

A Systems Approach to Coastal Projects: *Shore Protection, Navigation & Ecosystem Restoration in the North Atlantic and South Atlantic Divisions*

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US Army Corps of Engineers
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Overview

- History and Background
- Defining the Shore Protection System Initiative
- Accomplishments to Date
- Summary & Feedback



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Shore Protection Systems (SPS) Study Goal

Investigate feasibility of implementing a regional systems approach to program management and funding for coastal projects

Results will allow USACE to best manage the funding we have, improve the level of service and make a sound case for future efforts



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Presentation Goal

- ▶ *Highlight what we've done so far*
- ▶ **Obtain Industry Engagement and Feedback.** *Does it make sense operationally?*
- ▶ *How can we work more efficiently in this systems approach?*
- ▶ *How can we better make our case?*



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History Leading to Study

- Following 2004 Hurricane Season Congress charged Corps to **assess damages prevented across a system of projects** and to improve the way we do business.
- General Strock challenged USACE to implement **systems approach for coastal protection**.
 - ▶ CERB to guide the development of a systems approach.
 - ▶ North Atlantic Division (NAD) Commander volunteered to prototype the systems approach.
- Congressman Frank Pallone (NJ) at the Fall 2006 CERB
 - ▶ Projects not managed as a system and projects not budgeted for as a system.
 - ▶ Take **regional approach to improve efficiencies and effectiveness** of our projects.



Source: Coastal Planning & Engineering



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General Background

- SPS effort is being performed under the **National Shoreline Management Study**
 - ▶ Authority - Section 215(c) of the Water Resources Development Act of 1999
 - ▶ Type of Funds – **General Investigations** (Remaining Items)
- Initiated in February 2007 in North Atlantic Division
- Expanded to South Atlantic Division in 2010
- National Planning Center of Expertise for Coastal Storm Damage Reduction responsible for this effort for the Institute of Water Resources
- Consists of regional teams made up of multiple disciplines: Planning, Program Management, Engineering and Operations



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SPS Study Purpose

- Improve project lifecycle performance and efficiencies through a systems approach.
- Improve level of service provided by existing project coastal program by managing as a system of projects.
- Develop strategy for implementation (sequencing) of system of projects.



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Implementing a Systems Approach to Coastal Protection

- Requires a **paradigm shift** for managing shore protection projects.
- **Current Way of Doing Business:**
 - ▶ Projects are budgeted based upon individual needs, on a **project by project basis**.
 - ▶ Each business line is **budgeted independent** of another.
 - ▶ Projects are **funded** by Congressional interests **specific to the project location**.
- **Utilizing the Systems Approach to do Business:**
 - ▶ Optimizes funding to **optimize benefits** delivered by projects **across an entire region**.
 - ▶ Requires **crossing multiple business lines** (shore protection, navigation, and coastal ecosystem restoration).
 - ▶ Requires **increased flexibility** to allocate funds where needed.
 - i.e. Receive an allotment of funds for a specific region instead of receiving project specific funding.
 - ▶ More effectively **buy down risk** by applying the regional allotment of funds to the area(s) with the most critical need.



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Defining the Shore Protection System

