

**Sea Grant 2017 Visioning Initiative**  
**Sea Grant Citizen Science Network**  
**Monique Myers (California) and Kristen Grant (Maine)**

**Title:** Initiation of Sea Grant Citizen Science Network and Web-Based Platform

**Long-term Goal:** To develop a national-scale Sea Grant citizen science network that is supported by an interactive web-based data platform.

**Workshop Goals:**

- 1) To establish a Sea Grant citizen science network and vision for the network
- 2) To initiate development of a web-based platform, and possibly other communication forums, to support both individual programs and the citizen science network.

**Objectives:**

- 1) To convene an in-person workshop of SG programs interested in citizen science, with an initial focus on shoreline monitoring.
- 2) To develop a 10-year vision of Sea Grant's role nationally in strengthening citizen science efforts.
- 3) As a tool for collaboration among participating citizen science network members, at the visioning workshop discuss the potential for an interactive web-based platform that supports participating citizen science programs' need for communication, resource-sharing, etc.

**Background Information:** For several years, Maine and California Sea Grant programs have been working together to establish a nationwide Sea Grant citizen science network focused on beach profile monitoring. Since 1999, Maine Sea Grant has managed the Southern Maine Beach Profile Monitoring Program, a monthly program that has been successful for 18 years. California Sea Grant looks to this program as a citizen science model that could be replicated in that state and many others. To that end, California and Maine have coordinated with three Sea Grant programs and other partners (including US Geological Survey (USGS), Southern California Coastal Ocean Observing System (SCCOOS), community organizations, and NGOs) to develop 5 proposals to facilitate the capacity of these programs and partners to launch citizen science programs on the Atlantic and the Pacific coasts in an effort to track the impacts of SLR in these areas toward better informed decision making. Current partners from Sea Grant programs and other organizations include USC Sea Grant, Hawaii Sea Grant (including American Samoa and Marshall Islands), Guam Sea Grant, New Hampshire Sea Grant, Puerto Rico Sea Grant, and possibly Washington Sea Grant, USGS and Ocean Observing System Programs. These partners will form the core of the Citizen Science visioning process and have been included in the process of developing this visioning proposal.

The current Sea Grant 'Visioning' funds provide a much-anticipated opportunity to convene Sea Grant programs around the topic of citizen science, with an initial focus on shoreline monitoring. There is excitement to not only come together to discuss a vision for Sea Grant citizen science but, also to create a plan for a practical product in addition to a 10-year vision of Sea Grant's role on a national scale to strengthen citizen science. In addition to the vision document, we propose to develop a plan for an interactive web-based platform. The platform would be intended to unify Sea Grant citizen science projects and help each program fulfill common needs, such as displaying data, highlighting accomplishments, sharing resources and communication between program administrators as well as volunteers. The citizen science programs collaborating currently are focused on shoreline monitoring on beaches and it is anticipated that the visioning process will focus on this as we begin, the visioning and web development effort will be open to a range of Sea Grant citizen science activities. The result would be that citizen scientists are more educated and engaged in their efforts, and that these efforts results in usable data.

### **Web-based platform**

Pending workshop results, a potential additional outcome is a plan for a web-based platform that would include features for interactivity and communication between programs. There is potential to complement it with apps running on mobile phones and tablets (e.g. USC Sea Grant's Urban Tides app), to allow citizen scientists to directly upload data and images as well as query the data and make comparisons between locations and over time. Planning would also consider how to customize a platform to meet project needs through an iterative process of citizen scientist input. The McClintock Lab, in UCSB's Marine Science Institute, is a potential web developer that would be capable of planning a system such as this. They have a long track record of successful web and mobile platforms for stakeholder and citizen engagement. Examples include the SeaSketch web application for marine spatial planning ([seasketch.org](http://seasketch.org)) and the eCatch mobile application for commercial fishery catch tracking.

### **How does this relate to the priorities in the national strategic plan? How does this relate to the priorities in your and other participants state strategic plans?**

#### National Strategic Plan:

GOAL 9 Resilient coastal communities adapt to the impacts of hazards and climate change. Learning outcome: Communities have access to data and innovative and adaptive tools and techniques to minimize the potential negative impact from hazards.

