New York Sea Grant Strategic Plan 2014-2017

Technical Focus Areas for Assisting Stakeholders

Our Vision
Coastal decision-making will be influenced by science-based information and educated stakeholders.

Our Mission
"Bringing science to the shore" through high quality research, outreach, and extension.

Our Values
Excellence, Integrity and Responsiveness: New York Sea Grant (NYSG) values excellence, objectivity, integrity and responsiveness in basic and applied science, research, outreach and education to inform New York's coastal stakeholders.

Stewardship and Sustainable Development: NYSG values science-based decision-making that supports stewardship and sustainable development of New York's and the Nation's coastal resources.

Collaboration and Partnership: NYSG values liaisons and partnerships with and among coastal stakeholders to ensure inclusion of diverse perspectives for coastal problem solving.

Education and Continuous Learning for Positive Change: NYSG values formal and informal education of elementary, secondary, undergraduate, and graduate students and the general public to create the informed citizenry needed for wise coastal resource decision-making.

Professional Competence: NYSG values a well-educated and experienced staff whose desire for life-long education helps NYSG respond to high priority and emerging coastal resource needs with integrative, innovative, relevant and timely activities.

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Introduction and Process

This is the new Strategic Plan for New York Sea Grant (NYSG) for the years 2014- 2017 as requested by the National Sea Grant Office. This Plan has been developed during 2012 with input from the Board of Governors, Program Advisory Council, academic researchers in New York, and NYSG staff and stakeholder groups early in the process. Members of the Board of Governors and Program Advisory Council were also invited to comment on a near-final draft

and most of their suggested changes have been incorporated. This plan draws upon the Strategic Plan of the National Sea Grant College Program (2014-2017) and other documents, but is focused on the needs of New York and its citizens.

The plan is structured around three Program Objectives and four Focus Areas. The Program Goals are unique to NYSG and provide a clear focus and ready shorthand (economics, environment, and education) for discussing the program and its goals with policy makers and stakeholders, particularly when conducting our work and seeking funding. The Focus Areas conform to the Focus Areas of the strategic plan of the National Sea Grant College Program (2014-2017), which simplifies the interactions with the National Sea Grant College Program and other state Sea Grant programs as well as reporting to the National Sea Grant Office. This is also important in helping the National Sea Grant College Program to become more of a focused national program which addresses the needs of the National Oceanic and Atmospheric Administration (NOAA) and the Nation (Report of the National Sea Grant Advisory Board on Sea Grant Research, August 2009). Though the Focus Areas are broad, they are tied together and do not exist in isolation. In addition to the above, the NOAA Strategic Plan, the National Ocean Policy and other plans and documents were consulted in developing this plan.

Background

Among the 33 programs of the National Sea Grant College Program, New York is the only state program bordering two Great Lakes and the open ocean and the only state program active in three different Sea Grant regions (the Northeast, the Mid-Atlantic, and the Great Lakes). More than 85 percent of New York's 19 million people live within a short distance of the State's 3400 miles of Great Lakes, estuarine and marine coastline. Prominent New York State coastal water bodies include the Hudson, St. Lawrence, and Niagara Rivers; Lakes Ontario and Erie; Long Island's estuarine bays; Long Island Sound; New York Harbor; as well as the New York Bight and the coastal Atlantic Ocean. With so much of the State's economy and population relying upon and impacting the State's marine and Great Lakes resources, there is a compelling need for informed management of the interactions between people and the ecosystems associated with these areas. As a university-based program committed to developing and extending peer-reviewed science and to having it used by decision makers, NYSG is well-positioned to assist all levels of government and private entities by "Bringing Science to the Shore." As a university-based Federal-State partnership, NYSG is jointly overseen by the State University of New York (SUNY) and Cornell University through a Board of Governors representing both Universities.

In a time of accelerating economic, environmental, and scientific developments, New York Sea Grant (NYSG) will serve as an important partner in helping New York's diverse coastal communities to respond to rapid economic and environmental changes. (The term coastal used throughout this document includes all the Great Lakes, estuarine, and marine coastlines mentioned above.) New York Sea Grant will support the development of objective, peer-reviewed scientific information about New York's coastal resources that is needed for current and future decision-making. It will also communicate the important results of these and other

scientific studies in forms useful to its stakeholders and partners in New York's coastal communities. These partners and stakeholders include coastal residents; coastal businesses and their workers; policy-making officials and staffs of municipal, State, and Federal governments and agencies; and teachers and students. Through the development and dissemination of this scientific research-based information, tools, and expertise, New York Sea Grant, working with these stakeholders and partners, will use an integrated approach to advance its three Program Objectives below.