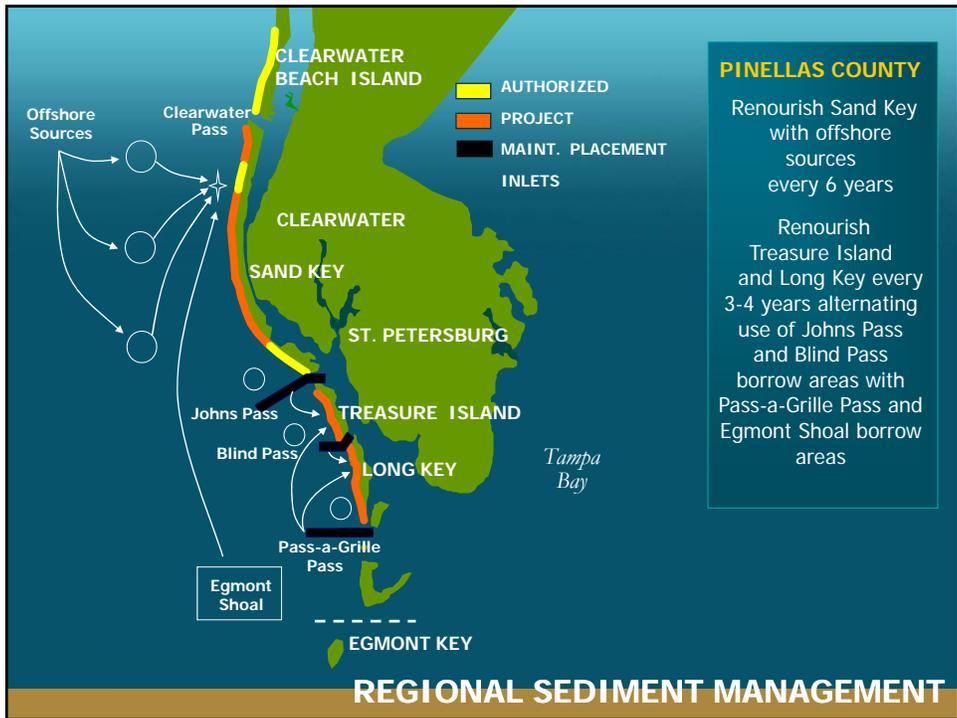
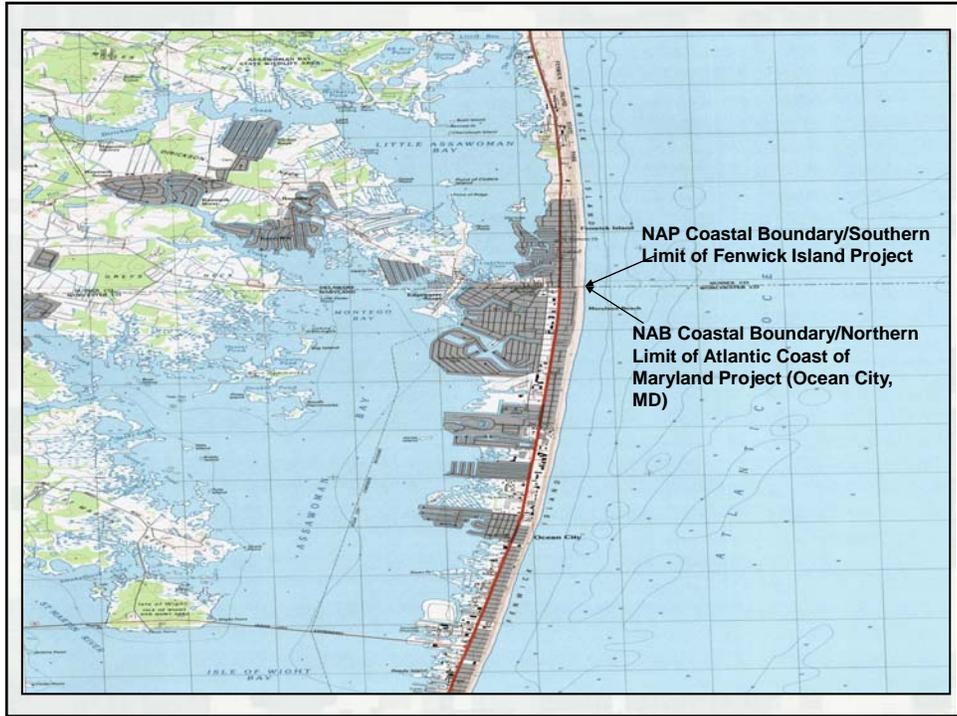
- Shore protection system is a **system of systems** – shore protection, navigation and ecosystem restoration, that optimizes the connectivity between each system
- Ways to define systems:
 - ▶ Technical (i.e. sediment transport)
 - ▶ Environmental
 - ▶ Geographical
 - ▶ Political
 - ▶ Commercial



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Cape May Inlet and Vicinity





Study Tasks

- 2010 Technical Review Document
- Further Develop Functional Web Database
- Multi-agency Coordination on Coastal Protection
- Develop Regional Systems Based Approach
- Develop Five-Year Optimization Plan
- Formulate Environmental Opportunities
- Identify & Analyze Regional Project Benefits
- Improve Communications of Benefits and Costs of Beach Nourishment Projects



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Systems Included in Approach

- **Initial-North Atlantic Division**
 - ❑ Southern Shore of Long Island
 - ❑ Northern New Jersey (Sea Bright to nodal point in Ocean County)
 - ❑ Southern New Jersey (Nodal point in Ocean County to Cape May)
 - ❑ Northern Delaware
 - ❑ Southern Delaware to Maryland/Virginia border
- **Remainder of North Atlantic Division in 2009**
- **South Atlantic Division initiated in 2010**



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Technical Review Document and Website Database

