The National Academies of SCIENCES ENGINEERING MEDICINE
GULF RESEARCH PROGRAM

Capacity Building 1 Final Report

Project Title: Enhancing community resilience by linking conservation and restoration with coastal hazards risk reduction via the FEMA Community Rating System
Award Amount: $243,687
Awardee: The Nature Conservancy
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I. PROJECT SUMMARY (from proposal)

FEMA has recently introduced changes to the Community Rating System (CRS) that elevate the value of restoration and conservation of natural features. These changes increase the incentive for communities to link conservation and restoration with coastal hazards risk reduction by creating projects that enhance the natural environment while reducing flood risk. Communities in the Gulf of Mexico are uniquely positioned to undertake nature-based risk reduction projects because the Deepwater Horizon funding streams can pay for these types of projects. It is The Nature Conservancy's (TNC) hypothesis that if coastal communities have the scientific guidance and tools needed to identify when and where nature-based projects can reduce risk and increase resilience and if it can be demonstrated that such actions improve their CRS ratings, this will be a strong incentive to propose and implement more nature-based solutions.

TNC and its partners propose to work with three communities, Rockport, Texas, Sanibel, Florida and Biloxi, Mississippi, to develop tools usable across the Gulf region that facilitate identification and selection of nature-based projects that can restore habitats and enhance coastal resilience while earning CRS points to reduce rising and uncertain flood insurance rates. Lessons learned and case studies will be shared amongst the Gulf of Mexico Alliance's (GOMA) Coastal Resilience Team and TNC's Coastal Resilience Network to increase our capacity and, in turn, that of communities across the United States to make strategic decisions about investments in natural solutions that will help protect them from the impacts of storms and floods.

II. PROJECT SUMMARY (from final report)

The Nature Conservancy's Gulf of Mexico Program received a Capacity Building Grant from the National Academy of Sciences Gulf Research Program to work with three communities: Rockport, Texas; Sanibel, Florida; and Biloxi, Mississippi to learn more about how nature can be used to reduce flood risk and earn points through the FEMA Community Rating System (CRS) Program. The CRS is a voluntary program in which communities get points for flood mitigation activities and can earn discounts on their residents' flood insurance premiums based on the number of points they earn. Open space protection has long been a creditable CRS activity but is underutilized despite its likely effectiveness in reducing losses.

Working with our partners, we studied the CRS program and reviewed existing CRS guidance so that we could develop and easy to read brochure that outlines how nature-based solutions, such as buying and protecting green spaces, are creditable under the CRS program. We shared what we learned with conservation partners across the Gulf of Mexico and nationally at conference and meetings.

We also developed a process to plan for and implement nature-based solutions in order to earn more CRS points. The process is called the CRS Greenprint and we tested it out with our pilot communities during a series of one-day workshops. The CRS Greenprint walks you through the various categories of nature-based solutions that can earn you CRS points and identifies possible funding sources that can pay for the projects.

For some of the communities, we developed a cutting edge decision support tool that allows you to explore parcel by parcel which open space areas can earn you CRS points. If communities protect more land in the floodplain, they can earn more CRS points. The more CRS points they earn can lead to greater discounts on the citizen's flood insurance premiums. The CRS app helps decision makers and land trusts easily prioritize land purchases based on how many CRS points the parcel will earn for the community's CRS rating.

The tools, products and processes we developed with the Capacity Building Grant will make it easier for conservation and floodplain managers to work together to protect coastal habitats, reduce flood risk and save resident's money on their flood insurance premiums. Earning CRS points by linking conservation with flood mitigation can lead to a triple bottom line of social, environmental and economic benefits and our project helps communities achieve these goals in partnership with conservation practitioners.

III. PROJECT RESULTS

Accomplishments

Our project seeks to strengthen the connection between restoration and hazard mitigation practitioners by increasing the capacity of both groups concerning nature-based flood risk reduction projects and the potential financial incentives that the FEMA Community Rating System (CRS) provides for nature-based activities. The CRS is a voluntary program in which communities get points for flood mitigation activities and can earn discounts on their residents' flood insurance premiums based on the number of points they earn. Open space protection has long been a creditable CRS activity but is underutilized despite its likely effectiveness in reducing losses.