Program Objectives

New York Sea Grant (NYSG) has three integrated Program Objectives which provide the direction to drive the program forward. All three Program Objectives are separately highlighted but are closely connected and do not stand alone. Some of the most important outcomes are those which lead to progress on more than one Program Objective simultaneously.

Coastal environmental sustainability NYSG will assist coastal communities in ensuring the long-term health, sustainability, and resilience of their coastal environments by providing information on the impacts of many different human interactions with the coastal environment, including recreational, commercial, and watershed impacts.

Coastal economic vitality NYSG will support coastal communities in protecting and promoting their economic vitality in a manner consistent with coastal sustainability through providing research and extension programming which addresses tourism, recreational activities, fisheries, and other sustainable waterfront businesses. This activity includes research and programs which provide information that may be used to minimize and mitigate environmental hazards, aid in job creation and retention, as well as promote cost-saving measures.

Coastal citizens' awareness and understanding NYSG will engage many sectors of coastal communities through education and training programs to measurably improve coastal awareness and literacy, as well as the understanding of sustainable coastal environments and economies. Teachers and students as well as many other coastal partners will be engaged by these efforts.

Within the over-arching major Program Objectives listed above, NYSG has four Programmatic Focus Areas. Aspects of each of these Focus Areas address the Program Objectives. Goals are then associated with each Focus Area. Learning, action and consequence outcomes for identified for each Goal. The outcomes are defined by the National Sea Grant Office as follows:

> **Learning (short-term) outcomes** lead to increased awareness, knowledge, skills, changes in attitudes, opinions, aspirations or motivations through research and constituent engagement.

Action (medium-term) outcomes lead to behavior change, social action, adoption of information, changes in practices, improved decision-making or changes in policies. **Consequence (long-term) outcomes** are long-term, and in most cases, require focused efforts over multiple strategic planning cycles. Consequence outcomes in a four-year strategic plan serve as reference points toward reaching focus area goals between the current and future strategic plans.

Annual work plans for research, extension, education, and communications will address the strategies for achieving these outcomes. Those specific strategies will also allow for New York Sea Grant's ability to respond to new and emerging issues within the four Focus Areas.

Technical Focus Area A. *Healthy New York Coastal Ecosystems and Habitats*

(Estimated Level of NYSG Effort/Resources is 23%)

The ecosystems and habitats in New York range from the relatively pristine to significantly impaired in terms of their function and productivity. Some areas are still impacted today as a result of previous anthropogenic activities. In the world of today and tomorrow, human-related activities will continue to play a role in shaping our ecosystems and habitats. With increased human mobility and global economy, aquatic invasive species (AIS) also have the potential to cause major changes. Changing climate may also affect the distribution of aquatic species, as well as have other impacts due to deviations from current status in temperature, salinity, acidification, rainfall, storm events, and sea level. However, projections of ecosystem and habitat alterations due to climate change, in particular, must be considered in the context of the uncertainty that is a part of that evolving field. It is important to gain a scientific understanding of the dynamics and processes involved in ecosystem and habitat change and whether those processes might be slowed or prevented. Second, processes that might mitigate or repair negative changes must be identified and assessed when restored function is desired. Lastly, in some cases, prevention or mitigation of changes, or restoration to previous conditions, may not be possible. Then, managers and other stakeholders need new science-based information useful for managing new environments so New York's ecosystems and habitats can sustainably function.

NYSG Goal 1:

Protected, Restored and/or Enhanced Habitat and Ecosystems through reduction or mitigation of, or adaptation to, the impacts of a) aquatic invasive species, b) changes in aquatic communities due to ecosystem and climate change, and c) anthropogenic activities.

Learning Outcomes

1.1 Measures and tools are developed (through natural and social science research) to predict, prepare for, assess, and mitigate the effects of ecosystem changes on coastal habitat, including species loss.

1.2 Measures and tools are developed (through natural and social science research) to predict, prevent, prepare for, control or mitigate the introduction and effects of

aquatic invasive species.

1.3 Techniques and methods for habitat management and restoration are developed, and ways to assess the effectiveness, sustainability, and costs of new and current methods are identified.

