opposed to having a current authorization it may be worth taking the risk, if you have a good strong support. Performance measures are important to OMB and on the Hill. It means we have credibility that we know what we are doing. There has to be credibility before the NSGO can market themselves.

Sea Grant Response to Super Storm Sandy (J. Brown, NSGO)

Impacts to Sea Grant, Sea Grant Constituents, NSGCP Response, New Jersey Response, New York Response, Other Impacts, Future Actions.

Several Board members commented that infrastructure doesn't seem to be of importance and Congress needs to get involved. Katrina involved total destruction and is predicted to happen more and more in the future. It was recommended that Sea Grant take a major lead in responding to the immediate needs, but also think on the long term and convince people to take precautionary measures. A discussion followed on the pros and cons that came out of Super Storm Sandy, highlighted resilience and how Sea Grant is working with communities. It was noted there needs to be more talk on how it is going to get done and how to find other funding instead of the traditional ways of going to Congress.

It was noted there were several comments made about extreme weather events that were already experienced during Katrina yet we still keep making the same mistake. One of the bigger questions is how people react once they get their information. There is need for social science research, including where people get their information and how the weather service can use that information in getting the word out. There is a need for the weather researchers to get better warnings out to the public. Sea Grant can be a major resource in getting the word out and educating the public so that real measures can be taken to change the structure.

There needs to be research on what worked and what didn't. There was also dialogue on technical assistance and what outreach can be offered to people trying to recover from disasters. It was suggested that the NSGO create partnerships to increase funds for addressing these issues. The NSGO has the credibility, just not the funding to make it work.

There was a misconception regarding who is getting the word out about what Sea Grant does. OMB noted it was difficult not having good information on where the immediate impacts and challenges are when looking at the Presidential Supplemental. The fishing communities were a good example. One role Sea Grant could play post storm is as an information provider to OMB and Congress and what communities are doing. It was noted that Sea Grant does provide the correct information but by the time it got to OMB a lot of the information was changed. It was agreed that more people need to stand up and say what Sea Grant does for them, not just to Congress.

Budget Update (L. Cammen, NSGO)

Dr. Cammen stated that final budget decisions have not yet been made, only generalities. Sea Grant as well as other offices has put together a plan to meet a 5.1% reduction in budget. The NSGO will be held to the plan. No word yet on whether they have been approved. If somehow Sea Grant can roll the budget lines into one, it would make a big difference and the cuts would be more flexible. Proposals will be put in by Sea Grant for the Sandy Supplemental based on suggestions by directors. They will be forwarded to DOC, then to OMB and Congress.

Performance Review Panel & Strategic Plan Update (S. Grimes, NSGO)

Sea Grant Planning, Implementation and Evaluation Process; overview of PIE; Planning.

Dr. Stubblefield wanted to clarify the next planning will not begin until 2016. Ms. Grimes replied yes.

2014-2017 National Performance Measures:

It was noted that some programs haven't been reviewed in 7 years and at some point the evaluation process needs to be completed. A discussion followed on the strategic planning process and performance measures. Many of the programs were asked to revise their plans based on the results of the PRP.

Implementation; evaluation, 2012 Performance Review Panel, PRP Members:

It was explained what the scores mean for programs according to the NSGO policy. Programs were given the opportunity to point out factual errors that may have affected their scores. If there was no error, scores were final. Programs then receive metric funding based on their scores. If after 4 years the program didn't fix the identifiable problem, they are taken to the Advisory Board for decertification. The scores were normalized (lowest mean score and raised proportionally; higher scores were lowered to get identical means scores). The scores for each program were then weighted based on level of effort in each of the focus areas. Admiral West said we need to capture this information in the next Report to Congress.

2012 Planning and Evaluation Activities:

Several of the Board members suggested there needs to be an evaluation of the Sea Grant evaluation process to ensure that the process is to enhance the program. Ms. Grimes and Mr. Hayes of the NSGO were tasked with putting together the evaluation.

Virginia Sea Grant College Status (D. Carlson, NSGO)

Sea Grant Program succession:

There are twelve criteria to Virginia Sea Grant receiving College status. The review is much more comprehensive and is a very big deal for the campus. Virginia Sea Grant has previously lost their status and since then has turned around. It was noted there are no financial implications in having college status. It was noted it is more important to know how the state matching funds will support the federal dollars. Currently there is no formal request, only the intent to apply. Once the application is received, a formal request will be given to the NSGAB for review. It was noted there is a policy that there can only be one Sea Grant College in each State. The NSGAB could consider another institution, but it costs money for every program that is added. Currently there is a program in every coastal state. DC doesn't have a Sea Grant Program because they are not in a coastal zone.

Sea Grant Legislation Reauthorization (R. Schmitten, NSGAB)

Required Action for Sea Grant, National Sea Grant College Program Act Reauthorization, Projected timeline for Sea Grant Re-authorization FY 2015-2020

Discussion:

There was a discussion on the Administrative cap and the need for it to be removed in the next reauthorization. It was suggested a smaller group go to the House and give the views of the NSGAB. Then that group should report on the findings and recommendations they have. There is a worry from the group on asking to remove the cap at this time. Dr.

Kathy Sullivan has said that it is not the time to keep your head down, but to show what an incredible program Sea Grant is and that the country can't live without it. The NSGAB replied the only way for Sea Grant to grow is to remove the cap. Dr. Stubblefield noted from his understanding the SGA is firmly committed to maintain the cap. Dr. Swann replied that the SGA are sympathetic to the NSGO on the need for resources but believe in the cap for the federal government. Admiral West noted it is an issue that needs to be resolved. There needs to be a look at the value the NSGO can add above the program. Admiral West noted there was a similar discussion prior to the last reauthorization that resulted in the creation of a joint SGA and NSGAB committee to review the National Office. The Board spent a lot of time and created a [report](#) based on their findings.

Biennial Report Follow-up Discussion (D. West, NSGAB)

It was agreed upon during the last reauthorization that the NSGAB press for re-designation. Term limits were added as 2 four year terms. Issues were reviewed that are necessary to address during the next report, for example the administrative cap. The last page is important for new folks because it lists all the reports and studies done by the NSGO. The Board will be asked to do another report in eighteen months and they are asking for volunteers to help. It was noted the report is helpful in preparing as a new member.

Motion to Recess: West, 2nd Simmons.
All in favor.

Meeting in recess until 9:30 am Tuesday, March 5.

Tuesday, March 5, 2013

9:30 AM- 12:00 PM-Open To Public

Role of the Focus Teams (G. Kim, NSGO)

The focus team reports are a great tool and it was discussed that they should be promoted further. For someone without a long history or no history in Sea Grant, the focus teams and reports are a very useful way to absorb what is going on and the intent of the whole Sea Grant program. These teams are very connected to the National Strategic Plan and focus areas. The NSGO would welcome feedback for a focus team deliverable and how to promote them.

Hazard Resilience in Coastal Communities Presentation (H. Hodde, NSGO)

Healthy Coastal Ecosystems Presentation (G. Dunham, NSGO)

Safe and Sustainable Seafood Supply Presentation (G. Dunham, NSGO)

Sustainable Coastal Development Presentation (H. Hodde, NSGO)

Public Comments:

Ms. Ban (DFO) announced the Board received one public comment in writing prior to the meeting and is included in the briefing book (available online). Additionally, two members of the public were present to speak to the Board.

Barbara Blakistone, National Fisheries Institute:

Good Morning! My name is Dr. Barbara Blakistone, and I am the Director of Scientific Affairs for the National Fisheries Institute (NFI) in McLean, Virginia. The National Fisheries Institute (NFI) is the nation's leading advocacy organization for the seafood industry. Its member companies represent every element of the industry from the fishing vessels at sea to the national seafood restaurant chains. From responsible aquaculture, to a marketplace supporting free trade, to ensuring consumers have the facts on the health benefits of fish and shellfish, NFI and its members support and promote sound public policy based on scientific research. NFI is pleased to offer its perspective on the state of seafood science and technology research.

NFI and its associated group the Seafood Industry Research Fund are quite concerned that traditional sources of funding to support seafood research are being diverted to fishery management, sustainability, and consumer social communication and outreach. There is a current trend toward large grants on basic research. For example, NFI is an advisor to the NoroCORE grant housed at North Carolina State University for norovirus research. Funding for NoroCORE is \$5 million each year for 5 years of research. Norovirus is a specific topical area within food safety and the virus affects many commodities, not just seafood, so the work is broadly applicable, but a large allotment of funds from USDA are then narrowed to microbiology. Government agencies appear to have forgotten the world of food science

which includes not just the microbiology to keep food safe, but that food must be harvested, processed and packaged and it takes chemists to understand the keeping of that food, how to retain the nutrients, and how long it will last in storage.

NFI finds it puzzling that the National Sea Grant College Program has all areas focused on the environment. For NFI a “safe and sustainable food supply” means seafood from water to TABLE. Because many of us work in offices and rush home in hopes of a tasty, quick to fix meal, that means food science has been at work. Your website notes that, “With international seafood imports on the rise, and fish diseases and contamination escalating, the safety of our seafood is a growing concern.” The Board should know that between 2005 and 2010 there were 2,348 illnesses attributed to all imported food and a mere 141 of those were from seafood. None was from aquacultured seafood. Our tables are safe, though continued vigilance is ever in order.

The Board itself has no one representing the processing side of the seafood industry and therefore no perspective on what it takes to get seafood out of the water, processed and prepared for the consumer to serve. NFI is not suggesting the environment where fish live be ignored. What we are recommending is a partnership to understand and enhance water to table, but we are concerned not even partnerships listed on your website mention anything to do with processing the harvest from the sea. And there is a harvest. Your website notes that, “The rising demand for seafood, coupled with the decline of many U.S. fisheries, has led to a seafood trade deficit of \$9 billion per year.” NFI commends the great job that NOAA has done in managing U.S. fisheries and has them on track to be the best managed in the world. NOAA has made sure the supply of U.S. fisheries is not declining.

Given the situation I have described, NFI asks for continued dialogue on funding research at our Sea Grant colleges not only for fisheries management but for seafood science and technology. Industry government partnerships are often the best means to advance science. The NFI’s Seafood Industry Research Fund sponsors \$150,000 a year in applied research. This is a humble amount not intended to replace what government agencies can do. If Americans are to follow the USDA Dietary Guidelines recommendations on seafood consumption, we’ll need to couple programs in fisheries management and seafood science and technology. Together we can feed Americans and keep them healthy by eating seafood, the best source of omega-3s.

Thank you for your time and attention, and I hope we can indeed continue to dialogue.

Christina DeWitt, Oregon State University:

I am Christina DeWitt, Director of the Oregon State University Seafood Research and Education Center (Sea-REC), and a seafood scientist. I am testifying in front of this Committee because of my concern about the disinvestment of this critical field over the past decade. I would first like to highlight some of the successes from seafood science and education because of Sea Grant support over the years. This includes the development, training and implementation of Seafood HACCP for the industry during the 1990s which continues to this day. This was a tremendous achievement and demonstrated the importance of collaboration among Sea Grant extension, the FDA and the seafood industry in creating a program for the national good. The Seafood HACCP program is now viewed as a model for other food systems to use as they implement the new food safety regulations under the FDA Food Safety and Modernization Act. There were many other Sea Grant funded research programs such as surimi work done at North Carolina and Oregon State Universities which laid the foundation of a billion dollar industry in the U.S. and throughout the world. Seafood science programs at Alaska, Oregon, Louisiana, Florida, North Carolina, Delaware, Rhode Island and many other states (including now closed programs in Washington, California, Massachusetts, and Texas) helped local industries address problems in safety, new product development, smoked fish, shrimp processing, marketing and a host of other issues. This solid interaction between science and industry created an excellent foundation for the evolution of the industry and an understanding of the use of science-based information for economic growth and financial stability of rural counties where fisheries play an important role. We should also not overlook the work of Sea Grant funded faculty and programs at universities that dedicated their research and education efforts in working with industry and the consumer in communication of the important health benefits and risks in seafood consumption.

I am concerned that this work and these linkages are not getting the necessary focus and support by Sea Grant and other national funding agencies when the need for seafood research and education is as great as ever. There is inadequate investment and understanding of fisheries and aquaculture as integrated food systems producing more than \$5 billion dollars in economic benefits. The importance of fish in the diet, as demonstrated in the news last week of the impact of the ‘Mediterranean Diet’ in the reduction of coronary heart disease is one example of the role that seafood education can play in improving the health of the nation. Yet despite these benefits, U.S. per capita consumption of seafood is lower today than 30 years ago. Issues around seafood safety, such as histamines in scombroid fish, still require research to ensure the safety of the catch. Post-harvest reduction of fish waste,

nutraceuticals, innovative processing technologies, and traceability through DNA analysis, are all cutting edge fields that should be supported through Sea Grant programs.

I am concerned that the disinvestment in seafood science is also occurring at the university level where administrators feel that programs that lack opportunities in research/education funding are a low-priority and vulnerable for budget cuts. This vicious circle results in faculty not being replaced, education programs not being continued and a disruption of an important pipeline of well-trained young people into the seafood industry. This is especially critical today when students are showing renewed interest in food systems related disciplines. We should remind ourselves that fisheries, their sustainability and environmental impacts, depend on an economically sound seafood industry that can supply the consumer with safe and wholesome seafood products. This is best achieved through strong and innovative research and seafood programs supported by Sea Grant which should continue to fund seafood science as they have done in the past.

Discussion:

Dr. DeWitt said there are a lot of projects that she and her colleagues are still working on, however they are seeing programs stop at a significant pace. The problem is they can't go after USDA because they are supposed to get money from NOAA and NOAA has stopped supporting seafood research. When you don't get the funding, you aren't supported by your local university. They are in a tenuous position because they are the only food system that can't access seafood funds. They have to leverage what Sea Grant is doing and bring USDA in. Seafood science needs a way to compete for funds and there is no competition. Dr. Cammen asked about the FDA. Dr. DeWitt replied they don't support other research only their own. It is only USDA and Sea Grant. Dr. Stubblefield asked if the FDA could pass money to Sea Grant to fund their research. Senator Birkholz suggested they look into the Farm Bill. Mr. Schmitt and Dr. Kim both discussed the concern with the government moving away from seafood and who has been affected. Dr. Cammen will set up a meeting to continue the conversation.

Vote for New Nominating Committee (N. Rabalais, NSGAB)

Rabalais (Chair), Schmitt (Vice Chair), Simmons, Stubblefield

Motion to approve-Vortmann, 2nd Baker, all in favor.

Motion approved.

The Nominating Committee will nominate the next set of officers, including chair, vice chair and member at large.

Motion for recess- Simmons, 2nd Baker, all in favor.

Motion approved.

Joint Session with Sea Grant Association-Open to Public

SGA President's Report (L. Swann, SGA)

Paul Anderson (Director, Maine Sea Grant) was elected as chair for the External Relations Committee.

ERC Report-Budget Presentation-Joel Widder

Programmatic Request for \$70M-Ask for support.

It was asked if education programs would be consolidated into the Department of Education. There needs to be more clarification on what is meant by consolidation. Everyone needs to be more careful about advertising Sea Grant as a major education activity until we know the nature of the consolidation plan. A discussion followed on the funding and cap. It was asked by Sea Grant Directors to talk to stakeholders and try to get them to interact with delegation using the template created, and to share a copy of the letter so they can keep track of who they are sent to. Karl Havens also requested to have a copy of the letter and who signed it to keep track of which states are involved as well as any response.

Update on the NSGAB (N. Rabalais, Chair, NSGAB)

The SGA agreed there needs to be more time for discussion because there isn't during their meeting. They discussed creating a committee on metrics and would like to work with the NSGAB. It was noted that OMB would look over impacts which is a good idea because they feed directly into the Biennial Report to Congress. It is useful when going on the Hill or speaking to the State Legislatures.

NOAA Research Update & Discussion (R. Detrick & C. McLean)

Dr. Detrick noted the connections everyone present makes with local communities in their various regions and effectiveness in translating the science that we do into forms, tools and information through our various stakeholders at the local community level. It is integral to maintain the support of NOAA research. Dr. Detrick commended Sea Grant officers that were involved in Super Storm Sandy. They offered great advice on how to be resilient. That is great work that makes it so well regarded within NOAA.

Budget Updates:

Dr. Detrick stated in Sea Grant we try to protect our people, not only federal. We have tried to maintain our core mission capabilities. We've tried to portion the cuts between internal and external in proportion to their size in our budget. The spending plan is now going through the approval process. We won't be doing anything immediate between now and March 6, 2013. The FY14 budget request hasn't been released yet and we expect it to be presented to Congress towards the end of the month. NOAA received \$380M from the Sandy supplemental which serves a variety of different purposes. The most that is relevant to OAR was \$50M for lab and cooperative institutes for sustained observations, weather predictions, ocean and coastal research. We solicited input from our labs, cooperative institutes and programs for ideas as to how we could address the language in the bill. There was a lot of great feedback. We took those ideas and developed a spending plan that addresses those issues. That spending plan has also gone forward to Congress and OMB and eventually will find its way to the Hill for approval around March 15, 2013.

Reauthorization:

Dr. Detrick noted it is not too early to think about reauthorization. We would like this to move forward. We really need to know what our FY14 budget is going to look like and the long term impact before we get into further discussions.

NOAA SAB R&D Portfolio Review Task Force:

Dr. Detrick explained this is a review of NOAA's research portfolios. The review is nearly completed and we're expecting it to go out for public comment. We have taken those comments seriously and expect to present to the Science Advisory Board in March. NOAA will have a year to respond to recommendations.

5-Year Research and Development Plan:

Dr. Detrick noted the intent was to develop a plan from 2013-2017. The plan is now available for public comment at www.nrc.noaa.gov/plans.html. It will not be finalized until we have the final portfolio review.

Goals:

Dr. Detrick discussed the four main goals in NOAA's next generation Strategic Plan.

Dr. Rabalais noted many coastal and marine researchers around the US would say she is pleased to hear you say equitability between internal and external. She feels external has been taking a lot of cuts and not just sequestration. The more we continue to engage the better off we will be. Dr. Detrick replied it is a commitment he has made within OAR. A member of the SGA asked how we can better integrate research across NOAA. Sometimes activities going on in other line offices don't recognize the resources that the Sea Grant Program can provide them. Dr. Detrick replied he thinks it is second nature to us to think of Sea Grant when thinking of engaging stakeholders, sometimes that doesn't always happen. It is something we need to work on. We try sometimes and I have heard Captain McLean discuss using the Sea Grant Program in meeting other line office planning objectives. It is important to try and talk and make connections, but we also need to show where we can help.

NOAA Leadership Update (K. Sullivan, Acting Administrator, NOAA)

Dr. Sullivan reported it is imperative to look at what NOAA does and show how it is important to the nation. There is a plethora of needs, constituents and voices in the coastal zone. The challenge is to find themes that we all need and want together. When we can find that, all of our voices come across to stakeholders and funders. That is something we need to continue to have dialogue on with the SGA. It needs to be something that we build and share together.

Messaging Opportunities:

Dr. Sullivan said that events of the past year have provided a fresh and novel opening and has reawakened a level of interest in NOAA and new audiences that can engage and help in new ways. Super Storm Sandy in particular has shifted the debate in our arenas. We are moving into a different era and need more robust solutions. We have the ability to create conversations from civic to national and get ideas on where to build and what science we need to forward our discussions. Dr. Sullivan applauded Sea Grant for the help received after Sandy. That is a real proof of value that will stand the test of time.

Budget Outlook-FY14 and Sequestration:

Dr. Sullivan assured everyone they are looking and working as hard as they can internally. They share the perception that the budget shown in FY 13 isn't a good balance. We heard a lot of opportunities that help the effected region and build better resiliency.

Swearing in of New Board Members:

Dr. Sullivan provided the Oath of Office to the new National Sea Grant Advisory Board members: Dale Baker, Paulinus Chigbu, Rosanne Fortner and Amber Mace. (All members had previously been sworn in prior to the start of the Board Meeting on 3/4/13.)

The joint meeting of the National Sea Grant Advisory Board and Sea Grant Association was adjourned.

National Sea Grant Advisory Board (NSGAB) Fall Meeting
September 23-24, 2013
Meeting Minutes

Stone Lab, Gibraltar Island, Ohio
878 Bayview Avenue
Put-in-Bay, Ohio 43456

Monday, September 23, 2013

10:00 AM-Introductions, review agenda, approval of minutes, etc. (R. Schmitten, Vice Chair, NSGAB)

Roll Call:

Board Attendees present: Rolland Schmitten, Rosanne Fortner, Richard West, Dale Baker, Patricia Birkholz, Harry Simmons, Richard Vortmann, Paulinus Chigbu, Frank Beal, Michael Orbach, Leon Cammen (*Ex-Officio*).

National Sea Grant Office (NSGO): Elizabeth Ban (Designated Federal Officer), Nikola Garber, Sami Grimes.

Other Attendees:

LaDon Swann-President, Sea Grant Association (SGA)

Jeffrey Reutter- Director, Ohio Sea Grant

Christopher Winslow-Assistant Director, Ohio Sea Grant

Frank Lichtkippler- Extension, Program Lead Coordinator, Ohio Sea Grant

Jill Jentes- Assistant Director, Communications Coordinator, Ohio Sea Grant

Holly Bamford- Assistant Administrator, National Ocean Service

Jennifer Maggio-National Sea Grant Office, Contractor, 2020 Company, LLC.

March Draft Minutes (No Approval)

Mr. Schmitten tasked Dr. Chigbu and Dr. Fortner to review the minutes and send changes to Ms. Ban, in one week. The March 2013 minutes will be approved at the 2014 Spring Meeting.

Chair Update (R. Schmitten, Vice Chair, NSGAB)

Mr. Schmitten commemorated Dr. Nancy Rabalais, Chair, NSGAB on a recent published article on her career. He reported Ex Mayor Jeremy Harris resigned from the Board and Dr. Amber Mace will be able to attend the Spring meeting, after minor surgery. A thank you was given to Dr. Jeff Reutter and the Ohio Sea Grant staff for hosting the National Sea Grant Advisory Board meeting.

Mr. Schmitten reported the new National Sea Grant College Program website is active and has a lot of information on what is happening within Sea Grant, the staff, Federal Advisory Committee Act, etc. He recently participated in Sea Grant's Town Hall Meeting where a report to the Sea Grant community was given by Dr. Leon Cammen. There were a few minor technical glitches, but otherwise well done and informative. Mr. Schmitten asked everyone to mark their calendars

for Sea Grant Week, September 8-12, 2014 in Clearwater Beach, FL. Mr. Schmitten thanked Ms. Ban and Ms. Maggio for an excellent job in putting the meeting together.

National Sea Grant Office (NSGO) Report (L. Cammen, NSGO)

Topic: Year in Review: Social Science Initiative; Completion of Sea Grant Network.

Admiral West asked Dr. Swann if coherent area programs can be a part of the Sea Grant Association (SGA). Dr. Swann replied yes, by Charter.

Topic: FY2013 Performance Measures and Metrics handout

Dr. Stubblefield asked if the economic benefits are credible between jobs created or retained. Mrs. Grimes replied every program was asked how they measured their jobs created or retained. If it wasn't credible their number wasn't included. Sea Grant is trying to better define their performance metrics. All of the metrics were reviewed by the Performance Metrics Committee and are expected to create firmer definitions. Admiral West recommended the Biennial Report include a handout with a hyperlink to better define where the numbers came from and what criteria is used.

Topic: Year in Review: 4-Year Performance Review; Sea Grant's New Website; Congressional Briefings.

Sea Grant's Budget: Mr. Vortmann asked if the \$57.3 M included the entire Sea Grant budget; and if research projects funded for graduate students are included in STEM. Dr. Cammen replied, yes. He noted education, including Knauss, is not required or mandated; it's something we "may" do, but not have to do. Sea Grant's proposal in the upcoming reauthorization is to change "may" to "shall" and strengthen the mandate for education. It may help defend the education program. In order to do that, the proposed legislative changes have to go through OMB, which may help us get their attention.

Sea Grant Association Update (LaDon Swann, SGA)

Topic: The Focus of the SGA; Potential (Sea Grant); Sea Grant as Business; The Role of Marketing in a \$20 M Expansion;

Dr. Swann noted the SGA has a budget to conduct briefings on the Hill. They have worked with Senator C.J. Hess, Rachel Silverstein and Catherine Barrett, who organized the briefings

Emily Smail from Senator Wicker's office asked Dr. Swann if Sea Grant would be interested in managing a hazards resilient portal. Dr. Swann told her yes, but wasn't sure where it would lead. He thinks a lot of people are starting to recognize Sea Grant. Dr. Orbach asked if there was a timeline for the plan. Dr. Swann replied, the end of the year.

Mr. Vortmann asked how many offices the SGA visited a year, and if the idea was for each member to visit their own delegations. Dr. Swann replied the SGA visits all the offices within their delegation. In particular, Dr. Swann visited 7 offices last year in DC.

Planning, Implementation & Evaluation (PIE) Program Assessment Committee Report, Discussion and Vote (S. Grimes, NSGO; R. West, NSGAB)

Topics: Committee; Review process; Sea Grant Planning & Evaluation History, Review of the NOAA National Sea Grant Office; Sea Grant PIE Requirements from Legislation; Overall Committee Assessment of the 2010-2013 PIE Process; Planning; and Implementation.

It was discussed that the focus teams are expensive and time-intensive for the programs. Dr. Swann noted, as co-chair of the Hazards Focus Team, there are a couple of things the teams did really well, such as the stories that fed the State of Sea Grant Report. Dr. Cammen noted the original intent was to develop a National Plan and put together a group of people to look at a section of that plan. It was to get the network involved and give them authority and responsibility. Dr. Orbach asked about making focus areas specifically regional. Mrs. Grimes responded, the focus teams have functional areas and regions in each, which made them larger. The idea is to have a co-chair and someone from the national office.

Evaluation: Admiral West noted there are several documents to review in order to make an evaluation/assessment into a 4 year program and network evaluation. Mrs. Grimes stated that the idea is use one, general board that is made up of external evaluators. They look at the site visit, NSGO annual review and then the Performance Review Panel (PRP) materials. All of this information will be a part of the 4 year evaluation.

Dr. Cammen noted the site visits are still a part of the process because directors have said that they like the feedback. They provide management recommendations and all programs have improved. Mr. Simmons noted that it provides the opportunity to see if they are actually doing what they are reporting on.

Dr. Cammen noted these are all good suggestions. We need to streamline the process and focus on exactly what is different here and what the intent is. The next step is to actually hear from the rest of the directors.

Motion by Mr. Vortmann: Approve the recommendations of the PIE Assessment Committee Report and forward to Dr. Cammen.

2nd Mr. Simmons, Vote: 1 opposed (Dr. Orbach), 9 approved.

Motion approved.

Virginia Sea Grant (VASG) College Status Report, Discussion and Vote (H. Simmons, NSGAB)

Mr. Simmons noted the committee consisted of himself, Dr. Fortner, Dr. Chigbu, Dr. Stubblefield and overseen by Mr. Carlson from the NSGO. A formal letter was sent to Dr. Nancy Rabalais on their recommendation from the committee. Mr. Simmons noted, previously the Virginia program was decertified and has since then started a new structure, which includes 2 other universities.

Mr. Simmons listed several highlights from the committee's visit. He stated that VASG has strong support from the institutions that were present and are held in high regard. The program has a Virginia Coastal Policy Program partnership that gives law students hands on experience. They have relationships where they work with other federal and state agencies. The committee believes these relationships are very strong. VASG is meeting or exceeding expectations in their PRP report.

Motion by Mr. Simmons: Approve the Virginia Sea Grant College Status Report Committee's recommendation to be certified as a Sea Grant College and forward recommendation to Dr. Cammen.

2nd Mr. Beal; Unanimous approval.

Motion Approved.

Discussion of morning topics (R. Schmitten, NSGAB)

Mr. Schmitten reviewed morning topics.

- Mrs. Grimes and Ms. Ban will work to make sure they have solid definitions on how they get their metrics and measures with hyperlinks.
- Dr. Fortner, Mrs. Berg and Ms. Ban are involved in working on an education communication product. It will discuss what Sea Grant does in STEM education and how it is an integral part in the program.
- Dr. Swann requested 2 NSGAB members to be a part of the Growth Committee. Roles and responsibilities will need to be defined for the committee. Mayor Simmons was selected and Mr. Schmitten and Dr. Rabalais will also assist.

