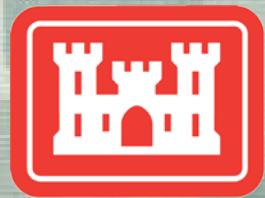




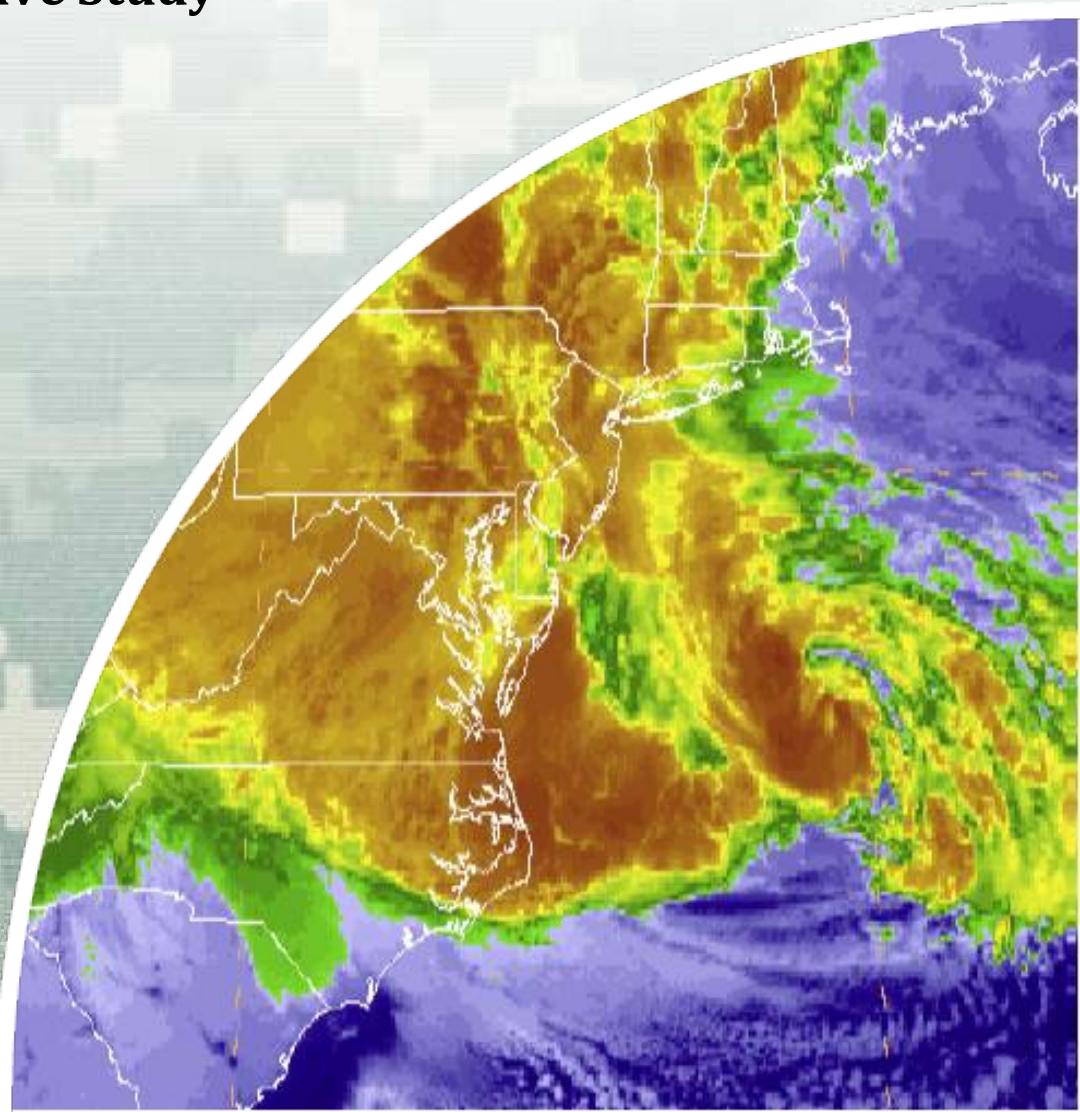
# U.S. Army Corps of Engineers

## North Atlantic Coast Comprehensive Study

**David Leach, Director  
Programs Directorate  
USACE North Atlantic Division  
25 February 2014**



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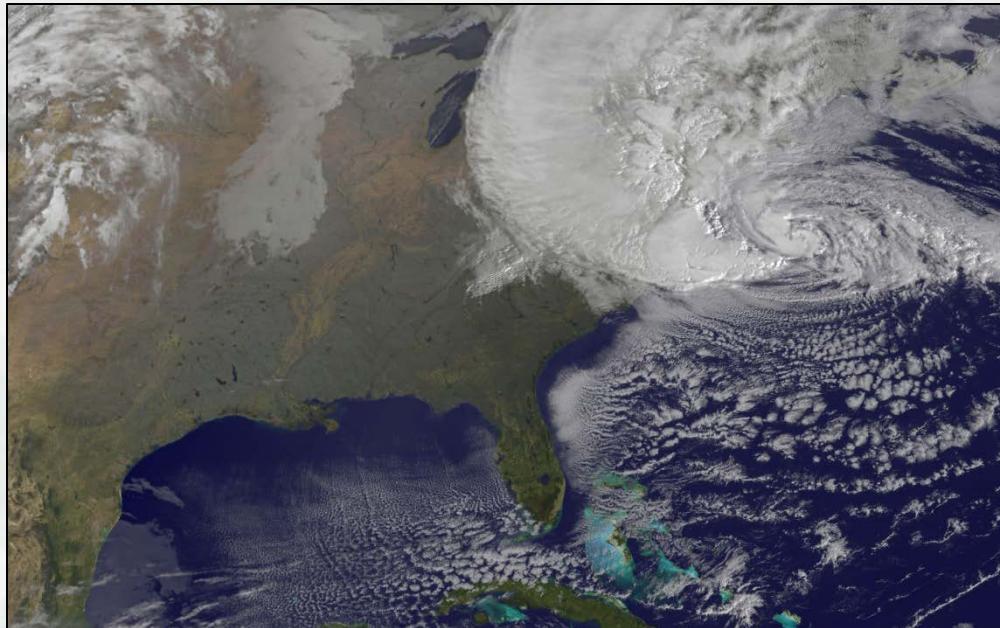


# Outline

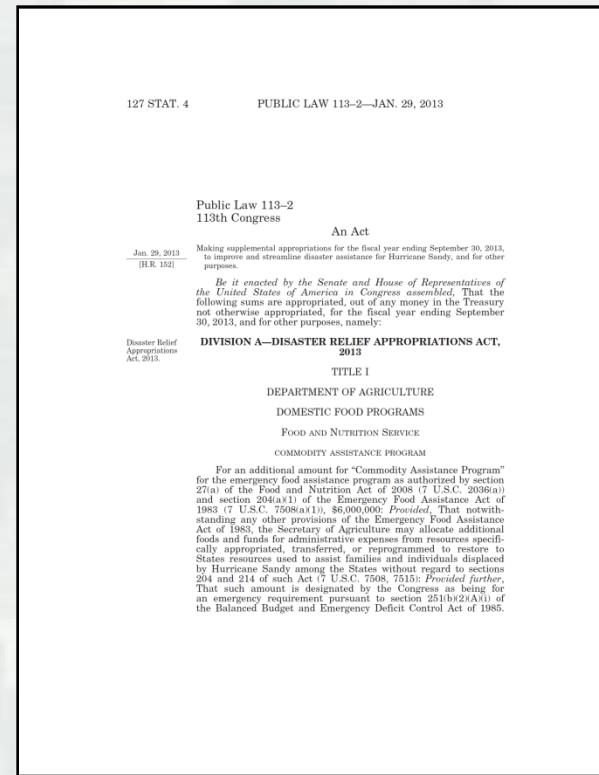
- Overview: North Atlantic Coast Comprehensive Study (NACCS)
  - Scope and Schedule
  - Technical Teams and Products
  - Study Process
- Use of NOAA products/services in NACCS
- Collaboration with NOAA
- Recommendations



# Bottom Line Up Front



Hurricane Sandy Oct. 29, 2012



**Public Law 113-2,  
Disaster Relief  
Appropriations Act,  
2013**



# Overview of Sandy Recovery Mission

## 1 Responsibilities

- Flood and storm damage risk reduction
- Maintenance of federal navigation channels, harbors and waterways

