UNIVERSITY OF WISCONSIN WHITEWATER
Office of Research and Sponsored Programs

WISCONSIN SEA GRANT AQUACULTURE PROGRAM

RELEASED 4 FEBRUARY 2014

RESEARCH AND SPONSORED PROGRAMS PRE-PROPOSAL DEADLINE: 17 FEBRUARY 2014
RESEARCH AND SPONSORED PROGRAMS FULL PROPOSAL DEADLINE: 21 APRIL 2014

☒ **University of Wisconsin-Whitewater Office of Research and Sponsored Programs Intramural Transmittal Form.** ONE original, complete ORSP Transmittal Form, including all relevant funding competition information, proposal information, required clearances, and required signatures must accompany each proposal submitted to ORSP.

☒ **Proposal Development and Submission Instructions.** Each University of Wisconsin grant program has varying proposal development and submission requirements. Principal investigators must review this application package carefully and adhere to specific program requirements to be competitive.

☒ **Grant Program Forms.** Each University of Wisconsin grant program requires the submission of different forms. All relevant forms are included in this application package. Electronic versions of all forms can be accessed on the appropriate ORSP I-Grants Program Page (http://uwworsp.org/I-Grants).

☒ **Additional Proposal Development and Submission Resources.** University of Wisconsin grant application packages may include additional resource information including evaluation/review criteria, description of proposal review processes and deadlines, frequently asked questions, and other pertinent appendices.

The Office of Research and Sponsored Programs can provide additional information, proposal development assistance, and copies of funded proposals. Additional information is available, including the required forms, online at http://uwworsp.org/I-Grants.

ALL proposals must be submitted to ORSP by the deadline listed above in order to coordinate the campus review of proposals and handle proposal submission on behalf of the institution. All deadlines are **FIRM** as a result. Departments and colleges may have an even earlier deadline. Grants submitted directly to the University of Wisconsin System, University of Wisconsin-Extension, or affiliated institutions may not be reviewed.

For additional information or assistance regarding this program (or other i-Grant opportunities), please contact:

DENISE EHLEN, Director, 262-472-5212, ehlend@uww.edu
RON FLEISCHMANN, Grants Manager, 262-472-5212, fleischr@uww.edu

Applicants to this program must consider the following special proposal preparation, restrictions, and/or submission instructions as outlined below:

Pre-proposals to the Sea Grant Aquaculture Program are required. Applicants will be notified in March 2014 as to whether their concept warrants a full proposal.

Match funding is required for this program. Applicants are strongly encouraged to work with the Office of Research and Sponsored Programs to develop a budget that meets the 50% match requirement as outlined in the Request for Proposals.

Applicants will work closely with the Office of Research and Sponsored Programs and the Wisconsin Sea Grant Office to develop and submit a full proposal; not all required forms are currently available for a full proposal submission.

UNIVERSITY OF WISCONSIN WHITEWATER

RSP APPROVAL & CERTIFICATION

TRANSMITTAL

DO NOT COMPLETE SHADED SECTIONS WITH DOUBLED BORDER – FOR UWW RSP USE ONLY

FUNDING COMPETITION INFORMATION

Deadline:

1. Sponsor & Program:
2. Address:
3. Telephone: Fax: E-mail:
4. Web: Notes:

RSP USE ONLY **ID:**

Date Submitted:
Number of Copies to Sponsor (original +)
Binding of Original: ☐ Clip ☐ Staple ☐ Other ☐ N/A
GT Proposal Entry: GT Award:

PROPOSAL INFORMATION

5. Principal Investigator: 5a. Department/Division/Institution:
5b. Address: Phone: Fax: Email:
6. Co-Investigator: 6a. Department/Division/Institution:
6b. Address: Phone: Fax: Email:
7. Co-Investigator: 7a. Department/Division/Institution:
7b. Address: Phone: Fax: Email:
8. Project Title:
9. Funding Type ☐ New ☐ Renewal/Continuation
10. Total Request $
11. Match Information $
12. Begin Date End Date

AWARD INFORMATION – RSP USE ONLY ☐ GRANT ☐ CONTRACT

New Account ☐ Non-Federal ☐ Federal (CFDA#)
Org Information ☐ New ☐ Add To
Total Award Begin Date End Date

REQUIRED CLEARANCES – *Does the project involve:*

	Approved? (choose one)
13. toxic, infectious or carcinogenic/mutagenic material? Use recombinant DNA technology?	☐ No ☐ Yes ☐ Pending
14. use of human subjects, human tissue or vertebrate animals?	☐ No ☐ Yes ☐ Pending
15. action involving space, remodeling, or construction?	☐ No ☐ Yes ☐ Pending
16. hiring non-UWW personnel?	☐ No ☐ Yes ☐ Pending
17. requires release time by PI (and/or Co-Is) in support of project activities?	☐ No ☐ Yes ☐ Pending
18. creation of new degree programs or services?	☐ No ☐ Yes ☐ Pending
19. potential environmental impacts, which require review under the Wisconsin Environmental Policy Act?	☐ No ☐ Yes ☐ Pending

REQUIRED SIGNATURES

PLEASE RETURN FORM TO RSP

PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR

I certify that the plan detailed in the proposal/contract complies with all campus, state, and federal regulations and policies and reflects University, College/Division, and Department/Unit goals. This project is achievable as described, including the limitations of time, resources, and personnel expertise. All required clearances have been satisfied. I have disclosed any possible conflicts of interest during the proposal development process and understand that I must disclose any possible conflicts of interest within 30 days during the award period. If awarded, I agree to conduct the proposed project in compliance with (1) the conditions of the grant and (2) with all policies of UWW, UWS, and the State of Wisconsin.

I authorize the use of my name and grant information for university publication. ☐ ***NO*** ☐ ***YES*** ____ ***(initial)***

SIGNATURE **DATE**

TYPED NAME:

DEPARTMENT CHAIR/UNIT DIRECTOR

I certify that I have reviewed the proposal/contract and found it to be complete, including required clearances, budget, and commitments involving space, faculty/staff time, and matching funds. In addition, I certify that all resources and other provisions of any award will be fulfilled. A match (check one) ☐ has OR ☐ has NOT been pledged. Cash match will be satisfied by a transfer of funds from org code _____-_____-_____ in the amount of $_____ or via in-kind contributions as described in the budget (narrative). If the proposal/contract has not been approved for submission or cannot be accepted if awarded, do not sign this form and attach and sign a brief justification/explanation to this document.

SIGNATURE **DATE**

TYPED NAME:

COLLEGE DEAN/DIVISION DIRECTOR(S)

I certify that I have reviewed the proposal/contract and found it to be complete, including required clearances, budget, and commitments involving space, faculty/staff time, and matching funds. In addition, I certify that all resources and other provisions of any award will be fulfilled. A match (check one) ☐ has OR ☐ has NOT been pledged. Cash match will be satisfied by a transfer of funds from org code _____-_____-_____in the amount of $ or via in-kind contributions as described in the budget (narrative). If the proposal/contract has not been approved for submission or cannot be accepted if awarded, do not sign this form and attach and sign a brief justification/explanation to this document.

SIGNATURE **DATE**

TYPED NAME:

Applicants submitting proposals including an international component must secure the signature of the Director of the Center for Global Education in this cell. All applicants submitting proposals including the acquisition or purchase of technology must secure the signature of the Assistant Vice Chancellor for Instructional, Communication, and Information Technology (iCIT).

TYPED NAME:

RESEARCH AND SPONSORED PROGRAMS CERTIFICATION

By signing this transmittal, I certify that this proposal/contract is consistent with campus, state, and federal regulations; is within the campus' research/service mission; and is approved for submission to the funding agency.

SIGNATURE **DATE**

INITIAL HERE TO APPROVE GRANT/CONTRACT ACCEPTANCE: DATE:

TYPED NAME: DENISE EHLEN

ANNOUNCEMENT OF FEDERAL FUNDING OPPORTUNITY

EXECUTIVE SUMMARY

Federal Agency Name(s): Oceanic and Atmospheric Research (OAR), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce

Funding Opportunity Title: NOAA Sea Grant Aquaculture Research Program 2014

Announcement Type: Initial

Funding Opportunity Number: NOAA-OAR-SG-2014-2003987

Catalog of Federal Domestic Assistance (CFDA) Number: 11.417, Sea Grant Support

Dates: Pre-proposals must be received by electronic mail to the National Sea Grant Office by 5:00 p.m. Eastern Time on February 21, 2014.

Full proposals are due from applicants to the state Sea Grant Program by 5:00 p.m. Eastern Time on May 5, 2014.

State Sea Grant Programs must forward all full proposal applications to Grants.gov by 5:00 p.m. Eastern Time on May 30, 2014.

Applications received after the closing dates and times will not be accepted.

Funding Opportunity Description: Depending on the availability of funds, NOAA Sea Grant expects to have up to $3,000,000 available for a national competition to fund new FY 2014 marine aquaculture research projects. This is part of the overall plan to support the development of environmentally and economically sustainable ocean, coastal, or Great Lakes aquaculture. Topical priorities for this FY 2014 competition are, briefly: 1) Research to inform pending, regulatory decisions on the local, state, or federal level leading to an information product-- such as a tool, technology, template, or model-- needed to make final decisions on a specific question regarding impacts of aquaculture; 2) Public-private research partnerships that address specific, current problems with production technology, especially those that limit a steady supply of marine or Great Lakes fingerlings; and 3) Social and/or economic research targeted to understand aquaculture issues in a larger context. Applicants must describe how their proposed work will rapidly and significantly advance U.S. marine aquaculture development in the short-term (1-2 years after project completion).

This Federal Funding Opportunity includes information on application and criteria for aquaculture research proposals requesting a maximum of $500,000 in total federal funding for up to a two-year period. Matching funds are required. Awards are anticipated to start no later than September 1, 2014. Additional proposals from this competition may be selected for funding in the next fiscal year, subject to the availability of funds.

