

Coastal Flooding and Environmental Justice: Developing Strategies for Adapting to Climate Change

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Much of the US population lives in the coastal zone and is presently vulnerable to coastal flooding. With sea level rise due to climate change, continued land subsidence, and probable increases in the intensities of coastal storms, their vulnerabilities will increase over the next few decades. There has been considerable research on the possible increases in coastal flooding, but very little research on the distribution of impacts by socio-economic categories. The focus of our proposed research is on possible impacts on urban and rural coastal populations that are already suffering from environmental injustices (environmental justice or EJ communities) and thus are particularly vulnerable because of limited adaptation options. Our research team has long-standing experience collaborating on climate impacts research. Research will be participatory and will take place in urban Boston and rural areas of Chesapeake Bay, Maryland. The choice of these two locations (Boston Harbor and Chesapeake Bay) will provide opportunities to contrast and compare impacts and adaptation strategies for other nearby regions (e.g. Baltimore and Annapolis harbors, and agriculture along coastal rivers in Massachusetts). Transferability of insights will be facilitated through the involvement of a project advisory group composed of experts knowledgeable of environmental justice issues in Massachusetts and Maryland and for both types of environmental justice communities – urban and agriculture.

Objectives of proposed work

In support of NOAA's efforts in achieving environmental justice and the SARP priorities (detailed in Section 4.6), the primary objectives of this research are

- **To determine, in case study areas, the extent to which sea level rise and coastal flooding differentially impacts environmental justice communities;**
- **To evaluate potentially feasible strategies for EJ communities in adapting to increased coastal flooding due to climate change – of value to both the case study regions and the rest of the USA.**

This proposal directly addresses the following SARP Coastal Zone Management topic of interest: “Assess impacts associated with climate change and variability - including indirect or secondary economic impacts - develop socio-economic baselines and vulnerability assessments, and/or tools for generating risk and adaptation scenarios”

Case Study Locations

Our proposed study will focus in two specific coastal areas, each of which face different sorts of sea level rise (SLR) impacts and will probably require different adaptation strategies: 1) the urban communities of Chelsea, East Boston, Roxbury and the South End surrounding **Boston Harbor**, and 2) resource –based communities (farming, forestry, fishing) in the **Eastern Chesapeake Bay** region. These two locations have been selected because:

- members of the research team have extensive experience in SLR research and community involvement in both areas;
- both areas are very vulnerable to SLR;

- Boston is representative of urban coastal flooding issues in the northeastern US, and the Chesapeake Bay region is one of the major coastal resource - based areas in the northeastern US,
- These two locations are close enough to facilitate effective collaboration between the institutions and co-investigators involved in this project.