## 2 Results

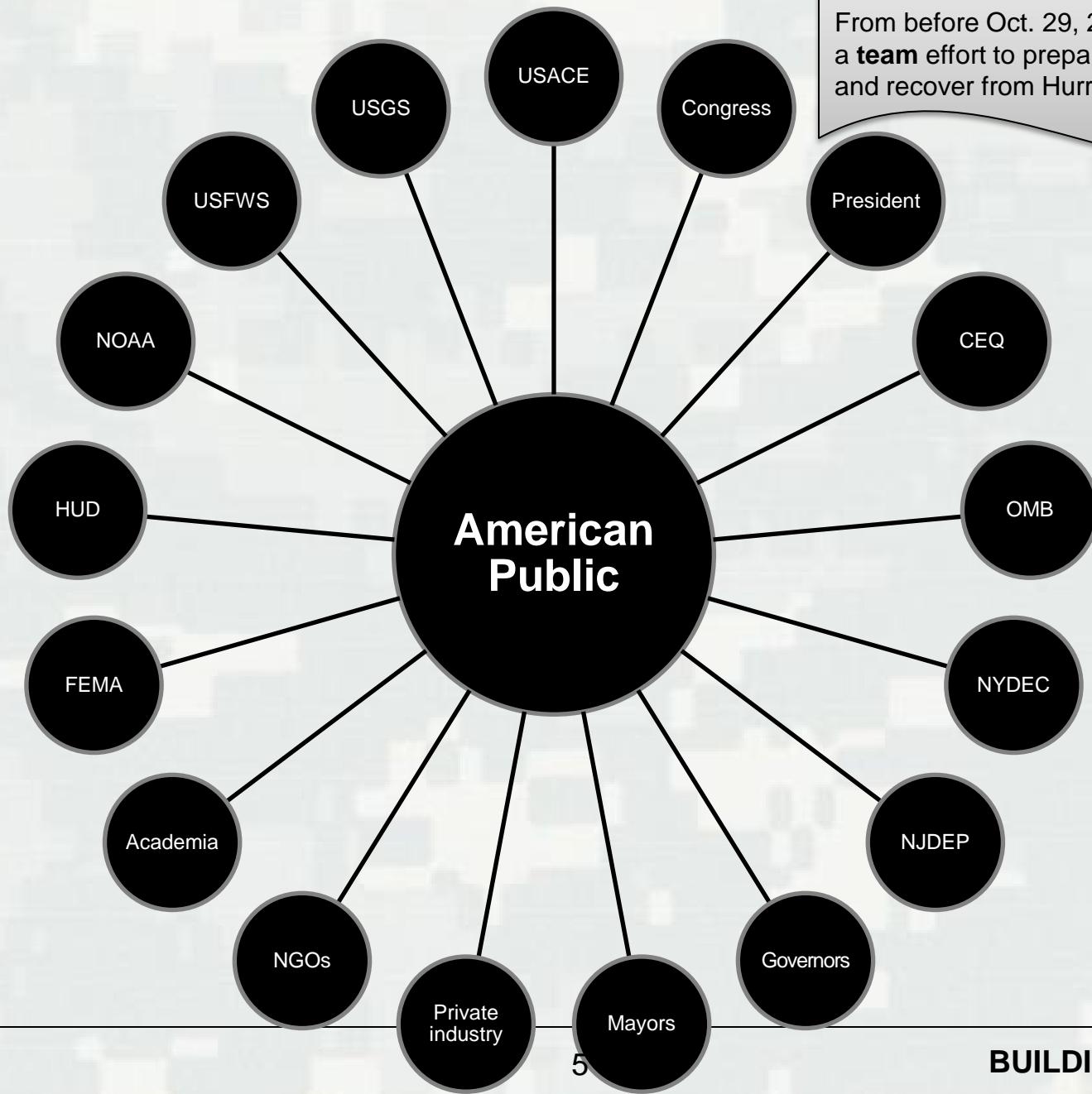
- Preserve coastal populations, property and infrastructure
- Contribute to safe, reliable, efficient, and environmentally sustainable waterways for movement of commerce, national security needs, and recreation

## 3 Research

- Anticipate future scenarios
- Identify solution sets
- Contribute to knowledge sharing for a comprehensive, collaborative, synchronized approach to increased resilience to future extreme weather