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

A. Program Objective

This aquaculture research competition is designed to support the development of environmentally and economically sustainable ocean, coastal, or Great Lakes aquaculture. Aquaculture that occurs in the Great Lakes or its coastal zone is eligible for this competition. The NOAA National Sea Grant College Program was established by Congress to promote responsible use and conservation of the nation's ocean, coastal, and Great Lakes resources. Sea Grant carries out NOAA's mission of stewardship of our country's oceanic and atmospheric resources through a broadly based network of universities.

Sea Grant aquaculture-related activities are integrated with the rest of NOAA via the NOAA Aquaculture Office, which includes activities across multiple NOAA Line Offices: Oceanic and Atmospheric Research (Sea Grant), the National Marine Fisheries Service (Office of Aquaculture, Fisheries Science Centers and Regional Offices), and the National Ocean Service (Beaufort Laboratory and Hollings Marine Laboratory). NOAA recognizes the role of other Departments, such as the U.S. Department of Agriculture and the Department of Interior, and state and regional management partners in aquaculture and coordinates with other Department representatives at the national level through the Interagency Working Group on Aquaculture.

Proposed projects must:

1) Support one or both of Sustainable Fisheries and Aquaculture Focus Area goals in Sea Grant's National Strategic Plan: 2014-2017 (available at http://seagrant.noaa.gov/WhoWeAre/StrategicPlan.aspx):

a. A safe, secure, and sustainable supply of seafood to meet public demand;

b. Informed consumers who understand the health benefits of seafood consumption and how to evaluate the safety and sustainability of the seafood they buy.

2) Directly or indirectly increase one or both of the national performance measure targets for the Sustainable Fisheries and Aquaculture Focus Area in the short-term (1-2 years after project completion). "Direct increase" means the proposal includes one or both of the above performance measures, with targets, in its work plan. "Indirect increase" means the proposal includes well-formed performance measures that the applicant credibly shows will lead to increased targets for one or both of the above national performance measures. When describing this line of reasoning on how the proposed work will contribute to performance

measure targets, applicants are strongly advised to develop specific, measurable, attainable, relevant and time-bound criteria, for which progress can be independently verified:

a. 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;

b. 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.

3) Be consistent with the NOAA and Department of Commerce Aquaculture Policies (available at http://www.nmfs.noaa.gov/aquaculture/index.htm).

4) Support aquaculture of ocean, coastal, or Great Lakes species (including state- and federally-managed species). It is not a programmatic priority to fund projects focused solely on freshwater catfish or freshwater tilapia production in this competition.

5) Support aquaculture occurring in the coastal zone (as defined by the Coastal Zone Management Act), including state waters and the terrestrial coastal zone, and federal waters. This includes the coastal zone of the Great Lakes Region.

B. Program Priorities

This aquaculture research competition is designed to support the development of environmentally and economically sustainable ocean, coastal, and Great Lakes aquaculture.

The following are program priorities for this competition. The most successful proposals will address all of the following priorities. A proposal does not need to address all three of the research topical areas (listed in B.2.a-c) to be competitive:

1. High probability of significantly advancing sustainable domestic marine aquaculture development in the short-term (1-2 years after project completion). To be considered responsive to this priority, applicants must clearly demonstrate how their specific research project will advance marine aquaculture in the short-term.

2. Directly address major constraints that currently limit development and progress of domestic aquaculture, and specifically focus on one or more of the three following topical areas:

a) Research to inform pending, regulatory decisions on the local, state, or federal level leading to an information product-- such as a tool, technology, template, or model-- needed to make final decisions on a specific question regarding impacts of aquaculture. This must be specific enough to answer a particular regulatory question, but must be able to serve as a model to be applied to other similar issues. To be considered responsive to this priority, applicants must: a) clearly state how their work will address a current and specific regulator

impasse; b) clearly state how their work will facilitate a prompt decision on the pending regulatory question and provide the time-frame for that to occur, as well as state the general application of the decision; and c) provide specific contacts/letters of support from the agency (or agencies) involved that requires this information.

b) Public-private research partnerships that address specific, current problems with production technology, especially those that limit a steady supply of marine or Great Lakes fingerlings: Hatchery 'bottlenecks' between the egg and fingerling stages. This research topic is intended to cover all species, not just finfish, and includes all production technology issues, not only those that limit the production of marine fingerlings. This includes, but is not limited to new production technologies that reduce mortality risk for aquaculture species and improve their nutritional value while reducing pressure on wild stocks. To be considered responsive to this priority, applicants must clearly state how the results from their proposed work to increase fingerling supply will be ready for technology transfer, outreach, or extension efforts to advance sustainable domestic marine aquaculture in the short-term (1-2 years after project completion).

c) Social and/or economic research targeted to understand aquaculture issues in a larger context: Research on the social and/or economic issues associated with current and new marine or Great Lakes aquaculture. This includes interactions between aquaculture and harvest fisheries, valuation of ecosystem services for aquaculture operations, and consumer and stakeholder perception of aquaculture. To be considered responsive to this priority, applicants must clearly state how these research findings will be ready for outreach or extension efforts to advance sustainable domestic marine aquaculture in the short-term (1-2 years after project completion).

3. Involve partnerships and demonstrate resource leveraging, such that research impacts will be applicable to a broader geographic area. Example partnerships include: extension or other outreach personnel, industry, academia, state and federal agencies, and coastal communities. Given that the results are intended to advance U.S. aquaculture in the short-term, careful consideration of partnerships is warranted.

C. Program Authority

33 U.S.C. 1121 et seq.

II. Award Information

A. Funding Availability

Depending on the availability of funds and the quality of proposals, NOAA Sea Grant expects to have available up to $3,000,000 for new FY 2014 aquaculture research projects from this competition. Budget requests will keep the following in mind: no more than $250,000 in federal funds will be awarded per year, totaling no more than $500,000 in federal funds for the entire project. Given historical project budgets, anticipated funding available, and the number and quality of proposals submitted, it is expected that at about 10 projects will be awarded in FY 2014. Additional proposals from this competition may be

selected for funding in the next fiscal year (FY 2015) subject to the availability of funds.

B. Project/Award Period

Projects can be for a maximum duration of two years (24 months), but shorter-term project proposals are welcome. Proposals must provide a project description and budget that can easily be divided into annual increments of significant work that result in solid accomplishments. Awards are anticipated to start no later than September 1, 2014.

C. Type of Funding Instrument

Applications selected for funding will be funded through grants or cooperative agreements. Whenever appropriate, these grants or cooperative agreements will be made to the state Sea Grant Program that the applicant applied through. We will use cooperative agreements if the proposed project includes substantial NOAA involvement as described in the award. Examples of substantial NOAA involvement may include non-compensated collaboration in research or approval of key stages in the project before subsequent steps are undertaken.

III. Eligibility Information

A. Eligible Applicants

Institutions of higher education, nonprofit organizations, commercial organizations, State, local and Indian tribal governments and individuals are eligible. Federal agencies and their personnel are not permitted to receive federal funding under this competition; however, federal scientists can serve as uncompensated partners or co-Principal Investigators on proposals. Directors of the state Sea Grant Programs are not eligible to compete for funds under this announcement, although for administrative purposes, they will be considered to be the Principal Investigator for all awards made to their state programs.

B. Cost Sharing or Matching Requirement

Non-federal matching funds equal to at least 50 percent of the federal funding request must be provided. The applicant may include additional matching funds in excess of this amount if they wish. Additional matching funds might allow the project to achieve a greater impact for the federal investment, and can show evidence of partner involvement.

C. Other Criteria that Affect Eligibility

none.

IV. Application and Submission Information

A. Address to Request Application Package

No application package is required to submit a pre-proposal.

Applicants from Sea Grant States should contact their state Sea Grant Program prior to submission of a full proposal to request application materials and instructions. The contact information for state Sea Grant Programs may be found at: http://seagrant.noaa.gov/WhoWeAre/Leadership/SeaGrantDirectors.aspx or may also be obtained by contacting the Agency Contact listed in section VII.

Applicants *NOT* from Sea Grant States can submit their full proposals to a nearby state Sea Grant Program or directly to grants.gov. If they choose to submit to a state Sea Grant Program, they must contact that Program for application materials and instructions. If they choose to submit directly to grants.gov, they must obtain application materials from http://grants.gov (search for opportunity number NOAA-OAR-SG-2014-2003987). Application materials may also be obtained by contacting the Agency Contact listed in section VII.

A Title Page template, Sea Grant Aquaculture Competition Form 90-2, Sea Grant 90-4 form (OMB Control No. 0648-0362) and NEPA questionnaire (OMB Control No. 0648-0538) are available at http://seagrant.noaa.gov/FundingFellowships/SeaGrantFormsandTemplates.aspx or may be requested from the Agency Contact listed in section VII.

B. Content and Form of Application

Format Requirements for both pre-proposals and full proposals: All application materials should be composed in Portable Document Format (PDF) or a common word processing format, and when printed out should meet all format requirements. All pages must be single- or double-spaced, printed or typed in at least 12-point font, and printable on metric A4 (210 mm x 297 mm) or 8.5-inch x 11-inch paper, with 1-inch margins.

Pre-proposal Content Requirements:

The pre-proposal process is intended to provide an indication to potential applicants of the technical merit and the relevancy of the proposed project to the state Sea Grant Program before preparing a full proposal. The intent is to reduce the burden of preparing full proposals that do not have a high probability for funding. Late or incomplete pre-proposals, as well as those that deviate from content or format requirements, will not be reviewed by NOAA, and any associated full proposal applications cannot be submitted.