- ▶ Gives program managers, Congressional staffers and local sponsors the information necessary to **make informed budgetary decisions**
- ▶ Summarizes existing conditions, estimated future federal costs, risk elements, and opportunities for action for all shore protection, navigation, and coastal ecosystem restoration projects in North Atlantic Division; expanding to South Atlantic
- ▶ Qualitatively evaluates projects from a “systems” perspective
- ▶ Projects mapped using Google Earth interface
- ▶ Provides one common location for project information.
- ▶ These tools allow for a **system of project management**

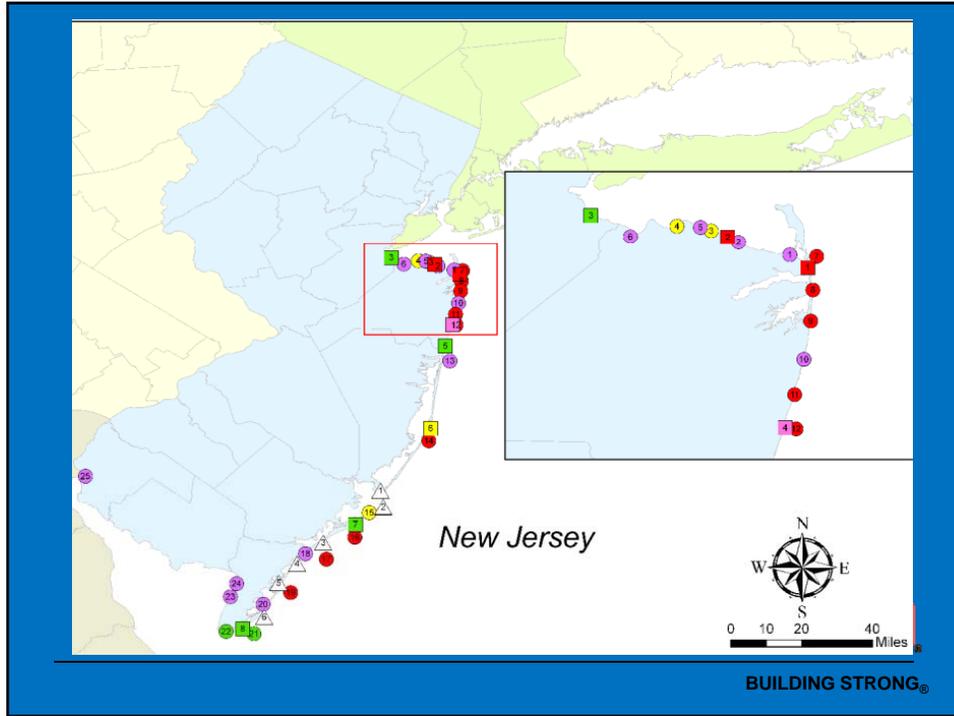


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Technical Review Document and Website Database



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Technical Review Document

Interpreting the Tables

Existing Conditions Tables

Project Types

Project Type	Phase
Both constructed and unconstructed projects are identified in phase:	<ul style="list-style-type: none"> EP = Storm Protection MR = Restoration ER = Environmental Remediation
Projects are listed in order by geographic area with a state separator and construction table combination projects are listed to show their relationship to adjacent storm protection projects.	<ul style="list-style-type: none"> EP = Storm Protection MR = Restoration ER = Environmental Remediation EP = Existing MR = Medium ER = Existing EP = Storm Protection MR = Medium ER = Existing

Project Reliability: Storm Protection

All constructed storm protection projects listed in the Existing Conditions tables are color coded so that readers can determine current project reliability at a glance. For example, "red" shows protection projects are less reliable than "yellow" storm protection projects. "Yellow" shows protection projects are less reliable than "green" storm protection projects, which are performing well.

Unconstructed Projects

All unconstructed storm protection projects listed in the Existing Conditions tables are color coded in purple. These projects have significant storm protection systems identified.

