

The Beach & Beyond SOUTHEAST COASTAL ASSESSMENT (SCA) AND USACE COASTAL DEVELOPMENTS

Florida Shore and Beach Preservation Association

28 September 2017

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Director RSM Center

South Atlantic Division, Jacksonville District

US Army Corps of Engineers



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GOAL

To provide an overview on the need and scope of USACE coastal initiatives in USACE & South Atlantic Division including the new Southeast Coastal Assessment.

AGENDA

Overview status quo

National and Regional strategies

- **RSM**
- **SCA/SACS**
 - **Authority & Funding**
 - **Coalition Building**
 - **Technical Scope**
 - **Products**
 - **What we need/Next Steps**



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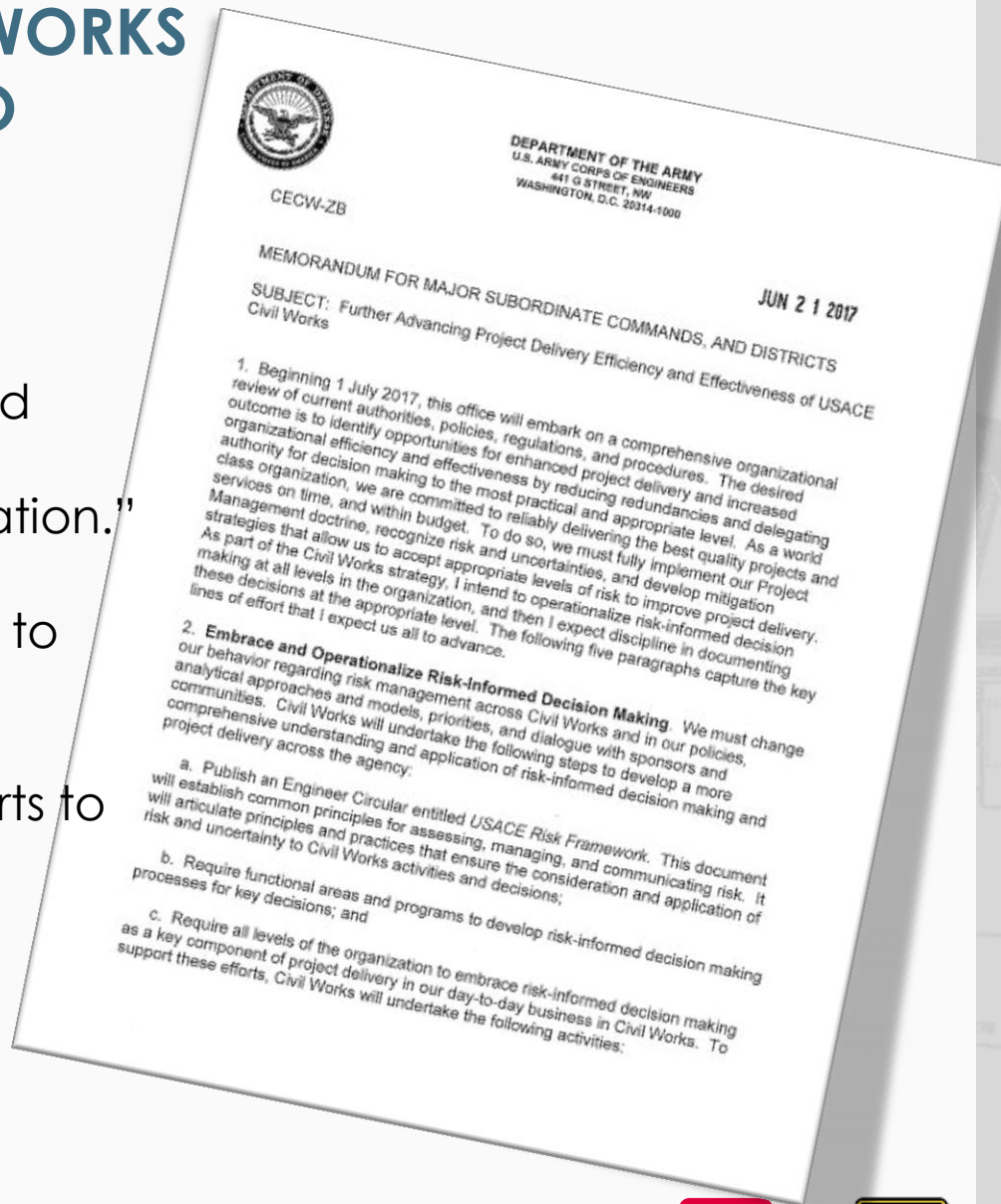


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DIRECTOR OF CIVIL WORKS

21 June MEMO

- Issued June 21st 2017 for MSCs and districts.
- Paragraph 6: “Incorporate Social and Environmental Benefits into Project Formulation, Design, and Implementation.”
- RSM quantifies and qualifies benefits to multiple projects within a region.
- RSM-RCX is currently working on efforts to quantify environmental benefits of projects.
- RSM gives a broader picture of the lifecycle benefits to inform decision making.



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BUILDING STRONG

SAD Optimization Part II

- Optimization is about understanding and communicating value
- Next step is to go after unrealized potential- IMPLEMENT
- SAD Pilots established to take optimization to the next level
- SAD Focus Areas
 - ▶ TLP and In water placement
 - ▶ Nearshore feeder berms
 - ▶ Turbidity/Fate of fines
 - ▶ Mitigation Credit
 - ▶ Ecosystem Value
 - ▶ Industry Collaboration
- Show the value, get the \$



ANNALS OF GEOLOGY MAY 29, 2017 ISSUE

THE WORLD IS RUNNING OUT OF SAND

It's one of our most widely used natural resources, but it's scarcer than you think.



By David Owen

The final event of last year's beach-volleyball world tour was held in Toronto, in September, in a parking lot at the edge of Lake Ontario. There's a broad public beach nearby, but few actual beaches meet the Fédération Internationale de Volleyball's strict



Sediment Exchange Program (SedX)

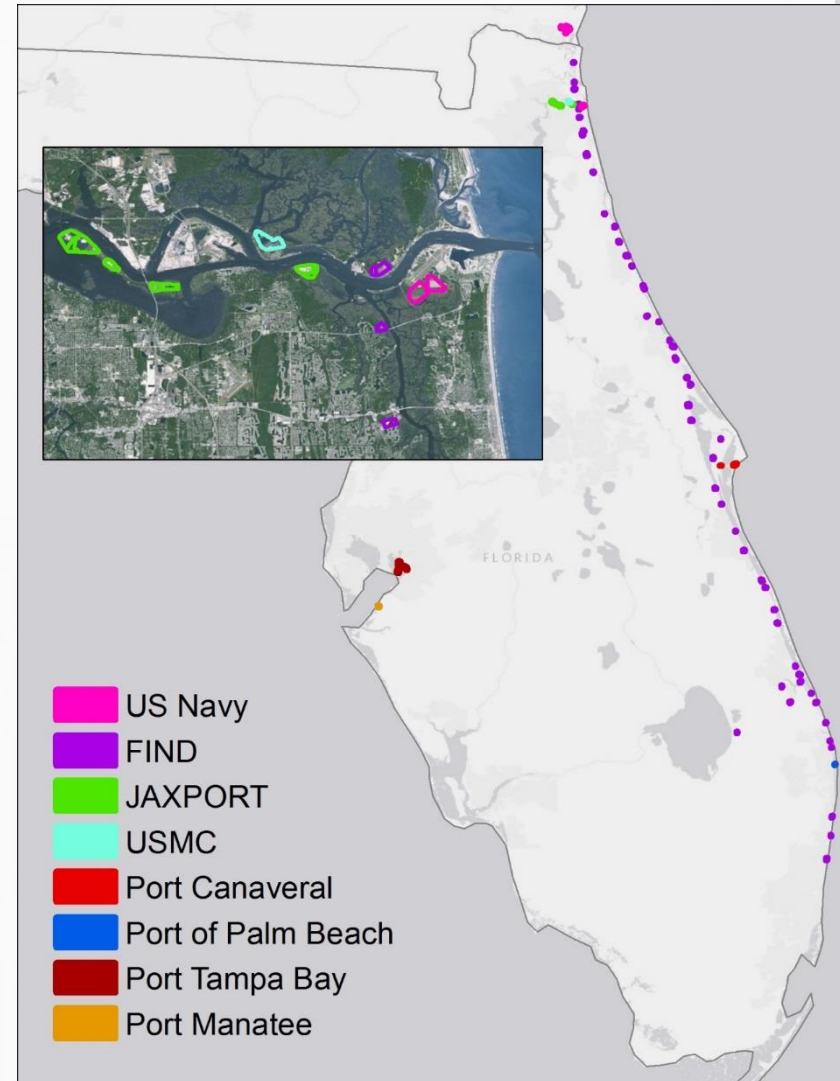
Goal:

Promote beneficial re-use of dredged material placed in upland sites in the South Atlantic Division through collaboration and engagement with the dredging community.