Each pre-proposal should not exceed three pages using the format described above and should provide:

a) Title of the research project;

b) Name and address of all investigators and partners;

c) Background section that sets the stage for the work and identifies which one of the three topical priorities listed in section I.B (2) that the pre-proposal addresses directly;

d) Rationale of why the work should be conducted and how it is relevant to the state Sea Grant Program;

e) Clear statement of research objectives and general methodology to be used;

g) Logical description of how the work supports (either directly or indirectly) one or both of the national performance measures listed in section I.A.; and

h) Estimated budget amount (federal and match for each year).

In addition, and not counted towards the three-page limit, the applicant must provide:

i) One-page biography for each investigator;

j) Cover page that includes the title of the research project, the name, affiliation, and address of the investigators with e-mail and phone contact information, the total budget requested (federal and match), duration of the project (one or two years), and the date of submission; and

k) A statement identifying which state Sea Grant Program the applicant will be submitting a full proposal to, and a description of the degree of interaction that has occurred with that state Sea Grant Program before pre-proposal submission. If an applicant from a non-Sea Grant state intends to submit a full proposal via grants.gov rather than to a state Sea Grant Program, he or she must state that here.

Full Proposal Content Requirements:

All those who submit complete and timely pre-proposals and meet all requirements are eligible to submit a full proposal. Brevity will assist reviewers and program staff in dealing effectively with proposals; thus, the Project Description may not exceed 15 pages. Tables and visual materials, including charts, graphs, maps, photographs and other pictorial presentations are included in the 15-page limit. The following do not count towards the 15-page limit: signed title page; project summary; references; budgets and justification; previous, current and pending support sections; letters of support; vitae; standard application forms; list of permits, NEPA questionnaire; and data sharing plan. The application may not include materials other than the items described below.

For each full proposal the following information must be included:

a. Signed title page (two-page maximum): The title page should clearly identify the program area being addressed by starting the project title with: a brief descriptive title of the proposal, followed by a hyphen and letters "PI" and the last name of the Principle Investigator". For example, "Larval feed automated system - PI Smith". The title page must include: the name, affiliation, and address of the investigators with e-mail and telephone numbers; the federal funding requested and match offered for year one and, if applicable, for year two and a total budget figure; and the date of submission. An optional Title Page template is available at http://seagrant.noaa.gov/FundingFellowships/SeaGrantFormsandTemplates.aspx.

b. Project Summary Form 90-2 (three-page maximum for this section): It is critical that the project summary accurately describe the project being proposed and convey all essential elements of the project. Applicants must use the Sea Grant Aquaculture Competition Form 90-2 for this purpose, found at http://seagrant.noaa.gov/FundingFellowships/SeaGrantFormsandTemplates.aspx. The project summary must include: (a) Title: Use the exact title as it appears in the rest of the application; (b) Investigators: List the names and affiliations of each investigator who will significantly contribute to the project, starting with the Principal Investigator; (c) Federal funding request and proposed matching funds; (d) Project Period: start date should be no later than September 1, 2014; (e) 300-word maximum Project Abstract, written into the Objectives section of the 90-2 form. This abstract should briefly summarize the rationale for the project, the scientific or technical objectives and/or hypotheses to be tested, a brief summary of work and accomplishments to be completed to be used for public dissemination; and (f) a brief summary (one or two sentences) of the Data Sharing Plan required below, written into the Methodology section of the 90-2 form. If the project does not generate any environmental data, it is sufficient to include a sentence saying that. If the proposal's Data Sharing Plan is short enough, you may repeat it in its entirety here. If not, you may just write that a full data sharing plan is attached to the proposal, and provide a point of contact for questions about the data.

c. Project description (15-page maximum):

(1) Introduction/background/justification: Subjects that the applicant must include in this section are: (i) which one of the three topical priorities listed in section I.B (2) that the proposal addresses; (ii) current state of knowledge of problem or issue and justification for proposed work; and (iii) contributions that the study will make to the particular industry, subject area, or issue.

(2) Research Work Plans: Include objectives to be achieved, hypotheses to be tested, how the objectives relate to each of the program priorities (listed in Section I.B.2), methods, experimental design and statistical analyses, and role of all project personnel.

(3) Outcome and Milestone Chart: This section must describe how the research, outreach, or other parts of the overall project will be integrated to effectively lead to the specific outcomes or benefits that will contribute to enhancing sustainable domestic aquaculture. One suggestion is a logic model or some depiction of the logical relationships between resources, activities, outputs, and outcomes of the proposed work. An outcome should describe the desired end state to be achieved (e.g., a desired change adopted by the aquaculture industry), not just a description of the activities to be performed. Applicants are strongly advised to develop specific, measurable, attainable, relevant and time-bound criteria, for which outcomes and success of the project (i.e., performance measures, objectives, milestones) can be independently verified.

This section must include increases to one or both of the national performance measures listed in section I.A, with targets and dates by which those targets are planned to be met. Alternatively, other intermediate, outcome-based performance measures with targets and dates by which those targets are planned to be met can be provided, if applicants provide an explanation of how achieving these intermediate performance measure targets will lead to increased targets for one or more of the national performance measures in section I.A.

This section must also include at least one milestone (a significant activity to be performed or objective to be achieved) per year. Provide timeline(s) of major tasks covering the duration of the proposal project in a milestone chart. Describe how these will be measured and reported.

(4) Outreach Plan: Describe specific outreach goals, activities, and deliverables. Ideally, this will describe a clear connection between the proposed research and management and/or policy decisions and how the results will be translated or transferred to end-used beyond direct scientific peers (i.e., beyond merely peer-review journals and scientific conferences). Describe how the results of the project will benefit specific stakeholders outside of academia (e.g., local coastal communities, public and private sectors), if appropriate. Provide a specific, measurable, time-bound work plan for these activities. Investigators are encouraged to meet with extension and outreach personnel during the early stages of proposal development.

(5) Coordination with other program elements: Describe any coordination with other agency programs or ongoing research efforts. Describe any other proposals or outside activities that are essential to the success of this proposal.

d. References and literature citations: Must be included as appropriate. This section does not count towards the 15-page project description maximum.

e. Budget and matching funds justification: Applications must reflect the total budget necessary to accomplish the project. There must be a separate budget for each year of the project as well as a cumulative budget for the entire project. Applicants must use the Sea Grant Budget Form 90-4 (http://seagrant.noaa.gov/FundingFellowships/SeaGrantFormsandTemplates.aspx). Subcontracts must have a separate budget page. The appropriateness of all matching funds (including in-kind contributions) will be determined, and applicants will be bound by the percentage of matching funds in the grant award. Applicants must provide justification for all budget items in sufficient detail to enable review of the appropriateness of the funding requested (see section IV.E. below for funding restrictions). This section does not count towards the 15-page project description maximum.

f. Previous, current and pending support: Applicants must provide information on all current and pending federal and state (including state Sea Grant) support for aquaculture projects and proposals that relate to the proposed work, including subsequent funding in the case of continuing grants. The proposed project and all other projects or activities requiring a portion of time of the principal investigator and other senior personnel must be included. The relationship between the proposed project and these other projects must be described, and the number of person-months per year to be devoted to the projects must be stated. This section does not count towards the 15-page project description maximum.

g. Letter(s) of support: Applicants may provide letters of support from stakeholders. Letters of support do not count towards the 15-page project description maximum.

h. Vitae (2 pages maximum per investigator). This section does not count towards the 15-page project description maximum.

i. Standard application forms: Standard application forms (i.e., SF-424, SF-424A, SF-424B, CD-511) are available through Grants.gov. They are mandatory for a proposal application. This section does not count towards the 15-page project description maximum.

j. List of all applicable permits that will be required to perform the proposed work. All proposals must respond to this required element whether or not permits are required. If no permits are requested, this section must indicate "no permits are required." This section does not count towards the 15-page project description maximum.

k. NOAA NEPA Questionnaire: As part of this application process, questions from "The Environmental Compliance Questionnaire for NOAA Federal Financial Assistance Applicants" (OMB Control No. 0648-0538) must be answered. This NEPA Questionnaire form is available at http://seagrant.noaa.gov/FundingFellowships/SeaGrantFormsandTemplates.aspx. All applicants need to fill in sections A, D, E and F. If you are proposing activities Related to Fisheries Sampling and Research, fill out section H. Failure to complete all of the indicated

questions will result in the application being considered incomplete. This section does not count towards the 15-page maximum.

l. Data Sharing Plan: Environmental data and information collected and/or created under NOAA grants/ cooperative agreements must be made visible, accessible, and independently understandable to general users, free of charge or at minimal cost, in a timely manner (typically no later than two (2) years after the data are collected or created), except where limited by law, regulation, policy or security requirements.

(1). Unless otherwise noted in the federal funding announcement, a Data/Information Sharing Plan of no more than two pages shall be required. A typical plan should include descriptions of the types of environmental data and information created during the course of the project; the tentative date by which data will be shared; the standards to be used for data/metadata format and content; policies addressing data stewardship and preservation; procedures for providing access, sharing, and security; and prior experience in publishing such data. The Data/Information Sharing Plan will be reviewed as part of the NOAA Standard Evaluation Criteria, Item 1 -- Importance and/or Relevance and Applicability of Proposed Project to the Mission Goals.

(2). The Data/Information Sharing Plan (and any subsequent revisions or updates) must be made publicly available at time of award and, thereafter, will be posted with the published data.

(3). Failing to share environmental data and information in accordance with the submitted Data/Information Sharing Plan may lead to disallowed costs and be considered by NOAA when making future award decisions.

(4) If your proposed activities do not generate any environmental data, your application is still required to have a data sharing plan. Such a data sharing plan could include the statement that "this project will not generate any environmental data".

(5) The data sharing plan does not count towards the 15-page maximum.

