Coastal Climate Change Adaptation and Engineering Alternatives
Groton, Connecticut

Project Characteristics:

- *Sea Level Rise Assessment and Predictions*
- *Return-Period Storm Surge Evaluation*
- *Sustainable Coastal Engineering Alternative Analysis*
- *Costs Estimations for Engineering Alternatives*
- *Recommended Engineering Adaptations for Sea Level Rise*

Woods Hole Group worked with Battelle Ocean Sciences and the University of Southern Maine on assessing the impacts of Climate Change on coastal communities of Groton, Connecticut. Specifically, the regions of Groton Long Point and the infrastructure surrounding the Mystic River were evaluated. The evaluation included the impacts of sea level rise and storm events on potential flooding. Working with ICLEI, local stakeholders were integrated into the discussion through a series of three community workshops. The Coastal Climate Adaptation Workshops brought together federal, state, and local stakeholders to begin addressing the question: "how do we collaborate across geo-political boundaries to prepare for climate change impacts?" The first workshop provided an overview of regional climate impacts and initiated dialogue on how different sectors are vulnerable to forecasted impacts. The second workshop focused on refining how federal, state, and local governments are vulnerable to changes in climate, particularly sea level rise, and included consideration of potential adaptation actions to increase resilience. Finally, the third workshop focused on identifying strategies for implementing adaptation actions across geo-political boundaries. For each location, conceptual designs of engineering adaptation alternatives were developed. The alternatives ranged from management approaches (e.g., evacuation, flood-proofing of structures, etc.), to soft-engineering options (e.g., beach nourishment, creation of wetlands, etc.), to more significant hard engineering structures (e.g., modular seawalls, revetments, tide gates, hurricane barriers, etc.). The community recommended alternatives for which cost estimates were determined. Engineering adaptations and costs estimates were provided for high and low rates of projected sea level rise, coupled with various return period storm events (10-, 20-, 50-, and 100-year) projected to the year 2070.