

COASTAL FLOODING AND ENVIRONMENTAL JUSTICE: IDENTIFYING VULNERABLE COMMUNITIES AND FEASIBLE ADAPTATION STRATEGIES FOR THE BOSTON METRO AREA

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Along the U.S. coastline, total or relative sea level rise (SLR) trends range from < 1 to nearly 10 mm/year; these rates appear to have accelerated over the last several decades. Over half of all Americans live within 50 miles of the coast, in just one fifth of its land area. Many of these people are already vulnerable to coastal flooding. With sea level rise due to climate change and probable increases in the intensity and frequency of coastal storms, their vulnerabilities will almost certainly increase over the next few decades. The focus of our research is on the possible impacts on urban populations that are already suffering from environmental injustices (a.k.a. environmental justice or EJ communities). Our study is focusing on communities within metro Boston, in particular Chelsea, Everett, East Boston, and Roxbury, that may have similar vulnerability to climate change and yet may require different adaptation strategies. We will first present our methodology for estimating the extent of coastal flooding under a range of climate change scenarios. Using this methodology, we will identify locations of permanent loss and increased coastal flooding for selected SLR scenarios and present the results of an initial vulnerability assessment in these areas using NOAA's Community Vulnerability Assessment tool combined with spatial statistics (i.e., correlation, network analysis). We have scheduled workshops and interviews with community-based organizations to establish linkages with community activists and residents. We will present what we have learned thus far from these meetings as well as our plan for evaluating feasible adaptation strategies for these selected EJ communities.