GOAL 10 An environmentally literate public supported and informed by a continuum of lifelong formal and informal engagement opportunities. Action Outcome: Formal and informal educators, students and/or the public collect and use coastal weather data in inquiry and evidence-based activities.

### Maine Strategic Plan:

Preparing for Climate Change: Coastal community constituents have the information, tools, resources, and support the need to assess local risk vulnerability and implement resilient coastal development strategies and practices. Measure: Communities and property owners implement climate-related hazard resilience practices.

Environmental Literacy: Coastal community constituents have the information, tools, resources, and support the need to contribute to Sea Grant-supported citizen science programs. Measure: Citizens collect and submit environmental data used to improve resource management and advance environmental research.

### California Strategic Plan:

Coastal communities throughout California face a multitude of opportunities and challenges. California Sea Grant is committed to help acquire and provide the best available science-based knowledge to engage and support a diverse and growing coastal population. It will use its capabilities to support the development of resilient coastal communities that are economically and socially inclusive, are supported by diverse and vibrant economies, mitigate and respond effectively to natural and anthropogenic hazards, and function within the carrying capacities of their ecosystems. This visioning effort is relevant to Resilient Coastal Communities and Economies focus area of the California Sea Grant's strategic plan, in particular RCCE Goals 1 and 2.

RCCE GOAL 1: Support communities and stakeholders to sustainably use, and policy makers to effectively manage, coastal, and marine resources.

- Strategy 1–1: Identify and measure social, cultural, and economic values of coastal resources and communities, and the value of the consumptive or non-consumptive use of resources.
- Strategy 1–2 Facilitate, community, and stakeholder involvement in coastal resource management.
- Strategy 1–3: Document and quantify the cumulative impacts of population growth, coastal development, and increased beach use on natural resources and harbor communities.
- Strategy 1–4: Work cooperatively with community leaders and other partners to improve the social, economic, and ecological sustainability of coastal communities.

RCCE GOAL 2: Work with communities to improve coastal environmental quality and the quality of human life on coasts.

- Strategy 2-1: Evaluate how anthropogenic impacts on coastal waters and ecosystems affect human activities and public health.
- Strategy 2–2: Develop and assess novel tools to improve coastal conditions for public and environmental health.
- Strategy 2–3: Develop and assess novel approaches to help individuals and

- organizations meet environmental needs and regulations.

### New Hampshire Strategic Plan:

Healthy Coastal Ecosystems: Critical coastal ecosystem functions and services are preserved, maintained and/or restored.

Learning outcome: Volunteers increase their knowledge of the functions and values of coastal ecosystems, the threats to these systems and options for addressing these threats.

Action outcome: Volunteers participate in coastal research and stewardship projects.

Measurement: Number of volunteers in the Coastal Research Volunteer Program who participate in scientific projects

### **How will this topic enhance Sea Grant's future direction and Sea Grant's unique niche in that topic?**

Finding support and funding for start-up of new environmental monitoring programs is relatively easily accomplished and well-suited to organizations that are maintained through on-going soft funding. Sustaining environmental monitoring programs in the long-term is a much greater challenge in that approaches to program continuation must be found that go beyond several years of grant funding. This kind of commitment to programming is a niche well-suited to Sea Grant. With Extension staff rooted in their regions and communities, strong linkages in relationships and trust are built, which help to garner support for programs. Thus the longevity and stability of the Sea Grant Network enhance our niche in this challenging realm of sustaining citizen science programs.

As mentioned, a citizen science topic of interest to SG programs that have collaborated in the past (including Maine, New Hampshire, California, USC, Hawaii/American Samoa, Marshall Islands, and Puerto Rico) is shoreline monitoring. A question raised in the visioning process would be consideration of developing a network-coordinated shoreline monitoring effort in the US which would contribute to tracking sea level changes. A SG network would allow us to accomplish this on a national-level. While there has been interest among initial partners in shoreline monitoring, the visioning process will also consider citizen science concepts and applications more broadly.