C. Submission Dates and Times

Pre-proposals must be received via e-mail (to oar.hq.sg.aquaculture@noaa.gov) to the National Sea Grant Office at 5:00 p.m. Eastern Time on February 21, 2014. By March 13, 2014, applicants should receive a summary statement that includes whether their pre-proposal is encouraged or discouraged to submit a full proposal. All those who submit complete and timely pre-proposals and meet all requirements are eligible to submit a full proposal.

Full proposals are due from applicants at 5:00 p.m. Eastern Time on May 5, 2014, regardless of where they are submitted. State Sea Grant Programs must forward all full

proposal applications to Grants.gov by 5:00 p.m. Eastern Time on May 30, 2014. These full proposal applications must be forwarded unchanged, unless those changes are approved by NOAA.

Applications received after any of the published deadlines will not be reviewed. The timeliness of applications received through Grant.gov will be determined by the date and time indicator included when applications are submitted. Note: Grants.gov requires applicants to register with the system prior to submitting an application. This registration process can take several weeks, involving multiple steps. The timeliness of applications received through state Sea Grant Programs will be certified by the receiving Sea Grant Program.

It is up to the individual applicant to contact the state Sea Grant Program. It is highly recommended that applicants contact their state Sea Grant Program prior to submission of a pre-proposal to discuss the relevancy of the proposed idea and the process for submitting a full proposal, including the required forms and content. Applicants from non-Sea Grant states who intend to submit their full application via a state Sea Grant Program are similarly encouraged to contact that state Sea Grant Program prior to submitting a pre-proposal. There is no deadline by which these preliminary discussions must take place, but failure to submit a correct and complete full proposal by the proposal deadline of submission to the state Sea Grant Program, because proposal processing issues were not fully discussed and resolved in time, will result in rejection of the application by NOAA.

D. Intergovernmental Review

Applications under this Program are not subject to Executive Order 12372, "Intergovernmental Review of Federal Programs."

E. Funding Restrictions

Federal funding received under this Federal Funding Opportunity is prohibited by 33 USC 1124(d)(2) from being used for the purchase or rental of any land or the purchase, rental, construction, preservation, or repair of any building, dock, or vessel, except for: (1) the short-term rental of buildings or facilities for meetings in direct support of this project; (2) purchase, rental, construction, preservation, or repair of non-self-propelled habitats, buoys, platforms, and other similar devices or structures approved by NOAA, and (3) rental of any research vessel which is used in direct support of this project and approved by NOAA.

F. Other Submission Requirements

none

G. Address for Submission of Proposals:

All pre-proposals must be submitted via electronic mail to the National Sea Grant Office to: oar.hq.sg.aquaculture@noaa.gov.

Note: e-mail is not secure and may be read by others than the intended recipient. If you are concerned with the security of your pre-proposal, or if the size of your pre-proposal is larger than can be accommodated by our e-mail system (> about 10 megabytes) or by your e-mail system, please contact the person listed in Agency Contacts by February 18, 2014 to request a secure file transfer. Include your name and valid e-mail address in the request.

You will receive an acknowledgement of your pre-proposal submission via email within about 3 days. If you do not receive such an acknowledgement, please contact the person listed in Agency Contacts.

Address for Submission of Full Proposals:

Applicants from Sea Grant states must submit full proposals to the address provided by their state Sea Grant Program, following specific instructions on how proposals must be submitted which will be provided by their state Sea Grant Program on request. Those state Sea Grant Programs must submit full proposals received to Grants.gov (address opportunity number NOAA-OAR-SG-2014-2003987).

Applicants *NOT* from Sea Grants States submit their full proposals to a nearby state Sea Grant Program to the address provided by that Program, or directly to Grants.gov. If submitted electronically, via Grants.gov, address opportunity number NOAA-OAR-SG-2014-2003987.

The contact information for state Sea Grant Programs may be found at: http://seagrant.noaa.gov/WhoWeAre/Leadership/SeaGrantDirectors.aspx or may also be obtained by contacting the Agency Contact listed in section VII. If an applicant or state Sea Grant Program does not have proven internet access, contact the Agency Contact listed in section VII for submission instructions for hard copies. The hard copy must be received by the deadline, so it is recommended that you use a carrier that will guarantee timely delivery and provide tracking documentation.

V. Application Review Information

A. Evaluation Criteria

1. Importance and/or relevance and applicability of proposed project to the National Sea Grant program goals (maximum - 35): This ascertains whether there is intrinsic value in the proposed work and/or relevance to NOAA, Federal, regional, State, or local activities. For this competition, this ascertains:

a) If the proposed project has a high probability of significantly advancing sustainable domestic marine aquaculture development in the short-term (1-2 years after project completion) and if applicants have clearly demonstrated how their specific research project will advance marine aquaculture in the short-term; and

b) How well the proposed project directly addresses major constraints that currently limit development and progress of domestic aquaculture, and specifically focuses on one or more of the three following topical areas:

i) Research to inform pending, regulatory decisions on the local, state, or federal level leading to an information product-- such as a tool, technology, template, or model-- needed to make final decisions on a specific question regarding impacts of aquaculture. This must be specific enough to answer a particular regulatory question, but must be able to serve as a model to be applied to other similar issues. Has the applicant: a) clearly stated how their work will address a current and specific regulatory impasse; b) clearly stated how their work will facilitate a prompt decision on the pending regulatory question and provided the time- frame for that to occur, as well as stated the general application of the decision; and c) provided specific contacts/letters of support from the agency (or agencies) involved that requires this information?

ii) Public-private research partnerships that address specific, current problems with production technology, especially those that limit a steady supply of marine or Great Lakes fingerlings: Hatchery 'bottlenecks' between the egg and fingerling stages. This research topic is intended to cover all species, not just finfish, and includes all production technology issues, not only those that limit the production of marine fingerlings. This includes, but is not limited to new production technologies that reduce mortality risk for aquaculture species and improve their nutritional value while reducing pressure on wild stocks. Have the applicants clearly stated how the results from their proposed work to increase fingerling supply will be ready for technology transfer, outreach or extension efforts to advance sustainable domestic marine aquaculture in the short-term (1-2 years after project completion)?

iii) Social and/or economic research targeted to understand aquaculture issues in a larger context: Research on the social and/or economic issues associated with current and new marine or Great Lakes aquaculture. This includes interactions between aquaculture and harvest fisheries, valuation of ecosystem services for aquaculture operations, and

consumer and stakeholder perception of aquaculture. Has the applicant stated how these research findings will be ready for outreach or extension efforts to advance sustainable domestic marine aquaculture in the short-term (1-2 years after project completion)?

c) The appropriateness of the Data Sharing Plan.

2. Technical/scientific merit (maximum - 25 points): This assesses whether the approach is technically sound and/or innovative, if the methods are appropriate, and whether there are clear project goals and objectives. For this competition, this ascertains:

(a) The quality of the work plan, and if it includes (if appropriate) plans for identifying and conducting future research or other future actions;

(b) If the proposal includes all components (research, outreach, extension, etc) necessary to achieve the desired outcome and an effective plan to integrate all components;

(c) If the proposal contributes to one or both of the performance measures identified in section I.A, with targets; and

(d) If the proposal includes a concrete, unambiguous specific desired outcome, and has a good chance of achieving that outcome (including meeting stated national performance measure targets) and if the proposal includes a way to objectively determine its success at achieving its outcomes.

3. Overall qualifications of applicants (maximum - 10 points): This ascertains whether the applicant and others on the team possess the necessary education, experience, training, facilities, and resources to accomplish the project. This includes applicant's record of achievement with previous funding, as well as the qualifications of project partners. If the proposal includes the use of outside consultants not yet identified, this criterion includes how clearly the selection factors for the outside consultants are set out, and the expected qualifications of the consultants based on those selection factors.

4. Project costs (maximum - 10 points): The budget is evaluated to determine if it is realistic and commensurate with the project needs and time-frame. For this competition, this includes: the extent of matching funds in excess of the required amount and the level of contribution by project partners.

5. Outreach and education (maximum - 20 points): This assesses whether this project provides a focused and effective education and outreach strategy regarding NOAA's mission to protect the Nation's natural resources. For this competition, this ascertains: a) if the proposal includes a clear and objective work plan for outreach strategy and specific activities to maximize dissemination of results to stakeholders; b) the level of active participation by partners on the project; c) and the ability of the project to serve as a model for other states or regions.

B. Review and Selection Process

This will be a two-stage competition with pre-proposals and full proposals. At both stages, an administrative review is conducted by NOAA to determine compliance with requirements, completeness of the application, and responsiveness to this FFO and programmatic priorities.

Encouragement of pre-proposals is based on technical merit and relevance. Technical merit will be determined by a technical panel similar to that used at the full proposal stage, providing scores using the same evaluation criteria and weights (above in section V.A) as at the full proposal stage. Input from Sea Grant directors will be considered and given high weight towards determining relevance of pre-proposals. Sea Grant directors will review all pre-proposal submitted from their state to provide (to the competition manager) comments on the relevance of pre-proposals to the state Sea Grant Program and highlight one pre- proposal that they determine as most relevant to each Program.

A summary statement will be provided to each applicant of a pre-proposal, stating whether their pre-proposal was complete and timely and whether a full proposal is 'encouraged' or 'not encouraged' for the full proposal stage. Regardless of encouragement or discouragement based on the pre-proposal, all those who submit complete and timely pre-proposals and meet all requirements are eligible to submit a full proposal.

All complete full proposals will be subjected to evaluation, to be organized by NOAA, based on the criteria listed above. This evaluation will be by a technical review panel of government, academic, NGO or private sector scientists and managers. Sea Grant Directors will comment on the relevance of proposals submitted through their state; that information will be provided to panelists. Scores will be provided by each member of the panel based on the evaluation criteria contained in this request for proposals. A summary statement of the review by the panel will be provided to each applicant of a complete proposal. Reviewers will not make a consensus decision, but will provide individual scores. The Competition Manager will review the ranking of the proposals and the review panel comments and make recommendations to the Selecting Official. Awards will be made in rank order unless a proposal is justified to be selected out of rank based upon one or more of the selection factors described in the next section. If selection is out of rank order based on the selection factors below, a justification memorandum will be provided by the Selecting Official to state which factor(s) is/are used and how it applies to the applications identified.