# Who's Involved

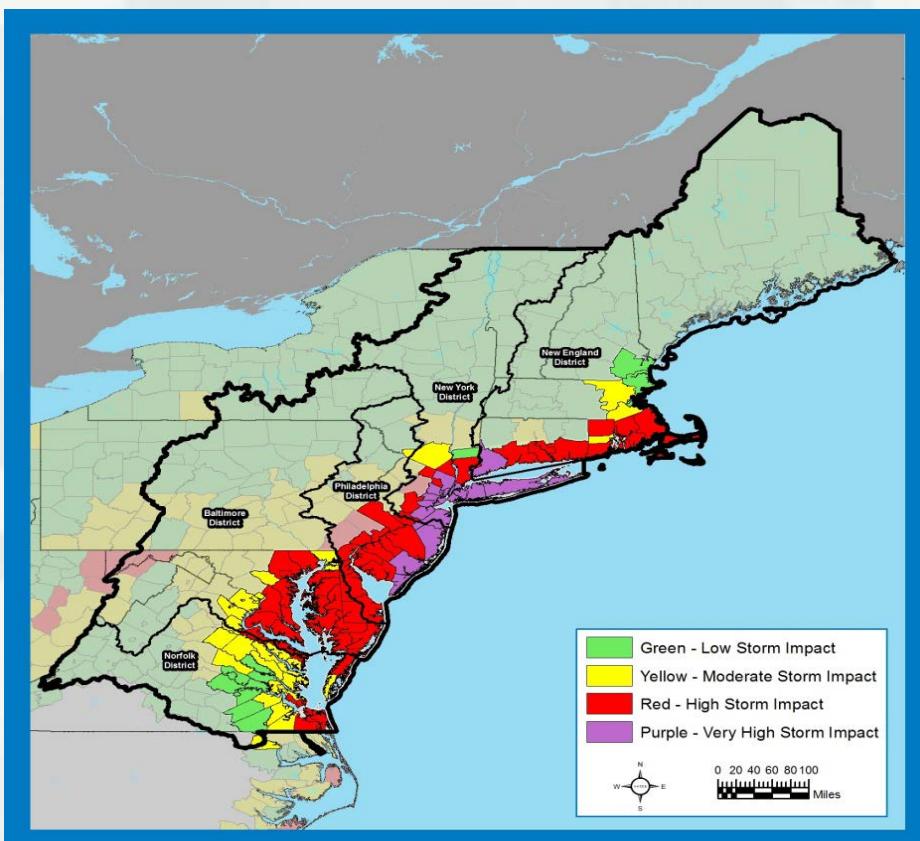


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# North Atlantic Coast Comprehensive Study

"That using up to \$20,000,000\* of the funds provided herein, the Secretary shall conduct **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



- Focus - 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 Infrastructure Systems Rebuilding Principles 28 Feb 2013
- Support **Coastal Resilient Communities and sustainable coastal landscape systems**, considering future sea level rise and climate change scenarios, to reduce risk to vulnerable population, property, ecosystems, and infrastructure.

# Schedule

Jan 29 2013

Enactment of Supplemental Legislation PL 113-2

Develop draft PMP and SOW (NLT 15 Mar; approved 27 Mar ✓)

**Phase 1**  
Develop NACCS

**Phase 2**  
Validate NACCS

**Phase 3**  
Finalize NACCS

Jan 2013 May 2013 Winter-Spring 2014 Jul 2014 Jan 28, 2015

Public Web Site

Further Opportunities for Input

Draft Final to HQUSACE

FEMA-NDRF  
Ongoing  
Plans &  
Initiatives by  
Others

## PHASE 1

Interagency, tribal & NGO coordination to assemble existing/future conditions, and assessment and formulation of measures

