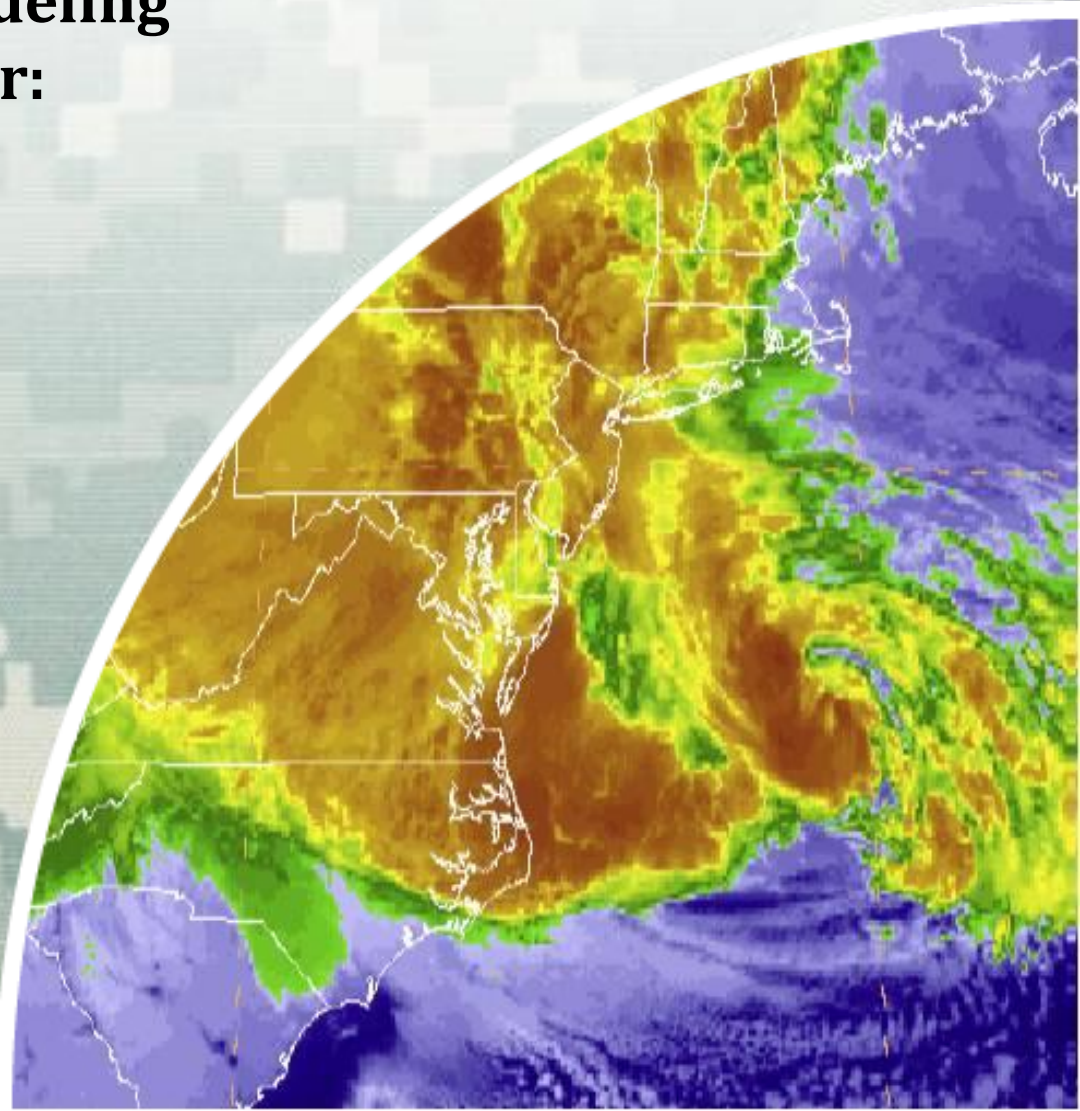


# **North Atlantic Coast Comprehensive Study Overview for Numerical Modeling and Climate Change Webinar: Study Needs**

**U.S. Army Corps of Engineers**  
Coastal Storm Damage Reduction  
Planning Center of Expertise

**12 September 2013**



# Background

- Hurricane Sandy impacted the Atlantic coastline in October 2012
- Affected entire east coast – Florida to Maine
- Greatest areas of impact: NJ, NY, CT
- Public Law 113-2