1.4 Information, tools, and methods are developed to look towards what new ecosystem and habitat states might be as affected by AIS, climate and other changes, and anthropogenic activities.

1.5 Stakeholders, decision-makers, and the public are informed about the tools, methods, rationale and costs for improving coastal habitat.

1.6 Strategies are developed for coastally-located businesses and coastal construction activities to help them reduce their impact on nearby habitat and ecosystems.

1.7 Resource managers and the public are educated about the potential habitat impacts of climate change and other ecosystem or land use changes.

Action Outcomes

1.8 Stakeholders use NYSG-developed or –provided tools and measures to plan for, reduce, manage, or mitigate the impacts of aquatic invasive species for the benefit of the habitat and ecosystem.

1.9 Stakeholders use NYSG-developed or -provided tools and measures to better plan for managing the effects of changes in species abundance and biodiversity.

1.10 If restoration is not cost-effective or achievable, then stakeholders agree on the best management of the changed habitat.

Consequence Outcomes

1.11 Habitats and their ecosystems are more resilient to change.

1.12 Habitats are protected, enhanced or restored.

1.11 Degraded ecosystem function and productivity are restored.

State Performance Measures for Healthy New York Coastal Ecosystems and Habitats

S1. Number of Sea Grant measures, tools, and techniques developed to help ensure healthy New York coastal ecosystems and habitats.

S2. Number of resource managers or coastal construction businesses incorporating techniques and methods based on information gained from NYSG.

National Performance Measures for Healthy Coastal Ecosystems

N1. Number of Sea Grant tools, technologies and information services that are used by our partners/customers to improve ecosystem-based management.

N3. Number of acres of coastal habitat protected, enhanced or restored as a result of Sea Grant activities.

Technical Focus Area B. *Sustainable New York Fisheries and New York Seafood Businesses, including Aquaculture*

(Estimated Level of NYSG Effort/Resources is 22%)

New York fisheries and seafood businesses are an important part of the New York State economy, worth about $7.9B per year (1999). In addition, commercial fishing and fishing communities have historically been a significant way of life on Long Island, but are currently threatened. Recreational fishing is also very important in both the Great Lakes and around the New York City metropolitan area, including Long Island. (Recreational boating alone was a $2B industry in New York in 2003.) Seafood safety, including HACCP training, is essential for New York seafood businesses which handle both New York and imported seafood products, especially as the seafood business becomes increasingly international. Finally, aquaculture has been underdeveloped in New York State and offers new opportunities for economic advancement in both coastal and inland communities.

NYSG Goal 2:
Sustainable Fisheries and Aquaculture for New York

Learning Outcomes

2.1 The causes and potential remedies for actual and predicted changes in populations and population dynamics of finfish and shellfish of economic importance to New York are determined through research.

2.2 Fisheries managers, fishermen, and the public better understand the causes and remedies for population changes in finfish and shellfish of economic importance in New York and adjacent waters. Comparable information is available for aquaculture operations.

2.3 Coastal communities are aware of threats to fisheries sustainability and economic stability, as well as appropriate steps (including new and alternative tools being successfully applied in other regions) to help reduce the threats.

Action Outcomes

2.4 Fisheries managers and related businesses evaluate shellfish and finfish management and restoration efforts.

2.5 Fisheries managers, and businesses accept the evaluation of shellfish and finfish management and restoration efforts and use it for decision-making.

Consequence Outcomes

2.6 The economically important shellfisheries and finfisheries in NY are sustainable.

NYSG Goal 3:
Safe, High Quality Seafood Products from Profitable New York Seafood Businesses

Learning Outcomes

3.1 Knowledge gaps on current issues, policies, regulations, or environmental conditions that could affect the quality and safety of products, or the productivity and

profitability of their individual seafood business or the seafood industry in New York are filled through appropriate research.

3.2 Develop and assess potential methods and tools to overcome technological, economic and regulatory barriers to the expansion of aquaculture.

3.3 Individuals from seafood businesses obtain the knowledge and skills that they need to build and manage an effective Hazard Analysis Critical Control Point (HACCP) based food safety plan and comply with the requirements of the Food and Drug Administration's (FDA) Seafood (HACCP) regulation.

3.4 Information to facilitate the potential expansion of coastal marine and Great Lakes aquaculture in New York State for human consumption is provided to stakeholders, including businesses and agencies.