C. Selection Factors

The Selecting Official shall award in rank order unless a proposal is justified to be selected out of rank based upon one or more of the following factors:

1. Availability of funding;

2. Balance and distribution of funds;

    a. Geographically

b. By type of institutions

c. By type of partners

d. By research areas

e. By project types

3. Duplication of other projects funded or considered for funding by NOAA or other Federal agencies;

4. Program priorities and policy factors as given in section I.B;

5. Applicant's prior award performance;

6. Partnerships and/or Participation of targeted groups;

7. Adequacy of information necessary for NOAA staff to make a National Environmental Protection Act (NEPA) determination and draft necessary documentation before recommendations for funding are made to the Grants Officer.

Consequently, awards may not necessarily be made to the highest-scored proposals. Applicants may be asked to modify objectives, work plans, or budgets prior to approval of the award. Subsequent administrative processing will be in accordance with current NOAA grants procedures.

D. Anticipated Announcement and Award Dates

Subject to the availability of funds, awards are expected to be made by September 1, 2014. Additional proposals from this competition may be selected for funding in the next fiscal year, subject to the availability of funds. This may result in applicants being asked to modify their start dates.

VI. Award Administration Information

A. Award Notices

Successful applicants will receive notification that the application has been recommended for funding to the NOAA Grants Management Division. This notification is not an authorization to begin performance of the project. Official notification of funding, signed by the NOAA Grants Officer, is the authorizing document that allows the project to begin. Notification will be issued to the Authorizing Official and the Principle Investigator of the project electronically via Grants Online or in hard copy. Unsuccessful applicants will be notified that their proposal was not selected for recommendation.

To enable the use of a universal identifier and to enhance the quality of information available to the public as required by the Federal Funding Accountability and Transparency Act of 2006, to the extent applicable, any proposal awarded in response to this announcement will be required to use the Central Contractor Registration and Dun and Bradstreet Universal Numbering System and be subject to reporting requirements, as identified in OMB guidance published at 2 CFR Parts 25, 170 (2010), http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr25_main_02.tpl, http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr170_main_02.tpl.

B. Administrative and National Policy Requirements

1. DEPARTMENT OF COMMERCE PRE-AWARD NOTIFICATION REQUIREMENTS FOR GRANTS AND COOPERATIVE AGREEMENTS - Administrative and national policy requirements for all Department of Commerce awards are contained in the Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements contained in the Federal Register notice of December 17, 2012 (77 FR 74634). A copy of the notice may be obtained at http://www.gpo.gov/fdsys/.

2. LIMITATION OF LIABILITY - In no event will NOAA or the Department of Commerce be responsible for proposal preparation costs. Publication of this announcement does not oblige NOAA to award any specific project or to obligate any available funds.

3. UNPAID OR DELINQUENT TAX LIABILITY - In accordance with current Federal appropriations law, NOAA will provide a successful corporate applicant a form to be completed by its authorized representatives certifying that the corporation has no Federally-assessed unpaid or delinquent tax liability or recent felony criminal convictions under any Federal law.

4. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) - NOAA must analyze the potential environmental impacts, as required by the National Environmental Policy Act (NEPA), for applicant projects or proposals which are seeking NOAA federal funding opportunities. Detailed information on NOAA compliance with NEPA can be found at the following NOAA NEPA website: http://www.nepa.noaa.gov/, including our NOAA Administrative Order 216-6 for NEPA and the Council on Environmental Quality implementation regulations, http://ceq.eh.doe.gov/nepa/regs/ceq/toc_ceq.htm Consequently, as part of an applicant's package, and under their description of their program activities, applicants are required to provide detailed information on the activities to be conducted, locations, sites, species and habitat to be affected, possible construction activities, and any environmental concerns that may exist (e.g., the use and disposal of hazardous or toxic

chemicals, introduction of non-indigenous species, impacts to endangered and threatened species, aquaculture projects, and impacts to coral reef systems).

In addition to providing specific information that will serve as the basis for any required impact analyses, applicants may also be requested to assist NOAA in drafting of an environmental assessment, if NOAA determines an assessment is required. Applicants will also be required to cooperate with NOAA in identifying feasible measures to reduce or avoid any identified adverse environmental impacts of their proposal. The failure to do so shall be grounds for not selecting an application. In some cases if additional information is required after an application is selected, funds can be withheld by the Grants Officer under a special award condition requiring the recipient to submit additional environmental compliance information sufficient to enable NOAA to make an assessment on any impacts that a project may have on the environment.

C. Reporting

Award recipients will be required to submit financial and performance (technical) reports to the state Sea Grant Program for reporting requirements. These reports are to be submitted electronically, unless the recipient does not have proven Internet access, in which case hard copy submissions may be accepted; however, no facsimiles will be accepted. After consultation between the applicant(s) and the state Sea Grant Program staff, reports are to be submitted electronically by state Sea Grant Program staff via Grants Online.

State Sea Grant Programs also are required to use the National Sea Grant Planning Implementation Evaluation Reporting (PIER) System to communicate with the National Sea Grant Office on activities relating to this award. This includes tracking progress and impacts, in addition to performance metrics. Successful applicants will be asked to provide performance progress information in a form compatible with this system. If a proposal is selected and funded, information about the project and investigator(s) will be recorded in the PIER system, and can be made public.

The Federal Funding Accountability and Transparency Act of 2006 includes a requirement for awardees of applicable Federal grants to report information about first-tier subawards and executive compensation under Federal assistance awards issued in FY 2011 or later. All awardees of applicable grants and cooperative agreements are required to report to the Federal Subaward Reporting System (FSRS) available at www.FSRS.gov on all subawards over $25,000.

VII. Agency Contacts

For information regarding the NOAA Sea Grant Aquaculture Research Program 2014, inquiries should be directed to Competition Manager, Dr. Gene Kim, 301-734-1281; via e-mail at oar.hq.sg.aquaculture@noaa.gov; Mailing Address: NOAA Sea Grant; 1315 East-West Highway, SSMC3, R/SG; Silver Spring, MD 20910.

VIII. Other Information

Questions about this funding opportunity may be sent to oar.hq.sg.aquaculture@noaa.gov. Questions of general interested will be responded to, time permitting, on a question-and-answer website about this competition: http://seagrant.noaa.gov/FundingFellowships/NationalStrategicInvestments(NSIs)/AquacultureCompetition.aspx

NOAA

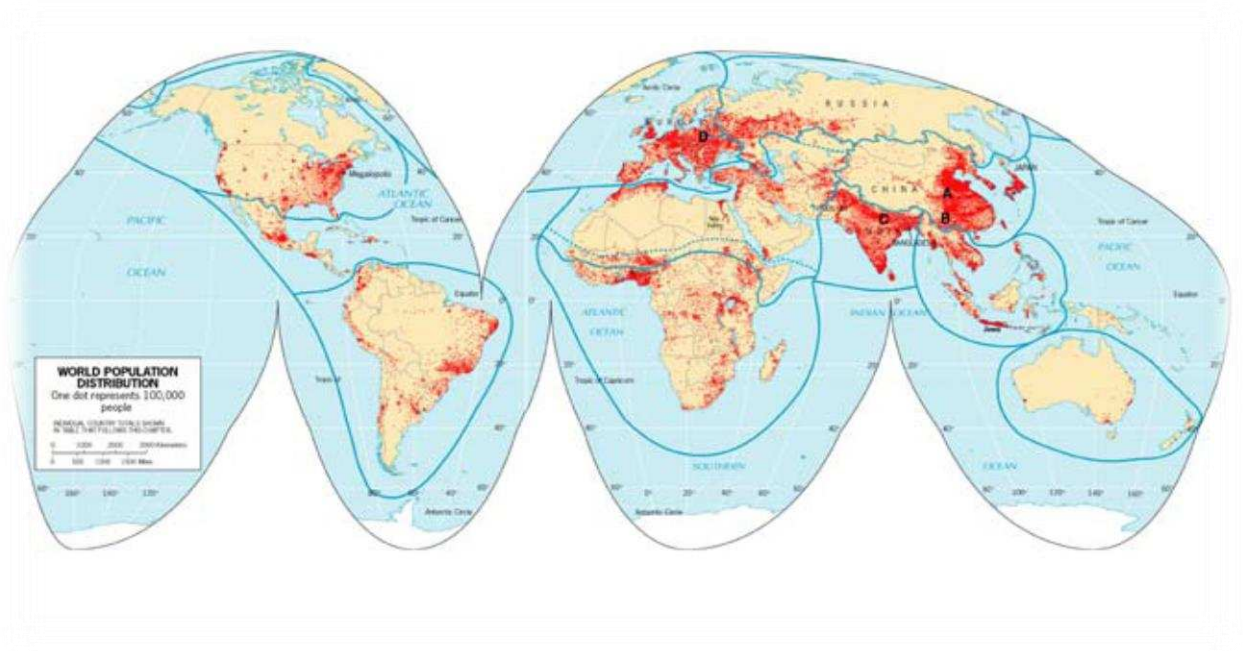
National Sea Grant College Program

Strategic Plan 2014-2017

Sustaining our nation's ocean, coastal and Great Lakes resources through university-based research, communications, education, extension and legal programs.

Sea Grant

World Population Density



Around the world hundreds of thousands move to the coast every year, making it increasingly important that we find adequate ways to balance human social and economic activities. Along with other coastal nations, America must use its coastal land, water, energy, and other natural resources in ways that preserve the health and productivity of coastal ecosystems.