**COMPLETE**

## PHASE 2

Interagency, tribal & international validation & collaboration

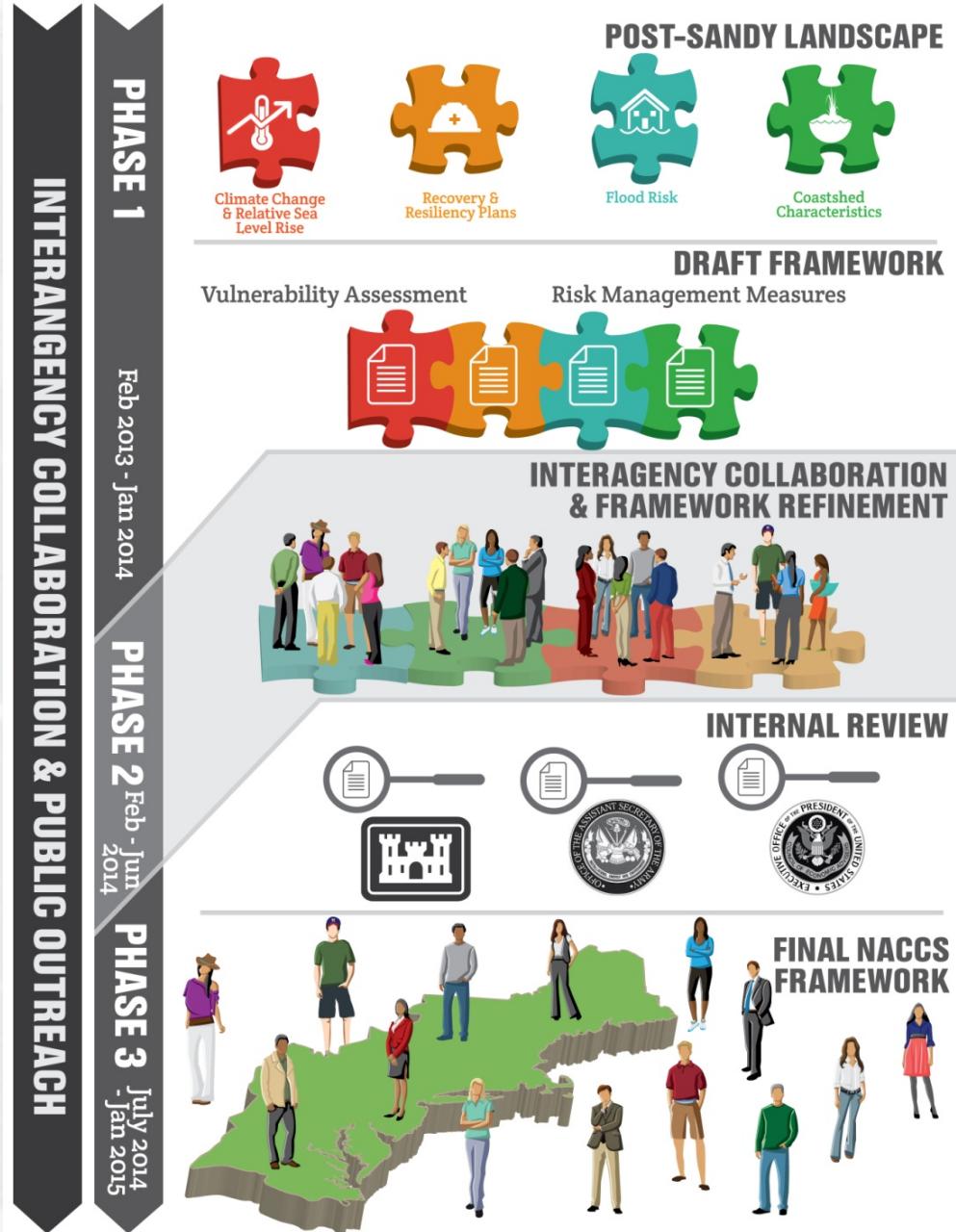
## PHASE 3

Finalize comprehensive report & submit to Congress (January 2015)

Identify institutional barriers, close data gaps and utilize NACCS information in ongoing USACE & interagency efforts



# Study Process

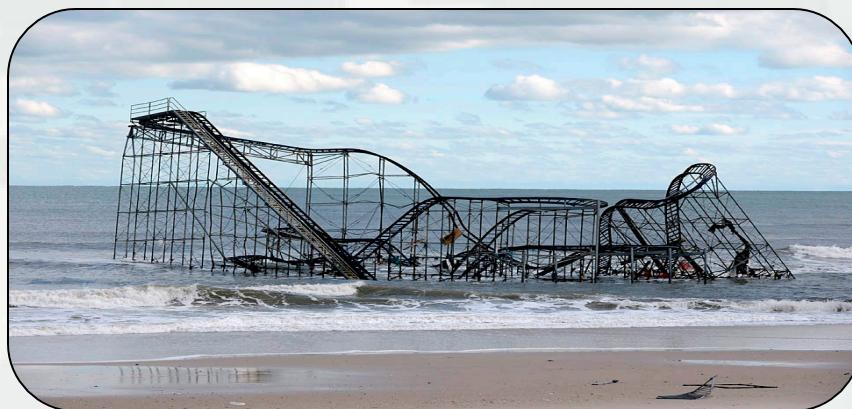


# Technical Teams

## USACE Enterprise

## Agency Subject Matter Experts

- Engineering
- Economics
- Environmental, Cultural, & Social
- Sea Level Rise & Climate Change
- Plan Formulation
- Coastal GIS Analysis



