Introduction

This letter is to inform you of the South Carolina Aquarium's intent to submit a proposal to NOAA's Environmental Literacy Grant Program in response to Funding Opportunity number NOAA-SEC-OED-2010-2002248 under Priority 2. The South Carolina Aquarium (SCA) is a non-profit organization dedicated to conservation of the natural world. Our Sustainable Seafood Initiative (SSI) is designed to promote the use of local and sustainable seafood in South Carolina's restaurants by teaching chefs about sustainable and local seafood, assessing their menus and making recommendations for improvement. Also, SSI educates consumers about the importance of sustainability in fisheries and aquaculture. Through this work we have found that chefs, fishermen, and the seafood consuming public lack an understanding of regional and local management activities and regulations that conserve ocean resources while allowing sustainable harvest for food and recreation.

The project we are proposing would merge educational, scientific, technological and outreach expertise to produce web-based tools that interpret information on fisheries management and conservation, including: (1) data collection, stock assessment and life history/ecology; (2) the biological and socio-economic impacts of regulations; and (3) sustainable consumption. The proposed project would translate technical information into a simple, user-friendly and interactive format and encourage understanding of the connection between the natural resources in the ocean and the seafood on the plate, inspiring understanding and conservation of the ocean. Interactive web-based tools enable the use of different educational techniques targeting different learning styles: auditory, verbal, visual, and kinesthetic. The resulting product will allow the visualization and exploration of ocean science information in an informal learning setting for a diverse public audience. Moreover, this project would lend itself to supporting the enhancement and expansion of the SSI to a regional level, further disseminating this information.

Proposed Project

Phase I would focus on the development of a series of interactive web-based modules, each designed to inform the user about a particular aspect of fisheries through the use of simple language and visual materials. The modules would include (in no particular order):

(1) Regulatory Overview – background information on legal mandates (i.e., Magnuson-Stevens Act); why it is necessary to manage fisheries as a public resource; brief profiles of local and regional management agencies;

(2) Technical Information – interactive sub-modules on data collection, stock assessment, and life-history/ecology;

(3) Management Tools – descriptions and functions of various regulations currently used to manage fisheries i.e., quotas, time and area closures, size and bag limits, catch shares;

(4) Impacts of Regulations – scenario-driven activities with interactive graphics to illustrate how regulations can affect fish populations and the socio-economics of fishing communities

(5) Non-regulatory issues – information on other factors affecting fish populations and fishing communities (i.e. climate change, economic/marketing conditions, infrastructure and working waterfronts, fuel prices etc); and

(6) Sustainability – illustrating the interconnectedness of people and the environment and how our actions (fisheries, pollution, climate change) affect the ocean and our ability to harvest seafood in the future; teaching how to act as a steward of the ocean by making wise seafood choices.

Links to websites of the partner agencies as well as other websites related to natural resource management, sustainability and conservation, including NOAA's FishWatch and Chefs Collaborative,

would give users resources for further learning opportunities in each subject area. Slightly different versions of the web-based modules would be produced with specific user groups in mind, including commercial fishermen, recreational fishermen, chefs/foodservice and the general seafood consumer. The real-world examples used in each module would be geared towards each user group, providing a tangible and personal connection to the information presented. The modules would be tested and refined by focus groups in each of the target audiences before the final product is launched.

Phase II would involve the development of a number of mobile applications (apps) or micro-websites compatible with mobile devices. Mobile applications combine the power of the Internet with the simplicity of multi-touch technology, all accessible from a cell phone touch screen. Learning is a relatively new side of mobile application development and this innovative way of assimilating useful information is becoming very popular with users of all ages. The proposed activity would develop applications relevant to fisheries management and conservation including current commercial and recreational fishing regulations, restaurants providing sustainably harvested seafood, and seafood sustainability information for chefs and consumers.

Dissemination of the web-based modules and mobile applications will occur through a promotional campaign including a series of workshops and presentations throughout the South Atlantic states (North Carolina, South Carolina, Georgia, and Florida). Target audiences for these workshop and presentations include recreational fishing clubs, commercial fishing organizations, regional and state resource management agencies, academic institutions, non-governmental organizations and conservation agencies, chef organizations and consumer groups. The workshops would introduce the new products and would include demo presentations of both the modules and mobile applications. Workshops may also be conducted as webinars to extend the project to a wider audience without increasing travels costs. In addition, we will use social media and networking applications such as Facebook and Twitter to further utilize and disseminate the tools. While we intend to specifically target the South Atlantic states these tools have great potential for transfer and adaptation to other regions of the U.S. In addition, the potential for further development and expansion of subject matter beyond the three-year award period is substantial.

Evaluation and subsequent improvement of both the web modules and the mobile applications will be an integral component of this project beginning with a needs assessment and continuing throughout the design, development and implementation. An external professional evaluator will be hired to conduct formative and summative evaluations and oversee focus groups to ensure the tools are suited to a variety of learning styles.

Partners

Partners for this project include the South Carolina Sea Grant Consortium, the South Atlantic Fishery Management Council (SAFMC), the South Carolina Department of Natural Resources (SCDNR) and Gray's Reef National Marine Sanctuary. A common goal of all of these agencies is to educate the public, from fishermen and anglers to seafood consumers, about the various aspects of fisheries and fisheries management. As a co-principal investigator, the SC Sea Grant Consortium will offer assistance with content development of the modules utilizing expertise from the national Sea Grant fisheries extension network and the Consortium's network of in-state Universities. Additionally, they will assist with facilitating focus groups and delivering outreach/educational programs to other Sea Grant programs in the region, marine educators (formal and informal), commercial and recreational fishermen and additional general public audiences. The SAFMC and SCDNR will act in an advisory capacity, offering a technical perspective on fisheries, fisheries management and ecology and providing a direct link to a

number of user groups including fishermen and academia. NOAA assets from Gray's Reef will offer further technical information and content as well as an interpretive and educational perspective. The South Carolina Aquarium, an education and conservation organization, will oversee the design of this educational project, synthesize the content and spearhead the project development as the principal investigator.

Relevance to NOAA's Education Goals

The proposed project would directly address Goal 1 in NOAA's 2009-2029 Education Strategic Plan by supporting an environmentally literate public through education and outreach opportunities in ocean and coastal science. The project would promote environmental stewardship by illustrating the connections among individual human actions, governmental policies, social and economic decisions, and their effects on coastal and ocean ecosystems. Similarly, the proposed activity would address NOAA's objective of expanding a presence in the new information age and, through advances in technology, keeping educational approaches in line with new learning modalities.

The project will use an advanced technology platform to engage the public in scientific inquiry and improve understanding and stewardship of the local and global environment. Evidence based activities will be developed with the intent to help users visualize and interpret fisheries information and understand how this information is used in the management process. The project will impart a systems perspective by clearly establishing the connection among fishery resources, the management process and impacts of management, our food supply, conservation efforts, and educated consumers. The project would leverage NOAA assets by incorporating resources (including data and subject matter experts) from the Gray's Reef National Marine Sanctuary, the Marine Resources Monitoring, Assessment, and Prediction Program, the National Sea Grant College Program, and tools such as FishWatch.

Estimated Budget Request

The proposed project would take place over a three year period. We expect the budget to be approximately $360,000 including project planning, design, implementation and evaluation. The yearly costs are estimated to be:

Year 1: $125,000
Year 2: $125,000
Year 3: $110,000