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Rhode Island Coastal Hazard, Analysis, Modeling, and Prediction System

(RICHAMP)

The Rhode Island Coastal Hazards Analysis, Modeling, and Prediction system (RICHAMP) is a high-resolution Hazard Consequence Modeling System designed to help state and local emergency managers and facility operators anticipate the consequences of a major storm striking their community. Emergency managers (EMs) need access to nuanced data that contextualize the local-scale risks and impacts posed by major storm events. Traditional tools available to EMs, such as vulnerability assessments, do not provide actionable data regarding specific local concerns, such as emergency vehicle access and potential communication disruptions. However, the development of high-resolution storm models can aid EMs in making informed storm preparedness measures at the local scale. This Participatory Action Research (PAR) approach captures critical infrastructure (CI) managers' concerns about hurricanes and Nor'easters across Rhode Island (USA) for use in an online dashboard viewer that integrates those concerns with wind, wave, and surge storm model outputs. The current work focuses on the Wastewater Systems and Maritime Transportation Systems CI sectors, expanding upon methods and research developed during two DHS funded pilot studies which captured facility manager concerns in Providence and Westerly, RI. Data collection included focus group interviews and site interviews with CI managers. Our new approach utilizes web and mobile applications to simplify the data collection process and establish a workflow for CI managers to report and maintain their

hazard concerns in an Infrastructure Assets Consequence (IACT) database. The online dashboard viewer that integrates numerical storm models outputs with the IACT database will be used in Emergency Operations Center (EOC) to flag the potential flooding and wind impacts during a real-time storm event or for planning scenarios, thus informing local and statewide emergency response activities.

Presentation Theme: The Rhode Island Coastal Hazards Analysis, Modeling, and Prediction system is a high-resolution Hazard Consequence Modeling System designed to help state and local emergency managers anticipate the consequences of a major storm striking their community, specifically at critical infrastructure facilities. Other themes of this research revolve around critical infrastructure interdependencies, their cascading consequences, and what EMs need to know to improve their response activities.

Collaborators, Advisor(s) and Department(s) that assisted with this research:

Graduate students: Noah Hallisey, MS student in Natural Resources Sciences, URI, Samuel Adams, PhD student in Marine Affairs, URI, Emergency Management Director and Assistant Director of Public Safety, URI .

Advisor: Dr. Austin Becker, Associate Professor & Director of Graduate Programs in Marine Affairs at the University of Rhode Island

Other: Pam Rubinoff, Associate Coastal Manager, Coastal Resilience, Extension Specialist, URI Coastal Resources Center and RI Sea Grant

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