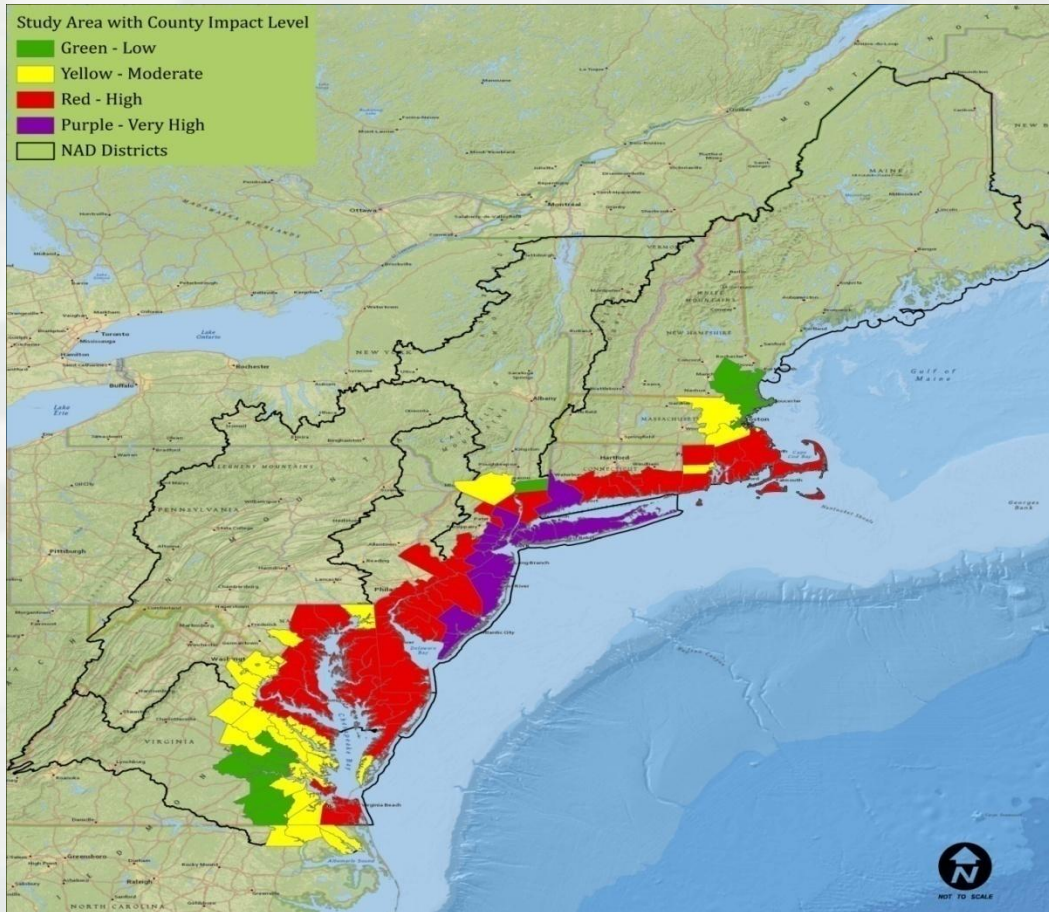


# North Atlantic Coast Comprehensive Study

“That using up to \$20,000,000\* of the funds provided herein, the Secretary shall conduct a **comprehensive study** to address the flood risks of **vulnerable coastal populations** in areas that were affected by Hurricane Sandy within the boundaries of the North Atlantic Division of the Corps...” (\*\$19M after sequestration)

- Comprehensive Study to be complete by Jan 2015; unused funds available for future USACE studies

- Areas affected by erosion, precipitation, winds, surge, etc. (FEMA’s H. Sandy storm surge data)



## Goals:

- Provide a Risk Reduction Framework , consistent with USACE-NOAA Rebuilding Principles
- Promote Coastal Resilient Communities with sustainable and robust coastal landscape systems, considering future sea level rise and climate change scenarios, to reduce risk to vulnerable population, property, ecosystems, and infrastructure.