Action Outcomes

3.5 Businesses, decision makers and other interested parties use information on current issues, policies, regulations, or other conditions that could affect the quality and safety of products, or the productivity and profitability of their individual seafood business or the seafood industry in New York.

3.6 State and federal food safety inspectors and businesses are trained in HACCP principles and the FDA Seafood HACCP regulations.

Consequence Outcomes

3.7 Consumers improve their health through increased consumption of safe and sustainable seafood products.

3.8 The New York seafood industry (including aquaculture) operates sustainably and is economically viable.

State Performance Measures for Sustainable New York Fisheries and New York Seafood Businesses, including Aquaculture

S3. Number of Sea Grant measures, tools, and techniques developed to help ensure sustainable New York fisheries and seafood businesses, including aquaculture.

S4. Number of recreational and commercial anglers who learn about sustainable fishing practices from NYSG.

S5. Number of fisheries managers, recreational anglers, and other fisheries stakeholders who benefit from improved fisheries management attributable to information provided to them by NYSG.

S6. Number of households educated by NYSG regarding the health benefits of seafood consumption.

S7. Number of aquaculture interests (including scientists, businessmen and regulators) receiving assistance from NYSG regarding aquaculture.

S8. Number of individuals in seafood businesses who will complete the Seafood HAACP Alliance Internet training course developed and managed by NYSG to update their HAACP based food safety program.

S9. Number of individuals from the food industry who complete the Good Manufacturing practices internet training course developed and managed by NYSG.

National Performance Measures for Sustainable Fisheries and Seafood Businesses

N4. Number of fishermen, seafood processors, and aquaculture industry personnel who modify their practices using knowledge gained in fisheries sustainability and seafood safety as a result of Sea Grant activities.

N5. Number of seafood consumers who modify their purchases using knowledge gained in fisheries sustainability, seafood safety and the health benefits of seafood as a result of Sea Grant activities.

Technical Focus Area C. *Resilient New York Communities[*] and Economies*

(Estimated Level of NYSG Effort/Resources is 36%)

With over 85% of New Yorkers living along the coast, the communities in which they live, work and play become a focal area for New York Sea Grant. The human and environment interface in the coastal area exemplifies the importance and complexities of the relationship between healthy environments and healthy economies—the synergies and the potential conflicts. As municipalities and businesses grow, human use of the landscape changes which in turn may adversely impact coastal resources. New York Sea Grant can assist local governments to grow in sustainable fashions which are protective of coastal resources, human health and the economy. In particular, the quality of our coastal waters can be most sensitive to human use. NYSG must help all types of communities to understand how their activities impact water quality and act in order to protect and improve it. Businesses located in the coastal zone have a unique relationship with these coastal resources as they may benefit from a healthy environment and improve the local economy while inadvertently damaging those same resources. NYSG should assist these stakeholders to cost effectively implement practices which will mutually benefit both their business and the environment. Additionally, concerns about flooding, erosion, and invasive species and how these threats may be affected by climate change loom while coastal audiences attempt to rebound from the recession of the past few years. NYSG is focused on assisting coastal communities and businesses with responding to and preparing for potential hazards. Promoting adaptation and resilience will be priorities.

[*]*For the purposes of this Plan, communities are defined broadly to include governments, businesses, residents, visitors, and non-governmental organizations.*

NYSG Goal 4:
Robust and Sustainable Development of Coastal Business

Learning Outcomes

4.1 Tools, techniques and methods are developed to determine potential impacts on coastal resources from activities such as dredging, boating, construction and other economic activities.
4.2 Techniques are developed so that coastally-located businesses can cost-effectively reduce their impact on nearby habitat and meet regulatory requirements.
4.3 Tools, techniques and methods are developed (through natural and social science research) to assess economic impacts of coastal businesses on coastal economies.
4.4 Marine industry and local, state, and national decision makers have access to NYSG information and assistance in order to better understand the economic and ecological impacts of dredging (or not dredging).
4.5 Coastal tourism and other coastal resource-related businesses (including aquaculture for bait, bait and tackle shops, marinas, waterfront construction, etc.) as well as local governments understand how their activities impact the coastal economy and ecosystem and ways to diversify income sources.