# Products

## Coastal Framework

- Regional scale
- Collaborative
- Opportunities by region/state
- Identify range of potential solutions and parametric costs by region/state
- Identify activities warranting additional analysis and social/institutional barriers

## Not a Decision Document

- No NEPA
- No Recommendations





# Coastal Risk Management and Resilience Measures

Measure	Definition	Effect	Examples
<b>Natural</b>	Created through action of physical, biological, geologic, & chemical processes operating in nature	Shoreline erosion control, wave and surge attenuation, especially in low-energy environments; additional resilience benefits; dynamic behavior and response affect performance	<b>Barrier islands, dunes, reefs, wetlands, marsh islands and riparian corridors</b>  
<b>Nature-Based</b>	Products of planning, engineering design, and construction incorporating natural processes that contribute to coastal risk reduction	Shoreline erosion control, wave and surge attenuation, especially in low-energy environments; dynamic behavior and response affect performance with respect to obj.	
<b>Non-Structural</b>	Products of public policy, management and regulatory practices; may include pricing schemes, planning, engineering design, & construction	Modify or avoid the impacts of the hazard (vs. modifying the hazard); relatively predictable level of performance with respect to obj.	<b>Structure acquisitions, relocations, flood proofing, land use regulations, development restrictions within the greatest flood hazard areas</b> 
<b>Structural</b>	Products of planning, engineering design, and construction	Shoreline erosion control, wave and surge attenuation, reduced flooding; relatively predictable level of performance with respect to objectives	Levees, storm surge barrier seawalls, groins, revetments, and near-shore breakwaters 

# Use of NOAA products/services in NACCS

- What: NACCS used NOAA Environmental Sensitivity Index shoreline files in GIS analysis.
- How: The study aggregates the shorelines files into 9 shoreline types. A matrix was then developed to identify which measures are most appropriate for each of the shoreline types. The files were also used to create mapping and to calculate lengths of particular shoreline types.
- Result: Great. The files refined the applicability of particular measures to shoreline types.





# Use of NOAA products/services in NACCS

- What: NACCS used NOAA tidal influence extent.
- How: Dataset was used to determine which areas are tidally influenced and experience impacts from surge.
- Result: Great. This information was then used (in combination with FEMA MOTFs county impact analysis) to determine our study area.



# Use of NOAA products/services in NACCS

- What: NACCS used NOAA Sea Grant Program Coastal Community Resilience Index in the main NACCS report. A link was provided to readers.
- Why: Although the NACCS is a regional study, we sought to offer tools for local agencies and communities to use to determine a finer scaled analysis of their coastal storm risk and resilience.
- Result: Great tool is targeted to the community level.



# Use of NOAA products/services in NACCS

- What: NACCS created a Geodatabase that includes all the layers created/used in study. This product will be provided to all interested stakeholders
- How: The two key datasets included are the Environmental Sensitivity Index shoreline files and the NOAA tidal influence extent.
- Result: Great. Looking forward to the release!



# Use of NOAA products/services in NACCS

- What: USACE uses NOAA's Tides and Currents services for Historical Relative Sea Level Rise data; tidal and extreme water level data; and harmonic constituents and datums for use in numerical models. USACE also uses the bathymetric/topographic data sets NOS, (<http://oceanservice.noaa.gov/> ).
- Result: Great, particularly the map-search engine in NOS. Please keep archiving older data in both Tides and Currents and NOS, which are so valuable in our forensic studies.



# Collaboration with NOAA

- What: NACCS embedded NOAA member on Communications and Community Visioning Sessions. NOAA also participated in working meetings and collaboration webinars.
- Result: Great. Collaboration has been effective and beneficial throughout the study. Continued participation will ensure NOAA insights are captured in our analyses and final report.





# Recommendations/Suggested Improvements

- What: More frequent navigation services data collection will assist ERDC's NACCS Regional Sediment Budget
- Why: The development of a more comprehensive bathymetric dataset thru NOAA surveys helps to identify bathymetric changes over time, and thus shoaling rates which can be used to identify sediment transport patterns and rates.