# Scope

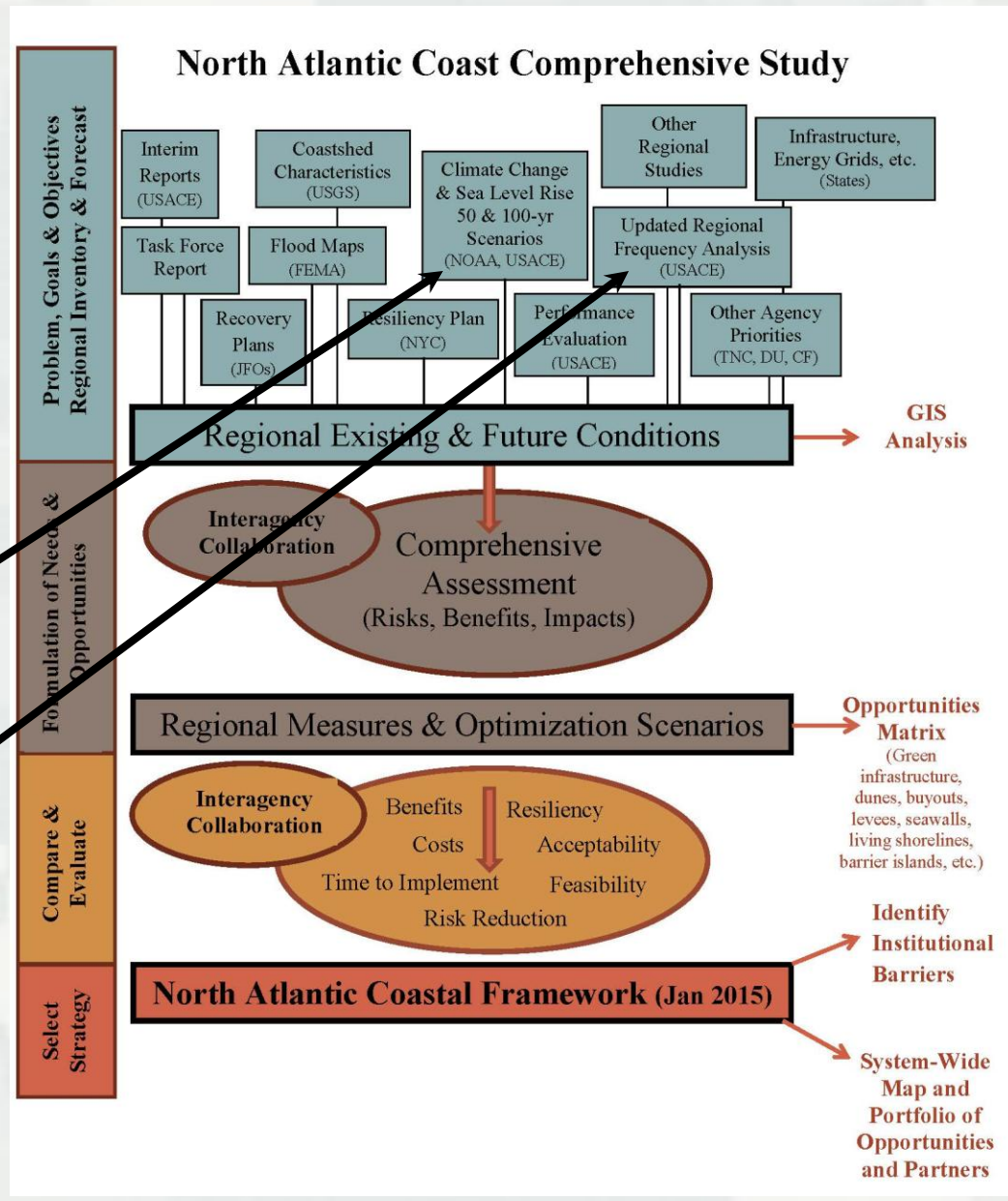
## Coastal Framework

- ❑ Regional scale
- ❑ Interagency collaboration
- ❑ Opportunities by region/state
- ❑ Identify range of potential solutions and parametric costs by region/state
- ❑ Identify activities warranting additional analysis

## Technical Teams

**Future Mean Sea Level and Other Climate Changes**

**Computing the Joint Probability of Hurricane Sandy and Historical Coastal Storm Forcing Parameters from Maine to Virginia**



# Study Needs

- Comprehensive
- Regional Scale: Maine Through Virginia
- Current Science and Engineering: Corps Guidance



# Key Technical Components

(Not limited to this list)