Problem:

- Majority of dredged material is placed upland or offshore
- Management of upland placement facilities is expensive
- Lots of valuable material is wasted –

Sediment is a resource!



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We Need Your Input!

Who: Site owners/operators and end-users

What: Develop inventory of upland placement sites

- **Sediment characteristics, available volumes, points of contact, logistical considerations for offloading, best practices**
- **RSM Opportunities – beach/dune placement, marsh restoration/enhancement, habitat creation**
- **Other BU Opportunities – construction fill, commercial uses**

Products:

- **Public-facing website/database/GIS**
- **Fact sheets**

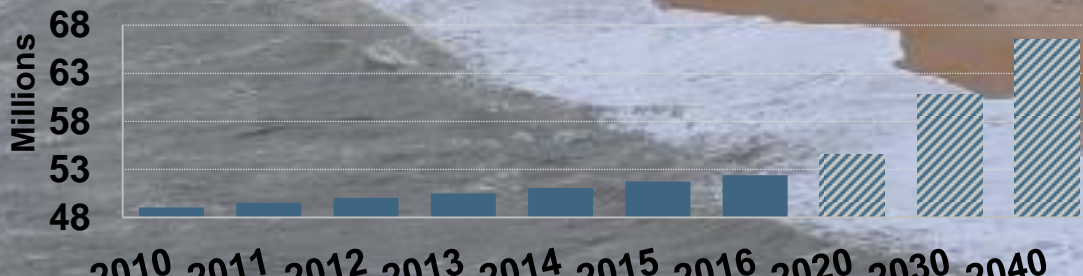


Challenge:

The SAD AOR has a large and diverse coast that experiences frequent storms and is expected to see significant increases in population. Natural and fiscal resource constraints threaten the sustainability of the current program which is isolated to ocean facing shorelines.

2,500 MILES
OF OCEAN COASTLINE
18,000 MILES TIDALLY
INFLUENCED COASTLINE

SAD Population Growth



217 Listed Species

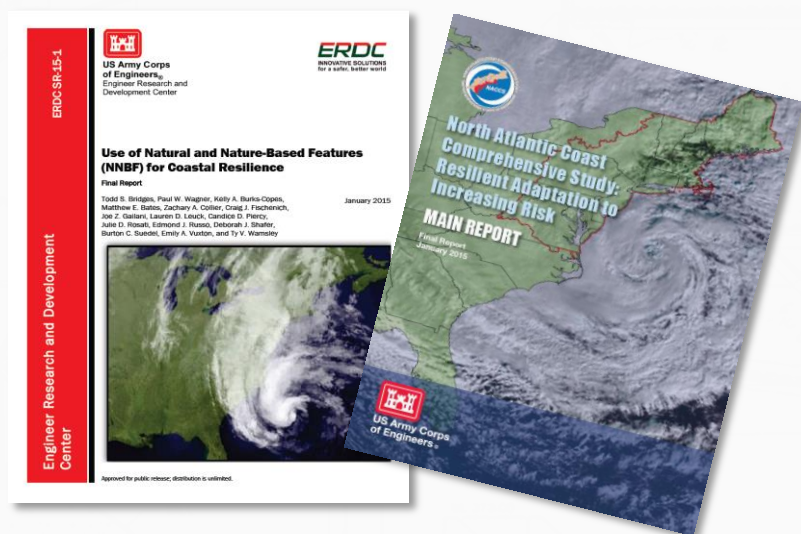


SACS: AHEAD OF THE STORM

WIIN 2016 SEC. 1204. SOUTH ATLANTIC COASTAL STUDY.

(a) IN GENERAL.—The Secretary shall conduct a study of the coastal areas located within the geographical boundaries of the South Atlantic Division of the Corps of Engineers to identify the risks and vulnerabilities of those areas to increased hurricane and storm damage as a result of sea level rise

- No discussion of cost share
- Expanded area with 4-year timeframe
- Implementation guidance has not been finalized
- Stakeholders support high but sponsorship a challenge



Intended to leverage NACCS momentum and lessons learned and produce a consistent picture of coastal vulnerability along the east coast.



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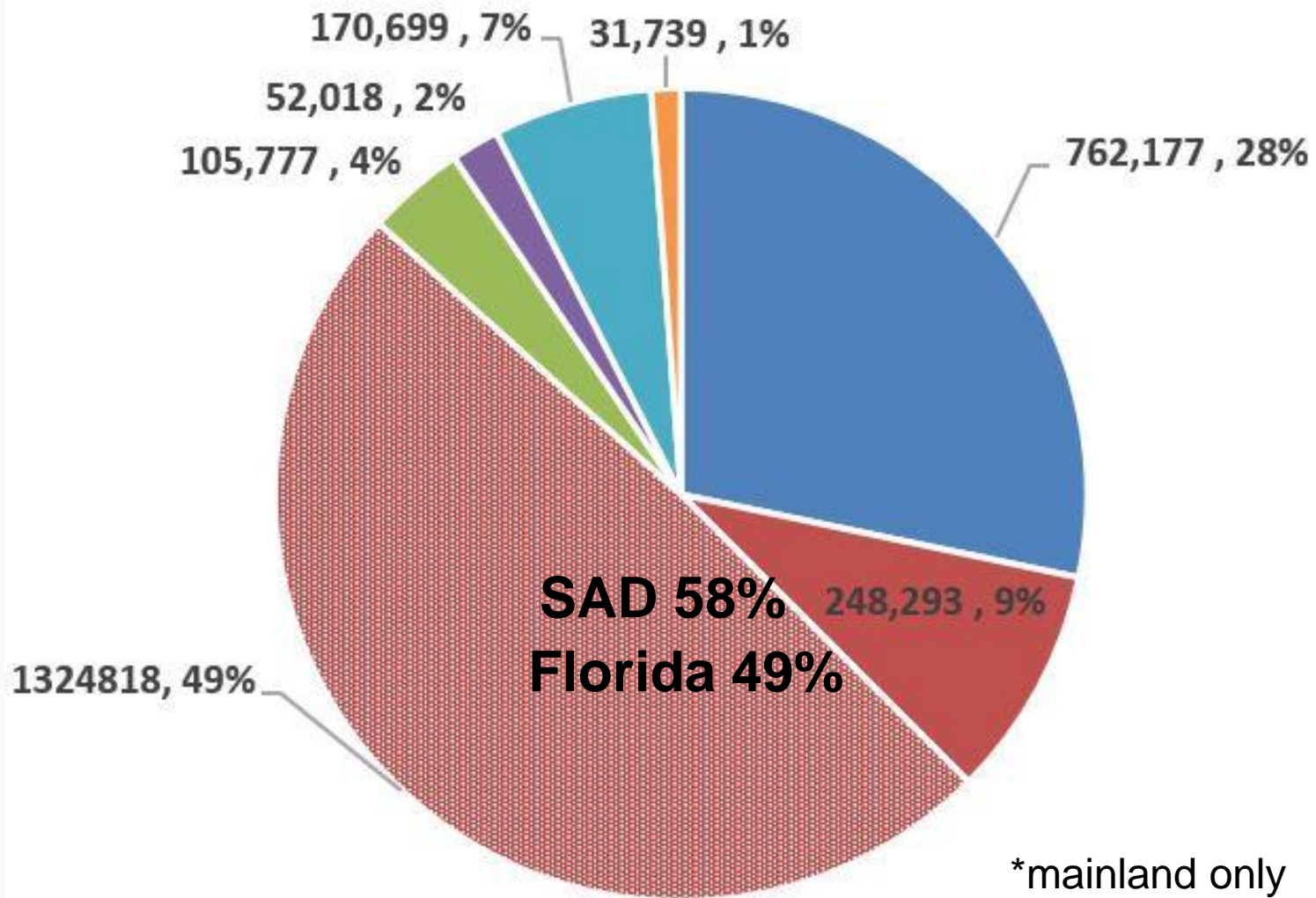




