



Hazard Resilient Coastal Communities 2010 Annual Report

Due to shrinking budgets, the Hazard Resilient Coastal Communities (HRCC) focus team convened via teleconference on November 30, 2011 to conduct the annual focus team meeting. The purpose of the meeting was to evaluate 2010 impact statements for the HRCC focus area and engage in visioning for the next strategic plan. The meeting objectives were to answer the following questions: “What should we be highlighting for communication products and reporting?” “What are the gaps in HRCC’s 2009-2013 National Strategic Plan?” and “What should the network be doing to address the gaps in the HRCC focus area?” Based on team discussion, this report identifies the top three content themes to be highlighted, the top gaps that need to be addressed, and recommendations for the HRCC focus area over the next two years.

Top Three Themes

Call participants identified three main topics that cut across the three strategic plan goals and can be supplemented with reported impacts and accomplishments.

Hazard Mitigation & Adaptation Planning

Sea Grant engages stakeholders and educates them on preparing for natural hazards and planning for adaptation to projected impacts from climate change. By improving understanding and building capacity with targeted audiences, Sea Grant efforts lead to policy changes that help coastal communities increase their resilience to natural hazards.

Sea Grant explains research results to stakeholders, resulting in policy changes that increase hazard mitigation in communities.

Lake Champlain: Sea Grant worked with the Northwest Regional Planning Commission in Vermont to educate local officials on bioengineered methods for shoreline stabilization and erosion control. Three towns changed zoning regulations and construction guidelines to require use of new bioengineering methods in future shoreline construction.

North Carolina: NC Sea Grant specialist educated officials about potential mitigation credits for property owners who construct wind-

resistant buildings. The NC Insurance Commissioner increased credits as an optional rating for wind insurance coverage, resulting in \$300 million in savings on premiums for 200,000 coastal policies.

Oregon: Sea Grant conducted outreach on the nature, likelihood, and impact of a potential Cascadia-Subduction-Zone earthquake and tsunami. As a result, several communities changed public safety and planning policies to include tsunami hazards in updated evacuation plans.

Sea Grant presents local officials with science-based information that results in changes to comprehensive land use planning processes to include adaptation planning for climate change.

Florida: Sea Grant worked with EPA’s Charlotte Harbor National Estuary Program (NEP) to develop policies for integrating sea level rise adaptation strategies into coastal comprehensive plans. The Punta Gorda City Commission adopted the framework and is the

first designated climate-ready community within the Charlotte Harbor NEP.

Illinois-Indiana: After Sea Grant presented information about climate change, the Northern Indiana Regional Planning Commission Board of Trustees approved a resolution that requires



any future planning and funding efforts to incorporate climate change components.

Oregon: Sea Grant used free-choice learning methods to help identify and assess climate change risks, resulting in a community-driven

climate model to guide future planning. The model has been presented to the Port Orford Planning Commission, which agrees that effects of future climate change must be considered when reviewing city ordinances, comprehensive plans, and land development proposals.

Tool Development

Sea Grant develops tools for coastal decision-makers to understand the relationship between coastal hazards, coastal processes and the combined effect on coastal constituents. By applying these tools through education, Sea Grant helps coastal communities prepare for natural hazards.

Sea Grant develops tools to help coastal communities prepare for hurricanes, extra-tropical cyclones, and flooding.

Louisiana: Specialists and agents developed *The Next Storm Surge*, a program that uses maps to portray potential inundation scenarios based on hurricane-related storm surge from ADCIRC model predictions. The program was adjusted for specific coastal parishes and delivered to over 3000 residents, resulting in improved hurricane evacuation rates for Gustav and Ike.

helped municipalities obtain \$1 million for storm damage restoration and mitigation projects.

New York: Sea Grant partnered with NOAA's Northeast Regional Climate Center to develop the East Coast Winter Storm Climatological and Forecasting Data website. In addition to providing real-time data, the website matches forecasted storms with similar historical events to help audiences prepare for potential storm impacts. The information has been incorporated into various emergency response plans and has

North Carolina: Sea Grant provides research and demonstration projects to evaluate and test CI-FLOW (Coastal and Inland Flood Observation and Warning), a tool to forecast flooding potential from the combined effects of inland stream flow and coastal storm surge. For this project, NC Sea Grant partners with the NOAA National Severe Storms Laboratory, NWS forecast offices, SC and TX Sea Grants, and the University of Oklahoma. Through this collaborative process, CI-FLOW will produce accurate and timely identification of inland, coastal and flash floods.

Sea Grant develops tools to guide response to natural and man-made disasters.

Louisiana: Researchers developed a method to assess the economic impact of hurricanes on coastal fisheries revenue and infrastructure. Since 2005, the method has provided economic justification for over \$250 million in fisheries recovery funds for more than 2000 commercial and recreational fishing businesses.

North Carolina: Researchers ran real-time ocean circulation models for the South Atlantic Bight and Gulf of Mexico before and after the Deepwater Horizon oil spill to determine the extent of oil transport by subsurface currents. NOAA's Emergency Response Division used model fields to generate official surface oil trajectory predictions to guide agency and organization response activities.

Rip Currents

Through research, tool development, outreach strategies, and education, Sea Grant programs help coastal audiences understand how rip currents are formed and the hazardous conditions that rip currents create for beachgoers.



Sea Grant develops tools to understand how coastal processes affect rip current formation.

Florida: Sea Grant partnered with the Gulf Islands National Seashore (GINS) to develop a spatial hazard index that brings more accurate predictions of when and where rip currents will occur. GINS uses the model data to plan beach access sites, assist safety officers, and issue alerts of hazardous swimming conditions to beachgoers.