Action Outcomes

4.6 Marine industry and local, state, and national decision makers better identify and assess impediments to meeting dredging needs for navigation, and use NYSG information and assistance to start developing sustainable regional dredging and dredged material management plans and programs that are protective of coastal resources.
4.7 Coastal tourism and other coastal resource-related businesses (including aquaculture for bait), as well as local governments, maintain and build their economic viability in an environmentally sustainable manner and help create and retain jobs, and connect to new markets that will increase sales and income. Regional economic development council plans may assist in identifying these businesses.

Consequence Outcomes

4.8 Communities have diverse, healthy economies and industries that support working waterfronts.

NYSG Goal 5:
Effective Community Land Use Planning which Integrates Watershed Issues

Learning Outcomes

5.1 Tools, methods or practices are developed to assist municipal governments in the prevention of point and nonpoint source pollution.
5.2 Local decision makers and governments, including Nonpoint Source Education for Municipal Officials (NEMO) program participants, have knowledge about sustainable and cost effective community practices and how they impact coastal watershed issues which is supported in scientific literature.
5.3 Municipalities have access to and understand research regarding water supply, water demand and competing water uses including impacts of climate change.

5.4 Municipalities, non-profit organizations, businesses and the public know about watershed planning tools and best management practices available to reduce point and nonpoint source and stormwater pollution (and adapt to sea level rise or lake level changes, where applicable) and limit their effects on coastal habitats and water quality.

Action Outcomes

5.5 Coastal municipalities, including NEMO program participants, implement sustainable and cost effective community practices as they relate to coastal watershed issues.

5.6 Municipalities implement plans and/or policies which benefit ground and/or surface water quality through addressing nonpoint sources of pollution.

Consequence Outcomes

5.7 Quality of life in communities, as measured by economic and social well-being, improves without adversely affecting environmental conditions.

NYSG Goal 6:
Improved Coastal Water Quality through Community Efforts

Learning Outcomes

6.1 Techniques and tools are developed to better assess coastal water quality, water quality impairments, and harmful algal blooms and to identify and develop potential remedial measures.

6.2 Water quality data is interpreted to understand how (or how much) the expenditures for practices designed to create water quality improvements are benefiting the ecosystem and water quality.

6.3 Communities understand the relationship between the effectiveness and cost of water quality improvement practices.

6.4 Individual people who live, work or play in the coastal areas; governments; public health officials; utilities; coastal and watershed businesses; non-profit organizations; and/or managers of coastal areas and resources have knowledge about the causes and consequences of water quality impairments.

Action Outcomes

6.5 Individual people, who live, work or play in the coastal areas; governments; public health officials; utilities; coastal and watershed businesses; non-profit organizations; and/or managers of coastal areas and resources utilize research and extension resources to improve water quality, through implementing best management practices (BMPs) and taking other scientifically supported actions.

6.6 Communities work collaboratively to solve water and habitat impairments in shared waters, such as harbors and embayments.

Consequence Outcomes

6.7 Water quality improves.

NYSG Goal 7:
Improved Ability to Prepare for and Mitigate the Impacts of Existing and Future Coastal Hazards

Learning Outcomes

7.1 Tools and techniques are developed and/or used to improve the prediction and consequences of current coastal processes and hazards and those that might be affected by land-use and/or climate change.

7.2 Communities have research-based information and better understand how to predict and prepare for coastal hazards

7.3 Communities have access to natural and social science research which identifies, quantifies and increases the understanding of the impacts of climate change on coastal processes and hazards.

7.4 Coastal property owners and managers, community leaders, decision-makers, and contractors understand existing erosion and flooding hazards and how future conditions may be affected by land-use and/or climate change (and sea level rise, where appropriate) and have an increased awareness of sustainable innovative mitigation measures to address present and future hazards. In the Great Lakes region, these stakeholders understand the hazards as they may be related to lake level fluctuations and other natural coastal processes.

7.5 Federal, State and local agencies and governments have better information on regional coastal natural processes and resources and access to tools that can be used to help identify and evaluate appropriate long term strategies for addressing existing coastal hazards and potential hazards related to climate change.

Action Outcomes

7.6 Communities apply best available hazards and climate change information, tools and technologies in the planning process.

7.7 Decision-makers apply data, policies and regulations to hazard planning and recovery efforts.

7.8 Communities develop and adopt comprehensive hazard mitigation and adaptation strategies suited to local needs.

7.9 Residents take action to reduce the impact of coastal hazards on their life and property.

7.10 Communities adopt a comprehensive risk communications strategy that are employed before, during and after hazard events.