The problem we are trying to address is a lack of understanding and implementation of nature-based solutions for flood risk reduction in the FEMA Community Rating System Program. This lack of understanding exists both within the CRS Coordinator and floodplain management community as well as within the conservation community. This problem exists for several reasons including lack of capacity (and funding) to study and parse out where nature-based solutions fit within the program, lack of understanding of the CRS points attributable to nature-based solutions, and the tedious nature of the CRS process and application.

The goal of our project was to dedicate time and effort to addressing these issues and develop clear, easy to ready guidance on the nature-based components of the CRS program and an efficient process for identifying nature-based solutions creditable under CRS at the city/county/parish scale. To achieve this goal, TNC and Seagrant staff studied various elements of the CRS program and developed multiple products that both conservation and CRS professionals can use to quickly and efficiently identify nature-based solutions that might be creditable under the FEMA CRS program. The content we created is available in hard copy and electronically online. The process we created is called the CRS Greenprint process and it is implemented in a workshop setting. We created all of the project products with our community partners to ensure that the products are usable and do not require too much effort to use them. Each community has a draft CRS Greenprint that TNC staff will continue to drive towards implementation in partnership with the pilot cities and counties. We also developed the CRS App on TNC's Coastal Resilience tool to support decision making about where nature-based solutions, such as land conservation, are creditable under CRS. Although the app was not a part of the project proposal, we were able to deliver the app for three communities in Mississippi and the app is currently in development for Rockport and Aransas County in Texas. The result of this project is that there is clear, easy to use guidance and a process for identifying opportunities to use nature-based approaches to earn FEMA CRS points. When a community earns CRS points, the residents of the community can earn a discount on their flood insurance premiums. When a community earns CRS points using nature-based solutions, they are supporting and investing in conservation and restoration of healthy coastal ecosystems, reducing flood risk AND earning their citizens a discount on their flood insurance. This triple bottom line forms the basis of this project. This capacity building grant has allowed us to learn and develop products that coastal communities can use to achieve this triple bottom line in an efficient and interdisciplinary manner. The products we developed can be used outside of the Gulf of Mexico and in non-coastal settings.

Implications

We learned from this project that cities and counties need support and partnership in identifying and implementing nature-based solutions that reduce flood risk and protect and restore coastal habitats. Our results show that land protection remains a high value activity within the CRS and our experiences with the pilot communities have shown us that city and county staff often do not have time to adequately document the protected open spaces and habitats within their municipal boundaries and as a result they are often leaving points on the table. In addition, many CRS coordinators are completely unfamiliar and/or intimidated by the erosion mapping components of the CRS program which are very technical in nature. As a result, we would like to focus additional time on breaking down barriers associated with this element of the CRS program. Increasing the knowledge and capacity of the CRS and conservation sectors to plan for and consider nature-based solutions (and erosion rates) is important for

society because these non-structural approaches for reducing flood risk are effective but highly underutilized because of a lack of familiarity, technical knowledge and inter-disciplinary partnerships. If coastal communities in the Gulf and elsewhere recognize that CRS can be a powerful and practical financial incentive for nature-based solutions for risk reduction and have the capacity and partnerships necessary to implement nature-based solutions, we can build real and measurable on-the-ground resilience across the Gulf of Mexico region and beyond.

Unexpected Results

We anticipated that living shorelines were creditable under FEMA CRS. We learned through this project that living shorelines are not directly creditable under the current FEMA CRS Coordinator's handbook but they were creditable under the previous version (which was the standard at the time we submitted this proposal). Many workshop participants were surprised to learn this. We intend to reach out the FEMA to learn more about why living shorelines, which are a popular nature-based solution in the Gulf of Mexico and beyond, do not appear to be creditable under the 2017 manual.

Project Relevance

The following audiences would be most interested in the results of this project:

- Community Leaders
- Local Government Officials
- State Government Officials
- Federal Government Officials
- Non-Profit Private Sector
- For-Profit Private Sector

Audiences that engage in land acquisition, restoration and conservation (local, state, federal officials) will be interested in the results of this project as the products, guidance and tools developed through this project make it easy for someone unfamiliar with the FEMA CRS program to quickly understand how nature-based solutions fit into the CRS program. Non-profit and for-profit entities that engage in coastal restoration science, planning and implementation can also benefit from the products derived from this project as they provide a laymen's overview of the nature-based components of the CRS program. Community leaders would be interested in the project as the results highlight how investing in nature can provide an economic benefit to community residents. In the Gulf of Mexico specifically, leaders that are considering where to allocate Deepwater Horizon funds could use the information developed through this project to rank project ideas based on their likely implications for FEMA CRS status and associated economic benefits.