New York: Researchers developed an operational forecasting system of near shore wave conditions, coupled with a storm surge model, to improve water level predictions along the coast of Long Island. The new model increased understanding of the role of edge waves in rip current generation and will improve storm surge forecasts.

Sea Grant partners with the National Weather Service to increase outreach to coastal residents.

Michigan: Sea Grant has developed a working relationship with the NWS office in Marquette and has helped NWS specialists secure funds for new instrumentation. In 2010, NWS offices began issuing a daily Surf Zone forecast, which provides information for boaters and swimmers

about wave height, water temperature, and when and where rip currents are likely to develop. Sea Grant has helped communities use the new forecast to implement flag warning systems along swimming beaches.

Sea Grant conducts traditional outreach strategies to increase public awareness of rip currents.

Several Programs reach thousands of coastal residents through distribution of pamphlets, newsletters, and beach warning signs. Maryland,

New Jersey, and South Carolina Sea Grants actively conduct community outreach to increase understanding of rip currents.

Additional Notable Impacts

In addition to the three content themes described above, the HRCC focus team wanted to highlight two additional impacts that show the relevance of Sea Grant programs in helping communities recover from long-term hazards and respond quickly to emergencies.

Ohio: For years, Sea Grant has worked with local communities to dredge contaminated sediments and restore beneficial uses of the Lower Ashtabula River. In 1988, Sea Grant helped organize the Ashtabula Remedial Action Plan, and in 1994, Sea Grant helped found the Ashtabula River Partnership (ARP). Sea Grant efforts have helped identify contaminated sediments, seek financial resources, design remediation plans, and implement remedial actions. The ARP led a dredging effort that removed over 600,000 cubic yards of contaminated material, resulting in the construction of over 1000 feet of fish habitat and two acres of wetlands. Efforts to restore an additional eight acres are ongoing. Sea Grant has helped restore the Lower Ashtabula River to a healthier environment.

Mississippi-Alabama: After the Deepwater Horizon oil spill, Sea Grant engagement with coastal communities helped keep water-dependent business afloat. For example, researchers found a way to increase production from inland shrimp farms, resulting in an economic impact of \$175,000. Through a Sea Grant-supported pilot oyster farm, a new business sector brought in \$15,000 in 2010 and paved the way for additional oyster farms. Sea Grant facilitated trainings to develop model language for waterfront planning that incorporates measures to protect and preserve working waterfronts. In addition, Sea Grant conducted industry-specific trainings to increase earnings potential for nature-tourism operators and charter-fishing professionals.



Top Gaps

Call participants identified and discussed the following gaps, related to 2010 impact submissions, to address in HRCC's 2009-2013 National Strategic Plan. Questions raised during discussion are included below each gap heading.

Coastal Processes

The HRCC focus team noted that tools for setbacks and erosion are in development but have not yet risen to impact level. Similarly, there is a noticeable gap in impacts related to the effect of sea level rise on coastal erosion. Given the amount of Sea Grant work related to the individual topics of coastal erosion and sea level rise, there should be more information combining the two subjects in the context of coastal hazards. One example of an accomplishment in this area is from Georgia: Researchers developed AMBUR (Analyzing Moving Boundaries Using R), which yields accurate erosion and accretion rates and will be useful in coastal planning as sea levels rise and coastal boundaries change.

Guidance on how to plan for projected impacts from climate change

The HRCC team noted that Sea Grant raises awareness and educates about potential impacts from climate change, but there is a lack of guidance to help communities plan and prepare.

For example, Sea Grant should develop and issue more planning information for flood maps and adaptation to sea level rise.

Field Relationships with FEMA

Local communities are interested in seeing sea level rise projections on FIRMs (Flood Insurance Rate Maps). Such an action is not a FEMA obligation for FIRMs; therefore, communities need to take the initiative to overlay sea level rise projections on FIRMs.

Goal 3: Include Recovery, along with Response, in Goal 3

Almost two years after the Deepwater Horizon oil spill, the HRCC team noted that impacts from this event fit into all four National focus areas. Therefore, the HRCC team needs to consider how to manage expectations for the third goal of the HRCC focus area. A suggestion is to modify goal three to include response AND recovery in order to represent local efforts to manage recovery.

Emerging Area

One topic that the focus team discussed is workforce development. The team agreed that Sea Grant is doing a lot of work to raise and increase awareness of hazards to elected leaders, educators (both extension agents and teachers), and youth. While maybe not a national impact, it's worth noting that Sea Grant programs are building internal capacity to help communities prepare climate adaptation strategies and measures.

Top Actions for the Next Two Years for the HRCC Focus Team

The focus team brainstormed and discussed activities to develop over the next two years, in light of reduced budgets and constrained travel.

Sea Grant's Response to Deepwater Horizon

Immediately, we need to compile a brief document of the Sea Grant Network's impact during the response to DWH. The document should also address the impact of Sea Grant on other NOAA line office programs during and

after the spill. Such a document will provide an easy-to-find reference in the unfortunate circumstance of a similar event occurring in the future.



Planning for Hazards with Aquaculture

As aquaculture increases, Sea Grant research might investigate the impact of coastal hazards on oyster or open ocean cage aquaculture. Since money exists for aquaculture research and operation, this idea might be a way for Sea Grant hazards researchers to obtain money.

Reporting on CCCAI Projects

Over the next two years, the HRCC team can look for impacts from the CCCAI projects. Comments on these reports will be useful to the next CCCAI RFP.

Webinar Series to Share Best Practices

In the era of shrinking travel budgets, the HRCC focus team can utilize webinar technology for Programs to present and share best practices that may be transferable to other states. For example, on the topic of disaster preparedness, Programs can share methods and techniques for putting together workshops and improving internal preparation. The webinars should focus on process-oriented or procedural best practices, with case study examples from different regions.