

PROJECT FACT SHEET

Title:

Multi-Scale Infrastructure Interactions with Intermittent Disruptions: Coastal Flood Protection Infrastructure, Transportation, and Government Networks

Summary:

The project will explore how coastal flooding, shoreline infrastructure, the transportation system, and decision-makers interact in coastal communities, including the feedback between each of these components.

Local Impact:

The research will be geographically focused on the San Francisco Bay Area and the challenges associated with sea level rise and coastal/bayside flooding. It will lead to the development of tools, information and insights to help government institutions and networks be better prepared to make effective decisions about infrastructure planning and operations.

Time Frame and Funding:

October 2015 - September 2019 — National Science Foundation

Academic Investigators:

Mark Stacey (Civil and Environmental Engineering, UC Berkeley), Mark Lubell, (Environmental Science and Policy, UC Davis), Samer Madanat (Civil and Environmental Engineering, UC Berkeley), Alexei Pozdnukhov (Civil and Environmental Engineering, UC Berkeley), Patrick Barnard (U.S. Geological Survey), Li Erikson (U.S. Geological Survey), William Collins (Lawrence Berkeley Laboratory), Bruce Riordan (Climate Readiness Institute)

Practitioner Partners:

Regional and state agencies (e.g., BCDC, MTC, ABAG, Caltrans, Coastal Conservancy), local governments and special districts (e.g., cities, counties, flood control, water), and non-profit organizations (e.g., BAECCC, SFEI, CHARG, RCI)

Expected Products and Outcomes:

- Quantify the impacts of shoreline infrastructure decisions at one location on flooding outcomes at others.
- Develop a shoreline protection planning tool that will analyze flooding and inundation impacts for a wide range of shoreline and bathymetry scenarios.
- Identify and analyze the disruption to the transportation network from direct inundation, *with a particular interest in regional impacts of local actions and local impacts of regional actions.*
- Define similarities and differences in flood risks at various locations around the bay, and identify what role geographic proximity plays in establishing those qualities.
- Define the scale and structure of the governance system making decisions about sea level rise and coastal flooding.
- Compare the environmental, transportation and governance structures to evaluate the suitability of existing decision-making systems to address local and regional issues associated with sea level rise and coastal flooding.

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