Ohio Sea Grant Presentations

Presentation by Dr. Jeffrey Reutter, Director, Ohio Sea Grant.

Presentation by Dr. Christopher J. Winslow, Assistant Director, Ohio Sea Grant.

Presentation by Jill Jentes, Assistant Director, Ohio Sea grant Communications.

Presentation by Frank Lichtkippler, Ohio Sea Grant Extension.

Sea Grant Reauthorization Planning (L. Cammen, NSGO; R.Schmitt, NSGAB)

Mr. Schmitt reported the previous committee consisted of Senator Birkholz, Mr. Simmons and himself. The current Sea Grant Reauthorization is until 2014 and the new reauthorization is expected to be complete this year. The NSGAB has been notified from the Senate that the process has started and they have requested information from the NSGO, NSGAB and SGA. Mr. Schmitt responded on behalf of the NSGAB that no agreement has been made. Those on the Hill need a response right away. The current committee is comprised of Dr. Rabalais, Dr. Stubblefield, Mr. Schmitt, Senator Birkholz, Mr. Simmons and Dr. Garber.

Dr. Swann noted the SGA met with the House and discussed going back in December to talk to OMB and some others, but there have been no decisions yet. Dr. Swann believes that it is imperative that SG is reauthorized. Mr. Vortmann asked if there is intention to provide a draft to the Hill staff on our changes. Mr. Schmitt replied, yes and a committee will put together a document.

Dr. Cammen reported the Sea Grant Office needs reauthorization. If it is not, then that would be putting the program at risk. He met with both NOAA Legislative Affairs and committee staff and has heard nothing but good feedback. Everyone at NOAA with whom he has spoken thought it was a good idea to do it. If it looks like the reauthorization might fail, the proposed legislation can be withdrawn.

There are 4 items that the NSGO is recommending:

- 1) Revise Knauss language to: The Secretary *shall* award marine policy fellowships;
- 2) Remove annual reporting requirements on new Sea Grant states (network is completed)
- 3) Remove 5% administrative cap
- 4) Add \$25M for regionalization projects

Mr. Vortmann asked for an explanation of regional and the purpose of changing the legislation. Dr. Cammen replied we already have the discretion to do that, but the change would be funding specific to implement the regional plans we have. It would be exempt from the matching requirement. Match funding has been one of the constraints for some programs.

The Board said that the NSGO, NSGAB and SGA should come to a consensus. Dr. Cammen noted last time we had a few joint meetings with the congressional staff, NSGAB and SGA in the same room and laid what was agreed upon and what wasn't. They left it up to the congressional staff to sort it out. It was a transparent process. Mr. Schmitt noted that it is desirable to be as closely aligned with the others as possible. He would like to have two people make presentations to the SGA. Mr. Schmitt suggested that he and Dr. Stubblefield visit the Hill, and Mr. Vortmann and Admiral West report to the SGA.

Dr. Cammen handed out and reviewed the documents: Sea Grant FY 2015-2020 Reauthorization Discussion document and the Impact of the Administrative Cap on the NSGO (attached) . Dr. Cammen would like to let the SGA know what the administrative cap is costing the network in

terms of missed opportunities due to the lack of staffing in the NSGO. Dr. Swann agreed with the justification on how to remove the cap from the Allocation Committee report.

Dr. Cammen noted Sea Grant programs have the same pressures that the NSGO have: they have to go out and find money, manage programs, but they don't have a cap. It is up to the discretion of the program director to determine the necessary amount for administrative costs. If you look at the history of what Sea Grant programs spend on their administration, their budget is going up. The NSGO doesn't have the authority to make the same decisions.

Mr. Schmitten asked if the NSGAB was in harmony in their position with the other parts of Sea Grant. Admiral West noted the NSGAB's decision has been documented twice. Mr. Schmitten noted that removal of the cap was rejected both times and perhaps the argument needs to be strengthened to change that.

Discussion of afternoon topics and wrap-up (R.Schmitten, NSGAB)

NSGAB Assignments:

Knauss Selection Panel: Dr. Fortner and Mr. Beal

SG Reauthorization committee: Mr. Schmitten, Chair; Senator Birkholz, Dr. Rabalais, Mr. Simmons, Dr. Stubblefield, Dr. Garber (NSGO).

VA College Status review committee: committee excused.

Biennial Report Committee: Mr. Baker, Senator Birkholz, Dr. Mace, Dr. Garber (NSGO), Admiral West (only as needed), Mr. Schmitten (Ex-Officio). Dr. Fortner volunteered to be Chair.

Nominating Committee: Mr. Schmitten

PIE Assessment Committee: Admiral West and Dr. Stubblefield (Dr. Orbach will be excused)

Performance Metrics Committee: Dr. Rabalais.

Explore ways to get funding with no formal charge from Dr. Cammen. Mr. Vortmann nominated Dr. Mace for Chair. It was asked to Ms. Ban if this would be an external 501 C3 to raise funds for Sea Grant programs. Ms. Ban will check past meeting minutes. Dr. Stubblefield recommended Mr. Simmons fill in if need be. Mr. Simmons replied he will be a member of the committee, but will not take lead.

SGA Growth Committee: Mr. Simmons (Dr. Rabalais and Mr. Schmitten will be there for representation when needed)

NOAA Science Advisory Board Meetings: Admiral West and Dr. Stubblefield (backup)

Senior Research Council: Dr. Cammen and Admiral West (backup)

Board representative for Sea Grant Week 2014: Mr. Baker.

Board representation for the new Focus Areas Starting January 2014:

Resilient Communities and Economies: Mr. Simmons and Dr. Mace

Healthy Coastal Ecosystems: Mr. Baker and Dr. Chigbu

Sustainable Fisheries and Aquaculture: Dr. Orbach

Environmental Literacy and Workforce Development: Dr. Fortner and Dr. Chigbu

Communications representative: Mr. Harry Simmons

Extension representative: Mr. Baker

Education representative: Dr. Fortner

Important Upcoming Dates:

2014 NSGAB Spring Meeting, Feb 27-28, 2014

2014 SGA Spring Meeting, March 11-12, 2014

2014 NSGAB Fall Meeting and Sea Grant Week, Sept 8-12, 2014

September 23, 2013

9:00 AM- 3:00 PM—Open to Public

Allocation Committee Report, Discussion and Vote (D. Vortmann, NSGAB, L. Cammen, NSGO)

Presentation presented by Mr. Vortmann. *AC-3 Committee Members; Director's Charge; AC 2's Principles; Recommendations; Unresolved Issues; Concluding Summary; Preserve a Program in Every State; "Needs Based"; Minimum Allocation to Each State; Regional Research; Merit Pool; Total Direct Allocation to States; and Impact of Inflation and Declining Purchasing Power of Budget Appropriations.*

Impact of Declining Purchasing Power of Budget Appropriations: Mr. Simmons asked under the current set-up, how many states are getting less than \$800 K. Mr. Stubblefield replied, 2 programs and that a committee did a study in 2002 which concluded that \$800K is the lowest amount for sustaining programs. Dr. Cammen said the current minimum established for a program was \$1.2 M and the decision was made by ranking the programs and finding the medium.

Dr. Stubblefield noted both Admiral West and Mr. Vortmann did a great job in coming to a consensus for the PIE and Allocation Committees. Mr. Vortmann mentioned the SGA members were actively involved.

Motion by Mr. Simmons: Approve the Allocation Committee Report as presented to the Board and forward to Dr. Cammen. 2nd Dr. Fortner.

Vote: Unanimous Approval.

Motion approved.

National Ocean Service Reorganization, (Holly Bamford, NOAA)

Mr. Schmitten introduced Dr. Bamford.

Dr. Bamford noted there have been a lot of changes that have impacted coastal programs, budget and developed core mandated priorities.

NOS Internal Assessment; Summary: NOS Internal Changes; Cross-cutting Priorities (Handout); Coastal Preparedness, Response, Recovery and Resiliency; Coastal Intelligence Network; and Coastal Partner Roundtable.

Mr. Stubblefield noted to Dr. Bamford her overview was very informative. Coastal intelligence, she mentioned is one of the functions of harbor pilots coming in and ask if it is different from the PORTS (Physical Ocean-graphic Real Time System) project years ago? Dr. Bamford replied the PORTS project is the foundation of the Coastal Intelligence network. Sensors are placed within a port to provide real time to a pilot navigating into the port including time, current, space, etc. A majority of the sensors are owned and operated by NOAA and the CO-Ops (Center for Operational Oceanographic Products and Services) Program.

NOAA is expanding PORTS to ingest more information. Dr. Stubblefield noted Dr. Bamford mentioned Norfolk and sea level rise. There was recent discussion about the awareness of Norfolk and tide water area and how Virginia Sea Grant plans to respond to sea level rise. This would be a marvelous partnership between what you are offering and the tide water officials. Dr. Bamford agreed and noted DOD has been working on this.

Mr. Schmitten asked Dr. Bamford how the coral program is doing. Dr. Bamford replied the program and budget are doing well and they still have an executive board run by a program manager at NOS. Dr. Swann asked Dr. Bamford how they will sustain programs like block grants in the future, given the fiscal climate. Dr. Bamford replied that in order to move forward NOS will need to build a consortium agreement with partners, and figure out how to align the dollars towards a common goal. NOAA needs to collectively look at the resources we are putting out and how they intersect.

Dr. Swann asked Dr. Bamford if she would like to speak to the SGA during the March 2014 meeting. Dr. Bamford replied she would like to talk to the SGA and she will also be following up with Dr. Cammen and see if Sea Grant would like to be a part of the monthly Coastal Partner Roundtable. Mr. Schmitten and Dr. Stubblefield thanked Dr. Bamford for her time and presentation.

Mission of the National Sea Grant Advisory Board (D. West, NSGAB; E.Ban, NSGO)

Ms. Ban gave a brief presentation to the Advisory Board on their rules, regulations and mission.

Ms. Ban noted business meetings are not under FACA rules because we are not providing advice to NOAA. Dr. Cammen pointed out that if anything is not done according to FACA, Ms. Ban is responsible, not the Board. Her main job as the DFO is to ensure compliance with FACA and the Government in the Sunshine Act.

Ms. Ban noted the Charter is required for us to operate as a Board and developed by the agency. DOC can and does frequently change things we put into it. Mr. Schmitten pointed out the Charter has to be resubmitted every two years in order to extend the Board. Ms. Ban replied there is no end date for this Board. The Board exists until Congress says otherwise. The current charter is good until September 2014. Revisions need to be submitted by April for approval.

Mr. Baker asked what the difference is between the panel and advisory board. Dr. Cammen replied when Sea Grant was established that was when the National Review Panel was established and served in the function of technical review of Sea Grant science projects. The Review Panel would go out and do site reviews. Admiral West said that the Board should request their current duties and responsibilities be put in the legislation.

Nominating Committee Slate, Discussion and Vote (H.Simmons, NSGAB)

Ms. Ban noted there are 3 positions to fill. The new appointees are as follows:

- Chair: Mr. Schmitten.
- Vice Chair: Admiral West (one year). Ms. Ban noted there will need to be a vote during the Fall 2014 meeting to replace Admiral West for a 1 or 2 year term.
- Member at Large: Mr. Beal

Motion by Mr. Beal: Vote on the new appointees. 2nd Dr. Fortner

Vote: unanimous approval.

Motion approved.

Public Comment Period (R.Schmitten, NSGAB, E.Ban, NSGO)

There were no public attendees or submitted public comments.

Biennial Report to Congress Discussion (D.West, NSGAB; N.Garber, NSGO)

Biennial Report Subcommittee: Rosanne Fortner (Chair) Rollie Schmitten (ex-officio), Dick West, Dale Baker, Patty Birkholz, Amber Mace, Dennis Nixon – Rhode Island Sea Grant, Diana Payne – Connecticut Sea Grant, Jeff Reutter – Ohio Sea Grant, Mark Wiley – New Hampshire Sea Grant, Kola Garber - NSGO

Dr. Fortner shared the next steps for the Biennial Report to Congress with the Board:

- Read 2010 and 2012 reports and decide if contents/layout/format is ok
- Think of new themes to focus on (Sandy, STEM, Completion of SG Network, Reauthorization, PIE, AC3, New Recommendations & Responses)
- Get impacts from Focus Teams (after receiving them from Gabe/Hank)
- Assign sections for review/rewriting
- Check into online options to reduce need for printed copies
- Focus Areas – Use new and old. New plan, so use that as organization everything will fit in new headers even though it will be reported under new Focus Areas
 - six impacts from each focus area
- Call late October

Sea Grant Education Impacts (R.Fortner, NSGO)

Dr. Fortner reported, the Sea Grant educators' network created a plan to strengthen Sea Grant education. Dr. Fortner explained that there isn't enough information on how effective STEM education is within Sea Grant. She reviewed the recommended President's Budget initiative that would consolidate federal education programs.

Dr. Fortner made several proposals to improve and strengthen Sea Grant Education.

- 1) Every program should meet specific criteria, so they aren't on the chopping block when the budget is reviewed. In order to start a program in education or to continue, an educator should be able to come up with literature justification of what they want to do or a needs assessment amongst their target audience or surveys.
- 2) The need for Sea Grant education programs must be made clear. In our advisory service, we make sure our Sea Grant agents are transferring the results of research to an audience; the same thing should be done with education. Someone should say why they need Sea Grant dollars and this should be tied to what is happening in Sea Grant.
- 3) Educators and programs need to demonstrate impacts beyond a count of participants and estimated indirect effects. What we don't know is how they use their information and how it effects their learning cycle. Once we have the information, we need a publication of the evaluation results in an appropriate form. Not all of our educators have this expertise, but it does exist in this network. It will come down to writing a proposal for what you want to do.

Dr. Fortner proposed an ad hoc or subcommittee to get ideas on how to stabilize Sea Grant education programs that are effective and make them visible when the budget comes out again.

This type of information needs to be readily available and also something that should be included in the Biennial Report.

Ms. Ban noted she is working with Mrs. Chelsea Berg on an education document with Dr. Fortner and Diana Payne of Connecticut Sea Grant.

Sea Grant Reauthorization Planning Continued (L. Cammen, NSGO; R. Schmitten NSGAB)

Mr. Schmitten asked the Board if they would like to take action in supporting the 4 items laid out by Dr. Cammen prior to going to the Hill, or delay. Mr. Schmitten reviewed the 4 items suggested.

**Motion by Mr. Schmitten: To support the 4 items reviewed by Dr. Cammen.
2nd Dr. Stubblefield, 10 approved.
Motion approved.**

Closing Remarks

Mr. Schmitten thanked everyone who attended the meeting. Dr. Orbach thanked the NSGO staff for the great job they did with the PRP process.

3:00 – Meeting Adjourned

Bios:

Rolland Schmitten, Chair, National Sea Grant
Advisory Board

Dr. Leon Cammen, Director, National Sea Grant
College Program

- NSGO Response to PIE Assessment
Recommendations

Dr. LaDon Swann, President, Sea Grant Association





Rollie Schmitt (Chair)
Leavenworth, Washington

Rolland A. (Rollie) Schmitt has been a natural resources manager for the past 38 years; focusing on marine fish and mammals for the last 25 years. He has served as the Washington State Director of Fisheries. The federal (National Marine Fisheries Service) West Coast Regional Director of 6 states; the National Director of Marine Fisheries; the US Department of Commerce Deputy Assistant Secretary for International Affairs (NOAA), and the National Director of Marine Habitat Conservation. During his career he served 4 presidents with Presidential appointments as the: US Tuna Commissioner, US Atlantic Salmon Commissioner, and served 10 years as the US International Whaling Commissioner. Among his many awards and recognitions include: Presidential Merit Award, Trout Unlimited Washington Sportsman of the Year, Presidential award for outstanding achievement of a Vietnam veteran, and the Department of Transportation (USCG) Commandant's Award for Meritorious Public Service. In 2005, Mr. Schmitt retired and moved back to Sockeye Point Lodge in Washington State where he continues to work on marine and fresh water resource issues.



Dr. Leon Cammen
Director, National Sea Grant College Program

Dr. Leon M. Cammen is the Director of NOAA's National Sea Grant College Program. Since joining Sea Grant in 1990, Dr. Cammen has been a Program Officer for about half the state Sea Grant Programs and has served as Research Director. From 2004 to 2010, he was the Program Manager for NOAA's Ecosystem Research Program, a matrix program that includes the programs and laboratories from OAR, NOS and NMFS that deal with coastal and ocean ecosystem research.

Prior to joining Sea Grant, Dr. Cammen was a research scientist at Bigelow Laboratory for Ocean Sciences in Maine. His research interests include benthic ecology, the microbial loop, respiratory physiology, benthic-pelagic coupling, and ecosystem modeling. Dr. Cammen has authored over 30 publications in the fields of marine ecology and biological oceanography

Dr. Cammen received his Ph.D. in Zoology from North Carolina State University in 1978. He carried out postdoctoral research as a National Research Council Canada Fellow at the Bedford Institute of Oceanography, as a NATO Fellow at the Institute of Ecology and Genetics of Aarhus University in Denmark, and at Skidaway Institute of Oceanography. In addition, he has been a visiting scientist at Odense University in Denmark and a visiting professor at Aarhus University, teaching Marine Ecology and Microbial Ecology.

National Sea Grant Office's Responses to the Planning, Implementation and Evaluation Process Report February 2014

The National Sea Grant College Program (NSGCP) Director charged the National Sea Grant Advisory Board (NSGAB) to assess the lessons-learned from the 2010-13 Planning, Implementation and Evaluation (PIE) cycle. Since this was the first time through all elements of the PIE system, the NSGCP Director wanted to capitalize on an opportunity to look back at the entire PIE process and make improvements where needed.

The NSGAB developed a subcommittee (PIE Assessment Committee) with membership from the Advisory Board, Sea Grant Directors and the National Sea Grant Office (NSGO). This committee developed a report that was approved by the NSGAB during their September 2013 meeting.

Below lists the Recommendations found in the PIE Assessment Report (Appendix A), and the NSGO responses to those recommendations.

Planning

Recommendation P-1: The NSGCP should continue initiating a broad National Network Strategic plan based on National Ocean Policy and NOAA top-down mission requirements. Once this national plan is complete, the Programs will then develop their own plans based on this broad national strategic plan. The individual programs will receive approval of their strategic plan from the NSGO.

Response: *Top-down and bottom-up information shape the direction of the National Sea Grant College Program Plan. The National Sea Grant Office (NSGO) will continue to initiate a broad National Network Strategic plan based on top-down mission requirements, and continue getting network input into the National Plan. Once the National Plan is complete, the Programs will then be able to complete their planning cycle and submit a final plan to the NSGO for approval.*

Recommendation P-2: Minor changes in program plans do not need to be approved by the NSGO. Adjusting performance measure targets should be *strongly* discouraged. Programs should contact the NSGO for proposed changes to their individual plans to address only *significant* emerging or unexpected issues (e.g., Hurricane Sandy, Gulf Oil Spill, or irradiation of a new aquatic invasive species).

Response: *The NSGO agrees. Minor program plan changes do not need to be submitted to the NSGO. For example, Programs that set targets that are not reached can explain why on an annual basis through their annual reports. This saves time for both the Program and the NSGO.*

Implementation

Recommendation I-1: The NSGCP Director should find more efficient ways to accomplish each of the four tasks currently given to the large focus teams [1) Catalyze cooperative efforts among Sea Grant programs, the NSGO, NOAA, other agencies and stakeholder organizations, and NGO's; 2) Identify new opportunities and directions for Sea Grant national and regional initiatives; 3) Provide a mechanism to further solidify Sea Grant's local, regional, and national identity; and 4) Facilitate planning, implementation, synthesis and reporting of Sea Grant activities and accomplishments].

Examples of Teams that could perform these tasks could include:

- An external panel,
- Smaller, more narrowly directed Focus Teams,
- A NSGAB subcommittee, or
- NSGO staff (redirected from other efforts).

Response: *Since the NSGO staff resources are limited, the focus teams were designed to provide the expertise and manpower needed to accomplish the four tasks. In practice, though, the teams only had time to accomplish the last task. The NSGO is looking at ways to redirect some of the current efforts to address/concentrate on tasks 1-3.*

Evaluation

Recommendation E-1: Integrate annual reviews, site visits, and an external evaluation panel into an overall four-year evaluation process.

Recommendation E-5: The results of the annual reviews should be included in the program's four-year evaluation process.

Recommendation E-7: The site visit report should be included as an influential input to the program's four-year evaluation.

Response: *Annual Reviews, Site Visits and External Evaluations together are integrated in the PIE system in order to form a comprehensive four-year evaluation process. However, each element has a specific and unique role to play in the process.*

The Site Visit reviews focus on the operations (program management, stakeholder engagement, and user connections) and represents how the programs function internally. The performance review panels, on the other hand, focus on what the Programs have produced/accomplished and represent a look from an external perspective. The performance review panels are intended to use external experts to look at the actual results of the Programs' work. The annual reviews focus on the Sea Grant Programs' progress toward their four year plans. Through annual reviews, the NSGO identifies areas of concern and helps the Programs with their responses. These reviews serve as a continuous evaluation of the programs and help prepare them for a four-year external review.

The Program evaluation elements (site visits, performance review panel, and annual reports) within PIE had two goals: (1) to improve the performance of all Sea Grant programs and (2) to reward the best performing programs. Annual Reviews and Site Visits are intended to identify areas where

improvement is needed and provide suggestions to enhance performance without the pressure of any scoring or rating, whereas the external evaluation panels are to identify the highest performing programs. Merit funding based on the performance review panel scores are used to reward those Programs that have a high return on the federal investment.

The NSGO does not agree that the annual reviews and site visits should be part scored and factored into the four-year evaluation. The primary purpose of these reviews is back and forth communication with the NSGO/Programs and Program improvement. The NSGO believes Sea Grant will be better serve if each program performance is rated by an external body of experts.

Recommendation E-2: Continue on-going, joint, NSGO/SGA efforts to improve NSGO annual reporting guidance, particularly the definitions of performance measures and metrics.

Response: *The NSGO agrees and has made progress and continues to make progress in improving program guidance and to improving definitions for a more comprehensive understanding of both performance measures and metrics.*

Recommendation E-3: The format of the PIER outputs should be improved to enhance usability across the various reporting and performance evaluation needs across the network.

Response: *The NSGO agrees and is looking at improving PIER reports to be more accessible and user-friendly.*

Recommendation E-4: We encourage constructive feedback between the NSGO program officer and the Sea Grant program to ensure continued improvement and cooperation. The committee feels this is an important step to improve the annual review process which should be included as input to the four-year evaluation. The role of the program officer should be that of a liaison (honest-broker), communicating with programs.

Response: *The NSGO agrees that constructive feedback between the Program Officer and the Sea Grant Program should take place to ensure continued improvement and cooperation. The purpose for the Annual Reviews is for NSGO to review and discuss the Programs' annual reports (and any other relevant information). This gives the NSGO an opportunity to review the Programs' progress towards their plans and provide them with constructive feedback to ensure continued improvement. Annual Reviews also gave the NSGO staff and NOAA an opportunity to learn more about each individual Sea Grant Program and what Programs can and have accomplished on an annual basis. As previously stated above, the NSGO does not agree that the annual review should be scored and factored into the four-year evaluation. The primary purpose of the annual reviews is communications and program improvement.*

Recommendation E-6: The program Director should be invited to all segments of the NSGO annual reviews for their program.

Response: *The majority of the Annual Reviews are open to the Sea Grant Network and to the public. However, the NSGO reserves a short period for a closed session. The NSGO believes it is important to have a short period closed to the public and to the Network to discuss issues that came up during the review, to bring lessons learned and issues that are common with other programs, and to compare and contrast various approaches to solve issues and that similar between programs. The intent is to assist programs improve through this continuous annual review process.*

Recommendation E-8: With inclusion of the site visit reports in the four-year evaluation process, there should be new training and guidance developed, for the NSGAB, the NSGO and individual programs, on how the site visit will be used in the evaluation process.

Response: *Although the NSGO does not agree the site visit reports should be given to the external panels, we do agree that training and guidance to the NSGAB, the NSGO and Sea Grant Programs is important. The NSGO will host a series of webinar-type meetings prior to the next round of site visits.*

Recommendation E-9: The committee recommends the PRP be replaced with the external evaluation panel.

Recommendation E-10: The committee supports the concept of all programs being evaluated simultaneously every four years by a 'National Sea Grant External Evaluation Panel' to evaluate each individual program in the following categories:

Program Director's Impact Report	50%
Site Review Team (SRT) Report	35%
Annual Review Summary	15%

- The external evaluation panel should be comprised of members from the NSGAB, NOAA, other State/Federal Agency Officials, and leaders from academia/industry.
- The NSGCP Director, in consultation with the NSGAB and Sea Grant Directors, shall develop guidance for producing the three documents as well as evaluation/rating criteria to be used by the external evaluation panel.
- Limitations should be set on the volume of material presented to the National Sea Grant External Evaluation Panel:
 - Program Director's Impact Report should not exceed 15 pages.
 - Directors should explain how their program accomplished their individual Sea Grant program plans.
 - The SRT Report should not exceed 10 pages.
 - The NSGO program officer Annual Review Summary:
 - A brief presentation, and
 - Annual review summary memorandums (should not exceed 6 pages).

Response to Recommendation 9 & 10: *The NSGO agrees with the committee that a four-year external evaluation of performance is a critical element of the evaluation process. The recent four-year performance evaluation was conducted by separate expert panels – one for each focus area. The committee recommends these expert panels be replaced with a single panel, and the NSGO does not agree with this recommendation. Sea Grant program activities are diverse and cover an array of issues. Having four separate panels allows for a stronger review since they can focus on impacts and accomplishments that are within their area of expertise.*

The NSGO agrees the amount of materials presented to the external reviewers needs to be limited. Programs can still submit an additional report, as the committee recommends, but there are several different approaches to constraining the material being considered.

For reasons listed above under the response to Recommendation E-1, E-5 and E-7, the NSGO does not believe Annual Reviews and Site Visit reports should be part of the external evaluation panel score.

Recommendation E-11: The External Evaluation Panel will give each program a rating, which should be used by the NSGCP Director to determine merit funds.

Response: *The NSGO agrees that external evaluation panels are responsible for rating each program, and the ratings will be used to help the NSGCP Director determine Program merit funds. The NSGO is also considering ways to increase the impact of merit funding by either increasing the size of the merit funding and/or altering the formula that converts the Program rating into funding amount.*

Recommendation E-12: The committee feels that a mid-cycle review (year three) is the best option to allow proper time for the previous cycle's research accomplishments to become impacts and External Evaluation Panel results to be synthesized by the start of the next cycle. Site visits should occur in years one and two.

Response: *The NSGO agrees and plans to continue the planning, implementation and evaluation cycle as it currently stands where a program implements their plan for four years, and then is evaluated against that plan two years later (ensuring more time is given to actualize some of the program impacts from that planning and implementation cycle).*

APPENDIX A

National Sea Grant Advisory Board Assessment of Sea Grant's Planning, Implementation and Evaluation Process Report September 2013

I. Introduction

Charge to the National Sea Grant Advisory Board

The National Sea Grant College Program (NSGCP) Director charged the National Sea Grant Advisory Board (NSGAB) to assess the lessons-learned from the 2010-13 Planning, Implementation and Evaluation (PIE) cycle. Capitalizing on the completion of this first cycle of the PIE process, the NSGAB should base recommended revisions for the 2014-17 cycle by reviewing what worked well and what did not from the 2010-13 cycle.

The NSGAB developed a subcommittee (PIE Assessment Committee) with membership from the Advisory Board, Sea Grant Directors and the National Sea Grant Office (NSGO).