Consequence Outcomes

7.11 Communities effectively respond to hazardous events and climate change.

7.12 Communities are resilient and experience minimum disruption to life and economy following hazard events.

State Performance Measures for Resilient New York Communities and Economies

S10. Number of Sea Grant measures, tools, and techniques developed to help ensure resilient New York communities and economies.
S11. Number of businesses that benefit from alternative marketing programs.
S12. Number of communities able to evaluate the use of sustainable economic and environmental practices due to information and programming provided by NYSG.
S13. Number of communities who gained knowledge regarding new practices and techniques for responding to and preparing for coastal hazardous events.

National Performance Measures for Resilient Communities and Economies

N6. Number of communities that implemented sustainable economic and environmental development practices and policies (e.g., land-use planning, working waterfronts, energy efficiency, climate change planning, smart growth measures, green infrastructure) as a result of Sea Grant activities.
N7. Number of communities that implemented hazard resiliency practices to prepare for, respond to or minimize coastal hazardous events as a result of Sea Grant activities.

Technical Focus Area D. *Environmental Literacy and Workforce Development in New York*

(Estimated Level of NYSG Effort/Resources is 19%)

New York Sea Grant recognizes the importance that the next generation understands and appreciates the sciences, especially those related to our coastal environments. We will promote environmental education in schools, through formal and informal education programs. In addition, NYSG will continue to ensure that students are exposed to ocean and coastal sciences through education and providing for hands-on research and in-the-field training opportunities.

NYSG Goal 8:
Improved Ocean and Great Lakes Literacy among teachers, students and the public in order to increase environmental understanding, appreciation and awareness.

Learning Outcomes

8.1 Formal and informal educators are provided with innovative, professional development opportunities that transfer knowledge on how to infuse marine, estuarine, and Great Lakes information into their classrooms and programs.
8.2 Through partnership with state, regional and national education entities, formal and informal educator have increased awareness of the Ocean Literacy Principles and the Great Lakes Principles and improve knowledge of important ecosystem issues.
8.3 Informal and formal educators and youth have increased knowledge and appreciation of coastal water quality and habitat issues and climate change.

8.4 Lifelong learners are aware of and provided with informal science education opportunities focused on coastal topics.

Action Outcomes

8.5 Engagement professionals use environmental literacy principles in their programs.
8.6 Engagement programs are developed and refined using the best available research on the effectiveness of environmental and science education.
8.7 Formal and informal education programs incorporate environmental literacy components.
8.8 Formal and informal education programs take advantage of the knowledge of Sea Grant-supported scientists and engagement professionals.
8.9 Formal and informal educators, students and/or the public collect and use coastal, weather and climate data in inquiry and evidence-based activities.
8.10 Lifelong learners make choices and decisions based on information they learned through informal science education opportunities.
8.11 Educators work cooperatively to leverage federal, state and local investments in coastal environmental education.

Consequence Outcomes

8.12 Members of the public incorporate broad understandings of their actions' potential impact on the environment into personal decisions and are inspired to be good stewards of the environment.

NYSG Goal 9:
A Future Workforce Skilled in Science, Technology, Engineering, Mathematics and other disciplines critical to local, regional and national ocean and coastal resource needs.

Learning Outcome

9.1 Students and teachers are aware of opportunities to participate in science, technology, engineering, mathematics and active stewardship programs.

Action Outcomes

9.2 Graduate students are trained in research and engagement methodologies
9.3 Research projects support undergraduate and graduate training in fields related to understanding, utilizing and managing our coastal resources.

Consequence Outcomes

9.4 A diverse workforce trained in science, technology, engineering, mathematics, law, policy or other job-related fields is employed and has high job satisfaction.

State Performance Measure for Environmental Literacy and Workforce Development in New York

S14. Number of undergraduate and graduate students trained by NYSG.

National Performance Measures for Education and Workforce Development

N8. Number of Sea Grant facilitated curricula adopted by formal and informal educators.

N9. Number of people engaged in Sea Grant supported informal education programs.

N10. Number of Sea Grant-supported graduates who become employed in a career related to their degree within two years of graduation.

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National Performance Measures that are Cross Cutting

N11. Economic (market and non-market; jobs and businesses created or retained) benefits derived from Sea Grant activities.