North Atlantic Coast Comprehensive Study

Study Synopsis
December 2013

U.S. Army Corps of Engineers, National Planning Center for Coastal Storm Risk Management

Schedule Highlights

Feb-March 2013 - Development of scope of analyses

April 2013 - Interagency collaboration on scope of analyses

June 2013 - Launch of public website; Federal Register notice

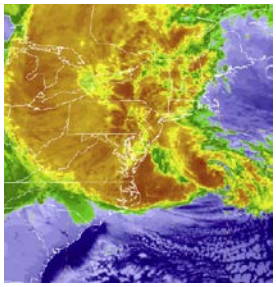
June 2013 – Modeling and Measures Working Meetings

July 2013 – January 2014 – Webinar Collaboration Series (topics include natural & nature based features, modeling, ecosystem goods and services, adaptive management and policy challenges)

Winter/Spring 2014 - Interagency & international validation & collaboration; refinement of draft analyses

Summer 2014 – Begin finalizing report and routing for reviews

January 2015 - Final Report due to Congress



Overview

The goals of the North Atlantic Coast Comprehensive Study authorized under the Disaster Relief Appropriations Act, Public Law 113-2 are to (1) reduce flood risk to vulnerable coastal populations, and (2) promote coastal resilient communities to ensure a sustainable and robust coastal landscape system, considering future sea level rise and climate change scenarios.

The Congressional response to the devastation in the wake of Hurricane Sandy included a mandate to collaborate with federal, state, tribal and local government agencies to regionally address the vulnerability of coastal populations at risk in the U.S. Army Corps of Engineers (USACE) North Atlantic Division (CENAD). The Act provides USACE up to $20 Million ($19 Million after sequestration) to conduct the study. A final report of the study team's analyses is due to Congress in January 2015.

The study identifies those areas warranting more detailed evaluations; however, USACE is not authorized to develop designs or implement such projects at this time. No National Environmental Policy Act documentation is being produced.

Interested parties can sign up for updates on the study's progress at http://www.nad.usace.army.mil/CompStudy.

Study Area

Hurricane Sandy caused water levels to rise along the entire east coast of the United States from Florida northward to Maine. The highest storm surges and greatest inundation on land occurred in the states of New Jersey, New York, and Connecticut, especially in and around the New York City metropolitan area. In many of these locations, especially along the coast of central and northern New Jersey, Staten Island, and southward-facing shores of Long Island, New York, the surge was accompanied by powerful, damaging waves.

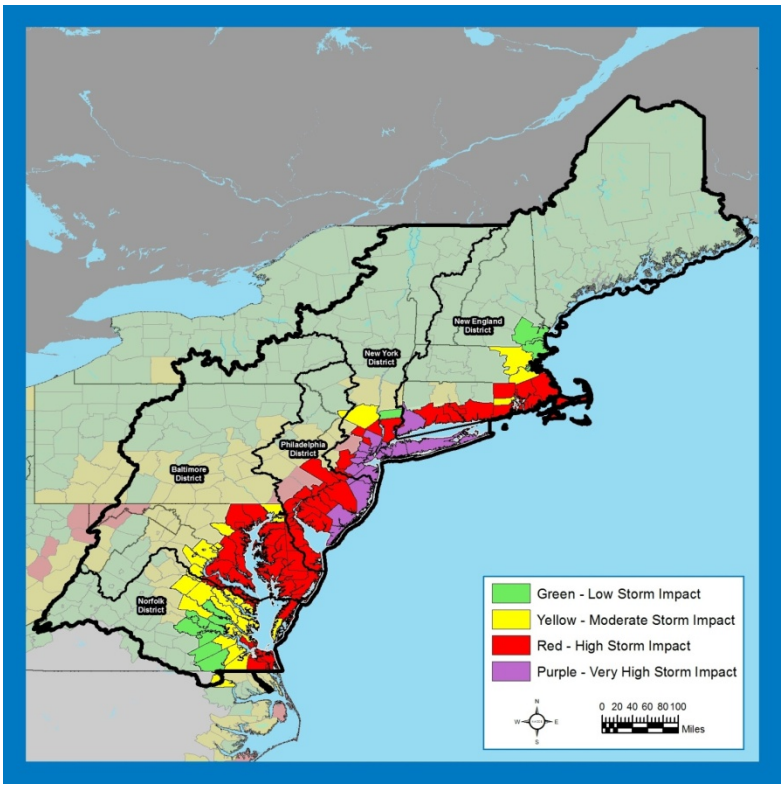
The study area, encompassing approximately 31,000 miles of coastline, includes areas:

(1) Within the Civil Works boundary of CENAD,
(2) With vulnerable coastal populations,
(3) Affected by Hurricane Sandy during the October 27-31, 2012 period. "Affected" may include, but is not limited to, areas which received damage or effects of Hurricane Sandy (such as increased flooding, sand deposition, wind damage, erosion, surge, etc.), received Federal disaster declarations, had flood insurance claims, exercised emergency actions, received damage to existing hurricane and storm damage reduction projects, etc.