Introduction

Serious challenges present the greatest opportunities for change, and Sea Grant is prepared not only to respond, but to help coastal communities prepare to meet these challenges. One of Sea Grant's demonstrated strengths is its ability to quickly mobilize universities and other partners to address challenges across the country and around the world. The national Sea Grant network of university scientists and communication, education, extension and legal professionals has the ability, through the organization's coordinated state and regional infrastructure, to address local and state priorities of national importance.

At this time of great risk to the sustainability[1] of our ocean, coastal and Great Lakes resources, there is an even greater opportunity for the Sea Grant network to play a significant role, through innovation and creativity, in addressing the goals set forth in this plan. The Sea Grant programs will strive to achieve these national goals in a manner that reflects the particular needs of individual states and communities and the nation as a whole. This four-year strategic plan establishes a prioritized national direction to guide the Sea Grant network in addressing critical national needs at local, state and regional scales in ocean, coastal and Great Lakes environments. The plan capitalizes on Sea Grant's unique capacities and strengths, allows state Sea Grant programs to be flexible, and supports the Next Generation Strategic Plan of the National Oceanic and Atmospheric Administration (NOAA).

SEA GRANT VISION AND MISSION

The National Sea Grant College Program envisions a future where people live, work and play along our coasts in harmony with the natural resources that attract and sustain them. This is a vision of coastal America where we use our natural resources in ways that capture the economic, environmental and cultural benefits they offer, while preserving their quality and abundance for future generations.

This vision complements the vision articulated in NOAA's Strategic Plan: "Healthy ecosystems, communities and economies that are resilient in the face of change."

Sea Grant's mission is to provide integrated research, communication, education, extension and legal programs to coastal communities that lead to the responsible use of the nation's ocean, coastal and Great Lakes resources through informed personal, policy and management decisions.

[1] Sustainability is defined as meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. Sustainability has three equally weighted components: economic, social and environmental.

SEA GRANT MODEL

Sea Grant was created by the U.S. Congress in 1966 to be a highly leveraged federal and state partnership to harness the intellectual capacity of the nation's universities to solve ocean, coastal, Great Lakes and island (hereby referred to as coastal) problems. The National Sea Grant College Program engages citizens, communities, scientists, organizations and governments to sustain and enhance the vitality, value and wise use of the nation's coastal resources. Administered and supported by NOAA, and implemented through leading research universities, Sea Grant provides unique access to scientific expertise and to new discoveries. Through its scientists and communications, education, extension and legal specialists (hereby referred to as engagement professionals), Sea Grant generates, translates and delivers cutting-edge, unbiased, science-based information to address complex issues.

Sea Grant is a national network. This network includes the National Sea Grant Office, 33 university-based state programs, the National Sea Grant Advisory Board, the National Sea Grant Law Center, the National Sea Grant Library and hundreds of participating institutions. The Sea Grant network enables NOAA and the nation to tap the best science, technology and expertise to balance human and environmental needs in coastal communities. Sea Grant's alliance with major research universities around the country provides access to thousands of scientists, students and engagement professionals. Sea Grant's university-based programs are fundamental to the development of the future scientists and resource managers needed to conduct research and to guide the responsible use and conservation of our nation's coastal resources. With its strong research capabilities, local knowledge and on-the-ground workforce, Sea Grant provides an effective national network of unmatched ability to rapidly identify and capitalize on opportunities and to generate timely, practical solutions to real problems in real places.

SEA GRANT CORE VALUES

Since its inception, a strong set of core values has provided the foundation for Sea Grant's work. Sea Grant is founded on a belief in the critical importance of university-based research and constituent engagement[2]. Sea Grant invests significantly in merit-reviewed research each year. Research discoveries are then distributed to Sea Grant's constituents through sustained engagement programs. Meaningful and sustained engagement has allowed Sea Grant to form strong partnerships with leading coastal state research universities, with other NOAA programs, and with a wide range of public and private partners at federal, state and local levels. This has proven to be a highly effective way to identify and solve the most relevant problems facing coastal communities.

[2] A Mandate to Engage Coastal Users: A Review of the National Sea Grant Extension Program and a Call for Greater National Commitment to Engagement (November 2000) and NOAA's Science Advisory Board's report on Engaging NOAA Constituents. Each report defined constituent engagement as being responsive, accessible, respecting partners, maintaining scientific neutrality, integrating diverse expertise, coordination of efforts and building resource partnerships.

Sea Grant's unique integration of research with constituent engagement is at the heart of its mission. As a pioneer in translational research (from discovery to application), Sea Grant ensures that unbiased, science-based information is accessible to all. The diverse capabilities of Sea Grant's personnel and partners enable the organization to be creative and responsive in generating policy-relevant research and disseminating scientific and technological discoveries to a wide range of audiences. Sea Grant's science-based, non-regulatory approach and its long-term history of engagement with local communities have made Sea Grant a trusted source of information. Sea Grant serves as a catalyst for decision support by increasing knowledge among decision-makers and the public as a whole. Sea Grant's commitment to these core values is vital to achieving the goals set forth in this plan.

PLANNING PROCESS AND STRATEGIC APPROACH

The collective Sea Grant network brought its wealth of expertise and experience to the task of creating this plan. The planning process began with identification of priorities by the Sea Grant state programs (and their stakeholders and advisory committees) followed by a review of existing plans and reports that set national, regional, state and local priorities. To elicit additional input and guidance, the Sea Grant network, national stakeholder groups, representatives from NOAA programs, other federal agencies and environmental non-profit organizations were asked to provide input on three drafts of the 2014-2017 National Sea Grant Program Strategic Plan

A strategic approach to managing coastal resources in ways that balance human use with environmental health requires:

- Better science-based information about how coastal ecosystems function and how human activities affect coastal habitats and living resources;
- Citizens who understand the complexities of coastal environments and the interactions between human use and coastal ecosystem health;
- Management and decision-making processes that are based on sound information, involve citizens who have a stake in America's coastal resources and include mechanisms to evaluate trade-offs between human and environmental needs; and,
- Incorporation of social science, including quality of life and sustainable economic development, into ecosystem-based management decisions.

FOCUS AREAS

Image Credit: Oliver Bencosme/ SeaGrantPR.org

To help the nation understand, manage and use its coastal resources wisely, Sea Grant identified four focus areas central to what Sea Grant does. The focus areas are:

1. **Healthy Coastal Ecosystems**
2. **Sustainable Fisheries and Aquaculture**
3. **Resilient Communities and Economies**
4. **Environmental Literacy and Workforce Development**

These focus areas evolved from Sea Grant's 2009-2013 Strategic Plan and reflect America's most urgent needs along our coasts, as well as NOAA goals and Sea Grant's strengths and core values. The focus areas also reflect the integration of Sea Grant's research and engagement programs. These functional areas provide the foundation for implementing a successful four-year plan.

Each focus area has goals, outcomes and performance measures. The goals describe the desired long-term direction for each focus area. The outcomes are benchmarks from which Sea Grant can track progress toward achieving each goal. Performance measures are quantitative ways of measuring outcomes with targets developed by each Sea Grant program.

Outcomes are commonly categorized as short-, medium- and long-term. In this plan, learning, action and consequence outcomes are synonymous to short-, medium- and long-term outcomes and have been chosen to more easily identify the transition across outcome categories. For example, progress toward a goal starts with an achievable and measurable learning outcome and is followed by a series of "what happens next" (action and consequence) questions until the goal is met. Using this approach, it is easier to demonstrate in a more or less linear process how goals are achieved.

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

- Action (medium-term) outcomes lead to behavior change, social action, and 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.

The outcomes identified in the 2014-2017 National Sea Grant Strategic Plan can only be realized through full utilization of Sea Grant's research and engagement programs. For example, many of the learning outcomes identified require a substantial investment in needs-based and merit-reviewed research before any actionable outcomes. Simply stated, Sea Grant-sponsored research is the "engine" that leads to new products, tools or other discoveries used by Sea Grant's engagement programs to effect change.

There are two types of performance measures identified in this plan. Performance measures that are most closely linked to a single focus area are listed at the end of each focus area section. Cross-cutting performance measures - broad measures of progress toward goals for all focus areas - are listed following the Education and Workforce Development Focus area.

Collectively, the four focus areas include 11 goals, 91 outcomes and 12 performance measures. This plan directly aligns to NOAA's goals and objectives as articulated in NOAA's Next Generation Strategic Plan: climate adaptation and mitigation, weather-ready nation, healthy oceans, and resilient coastal communities and economies. The 2014-2017 National Sea Grant Strategic Plan capitalizes on Sea Grant's unique capacities and strengths and provides state programs with the flexibility and creativity required to adapt to emerging needs.

HEALTHY COASTAL ECOSYSTEMS

The United States manages millions of square miles of coastal territories that contain diverse and productive ecosystems. These ecosystems span from the tropics to the Arctic and support a variety of recreational, commercial and subsistence activities. More than four million acres of coral reefs serve as vital economic and biodiversity hotspots in the Atlantic, Caribbean, Gulf of Mexico and Pacific[3]. More than 88,569 square miles of coastal wetlands provide nurseries for more than half of our commercially harvested fish species and refuges for 75 percent of all our migratory birds and waterfowl[4]. In addition, there are the countless miles of beaches and bluffs, sea grass beds, oyster reefs and tidal flats, which have long made our coasts popular places to live and visit. Therefore, healthy coastal ecosystems, sustained by their surrounding watersheds, are the foundation of life along the coast.