260 HURRICANES STRIKES (1851 – 2017)

**260 South Atlantic Division
(115 Florida)**
68 North Atlantic Division
59 Southwest Division
57 Mississippi Valley Division

Homes Below 6' MHHW by USACE Division & State of Florida

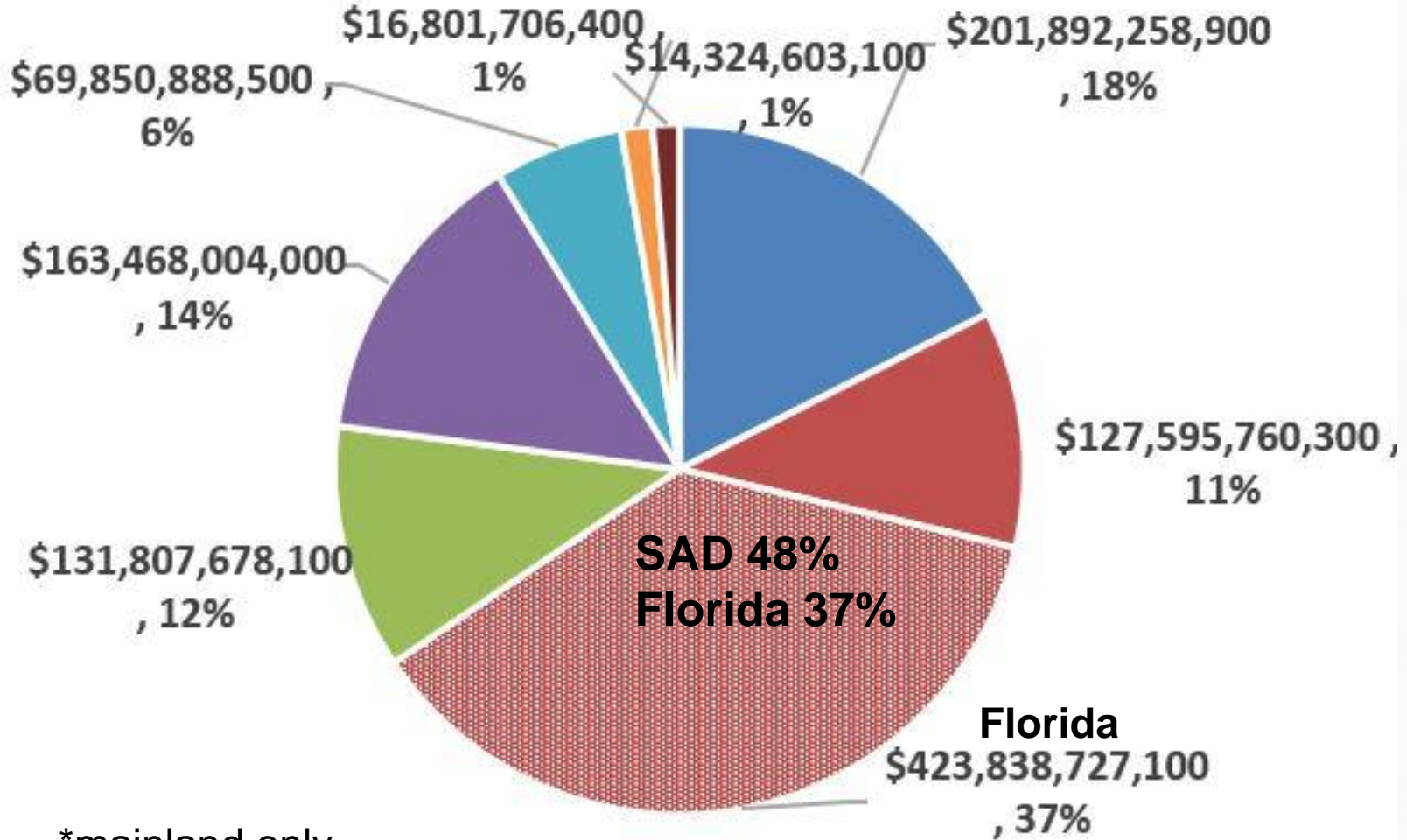


■ NAD ■ SAD ■ Florida ■ MVD ■ SWD ■ SPD ■ NWD



FEDERAL FLOOD INSURANCE POLICY VALUES

by USACE Division & State of Florida

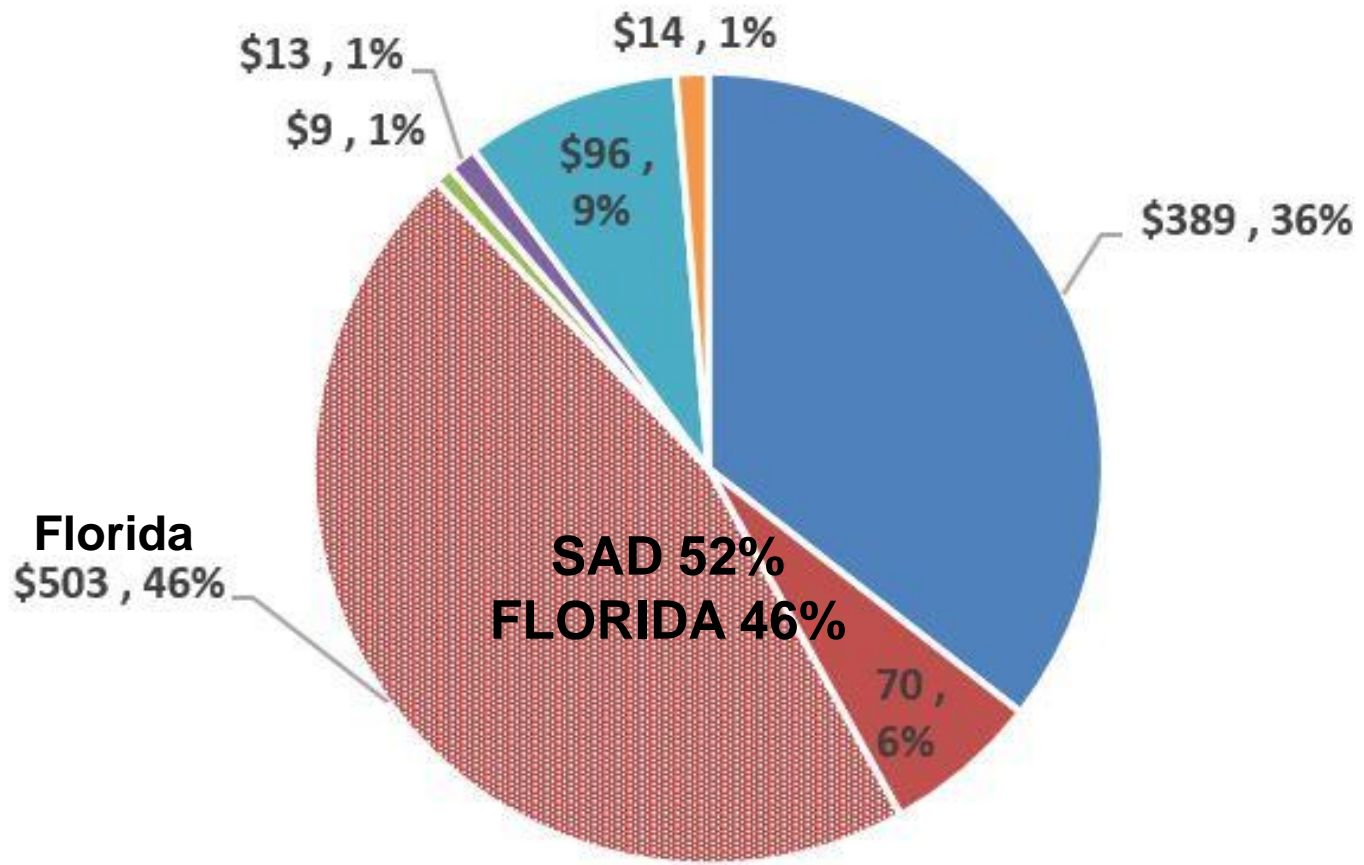


*mainland only

- NAD
- SAD
- Florida
- MVD
- SWD
- SPD
- NWD



Property Value (\$ Billions) Below 6' MHHW by USACE Division & State of Florida

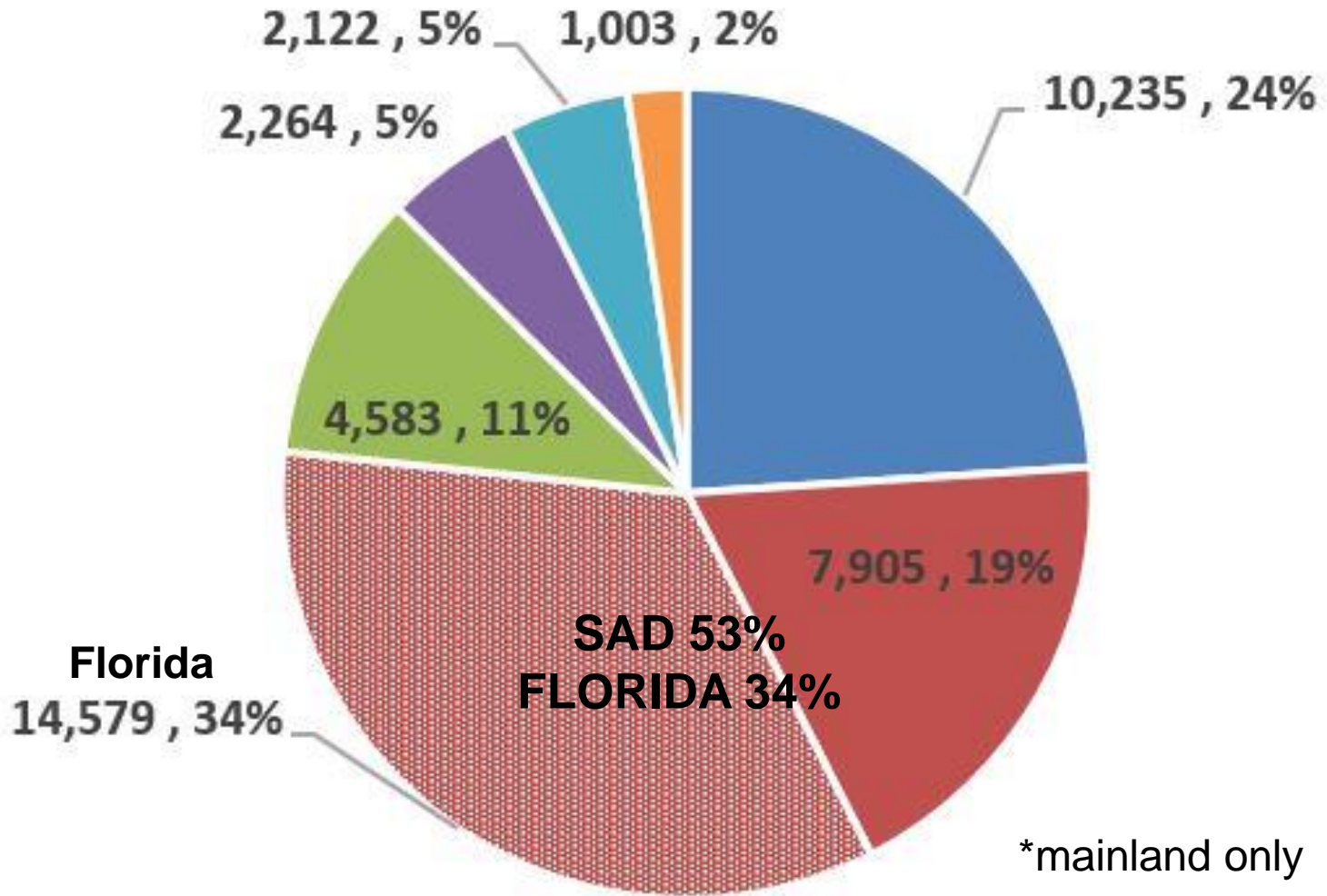