### **How will this visioning incorporate research, extension, and education?**

While there is value in citizen science initiatives that serve a primarily educational purpose, contributing to real world (rather than purely academic) research is a motivating factor for citizen scientists. For example, the Maine profile monitoring program was established in partnership with Maine Geological Survey to provide the agency with data needed to inform the beach management activities they advise (such as permitting by Maine Department of Environment Protection). This direct relationship between research, extension and education has been a primary driver for sustaining Maine's 18-year monitoring

program. Engaging in the program in this authentic way also teaches participating students, as well as community-based volunteers, about coastal processes, weather patterns, climate change impacts, etc. But the role Sea Grant extension is critical in maintaining the connection between the research and the community. Managing volunteer recruitment, training, support, and education, as well as all aspects of data management and program administration are integral to successful citizen science efforts and Sea Grant extension is ideally positioned to provide these services and linkages in the long-term.

**What do you envision your leadership role to be and what do you expect of the other programs participating and the NSGO?**

Monique Myers (California) and Kristen Grant (Maine) will lead the planning and convening of the workshop. All participating Sea Grant programs will be asked to provide input to the workshop agenda, so it is productive and serves everyone's needs and interests. Monique and Kristen will lead the group in planning related to the web-platform. Participating Sea Grant programs are responsible for full participation in the visioning process as, well as supporting the web-platform planning process.

**General Resources:**

We will convene a two-day in-person workshop at the University of California-Santa Barbara. Participants from individual Sea Grant programs will cover their own travel expenses. The California and Maine programs will cover workshop expenses using visioning funds. See general budget provided in the table below.

**The vision document and final report** will be written by Monique Myers (California) and Kristen Grant (Maine) with input from other participating programs.

**The expected time input and expertise needed for this effort is**

- (1) Myers and Grant will co-lead: (1) workshop planning and logistics; (2) workshop synthesis; and (3) development of a vision document.
- (2) California Sea Grant research assistant will assist Myers and Grant in their efforts.

**Partners of interest that will be invited to the workshop include - Others from prior proposals?**

- U.S. Geological Survey
- Ocean Observing System (OOS) programs,
- Channel Islands National Marine Sanctuary
- School of Ocean and Earth Science and Technology
- Maine Geological Survey
- Pepperdine University

- Napili Bay and Beach Foundation
- Merito Foundation
- Cabrillo College
- Southern Maine Community College
- Wells National Estuarine Research Reserve
- Hawaii Shore and Beach Preservation Association
- National Weather Service
- New Hampshire Coastal Program
- New Hampshire Geological Survey
- University of New Hampshire Center for Coastal and Ocean Mapping

**Do you anticipate needing travel or honorarium for experts or stakeholders outside the Sea Grant Network?**

No.

**Are there other resources that your program will be providing?**

California Sea Grant will provide meeting space, workshop food, and communication and editing expertise.

**Will you need a facilitator?**

No, we anticipate that the co-leads and other Sea Grant participants have the facilitation skills to fill this need.

**General budget:**

Sea Grant 'Visioning' funds would pay time for Monique Myers on workshop planning and logistics; workshop synthesis; and development of visioning document in partnership with Kristen Grant. Visioning funds also would fund time for a research assistant to support the work of Myers and Grant and travel for Grant.

	CASG	MESG
Salary and wages	Salary for Dr. Monique Myers for workshop planning and logistics, workshop synthesis, and development of vision document.  Funding for a research assistant	

	for Dr. Monique Myers to assist with workshop logistics and synthesis	
Fringe benefits	Commensurate with above	
Permanent equipment	N/A	
Expendable supplies and equipment	N/A	
Travel	None needed.	Travel for Kristen Grant to co-lead visioning workshop
Other meeting costs	CASG will provide venue on UC Santa Barbara campus and food and beverage costs, but not with visioning funds	

**What funds will you be dedicating to lead this effort (e.g., facilities reservation, salary, travel, etc.)?**

See table above.

**Do you need to provide individuals with salaried time for any of these efforts?**

See table above.

**Timeline**

Months 1-4 - Workshop planning and preparation

Month 4 –Workshop (2 full days)

Month 5-12 – website development iterative process

Month 4-9 – iterative input to visioning document from all SG participants

Month 9 – visioning document completed

Month 12 –website platform function