This committee reviewed all PIE guidance and informational documents, which included feedback from the Performance Review Panels and Site Visit panelists, the Sea Grant Network, and a Sea Grant Association survey on the entire PIE process. When reviewing materials and making any recommendations, the committee ensured that the PIE process met standing legislative requirements:

- National Network should have a strategic plan (Legislation – 1123D2a)
- All programs must have a four year plan that establishes priorities for the National Sea Grant College Program (Legislation – 1123C1)
- All programs must implement their plans (Legislation – 1126D1)
- All programs must be evaluated (Legislation – 1123D3a)
- Every two years – the NSGAB is to report to Congress on the progress made toward meeting the priorities identified in the National Network plan (Legislation – 1128B2)

Overarching Findings

After several weeks of document reviews and conference calls, followed by an in-person meeting, the committee agreed with the following as overall guidance for their PIE assessment:

The Planning, Implementation, and Evaluation (PIE) process has a good structure and meets the recommendations from the 2006 National Research Council Report, *Evaluation of the Sea Grant Program Review Process*. The first cycle was largely successful; however, it was too big and costly. The committee also found that all the components of the evaluation process were not well integrated into an overall assessment of the individual Sea Grant programs (programs) or the Sea Grant network.

II. Findings and Recommendations

Below are recommendations to improve the efficiency of the current PIE process without compromising the ability to evaluate programs and the overall Sea Grant network.

PLANNING

Findings

The National Sea Grant College Program (NSGCP) has a rigorous and thorough planning process at both the National and program level. Currently, planning at the National and program level happens simultaneously, with programs needing to ensure their plans align with the National Network plan. This simultaneous timing of the plans can be confusing and require significant additional work to ensure this alignment.

In the current planning process, programs are required to request permission from the National Sea Grant Office (NSGO) to make changes to their strategic plans. This requires time and effort from both the program and the NSGO for minor changes (i.e., changes in personnel and funding), and is inefficient.

Recommendation P-1: The NSGCP should continue initiating a broad National Network Strategic plan based on National Ocean Policy and NOAA top-down mission requirements. Once this national plan is complete, the programs will then develop their own plans based on this broad national strategic plan. The individual program will receive approval of their strategic plan from the NSGO.

Recommendation P-2: Minor changes in program plans do not need to be approved by the NSGO. Adjusting performance measure targets should be *strongly* discouraged. Programs should contact the NSGO for proposed changes to their individual plans to address only *significant* emerging or unexpected issues (e.g., Hurricane Sandy, Gulf Oil Spill, or irradiation of a new aquatic invasive species).

IMPLEMENTATION

Findings

Implementation happens at different levels within the National Sea Grant Program. At the National level, activities are organized into focus areas. Focus areas are managed by focus teams.

The original expectations of these Focus Teams were to:

1. Facilitate planning, implementation, synthesis and reporting of Sea Grant activities and accomplishments;
2. Identify new opportunities and directions for Sea Grant national and regional initiatives;
3. Catalyze cooperative efforts among Sea Grant programs, the NSGO, NOAA, other agencies and stakeholder organizations, and NGO's; and
4. Provide a mechanism to further solidify Sea Grant's local, regional, and national identity.

These tasks are important and should be continued. Currently, for various reasons (including budget constraints) these tasks are not being fully met. The focus teams are large (64 members) and

geographically dispersed. Focus Team contributions to the Sea Grant mission have been limited with most of the participation done by the Sea Grant Fellows and Focus Team Chairs and Vice-Chairs. Our committee recognizes that these Sea Grant mission tasks should reside within the NSGO, but the NSGO currently lacks the capacity to address all four expectations.

Recommendation I-1: The NSGCP Director should find more efficient ways to accomplish each of the four tasks currently given to the large focus teams. Examples of Teams that could perform these tasks could include:

- An external panel,
- Smaller, more narrowly directed Focus Teams,
- A NSGAB subcommittee, or
- NSGO staff (redirected from other efforts).

EVALUATION

Findings

The current evaluation process of the individual Sea Grant programs includes annual reports from the programs, an annual NSGO review, a program site visit, and performance review panels. During the annual review, the NSGO reviews the programs' annual reports, site visit reports, and performance review panel findings and any programs' responses. The site visits review the performance of the programs in three areas: 1) program management and organization, 2) stakeholder engagement, and 3) collaborative network/NOAA activities. The performance review panels evaluate the results (impacts, accomplishments and success of reaching performance measures) of the programs. The site visits and performance review panels are conducted once during the four-year evaluation cycle. These evaluation processes are compartmentalized and not fully integrated into the overall evaluation of the program.

Recommendation E-1: Integrate annual reviews, site visits, and an external evaluation panel into an overall four-year evaluation process.

Annual Reports

Findings

The committee finds the annual report a necessary part of the PIE process, and an important part of the program evaluation. On an annual basis, programs submit a report to the NSGO. These annual reports include impacts and accomplishments, and progress towards performance measures and metrics. All annual report information is currently submitted by the programs into a database known as PIER (Planning, Implementation and Evaluation Resource). Thus, the PIER outputs assume a much higher priority than simply tracking database input. Annual Reports can track progress; however, they should not be the only source of data for the overall program evaluation process.

The annual report serves as an 'annual review of programs' and also serves as a performance progress report for the purpose of grant renewal.

Recommendation E-2: Continue on-going, joint, NSGO/SGA efforts to improve NSGO annual reporting guidance, particularly the definitions of performance measures and metrics.

Recommendation E-3: The format of the PIER outputs should be improved to enhance usability across the various reporting and performance evaluation needs across the network.

Annual Review Process

Findings

The annual review conducted by the NSGO is an important process to assess each program on an annual basis. This is an opportunity for the programs to work closely with the NSGO program officer to demonstrate annual results through their annual report. The NSGO also includes the site visit report, the performance review panels' findings and ratings, and program responses in the year the annual review is conducted. However, the results of these NSGO reviews are not included in the four-year evaluation process that affects merit funding. There are portions of the NSGO annual review process that are closed to the programs.

Recommendation E-4: We encourage constructive feedback between the NSGO program officer and the Sea Grant program to ensure continued improvement and cooperation. The committee feels this is an important step to improve the annual review process which should be included as input to the four-year evaluation. The role of the program officer should be that of a liaison (honest-broker), communicating with programs.

Recommendation E-5: The results of the annual reviews should be included in the program's four-year evaluation process.

Recommendation E-6: The program Director should be invited to all segments of the NSGO annual reviews for their program.

Site Visits

Findings

The site visit proved to be a valuable part of Sea Grant program assessment. The site visit team meets with the program management team, advisory committees, and university administration to review and discuss broad issues related to 1) program management and organization, 2) stakeholder engagement; and 3) partnerships with the Sea Grant Network and NOAA. There is network consensus on the success of the site visits; however, the site visit reports have not been adequately integrated into the overall four-year evaluation process.

Recommendation E-7: The site visit report should be included as an influential input to the program's four-year evaluation.

Recommendation E-8: With inclusion of the site visit reports in the four-year evaluation process, there should be new training and guidance developed, for the NSGAB, the NSGO and individual programs, on how the site visit will be used in the evaluation process.

Performance Review Panel

Findings

The current performance review panels (PRPs) assess the impacts of the program by focus area. The simultaneous performance review of all programs by the same panelists allow for consistent rating within panels. However, due to the amount of material provided by the programs, the review was very labor intensive. The impacts were not prioritized by the programs, which made it difficult for the reviewers to evaluate their relative importance in their program goals. Separating program results into focus areas assessed by separate PRPs was perceived as inhibiting a consistent scoring across the four focus areas. An analysis of the performance review scoring however showed no significant difference between panels.

The impacts across focus areas for the individual programs and the network were lost by separating the program results by focus areas.

Recommendation E-9: The committee recommends the PRP be replaced with the external evaluation panel.

Recommendation E-10: The committee supports the concept of all programs being evaluated simultaneously every four years by a 'National Sea Grant External Evaluation Panel' to evaluate each individual program in the following categories:

Program Director's Impact Report	50%
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Annual Review Summary	15%

- The external evaluation panel should be comprised of members from the NSGAB, NOAA, other State/Federal Agency Officials, and leaders from academia/industry.
- The NSGCP Director, in consultation with the NSGAB and Sea Grant Directors, shall develop guidance for producing the three documents as well as evaluation/rating criteria to be used by the external evaluation panel.
- Limitations should be set on the volume of material presented to the National Sea Grant External Evaluation Panel:
 - Program Director's Impact Report should not exceed 15 pages.
 - Directors should explain how their program accomplished their individual Sea Grant program plans.
 - The SRT Report should not exceed 10 pages.
 - The NSGO program officer Annual Review Summary:
 - A brief presentation, and
 - Annual review summary memorandums (should not exceed 6 pages).

Recommendation E-11: The External Evaluation Panel will give each program a rating, which should be used by the NSGCP Director to determine merit funds.

Timing of the External Evaluation Panel

Finding: The committee recognizes there are two guiding principles in a conceptual review framework:

1. A Sea Grant program should be evaluated based on its success over a full four-year strategic planning window.
2. A Sea Grant director needs to be informed about his/her projected funding level prior to planning for the next four-year Omnibus program.

Due to time restraints, it is impossible for a full review of a four-year Omnibus (strategic plan cycle) to occur immediately following a cycle and a determination of base/merit funding by the NSGCP Director prior to beginning of the next four-year cycle. It is more important for a program Director to know future funding levels for research, outreach and education work plan development, than to have an exclusive review of only a specific strategic plan window.

Recommendation E-12: The committee feels that a mid-cycle review (year three) is the best option to allow proper time for the previous cycle's research accomplishments to become impacts and External Evaluation Panel results to be synthesized by the start of the next cycle. Site visits should occur in years one and two.

III. General Recommendation

The NSGAB PIE Assessment committee recommends, with implementation of any or all of the NSGAB recommendations contained in this report, the NSGCP Director coordinate evaluation guidance with the Sea Grant Directors and the National Sea Grant Advisory Board.

NSGAB PIE Assessment Committee

NSGAB

Dick West - Chair
Dale Baker
Amber Mace
Bill Stubblefield

NSGO

Sami Grimes - co-Chair
Chris Hayes

SGA

Sylvain DeGuise, CT Program Director
Jim Hurley, WI Program Director



LaDon Swann
President, Sea Grant Association

LaDon Swann is Director of the Mississippi-Alabama Sea Grant Consortium (MASGC), and Director of the Auburn University's Marine Programs. He received BS and MS from Tennessee Technological University and a Ph.D. from Purdue University. LaDon is responsible for implementing practical solutions to coastal issues through competitive research, graduate student training, and extension and outreach and K-12 education in Alabama and Mississippi. LaDon also has over 26 years of experience designing, delivering and evaluating engagement programs addressing local, regional and national needs. LaDon is actively involved in regional engagement through the NOAA Gulf of Mexico Regional Collaboration Team, multiple Gulf of Mexico Alliance priority issues teams. During 2010 and 2011 LaDon served on the Oil Spill Recovery Commissions for Alabama and Mississippi, Gulf Coast Ecosystem Restoration Task Force, and served as a primary point of contact for NOAA's engagement efforts. In 2012 LaDon served on the Mississippi GoCoast 2020 oil spill recovery planning effort. LaDon is the President of the National Sea Grant Association, member of the Ocean Research Advisory Panel and co-chair of Sea Grant's Hazard Resilient Coastal Communities Focus Team. LaDon is also a past-president of the U.S. Aquaculture Association. LaDon's wife Roberta and sons, William and Gage, live near Dauphin Island, AL.

2014 Biennial Report Committee Update



Biennial Report to Congress 2014 Update

Committee membership:

Advisory Board Members: Rosanne Fortner (Chair), Dale Baker, Patty Birkholz, Amber Mace

SG Network: Dennis Nixon - RISG, Diana Payne – CTSG, Jeff Reutter – OHSG

Board Mentors: Nancy Rabalais, Rollie Schmitt, Dick West

NSGO: Elizabeth Ban, Nikola Garber, Jennifer Maggio

Editor: Ruben Stemple

Update:

The committee has met once in person (Fall 2014 Advisory Board meeting at Ohio Sea Grant's Stone Lab) and held three teleconferences (11/22/13, 1/6/14 and 2/18/14).

The Committee will have editorial assistance from Ruben Stemple who volunteered to assist with the report. He served as editor for the 2012 reports as well. The Committee is grateful for his time.

The committee has agreed to use a similar layout and the same sections as the 2012 report. The sections are as follows:

Letter from the Sea Grant Advisory Board Chair

Executive summary

Introduction

Response to 2012 recommendations

Sea Grant model

National Focus Areas (2009-2013)

Current activities

- Allocation Committee 3 (AC3) and SGA responses
- Reauthorization
- STEM Consolidation response
- Climate adaptation
- Sea Grant post-tropical depression Sandy response
- Social science, especially economics
- Planning, Implementation and Evaluation (PIE) and metrics
- Partnerships

Realizing Sea Grant's potential

- AC3 here?

Outlook and recommendations

Appendices:

- List of Sea Grant Programs
- Link to reports
- Sea Grant Program impacts
- 2013 performance measure and metrics

Timing for Report:

Draft sections due – April, 2014

Final Text due – July, 2014

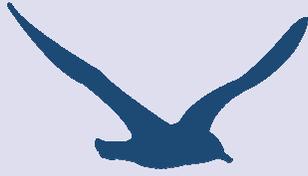
Layout due – Early August, 2014

Final version for Fall Board meeting due – September 1, 2014

Fall Board meeting – September 7-8, 2014

Print/Upload to website – October 1, 2014

Send to Hill – No later than November 1, 2014



THE STATE OF SEA GRANT 2012



Impacts, Challenges, Opportunities

Biennial Report to Congress by the National Sea Grant Advisory Board



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

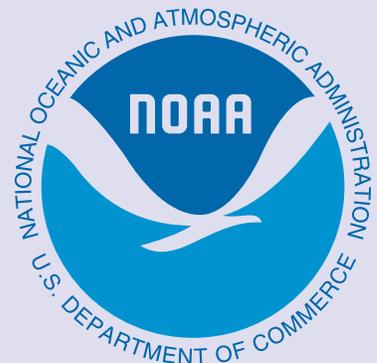


Maine Sea Grant



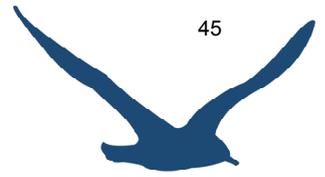
New York Sea Grant

Sea Grant



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

National Sea Grant College Program Biennial Report Committee Members

- Rear Admiral Richard D. West, U.S. Navy (Ret.), Committee Chair
- Dr. Nancy N. Rabalais, Professor, Louisiana Universities Marine Consortium
- Dr. Michael K. Orbach, Professor, Nicholas School of the Environment, Duke University
- Frank Beal, Executive Director, Chicago Metropolis 2020, former president, Ryerson International Inc.
- Dr. Gordon Grau, Sea Grant Association, Director, University of Hawai’i Sea Grant

Ex Officio Committee Member

Dr. Nikola Garber, National Sea Grant Office

National Sea Grant Advisory Board Members

- Dr. Nancy N. Rabalais, Chair, Executive Director and Professor, Louisiana Universities Marine Consortium
- Frank Beal, Executive Director, Chicago Metropolis 2020, former president, Ryerson International Inc.
- Senator Patty Birkholz, Director of the Michigan Department of Environmental Quality's Office of the Great Lakes, former MI State Senator
- The Honorable Jeremy Harris, Former Mayor, Honolulu, Hawaii; Member, National Academy of Science Adaptation to Climate Change Panel
- Dr. Michael K. Orbach, Professor of Marine Affairs, Nicholas School of the Environment, Duke University; Cultural Anthropologist
- Rolland A. Schmitt, Vice-Chair, Former Director, National Marine Fisheries Service (Ret.); former Deputy Assistant Secretary for International Affairs, NOAA
- The Honorable Harry Q. Simmons, Jr., Mayor, Caswell Beach, North Carolina; President, American Shore and Beach Preservation Association
- The Honorable Dr. William L. Stubblefield, Rear Admiral, NOAA (Ret.), former Director, Office of NOAA Corps Operations; former Executive Director, NOAA OAR
- Richard Vortmann, Past President, National Steel and Shipbuilding Co. (Ret.); Chair, Scripps Health
- Rear Admiral Richard D. West, U.S. Navy (Ret.); President Emeritus, CORE; former Oceanographer of the Navy

Ex Officio Advisory Board Members

- Dr. Leon M. Cammen, Director, National Sea Grant College Program
- Dr. Jonathan R. Pennock, President, Sea Grant Association, Director, New Hampshire Sea Grant

Biennial Report Staff

- Amy Painter, editor, National Sea Grant Office
- Amy Scaroni, graphic designer, National Sea Grant Office
- Ruben Stemple, editor
- Carol Mason, editor, Oregon State University





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.”

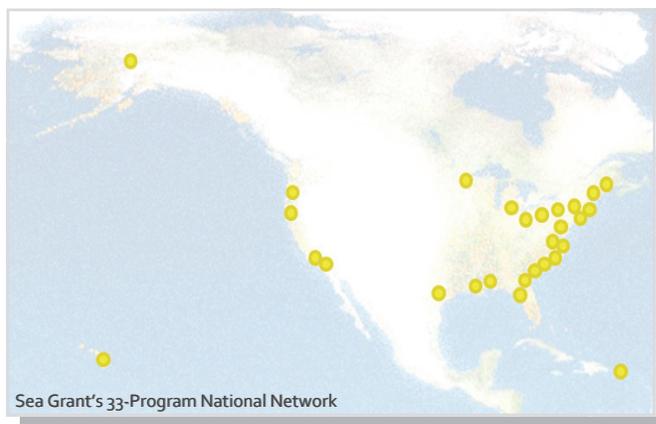
THE REPORT RESPONDS TO RECOMMENDATIONS OFFERED IN “THE STATE OF SEA GRANT 2010,” PROVIDES UPDATES ON ACTIVITIES OVER THE LAST TWO YEARS, HIGHLIGHTS SOLID PROGRAM ACCOMPLISHMENTS, MAKES RECOMMENDATIONS FOR THE FUTURE AND SUGGESTS SPECIFIC FUNDING GUIDANCE.

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).



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:

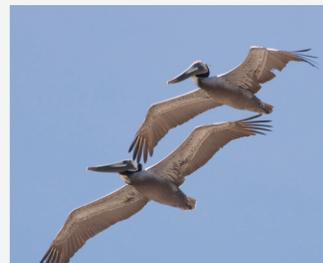
- 1) Hazard Resilience in Coastal Communities
- 2) Healthy Coastal Ecosystems
- 3) Safe and Sustainable Seafood Supply
- 4) Sustainable Coastal Development



A COMMITTEE OF ADVISORY BOARD MEMBERS REVIEWED AND COMMENTED ON EACH OF THE PROGRAM PLANS TO ENSURE NOAA'S NATIONAL GOALS WERE ADDRESSED.



University of Southern California Sea Grant



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.



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:



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.



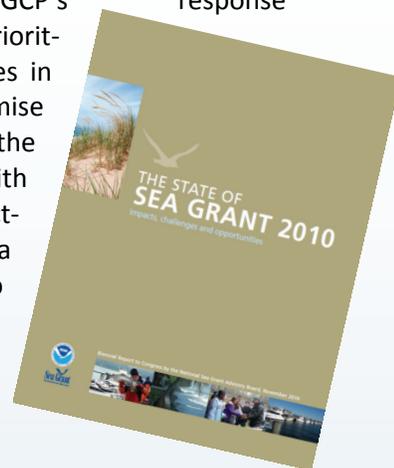
Sea Grant is advised by the National Sea Grant Advisory Board and supported by the Sea Grant Association (SGA), an association of the academic institutions that serve as host institutions for Sea Grant programs.

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.



- 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.



Biennial Report Recommendations

- 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

- 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.



Virginia 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

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



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.





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.

CURRENT ACTIVITIES

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.



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.



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 geo-spatial 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.



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.

REALIZING SEA GRANT'S POTENTIAL

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.

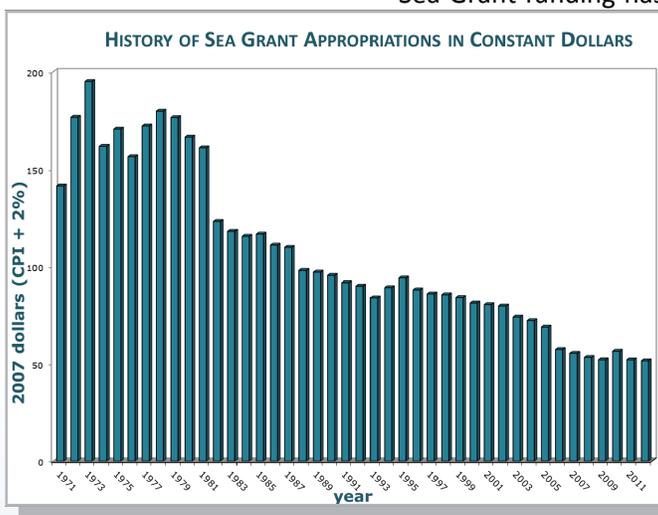
Administrative Cap

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.



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.



- 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.





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

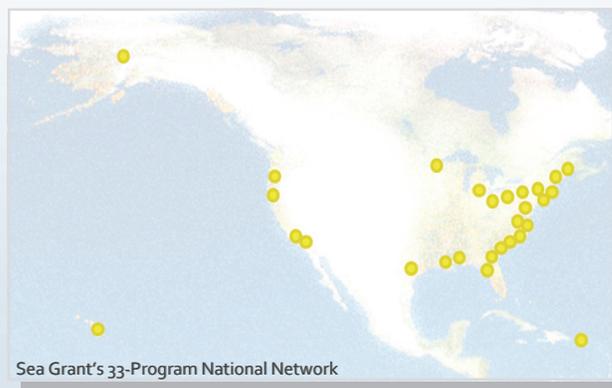
Florida Sea Grant College Program
 Georgia Sea Grant College Program
 North Carolina Sea Grant College Program
 Puerto Rico Sea Grant College Program
 South Carolina Sea Grant Consortium

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



APPENDIX II.



The following reports are referenced in this document.

The State of Sea Grant 2010, Biennial Report to Congress, 2010

http://www.seagrants.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.seagrants.noaa.gov/other/admininfo/documents/0209_stratplan.pdf

Allocation Committee Recommendations, National Sea Grant Advisory Board, 2011

http://www.seagrants.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.seagrants.noaa.gov/other/admininfo/Legislation/SG%20Reauthorization%20-%20FY2009-14.pdf#page=13>

National Sea Grant Performance Measures and Metrics

<http://www.seagrants.noaa.gov/other/admininfo.html>

Sea Grant Research: A Report of the National Sea Grant Advisory Board, Sea Grant Advisory Board, 2009

http://www.seagrants.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.seagrants.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.seagrants.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.seagrants.noaa.gov/other/rit/NRC_evaluation.pdf

Sea Grant: Training America's Marine, Coastal and Great Lakes Scientists

http://seagrants.soest.hawaii.edu/sites/seagrants.soest.hawaii.edu/files/publications/noaa_seagrants_alumni_brochuretrifold.pdf

APPENDIX III.



Sea Grant Program Impacts

<http://www.seagrants.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



NSGO

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



Guam Sea Grant

HAZARD RESILIENCE IN COASTAL COMMUNITIES

- 450** Communities trained in resilience
- 150** Communities improved resilience



Florida Sea Grant

RESEARCH

- 230** Proposals funded
- 400** Peer-reviewed publications



Alaska Sea Grant

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



Michigan Sea Grant

SUSTAINABLE COASTAL DEVELOPMENT

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



Louisiana Sea Grant

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

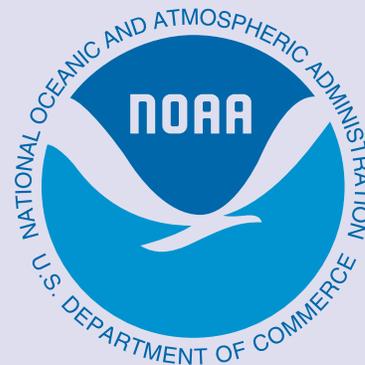


North Carolina Sea Grant



Georgia Sea Grant

Sea Grant



October 2012

Bio:

Dr. Robert Detrick, Assistant Administrator for
NOAA Research



Biography of Dr. Robert Detrick
Assistant Administrator of OAR

Dr. Robert Detrick is the Assistant Administrator (AA) of NOAA's Office of Oceanic and Atmospheric Research (OAR) and chair of the NOAA Research Council. He is responsible for daily operations and administration of NOAA's research enterprise including a network of research laboratories and academic partnerships, and the execution of NOAA programs including the Climate program, National Sea Grant, and Ocean Exploration. He joined NOAA in February 2012.

A marine geophysicist, Dr. Detrick has extensive experience in marine science, technology, and marine operations. Before joining NOAA, Dr. Detrick was Director of the National Science Foundation's Division of Earth Sciences. He joined NSF in 2008 following more than 20 years at Woods Hole Oceanographic Institution (WHOI), where he was a Senior Scientist and Vice President for Marine Facilities and Operations.

Dr. Detrick's research focused on aspects of marine geology. He lists more than 100 scientific publications on the seismic structure of mid-ocean ridges and oceanic crust, the size, depth, and properties of ridge crest magma chambers; and the nature of mantle flow beneath mid-ocean ridges and relationship to ridge segmentation and axial topography.

A Fellow of the American Geophysical Union, Detrick received the A. G. Huntsman Medal in 1996 which honors "marine scientists who have had and continue to have a significant influence on the course of marine scientific thought."

He has participated in more than 30 major oceanographic cruises, 18 as Chief Scientist or Co-chief Scientist. He was Co-principal Investigator for WHOI's ocean bottom seismic instrumentation laboratory which builds and operates ocean bottom seismometers for the U.S. National Ocean Bottom Seismic Instrumentation Pool. He was Senior Principal Investigator on WHOI's NSF-funded project to build a replacement for WHOI's Deep Sea Research Vessel *Alvin*.

Dr. Detrick has served on and chaired committees and panels for various international and national organizations including the RIDGE Steering Committee (Chair from 1992-1995), the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES) Executive Committee of the Ocean Drilling Program (Chair from 1996-1998) and the NSF Geosciences Advisory Committee (Chair 2004-2005). He was a member of the Board of Governors of Joint Oceanographic Institutions (JOI) (1995-2007) and chaired the JOI Board from 2002-2004. He is a Past President of AGU's Tectonophysics Section and is chair of the International Continental Drilling Program Assembly of Governors.

He holds a bachelor's degree in geology and physics from Lehigh University (1971), a master's degree from the University of California, San Diego in marine geology (1974), and a doctorate from the Massachusetts Institute of Technology/WHOI Joint Program in Oceanography (1978).

A native of Pittsburgh, Pennsylvania, he lives on Capitol Hill in Washington, DC.



Public Comments



Allocation Committee Update



Dick Vortmann
2-16-2014

SEA GRANT ALLOCATION COMMITTEE 3 - STATUS UPDATE

*(This status report is solely the work of Dick Vortmann, Chair of AC 3. It has **not** been vetted by AC 3, but is presented here to facilitate understanding of the situation and to stimulate discuss thereof*

1. **The AC 3 Report approved at the September SGAB meting was presented by Dick Vortmann to the SGA at their October 2013 meeting in Mobile, Al.**
 - a. The presentation stimulated substantial discussion by the SGA members
 - b. The SGA members had been apprised of the report's recommendations and the resulting Proforma specific dollar impact on their respective programs in advance of the meeting. Thus the programs which would see a decrease in funding were "loaded for bear" and did their best to undermine the report's recommendations rather than having a meaningful discussion on the components of the recommendation. This prevented constructive discussion with members of SGA, a point made by some of the Directors after the presentation.

2. **In November, I had a telephone conversion with LaDonn Swann, Chairman of SGA.**
 - a. He outlined the essence of what SGA would be counter proposing in relation to AC 3, as follows:
 - i. "do no harm" to the existing big programs
 - ii. increase all small programs up to \$1.2M by utilizing the NSGO's strategic initiative monies (other than what is "directed" by Congress) and the Merit budget if the strategic initiatives money is not sufficient
 - iii. distribute any "increase" in total budget based on needs criteria
 - iv. Spread any decreases in total budget based on needs criteria (I am not sure if LaDon initially said this or I led the witness here).