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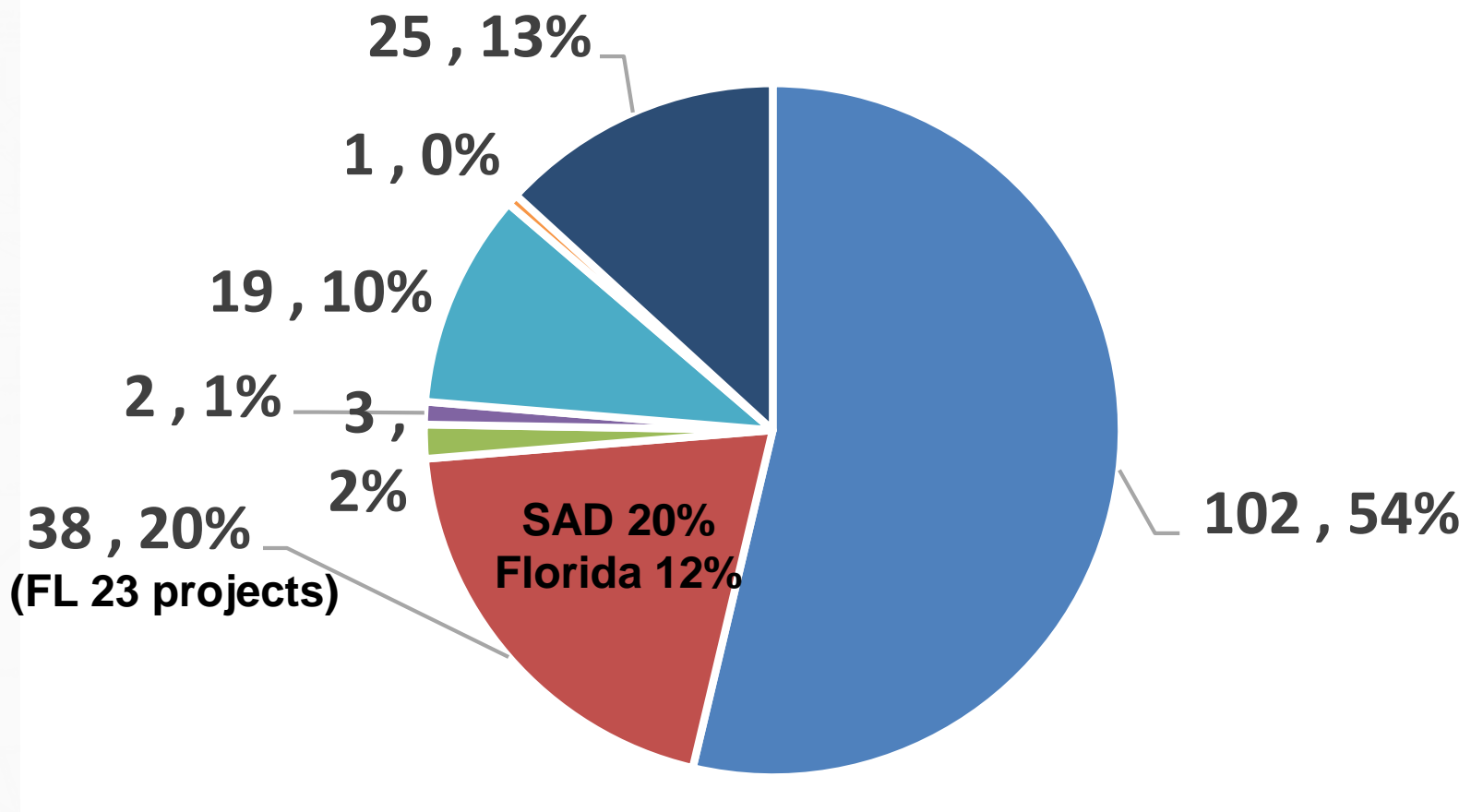
Miles of Road Below 6' MHHW by USACE Division & State of Florida



■ NAD ■ SAD ■ MVD ■ SWD ■ SPD ■ NWD ■ POD



NUMBER OF COASTAL STORM RISK MANAGEMENT PROJECTS BY DIVISION



■ NAD
 ■ SAD
 ■ MVD
 ■ SWD
 ■ SPD
 ■ NWD
 ■ POD



Status of SAJ Federal CSRM Projects – PL 84-99

PROJECT STATUS

PIR IN PROGRESS

PRE-STORM CONDITION



POST-STORM CONDITION

SPONSOR REQUESTED ASSISTANCE



Last 24: PIRs in progress. Responding to SAD comments on Nassau County. FCCE eligibility definitions requested from SAD.