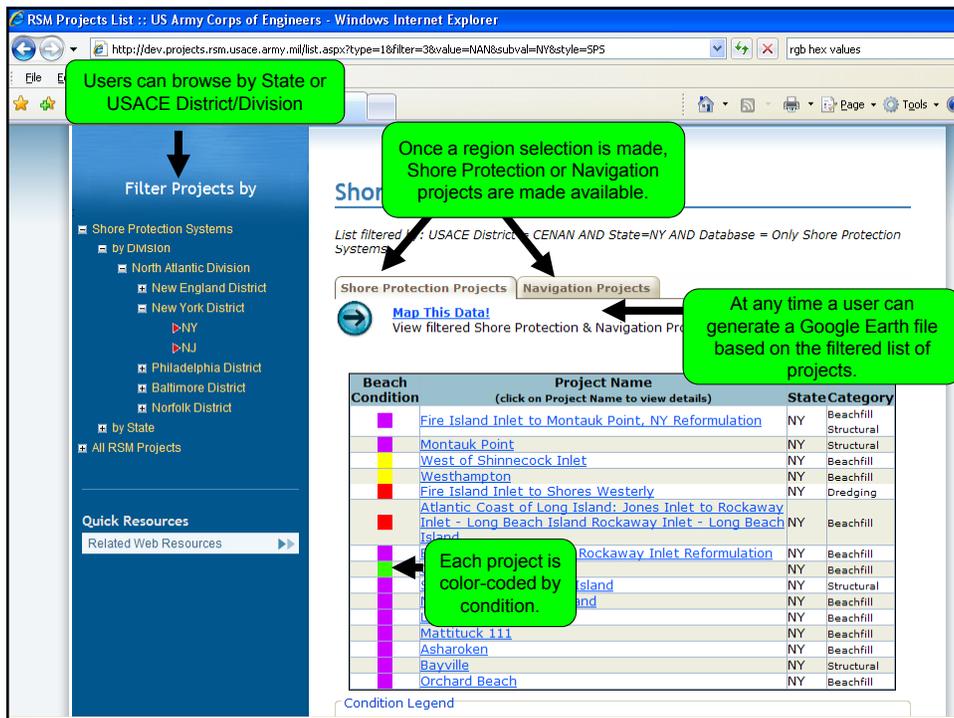
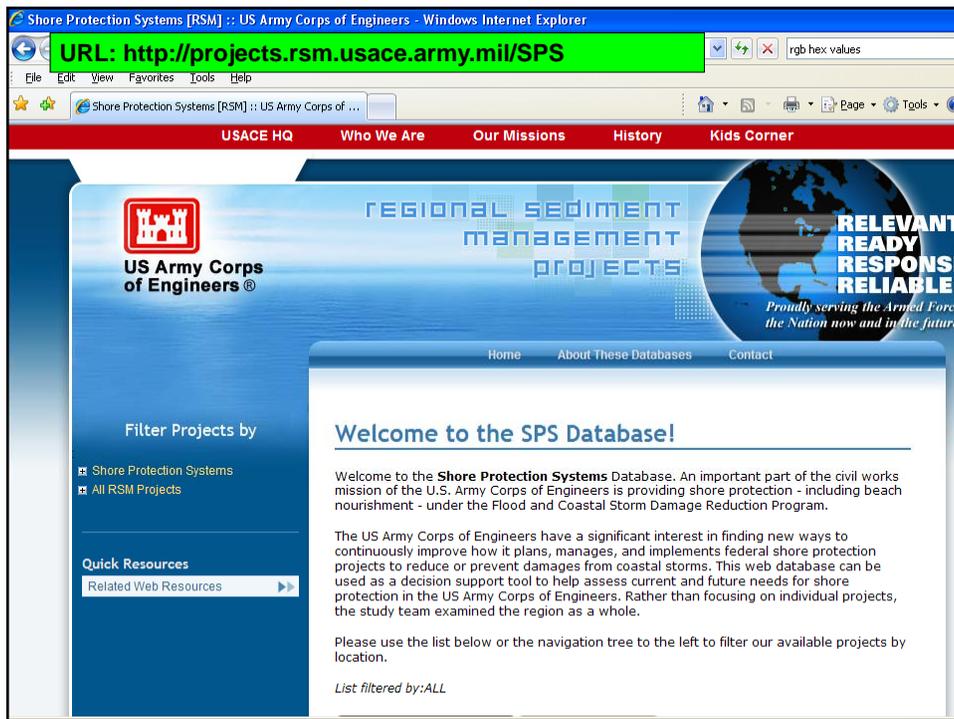
Project Reliability: Navigation

All navigation projects listed in the Existing Conditions tables are color coded so that readers can determine current project reliability at a glance. For example, "red" navigation projects are less reliable than "yellow" navigation projects. "Yellow" navigation projects are less reliable than "green" navigation projects, which are performing well.

Project reliability is determined according to the ratio of probability and condition and within the full Channel Reliability Percentage. This is the amount of time during a 100-year period for the channel to be considered at or below the design depth between the quarter points. See diagram. The quarter points represent the location of the structure designed to be maintained depth.