# Recommendations/Suggested Improvements

- What: NOAA should continue to compile navigation services data sets at the NOAA digital coast website/server.
- Why: By providing the data via the Digital Coast server, it is easily accessible to all (<http://www.csc.noaa.gov/digitalcoast/>)



# Resources for Further Information

[www.facebook.com/HurricaneSandyCoastalRecovery](https://www.facebook.com/HurricaneSandyCoastalRecovery)

**Hurricane Sandy Coastal Recovery**  
The USACE Hurricane Sandy Coastal Management Division oversees the recovery of the North Atlantic Coast following the Oct. 29, 2012 storm.

Government Organization  
86 likes · 91 talking about this

Photos Likes Instagram feed

[www.nad.usace.army.mil/CompStudy](http://nad.usace.army.mil/CompStudy)

**Evaluating North Atlantic Coastal Risks**  
**Background**  
The Congressional response to the devastation in the wake of Hurricane Sandy represents a need to address the issue as a regional system—the vulnerability of coastal areas has increased exponentially in the U.S. Army Corps of Engineers (USACE) North Atlantic Division. Along with a recent increase in high intensity storm events such as Hurricane Irene and Rita in 2005, and recent storms with larger areal extents creating larger damage areas as evident by the size of Hurricane Irene in 2011 and Hurricane Sandy in 2012, as well as the reality of sea level rise as a probable future condition, there is a need to comprehensively evaluate the existing and planned measures to reduce the flooding risk from tidally-influenced storm surges. This involves measures to both reduce future storm damage.

The goals of the Comprehensive Study are to (1) provide risk reduction strategies to reduce the risk to less vulnerable coastal populations; and (2) promote coastal resiliency to ensure a sustainable and robust coastal landscape system, considering future sea level rise and climate change scenarios, to reduce risk to vulnerable population, property, ecosystems, and infrastructure. The Comprehensive Study will include a coastal framework (submitted to Congress within 24 months) as well as storm surge modeling, coastal GIS analysis, and related evaluations, for the most vulnerable areas. The study will also include a coastal resilience framework to evaluate the performance of nature-based infrastructure during Hurricane Sandy and other recent storms, and consider the performance of nature-based infrastructures in reducing the impacts of coastal storms.

**Federal Agencies**  
DOI/BP | EPA | FEMA | HUD | NOAA | Presidential Task Force | USFWS | USGS

**States**  
Connecticut | Delaware | District of Columbia | Maine | Maryland | MDE | DNR | Massachusetts | New Hampshire | New Jersey | NJDEP | New York | NYDEC | NYC | Pennsylvania | Rhode Island | Virginia

**NCOs**  
Ducks Unlimited | MOU | Fowl & Wildlife Foundation | MOU | National Audubon Society | MOU | The Conservation Fund | MOU | The Nature Conservancy | MOU | Union of Concerned Scientists | Wetlands Institute

**Webinar Series**  
July 30, 2013 | Nature-Based Features Webinar Slides | Nature Based Webinar Audio

Aug. 29, 2013 | Ecosystem Goods and Services opening slides

[www.twitter.com/ArmyCorpsNAD](https://twitter.com/ArmyCorpsNAD)

**USACE NAD** Welcome to the official Twitter page for the U.S. Army Corps of Engineers North Atlantic Division. This account does not equal endorsement.

Followed by USACE NAD | 2,076 tweets | 246 followers | 1,068 following

Tweets All 900+ tweets

- ASCE Headquarters | 17 May 2013 99% of the goods we create, sell, import, & ship around the world go through our nation's bustling seaports\* via [ASCE.org/Ports](#)
- USACE NAD | 17 May 2013 Followed by USACE NAD | View media
- NOAA | 17 May 2013 JUST IN: July 2013 global mean temp ties w/ 1998, 2003, 2009, & 2009 for record highest per [@NOAANCDC](#) [#GlobalWarming](#) [#ClimateChange](#)
- USACE NAD | 17 May 2013 Followed by USACE NAD | View media
- USACE NAD | 16 May 2013 News Update: History of the USACE Deployment Center - The U.S. Army Corps of Engineers' response to Sept. 11, 2001... [#911](#)
- USACE NAD | 16 May 2013 Followed by USACE NAD | View media
- USACE NAD | 16 May 2013 Followed by USACE NAD | View media
- USACE NAD | 16 May 2013 Followed by USACE NAD | View media

[www.nad.usace.army.mil/CommanderUpdate](http://www.nad.usace.army.mil/CommanderUpdate)

**Hurricane Sandy Recovery Mission**  
Commander's Update September 2013  
U.S. Army Corps of Engineers  
North Atlantic Division

**Stakeholders and Partners**  
We're nearing the end of the summer season, and we were able to make steady and significant progress on many of our projects and programs. We are grateful for your continued support and partnership. It's been about 10 months since Hurricane Sandy battered our coast, and while we have made great progress over the past year, we are encouraged by the progress made so far.