Next 24-48: Continue PIRs. FSBPA conference 27-29 Sept

PROJECT FUNDS

CLOSEOUT

FUNDS FOR PIR

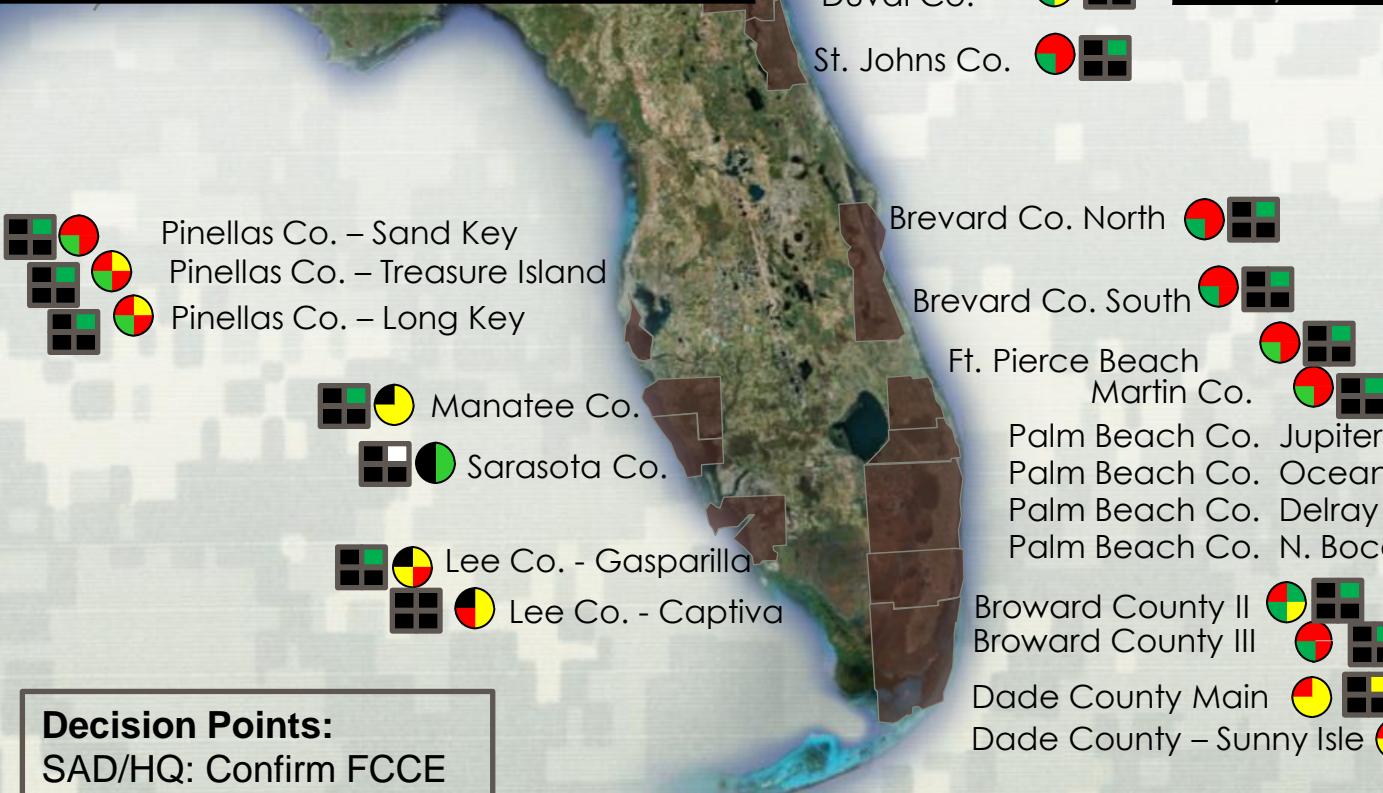


CONSTRUCTION FUNDS

FUNDS FOR E&D

PRE-STORM	POST-STORM	SPONSOR REQ	PIR STATUS
> 50% Advance Fill		In writing	At Division
< 50% Advance Fill		Verbal	> 50% done
Berm compromised		Waiting to hear	< 50% done
Unknown		Will not send	Not started

1. PIR FUNDS	2. E&D FUNDS	3. CONST FUNDS	4. CLOSEOUT
Received	Received	Received	Completed
Requested	Requested	Requested	In progress
At District	At District	At District	Not started
Too Early	Too Early	Too Early	Too Early



So What?
 18 PIRs under way. Priority on awarded/pending Matthew contracts at:
 -St. Johns County
 -Martin County
 -Pinellas County (SK, LK, TI)
 -Nassau/Kings Bay EC
 -Brevard County N&S
 -Ft. Pierce
Congress must appropriate funds to implement FCCE renourishments.
 PIR timeline dependent upon receipt of non-Fed surveys.

Decision Points:
 SAD/HQ: Confirm FCCE eligible volumes





**USACE District Office
Downtown Jacksonville
Post Irma**

DOES COASTAL RISK MANAGEMENT STOP AT THE OCEANFRONT?