Education and Training

Number of students, postdoctoral scholars, or educational components involved in the project:

- Undergraduate students: 0
- Graduate students: 0
- Postdoctoral scholars: 0
- Other educational components: 0

This project focused on educating conservation and floodplain managers on elements of the FEMA CRS program that involve nature-based solutions. Each of the workshops provided an overview of the CRS program and how each type of nature-based solution fits into the program.

IV. DATA AND INFORMATION PRODUCTS

This project produced data and information products of the following types:

- Information Products
- Scholarly publications, reports or monographs, workshop summaries or conference proceedings
- Websites or data portals
- GIS applications

DATA

Data Management Report:
N/A

Relationships Between Data Sets:
N/A

Additional Documentation Produced to Describe Data:
N/A

Other Activities to Make Data Discoverable:
N/A

Sensitive, Confidential, or Proprietary Data:
N/A

INFORMATION PRODUCTS

Information Products Report:
See attached Information Products Report.

Citations for Project Publications, Reports and Monographs, and Workshop and Conference Proceedings:
Community Incentives for Nature-Based Flood Solutions: A GUIDE TO FEMA'S COMMUNITY RATING SYSTEM FOR CONSERVATION PRACTITIONERS. 2019. The Nature Conservancy.

Websites and Data Portals:
www.nature.org/communityratingsystem
https://maps.coastalresilience.org/gulfmex/

We intend to maintain the website and app in perpetuity as part of The Nature Conservancy's webpage as well as on the Coastal Resilience mapping portal.

Additional Documentation Produced to Describe Information Products:
N/A

Other Activities to Make Information Products Accessible and Discoverable:
We created a landing page on The Nature Conservancy's main webpage focused on this project and any follow on activities related to the Community Rating System. It is easy to fins this landing page if you google search terms related to CRS and nature-based solutions. We also asked our partners at Digital Coast and the Association of State Floodplain Managers to post links to our products as well.

Confidential, Proprietary, Specially Licensed Information Products:
N/A

V. PUBLIC INTEREST AND COMMUNICATIONS

Most Unique or Innovative Aspect of the Project
The most unique aspect of this project is that we brought together two groups of professionals who have overlap in their missions but have not previously worked together. Conservationists buy and protect open spaces for their multiple benefits. Floodplain managers help make land use decisions about where to buy open space to reduce flood risk. The FEMA CRS program provides an economic incentive for land protection and an opportunity for these two sectors to work together more closely to protect more land in the flood plain and reduce flood risk.

Most Exciting or Surprising Thing Learned During the Project
The most exciting thing we learned is that Deepwater Horizon could potentially pay for many of the land acquisitions identified in the CRS Greenprint process and directly contribute to the resilience of Gulf coastal communities while saving these residents money on their flood insurance.

Most Important Outcome or Benefit of Project
The most important benefit of this project is that we have developed tools that conservation practitioners can use to engage with city, county and parish floodplain managers. Conservation folks who have little or no knowledge of the FEMA CRS program now have an easy to read overview of the program and how it relates to their work as well as a process for working with communities to jointly identify nature-based solutions for flood risk that can earn CRS points.

Communications, Outreach, and Dissemination Activities of Project
www.nature.org/communityratingsystem

Information Products Report

InfoProductType	DigitalResourceType	Title	FileName	Creators	PublicationYear	Publisher	RepositoryName	DOIorPersistentURL	DatasetReference
Report or Monograph	Text	Community Incentives for Nature-Based Flood Solutions: A GUIDE TO FEMA'S COMMUNITY RATING SYSTEM FOR CONSERVATION PRACTITIONERS	CRS_brochure-FEMA-CommunityRatingSystem.pdf	Christine Shepard, Andrew Blejwas	2019	The Nature Conservancy	Conservation Gateway	https://www.nature.org/content/dam/tnc/nature/en/documents/CRS_brochure-FEMA-CommunityRatingSystem.pdf	
Website or Data Portals	Web Based Resource	TNC's Community Rating System Landing page	n/a	Christine Shepard, Andrew Blejwas	2019	The Nature Conservancy	TNC website	www.nature.org/communityratingsystem	
GIS Application	Web Based Resource	TNC's CRS Explorer App on the Coastal Resilience Decision Support Tool	n/a	Christine Shepard, Laura Flessner	2019	The Nature Conservancy	TNC website	https://maps.coastalresilience.org/gulfmex/	