3. **In December the SGA formally responded to Leon Cammen on the AC 3 Report.**

- a. The SGA stated that they **agreed** with the following key premises of AC 3:
- i. Maintain the national network (i.e. a program in every state)
 - ii. Preserve the sea grant model (i.e. the “three product model” – Research, education and extension/outreach)
 - iii. Fund state programs that are:
 1. needs driven
 2. competitive and merit based
 3. achieve stable funding to manage each state program
 4. encourage regional collaboration
 5. Retain program director discretion within each program (a point emphasized in the Board’s PIE review).
 6. Strive for a research portfolio that is 40% of total state budgets (*AC 3 called for 40% research to be **achieved** at each state program).*)
- b. SGA stated in their response that the National Sea Grant College Program Act calls out the following objectives:
- i. Promote healthy competition among sea grant colleges and institutions
 - ii. Encourage collaborations among sea grant colleges to address regional and national objectives
 - iii. Ensure successful implementation of sea grant programs
 - iv. To the maximum extent possible, provide a stable base of funding for sea grant colleges and institutes
 - v. Encourage and promote coordination and cooperation between the research, education, and outreach programs of the Administration and those of academic institutions
 - vi. Encourage cooperation with Minority Serving Institutions
 - vii. Ensure compliance with established merit review guidelines

- c. SGA stated AC 3 fails to address this Congressional guidance and instead makes extensive use of formulas and arbitrary programmatic set-asides. SGA feels the AC 3 perpetuates the purported problem that SG is a so-called “state block grant program”. However the above two SGA statements are simply not supported by the facts, as summarized below (the following listing corresponds to the above points raised by SGA)
- i. AC 3 supports competitive awarded and merit pool (while SGA’ counterproposal reduces or eliminates such)
 - ii. AC 3 not only encourages regional collaboration, but actually mandates it to the level of at least 10% of total funding at each Program. AC 3 maintains the national initiatives whereas SGA reduces or eliminates them.
 - iii. This is a key underlying principle of AC 3
 - iv. This is a key underlying principle of AC 3
 - v. AC 3’s recommendations have no impact on this issue
 - vi. AC 3’s recommendations have no impact on this issue
 - vii. AC 3 restates how merit funding will be distributed, but does not opine on the criteria for the merit evaluation
- d. SGA believes that the Administration and the Congress intend for the SG program and the budget allocations to be based on a competitive, merit based approach.
- e. SGA made only one specific recommendation as an alternative to AC 3:
- i. that the NSGO redirect funding from regional and national activities (like national strategic initiatives) to those state programs that currently fall below the level considered necessary for the “successful implementation of sea grant programs”. SGA seemed to embrace (but did not explicitly so stated) the \$1.2 million minimum allocation to a program that AC 3 recommended.
 - ii. Significantly, this one recommendation stopped significantly short of the other elements LaDonn verbally conveyed to me back in November.

4. Observations on SGA's position

- a. SGA's position essentially maintains the current historic allocation basis (the long standing problem that AC 3 was attempting to remedy), but does increase all "small budget" programs up to a minimum level (as AC 3 recommended).
- b. While SGA says they embrace the principal of "needs driven" there is **no** reflection of "needs" in their proposal unless "needs" is now to be defined as the "need" to avoid any cuts to existing state funding. It is not clear how large the "minority opinion" is which would support "needs based".
- c. While SGA says they embrace competitive and merit based funding, their solution to achieve the minimum funding to each state is to reduce or eliminate the competitive national strategic initiatives efforts, and (unstated by SGA) if there is insufficient funds available in the national strategic initiatives, then the merit pool would also have to be eliminated. Elimination of the merit pool was unacceptable to the NSGO during AC 3 discussions.
- d. SGA stated that AC 3 perpetuates the purported problem that SG is a so-called "state block grant program". However, SGA's recommendation, by reducing or eliminating the monies awarded competitively by NSGO, makes SG appear even more like a state block grant program.

5. Recommendations

- a. I continue to believe the AC 3 report is the optimal solution to address this overall problem. However, if there is insufficient interest in implementing AC 3 then I suggest the following "fall back" position be considered in response to SGA's recommendation:
- b. First, accept SGA's notion of using NSGO money to increase all programs to the \$1.2m level. This effectively takes some funding away from the "big" programs for the benefit of the "small" programs (i.e. the big programs forego what they otherwise would have competitively won from the NSGO funding.)

- i. This is a step towards AC 3.
- c. Leave Guam and Lake Champlain at up to a maximum of \$400k each, depending on their stage of development. (Per AC 3).
- d. California and Massachusetts will have their two programs treated in the aggregate as one. (*SGA was silent on this point*). This formalizes one of AC 3's recommendations.
- i. Only one minimum \$1.2m to each of those states
 - ii. Below, where needs base is discussed, there is one needs base for the state which has to be divided up between the two programs within that state.
- e. As a new issue, give very serious thought to granting \$1.2m to each of the four states which currently are already regionalized into two regions (This was an oversight by AC 3, which did not consider this.).
- i. To restrict the two existing state regions to only one \$1.2m is surely a disincentive to further regionalize.
 - ii. I believe increased regionalization will become imperative in the near future and we don't want any disincentives to people embracing the idea
 - iii. But cap the dual \$1.2m allocation (i.e. the \$2.4m) at what ever the combined needs based formula would yield, i.e. we don't want to increase above the combined need based amount by giving them their two states worth of the minimum.
- f. Inflate the \$1.2m each year by the CPI, or the current problem will just gradually creep back (as per AC 3).
- g. Funding for these \$1.2M allocations will come from:
- i. First, any growth in the total budget above the nominal \$63M assumed in AC 3
 - ii. In other words, no program currently above the \$1.2M will receive any of the **increase** in the total Congressional appropriation until all the small programs are up to \$1.2m.

1. This was originally mentioned by LaDonn Swann but was not in SGA's formal response.
 2. This step would be consistent with AC 1's original recommendation; i.e. to fix the funding inequalities over time through use of the total budget growth
- iii. If there is insufficient monies from a larger than \$63M total budget to fund the \$1.2M minimums, then as SGA recommends, take the necessary funds from the National Strategic Initiatives (unless they are explicitly directed by Congress) and if still more funds are needed, take from the merit pool
- h. Importantly, if there is insufficient money in the "unrestricted" national office budget for national strategic initiatives and the merit pool, then still maintain the \$1.2m minimum to each program and fund that by deducting from the programs (and only the programs) that currently are above their Proforma needs based allocation. Such deductions will be done on the relative needs base amongst those programs.
 - i. Adopt the 90-10 coastal population-coast line as the needs based criteria (unless SGA can **agree** on some alternative which has a superior theoretical basis)
 - j. Agree that any **increase** in the overall total budget appropriation above what is needed to fund the \$1.2M minimums, would be distributed on the needs basis
 - i. however, very importantly, this extra allocation would be distributed, based on relative needs criteria, to only those programs whose base allocation is below their Proforma needs based allocation
 - ii. I.e. any program which would have been a "loser" under the AC 3 proposal because their current allocation exceeded their proforma needs basis allocation, would **not** participate in any of the total budget growth until all programs are brought up to their needs based amount based on the new total budget line.
 - iii. i.e. the AC 3 "loser" programs would not see any increase until the total budget line grew so significantly

that their current historic budget allocation was now less than the needs based allocation given the new total budget available

- k. Any **decrease** in the total budget would be deducted solely from all those programs whose historic budget allocation is in excess of what their Proforma needs based budget would be.
- l. Thus the programs who currently are below their needs based allocation would not suffer any decrease despite the total national budget having been decreased. Only the “losers” under AC -3 would suffer reductions.
 - m. This approach, with either increasing or decreasing total budgets, will gradually over time move programs closer to the needs based budget allocation. The “losers” under AC 3’s recommendation, who so vociferously rejected AC 3, will slowly get adjusted.
 - n. Still require the programs to devote 10 percentage points of the budget to regional research, managed by the programs, as recommended in AC 3.
 - o. To the extent that there is still money for a merit budget, administer this based on AC 3’s recommendation of relative program evaluations adjusted to reflect the needs based criteria.
 - p. Eliminate the 5% cap at NSGO (if new authorization language allows) as recommended by AC 3.
 - q. This process can be put in words more simply than can be administered with real numbers, but the mathematics are doable and will be defensible (and only have to be done once a year).
 - r. The merits of this suggested **modified SGA approach** is that it largely retains SGA’s “do no harm” concept (except in declining budget years where some programs take a reduction and others do not). **But more importantly:**

- a. This approach will immediately implement the “needs based” philosophy which was central to AC 3’s recommendation, albeit its full effect will materialize only very slowly, depending on total budget levels.
 - b. It will immediately get the small programs up to AC 3’s recommended minimum.
 - c. It implements AC 3’s call to “eliminate” the two programs in one state situation
 - d. It implements the CPI annual adjustment to the minimum funding.
 - e. It implements the mandated 10% for regional research
 - f. It calls for the removal of the 5% cap on NSGO
 - g. It is in keeping with our approach to the Sea Grant reauthorization.
- s. The problem with this overall approach goes back to the issue of eliminating the competitive national research awards and possible the merit pool
- a. If we think we can live with the potential heat from Congress, then this modified SGA proposal is much superior to the status quo

Focus Team Reports

Hazard Resilience in Coastal Communities

Healthy Coastal Ecosystems

Safe and Sustainable Seafood Supply

Sustainable Coastal Development



Hazard Resilient Coastal Communities 2013 Focus Team Report

BACKGROUND

Under the 2009-2013 National Strategic Plan (Strategic Plan), Sea Grant supports the following Hazard Resilient Coastal Communities (HRCC) national goals: 1) widespread understanding of the risks associated with living, working, and doing business along the nation's coasts; 2) community capacity to prepare for and respond to hazardous events; and 3) effective response to coastal catastrophes.

Annually, each Sea Grant (SG) Program submits short "impact statements" (impacts) via the National Sea Grant Office reporting process (PIER). Impacts describe significant and verifiable economic, societal and/or environmental benefits of SG work and how efforts have made a difference in the lives of coastal residents, communities, and environments. The impact reporting process has become an increasingly important means of enhancing visibility, demonstrating accountability, generating support and building a reputation as a focused, productive and successful program.

This 2013 Focus Team Report examined HRCC impacts that were produced in the 2012 reporting year of February 1, 2012- January 31, 2013. Examination of the impacts allows the Focus team to achieve the following objectives:

- 1) Assess SG's progress towards its strategic plan focus area goals and outcomes;
- 2) Identify national impacts that should be highlighted in communication products and reporting;
- 3) Pinpoint gaps to achieve the focus area goals outlined in the Strategic Plan; and,
- 4) Identify emerging issues and new opportunities for Sea Grant.



NETWORK PERFORMANCE

Since 2009, the Sea Grant programs have tracked the impacts and accomplishments associated with all four focus areas. These data are reported as a performance measure, as part of the Government Performance and Results Act¹ (GPRA). The data are then aggregated with NOAA OCRM & CSC, and supported by an accountability and reporting system (Coastal Resilience Report Card) to identify NOAA's contributing resilience activities, link contributions to annual progress, and tracks the long-term results of these efforts through progress indicators. In addition, information has been collected as to Sea Grant's successful efforts to assist coastal communities become more sustainable and resilient to natural hazards and disasters. The table below shows the number of communities (both new and recurring) that, between 2009 and 2012, received training or technical assistance in hazards resilience and improved hazard resiliency. The data suggest an increased trend since 2009, meaning that the Sea Grant network's activity has been successfully implemented.

HRCC Network Performance 2009-12		
	<i>Number of Resiliency Training/Tech Assistance provided to community members²</i>	<i>Coastal Communities with improved hazard resiliency³</i>
2009	620	160
2010	605	187
2011	451	145
2012	795	341

ORGANIZATION OF REPORT

SECTION ONE: The first and second objectives are reported and analyzed according to each of the three HRCC Goals. An introductory summary of findings is provided. Then, identified themes for each are goal are listed with the representative impacts statements.

SECTION TWO: The second section identifies previous and emerging gaps in Sea Grant's work. Gaps represent both the 2012 reporting year as well as those identified through the previous years in the Plan.

¹ <http://www.whitehouse.gov/omb/mgmt-gpra/index-gpra>

² This metric tracks Sea Grant's contribution to individuals, businesses, and communities that develop comprehensive emergency preparedness and response plans to increase their resiliency and enable them to respond effectively.

³ This metric tracks Sea Grant's contribution to communities that develop comprehensive emergency preparedness and response plans to increase their resiliency and enable them to respond effectively.

SECTION THREE: This section reports on emerging themes and areas of opportunity for the Sea Grant network. The identified themes and opportunities represent both work achieved throughout the State programs and the National Sea Grant Office. This section will conclude with general comments from Focus Team members.

FOCUS TEAM MEMBERS

NAME	TITLE	AFFILIATION
Joshua Brown	Chair	National Sea Grant Office
LaDon Swann	Vice-Chair	Mississippi-Alabama Sea Grant Consortium
Mike Liffmann	Alternate Chair	National Sea Grant Office
Hank Hodde	Coordinator	National Sea Grant Office
Adrienne Antoine	Member	NOAA Climate Program Office
Wendy Carey	Member	Delaware Sea Grant
Gene Clark	Member	Wisconsin Sea Grant
Joe Cone	Member	Oregon Sea Grant
Dennis Hwang	Member	Hawaii Sea Grant
Nicole Kurkowski	Member	NOAA Weather Service
Elizabeth LaPorte	Member	Michigan Sea Grant
Darren Lerner	Member	Hawaii Sea Grant
Monique Meyers	Member	California Sea Grant
Frank Niepold	Member	NOAA Climate Program Office
Christa Rabenold	Member	NOAA Coastal Office
Harry Simmons	Member	National Sea Grant Advisory Board

SECTION ONE: Impact Goals and Themes

GOAL 1: **Widespread understanding of the risks associated with living, working, and doing business along the nation’s coasts.**

Understanding coastal risks requires improving the science behind **risk forecasts**, and the Sea Grant network has funded such efforts for a variety of regionally relevant coastal hazards. These hazards include waves, rip currents, coastal erosion and ocean acidification. In addition to monitoring and modeling coastal risks, Sea Grant also advances understanding of longer-term risks posed by **climate change and variability**. Of note, are the collaborations that Sea Grant has fostered to impact larger audiences and implement projects.

Advancing the science of coastal risk forecasting is an essential step, but Sea Grant’s mission also involves bringing this science to citizens living and working along the coasts. To do this, Sea Grant places an important focus on **communicating coastal risks** by tailoring relevant risk information to specific audiences. In some instances, Sea Grant programs create and carry out **educational programming and training** for both coastal citizens and professionals. Finally, Sea Grant works at the local and regional level to help communities **understand their vulnerability** to natural hazards and/or climate change.

THEME: *Developing and Improving Risk Forecasts and Hazards Modeling*

Maine Sea Grant Research Informs Coastal Erosion Management and Preserves Access to a State Park

MAINE SEA GRANT (MESG) funded researchers are studying erosion processes at Carrying Place Bog as part of a statewide study of marshes and sea-level rise. They have established bog accumulation rates of .05 mm/year and salt marsh growth rates of .54 mm/year. Both rates are slower than local tide-gauge measured sea-level changes of 2.2 mm/year. At Carrying Place Bog, erosion rates have been as high as .99 mm/year and average .25-.50 mm/year along the face of the exposed bluff. As a result, Maine Department of Transportation and Maine Geological Survey used Sea Grant research results to make a decision to place rip-rap to slow the ongoing erosion at South Lubec, and to evaluate more permanent solutions.

A Modified FVCOM System Supports Diagnostic Analysis using Hourly Model Output Data

MASSACHUSETTS INSTITUTE OF TECHNOLOGY SEA GRANT (MITSG) developed the A Finite Volume Community Ocean Model (FVCOM) as a publicly accessible, user friendly integrated ecosystem model for the Massachusetts and Cape Cod Bays. The model system provided an essential tool for understanding the complex ecosystem dynamics in this region and a wide variety of environmental prediction and

management applications. The Massachusetts Water Resources Authority (MWRA) uses the model for water quality-monitoring programs, with insights supporting decisions about placement of monitoring sites, which bridges research and real application.

Oregon Sea Grant Develops Reliable, Operational Wave Forecasting for Oregon's Coast to Help Improve Safety for Commercial and Recreational Boaters

An **OREGON SEA GRANT**-funded (ORSG) wave prediction tool is being utilized by coastal ocean users to assess local conditions and help improve safety for commercial and recreational boaters. Predictions have been incorporated into operational global and regional weather forecast models. The model has been nested into the global and Eastern North Pacific (ENP) forecast system used by the National Weather Service. Work is underway to determine whether the forecast information can be used to assess the effects of local waves on coastal vulnerability to climate change and flood hazards.

Washington Sea Grant Research Develops a High-Resolution Modeling System for Forecasting Climate-Driven Changes in Ocean Processes, Coastal Environment, and Seasonal Weather

WASHINGTON SEA GRANT-funded (WASG) researchers combined various global climate models with the finer-grain Regional Ocean Modeling System, to forecast future upwelling, circulation, wind, temperature and ecological conditions in Washington waters. The models were verified by comparing hindcast results to observations. And they adapted NOAA projections to devise what may be the first system for forecasting ocean biochemistry, in detail, on seasonal time scales. The research has also informed the principal investigator's service as Washington State Climatologist, and as mentor to a local tribal member investigating prospective climate impacts on his community.

THEME: *Understanding Risks of a Changing and Variable Climate*

Minnesota Collaboration Identifies Funding Opportunities for Climate Work

MINNESOTA SEA GRANT (MNSG) staff worked with the NOAA Coastal Services Center to produce an abstract listing of currently available, climate-related funding opportunities (called Climate Funding Opportunities). The list provides a snapshot of available funding opportunities from government, non-profit, philanthropic, and academic organizations throughout the country. The document provides application, funding, and eligibility information on four international funding opportunities, 16 national-scale opportunities, and 12 regionally focused opportunities. This document provides support to organizations that would not otherwise have the ability to expend staff resources to compile information on available funding sources for climate adaptation project work. In collaboration with The Nature Conservancy, the document is available through the Collaboratory for Adaptation to Climate Change website (www.adapt.nd.edu).

Climate Webinar Series Educates Thousands about Global Change Issue

To strategically plan climate outreach for the state and help localize the climate change issue, Ohio State University created the OSU Climate Change Outreach Team in 2008. The team, representing 10 departments within Ohio State including **OHIO SEA GRANT** (OHSG) and Cooperative Extension, works with

16 state and regional partners to coordinate climate education and outreach initiatives within the state and region. Using survey results, the group developed the monthly climate webinar series, Global Change, Local Impacts, to focus on regional climate impacts. The monthly series brings in experts from around the Great Lakes region to discuss issues and impacts to be encountered regionally as our climate changes. [LINK](#)

Washington Sea Grant Spurs an Unprecedented State Effort to Address Ocean Acidification, with Potential National Impact

WASHINGTON SEA GRANT (WASG) has awarded more than \$1 million for field and laboratory research into acidification's effects on shellfish and on the zooplankton base of the marine food chain. The WSG-organized Symposium on Ocean Acidification in November 2011 provided an impetus for Governor Chris Gregoire to establish the Washington State Blue Ribbon Panel on Ocean Acidification, the first such state response nationwide. Sea Grant staff worked with the governor's office to identify panel members, and coordinated the panel's working groups on science, adaptation and remediation, and education and outreach. Staff oversaw the preparation of the comprehensive science summary and materials for the final report, with spurred substantial executive and legislative initiatives and brought national attention and extensive media coverage to the acidification issue. Also as a result, Gov. Gregoire directed state agencies to implement the panel's recommendations and included \$3.3 million for acidification research in the state budget. [LINK](#)

THEME: *Helping Communities Assess Vulnerability*

Maine Towns Incorporate Hazard Resilience into Municipal Training

The State of Maine has incorporated **MAINE SEA GRANT'S** (MESG) resources into the Basic Land Use, Shoreline Zoning, and Floodplain Management trainings for local Code Enforcement Officers. Additionally, 30 professionals have joined the Climate Change Adaptation Providers' Network and the group is identifying a strategy for coordinating services for climate adaptation implementation in a pilot community.

Storm Teams Track Erosion on Southern Maine Beaches

Since 1999, volunteers with the Southern Maine Beach Profiling Program have provided data on changes in beach shape and elevation to participating towns and the Maine Geological Survey. In recent years, **MAINE SEA GRANT** (MESG) helped to coordinate funds and monitoring of the beach profiles in southern Maine. In 2012, the National Weather Service began utilizing program volunteers as "storm teams" to conduct rapid pre- and post-storm profiling in three towns to determine the extent of short-term beach erosion and understand beach resilience dynamics.

New York Sea Grant Advises Towns on Coastal Hazards

The Town of Shelter Island, NY requested **NEW YORK SEA GRANT** (NYSG) assistance in evaluating an erosion problem on a barrier spit protecting an important harbor. NYSG compiled information, including historical aerial photographs, old shoreline maps and dredging records to identify the causes of the problem and management alternatives. Through presentations and a site visit, a NYSG specialist

discussed the findings with representatives of the town, the non-governmental organization, the trust that owned the land, and local residents. The town is using this information to develop a project coordinated with the county to begin strategically placing material dredged from the harbor inlet to restore sand transport to the eroding areas.

THEME: *Hazards Education and Risk Communication Coastal Residents and Professionals*

Hawai'i Sea Grant Increased Community Capacity to Prepare for Hazardous Events in the State and Sea Grant Network

HAWAII SEA GRANT (HISG) addressed the need to increase coastal resilience by developing the Homeowner's Handbook to Prepare for Natural Hazards in 2007. Now, approximately 45,000 handbooks have been distributed statewide through partners, community outreach events, workshops, invited presentations, and requests made through the Hawaii Sea Grant communications office. Since then, partners took the lead in organizing six statewide community workshops with Hawaii Sea Grant's assistance in 2012. On a national level, with assistance from Hawaii Sea Grant, Mississippi-Alabama, Louisiana, and Delaware Sea Grant Programs published their own versions of the handbook

Educating People About Great Lakes Rip Currents Saves Lives

MINNESOTA SEA GRANT (MNSG) has been partnering to promote rip current awareness and safety to Duluth, Minnesota, residents and tourists since 2004. The partnership worked to install rip current signs, institute a flag warning system, and educate thousands of people through workshops, expos, web pages, and public service messages. In 2011, the MNSG-led Beach Information Communications System (BICS) Project began with \$198,000 in funding from the Great Lakes Restoration Initiative. Beginning in 2012, the website ParkPointBeach.org began providing real-time beach reports that include rip current risk, bacteria warnings, and wind/weather conditions for Minnesota's most popular Lake Superior sandbar.

Gearing up for Change: Climate Training for Outreach Professionals

A 2012 needs assessment study revealed that Sea Grant extension educators consider climate change and adaptation important topics, but that many of them do not yet feel equipped to provide their audiences with climate information or adaptation assistance. In response, **MICHIGAN SEA GRANT** (MISG) helped organize a half-day train-the-trainer workshop for participants of both the Great Lakes Sea Grant Network Meeting and the National NEMO (Nonpoint Education for Municipal Officials) Conference in Duluth, October 2012. The workshop was entitled "Gearing up for Change: Climate Training for Outreach Professionals" and was co-facilitated by presenters from Michigan, Minnesota and Illinois-Indiana Sea Grant, along with a guest speaker from the NOAA Coastal Services Center's EBM Tools Training Program. The workshop trained 26 outreach and extension specialists about climate science, climate change and Great Lakes regional impacts, and available tools and resources for adaptation planning.

GOAL 2: Community capacity to prepare for and respond to hazardous events.

Sea Grant extension agents across the network work with homeowners, insurance companies, local officials, coastal managers, and emergency planners to improve community preparedness and resilience. On the smallest scale, Sea Grant programs create and distribute resources, conduct demonstration projects, and work with the private-sector to promote homeowner resilience directly. At the community-wide scale, Sea Grant collects data and develops tools to help communities plan for and assess risk and mitigate coastal hazards. In particular, we find an influx of impacts reflecting Sea Grant's ability to help communities adopt new hazards planning and policy guidance. Numerous coastal communities have approved new Hazards Mitigation Plans and emergency management procedures based on Sea Grant's extension and outreach activities. Finally, Sea Grant also conducts outreach and planning efforts to help communities take the first steps toward adapting to a changing climate.

THEME: Assessing Coastal Risk and Reducing Vulnerability

New Science-Based Prediction Tool Helps the Insurance Industry more Accurately Assess Hurricane Damage Risk and Construction Standards for Residential Structures

An estimated \$1.5 trillion in residential homes are vulnerable to hurricane damage in south Florida. Existing insurance loss models are currently judgment-based using estimates of interior content loss derived from anecdotal information. In response, **FLORIDA SEA GRANT (FLSG)** supported a science-based protocol, implemented at Florida International University's Wall of Wind hurricane facility, to update the insurance industry's model for estimating damages and assessing insurance loss. The research resulted in significant enhancements to the Florida Public Hurricane Loss Model, and has also resulted in the establishment of new building codes in Miami to strengthen the exterior components of residential structures.

Louisiana Sea Grant helps develop the Financial Resiliency Decision Support Tool

LOUISIANA SEA GRANT (LASG) faculty and others developed a method for identifying risk-adjusted financial vulnerability to future natural disasters for local governments, since they are likely to have less financial support from the federal government to cover emergency, response and recovery costs. In response, a regional economist and Sea Grant extension specialist applied a procedure for measuring the financial vulnerability to Calcasieu Parish, LA, government from a future Rita-sized tropical natural disaster. After identifying the financial gap, they recommended policy alternatives to the local parish government to make them more financially resilient to future tropical natural disasters.

Baldwin County, AL Adopts Building Codes to Increase the Resilience of the County and its Residents

The City of Orange Beach partnered with **MISSISSIPPI-ALABAMA SEA GRANT CONSORTIUM (MASGC)**, Smart Home America and the Gulf Coast Chapter of the International Code Council to bring together the key players in hazard resilient construction, including the International Code Council and the Institute for Business and Home Safety (IBHS). Sea Grant and Habitat for Humanity supported educational activities

for builders and contractors to raise awareness of the benefits and costs associated with following the Coastal Code. Sea Grant also sponsored an expo that benefited coastal decision makers by learning about risk assessment and specific achievable steps that can be taken to reduce risk, reduce the insurance burden on their citizens, and allow their communities to recover from disasters more quickly. The events were instrumental in providing the needed training to allow many Baldwin County, Alabama to adopt the 2012 Edition of the International Code Series, the most recent codes in the nation.

Water Data and Predictions for Estuarine River Systems through CI-Flow

As a key partner, **NORTH CAROLINA SEA GRANT (NCSG)** helped to develop the Coastal and Inland Flooding Observation and Warning (CI-FLOW), a prototype real-time system that predicts total water level. CI-FLOW is now an inter-disciplinary multi-agency consortium focused on the mitigation of coastal hydrologic hazards in the Tar and Neuse river basins of North Carolina. The project has brought together researchers, outreach specialists and the customers that will use CI-FLOW products to plan, design and test emerging and more effective methods of information transfer. During this project phase NWS weather forecasters were able, through an interactive methodology, to fine-tune water level information and the most effective display format for use while forecasting. The CI-FLOW project is now being evaluated in the Pearl River watershed of Mississippi and Louisiana.

THEME: *Assisting Local Governments with Hazards Planning and Policy Guidance*

Vulnerable Coastal Cities includes Sea-Level Rise Risks in Hazard Mitigation Plans

In partnership with AMEC Environmental and **MISSISSIPPI-ALABAMA SEA GRANT CONSORTIUM (MASGC)**, Waveland and Biloxi, MS included sea-level rise adaptation strategies in their 2013 updated Hazard Mitigation Plans. Biloxi focused on an outreach and education campaign to their residents while Waveland focused on the creation of maps to visualize future scenarios with increased sea-level rise. Planning for future scenarios can earn these two communities additional points in the National Flood Insurance Program's Community Rating System, which will reduce their risk to future storms and the premiums for their residents.

Orange Beach, AL updates Emergency Operations Plan as a Result of Vulnerability Assessment

MISSISSIPPI-ALABAMA SEA GRANT CONSORTIUM (MASGC) helped conduct a Vulnerability-Consequences Adaptation Planning Scenarios (VCAPS) workshop for the City of Orange Beach, Alabama. During this workshop, members from the City of Orange Beach and neighboring cities within the watershed, developed an action plan for responding to increased heavy precipitation events and greater intensity storm events. These actions were incorporated into an updated Emergency Operations Plan that was adopted by the city.