**Senior Leader's Visit to New York**  
We were honored to host the Honorable Jo-Ellen Dary, the Assistant Secretary of the Army for Civil Works, and General Thomas J. Thompson, the Commanding General of U.S. Army Corps of Engineers and Chief of Engineers, in late August to review our progress on Hurricane Sandy coastal restoration. During their visit, we met with New York City Mayor Michael Bloomberg, senior staff in Governor Andrew Cuomo's office, Rep. Hallock, and other congressional offices. We discussed the importance of the engagements to continue communication between the Corps and our partners at the city, region and state level. The engagement was a success, and we look forward to continuing relationships with our governmental partners. We expect our senior leaders to make a similar visit to New Jersey in the near future.

**Progress on near-term coastal restoration**  
I'm pleased to report that we've achieved completion on four of our near-term coastal restoration projects—two in Virginia and two in New Jersey. The Virginia Beach project, which is underway on the world's largest beachfill project by volume from Sea Bright to Manasquan on the northern New Jersey coast, is currently 95 percent complete. The project is led by New York City Mayor Michael Bloomberg and Senator Charles Schumer arranged the needed construction contracts, beginning at Rockaway Beach in Queens, NY, around mid-August.

**Building Strong – Bridging the Atlantic**

Kent D. Savae  
Brigadier General, U.S. Army  
Division Commander

[www.nad.usace.army.mil/FactsFigures](http://www.nad.usace.army.mil/FactsFigures)

**Hurricane Sandy Coastal Management**  
**Facts and Figures**  
September 2013

We're glad that our work didn't significantly impede beach recreation season, but our effort is primarily for flood risk reduction. The majority of the work underway involves dredging and placing sand to restore the beach as a barrier to silt out dunes and then pumping sand onto beaches to reinforce dunes and widen the beach. The dunes and beach are the natural buffers that reduce the flooding of property and infrastructure behind them. This is a process that we fully anticipate needing to happen annually for the next several years to maintain dunes and berms or through time with beach erosion.

**Safety**  
The safety of the public is our number one priority. To that end, we track the beacheros know that newly placed sand will naturally shift around in the first few months. This shift could make slopes steeper from what has previously been reported. We are working closely with local emergency responders to ensure that they are aware of areas that haven't yet been repaired and restored, they are vulnerable in the event of another storm, which is why we are committed to the long-term solution. We are currently spending 36 percent of our funds for the near-term coastal restoration and berms or through time with beach erosion.

To get updated information about Hurricane Sandy Coastal Recovery on the North Atlantic coast, visit our website <http://nad.usace.army.mil/CommanderUpdate> <http://www.facebook.com/hurricanesandycoastalrecovery>

I sincerely appreciate your patience, understanding and collaboration as we restore our North Atlantic coast.

**U.S. Army Corps of Engineers**  
North Atlantic Division

[www.nad.usace.army.mil/Sandy](http://www.nad.usace.army.mil/Sandy)

**NORTH ATLANTIC DIVISION**  
**US Army Corps of Engineers**  
ABOUT BUSINESS WITH US MISSIONS LOCATIONS CAREERS MEDIA LIBRARY CONTACT

**Commander's Update**  
Commander's Update September 2013

**Sandy Facts & Figures**  
September 2013

**Maps**  
Philadelphia District projects and studies

**Hurricane Sandy - Coastal Recovery**

**Near-Term Coastal Restoration Projects**  
**Projects by state**  
(These previously constructed Corps projects were severely impacted by Hurricane Sandy and are being or will soon be replenished. Please visit the local district sites, below, for more information and fact sheets.)

**Rhode Island** (Roughly 95,000 cubic yards of sand placement)  
Miacomet Beach, Westerly

**Measuring District**

[www.nad.usace.army.mil/CommanderUpdate](http://www.nad.usace.army.mil/CommanderUpdate)

[www.nad.usace.army.mil/FactsFigures](http://www.nad.usace.army.mil/FactsFigures)

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# Questions?