Status of SAJ Federal CSRM Projects – PL 84-99

PROJECT STATUS

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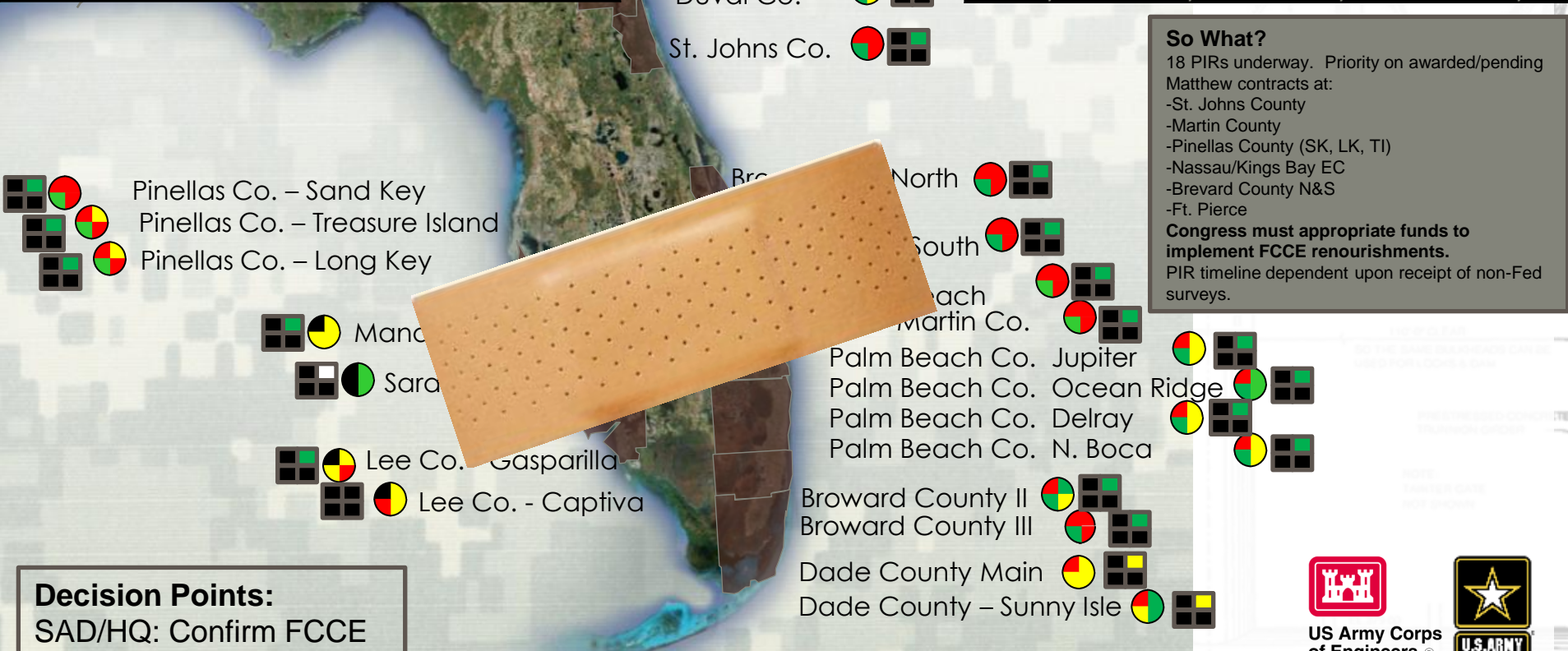
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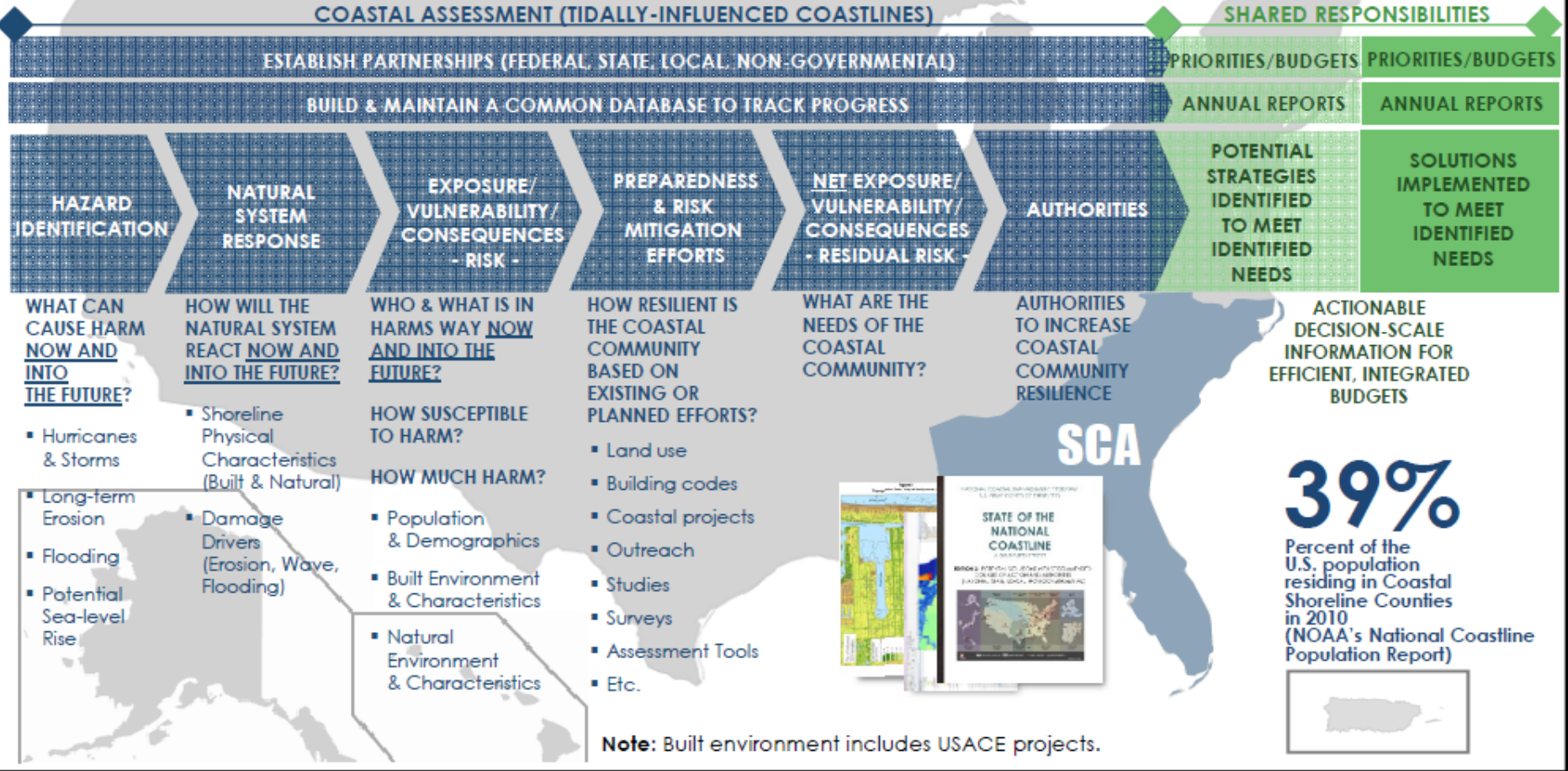


DRAFT THOUGHTS ON COASTAL STRATEGY

TIER 1:
COORDINATED
COASTAL
ASSESSMENTS AND
PARTNERSHIPS

TIER 2:
COMPREHENSIVE
PLAN WITH BROAD
SOLUTIONS
IDENTIFIED

TIER 3:
FEASIBILITY
LEVEL
SOLUTIONS
IMPLEMENTED



SOUTH ATLANTIC DIVISION IS THE PROVING GROUND



Southeast Coastal Assessment (SCA)

SCA Vision/Mission Statement

To enhance resilience and sustainability of the tidally influenced coasts in the South Atlantic Division AOR through investigation of life, safety, economic and environmental vulnerabilities posed by storms, hurricanes, floods and sea level rise; exploration of potential solutions to mitigate risks to these resources; and by conceptualizing strategies to address these challenges in **collaboration with stakeholders.**

SCA Guiding Principles/Constraints

Approach from a regional perspective, per Campaign Plan goals;
Approach from an Integrated Water Resources perspective;
Ensure a **collaborative, partner-based** process;
Ensure functionality of all analytical products as stand alone, and
in concert with future analysis;
Capitalize on NACCS lessons learned.



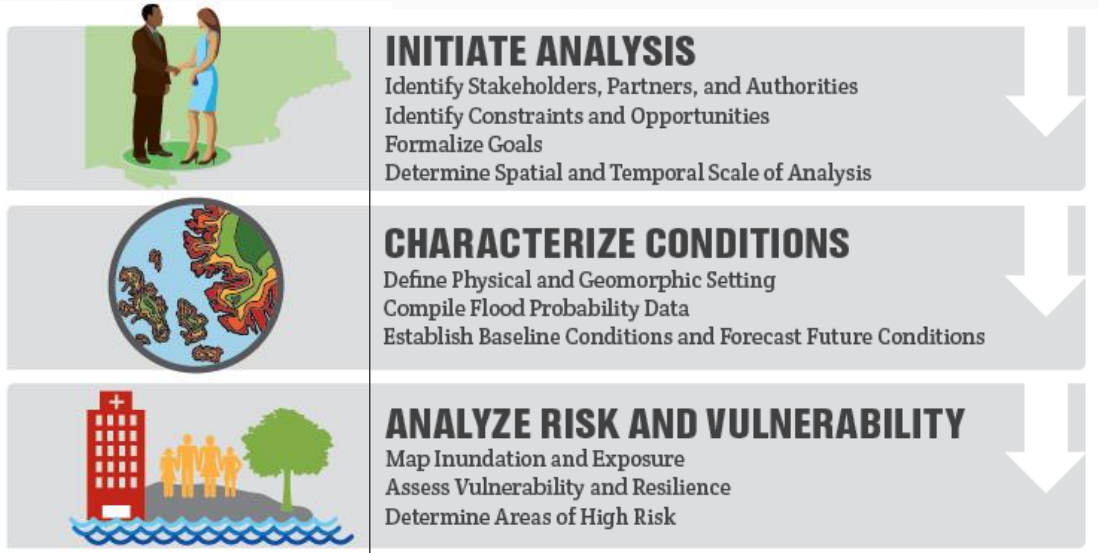
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STRATEGY

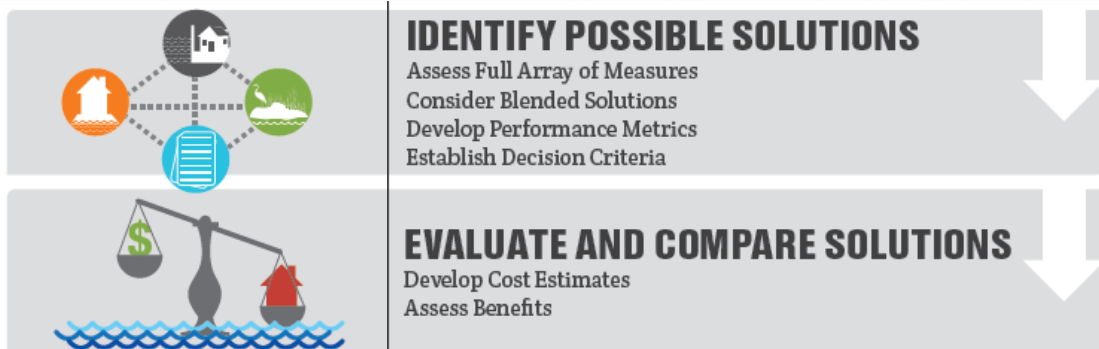
SCA FRAMEWORK



- Establish Southeast Coastal Coalition
 - Develop Key Technical Components*
 - ▶ Engineering
 - ▶ Environmental, Cultural, and Social
 - ▶ Economics
 - ▶ Coastal GIS Development/Analysis
- *Existing regional scale data sets

NSMS Deliverable: A consistent regional assessment of coastal vulnerability which includes a portfolio of measures and provides the technical basis and focus for future study.