Products

- NACCS Framework with State appendices (including Interim Reports #1 and #2, and the Hurricane Sandy Coastal Projects Performance Evaluation Study, as required by the authorizing legislation)
- Geodatabase of data collected and used as part of the study
- Policy and institutional barriers to comprehensive risk reduction implementation
- Identification of areas and activities warranting further analysis
- Storm Suite Modeling
- Economic depth-damage functions
- USFWS Planning Aid Report
- Community Resiliency Survey by NOAA
- Natural & Nature Based Features Evaluation Framework
- Conceptual Regional Sediment Budget for CENAD
- Social Vulnerability analysis

Study Area Map



Key Analysis and Assumptions

Existing and Post-Sandy Future Conditions are characterized as current risk reduction projects and features, and socio-economic, environmental, cultural and related conditions that exist now (2013) and within the next 5 years (2018). This creates the baseline from which future measures are evaluated with regard to reducing coastal flood risk and promoting resiliency.

Sea Level Rise - Evaluation scenarios include 2018, 2068, 2100 and 2118; accounting for USACE and NOAA policies on sea level change for long-range planning. Evaluations also include storm surge and storm tide combinations.

Climate Change - Sea level rise will be considered as described above; however, the state of the science precludes detailed evaluations of climatology, storm frequency and severity, landfall trends, etc. at this time.

Coastal Flood Risk - Risk areas are depicted as FEMAs special flood hazard area 100-year floodplain, the 100-year floodplain +3 feet to account for sea level rise, and the worst case, SLOSH model Category 4 maximum of maximums storm event and illustrate residual risk.

Natural & Nature Based Features, Ecosystem Services and Regional Sediment Management - Natural features (e.g., barrier islands, wetlands, oyster beds, riparian corridors) situated within the landscape that provide services (e.g., erosion control, reduced flooding, surge absorption) that could otherwise be provided by built infrastructure are considered in the NACCS.

More Key Analysis and Assumptions

Exposure/Vulnerability Assessment - An exposure index was developed for population/infrastructure, social vulnerability characterization, and environmental resources to characterize the relative exposure to coastal flooding and sea level rise with a spatial context and for relative comparison purposes across the study area. For each exposure category, spatial data layers were obtained to be included for evaluation of the categories' overall vulnerability to coastal flooding and future sea level rise. The spatial layers were obtained from various sources, mostly national datasets and publicly available information. Using the number of features specific to the data layer included in the various spatial data layers, a weight was assigned to characterize the relative importance compared to other data layers within the category as it relates to direct and or indirect effects to population and communities during a coastal flood event. Additionally, maps presenting the vulnerability mapping by multiplying exposure index by the probability of flooding (associated with available inundation mapping) were produced. The presentation of vulnerability mapping presents how the vulnerability decreases with the relative increase in distance from the coastline.

Development of Risk Reduction Measures - Risk reduction measures include a suite of structural and non-structural measures, natural and nature based features, and programmatic options. The shoreline included in the study area, approximately 31,000 miles, was segmented into 38 reaches based on geologic and physical characteristics associated with the shoreline type, existing USACE coastal storm risk management projects, land use and jurisdictional boundaries. Risk management measures were identified by the shoreline type.

Coordination and Outreach

Interagency Collaboration A series of Federal, state, tribal, and non-governmental agency coordination have been sent and Federal Register notices were published June 19, 2013 and October 4, 2013. The first notice was to officially announce the study and the second requests peer review information. Interagency subject matter experts are engaged on the technical teams and through a Collaboration Webinar Series.

Public Outreach – CENAD launched a website (www.nad.usace.army.mil/CompStudy) on May 28, 2013. Study information, progress updates, links to interagency websites, and on-line information requests will be used to engage the public.

The USACE Team

North Atlantic Division
302 General Lee Avenue
Brooklyn, NY 11252
347-370-4550 | Email

Institute for Water Resources
7701 Telegraph Rd (Casey Bdg)
Alexandria, Va 22315
703-428-8015 | Contact

Engineer Research & Development Center
3909 Halls Ferry Road
Vicksburg, MS 39180-6199
601-634-3188 | Email

Definitions

Risk - The risk of a coastal storm event is its probability of occurrence multiplied by the consequences. The consequences are measured in terms of potential damage to people and their property and public infrastructure.

Vulnerability – is a way of comparing the relative risk of a coastal storm event to which different places are subject. An area can be more vulnerable by having a higher probability of occurrence of a coastal storm event or by having more people and property susceptible of being damaged by a coastal storm event, or both.

Resiliency - ability to avoid, minimize, withstand and recover from the effects of adversity, whether natural or manmade; inclusive of engineering, ecological and community resilience.

Resistance - the ability of a system or structure to avoid failure

Redundancy - duplication of critical components of a system with the intention of increasing reliability of the system.

Robustness - ability of a system to continue to operate correctly across a wide range of conditions (the wider the range of conditions, the more robust), with minimal damage, alteration or loss of functionality.