Sea Grant Helps the City of Boston Plan for Weather Related Hazards and Plan for Climate Change

With **MASSACHUSETTS INSTITUTE OF TECHNOLOGY SEA GRANT (MITSG)** funding, the Social and Environmental Research Institute (SERI) used a mediated modeling process called the Vulnerability and Consequences Adaptation Planning Scenarios (VCAPS). The process led discussions among the

stakeholders and documented the vulnerability of Boston to extreme weather events, exacerbated by future climate change, and identified actions to increase resilience. The City of Boston drafted a new hazard mitigation plan using information derived from the VCAPS process, which includes strategies related to climate change adaptation. [LINK](#)

PASG helped the City of Chester to Incorporate Climate Adaptation Planning Objectives into its Vision 2020 Comprehensive Plan

Chester, Pennsylvania, is a coastal community that is particularly vulnerable to future climate and storm hazards. **PENNSYLVANIA SEA GRANT (PASG)** staff provided outreach and technical assistance to Chester City Council and the Planning Department to include in the comprehensive planning process. This assistance proved instrumental for the City in drafting a climate adaptation and other sustainability objective into the Vision 2020 Plan. The 2020 plan was completed in October, 2012 and will help to make the tidal riverfront community more resilient as it serves as model for other local municipalities. [LINK](#)

Coastal Resilience Index Promotes Community Resilience to Coastal Storms

TEXAS SEA GRANT (TXSG) introduced the Coastal Resilience Index (CRI) developed by Mississippi-Alabama Sea Grant and implemented the guided self-assessment tool in six coastal communities. The CRI enables community leaders to critically examine their preparedness level for storms and storm recovery, as well as identify weaknesses in their recovery infrastructures needing improvement before future storms. As a result, all communities are addressing their identified vulnerabilities, and one community updated its Hazard Mitigation Plan. [LINK](#)

THEME: Helping Communities Adapt To Climate Change Impacts

Rising to the Challenge: Results of the 2011 CA Coastal Adaptation Needs Assessment

With support from **CALIFORNIA SEA GRANT (CASG)**, nearly 600 California coastal planners and managers were surveyed on their attitudes and knowledge about climate change, technical needs in meeting state directives, and progress toward implementing “climate adaptation” policies. Responses form the basis for the report “Rising to the Challenge: Results of the 2011 California Coastal Adaptation Needs Assessment,” presented to state agencies. Based on the survey responses, the California Ocean Protection Council is directing \$2.5 million to help coastal communities update their coastal plans and brace for rising sea levels. NOAA Coastal Services has incorporated some of the report’s findings into its “Climate Adaptation for Coastal Communities” 3-day training program. [LINK](#)

Sea Grant Led Coastal Community Climate Adaptation Initiative (CCCAI) Project Leads to City Adopting Hazard Mitigation and Climate Adaptation Action Plan

DELAWARE SEA GRANT (DESG) led a CCCAI-funded project which helped the City of Lewes enhance local understanding of climate change and natural hazard impacts, and provided guidance in identification of strategies to build resilience towards these impacts. The project engaged key local stakeholders – City staff, City Board / Commission members, and Regional / State partners – as well as property owners and

residents. Recently, the City of Lewes has adopted a unified Hazard Mitigation and Climate Adaptation Action Plan that aims to improve community sustainability and resilience. [LINK](#)

Hawaii Sea Grant Supported the Adoption of the State Of Hawaii’s Climate Change Adaptation Planning Priority Guidelines

At the invitation of the State Office of Planning, **HAWAII SEA GRANT (HISG)** has been serving on the Ocean Resources Management Plan’s (ORMP) working group. The group is composed of state and county agencies, federal partners, academia, and community groups. One task of the working group has been to provide climate policy guidance to the Hawaii Coastal Zone Management Program. In 2009, the working group produced a report entitled “A Framework for Climate Change Adaptation in Hawaii”. In July 2012, the Governor signed into law Act 286, the Climate Change Adaptation Planning Priority Guidelines which encourages collaboration and cooperation among county, state, and federal agencies, policy makers, businesses, and other community partners to plan for the impacts of climate change.

[LINK](#)

Sea Level Rise Adaptation Planning for the City of Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SEA GRANT (USCSG) developed *AdaptLA*, a science-based and stakeholder-supported sea level rise adaptation planning process and vulnerability study for the City of Los Angeles. This participatory process included multiple planning meetings, engaged city leadership, and included significant regional stakeholder participation. This project has enhanced knowledge and understanding of climate science and vulnerability to sea level rise to assets and communities, building capacity in the City of Los Angeles and surrounding cities and communities. [LINK](#)

Sea Grant Project Improves Awareness of Planning for Sea Level Rise in Virginia Coastal Communities

Through **VIRGINIA SEA GRANT**-supported (VASG) work, three Virginia coastal localities have gained insight into the planning tools that may work best to help their communities prepare for sea level rise. The City of Virginia Beach is using the results of its focus group in the development of its sustainability plan. The Accomack-Northampton Planning District Commission is using the results of the workshop to guide the Eastern Shore Climate Adaptation Working Group in its work to prepare the Eastern Shore for sea level rise. The Gloucester County Board of Supervisors and Middle Peninsula Planning District Commission will use the results of its focus group when preparing long-range plans for county infrastructure and land use. [LINK](#)

GOAL 3: Effective response to coastal catastrophes.

Three of the 2012 impacts pertained to Goal 3, deriving from post-disaster response efforts. Recognizing that disaster response is dependent on disasters actually occurring, this represents a fraction of Sea Grant's overall work. However, one of Sea Grant's demonstrated strengths is its ability to quickly mobilize universities and other partners to address these types of challenges. Moreover, post-disaster response and recovery provide an opportune medium for Sea Grant researchers and extension specialists to interject their previously compiled vulnerability and risk assessments, planning mechanisms, mitigation techniques, resiliency protocols, and technological advances.

THEME: *Integrating Research into Disaster Response*

Quick Response by New York Sea Grant Provides Information to Better Manage Hurricane Sandy Impacts

Hurricane Sandy inflicted tremendous damage along the New York and New Jersey coastlines, including a breach in the Fire Island National Seashore. The National Park Service (NPS) served as the responsible management agency and asked **NEW YORK SEA GRANT'S (NYSG)** Coastal Processes Specialist to assist their interagency Breach Assessment Team, composed of 35 federal, state and local officials. The NPS used NYSG information to evaluate the condition of the breach and its impacts, and decided not to close it immediately, which would have cost approximately \$6 million. The initial data showed the feature was fairly stable and having minimal impacts on main land tide levels. Recognizing the value of the information, NPS is funding a continuation of the data collection program to monitor the breach and its physical impacts to ensure it did not cause increased flooding on the mainland.

Sea Grant Helps Coastal Communities Examine Climate Change Issues

In 2012, an estimated 500-year storm struck Duluth, MN, and surrounding communities, causing widespread damage and a federal disaster declaration. The flood follows on the heels of 100-year rains in the region during the past decade. **MINNESOTA SEA GRANT (MNSG)** partnered with other Great Lakes SG programs to conduct a needs assessment targeting community and resource managers, and with Oregon SG to conduct an in-depth assessment in one Lake Superior Community through interviews and surveys.

THEME: *Improving Disaster Resilience Design Standards*

North Carolina Sea Grant Conducts Post-Hurricane Ike Damage Assessments

Hurricane Ike destroyed several thousand homes and small buildings in Texas but left some untouched. **NORTH CAROLINA SEA GRANT (NCSG)** researchers surveyed the buildings — present and destroyed — to determine why some survived and why others didn't. The study resulted in new recommendations for depth/damage curves and an updated failure prediction for waves and erosion. The results suggest that choosing a higher floor elevation is a primary safety factor for new construction in hurricane-resilient communities.

SECTION TWO: Previous and Emerging Gaps

In addition to reviewing the progress toward the national strategic goals, the Focus Team reviewed the impacts to gauge whether they were addressing previously-identified gaps (enumerated in the 2012 Annual Report), to identify additional areas needing attention, and to recognize emerging themes that cross-cut the strategic goals.

Previous Gaps

In the HRCC 2012 Annual Report, the Focus Team identified three gaps from the 2011 Impacts:

- Soft engineering trends for shoreline erosion control;
- Robust evaluation of outreach and education activities;
- Serving as a liaison between coastal communities and FEMA.

This year, the Focus Team discussed whether the 2012 reported impacts better addressed these previously identified gaps.

Soft Engineering Trends for Shoreline Erosion Control

The previous Annual Report suggests that Sea Grant should position itself as a leader in investing in research on new “soft” engineering techniques, analyzing trends in and results of its application, and engaging with communities to help them understand their options. This area for opportunity has been proposed at the national scale as “green/gray infrastructure,” meaning applying both soft (natural) and hard (man-made) structures along the coast to lessen vulnerability to natural hazards.

Some of the 2012 impacts addressed this gap through Sea Grant’s coastal processes work. We find that programs are continuing to evaluate shoreline substrate as to its effectiveness for mitigation, the effects of sea level rise to coastal communities and environments, and helping to inform coastal zone management and planning decisions. Many 2012 Accomplishments are helping Sea Grant continue this work. Of note, Minnesota Sea Grant assisted with a stakeholders meeting for NOAA Coastal Services Center project that will identify green infrastructure and flooding mitigation projects related to climate change. North Carolina Sea Grant is evaluating the economic benefits and costs of beach erosion management. Also, many programs are working with partner organizations and volunteers to establish living shorelines. The table below represents impacts and accomplishments that help to fulfill this gap.

2012 HRCC Impacts		
Sea Grant Program	ID #	Title
California	11674	Beach Evolution on Scales from Storms to Years
Maine	17012	Maine Sea Grant research informs coastal erosion management and

		preserves access to a state park.
Maine	17063	Storm Teams track erosion on southern Maine beaches
New York	16963	Advising Towns on Hazards
Woods Hole	17527	Sea Grant Extension continues supporting SE Massachusetts Counties in informing critical management decisions in the coastal zone.

2012 HRCC Accomplishments		
Sea Grant Program	ID #	Title
Hawaii	16502	Hawaii Sea Grant educated Kauai community stakeholders on coastal erosion issues
Minnesota	16578	Hazard Resiliency in Coastal Communities
New Jersey	18009	Sheltered Shorelines
New York	16964	NYSG Provides expertise on national and regional coastal processes initiatives
North Carolina	17336	Economic Benefits and Costs of Beach Erosion Management
Ohio Sea Grant	18095	Development and validation of a high-resolution nearshore model for Lake Erie
University of Southern California	17752	Beyond Bathtub: Workshop on Modeling and Responding to Sea Level Rise and Shoreline Change
Washington	17232	Washington Sea Grant surveys eroding coastal bluffs to determine safe setbacks for development
Woods Hole	17530	Coastal Processes Presentations

Robust Evaluation of Outreach and Education Activities

As noted in the 2012 Annual Report, several HRCC impacts involve educating communities about coastal risks and strategies to improve resilience. It seems, however, that a recurring concern of the Focus Team is proper evaluation of these activities to gauge impacts without efforts to track changes in behavior resulting from Sea Grant's work. As such, this continues to be a gap for the Focus Area, as a programmatic system has not been instilled to evaluate the hazards-related outreach and educational activities.

The Focus Team proposed a new funding initiative in 2009 for network-wide evaluation, but this idea never gained momentum. The Team suggested that Sea Grant conduct an evaluation of the past and current beach hazards work and programming, since multiple state programs with varying coastal types are implementing similar outreach activities (e.g. Break the Grip of the Rip campaign). One Focus Team member suggested the development of a "Rip Current Matrix" to show the effectiveness of Sea Grant's beach hazards activities. This work can be integrated into FY13 and FY14 NOAA Coastal Storms Programs activities in the Great Lakes.

Serving as a Liaison between Coastal Communities and FEMA

Both the 2011 and 2012 Annual Reports found gaps in working with FEMA to help foster hazards resilience. Sea Grant impacts from those years reflected some FEMA activity, but the Focus Team thought that more interaction was needed and that this subject was still an imperative gap to fill in Sea Grant's work.

After review, the 2012 impacts did not reflect robust activity of acting as a liaison with FEMA in coastal communities. However, after evaluation of the 2012 Accomplishments, we find that Sea Grant programs are working with FEMA in many other ways. This includes the formation and distribution of the Homeowner’s Handbooks, strengthening Hazards Mitigation Plans and Emergency Management Operations, helping assess the Community Rating System (CRS), and informing local flood maps and National Flood Insurance Program (NFIP) guidance.

A notable upcoming concern for Sea Grant programs’ and their constituents is the effects of the Biggert-Waters Act of 2012⁴, which will increase the cost of flood insurance for living on the coast if proper flood mitigation techniques are not utilized. This area of concern provides a new opportunity for outreach and extension activities for Sea Grant. Also notable is work done by the National Sea Grant Office, which has been working closely with FEMA’s Recovery Directorate and Community Planning and Capacity Building (CPCB) personnel to develop a Collaborative Partnership Guide⁵. The NSGO’s 2013 Knauss Fellow, Hank Hodde, also wrote a white paper⁶, titled “Disaster Recovery and Resilience: A Path Forward for the National Sea Grant College Program.” The paper proposed ‘Disaster Specialists’ within the Sea Grant Programs to help foster relationships and work with respective FEMA Regions and local Emergency Managers. The table below represents impacts and accomplishments that help to fulfill this gap.

2012 HRCC Accomplishments		
Sea Grant Program	ID #	Title
Delaware	17253	Delaware City – Enhancing Community Awareness of Future Flood Risk and Vulnerability
Delaware	17252	Sea Grant Improves Community Awareness of Future Flood Risk through use of Mapping Visualization Tools
Delaware	17105	Delaware Sea Grant works with DNREC and FEMA to coordinate training for communities on the National Flood Insurance Program (NFIP)
Delaware	17115	Homeowners Handbook Helps to Inform and Prepare Residents about Coastal Natural Hazards
Louisiana	16800	Sea Level Rise Outreach to Children
New Hampshire	16816	NHSG Coordinates and Shares Research on Legal Aspects of New 100-Year Floodplain Maps
New Jersey	18119	Coastal Communities Climate Change Adaptation Initiative 2012
New Jersey	18005	Hurricane Sandy Response
South Carolina	17891	Using Participatory Scenario Building to Encourage Climate-Resilient Zoning in the Coastal Carolinas

⁴ <http://www.fema.gov/flood-insurance-reform-act-2012>

⁵ [http://seagrant.noaa.gov/Portals/0/Documents/what_we_do/focus_areas/hazard_resilient_coastal_communities/resources/NSGO_Collaborative%20Partnership%20NOAA%20Sea%20Grant%20and%20FEMA%20CPCB%20\(final%20draft\).pdf](http://seagrant.noaa.gov/Portals/0/Documents/what_we_do/focus_areas/hazard_resilient_coastal_communities/resources/NSGO_Collaborative%20Partnership%20NOAA%20Sea%20Grant%20and%20FEMA%20CPCB%20(final%20draft).pdf)

⁶ http://seagrant.noaa.gov/Portals/0/Documents/what_we_do/focus_areas/hazard_resilient_coastal_communities/resources/Hodde_Sea%20Grant_Resilience%20White%20Paper_Final%20Draft.pdf

Washington	17223	Washington Sea Grant assists coastal communities in preparing for sea-level rise and other hazards
Woods Hole	17530	Coastal Processes Presentations

Emerging Gaps

Disaster Response

Disaster response continues to be a gap for Sea Grant. Sea Grant state programs and personnel are not first responders, therefore, they are often first called upon to help in the aftermath of a disaster.

However, Sea Grant professionals live in the communities they serve and experience what their constituents do – the good and the bad. Because of this, programs are getting more involved with agencies and organizations whose missions are directly related to disaster response, like FEMA, State agencies, local emergency management, municipalities, and non-profits.

Also, many programs are realizing that pre- and post-disaster response and recovery activities provide an opportune medium to work and interact with local communities. While not often reported, programs have quickly mobilized resources, rekindled and built new partnerships, informed community decisions, and often engaged in difficult dialogue about best path forwards. As an established boundary organization, Sea Grant State programs are oftentimes at the nexus of pulling together resources and partnerships to raise awareness and implement resiliency programming.

It was suggested that programs get more involved with NOAA’s Weather Ready Nation campaign.

Integrated Floodplain Management

Sea Grant conducts considerable research and outreach surrounding coastal erosion, sea level rise, and inundation. However, the Focus Team suggests that these topics be better integrated to help communities manage their floodplain. We have seen impacts related to coastal mitigation, stormwater, erosion and sea level rise rates. Programs are now starting to work more with their local floodplain managers and helping communities engage with FEMA’s Community Rating System (CRS). More recently, programs are trying to help homeowners navigate the 2012 Biggert-Waters Act. There seems to be a lack of tying all of these subjects together. Specifically, there is a need to research and monitor the effects of erosion and sea level rise as it relates to flooding, inundation, and FEMA flood maps. The Focus Team sees this as a tremendous opportunity moving forward for Sea Grant.

Restoration of Natural Ecosystems and Resources

Much of Sea Grant’s resilience work has a large focus on the built environment. It is where people live and work and, justifiably, receives considerable attention. There is, however, a great deal of attention being given by the research community on uses of the natural environment for hazards’ defense mitigation purposes. This ranges from green and gray infrastructure, living shorelines and other bioengineering tools. The Focus Team suggests that the network s focus more attention on natural environments and resiliency. Since natural environments have been altered by humans and will continue to be altered by chronic natural processes and climate change, perhaps we should emphasize preserving and restoring natural defenses to increase mitigation capacities.

SECTION THREE: Emerging Themes and Opportunities

Emerging Themes and Other Highlights

In the HRCC 2012 Annual Report, the Focus Team identified four emerging themes from the 2011 Impacts:

- Regional Ocean and Great Lakes Planning and Risk Management
- Legal Implications for Sea Level Rise
- Stormwater Management for Pollution and Flood Control
- Transfer of Tools and resources among Sea Grant Programs

This year, the Focus Team has recognized new emerging themes from the 2012 impacts. These subjects provide tremendous momentum for increasing Sea Grant's effectiveness in making communities more resilient.

Regional Collaborations

As indicated in last year's report, Sea Grant programs do a good job of sharing tools and resources. The most prevalent resource has been the distribution and development of the Homeowner's Handbook to Prepare for Natural Disasters. Now, programs are starting to collaborate more on the programmatic level. An example is the Great Lakes Restoration Initiative, where Sea Grant programs are working closely with themselves, other parts of NOAA, and the EPA. Another example is through NOAA's Coastal Storms Programs, which has a regional coordinator working out of a designated Sea Grant office. Many of these regional initiatives prove vital to leveraging resources and funding.

Hurricane Sandy

Though not fully reported through impacts, all of the NE Sea Grant programs (Maryland, Delaware, New Jersey, New York, Connecticut, and Rhode Island) conducted important work after Sandy's impact in October, 2012. Programs applied research findings into response and recovery mechanisms, built new partnerships, and deliverable valuable information through outreach and extension activities. They also assisted local, state, and federal agencies and organizations with their duties and responsibilities. To highlight these efforts, the National Sea Grant Office helped coordinate a NOAA-wide Congressional Hill Briefing on Sandy response and recovery in 2013, and New York Sea Grant was able to present their prominent coastal processes work.

Beach Hazards Risk Communication

Sea Grant has notable success rip current outreach and education. The network's efforts have saved lives and education thousands. State programs have gained new partnerships too. Due to this legacy program, Sea Grant is now working to help communicate the risk of all types of beach hazards. This has prompted a new pilot program in partnership with the National Weather Service and the U.S. Life Saving Association to collect observable beach data to enhance daily forecasting abilities. Also, NOAA's Coastal Storms Program is now concentrating its efforts in the Great Lakes to promote improved weather

observations and projections, as well as better communication of this information across Great Lakes communities.

Opportunities

Network wide webinars

Much of the information that is collated by the Focus Team isn't presented to the entire Sea Grant network. Not only does that include this report, but also the wide range of resources and tools produced by the programs. It was suggested that the National Sea Grant Office report out new ideas, products and partnerships to the network.

National stories out of goal themes

An outcome of writing an impact statement is to tell a good story. Also, impacts portray the great work of the Sea Grant network. Oftentimes, individual impacts are made into news articles at the local level. These can then be broadcasted on the state programs, university or National Sea Grant's website. After reviewing impacts within the goals, the Focus Team finds that it would be advantageous to tie multiple impacts into one national story. This would give relevance to regional work, national initiatives, and subject matter themes. An example would be the impacts that help assist local governments with hazards planning and policy guidance, or helping communities adapt to climate change impacts.

Tailoring themes to NOAA's strategic goals

Planning strategically not only ties the National Sea Grant College Program together, but it also helps Sea Grant plan within the goals and priorities of NOAA. The Focus Team suggested that the Annual Report's thematic grouping reflect NOAA's Strategic Plan.

General Focus Team Comments

The HRCC Focus Team's Annual Review conducts a survey of reported impacts to provide critique and help piece together a picture of Sea Grant's efforts toward the area on a national scale.

Just as in years past, the Focus Team debated whether all of the 2012 reported impacts truly reached the level of "impact" instead of "accomplishments," though they acknowledged improvements in this distinction over earlier reporting years. To fix this ongoing issue, the Focus Team suggested that the National Office needs to challenge the feedback loop with letting the network know how impacts are used and reports are distributed. This may address the apparent disconnect between the field agents writing the impacts and the impacts relevance in DC (i.e. NOAA leadership and Congress). Impact-writing guidance is available on the national web site, but perhaps, the National Office can host a webinar series to the network. Also, impacts can be sent back to the regional communication leads to help enhance its story.



Healthy Coastal Ecosystems

Focus Team Report 2013



This Focus Team report is a collection of “impact statements” (impacts) submitted by each Sea Grant (SG) Program via the National SG Office reporting process (PIER). These impacts describe significant and verifiable economic, societal and/or environmental benefits of SG work in the Healthy Coastal Ecosystems (HCE) Focus Area, according to the SG National Strategic Plan (Plan).

The purpose of this report is to review impacts from the SG network, assess progress toward the Plan and SG’s national impact. This report is organized by the four critical functions that serve this objective:

- I. Identify national impacts that should be highlighted in communication products and reporting;
- II. Assess SG’s progress towards its strategic plan focus area goals and outcomes;
- III. Pinpoint gaps to achieve the focus area goals outlined in the National Strategic Plan;
- IV. Identify emerging issues and new opportunities for Sea Grant.

This report is based on compilation and analysis of impacts reported during the 2012 report year. Impacts are categorized into goals and strategies within the HCE focus area. Using a predetermined set of criteria to ensure consistency, this compilation process serves several objectives across the sections of this report: In section 1, “national impacts” are identified and highlighted according to thematic areas identified during the review process. In section 2 of the report, we assess progress toward the Plan, by analyzing the completeness with which SG is addressing the goals (and associated strategies) set forth in the Plan. Sections 3 and 4 serve to guide future SG programming efforts by identifying gaps and assessing new opportunities for SG.

I. Identification of impacts that should be highlighted in communication products and reporting

The HCE Focus Team identified 52 “national impacts” which were highlighted from the 2012 submissions. Three working definitions of a national impact were used:

1. An impact that has relevance on a national scale and shows that SG is a national program, and/or;
2. An impact that is ripe for expansion to a national scale and, if expanded; will clearly show that SG is addressing national needs, and/or;
3. An impact that demonstrates an appropriate level of innovation and novelty.

Given the above definitions, some of these were individual program impacts and some were network-wide efforts addressing similar topics. In addition to addressing the three goals within the Plan, HCE impacts reported in 2012 were found to address diverse topical areas, which are listed below.

- | | |
|---|--------------------------------|
| 1. Education, outreach and training (4) | 6. Sustainable development (5) |
| 2. Living marine resources (2) | 7. Tool development (3) |
| 3. Water quality (7) | 8. Climate change impacts (4) |
| 4. Invasive species (15) | 9. Citizen science (5) |
| 5. Restoration (7) | |

The Focus Team examined the impacts within each topic area found notable impacts from multiple Sea Grant programs addressing similar issues, indicating that Sea Grant is working on a national scale. Below are the national impacts.

1. **Education, outreach and training:** Sea Grant educates future environmental professionals and leaders, teachers, students and the public on coastal ecosystems and provides opportunities to enhance marine and aquatic literacy to all. To accomplish this, Sea Grant uses sound science to engage people of all ages in a variety of topics and issues through programs, workshops, and training and stewardship opportunities pertinent to their coastal communities.
 - a. Sea Grant collaborated to provide on the job training in marine resource science to retain local workforces. Impact 16430 from HI SG.
 - b. Sea Grant provided coastal education and restored coastal habitat through master naturalist programs. Impacts 17304, 17266 from FL SG, TX SG.
 - c. Sea Grant collaborated with state government and local fishing clubs to train anglers how to minimize discard mortality. Impact 17297 from FL SG.
 - d. Sea Grant used science, history, and games in an interactive program to communicate the value of healthy estuaries. Impact 16568 from MN SG.

2. **Living marine resources:** Conservation of diverse living marine resources is recognized by Sea Grant as critical component of healthy and sustainable coastal ecosystems, under Goal 2 of the HCE Focus Area. Sea Grant's research and outreach mission provides vital science-based information to improve management of living marine resources with special conservation status, cultural significance and economic importance to coastal communities.
 - a. Sea Grant funded state fellows whose work lead to changes in shipping lanes and voluntary speed limits to reduce whale strikes. Impact 16673 from CA SG.
 - b. Sea Grant research developed DNA sequencing technology to assess the effects of pollutants on salmon reproduction. Impact 17504 from WA SG.

3. **Water quality:** Due to myriad human activities many aquatic ecosystems are stressed and degraded. Sea Grant is working to restore these water bodies through development and implementation of restoration techniques to improve coastal health and ensure continued enjoyment and use of coastal resources by the public.
 - a. Sea Grant researchers tested the ability of desalination systems to remove neurotoxins produced by algae during harmful algal blooms. Impact 17477 from USC SG.
 - b. Sea Grant conducted research and outreach on chemical water pollutants and the use of copper-free bottom paints. Impacts 17151, 16651 from ME SG, CA SG.
 - c. Sea Grant helped educate the public and coordinated collection events to keep pharmaceutical products out of the environment. Impacts 16919, 16610 from NY SG, PA SG.
 - d. Sea Grant participated in the Water Quality Taskforce to address land use practices and reduce pollution loading. Impact 16751 from LA SG.
 - e. Sea Grant Law Center research lead to reform of Virginia laws on septic system financing. Impact 16587 from SG Law.

4. **Invasive Species:** Sea Grant realizes that invasive species are one of the most pervasive problems in the marine environment and elsewhere. Knowing that it is practically impossible to eradicate a species once it has become abundant, efforts are ongoing to reduce numbers, where practical, develop tools for early detection of new arrivals, and to conduct numerous outreach, training, and awareness campaigns to educate the public.
 - a. Sea Grant developed control methods for invasive plant species and coordinated a volunteer program for invasive species removal. Impacts 16653, 18128, 17921, 16611 from CA SG, NY SG, MI SG, PA SG.
 - b. Sea Grant researchers assessed the impacts of invasive mussels and shrimp on local food webs and developed a genetic testing method to identify invasive jellyfish. Impacts 17045, 17915, 18129 from WI SG, MS-AL SG, NY SG.
 - c. Sea Grant engaged a coordinated numerous outreach, training, and awareness campaigns to educate constituents and increase stewardship against invasive species. Impacts 17390, 17626, 16915, 17199, 18059, 16575 from CT SG, MIT SG, NY SG, OR SG, OH SG, MN SG.