SACS FRAMEWORK



- Opportunity to add local scale data and fill data gaps identified by SCA
 - focus areas with specific measures
- (Pending implementation guidance)



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COALITION DEVELOPMENT: Priority #1

WHAT: Engaging stakeholders, understanding needs, leveraging existing efforts and expertise

WHO: States, Agencies, DOD, Non-governmental Organizations (NGOs), Academia, tribes, Industry,

HOW: Collaborative effort between ASBPA, CSO, and USACE.

WHEN: Immediately. Conference outreach followed by kick off webinars

- Florida Shores and Beach Preservation Association (FSBPA) 9/27-9/29
- Western Dredging Association (WEDA) 10/11-10/12
- American Shore and Beach Preservation Association (ASBPA) 10/24-10/27
- North Carolina Beach Inlet and Waterway Association (NCBIWA) 11/15-11/16
- Upcoming NFWF/NOAA coastal resiliency workshops (SAC, SAS, SAJ)
- Others?

WHY?: So that the interdependent problems of coastal vulnerability can be understood jointly and addressed cooperatively



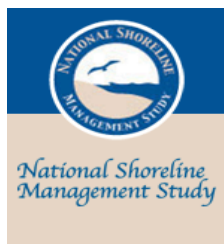
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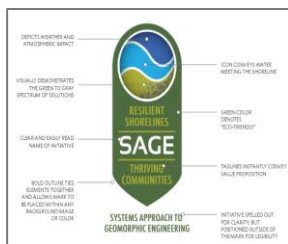


ENGINEERING APPROACH UTILIZE INTEGRATED PRODUCTS FIRST

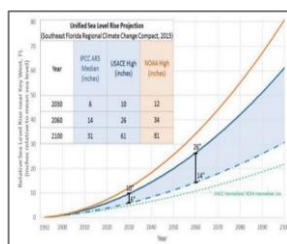
USACE, federal and academic Integrated Products which incorporate physical, economic and cultural data and process models to inform decision-making.



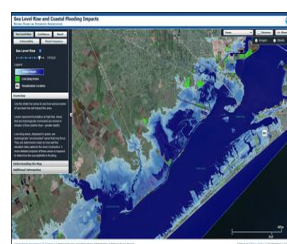
NSMS
Shoreline
Change & its
Economic &
Environmental
Implications;
Seeks
Collaborative
Solutions



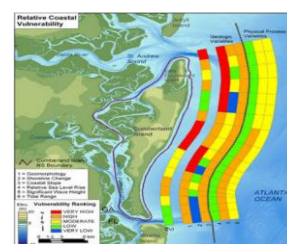
SAGE
Advancing
the
Practice of
Natural
Infrastructure
&
Resilience



USACE SLC
Calculator
Sea-level
Change
Projections
(Uses NOAA
Long-term Tide
Gauges)



NOAA SLR
Viewer
Spatial
Extent of
Areas
Potentially
Affected by
Sea Level
Rise



USGS
COASTAL
VULNERABILITY
Erosion
Due to
Storms
(storm surge,
elevation, wave
set-up & run-up)



FEMA
FIS/NFHL
Flood
Hazard
Mapping



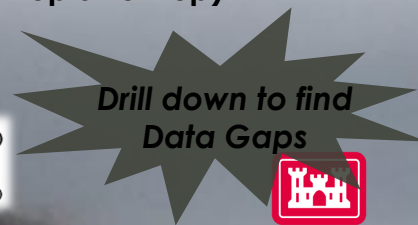
MEASUREMENTS DATA



PROCESS MODELS



INTEGRATED PRODUCTS



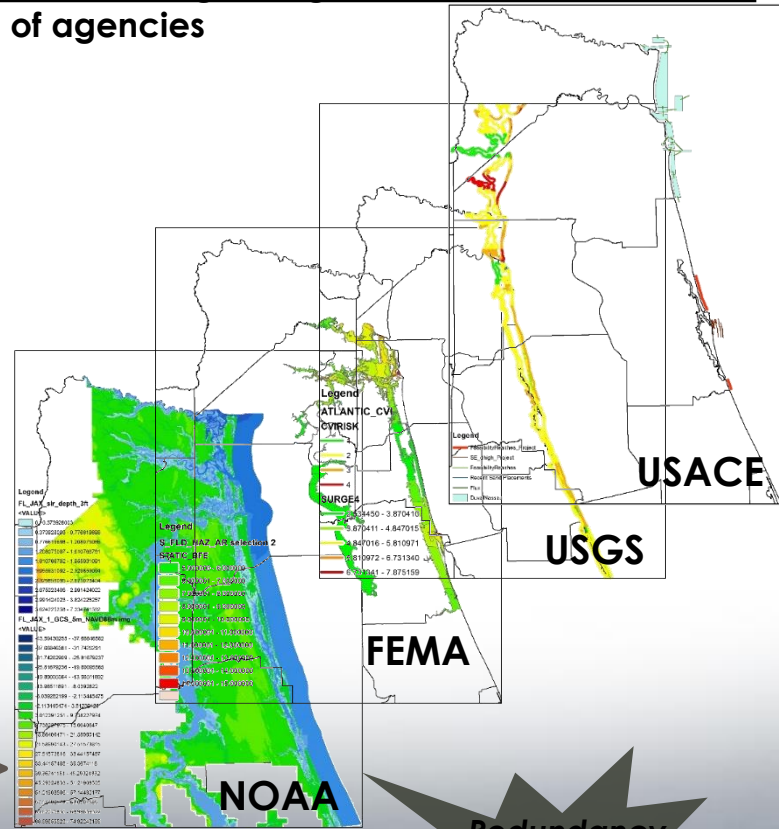
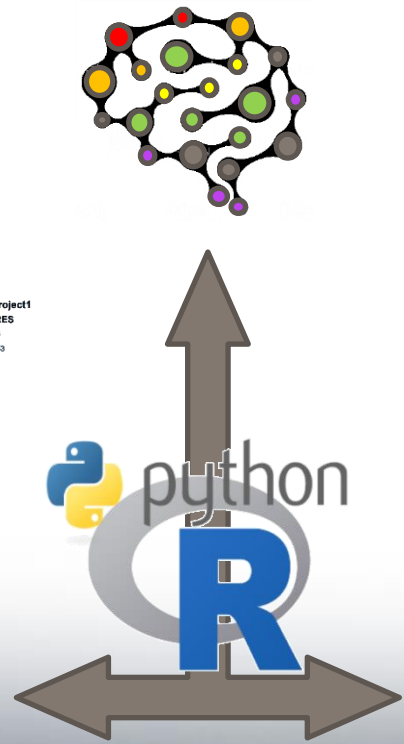
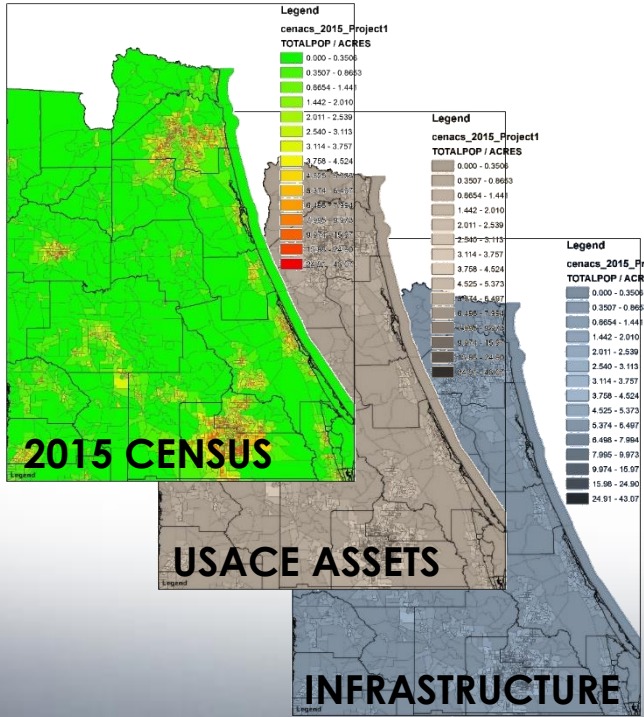
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ENGINEERING APPROACH