Image credit: Acropora Cervicornis; Otter- Alaska Sea Grant; Algal Bloom- Ohio Sea Grant

Keeping coastal ecosystems healthy is a challenge because of the diversity of stressors each system faces. This is further complicated because ecosystems do not adhere to traditional political boundaries. Responsible management of these systems requires new kinds of thinking and actions, often termed ecosystem-based management[5]. Ecosystem-based approaches require unprecedented levels of coordination among federal, state and local jurisdictions and the active engagement of the people who live, work and play along our coasts. They also require

[3] USGS 2002, http://pubs.usgs.gov/fs/2002/fs025-02/.
[4] NOAA 2012,http://stateofthecoast.noaa.gov/.
[5] Ecosystem-based management is an integrated approach to management that considers the entire ecosystem, including humans. The goal of ecosystem-based management is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need. Ecosystem-based management differs from current approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors.

understanding of the characteristics of species, landscapes and their interactions within each ecosystem.

In general, increasingly rapid coastal development, greater demands on fisheries resources, climate change and other human activities are leading to water quality degradation, increased demands on water supplies, changes to fisheries stocks, wetlands loss, proliferation of invasive species and a host of other environmental impacts. It is essential for decision-makers to understand the interconnectedness and interactions of these systems in order to maintain vital habitats and inform restoration efforts within ecosystems and watersheds.

Sea Grant is a leader in regional approaches to understanding and maintaining healthy ecosystems, with planning efforts across the country to identify information gaps, implement research priorities and coordinate information and technology transfer to people who need it. Sea Grant recognizes the need to determine the value of the myriad services ecosystems[6] provide that maintain the conditions for life on Earth. Sea Grant's regional consortia, nationwide networks and international contacts are particularly well-suited to helping the nation address ecosystem health at the appropriate local, state, regional, national and global levels.

[6] Ecosystem services include provisioning (food and water), regulating (flood and disease control), cultural (spiritual, recreational and cultural benefits) and supporting (nutrient cycling).

HEALTHY COASTAL ECOSYSTEMS

GOAL 1

Ecosystem services are improved by enhanced health, diversity and abundance of fish, wildlife and plants.

Learning Outcomes

- Develop and calibrate new standards, measures and indicators of ecosystem sustainability.
- Identify critical uncertainties that impede progress toward achieving sustainability of ecosystems and the goods and services they provide.

Action Outcomes

- Resource managers, policy- and decision-makers use standards and indicators to support ecosystem-based management.

Consequence Outcomes

- Dynamic ecological systems provide a wide range of ecological, economic and societal services and are more resilient to change.
- Greater public stewardship leads to participatory decision-making and collaborative ecosystem-based management decisions.

HEALTHY COASTAL ECOSYSTEMS

GOAL 2

Ecosystem-based approaches are used to manage land, water and living resources.

Learning Outcomes

- Stakeholders have access to data, models, policy information and training that support ecosystem-based planning, decision-making and management approaches.
- Baseline data, standards, methodologies and indicators are developed to assess the health of ecosystems and watersheds.
- Residents, resource managers, businesses and industries understand the effects of human activities and environmental changes on coastal resources.
- Resource managers have an understanding of the policies that apply to coastal protected species.

Action Outcomes

- Methodologies are used to evaluate a range of practical ecosystem-based management approaches for planning and adapt to future management needs.
- Resource managers apply ecosystem-based management principles when making decisions.
- Resource managers incorporate laws and policies to facilitate and implement ecosystem-based management.
- Residents, resource managers and businesses integrate social, natural and physical science when managing resources and work with all sectors in the decision-making process.

Consequence Outcomes

- Land, water and living resources are managed using ecosystem-based approaches.

HEALTHY COASTAL ECOSYSTEMS

GOAL 3

Ecosystems and their habitats are protected[7], enhanced or restored.

Learning Outcomes

- Residents, resource managers and businesses understand the importance of the benefits provided by preserving non-degraded ecosystems.
- Residents, resource managers and businesses understand the threats to ecosystems and the consequences of degraded ecosystems.
- Scientists develop technologies and approaches to restore degraded ecosystems.

Action Outcomes

- Resource managers set realistic and prioritized goals to protect, enhance and restore habitats by incorporating scientific information and public input.
- Resource managers, businesses and residents adopt innovative approaches and technologies to maintain or improve the function of ecosystems.

Consequence Outcomes

- Habitats are protected, enhanced or restored.
- Degraded ecosystem function and productivity are restored

HEALTHY ECOSYSTEMS PERFORMANCE MEASURES

1. Number of Sea Grant tools, technologies and information services that are used by our partners/customers to improve ecosystem-based management.
2. Number of ecosystem-based approaches used to manage land, water and living resources in coastal areas as a result of Sea Grant activities.
3. Number of acres of coastal habitat protected, enhanced or restored as a result of Sea Grant activities.

[7] In the context of this goal, protected areas are those places in some form of conservation management program.

Sustainable Fisheries and Aquaculture[8]

Image Credit: Alaska & Oregon Sea Grant

The nation has witnessed the decline of many of its major fisheries while seafood consumption has increased and continues to be encouraged because of its health benefits. To fill the gap between seafood demand and domestic harvests, the United States imports 86 percent[9] of what is consumed leading to a seafood trade deficit of over $10 billion[10] per year. With global wild fisheries harvests at a plateau of around 185 metric tons[11], some 50 seafood species are now produced from aquaculture. There are no projected increases in wild capture fisheries, but global aquaculture is predicted to increase by 33 percent over the next decade. These projections create opportunities for an expanded U.S. aquaculture industry and for innovative marketing strategies and value-added products for the nation's wild fisheries industry.

The overall economic impact of the commercial, recreational, for-hire fisheries and aquaculture industries in the United States is over $276 billion. The commercial fishing industry supports

[8] We use a working definition of "seafood sustainability" that is based on the NOAA Fish watch concept. Sustainability involves "meeting today's needs without compromising the ability of future generations to meet their needs. In terms of seafood, this means catching or farming seafood responsibly, with consideration for the long-term health of the environment and the livelihoods of the people who depend upon the environment.

[9] Food and Agriculture Organization of the United Nations.

[10] U.S. Department of Agriculture Foreign Agricultural Service statistics.

[11] Food and Agriculture Organization of the United Nations.

approximately 1 million full- and part-time jobs and generates $116 billion in sales[12]. The recreational and for-hire fishing industry generates significant tourism revenue with $73 billion in total economic impact for saltwater fishing and an additional $6 billion annually for Great Lakes recreational and for-hire fisheries. The U.S. aquaculture industry generates an economic impact of $1 billion, provides additional opportunities for job creation, and contributes to meeting the nation's demand for finfish and shellfish.

Sea Grant continues to play a leadership role in developing innovative technologies for all sectors of the seafood industry, including fishing, aquaculture, seafood processing and consumer safety, to ensure a safe and sustainable supply of seafood products now and for future generations. Seafood safety will continue to be a concern for consumers as foreign imports, some of which are associated with seafood contamination, continue to increase. Sea Grant's partnership with NOAA Fisheries, state fisheries managers, seafood processors, fishing associations and consumer groups will ensure safe, secure and sustainable supplies of domestic seafood and decrease our reliance on seafood imports.

Image Credit: Alaska Sea Grant; Oregon Sea Grant

[12] NOAA Fisheries, 2009 . Fisheries Economics, Sociocultural Status and Trends Series: http://www.st.nmfs.noaa.gov/st5/publication/.

Sustainable Fisheries and Aquaculture

GOAL 4

A safe, secure and sustainable supply of seafood to meet public demand

Learning Outcomes

- Fishery managers and fishermen understand the dynamics of wild fish populations.
- The seafood industry[13] is knowledgeable about innovative technologies, approaches and policies.
- Commercial and recreational fishermen are knowledgeable about efficient and responsible fishing techniques.
- The commercial fishing industry is aware of innovative marketing strategies to add value to its product.
- The seafood processing industry learns and understands economically viable techniques and processes to ensure the production and delivery of safe and healthy seafood.

Action Outcomes

- Fishermen employ efficient fishing techniques, including by catch reduction.
- Fishermen apply techniques to reduce negative impacts on depleted, threatened or endangered species.
- The seafood industry adopts innovative technologies and approaches to supply safe and sustainable seafood.
- The commercial fishing and aquaculture industries adopt innovative marketing strategies to add value to their products.
- The seafood industry adopts techniques and approaches to minimize the environmental impact of their sectors.
- Resource managers establish policies and regulations that achieve a better balance between economic benefit and conservation goals.
- The seafood processing industry implements innovative techniques and processes to create new product forms and ensure the delivery of safe and healthy seafood.

[13] The seafood industry includes all sectors of the industry, including aqua culturists, fishermen, processors, wholesalers, retailers and supporting businesses.

Consequence Outcomes

- The U.S. seafood[14] supply is sustainable and safe.
- There is an expansion of the sustainable domestic fishing and aquaculture industries.

[14] Seafood includes product originating from all sectors of the fishing and aquaculture industries.

Sustainable Fisheries and Aquaculture

GOAL 5

Informed consumers who understand the health benefits of seafood consumption and how to evaluate the safety and sustainability of the seafood they buy.

Learning Outcomes

- The seafood industry is aware of the standards for safe seafood.
- The seafood industry is knowledgeable about consumer trends regarding seafood sustainability and safety and how to adjust operations to meet emerging demands.
- U.S. seafood consumers have the knowledge to evaluate sustainable seafood choices.
- U.S. seafood consumers have an increased knowledge of the nutritional benefits of seafood products and know how to judge seafood safety and quality.

Action Outcomes

- The seafood industry adopts standards for safe seafood.
- The seafood industry adopts technologies and techniques to ensure seafood safety.
- U.S. seafood consumers preferentially purchase sustainable seafood products.

Consequence Outcomes

- Consumers improve their health through increased consumption of safe and sustainable seafood products.
- The U.S. seafood industry operates sustainably and is economically viable.

SUSTAINABLE FISHERIES AND AQUACULTURE PERFORMANCE MEASURES

4. 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.
5. 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.