- d. Sea Grant Law facilitated a working group to ban invasive plant species and collaborated to conduct a workshop for policy and management professionals. Impacts 17741, 16586 from SG Law, IL-IN SG.
- 5. Restoration:** Under goal 3 of the HCE Focus Area, Sea Grant research and outreach is committed to providing science based information for restoring coastal ecosystems that have experienced lost or impeded function by natural or anthropogenic influences. Sea Grant develops practical information to identify ecosystem stressors, and develops solutions to restore or improve ecosystem function and protect coastal ecosystems from future threats.
- a. Sea Grant led restoration efforts through funding research and restoration in altered waterways, and engaging in post-restoration efforts. Impacts 17016, 17918, 17213 from ME SG, MI SG, WA SG.
 - b. Sea Grant collaborated to develop a management plan to use dredge materials to restore barrier islands and ecosystems, and Sea Grant’s restoration work on the Ashtabula River led to its removal from the list of Areas Of Concern. Impacts 16668, 18044 from OH SG, WI SG.
 - c. Sea Grant provided legal information that led to the creation of a new coastal zone boundary. Impact 16765 from LA SG.
 - d. Sea Grant research supported new restoration technology and methods, assisting in restoration and provide economic benefits to restoration businesses. Impacts 16861, 17307 from NH SG, FL SG.
- 6. Sustainable development:** In accordance with goals 1 and 2 in the Plan, Sea Grant encourages sustainable development by providing information, research, and coordination. Through this work Sea Grant helps demonstrate the importance of maintaining healthy ecosystems and minimizing the impact of development.
- a. Sea Grant collaborated with local government to research, implement, and monitor the effects of a habitat friendly alternative to traditional seawall designs. Impact 17595 from WA SG.
 - b. In a national effort, Sea Grant helped minimize pollution from commercial and recreational vessels and encourage stewardship through the “Clean Marinas” program. Impacts 18053, 16608, 17280, 16667 from OH SG, PA SG, WA SG, WI SG.

- 7. Tool development:** As reflected in Goals 1 and 2 of the HCE Focus Area, Sea Grant recognizes that management of our complex marine and coastal ecosystems requires the development, refinement and use of effective, science-based tools. These tools provide critical predictive, mechanistic and analytical frameworks to better understand ecosystem dynamics for improved management and decision making.
- a. Sea Grant research developed an innovative biomarker screening tool for managers to evaluate environmental impacts of water quality on organisms. Impact 17322 from USC SG.
 - b. Sea Grant funded research to investigate an improved methodology for sampling toxins from harmful algal blooms. Impact 17319 from USC SG.
 - c. Sea Grant funded the development of a unique hydrologic model to manage lake water levels and protect downstream river health. Impact 17903 from MI SG.
- 8. Climate change impacts:** The wide-reaching effects of climate change on people, property and living organisms in the coastal and marine environment are being increasingly recognized. Sea Grant supports research to understand the impacts of climate change and ocean acidification on coastal and marine species and environments, and works with communities and partners to plan for and adapt to the effects of climate change.
- a. Sea Grant funded research that developed models to forecast salmon abundance and ecological conditions based on climatic variation. Impacts 16652, 17600 from CA SG, WA SG.
 - b. Sea Grant helped local government develop a climate adaptation plan, and developed outreach on climate change that includes a regular webinar. Impact 18093, 16609 from OH SG, PA SG.
- 9. Citizen Science and Stewardship:** A relatively new area, citizen science programs enable Sea Grant to multiply its effectiveness in research and education across all three goals in the Plan. By including constituents in programming efforts, Sea Grant expands its research capacity, builds ecosystems stewardship, and encourages community involvement.
- a. Sea Grant formed the Coastal Research Volunteers group to pair local citizens with researchers, increasing monitoring and restoration capacity and decreasing staff costs. Impact 17186 from NH SG.
 - b. Sea Grant coordinated a citizen science monitoring program to monitor water quality and storm drains. Impact 17142, 16599 from DE SG, NH SG.
 - c. Sea Grant collaborated to create environmental education programs that train volunteers to assist with habitat enhancement and monitoring activities. Impact 17298 from FL SG.
 - d. Sea Grant established the State of the Oyster Study, using resident citizen scientists to monitor shellfish. Impact 17388 from WA SG.

II. Assessment of SG's progress towards its strategic plan focus area goals and outcomes

Analysis of impacts reported during 2012 provides insight into SG's progress, as identified in the Plan. These figures indicate the majority of programming produces impacts aligned with goals 2 and 3, comprising 39% and 34% of reported impacts, respectively (see figure 1 below) and slightly fewer for goal 1, representing 27% of impacts.

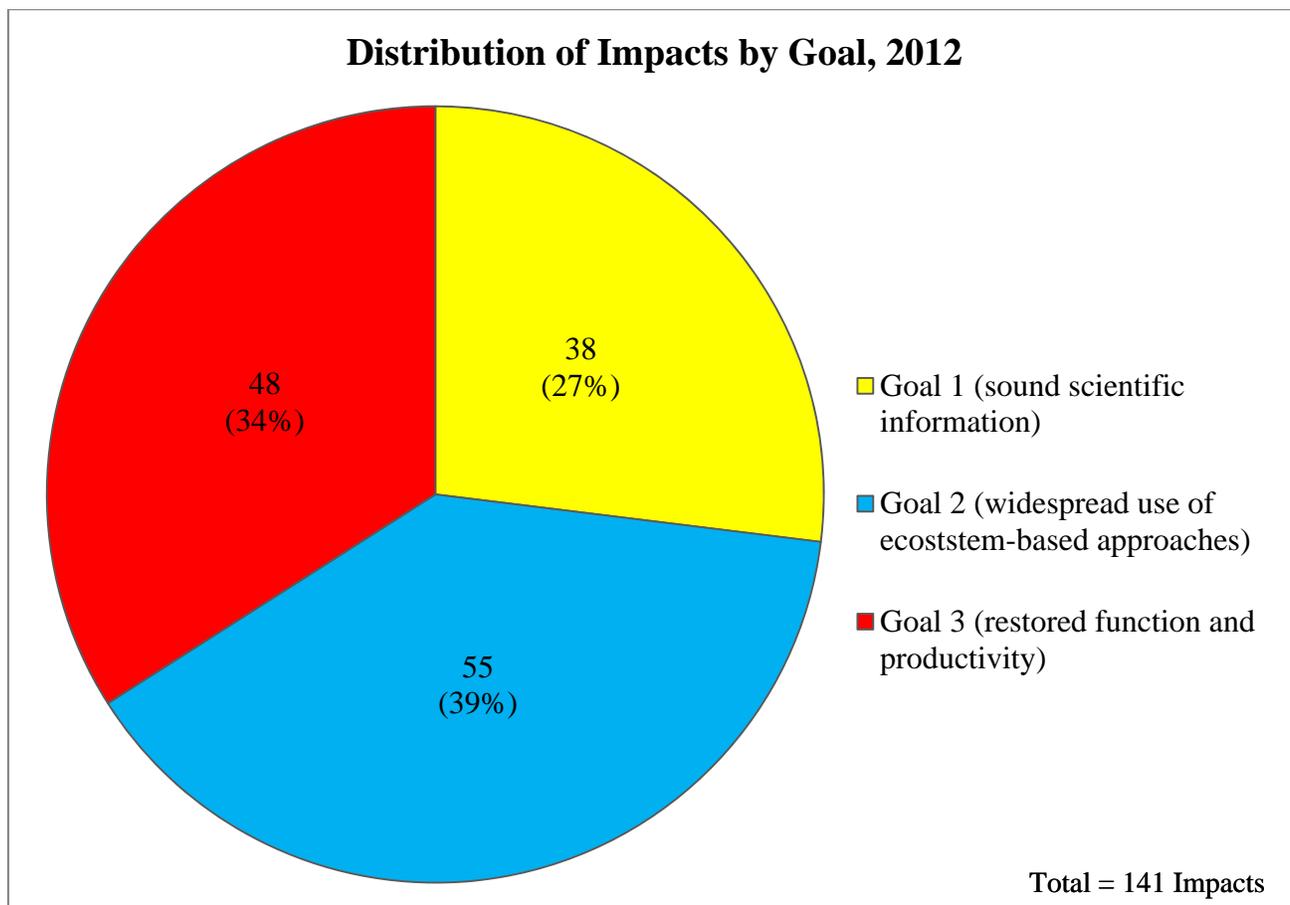


Figure 1. Distribution of 2012 HCE impacts by goal

These figures suggest that, for this reporting year; there are a greater number of impacts associated with the application of ecosystem based management methods, and restoration and water quality, and fewer impacts having to do with the research and development of restoration science and methods. This distribution is somewhat consistent with the 2012 report, though it appears that goal 3 counts for a larger share of impacts in 2013 versus 2012. Note that quantitative assessment of HCE impacts does not consider differences between them. Analyzing impacts in this manner therefore may not tell the full story, but is useful to indicate how HCE impacts are distributed into the strategic plan.

Assessment of SG's progress toward plan directs us to further examine the distribution of impacts among individual strategies within each of the HCE focus area goals. The following analyses provide further resolution and describe how impacts work toward the goals in the plan.

Under the National Strategic Plan, Sea Grant supports the following HCE national goals:

Goal 1: Sound scientific information to support ecosystem-based approaches to managing the coastal environment, 38 impacts (27%)

- **Strategy 1: Research ecosystem processes, 20 impacts (53%).** Conduct research on ecosystem processes, the relationships between coastal stressors water quality degradation, contaminants, harmful algal blooms, invasive species, and wetlands loss, and long-term human and ecosystem health, and communicate this information to public and private planners, decision-makers and managers.
- **Strategy 2: Develop information and data products to support ecosystem-based management, 12 impacts (32%).** Contribute to the development of baseline data, standards, and indicators to support ecosystem-based approaches to land use, water, fisheries, and other resource management, working with programs such as NOAA's National Centers for Coastal Ocean Science, ocean observing programs, and others.
- **Strategy 3: Develop methods to evaluate ecosystem based management, 6 impacts (16%).** Develop methodologies that can be used to evaluate ecosystem-based management approaches to assess their effectiveness once they are in place, and to guide future management efforts, working with the National Marine Fisheries Service and other federal, state and local partners.

Goal 2: Widespread use of ecosystem-based approaches to managing land, water and living resources in coastal areas, 55 impacts (39%)

- **Strategy 1: Collaborate to disseminate tools and approaches for ecosystem planning and management, 31 impacts (56%).** Work with partners within and outside of NOAA to develop data, models, and training activities that support ecosystem-based planning and management approaches, and share these with a wide variety of constituencies.
- **Strategy 2: Advance ability to monitor and predict effects of human activities and environmental changes on coastal resources, 11 impacts (20%).** Support the development of regional coastal observation systems and other collaborative efforts that advance our capability to predict the effects of human activities and environmental changes on coastal resources in order to take steps to mitigate their effects.
- **Strategy 3: Education on coastal, ocean, and Great Lakes; and stewardship of healthy ecosystems, 13 impacts (24%).** Provide life-long learning programs for people of all ages that enhance understanding of coastal, ocean and Great Lakes environments and promote stewardship of healthy ecosystems.

Goal 3: Restored function and productivity of degraded ecosystems, 48 impacts (34%)

- **Strategy 1 Research to identify/improve restoration, 5 impacts (10%).** Support research to improve the effectiveness of ecosystem restoration and identify promising new restoration approaches and technologies.
- **Strategy 2: Develop and disseminate tools to address impacts of water quality and AIS in coastal, ocean, and great lakes, 30 impacts (63%).** Invest in the development and dissemination of new information, policies, technologies and methods to address water quality degradation, prevent the introduction and spread of aquatic non-native species, and minimize the negative impacts of these on coastal, ocean and Great Lakes food webs.
- **Strategy 3: Give technical support for specific restoration/mitigation, 13 impacts (27%).** Provide technical support for citizens and businesses that need help with specific mitigation/restoration problems, giving them access to the latest information and techniques.

In total, 142 impacts were reported under HCE national goals. We note that program impacts only give a snapshot of Sea Grant’s work in HCE, but based on the distribution of impacts across the goals, it is evident that the network is making progress towards the three goals.

III. Pinpointing gaps to achieve the focus area goals outlined in the National Strategic Plan

In this section we assess Sea Grant’s ability to address “Gaps”, which represent critical areas of need where Sea Grant can make a significant and national contribution. We use reported impacts to inform progress toward gaps identified in the 2012 Focus Team report, and to identify “New Gaps”. This introspective analysis shows that Sea Grant is working toward the following gaps:

Addressing Existing Gaps

1. Pre and post-restoration monitoring of restoration efforts

Figures indicate that SG is involved in monitoring of restoration efforts, particularly in connection to emerging impacts from citizen science programs and the use of cost-benefit analysis tools. As the SG network produces impacts related to water quality and coastal marine and fresh water habitat restoration, continued work to assess the value and success of these projects is necessary to ensure effective restoration practices and programs.

2. Regional approach to addressing ecosystems issues

Analysis of SG programming in this area shows that the network is using regional partnerships and collaborations to address ecosystems issues. Efforts such as collaborations and partnerships in aquaculture

and STEM education, and the continuation of pharmaceutical disposal programs illustrate SG's ability maximize effectiveness by reaching out to form working relationships.

3. Use of communications technologies to provide education on ecosystems-based approaches to coastal issues

Results from programming indicate that SG continues the use of technology resources in education efforts. Utilizing technologies such as web-based resources, GIS and GeoQuest tools, SG is able to strengthen its education efforts by increasing its reach to various constituent groups. As technology continues to increase in this area, so will opportunities for SG to address this gap by taking advantage of new methods of communication.

4. Baseline habitat research

It has been noted in past reports that this gap does not fit well into SG reporting. However, SG activity in this area indicates that there has been a gradual increase in efforts within the SG network to address baseline habitat research. SG work in marine protected areas and beach restoration, as well as work to help assess the potential impacts of alternative energy on ecosystems indicates progress toward addressing this gap.

5. Impacts addressing climate change

The number of impacts reported in 2012 indicates a significant increase in the amount of SG contribution addressing climate change. Impacts covering the effects of climate change on habitat monitoring and restoration, sea level rise and shoreline erosion, and storm water management are just a few of the areas that SG is addressing the challenges of this gap.

6. Development of innovative and safe eradication methods for invasive species

SG produces a large amount of impacts in invasive species outreach and education, but comparatively few from the development of new technologies and eradication methods. This indicates SG's capacity to educate and be prepared for invasive species in our domestic waters, but also shows a need to focus more effort on safe and effective methods of removing or controlling invasives.

New Gaps

1. Improve the detection and analysis of invasive species

SG programming has devoted significant resources to education and outreach on invasive species. However, the Focus Team has acknowledged a need to increase SG's research capability to test for the presence of invasive species and to further assess the effects of invasive species on ecosystems.

2. Increase capacity for ecosystem services valuation

Related to existing gaps in restoration efforts, the Focus Team has identified a need to increase SG's capacity for ecosystem services valuation. Increasing the network-wide capability to assign and communicate value to and about ecosystems is a critical component across the HCE focus area. Development of guidelines, models, and network-wide toolkits could greatly increase SG's ability to accurately communicate the total value of ecosystems and the services they provide, as well as provide tools for managers to incorporate such information into their decision making.

3. Increase research on harmful algal blooms (HABs)

Tied to the existing gap in climate change, there is a need to research the causes and detection of HAB events; and as climate change progresses information will be crucial to the health of humans and ecosystems. Questions also remain about seafood consumption during HAB events, providing opportunity for collaboration with the Safe and Sustainable Seafood Supply focus area.

IV. Identification of emerging issues and new opportunities for Sea Grant

1. Blue Carbon:

There has been recent and significant attention paid to the role that coastal ecosystems play in sequestering and storing carbon. Sea Grant can play a critical part by working with partners to answer questions about the value of carbon storage and sequestration in coastal habitat, and to identify methods for mapping and targeting for protection and restoration.

2. Water rights:

Water supply is becoming a critical natural resource issue which could affect the health of our coastal ecosystems. Increasing population, climate change, new industrial uses, environmental needs and regional sharing of scarce water resources makes water planning and conservation essential. Each coastal state has its unique problems in allocating water because of additional needs for communities, coastal restoration, fisheries habitat, energy production and other needs. There is a need to help states develop comprehensive long-term policies and plans to manage water sources and to address not only their individual state uses but also in the context of regional demand.

3. Multidisciplinary research and outreach:

Sea Grant could increase its ability to address complex coastal and marine issues using multidisciplinary collaborations. Integrating physical and social sciences together in the research and outreach process would allow Sea Grant to capitalize on benefits from both disciplines to further its goals.

4. Sustainability outreach and education

Sustainability outreach and education is a critical area that Sea Grant could capitalize on through application in its focus areas. By incorporating sustainable concepts in economics, environment, and society into existing activities, Sea Grant could build on existing efforts to ensure that sustainable practices are encouraged throughout its efforts.

Safe and Sustainable Seafood Supply Focus Team Report 2013

The purpose of this Focus Team report is to view the entirety of the Sea Grant Network and its progress towards the 2009-2013 National Strategic Plan (Plan) and its national impact. Much of this report derives from an analysis of “impact statements” (impacts) submitted by each Sea Grant (SG) Program via NOAA Sea Grant's Planning, Implementation, and Evaluation Resources (PIER) system. These impacts describe significant and verifiable economic, societal and/or environmental benefits of SG work in the Safe and Sustainable Seafood Supply (SSSS) Focus Area, according to the strategic plan.

This report is organized into four functions:

1. Assess SG's progress towards its strategic plan focus area goals and outcomes;
2. Identify national impacts that should be highlighted in communication products and reporting;
3. Pinpoint gaps to achieve the focus area goals outlined in the Plan;
4. Identify emerging issues and new opportunities for SG.

This report is based on compilation and analysis of impacts reported during the 2012 report year. Impacts were categorized into goals and strategies within the SSSS focus area using a predetermined set of criteria to ensure consistency. This compilation process serves several objectives across the sections of this report: In section 1, we assess progress toward plan, by analyzing the completeness with which SG is addressing the goals and associated strategies set forth in the Plan. In section 2 of the report, “national impacts” are identified and highlighted according to each goal. Sections 3 and 4 serve to guide future SG programming efforts by identifying gaps and assessing new opportunities.

Safe and Sustainable Seafood Supply Focus Team Report 2013

1. Assessment of SG's progress towards its strategic plan focus area goals and outcomes

Analysis of impacts reported during 2012 provides some insight into SG's progress, as identified in the Plan. Similar to previous report years, the majority of impacts pertain to goals 1 and 2, comprising 50% and 36% of reported impacts, respectively (see figure 1 below). Also following previous reports, goal 3 was least represented and accounted for 14% of impacts.

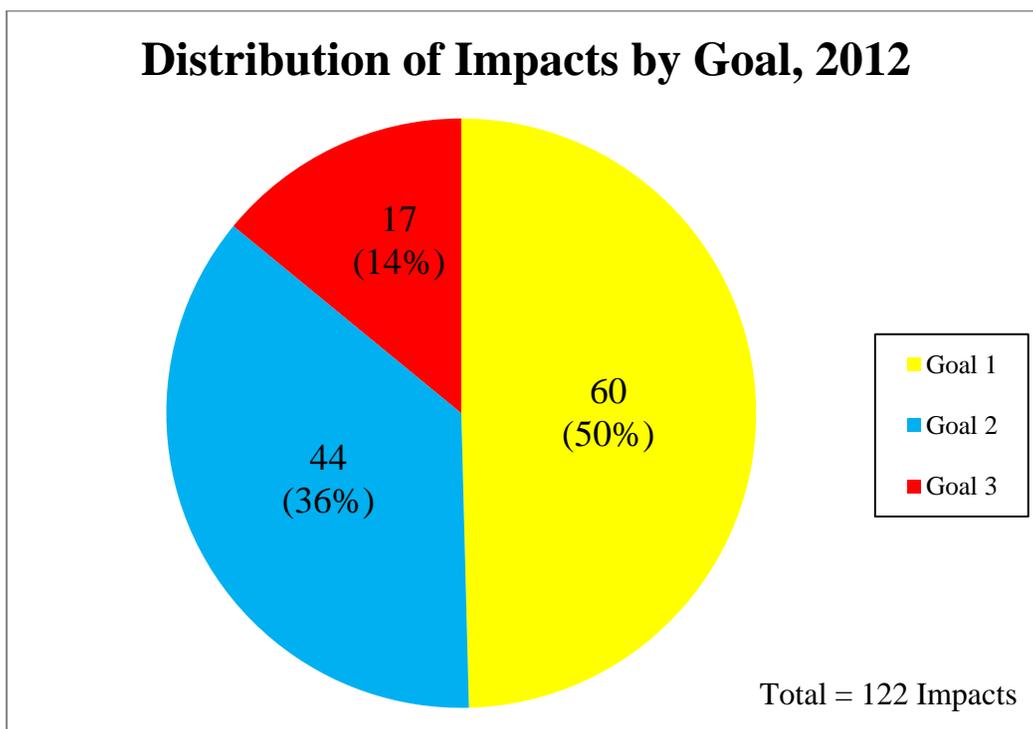


Figure 1. Distribution of 2012 impacts by goal

For this reporting year, there were a greater number of SSSS impacts that support seafood sustainability and supply and the health of our domestic seafood industry, and fewer impacts associated with the education and training component of the focus area. This distribution is consistent with previous reporting years.

Assessment of SG's progress toward plan directs us to further examine the distribution of impacts among individual strategies within each of the SSSS focus area goals. The following analyses provide further resolution and describe how impacts work toward the goals in the Plan. Under the Plan, SG supports the following SSSS national goals and strategies:

Safe and Sustainable Seafood Supply Focus Team Report 2013

Goal 1: A sustainable supply of safe seafood to meet public demand

1. **Strategy 1: Support sustainable ecosystem based fishery management.** Use Sea Grant's research, extension, education, and communication capabilities to develop and disseminate essential knowledge about natural and human threats to the long-term viability of wild fish populations, to identify ways to minimize these threats, and to use ecosystem-based fisheries management and other innovative approaches to accomplish this.
2. **Strategy 2: Support viable and sustainable domestic aquaculture.** Conduct integrated research, education, and outreach activities to support a viable domestic aquaculture industry with acceptable environmental impacts, in ways that are consistent with national objectives, building on the leadership role Sea Grant plays in this area.
3. **Strategy 3: Collaborate with federal and state partners to enhance wild fisheries.** Work with NOAA's National Marine Fisheries Program, other federal and state partners, and the seafood industry to enhance the management and productivity of wild fisheries.

Strategy 1: 32 impacts (53%)	Strategy 2: 20 impacts (33%)	Strategy 3: 8 impacts (13%)	Total Goal 1: 60 impacts
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Goal 1 accounted for the largest number of impacts submitted in 2012, likely reflecting the amount of SG programming in support of sustainable seafood. Further analysis indicates that the majority of goal 1 impacts are supported through strategy 1, fewer impacts attributed to Strategy 2, and fewer still to strategy 3. Taken together, these figures indicate that the majority of SG's goal 1 programming produced impacts focused on wild fishery resources and aquaculture-produced seafood.

Goal 2: A healthy domestic seafood industry that harvests, produces, processes, and markets seafood responsibly and efficiently

1. **Strategy 1: Engage constituents to develop innovations in the use of natural resources.** Engage harvesters, recreational fisherman, producers and managers in the development of research and management innovations related to the condition, use, and conservation of the natural resources they depend on.
2. **Strategy 2: Support new technologies for the viability and sustainability of the domestic seafood industry.** Support research, development, and transfer of new technologies to keep the domestic seafood industry financially competitive and environmentally responsible.

Safe and Sustainable Seafood Supply Focus Team Report 2013

3. **Strategy 3: Engage with industry to increase seafood value.** Work with the seafood industry to develop new products and innovative marketing approaches to increase seafood availability and profitability.

Strategy 1: 7 impacts (16%)	Strategy 2: 18 impacts (41%)	Strategy 3: 19 impacts (43%)	Total Goal 1: 44 impacts
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Goal 2 accounted for fewer impacts than goal 1, but nonetheless illustrates SG's focus on domestic seafood industry issues. Strategy analysis indicates a similar level of investment between strategies 2 and 3, with fewer impacts attributed to strategy 1. These figures suggest that SG's work under goal 2 produces mostly impacts related to development of production and marketing technologies, and fewer having to do with engaging stakeholders on the use of natural resources.

Goal 3: Informed consumers who understand the importance of ecosystem health and sustainable harvesting practices to the future of our domestic fisheries, who appreciate the health benefits of seafood consumption, and who understand how to evaluate the safety of the seafood products they buy.

1. **Strategy 1: Provide seafood safety and quality training.** Enhance training and technical assistance programs related to the application of standards for safe domestic and imported seafood.
2. **Strategy 2: Conduct public seafood education and outreach.** Develop educational programs and materials that enhance the American public's understanding of what is required to maintain sustainable domestic fisheries and to build the public's awareness of differences in the quality, safety, and nutritional benefits of different seafood products so they will be informed advocates and consumers.
3. **Strategy 3: Use information technology to educate about seafood.** Work in close coordination with the National Marine Fisheries Service and other federal partners to develop information portals that give access to factual information on seafood safety.

Strategy 1: 8 impacts (47%)	Strategy 2: 6 impacts (35%)	Strategy 3: 3 impacts (18%)	Total Goal 1: 17 impacts
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Goal 3 accounted for the fewest number of impacts, but impacts were reported for each of the 3 strategies within this goal. When viewing the distribution of strategies among goal 3, we find that strategies 1 and 2 account for the majority of impacts, whereas strategy 3

Safe and Sustainable Seafood Supply

Focus Team Report 2013

represents comparatively few. This indicates a greater number of impacts pertaining to training seafood producers and educating consumers, and fewer impacts related to the development of electronic media for communicating seafood safety.

The preceding figures and analyses indicate that SG is making progress toward its Plan. This is supported by the distribution of SG programming that addresses each strategy within the goals in the Plan. However, the degree of progress towards each strategy requires further evaluation, both quantitative and qualitative, relative to implementation plan targets. The following section further describes the nature of Sea Grant efforts within these goals.

2. Identification of national impacts that should be highlighted in communication products and reporting

The SSSS Focus Team members identified 58 “national impacts” from the 2012 submissions. Three working definitions (criteria) for “national impacts” were used:

1. An impact that currently has relevance on a national scale and shows that SG is a national program, and/or;
2. An impact that is mature and ready for expansion to a national scale and, if expanded, will clearly show that SG is addressing national needs, and/or;
3. An impact that demonstrates an appropriate level of innovation and novelty.

Given the above definitions, some of these were individual program impacts and some were network-wide efforts addressing similar topics (e.g., aquaculture, safety at sea, HACCP training). National impacts were categorized under each of the three goals as follows:

Goal 1: A sustainable supply of safe seafood to meet public demand

Strategy 1: Sea Grant supports sustainable ecosystem-based fishery management

1. SG’s research on thresher sharks, spiny lobster, and blue crab helped inform sustainable management decisions. Impacts 16718, 16647, 17061 from CA SG, MD SG.
2. SG helped the New England Fishery Management Council include social sciences in policy decisions. Impact 17785 from MIT SG.
3. SG research on the effect of geoduck aquaculture on eelgrass led to buffer zones for eelgrass meadows. Impact 17366 from WA SG.
4. SG research led to the development of an automated pelagic egg sampling technology that has been adopted by fishery managers in the US and internationally. Impact 16716 from CA SG.

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Strategy 2: Sea Grant supports viable and sustainable domestic aquaculture

5. SG developed an oyster spatfall model and used monitoring data to guide restoration efforts. Impact 16979 from MD SG.
6. SG research informed oyster management, helping Georgia shellfish growers expand their market. Impact 17287 from GA SG.
7. New Hampshire SG helped develop aquaculture site permitting process for oyster farmers. Impact 16583 from NH SG.
8. SG research aided the aquaculture industry by developing new procedures for non-lethal VHS testing and the removal of VHS pathogens from fish eggs. Impacts 18127, 16689 from WI SG, NY SG.
9. SG research aided the aquaculture industry through developments in multi-trophic aquaculture technologies, by adapting sea vegetable species for commercial grow out and raising awareness of aquacultured products. Impacts 16582, 17332, 17392, 16883, 17095 from NH SG, FL SG, CT SG, ME SG.
10. SG research developed protocol for Alewife aquaculture production and led to the discovery of a substitute for using horseshoe crab bait. Impacts 16730, 17163 from NH SG, DE SG.
11. SG funded the development of a biotoxin testing instrument to keep contaminated shellfish out of consumers' food supply. Impacts 17505, 17554 from WA SG.

Strategy 3: Sea Grant collaborates with federal and state partners to enhance wild fisheries

12. SG's project to restore habitat for coho salmon influenced policy on in-stream barrier removal. Impact 16472 from CA SG.
13. SG developed a more efficient bycatch reduction device for gulf shrimpers, boosting catch-per-unit-effort. Impact 17268 from TX SG.