Using GIS and python/sql algorithms, an evaluation of coastal vulnerability that includes a wide matrix of infrastructure, assets, ecosystem and population risk that are assessed through integrated coastal/ocean tools developed by a diverse group of agencies



Redundancy improves Robustness



RISK FRAMEWORK

QUESTIONS TO ANSWER

Hazard: What can cause harm?

- Coastal Storms
- Long term Erosion
- Sea Level Change (SLC)

System Response: How will system react?

- Shoreline Physical Characteristics
- Fed/non-Fed Projects
- Armor
- Coastal Structures
- Damage Driving Parameters (Erosion, Wave Attack, Flooding)

Exposure: Who & what are in harms way?

- People
- Economic Activity
- Economic Assets & Infrastructure
- Recreation
- Environmental Resources
- Cultural Resources

Vulnerability: How susceptible is exposure to harm?

- Exposure susceptibility to harm
- Damage functions
- Asset physical characteristics
- Demographic Characteristics
- Emergency Management Strategies

Consequences: How much harm?

- # People/ households
- Economic Activity (\$)
- Economic Asset Damages (\$)
- # structures
- Acres of Habitat
- # of Species
- # historic/ cultural resource sites
- # HTRW sites

Based on Risk Framework in ER-1110-2-1156
Dam Safety Guidance

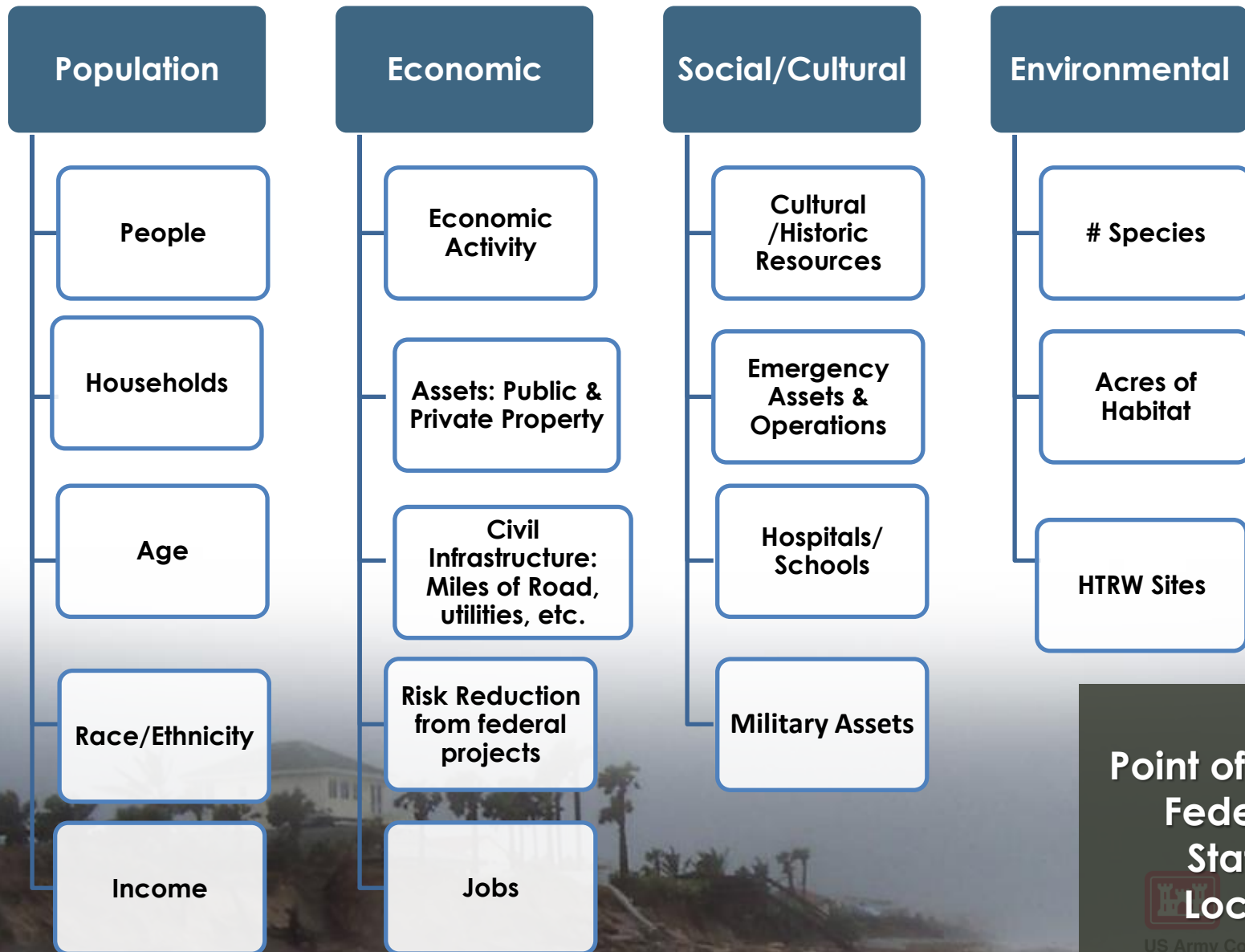


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EXPOSURE: WHAT DO WE CARE ABOUT?



Point of View:
Federal
State
Local

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SCA Implementation Strategy

- SCA, FY17-19 (Tier 1)
 - Stakeholder Coalition
 - Vulnerability Analysis
 - Problems and Opportunities
 - Portfolio of solutions
 - Focus Tier 2 efforts
- Tier 2 AOR Analysis (SACS?)
 - Increased analytical resolution
 - Identify solutions
 - Dependent on additional funding
- Tier 3 AOR Analysis
 - Feasibility Level
 - Solution Implementation
 - Dependent on additional funding



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RSM & Natural Infrastructure

Hurricane Matthew 2016



For additional information
and assistance with RSM Contact:
Jackie Keiser, RSM-Regional Technical Center of Expertise
Jacqueline.J.Keiser@usace.army.mil

SAD OPTIMIZATION PART II

Optimization identified \$100M in annual value and >\$20M opportunities

Next step is to go after unrealized potential

SAD Pilots established to take optimization to the next level

- Brevard Co SPP/Canaveral O&M - \$1M/year (estimated)
- Jekyll AIWW - \$100,000 - \$1M
- Folly River/Beach – >\$500,000 identified
- Kings Bay Fernandina - \$2,500,000 annually (Navy)
- Brunswick Harbor – TBD (>\$1M annually)
- Regional Contract – potential of \$20M

SAD Focus Areas -

- TLP and In water placement
- Nearshore feeder berms
- Turbidity/Fate of fines
- Mitigation Credit
- Ecosystem Value
- Industry Collaboration
- Communication

Advancing policy and regulations to
save Millions annually



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NOT JUST AN SAD CENTER

What we are doing outside of SAD?

- NAD RSM Optimization
- Stakeholder meeting, State of Delaware (NAP)
- Stakeholder meeting, California (SPL)
- Baltimore District Section 204 Assistance
- HQ resource
 - WRDA Implementation guidance, Section 1122 Beneficial Use Pilot
- BOEM collaboration
- Outreach & Communication of benefits
- Programmatic Focus areas help nationwide

A National team of experts are available to help!



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