Color	Reliability	Percentage
Green	Good	75% or full channel availability at maintained depth
Yellow	Medium	50% or half channel availability at maintained depth
Red	Poor	25% or less channel availability at maintained depth
Purple	Unconstructed	10% or less channel availability at maintained depth

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RSM - Shore Protection :: US Army Corps of Engineers - Windows Internet Explorer

http://dev.projects.rsm.usace.army.mil/ShoreProtection/detail.aspx?p=108&filter=38&value=CENAN&style=SP5

File Edit View Favorites Tools Help

RSM - Shore Protection :: US Army Corps of Engineers

Shore Protection Systems
All RSM Projects

Quick Resources
Related Web Resources

West of Shinnecock Inlet - Map It! Click Map It! To view this project in Google Earth.

Overview Initial Construction Reports Renourishments Cost Summary Risk

General

[View Digital Project Notebook](#)

USACE District: New York **Congressional District(s):** 1
Type: Shore Protection **Project Length:** 0.8 miles
Category: Beachfill **State:** NY
Description:
Related Navigation Projects:
 • [Shinnecock Inlet](#)

Project Extent Coordinates:
 -72.49507527,40.82940328,0
 -72.47737527,40.83460328,0

Shore Protection projects database details: overview, initial construction, reports, renourishment, cost summary, and risk.

Current Beach Condition

Yellow

Intermediate. Project is late in the renourishment cycle, or the project is performing worse than expected, or both.

Activities

RSM - Shore Protection :: US Army Corps of Engineers - Windows Internet Explorer

http://dev.projects.rsm.usace.army.mil/ShoreProtection/detail_cr.aspx?type=18&filter=38&value=CENAN&p=108&style=SP5

File Edit View Favorites Tools Help

RSM - Shore Protection :: US Army Corps of Engineers

the Nation now and in the future

Home About These Databases Contact

Filter Projects by

Shore Protection Systems
All RSM Projects

Quick Resources
Related Web Resources

West of Shinnecock Inlet << All Shore Protection Projects

Overview Initial Construction Reports Renourishments Cost Summary Risk

Damage Risk Assessment

Infrastructure	+++
Critical Facilities	+++
Structures	+++
Evacuation Routes	+
Environment/ Habitat	+++
Recreation	++

Notes:

- +++ = Significant resources present
- ++ = Moderate resources present
- + = Minimal resources present
- X = No resources present

[Structures](#)(homes, navig. structures, etc.)

Shinnecock Inlet - Map It!

Overview Risk Beneficial Use Sediment Type

General

[View Digital Project Notebook](#)

USACE District:	New York	Congressional District(s):	1
Type:	Navigation	Project Length:	0.00 miles
Category:	Federal Navigation Project	State:	NY

Notes:
Centroid Coordinates:-72.4757, 40.8392
Related Shore Protection Projects:
[West of Shinnecock Inlet](#)
[Fire Island Inlet to Montauk Point, NY Reformulation](#)

Current Channel Condition

Condition: **Orange** | Poor.

Status

Federal Project?:	True
Desired Cycle Time:	3 to 4 years
Proposed FY Dredging Schedule:	
Volume Removed(cy/cycle):	400,000
Dredged Material Placement:	Tiana Beach and West of Inlet

Notes:

Navigation projects database details: overview, beneficial use, sediment type, and risk.

Documents & Links

Pilot Studies Upcoming this Year (part of National Shoreline Management Study)

- **Maximize Cost Effectiveness in New York (Long Island System)**
- **Maximize Risk Reduction in New Jersey (New Jersey System)**
- **Maximize Net Benefits (Delaware & Maryland System)**



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Summary

- Effectively implementing a regional systems approach will require a **major shift in the way we do business**.
- Identifying a new paradigm for managing shore protection, along with other types of projects within the coastal zone, as a system of projects.
- The goal of the SPS effort is to implement a **regional systems approach to program management and funding** thus allowing for more efficient and effective coastal protection and management.
- Achieving the goal will allow for **improved project effectiveness and efficiencies** along with **less environmental impacts** within a region.



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Looking for Feedback

- What questions/concerns jump out immediately? What do you perceive as impediments to this effort?
- Does the dredging community agree that the idea of a private/public partnership is a reasonable, practical way to continue to develop a mutually beneficial, risk-reducing approach to dredging?
- How do we increase amount of sand pumped per dollar invested to help us deliver better projects and make case for future funding?



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Looking for Feedback

- Is it likely that the dredging community will form a committee to participate in investigating RSM and SPS further with the Corps?
- What other means of partnering should be pursued?
- Does industry feel that contracting mechanisms such as ID/IQs are a very promising way to accomplish more with the same funding over time?



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Shore Protection System
Project Web Database
<http://projects.rsm.usace.army.mil/SPS>



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