Goal 2: A healthy domestic seafood industry that harvests, produces, processes, and markets seafood responsibly and efficiently

Strategy 1: Sea Grant engages constituents to develop innovations in the use of natural resources

1. SG supported the seafood industry through a quality assurance program. Impact 17284 from MD SG.
2. SG continues to provide vessel safety training for commercial fishermen, reducing loss of life at sea and economic costs from rescue operations. Impacts 17272, 17873 from WA SG, MS-AL SG.

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Strategy 2: Sea Grant supports new technologies for the viability and sustainability of the domestic seafood industry

3. SG supported research for economically viable and locally sourced fishmeal replacements, reduced feed and labor costs for abalone farmers, and helped draft a state plan for off-bottom oyster aquaculture. Impacts 14978, 16429, 16549, 16759 from CA SG, HI SG, LA SG.
4. SG researchers developed a GIS-based aquaculture siting tool to help seafood farmers identify profitable sites, 16681 WI SG
5. SG helped with cost reduction and marketing through business management software. Impact 16724 from NH SG.

Strategy 3: Sea Grant engages industry to increase seafood value

6. SG provided business assistance to seafood processors, and training to help tribal fishermen increase the value of their catch. Impacts 17971, 17277 from AK SG, WA SG.
7. SG provided expertise to help set up community supported fishery (CSF) and direct-marketing operations, and helped establish a brand and develop web-based marketing for local shrimpers. Impacts 16723, 17450, 16752, 16783 from NH SG, NC SG, LA SG.
8. SG conducted workshops to educate shrimp farmers on international markets, and influenced public perception of Lake Superior cisco fishery sustainability. Impacts 17767, 16573 from IL SG, MN SG.
9. SG helped establish “catch and cook” program to support local economies, educated the public on oyster flavors through a tasting panel and publications, and collaborated with a local TV network station to educate public about purchasing local seafood. Impacts 17929, 17816, 17644 from MI SG, VA SG, NC SG.
10. SG administered business development training to fishermen and local oyster growers, and distributed economic assistance via the Trade Adjustment Assistance (TAA) program. Impacts 17058, 17867, 17261, 17444 from ME SG, MS-AL SG, TX SG, NC SG.

Goal 3: Informed consumers who understand the importance of ecosystem health and sustainable harvesting practices to the future of our domestic fisheries, who appreciate the health benefits of seafood consumption, and who understand how to evaluate the safety of the seafood products they buy.

Strategy 1: Sea Grant provides seafood safety and quality training

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1. SG educated seafood processing and retail employees, provided HACCP and seafood safety training to businesses, and helped develop a video on seafood safety training. Impacts 17274, 17930, 17315, 17418, 17449, 17799 from HI SG, MI SG, FL SG, GA SG, NC SG, VA SG.
2. SG conducted research to reduce pathogen growth on value added seafood products. Impact 18131 from NYSG.

Strategy 2: Sea Grant conducts public seafood education and outreach

3. SG led and collaborated in campaigns to educate recreational fishers on control and mitigation of invasive species, and provided volunteer coordination and training for a program to monitor harmful algal blooms. Impacts 16671, 16883, 17387 from WI SG, WA SG.

Strategy 3: Sea Grant uses information technology to educate about seafood

4. SG trained K-12 educators to use aquaponics as a learning tool, and in a network-wide effort; SG launched a web tool to educate consumers about seafood consumption. Impacts 16672, 17146 from WI SG, DE SG.

3. Pinpointing SSSS Focus Area gaps to achieve the focus area goals outlined in the National Strategic Plan

In previous versions of this report, gaps identified in prior Focus Team reports were examined with respect to impacts reports in the current reporting year. This report follows the same convention, with the addition that we consider both impacts and accomplishments to better inform on current SG work in the gaps discussed below.

1. Educating consumers about seafood sustainability

A gap since the 2011 report, limited progress has been made in this area, though these results may be affected by the specificity of this gap. It is also important to note that reporting may not fully account for complimentary areas of programming that have significant components of consumer education (e.g., community supported fishery programs and direct-marketing efforts).

2. Partnering with NOAA and the U.S. Food and Drug Administration (FDA) on seafood and fisheries management issues

A gap since 2012, Sea Grant continues to provide HACCP and other seafood safety training to constituents in wholesale and retail trade. These efforts make up the majority of impacts

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associated in this area. New efforts to partner with the FDA and other parts of NOAA are limited; hence, this gap remains.

3. Catch shares

This was a new area in 2012, and the number of impacts and accomplishments addressing catch share issues reflects this. While further work to address this gap is needed, these projects indicate Sea Grant's acknowledgment of these issues as catch shares continue to affect constituents, communities, and markets.

4. Hatchery production issues

Declared a gap in 2012, PIER figures suggest that hatchery production issues have gained increasing attention in Sea Grant programming. A study of impacts associated with this gap indicates the hatchery issues remain critical to ensure our domestic seafood supply through aquaculture, stock enhancement, and restoration applications.

Cross-cutting Gaps

The following gaps indicate areas where issues under the SSSS focus area also fall under one or more of SG's other focus areas. These "cross-cutting" gaps are examples where SG programming could span multiple focus areas to address issues in a holistic manner.

5. Climate and Ocean acidification impacts

Climate and ocean acidification impacts have been a gap since 2011. This gap is shared with the Healthy Coastal Ecosystems (HCE) focus area, indicating that, while work is being done to address this gap from ecosystems and resources perspectives, both focus areas may benefit from increased integration of these efforts. This would occur with clear benefit to the resources, as impacts in this focus area examine the management impacts for aquaculture and capture fisheries.

6. Ecosystem-based management and ecosystems evaluation

A gap since 2012, most impacts apply to the HCE focus area. However, ecosystem-based management and evaluation is aligned with the goals and strategies in the SSSS focus area, and therefore remains a gap. Coordinating efforts to work toward this gap in both focus areas could offer significant benefits from increasing seafood sustainability to informing management or policy decisions.

7. Fishery infrastructure and working waterfronts

A gap since 2012, Sea Grant continues work in this area through the SSSS and Sustainable Coastal Development (SCD) focus areas. Commitment to infrastructure and working waterfronts is a clear area through which these focus areas can work together to ensure the viability and economic diversity of coastal communities.

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8. Coastal and marine spatial planning

Listed in 2012, this gap is also addressed through the SSSS and SCD focus areas, and became a Sea Grant priority via the National Ocean Policy. This gap remains an important area of cross-focus area coordination as development continues to place spatial pressures on coastal and marine resources.

New Gaps

In addition to assessing progress made in the preceding gaps, individuals on the Focus Team identified the following additional gap where SG stands to make a national contribution.

1. Fisheries information systems

There is a current revolution in the use of fisheries information systems, in which SG can play a significant role. The development and use of technologies, such as real-time data collection and electronic monitoring systems, are a chance for SG to play a role in research and application of these technologies. In addition, SG can reach out to ensure smooth transition to this new technology and keep communication lines open between constituents and managers.

4. Identification of emerging issues and new opportunities for Sea Grant

Individuals on the focus team identified several opportunities for Sea Grant to play a role in emerging issues in the SSSS focus area at a national level:

1. The graying of the fleet:

Sea Grant is in a unique position to address the increase in average age of fishers and fishery infrastructure. This phenomenon is commonly referred to as the “graying of the fleet.” There is a need for research and outreach to address what limits the entry of new intellectual and physical capital in our domestic fisheries.

2. Environmental and pollutant monitoring:

Many ecosystem services, upon which the seafood industry and coastal economies rely, are vulnerable to variable water quality, waterborne pathogens, and water chemistry. As such, these hard-to-detect, deleterious changes ultimately affect ecosystem productivity and economic health of coastal communities. There is a need to study and quantify these effects to develop tools and policies to address these effects on the seafood industry.

Sustainable Coastal Development 2013 Focus Team Report

BACKGROUND

The 2009-2013 National Sea Grant Strategic Plan (Strategic Plan) identified three national goals for the Sustainable Coastal Development (SCD) focus area: 1) healthy coastal economies that include working waterfronts, an abundance of recreation and tourism opportunities, and coastal access for all citizens; 2) coastal communities that make efficient use of land, energy, and water resources and protect the resources needed to sustain coastal ecosystems and quality of life; and 3) coastal citizens, community leaders, and industries that recognize the complex inter-relationships between social, economic, and environmental values in coastal areas and work together to balance the multiple uses and optimize environmental sustainability.

Annually, each Sea Grant (SG) Program submits short “impact statements” (impacts) via the National Sea Grant Office reporting process (PIER). Impacts describe significant and verifiable economic, societal and/or environmental benefits of SG work and how efforts have made a difference in the lives of coastal residents, communities, and environments. The impact reporting process has become an increasingly important means of enhancing visibility, demonstrating accountability, generating support and building a reputation as a focused, productive and successful program.

This 2013 Focus Team Report examines SCD impacts that were produced in the 2012 reporting year of February 1, 2012- January 31, 2013. Examination of the impacts allows the focus team to achieve the following objectives:

- 1) Assess SG’s progress towards its strategic plan focus area goals and outcomes;
- 2) Identify national impacts that should be highlighted in communication products and reporting;
- 3) Pinpoint gaps to achieve the focus area goals outlined in the Strategic Plan; and,
- 4) Identify emerging issues and new opportunities for Sea Grant.



NETWORK PERFORMANCE

Since 2009, the Sea Grant programs have tracked the impacts and accomplishments associated with all four focus areas. These data are reported as a performance measure, as part of the Government Performance and Results Act¹ (GPRA). The Table below shows the number of communities (both new and recurring) that, between 2009 and 2012, adopted and/or implemented sustainable practices and policies. The data suggest an increased trend since 2009, meaning that the Sea Grant network's activity has been successfully implemented.

SCD Network Performance 2009-12	
	<i>Number of coastal communities who have adopted/implemented SCD practices and policies²</i>
2009	435
2010	368
2011	896
2012	1272

ORGANIZATION OF REPORT

SECTION ONE: The first and second objectives are reported and analyzed according to each of the three SCD Goals. An introductory summary of findings is provided. Then, identified themes for each are goal area listed with the representative impacts statements.

SECTION TWO: The second section identifies previous and newly identified gaps in Sea Grant's work. Gaps represent both the 2012 reporting year as well as those identified through the previous years in the Plan.

SECTION THREE: This section reports on emerging themes and areas of opportunity for the Sea Grant network. The identified themes and opportunities represent both work achieved by the Sea Grant programs and the National Sea Grant Office. This section concludes with general comments from focus team members.

¹ <http://www.whitehouse.gov/omb/mgmt-gpra/index-gpra>

² This measure tracks communities that have made strides in sustainable development with Sea Grant aid – moving beyond analysis and planning and into implementation.

FOCUS TEAM MEMBERS

NAME	TITLE	AFFILIATION
Mike Liffmann	Chair	National Sea Grant Office
Brian Miller	Vice-Chair	Illinois-Indiana Sea Grant
Chris Hayes	Alternate Chair	National Sea Grant Office
Hank Hodde	Coordinator	National Sea Grant Office
John Carey	Member	Hawaii Sea Grant
Jim Falk	Member	Delaware Sea Grant
Kristen Grant	Member	Maine Sea Grant
David Hart	Member	Wisconsin Sea Grant
Jim Hurley	Member	Wisconsin Sea Grant
John Jacob	Member	Texas Sea Grant
Marty Jaffe	Member	Illinois-Indiana Sea Grant
Tom Murray	Member	Virginia Sea Grant
Mike Orbach	Member	National Sea Grant Advisory Board
Stephanie Showalter-Otts	Member	National Sea Grant Law Center
Sarah van der Schalie	Member	NOAA Office for Coastal Management

SECTION ONE: Impact Goals and Themes

GOAL 1: Healthy coastal economies that include working waterfronts, an abundance of recreation and tourism opportunities, and coastal access for all citizens.

The focus team recognized the notable momentum in impacts throughout the past years in working waterfronts, coastal tourism, coastal access, and economic prosperity. At the start of the Strategic Plan, few programs had impacts relating to these important topics, but now many more programs are involved in this work. Programs are collaborating through academic, regional networks, and communities of practice to increase attention and devote more resources towards tangible impacts in coastal communities. Many SG programs now have well-known specialists and agents who provide much needed information to decision-makers in communities. These experts are frequently the go-to resources for coastal communities and constituents. Also, Sea Grant programs are continuing to collaborate with federal and state agencies, local authorities and organizations, and the private sector.

THEME: *Preserving Working Waterfronts*

Cordova Clean Harbor Project

ALASKA SEA GRANT (AKSG) Marine Advisory agent Torie Baker facilitated a harbor education and outreach program for citizens and local organizations wishing to improve water quality in the harbor, minimize harbor trash, and increase awareness of harbor services. During the summer of 2012 she led development and dissemination of an online and in-person survey administered by volunteers, resulting in 334 harbor users identifying issues, attitudes about harbor conditions, and possible solutions. Now, the Cordova, Alaska, harbor is moving toward a comprehensive trash and pollution mitigation program through the Cordova Clean Harbor Project.

Sea Grant Provide Leadership to Launch the National Working Waterfronts Network

Since 2007, Sea Grant has provided leadership, offered technical assistance, and facilitated networking opportunities to address working waterfront issues around the country. On the national level, these activities have included the three national symposiums, the development of the Sustainable Working Waterfronts Toolkit, and the launch of the National Working Waterfront Network (NWWN). As a result of these efforts, Sea Grant has raised the visibility of working waterfront issues nationally, stakeholders are utilizing Sea Grant information to improve decision-making, and working waterfront-related legislation has been introduced and enacted at the local, state, and federal level. [LINK](#)

THEME: *Strengthening Coastal Tourism*

Southeast Alaska Invasive Species Ecotour Grows Larger In Second Year

ALASKA SEA GRANT (AKSG) helped Allen Marine Tours, a Southeast Alaska charter boat and nature ecotourism company, incorporate invasive species monitoring into its 2012 tourism offerings. The Experiential invasive species education on Allen Marine Tour's Alaskan Wilderness Survival excursions reached 375 visitors in 2012, up from 134 people who took the tour in 2011. The increase allowed the company to hire four new employees for the season, and significantly increased monitoring for marine invasive species.

Delaware Sea Grant Helps Create and Support Heritage Bus Tours to Extend Reach of Coastal Visitors and Expand Business Opportunities in Historic Communities in Western Sussex County, DE

A tourism research project funded by the University of Delaware Sustainable Coastal Communities Initiative (SCCI), led by **DELAWARE SEA GRANT** (DESG), was released in 2008. In February 2009 a half-day workshop to incorporate heritage tourism with southern Delaware tourism was held and a full-day conference was convened in May 2009. These workshops were organized by SCCI, DESG, and Southern Delaware Tourism to help stimulate and enhance economic opportunities for historic communities and focused on developing several heritage tourism itineraries throughout Sussex County, Delaware. In 2012, there were five scheduled tours from June through October.

Florida Sea Grant Program Helps Charter Boat Captains Launch New Eco-Friendly Businesses

FLORIDA SEA GRANT (FLSG) extension teamed up with the Space Coast Office of Tourism to develop an ecotourism certification program for local boat captains. The program helps the captains and their businesses and gives them an opportunity to provide a different kind of chartering experience to clientele. The tours focus on the enjoyment and conservation of the space coast's ecological and historical waterways. Seven boat captains have completed this program and have started a joint business called Space Coast Boating Adventures.

Creation of a New Funding Model for the Office of Tourism Ohio

Tourism in Ohio is a \$40 billion industry. Despite its importance in diversifying and supporting the Ohio economy, government support for the state tourism office lags that of other states in Ohio's key market areas. The budget for marketing Ohio's tourism businesses and experiences was among the lowest in the country. Because of its expertise and experience in the tourism industry, **OHIO SEA GRANT** (OHSG) facilitated long-term discussions involving creation of a new funding model for the Ohio Office of Tourism to market the state. In 2012, the Ohio Office of Tourism's FY 2013-14 budget doubled to \$10 million based on the performance model of funding marketing efforts.

Ohio Tourism Leadership Academy

OHIO SEA GRANT (OHSG) developed a leadership program for emerging Ohio tourism industry leaders to become involved in shaping the future of the industry. Eighty percent of graduates campaigned for leadership positions within three years of graduation and have run for local elected offices, statewide association board seats, or regional boards. Two earned accolades from national industry associations.

An alumni association of graduates has formed to collaborate in policy activity, mentor new class members, perform community service, and maintain relationships forged during their Ohio Tourism Leadership Academy experience. In late 2012, members of the tourism industry have ranked the program as one of the top programs in the state of Ohio.

THEME: *Improving Coastal Access for the Public*

Connecticut Sea Grant’s Collaboration with CT DoT to Assess Natural Phenomena as Determiners of Mean High Tide Contributes to the Re-Definition of the Connecticut Coastal Jurisdiction Line

A **CONNECTICUT SEA GRANT** (CTSG) collaboration with the CT Department of Transportation ruled out natural phenomena as a definitive means by which “mean high tide” can be determined for regulatory purposes, resulting in a 2012 Public Act that redefines the coastal permit jurisdiction based on elevations and accepted surveying practices.

Boating Decision-Support System Helps Government Agencies Conduct Science-Based Waterway Maintenance and Public Access Planning

For the past decade **FLORIDA SEA GRANT** (FLSG) has partnered with Florida Fish and Wildlife Conservation to conduct regional spatial profiles of recreational boating, focusing on areas where recreational boating is most intense and impacts most prevalent (e.g., Indian River Lagoon, Tampa and Sarasota Bays, Greater Charlotte Harbor, Estero Bay). The information that boaters provided has been used to develop a Recreational Boating GIS. This new system now maps popular boating traffic corridors and destination hot-spots, which gives counties insight on where problems may occur with areas of environmental concern, such as manatee and seagrass protection zones. Also, the Recreational Boating GIS has helped government and management agencies evaluate permits for waterway maintenance and marina and private dock construction.

Helping Coastal Communities Benefit Economically From Retaining Public Access To Waterways And Waterfronts

FLORIDA SEA GRANT (FLSG) recently initiated a program to support planning initiatives that engage citizens and result in direct social or economic benefits to rural coastal communities. For the pilot initiative in Taylor County, Florida Sea Grant partnered with the Taylor County UF/IFAS Extension Service to provide technical assistance to the County in support of a user and economic assessment of existing public waterway access facilities (e.g. boat ramps). As a result, the boat ramp study led to public infrastructure improvements that generated \$283K in economic impact to the Taylor County economy.

Maine Sea Grant’s Coastal Access Legal Research and Outreach Applied to Solve Conflict

Local stakeholders need cooperative approaches to resolving coastal access issues. Funded by the National Sea Grant Law Center, **MAINE SEA GRANT** (MESG) worked with the University of Maine School of Law, as well as state and nonprofit agencies, to conduct legal research that was translated and made available to coastal stakeholders through a website and regional outreach workshops. Since its development, the website has been referenced during pending law, and as a result, coastal towns are able to settle disputes and find cooperative solutions with beachfront owners. [LINK](#)

THEME: *Enhancing Economic Prosperity*

Alaska Sea Grant Helps Entrepreneur Navigate Zoning Restrictions to Open a New Seafood Processing Plant

An **ALASKA SEA GRANT** Marine Advisory Program agent provided legal research and assistance to a Bristol Bay seafood processor, Nakeen Homepack, to help navigate local planning and zoning restrictions. This newly acquired information came when there was opposition to the operation, which expressed the facility was located in a subdivision with restrictions and covenants that prohibited fish processing. Based on public support and the status of the covenants and restrictions, the processor was granted her site development permit and operated during the 2012 salmon season. She was able to process over 30,000 pounds of salmon and hired five seasonal employees.

Helping Lawn and Pond Maintenance Businesses Keep Their Operation Licenses

A new program developed by **FLORIDA SEA GRANT** (FLSG), “Landscaping on the Edge,” is training lawn care and natural area maintenance providers on how to properly apply fertilizers and pesticides to control weeds in coastal and aquatic environments. This course allowed 48 professionals to pass mandatory licensing exams and helped to sustain their jobs and small businesses. The 48 handlers that participated have an annual mean wage of \$30,890.00. Thus, the program has helped to sustain an estimated \$1,400,000 in earnings.

Technical Assistance for Oyster Growers Loan Program

MARYLAND SEA GRANT (MDSG) extension agents provided technical assistance to Maryland watermen to help them apply for and receive start-up loans worth \$717,000 to launch new oyster aquaculture businesses, creating 36 businesses and 80 jobs in Maryland. [LINK](#)

Great Lakes Shipping and Ballast Water Regulatory Action

In August 2012, the sixth meeting of the Great Lakes Ballast Water Collaborative was held in Duluth, MN, and sponsored in part by the Mid Continental EPA Lab and **MINNESOTA SEA GRANT** (MNSG). Approximately 85 representatives from the shipping industry, ballast water treatment technology industry, state and federal governments, and academia attended the two-day meeting. The goal of the meeting was to discuss ways to maintain a cost-effective modern shipping industry while preventing invasive species from entering the Great lakes. Sea Grant provided information on Great Lakes’ ballast water issues and their contributions have enabled the Great Lakes Ballast Water Collaborative to conduct and document science-based and reality-driven discussions that influence national and international ballast water management. [LINK](#)

Charter Captains Gain Business Tools to Lure New Customers and Profits

For 31 years **OHIO SEA GRANT** (OHSG) has organized the annual Ohio Charter Captains Conference. Training needs are identified via Ohio Sea Grant charter captain surveys. In 2012, 89% of captains responding to a survey, reported improving their operation based on information presented at the conference, 77% reported modifying a practice based on what they learned, and 31% report increased

profitability based on information they received at the conference. This has brought in more money to Ohio's coastal economy and provided a better product for visitors to Lake Erie.

Washington Sea Grant-Brokered Lane Agreements between Crab Fishermen and Towboat Companies Save About \$1.6 Million per Year

WASHINGTON SEA GRANT (WASG) brokered lane agreements between West Coast crab fishermen and towboat companies continues to improve maritime safety and save an estimated \$1.6 million per year by decreasing the need for crab gear replacement and reducing towboat repair costs . WSG staff also facilitated discussions between marine industry representatives, the National Weather Service, and the U.S. Coast Guard, leading to improved marine weather forecasting products and improved coastal bar closure policies.

THEME: *Promoting Economic Development*

Ho‘Opili Development Project in West Oahu That Hawaii Sea Grant Assisted Received Land Use Commission Approval to Move Forward

Over seven years ago, **HAWAII SEA GRANT** (HISG) was invited by the City and County of Honolulu Department of Planning and Permitting to participate in community meetings addressing developer D. R. Horton’s proposed designs for Ho‘opili, a 11,500 home master planned development. The project involved Hawaii Sea Grant as the initiator and organizer, Environmental Protection Agency’s Office of Sustainable Communities as the provider of state-of-the-art community design expertise, the City and County of Honolulu and its Department of Planning and Permitting, local and national developers, particularly D. R. Horton, and several community and transportation design firms with which Hawaii Sea Grant partnered. The Ho‘opili project was sustainably redesigned as a result of these interactions. In June 2012, the state Land Use Commission voted to reclassify about 1,500 acres of agricultural lands belonging to D. R. Horton for development. The project will create 27,000 jobs in construction and related services over a 20-year period, as well as 7,000 permanent jobs.

Making the Fabric Stronger: Using Collaboration and Natural Resources to Adapt to Ecological and Economic Changes

MICHIGAN SEA GRANT (MISG) research and outreach is helping small coastal towns work together to make new investments in outdoor recreation — strengthening their regional economies and touting coastal resources. Two communities have initiated a pilot “Trail Towns” project to promote walking, biking and paddling and have submitted a proposal to expand this work to other coastal towns. Another community has already implemented some of the branding, marketing and tourism suggestions, and integrated results into strategic planning for Port Sanilac. These are just a couple of activities that the communities are undertaking to attract visitors to their towns.

GOAL 2: Coastal communities that make efficient use of land, energy, and water resources and protect the resources needed to sustain coastal ecosystems and quality of life.

The SCD Focus Team highlighted very good examples of Sea Grant work's leading to tangible community-level actions. These impacts are reflected in the adoption of policies or ordinances that will help communities reduce pollution and improve water quality, and help manage these important natural resources. Communities are also improving their resilience to challenges posed by coastal hazards or limited resources. The focus team also highlighted outstanding examples of incorporating green infrastructure and land conservation as best management practices that support community efforts to manage vulnerability and restore essential landscapes.

THEME: Reducing Pollution, Improving Water Quality

Advancing Water Quality Management Plans with Education and Outreach

The Vadnais Lakes Area Water Management Organization completed a watershed-based Total Maximum Daily Load (TMDL) plan that targeted large reductions for excessive nutrients (five lakes) and for excessive bacteria (one stream). To support the plan, the Management Organization partnered with **MINNESOTA SEA GRANT** (MNSG) and others through the NEMO (Nonpoint Education for Municipal Officials) program. Together, the partners designed and implemented an outreach and education program for elected and appointed officials about the connection between land use and water quality. Since partnering, the TMDL plan received broad support and local acceptance because of effective outreach and education.

Work with Municipal Officials Improves Policies Related to the Clean Water Act

MINNESOTA SEA GRANT (MNSG) coordinates, designs, and leads NEMO (Nonpoint Education for Municipal Officials) programming for local leaders in cooperation with Minnesota Extension. Northland NEMO (www.northlandnemo.org) uses approaches such as workshops-on-the-water and tools such as the Watershed Game. Training conducted by MNSG in "Linking Land Use to Water Quality" and the Watershed Game, and a new presentation focused on rural communities, has provided trainers with the tools to reach new parts of the state. Train-the-trainer sessions during 2012 expanded the use of the Watershed Game to 10 states and 85 facilitators, with more sessions being planned. These actions have increased the knowledge of local elected leaders that have consequently implemented new plans, practices, and policies to meet the requirements of the Clean Water Act in their communities.

The Minnesota Clean Marina Program

MINNESOTA SEA GRANT (MNSG) led a state-based effort to create the Minnesota Clean Marina Program, which offers information, guidance, and technical assistance to marina operators, local governments, and recreational boaters on Best Management Practices that can be used to prevent or reduce pollution. In 2012, The Minnesota Clean Marina Program launched a website and the "MN Clean Marina Workbook" was finalized after being reviewed and edited by MN Pollution Control Agency and MN

Department of Natural Resources personnel. In December 2012, the Minnesota Clean Marina Program certified its first 6 Minnesota Clean Marina facilities. Applications for 9 additional marinas have been received. The certified marinas agree to protect fish and wildlife habitats through better marina and harbor design and habitat enhancement measures. [LINK](#)

Promoting Regional Water Quality Protection Initiatives

NEW YORK SEA GRANT (NYSG) facilitated the formation of a cross-jurisdictional watershed protection committee in order to mitigate water quality impacts from their activities in a coordinated fashion. NYSG's NEMO program explained the potential to reduce costs and improve stormwater management by leveraging expertise, equipment and funding. In August 2012, efforts came to fruition when 14 municipalities signed an agreement to work together to protect water quality and to establish the Oyster Bay/Cold Spring Harbor Protection Committee. SG staff assisted in the development of a successful grant application, which provided for a coordinator to lead the committee's efforts. The Committee plans to heighten awareness of the need to protect Oyster Bay and Cold Spring Harbor and to obtain increased funding for protective measures in 2013.

Septic System Replacements and Repairs Improving Water Quality

Working with the Charleston Soil and Water Conservation District, the state natural resource agency, and the state environmental health agency, **SOUTH CAROLINA SEA GRANT** (SCSG) assisted with organizing and conducting a number of workshops where participants received information on repairing, replacing, and maintaining septic systems in rural, economically disadvantaged, coastal communities. In addition, residents were educated about how activities at home could impact water quality in their community. As a result of this project and other related work, the state reported water quality improvements to the USEPA, and was able to re-open to harvest 883 acres of previously long closed shellfish beds in the project area. [LINK](#)

THEME: *Managing Water Resources*

Sea Grant Facilitated Master Plan Process Develops Municipal Growth Scenarios that Result in Revised Wastewater Agreement to Address Chesapeake Bay Pollution Control Requirements

Using a Community Viz-based land use model developed by **DELAWARE SEA GRANT** (DESG) and the weTable technology, municipal leaders and residents developed a growth scenario that focused on future wastewater infrastructure needs and assisted the Towns of Bridgeville and Greenwood in developing an approved Master Plan that may protect and improve local water resources while removing barriers for implementing acceptable practices.