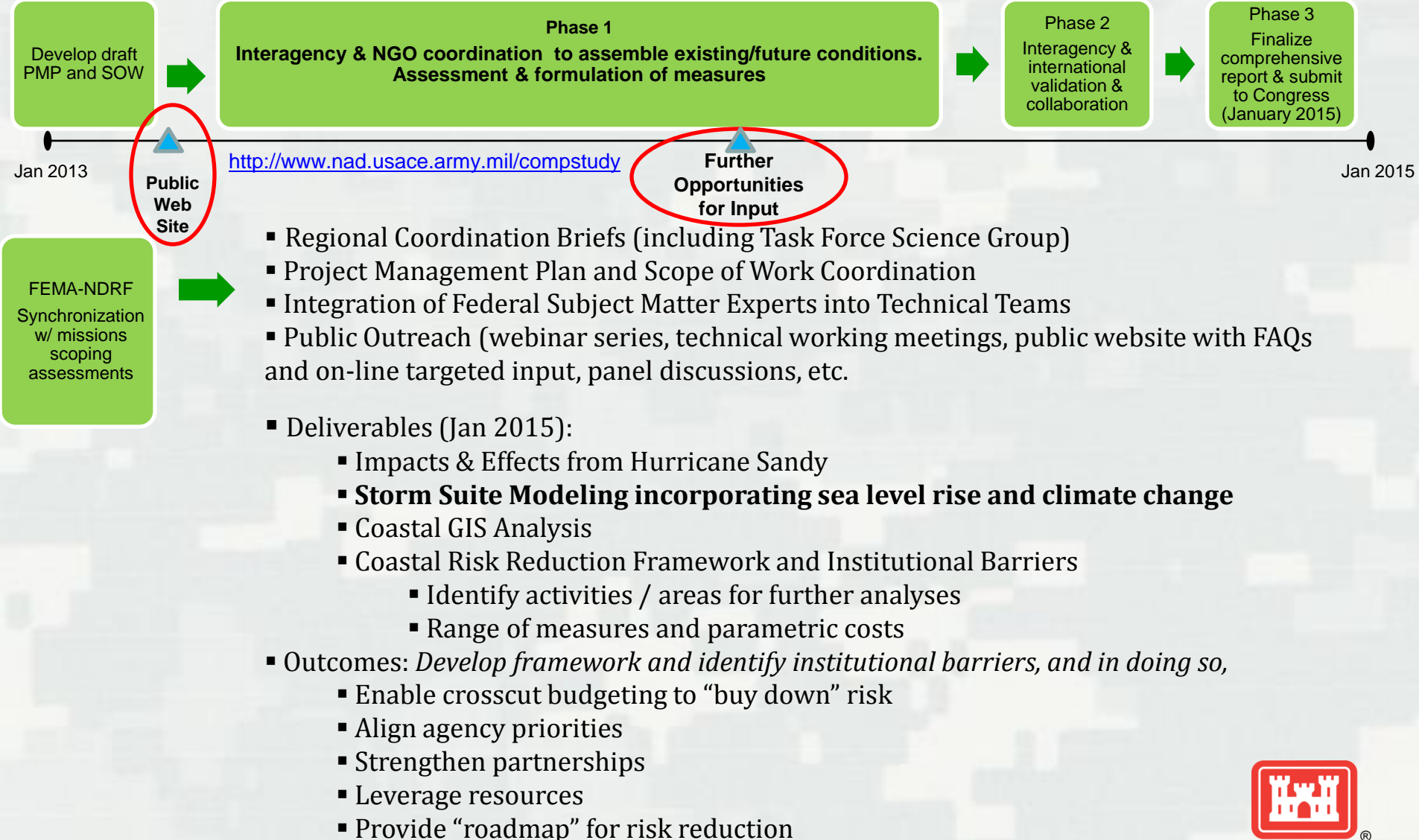
- Engineering
- Sea Level Rise and Climate Change (SLR & CC)
- Nature-Based/"Green" Engineering
- Environmental and Cultural
- Economics
- Plan Formulation
  - ▶ Policy & programmatic
- Coastal GIS Analysis



# North Atlantic Coast Comprehensive Study

29 Jan 13

Enactment of Supplemental Legislation PL 113-2



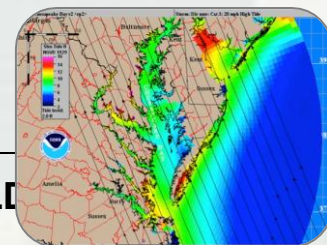
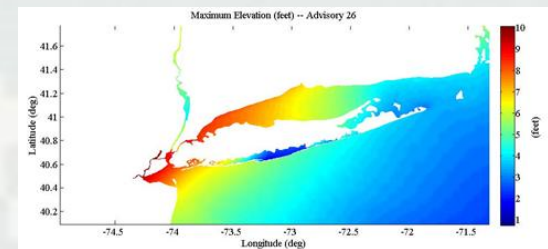
# Engineering

## ■ Tasks

- ❑ Summarize historical data and existing conditions
- ❑ Review and update as warranted engineering design criteria for resiliency, robustness and redundancy
- ❑ Incorporate performance evaluation results
- ❑ **Refine regional storm suites and storm surge, wave forces**
- ❑ Identify range of engineering risk reduction measures for range of regional conditions (berms, levees, floodwalls, nature-based infrastructure, etc.)
- ❑ Hydrodynamics modeling workshop

## ■ Tools

- ❑ Digital elevation model
- ❑ ADCIRC model, wave model
- ❑ FEMA Region II/III coastal storm modeling
- ❑ National Hurricane Program data/models (SLOSH, etc.)





# Sea Level Rise and Climate Change

## ■ Tasks

- ❑ Use ER 1165-2-212: *Sea-Level Change Considerations for Civil Works Programs* and NOAA's *Global Sea Level Rise Scenarios for the US National Climate Assessment*
- ❑ **Use of existing data to assess risk and consequences of SLR&CC**
- ❑ **Evaluate SLR scenarios for the 50-100 year intervals**
- ❑ Identify options that enhance resiliency, redundancy and robustness in areas threatened by SLR & CC

## ■ Tools

- ❑ Coastal vulnerability tool (IWR)
- ❑ Comprehensive Evaluation of Sea Level (IWR)
- ❑ USGS Vulnerability Tool

