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Jody A. Thompson

Auburn University Marine Extension and Research Center, jody.thompson@auburn.edu

Tracie Sempier

Mississippi-Alabama Sea Grant Consortium, tracie.sempier@usm.edu

LaDon Swann

Auburn University Marine Extension and Research Center, swanndl@auburn.edu



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Increasing Risk Awareness: The Coastal Community Resilience Index

Jody A. Thompson

Coastal Community Resilience Extension
Auburn University Marine Extension and Research Center
Mobile, Alabama
jody.thompson@auburn.edu

Tracie Sempier

Coastal Storms Program Coordinator
Mississippi-Alabama Sea Grant Consortium
Ocean Springs, Mississippi
tracie.sempier@usm.edu

LaDon Swann

Director
Mississippi-Alabama Sea Grant Consortium
Ocean Springs, Mississippi
Auburn University Marine Extension and Research Center
Mobile, Alabama
swanndl@auburn.edu

Abstract: *As the number of people moving to the Gulf Coast increases, so does the risk of exposure to floods, hurricanes, and other storm-related events. In an effort to assist communities in preparing for future storm events, the Coastal Community Resilience Index was created. The end result is for communities to take actions to address the weaknesses they identify utilizing the CRI and for community decision-makers to be more informed on their community's level of risk, ultimately increasing their capability of responding to disasters.*

Introduction

The Coastal Community Resilience Index (CRI; www.masgc.org/ri) seeks to increase risk awareness among local communities of their susceptibility to natural hazard events. Developed in partnership with the Gulf of Mexico Alliance, the CRI is delivered through interactive sessions with community decision-makers and led by trained facilitators from Sea Grant Extension, Cooperative Extension, National Estuarine Research Reserves, and other partners. Now in the implementation phase, the CRI will be delivered to communities in the five Gulf of Mexico states. Tool effectiveness will be measured through qualitative and quantitative data in the initial 3-year implementation and evaluation period. The CRI can be coupled with existing training programs as an entrée to introduce other natural hazard planning topics and is easily adapted for natural hazards more applicable to inland communities.

Background

As the number of people moving to the Gulf Coast increases, so does the risk of exposure to floods, hurricanes, and other storm-related events. Although experience has shown that more homes and people located in the floodplain increases exposure and potential for people to be in harm's way, many coastal residents are complacent when asked about their preparation for the coming storm season.

According to a recent poll conducted as part of the 2010 National Hurricane Survival Initiative,

77% of coastal residents on the Gulf and Atlantic coasts have not taken any steps in the past year to make their homes stronger; 47% have no hurricane survival kit; 45% don't feel vulnerable to a hurricane or related tornado or flooding; and 36% do not have a family disaster plan (Mason-Dixon Polling & Research, Inc., 2011). This poll reported that over half of the participants would not leave home if a major storm was approaching or would only evacuate if ordered to do so by a local official.

Additionally, it has been noted that natural disasters, such as hurricanes, can develop into a larger crisis, becoming for example an economic disaster (Telg et al., 2008). These results are particularly alarming for coastal managers and decision-makers. In their role as community leaders, they would like to increase their communities' capacity to bounce back from stressors, reducing immediate impacts and long-term economic losses. However, this is a difficult task and requires having good baseline data detailing the current condition of a community in terms of its resilience to future disasters.

Building resilience takes time, and communities are at various levels of resilience (Chandra et al., 2011; Cutter, 2010). Crisis management planning is crucial for critical response; therefore, it is essential for communities to be able to measure their resilience to track progress in building resilience at the local level (Telg et al., 2008).

Coastal Resilience Index

Recognizing that communities need support and assistance in determining their risk and resilience, the Gulf of Mexico Alliance (GOMA) identified the need for the Coastal Community Resilience Index as a tool to increase risk awareness among local communities of their susceptibility to natural hazard events. The purpose of this self-assessment tool is to provide community leaders with a simple and inexpensive method of predicting if their community will reach and maintain an acceptable level of functioning and structure after a disaster. Experienced local planners, engineers, floodplain managers, or administrators can complete this self-assessment using existing sources of information from their community.

The assessment may identify problems the community should address before the next disaster and where resources should be allocated. The goal is for every community to become highly resilient. Results of the assessment are presented as a CRI that estimates the adaptability of the community to a disaster. This self-assessment was created to identify areas in which the community may become more resilient. The community's unique CRI is an internal evaluation tool and should not be used to compare communities. The resulting score from this process may encourage the community to seek further consultation.

The CRI is a snapshot in time and should be periodically updated as the community grows and/or the landscape changes, such as when shoreline erosion accelerates. Community officials should conduct new assessments on a regular basis (annual, biannual, etc.) because of this growth and/or change. Ultimately, the Index will allow communities to use existing knowledge, data, and studies to examine their resiliency in terms of critical infrastructure, community plans and agreements, mitigation measures, social systems, and other relevant factors. Local planners, engineers, floodplain managers, and/or administrators will be able to complete the self-assessment in less than 2 hours.

Implementation and Evaluation

The CRI has been pilot tested in 17 communities across the five Gulf States (Texas, Louisiana, Mississippi, Alabama, and Florida). Now in the implementation phase, focused intent has been placed on training facilitators from Cooperative Extension and Sea Grant Extension programs, National Estuarine Research Reserves, and other groups who work with community resilience. Having an outside, neutral party to facilitate this discussion is key to the success and usefulness of the Index within the community, and a growing body of literature recognizes Extension as being uniquely positioned to provide trusted information to help to build disaster-resilient communities (Boteler, 2007; Wiens, Evans, Tsao, & Liss, 2004; Telg et al., 2008).

Telg, et al. (2008) recognize the importance of open communication within the organization in order for a crisis management plan to succeed. Although the Index is just a stepping-stone to increase awareness and promote conversation regarding long-term community resilience, it is an

important first step in making contact with decision-makers at the local level.

To date, two training workshops have been held, with over 50 trained and other workshops planned. As these facilitators disseminate the CRI to their communities, a Regional Outreach Coordinator will collect both quantitative and qualitative data to measure the impacts of the tool.

Though this tool was developed with the Gulf of Mexico region in mind, the CRI development, delivery, and adaptation model can be transferred to all U.S. coastal communities and can easily be adapted to include hazards affecting municipalities not located on the coast.

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