76 Northwest Illinois Communities Positioned To Adopt Lawn-Watering Restrictions

Illinois-Indiana Sea Grant (IISG) provides resources and expertise for the Northwest Water Planning Alliance (NWPA), a sub-regional water supply planning group comprised of 1.3 million residents northwest of Chicago, to meet its goals, including developing policies and plans that support or complement the larger regional water supply plan. As a result, a lawn watering restriction ordinance

was developed and approved by NWPAs, which is comprised of 76 northwest Chicago suburban communities.

Lawn to Lake Leads To Water Savings

ILLINOIS-INDIANA SEA GRANT (IISG) worked with the Chicago Metropolitan Agency for Planning to develop and implement regional water supply/demand plan recommendations, including promotion of water conservation. IISG led Lawn to Lake, a program that promotes practices that reduce water use in lawn and landscape care to help communities address peak outdoor water demands. Lawn to Lake workshops and informational materials led to management changes on an estimated 18,000 lawn acres for a water savings of 984,665 gallons per day over the 2012 summer season (for a total of 88.8 million gallons).

THEME: *Adopting Green Infrastructure, Conservation, and Sustainability Practices*

30 Illinois Communities Implement Green Infrastructure Projects

ILLINOIS-INDIANA SEA GRANT (IISG) received funding from Illinois EPA to study the standards and costs of green infrastructure as a possible replacement or supplement to conventional urban stormwater infrastructure. The study found that, on average, green infrastructure practices are just as effective as conventional stormwater infrastructure, and are less expensive. Sea Grant's Martin Jaffe presented his final recommendations to the Illinois General Assembly. In 2012, the state General Assembly established a \$5 million discretionary fund to support green infrastructure projects in communities around the state. Between 2010 and 2012, the Illinois EPA awarded 30 Illinois communities \$15 million to implement green infrastructure stormwater management projects.

City of Semmes, Alabama Applies Conservation Policies to Comprehensive Plan

MISSISSIPPI-ALABAMA SEA GRANT CONSORTIUM funded (MASGC) PI's met with Semmes Mayor, Semmes Planning Commissioner, and the Alabama DEM Nonpoint Education of Municipal Officials Coordinator to discuss the benefits of low impact development (LID) and how LID policies can influence subdivision regulations based on MASGC-funded research results. The actions and policies suggested by MASGC PI's and others were adopted by the Semmes city council and planning commission. These policies will promote water quality, natural resource planning and low impact development in the new city.

Helping Counties Consider Development Strategies

Ongoing interactions by **NORTH CAROLINA SEA GRANT** (NCSG) extension specialists have assisted Currituck County officials to achieve water quality and other environmental protection efforts. In April 2012, Currituck County Commissioners adopted a new Unified Development Ordinance that contains sustainability incentives, riparian buffer requirements, wetland setbacks, and provisions for vegetation around stormwater ponds. As noted by the Currituck County Planning Director, NCSG's effort to organize development charettes and conduct a developer survey to raise awareness of environmentally sensitive development approaches helped county officials adopt these more progressive development standards. The results of the low impact development survey were integrated into the county's stormwater manual.

PASG Helps Landowners Preserve Environmentally Sensitive Land

To combat the environmental effects of urban sprawl, **PENNSYLVANIA SEA GRANT** (PASG) assisted partnering organizations and municipalities to secure funding to carry out simple acquisition and conservation easements to preserve open space, provide recreational access to area waterways, and protect environmentally sensitive areas in the Pennsylvania Lake Erie drainage basin. In 2012, PASG helped permanently conserve a total of 132.39 acres (real estate value of \$663,200), including 7,538 linear feet of stream frontage. Since 2003, PASG has assisted in raising funds to help conserve 1,662 acres of recreational and open space lands.

THEME: *Improving Community Resilience*

New Hampshire Sea Grant Shepherds a Coastal Watershed Community into Climate Adaptation Actions

In 2012 using leveraged funding, **New Hampshire Sea Grant** staff and partners applied a modified version of the NOAA Roadmap (a participatory community-based process) to assist Newfields, a coastal watershed community, to assess its climate vulnerabilities, identify priorities and take steps to improve its preparedness for climate effects. Newfields formed committees that developed an adaptation action plan with two resilience components: stormwater management and emergency preparedness. Since then, they have updated their master plan for climate effects and improved preparedness through a new emergency communication system.

THEME: *Improving Energy Efficiency*

Ocean Tides Sending Power To The Northeast Electrical Grid

The high tides of Cobscook Bay are ideal for the development of tidal power. **MAINE SEA GRANT** (MESG) connected the developer, Ocean Renewable Power Company (ORPC), to scientific expertise and technicians in the area for the implementation of fish, seabird, and marine mammal monitoring programs. Extension agents facilitated a transparent community process that linked stakeholders with researchers to share knowledge of the local marine resources that informed the scientific methodology. In September 2012, ORPC's Cobscook Bay Tidal Energy Project became the first ocean energy project in the United States that delivered electricity to the grid. In summary, Maine Sea Grant's research and extension have aided the permitting process of the first-ever grid-connected tidal power device in the U.S. by linking the developer with researchers and assisting in the creation of environmental monitoring and community engagement programs.

GOAL 3: Coastal citizens, community leaders, and industries that recognize the complex inter-relationships between social, economic, and environmental values in coastal areas and work together to balance the multiple uses and optimize environmental sustainability.

Key themes in the Sea Grant network's progress toward Goal 3 include fostering citizen stewardship by educating coastal citizens about their resources and encouraging civic engagement through regional studies. Sea Grant programs also demonstrated many examples of bringing together stakeholders to facilitate discussion and seek solutions for balancing multiple uses. Another notable achievement is the development and use of decision-support tools. The focus team highlighted the wide-variety of tools available to help communities with the diverse problems they encounter.

THEME: *Fostering Citizen Stewardship, Civic Engagement, and Environmental Education*

Coastal Alabama Rain Barrel Program Reduces Residential Stormwater Impacts

As part of the Alabama Rain Barrel Project, **MISSISSIPPI-ALABAMA SEA GRANT CONSORTIUM (MASGC)** conducted workshops for 135 citizens to build and maintain 55-gallon rain barrels at their residences. Workshops have enabled coastal residents to implement practical BMPs, reducing residential stormwater runoff. In addition to workshops, the Coastal Alabama Rain Barrel program has worked with partners to install LID demonstration sites and provide rain barrels for area schools and community gardens. Based on the current number of rain barrels and cisterns, it is estimated that 1,386,000 gallons of stormwater is being kept out of area waterways each year.

Public/Private Partnerships Establish Resources for Sustainable Community Visioning in the Lake Erie Watershed

From 2011-2012, **OHIO SEA GRANT (OHSG)** partnered with Reveille, Ltd., the City of Brook Park and the City of Waterville to plan, organize and implement community-wide sustainable visioning trainings and community participation sessions. Over 300 participants provided an overall community vision for the future that was developed into a comprehensive planning document for each community. OHSG supported the communities' efforts to learn about sustainable development and community visioning, financing mechanisms, decision-making options and the potential impact of new development in the Lake Erie watershed. As a result, two Lake Erie coastal communities integrated sustainable community visioning and resource development and conservation practices into community comprehensive plans.

Oregon Rain Garden Guide Produces Significant Learning and Action Outcomes to Reduce the Impact of Urban Development

OREGON SEA GRANT (ORSG) conducted workshops on rain garden design and produced the Oregon Rain Garden Guide to help Oregonians design and build rain gardens to treat stormwater runoff from their homes and businesses, thereby reducing stormwater's negative effects. More than 13,000 copies have been distributed by OSG and partners in both print and digital formats. OSG conducted an online

evaluation to learn how users (190 workshop participants) regarded the publication and its value. The survey results indicated that residents gained significant awareness and knowledge of the benefits of creating rain gardens and important learning and action outcomes resulted from OSG's production of the Oregon Rain Garden Guide.

THEME: *Managing Coastal Resources with Decision-Support Tools*

Sea Grant Introduces weTable and CommunityViz Technologies to Enhance Public Participation for Community-Level Land-Use Planning in Delaware

DELAWARE SEA GRANT'S (DESG) construction of a community land use model, based on CommunityVIZ software, used in conjunction with the weTable technology have enhanced public participation processes and community-level decision making for the development of improved land use plans. The key element of these tools is a process that provides useful geographic information, instantaneous data, comparative analysis and a visual representation of building structures. Both the land use model and weTable have been adopted for use by a number of State agencies and programs, including the Delaware Office of State Planning Coordination and the Delaware Department of Natural Resources and Environmental Control. In addition, DESG has assumed regional leadership in training others how to implement these participatory processes in public workshops to produce dynamic results.

Oregon Sea Grant Plays a Critical Role in Legislation That Establishes Marine Reserves along the Oregon Coast

OREGON SEA GRANT (ORSG) partnered with the Oregon Department of Fish and Wildlife (ODFW) to convene three community teams consisting of various stakeholders and organize more than 33 meetings to evaluate three proposed marine reserve sites. OSG also worked with the Scientific and Technical Advisory Committee (STAC) to establish minimum size and spacing considerations for marine reserves. The community teams each developed recommendations for marine reserves that were adopted by the Ocean Policy Advisory Council and forwarded to the Oregon legislature. Through OSGs leadership in this inclusive process, the state legislature in February 2012 passed Senate Bill 1510, which established the three new reserves, the first in the state. The bill also established seven marine protected areas near the three marine reserve locations.

The Wisconsin Coastal Atlas: Building a Coastal Spatial Data Infrastructure for Wisconsin

WISCONSIN SEA GRANT (WISG) developed the Wisconsin Coastal Atlas (WCA) as an innovative Web resource that helps people better understand coastal issues, share coastal data and inform decision-making about sustainable use of the Great Lakes. Coastal decision makers and property owners are benefitting from the Wisconsin Coastal Atlas, which integrates geospatial Great Lakes data. The site will also be ever evolving, ensuring its efficacy in the face of changing needs. Additionally, it's having an impact outside of Wisconsin, sparking discussion in the Great Lakes basin about building a networked regional atlas to facilitate marine spatial planning and decision making. [LINK](#)

THEME: *Facilitating Multiple Uses*

Dredging, Restoration and Area of Concern Mitigation

MINNESOTA SEA GRANT'S (MNSG) maritime transportation specialist Chairs the Duluth-Superior Harbor Technical Advisory Committee (HTAC) and is a member of the Dredging Subcommittee. He has worked on improving communications and coordination of effort. MNSG's leadership has helped the HTAC enable a major physical restructuring and improvement to the Erie Pier Recycle-Reuse Facility, as it changed from a Contained Disposal Facility and helped to create a new paradigm for dredge material handling through the US Army Corps of Engineers (USACE). Through this project, 20-years of dredge material will create 74 acres of new wetland, and provide habitat, public access, and recreational opportunities. In 2012, USACE made the 21st Ave. W. project a priority and allocated funds, which were supplemented with state agency and Great Lakes Restoration Initiative money. These activities have created an estimated \$5 million worth jobs in the engineering and construction fields for the Duluth-Superior port.

Advisory Services Helped Curb Beach Erosion

Local officials in Sister Bay, Wis., and Wisconsin Department of Natural Resources officials relied on **WISCONSIN SEA GRANT'S** (WISG) coastal engineering specialist to prevent the construction of a beach that would have been a costly mistake. If built to the scale submitted by the private engineering firm, the beach would have eroded and the nearby marina would have rapidly filled with sedimentation, requiring costly dredging. Both would have negatively affected a prime tourist destination in a coastal county that draws \$271.2 million in visitor spending each year and supports 2,921 jobs.

Developing Land Intensity Data for the St. Louis River Estuary and Watershed in Minnesota and Wisconsin

Remote sensing can assess changes in the Earth's environment. **WISCONSIN SEA GRANT** (WISG) harnessed this power to help decision makers to make choices about assets in the vulnerable ecosystem that is the St. Louis River estuary. This estuary feeds into Lake Superior, one of the world's most pristine lakes, yet it is still under pressure and is, in fact, a U.S. Environmental Protection Agency-designated Area of Concern. WISG researchers have synthesized information from satellite, aerial and ground sources to create a roadmap for adaptive management of the coastal areas of the estuary and watershed. A deep, GIS analysis of more than 1,400 land parcels has informed current decisions through a cost-effective, approach for stakeholders in Bayfield County, WI, and St. Louis County, MN. The process will also facilitate future decisions about restoring habitat, and enhancing economic and recreational opportunities.

SECTION TWO: Previous and Newly Identified Gaps

In addition to reviewing the progress toward the national strategic goals, the focus team reviewed the impacts to gauge whether previously-identified gaps (enumerated in the 2012 Annual Report) were being addressed, to identify additional areas needing attention, and to recognize emerging themes that cross-cut the strategic goals.

Previous Gaps

In the SCD 2012 Annual Report, the focus team identified three gaps from the 2011 Impacts:

- Working with underserved communities;
- Applying social science to local communities;
- Planning for sea level rise and Great Lakes water level changes.

This year, the Focus Team discussed whether the 2012 reported impacts better addressed these previously identified gaps.

Working with Underserved Communities

After evaluation, this subject continues to be a gap for Sea Grant. This was noted in a prior year's report, even through Sea Grant programs in the Gulf of Mexico were reaching out to underserved communities after major hurricanes and the Deepwater Horizon Spill. The focus team suggests that the network needs to shift its attention to not only vulnerable communities but also the underserved and economically disadvantaged populations. Also, greater investment needs to be made to raise existing activities towards an impact level. In some instances, Sea Grant may actually be conducting this work; it is just not the lens by which we look at our program. To add, some focus team members noted that when working through USDA's Cooperative Extension, working with rural and/or vulnerable communities is a major topic of focus and continues to work on reporting that information. The table below represents impacts and accomplishments that help to fulfill this gap.

2012 SCD Impacts		
Sea Grant Program	ID #	Title
South Carolina	17756	Septic System Replacements and Repairs Improving Water Quality
2012 SCD Accomplishments		
Sea Grant Program	ID #	Title
Maine	17168	Sea Grant supports successful growth at Herring Gut Learning Center

Applying Social Science to Local Communities

This subject area continues to be a gap for Sea Grant programs. Most of the qualitative research and outreach that the network conducts is in-fact social science, but this isn't apparent through reporting impacts. This was a major gap after evaluating the 2010 impacts, and in response, the National Sea Grant Office developed a Social Science Research National Strategic Initiative, which enhanced social science funding in FY11-12. Moreover, a Sea Grant Social Science Network has emerged to help Sea Grant professionals coordinate ideas and projects. The results of these activities should start to be

noticeable through impacts and accomplishments in the FY13 reporting year. The table below represents impacts and accomplishments that help to fulfill this gap.

2012 SCD Impacts		
Sea Grant Program	ID #	Title
Wisconsin	16682	The Wisconsin Coastal Atlas as a Foundation for Effective Spatial Decision-Support Tools Addressing Great Lakes Management
Hawaii	16843	US Sea Grant research funding leverages new NSF project focused on science and society
2012 SCD Accomplishments		
Sea Grant Program	ID #	Title
Hawaii	16466	UH Sea Grant researchers integrate physical and natural science with social science to develop policies and management approaches to promote the conservation and use of near-shore resources.
Illinois-Indiana	17491	Great Lakes Social Science Network trains the trainers
Wisconsin	16710	Geotools for Fostering Citizen Engagement and Understanding the Socio-Environmental Complexities of Great Lakes Coastal Estuaries

Planning for Sea Level Rise and Great Lakes Water Level Changes

The effects of climate change pose major problems for coastal communities. As such, the focus team is concerned about the lack of impacts relating to sea level rise and Great Lakes water levels that are reported under SCD. However, this apparent lack may be due to Sea Grant programs categorizing these activities in the Hazards Focus Area. Another limitation may be the lack of community interest. There are many impacts relating to water resources, green infrastructure, and sustainable planning, so perhaps impacts in the future will start to roll-in sea level rise and Great Lakes water levels has part of those outreach and extension activities. The table below represents impacts and accomplishments that help to fulfill this gap.

2012 SCD Accomplishments		
Sea Grant Program	ID #	Title
Rhode Island	17919	Keeping Current on Climate Change Science
Rhode Island	17917	Moving communities forward in climate change adaptation
University of Southern California	17360	Successful Adaptation: Identifying Effective Process and Outcome Characteristics and Practice-Relevant Metrics

Newly Identified Gaps

Educational Benefits of Outreach and Extension Activities

Most of the work Sea Grant conducts is through education. Whether it's educating a decision-maker on development policies, a port official on dredge material, an investor on the value of working waterfronts, or a child on the intricacies of the coastal environment, new information and knowledge is gained through Sea Grant's principles of engagement, outreach and extension. While this is the way Sea Grant operates, the exact benefits are not always captured at an educational level, nor as an impact.

As such, the focus team feels like this is an area of improvement for the network, and the network must figure out how to best present those real, tangible outcomes as part of Sea Grant's mission. This issue may be resolved as Sea Grant begins its 2014-2017 Strategic Plan, which has a new national Focus Area – Environmental Literacy and Workforce Development.

Improved Assessment and Reporting of Economic Benefits

There is a network-wide need to improve the reporting of economic impacts, as reflected in the submission of annual impact statements. There are clearly many economic benefits from Sea Grant outreach and extension activities, but many of the submitted impacts lack the specificity to make compelling statements. Recent research was conducted by Kate Farrow, a graduate student with Maine Sea Grant, to develop an approach for economic impact assessments for Sea Grant's extension, research, and education. Her work was supported by the national office and could be promoted within the network to provide specific guidance on the development of economic impacts. There is a great deal of difficulty in capturing economic benefits from SG work; especially trying to allocate how much of the economic benefits are directly/indirectly attributable to SG efforts.

Continuing Gaps

As previously discussed, working with underserved communities, applying social science to local communities, and planning for sea level rise and Great Lakes water level changes all continue to be gaps for the network.

SECTION THREE: Emerging Themes and Opportunities

Emerging Themes

In the SCD 2012 Annual Report, the focus team identified four emerging themes from the 2011 Impacts:

- Economic Valuation;
- Engagement with Ports & Marinas;
- Social Science Research;
- Research to Application to Business Start-Up.

This year, the focus team recognized several emerging themes from the 2012 impacts. These subjects provide tremendous momentum for increasing Sea Grant's effectiveness in making communities more sustainable.

Integrating Green Infrastructure

The use of green infrastructure is gaining momentum in the planning world. Also, communities are now more interested in incorporating living shorelines, wetlands, and other bioengineering tools into their coastal development patterns. Not only do these shoreline techniques help to preserve and restore natural environments, but they also help mitigate hazards as natural defenses. Integrating green infrastructure into community planning is a high priority for Sea Grant programs. Impacts were so numerous this year that a new theme was created to incorporate them into goal two.

Fostering Policy and Ordinance Changes

Change starts with leadership and this has been a Sea Grant emphasis since the Program's inception. Sea Grant programs work closely with leaders and decision-makers at the community and municipal levels to help foster actionable change. This can be seen through the creation of new planning guidance and the adoption of new policies and regulations.

Administrative Outcomes

Many impacts in the programs were that of great administrative work within the Sea Grant program itself. This means that state programs were successful in connecting key local actors, leveraging resources, partnering, and finding the proper funding channels to start and complete projects. Often, this type of activity is viewed as an accomplishment. However, the administrative work is so successful that it creates a local impact. The focus team noticed this achievement and wanted to highlight it.

Highlights and Opportunities

Network wide webinars

Much of the information that is compiled by the Knauss Fellow and analyzed by the Focus Team isn't presented to the entire Sea Grant network. Not only does that include this report, but also its content which includes a wide range of interesting and important resources and tools produced by the programs. It was suggested that the National Sea Grant Office report out new ideas, products and partnerships to the network.

National stories out of goal themes

An outcome of writing an impact statement is to tell a good story. Also, impacts portray the great work of the Sea Grant network. Oftentimes, individual impacts are made into news articles at the local level. These can then be broadcasted on state program, university and/ or National Sea Grant's websites. After reviewing impacts within the goals, the focus team finds that it would be advantageous to tie multiple impacts into one national story. This would give relevance to regional work, national initiatives, and subject matter themes. An example would be the impacts that help local governments with hazards planning and policy guidance, or helping communities adapt to climate change impacts.

Using performance measures

Since Sea Grant invests its time and energy into the creation and use of national performance measures, the focus team thought it would be relevant to include those statistics into this report.

General Focus Team Comments

The annual review enables the focus team to analyze, critique and help piece together a picture of Sea Grant's efforts in the SCD focus area at the national scale.

Just as in years past, the focus team discussed whether all of the 2012 reported impacts truly reached the level of "impact" instead of "accomplishments," though they acknowledged improvements in this distinction over earlier reporting years. To address this ongoing issue, the team suggested that the National Office try to frequently inform the network as to how impact information is used and where the reports are distributed. This may address the apparent disconnect between those who write the impacts and the use of this vital information to "better tell the Sea Grant story" to DOC and NOAA leadership, OMB examiners, other federal partners, and congressional interests. Impact-writing guidance has been available for several years on the NSGO's web site, but perhaps, the National Office can host another webinar series as a refresher/reminder for the network.

Another possibility is that the impacts be shared with regional communication leads to help tell the stories.

The focus team also observed that there has been considerable momentum building in themes and topics such as working waterfronts, clean marinas, land-use change analysis, water resources and coastal tourism and access. At the onset of the 2009-2013 Strategic Plan cycle, the focus team emphasized creating new partnerships and funding mechanisms to enhance the extent and quality of SCD-related activities. In the estimation of the group, that hard work has paid off as the impacts are starting to reflect those initial investments. The Focus Team would like to highlight this meaningful work in the eventual four-year review.

Sea Grant Education Impacts





Sea Grant Educators use hands-on methods to teach students about fisheries impacts. Credit: Mississippi Alabama Sea Grant

The Sea Grant model of integrating research, outreach, and education uniquely positions Sea Grant Educators to bring ocean, coastal, and Great Lakes science literacy to the U.S. population, beginning with preschool students and continuing through lifelong learners. Educators' backgrounds and expertise in both technical science and education, as well as Sea Grant's strong affiliation with research universities, results in an education network unequaled in its ability to obtain and deliver current ocean, coastal, and Great Lakes science to students of all ages.

Through continued production of high-quality materials, curricula, and programs based on national and state standards, Sea Grant Educators have emerged as national leaders, providing exemplary, science-based teacher preparation and professional development opportunities on a range of ocean, coastal, and Great Lakes education topics.

Sea Grant Education Impacts

- **MIT Sea Grant's** Ocean Engineering Experience summer academic program (pictured right) continued to give participating 11th and 12th grade students a two-week opportunity to gain in-depth experience in the field of ocean engineering through hands-on design and fabrication experiences while aiming to solve a real world engineering challenge.
- **Ohio Sea Grant's** Stone Lab offered a total of 3,374 students the chance to be a scientist for a day, participating in activities such as fish trawling and seining, fish identification and dissection, plankton identification, water quality monitoring and much more to show them real-world science applications outside the classroom.



MIT Sea Grant's Ocean Engineering Experience summer academic program introduces high school students to open ended problem solving, design, and fabrication. Credit: MIT Sea Grant



Teams of teachers meet and develop a workshop. Credit: Connecticut Sea Grant

- **USC Sea Grant** partnered with University of Florida to obtain funding from the National Fish and Wildlife Service to produce two children's books, two videos and associated curriculum to educate over 700 educators and students about preventing the introduction of aquatic species through the release of pets and/or classroom organisms.
- **Florida Sea Grant** researchers and aquaculture specialists and partners developed a standardized aquaculture curriculum that instructors can use to teach science, math, and vocational skills through hands-on experiences. In 2012 more than 110 students in 22 schools have helped to construct recirculating aquaculture systems as an educational tool.

- **Connecticut Sea Grant** from 2002 to 2013, the Long Island Sound Mentor Teacher Program has helped 366 peers incorporate Long Island Sound content into existing curricula, to the benefit of more than 17,000 K-12 students in Connecticut and New York (pictured left).
- **New Hampshire Sea Grant** trained volunteers in marine education, providing over \$145,000 worth of services to marine education centers in the state.
- **Oregon Sea Grant** faculty and affiliates have instituted M.S. and Ph.D. programs in free-choice learning. More than 30 advanced-degree graduates now work in universities, museums, zoos, aquariums, and state and federal agencies to bring research-based decision making to the field of informal ocean science education. A \$2.6 million National Science Foundation grant was awarded for their Free-Choice Learning Lab at Hatfield Marine Science Center (pictured right).



With the help of Oregon Sea Grant the Hatfield Marine Science Center has revamped exhibits to facilitate free-choice learning. Credit: Oregon Sea Grant

Environmental Literacy and Workforce Development

Environmental Literacy and Workforce Development is one of the four focus areas in Sea Grant's 2014-17 National Strategic Plan. Sea Grant recognizes that environmental literacy is a fundamental component of an informed public in the 21st century which possesses the ability to understand scientific evidence and make knowledgeable decisions about environmental issues. To help achieve that vision, Sea Grant Educators are working in coastal communities across the United States to promote ocean, coastal and Great Lake science to children and life long learners.

SCIENCE SERVING AMERICA'S COASTS

NOAA National Sea Grant College Program

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National Graduate Sea Grant Fellowships



Sea Grant John A. Knauss Marine Policy Fellowship

The prestigious Dean John A. Knauss Fellowship, established in 1979, provides a unique educational experience to graduate students who have an interest in ocean and coastal resources and in the national policy decisions affecting those resources.

The National Sea Grant College Program awarded 49 Fellowships to highly qualified graduate students in 2013. Each student was placed with a “host” in the legislative or executive branch of government in Washington, DC to learn about marine policy.

Graduate Research



A graduate student teaches classes about her research. Credit University of Hawaii Sea Grant

Sea Grant invests heavily in graduate student support in addition to overall investment in environmental literacy. More than 50% of the Sea Grant research projects depend on graduate students, leading a total of 1,892 graduate students supported by Sea Grant in 2012. Graduate students supported by Sea Grant’s education investment are a crucial part of the success of Sea Grant research.

Planning and Evaluation

The effectiveness of the National Sea Grant College Program’s education efforts is rigorously evaluated as part of the Planning, Implementation, and Evaluation process. Once every four years, individual Sea Grant Programs undergo site visit and program performance reviews. The site review evaluates each Program’s management and organization, stakeholder engagement, and collaborative network activities, while the performance review evaluates each Sea Grant Program’s performance according to the priorities set forth in each Program’s strategic plan as well as the Program’s overall program impact based on the Federal investment.

These two independent reviews provide a comprehensive picture of the effectiveness of each Sea Grant Program. Programs are also required to submit annual reports for review by NOAA to track and report progress towards their strategic plans, national performance measures, and metrics. The results from past reviews are clear: Sea Grant Programs, and specifically their education efforts, are well-managed, cost-effective and provide valuable services to stakeholders.

Sea Grant National Marine Fisheries Service Fellowship

The Sea Grant National Marine Fisheries Service Graduate Fellowship was created in 1999 to encourage qualified applicants to pursue careers in either population and ecosystem dynamics or marine resource economics.

This multi-year fellowship was awarded to seven PhD students in 2013, bringing the total number of fellows supported since its inception to 23. Each Fellow works closely with an expert mentor from NOAA Fisheries who may serve on the Fellow’s PhD committee. The fellowship accelerates career development and provides valuable real-world experience.

About Sea Grant: The Sea Grant model, captured in the National Sea Grant College Act of 2008, integrates research, outreach, and education for science with real world impacts. To share and explain new research discoveries, engage citizens in decision-making processes and empower stakeholders to address national, state and local issues as they emerge, Sea Grant reaches out through programs of education, extension and communication. Specialists in each of these areas translate research into usable information and products for many audiences, ensuring that scientific information is delivered to those who need it, and in ways that are relevant.



Sea Grant has programs in every ocean, coastal, and Great Lakes state and U.S. territory.



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The End

