

# Coastal Storm Awareness Program

## **Behaviorally Realistic Communications to Improve the Public's Response to and Preparedness for High Impact Storm Events**

**Principal Investigators:** Dr. Gabrielle Wong-Parodi / Dr. Baruch Fischhoff / Dr. Ben Strauss  
Lead University: Carnegie Mellon University

This study will use a mix of surveys and interviews with coastal residents in New Jersey and New York about their beliefs and behavior regarding storm events to develop a personalized online decision-making tool for emergency managers, flood insurance companies, and meteorologists. The tool will help them develop strategies to better communicate to the public about high-impact storm events. Climate Central's Surging Seas model will be adapted to include the strategies identified in the initial stages, to improve citizen understanding, preparedness and response to extreme weather.

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## **Assessment of Social Media Usage During Severe Weather Events and the Development of a Twitter-based Model for Improved Communication of Storm-related Information**

**Principal Investigators:** Dr. John F. Edwards / Dr. Somya D. Mohanty / Dr. Patrick Fitzpatrick  
Lead University: Mississippi State University

This project will build on social media techniques developed in Mississippi to establish better storm event communication between agencies such as the National Weather Service and emergency managers with residents and coastal communities. The model to be developed will primarily focus on leveraging use of the social media platform Twitter, using information from surveys and analysis of geo-referenced messages sent in the tri-state region before, during and after Sandy and other extreme weather events. The effect on human perceptions and behavior resulting from specific types of messages will be evaluated.

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## **An Audience Segmentation Analysis of Connecticut Coastal Residents to Support Storm Preparedness**

**Principal Investigators:** Dr. Jennifer R. Marlon / Dr. Anthony Leiserowitz  
Lead University: Yale University

This project will survey at least 1,000 Connecticut coastal residents to assess their coastal storm risk perceptions, experiences, and behaviors. A better understanding of how much residents understand, information sources, and why they behave as they do will give emergency planners and responders a better understanding of the audiences they serve. Analysis of the survey results will take into account various demographic and social-cultural characteristics to support the design and development of storm-related information tailored to specific subgroups within the public. Results will be provided to Connecticut's emergency managers and responders.

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## Measuring public responses to a surge of information: How individuals understand, react, and respond to storm surge media messages

**Principal Investigators:** Dr. Clifford W. Scherer / Dr. Laura N. Rickard

Lead University: Cornell University

To better understand how NY, NJ and CT coastal residents perceive hurricane-related and storm surge-related risk, this research team will work with tri-state broadcasters, as well as partners at the National Hurricane Center and local National Weather Service offices to develop hurricane forecasts that utilize a new storm surge inundation map. The team will conduct focus groups from coastal communities in the three states and use interactive audience response tools to capture participants' real-time response to a televised version of the experimental forecast. Project results will help develop the best methods for practitioners on how to convey visual information about storm-related risk.

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## Forecasting evacuation behaviors of coastal communities in response to storm hazard information

**Principal Investigators:** Dr. Ricardo A. Daziano / Dr. Linda K. Nozick / Dr. Philip L. Liu / Dr. Jonathon P. Schuld

Lead University: Cornell University

In this Cornell project, focus groups and in-depth interviews will be used to assess attitudes, knowledge, and behaviors related to both coastal hazards and the products and tools used to both communicate and visualize risks and emergency actions. The experimental design will be a time-dependent discrete choice experiment, where subjects will self report the likelihood of evacuation for each discrete time and hypothetical storm. The researchers will design effective evacuation communication tools and explore the use of smartphone apps to collect data about stated evacuation preferences. Attitudes and response to new sources of information (Twitter and other social media), will be evaluated using sociological theories that integrate concepts such as subjective norms and behavioral control into discrete choice models.

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## Understanding Responses to Storm Warnings: Learning from Those Who "Rode Out" Hurricane Sandy

**Principal Investigators:** Dr. Sharon D. Moran / Dr. William Peace

Lead University: Syracuse University • Sponsoring Sea Grant Program: New York Sea Grant

This research team will identify the gaps in understanding between coastal managers and the people who could not or would not evacuate during storms, document the perceptions and 'lived experience' of those who remained behind and elaborate on the differential vulnerabilities of the nonevacuators, from their own viewpoint, especially as they concern people with disabilities. By working with key stakeholders, the team will conduct focus groups, run surveys and analyze data that will help build training modules. Multiple versions of the modules, tailored for CT, NY and NJ residents, will be in the form of both online tutorials and for classroom use and will be pilot tested with managers.

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## Evaluating evacuation decision-making processes among residents of Long Beach, NY before Superstorm Sandy: Lessons for the role of authority and language in storm warnings

**Principal Investigators:** Dr. Christa E. Farmer / Dr. Mary Anne Trasciatti / Dr. Elisabeth J. Ploran

Lead University: Hofstra University

This research team will analyze qualitative interviews with residents of ethnically diverse Long Beach, NY, many of whom ignored evacuation warnings before Hurricane Sandy, regardless of the remarkably successful forecasts of the storm track. Researchers will look at both language barriers and cultural attitudes in affecting understanding and acceptance of risk information and use interpreters for extended interviews of ethnic minorities when needed. The goal is to create improved guidelines for the specific language used by government officials and weather authorities to relay coastal storm information, risk assessment, and evacuation recommendations

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## **Adolescent and Family Decision Making In Time of Disaster**

**Principal Investigators:** Dr. Cristina Hoven / Dr. George Musa / Dr. Lawrence Amsel

Lead University: Columbia University

A major goal of this study will be to obtain knowledge that will facilitate the creation of educational materials, programs and procedures that improve disaster related family-based decision-making. Creating programs that help adults and adolescents identify their own decision-making and family negotiating styles, know their strengths and weaknesses, and appreciate how each individual impacts the family in disaster situations, can address important human-factor issues that may hinder public efforts to save lives in time of disaster.

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## **Best Practices in Coastal Storm Risk Communication**

**Principal Investigators:** Dr. Cara Cuite / Dr. Karen O'Neill / Dr. William Hallman / Dr. David Robinson / Dr. Steven Decker / Dr. Christopher Obropta

Lead University: Rutgers, The State University of New Jersey

To assist emergency managers and other communicators deliver the most effective messages possible, this study will survey coastal residents to empirically test the effectiveness of a range of message variables including personalization, storm probability formats and social media messaging. This information will be the basis for developing a validated and tested best practices guide that will serve as an important tool for emergency managers to keep residents of their municipalities safe.

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## **They Had the Facts, Why Didn't They Act?: Understanding and Improving Public Response to NWS Coastal Flooding Forecasts**

**Principal Investigators:** Rachel Hogan Carr / Dr. Burrell Montz / Gary Szatkowski / Lisa Auermuller / Dr. Susan Frankel / Elizabeth Goldman

Lead University/Institution: Nurture/Nature Center

New Jersey coastal community residents currently receive information about storm risk from a variety of products and sources in different formats at different times prior to a storm event. The complexity and variety of information leads to confusion and could decrease people's understanding of the full spectrum of risks that they face. Exposure to a briefing document, which combines various pieces of information and provides both graphical information and narrative explanations will improve understanding by the public and emergency management officials of the intensity and range of possible outcomes from an impending coastal storm, and improve the likelihood of people taking evacuation or other proper warning response actions.

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