Resilient Communities and Economies[15]

Photo Credit: Resilience- North Caroline Sea Grant; PRGS

Coastal communities in the United States provide vital economic, social and recreational opportunities for millions of Americans. For example, in 2010 over 13.5 million people were employed in the tourism industry in coastal communities in over 750,000 business establishments, earning combined wages of $266 billion. The total economic value generated by the U.S. coastal tourism industry in 2010 was estimated at $531 billion. However, decades of population migration have transformed many natural coastal habitats into urban landscapes and intensified the use of finite coastal resources. Between 1970 and 2010, the population of U.S. coastal watersheds has increased by 45 percent to a total of 164 million, or 52 percent of the nation's population[16]. This population increase has resulted in greater vulnerability of coastal communities and environments to natural[17] and technological[18] hazards. To accommodate more people and activity while balancing demands on coastal resources, our nation must develop innovative policies, institutional capacities and management approaches to increase community resilience.

Sea Grant will continue to support cutting-edge research in the areas of marine-related energy sources, climate change, coastal processes, energy efficiency, hazards, storm water management and tourism. Sea Grant programs will engage our diverse and growing coastal populations in applying the best-available scientific knowledge to address increased resource demands and

[15] Resilience is determined by the degree to which a community is capable of organizing itself to increase its capacity for learning from past economic, natural or technological disasters.
[16] NOAA Economic Value of Resilient Coastal Communities, Revised 3/9/2012.
[17] Natural hazards include hurricanes, Northeasters, tropical storms, extreme rainfall events, flooding, wildfires, tornadoes, droughts, tsunamis, blizzards and heat waves.
[18] Technological hazards include chemical and oil spills and nuclear reactor accidents.

vulnerability. Ultimately, Sea Grant will bring its unique research and engagement capabilities to support the development of resilient coastal communities that sustain diverse and vibrant economies, effectively respond to and mitigate natural and technological hazards and function within the limits of their ecosystem.

Resilient Communities and Economies

GOAL 6

Development of vibrant and resilient coastal economies

Learning Outcomes

6.1. Communities[19] are aware of the interdependence between the health of the economy and the health of the natural and cultural systems.
6.2. Communities have access to information needed to understand the value of waterfront- and tourism-related economic activities.
6.3. Communities understand the strengths and weaknesses of alternative development scenarios on resource consumption and local economies.
6.4. Communities are aware of regulatory regimes affecting economic sustainability.
6.5. Communities are knowledgeable about economic savings from energy planning and conservation.

Action Outcomes

6.6. Citizens are actively engaged in management and regulatory decisions.
6.7. Communities engage in economic development initiatives that capitalize on the value of their natural and cultural resources while balancing resource conservation and economic growth.

Consequence Outcomes

6.8. Communities have diverse, healthy economies and industries without displacing traditional working waterfronts[20].

[19] Communities are defined broadly to include governments, businesses, residents, visitors and non-governmental organizations.
[20] Working waterfront is a term broadly used in this plan to include water-dependent and water-related industries, such as energy production, tourism, ports and harbors, marine transportation, shipyards, marinas, commercial fishing, recreational fishing, aquaculture, fishing piers and public access.

Resilient Communities and Economies

GOAL 7

Communities use comprehensive planning to make informed strategic decisions.

Learning Outcomes

6.9. Communities understand the connection between planning and natural resource management issues and make management decisions that minimize conflicts, improve resource conservation efforts and identify potential opportunities.

Action Outcomes

6.10. Communities make use of tools and information to explore the different patterns of coastal development, including community visioning exercises, resource inventories and coastal planning.
6.11. Communities adopt coastal plans.
6.12. The public, leaders and businesses work together to implement plans for the future and to balance multiple uses of coastal areas.

Consequence Outcomes

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

Resilient Communities and Economies

GOAL 8

Improvements in coastal water resources sustain human health and ecosystem services.

Learning Outcomes

6.14. Communities are aware of the impact of human activities on water quality and supply.
6.15. Communities understand the value of clean water, adequate supplies and healthy watersheds.
6.16. Communities understand water laws and policies affecting the use and allocation of water resources.

Action Outcomes

6.17. Communities engage in planning efforts to protect water supplies and improve water quality.
6.18. Communities adopt mitigation measures, best management practices and improved site designs in local policies and ordinances to address water supplies and water quality.

Consequence Outcomes

6.19. Water supplies are sustained.
6.20. Water quality improves.

Resilient Communities and Economies

GOAL 9

Resilient coastal communities adapt to the impacts of hazards and climate change.

Learning Outcomes

6.21. Residents and decision-makers are aware of and understand the processes that produce hazards and climate change and the implications of those processes for them and their communities.
6.22. Decision-makers are aware of existing and available hazard- and climate-related data and resources and have access to information and skills to assess local risk vulnerability.
6.23. Communities have access to data and innovative and adaptive tools and techniques to minimize the potential negative impact from hazards.
6.24. Decision-makers understand the legal and regulatory regimes affecting adaptation to climate change, including coastal and riparian property rights, disaster relief and insurance issues.

Action Outcomes

6.25. Communities apply best available hazards and climate change information, tools and technologies in the planning process.
6.26. Decision-makers apply data, guidance, policies and regulations to hazard planning and recovery efforts.
6.27. Communities develop and adopt comprehensive hazard mitigation and adaptation strategies suited to local needs.
6.28. Residents take action to reduce the impact of coastal hazards on their life and property.
6.29. Communities adopt a comprehensive risk communications strategy for hazardous events.

Consequence Outcomes

6.30. Communities effectively prepare hazardous events and climate change.
6.31. Communities are resilient and experience minimum disruption to life and economy following hazard events.

RESILIENT COMMUNITIES AND ECONOMIES PERFORMANCE MEASURES

6. 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.
7. 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.

Environmental Literacy and Workforce Development

Image Credit: MIT Summer Interns Sampling; Water Sampling

The scientific, technical and communication skills needed to address the daunting environmental challenges confronting our nation are critical to developing a national workforce capacity. The Congressional report, *Rising Above the Gathering Storm*[21], states that building a workforce literate in science, technology, engineering and mathematics is crucial to maintaining America's competitiveness in a rapidly changing global economy. These skills are also necessary to advance cutting-edge research and to promote enhanced resource management. In recognition of these needs, the America COMPETES Act[22] mandates that NOAA build on its historic role in stimulating excellence in the advancement of ocean and atmospheric science and engineering disciplines. The Act also mandates that NOAA provide opportunities and incentives for the pursuit of academic studies in science, technology, engineering and mathematics. Workforce needs are reflected in the broader science and technology communities of both the private and public sectors with whom Sea Grant works to fulfill its mission.

[21] National Academy of Sciences, 2010: http://www.nap.edu/catalog.php?record_id=12999
[22] America COMPETES, 2010: http://www.commerce.gov/americacompetes

An environmentally literate person is someone who has a fundamental understanding of the systems of the natural world, the relationships and interactions between the living and non-living environment and the ability to understand and utilize scientific evidence to make informed decisions regarding environmental issues[23]. These issues involve uncertainty and require the consideration of economic, aesthetic, cultural and ethical values.

[23] 2009-2029 NOAA Education Strategic Plan

Environmental Literacy and Workforce Development

GOAL 10

An environmentally literate public supported and informed by a continuum of lifelong formal and informal engagement opportunities.

Learning Outcomes

- Formal and informal educators are knowledgeable of the best available science on the effectiveness of environmental science education.
- Formal and informal educators understand environmental literacy principles.
- Lifelong learners are able to engage in informal science education opportunities focused on coastal topics.

Action Outcomes

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

Consequence Outcomes

- Members of the public incorporate broad understandings of their actions on the environment into personal decisions.

Environmental Literacy and Workforce Development

GOAL 11

A future workforce reflecting the diversity of Sea Grant programs, skilled in science, technology, engineering, mathematics and other disciplines critical to local, regional and national needs.

Learning Outcomes

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

Action Outcomes

- A diverse and qualified pool of applicants pursues professional opportunities for career development in natural, physical and social sciences and engineering.
- Graduate students are trained in research and engagement methodologies.
- Research projects support undergraduate and graduate training in fields related to understanding and managing our coastal resources.

Consequence Outcomes

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

Environmental Literacy and Workforce Development Performance Measures

8. Number of Sea Grant facilitated curricula adopted by formal and informal educators.
9. Number of people engaged in Sea Grant supported informal education programs.
10. Number of Sea Grant-supported graduates who become employed in a career related to their degree within two years of graduation.

CROSS-CUTTING PERFORMANCE MEASURES

11. Economic (market and non-market; jobs and businesses created or retained) benefits derived from Sea Grant activities.
12. Number of peer-reviewed publications produced by the Sea Grant network, and number of citations for all peer-reviewed publications from the last four years.

IMPLEMENTATION STRATEGY

This plan provides a national framework for the work of the 33 Sea Grant programs. The state strategic plans align with the National Sea Grant Strategic Plan with particular focus on the specific needs and priorities of each respective state and region. The 2014-2017 National Sea Grant Strategic Plan will be implemented through each of the programs' portfolios of merit-reviewed research, communications, education, extension and legal projects. This implementation strategy utilizes Sea Grant's unique combination of research and engagement capabilities and capitalizes on its strong federal-university-state-private sector partnerships.

Progress toward meeting state programs' strategic plans will be used to assess each individual Sea Grant program's contribution toward meeting the national goals outlined in this plan. The National Sea Grant Office will track state-level performance measures, other numerical metrics and impacts to highlight Sea Grant's contributions in achieving the goals identified in the National Sea Grant Strategic Plan. The National Sea Grant Office will track and disseminate best practices applied by individual Sea Grant programs and facilitate their adoption by the entire Sea Grant network. The National Sea Grant Advisory Board will continue in its role of developing strategies to foster wider use of the National Sea Grant College Program to address the highest priorities regarding the wise utilization of the nation's coastal resources. Sea Grant will revisit this plan yearly to ensure that the organization is accomplishing its four-year goals while staying alert to new trends and opportunities.