2020 Quarter 2 Quarterly Update Webinar

South Atlantic Coastal Study
June 29, 2020

CONNECTION INFORMATION:

Webinar:
https://attendee.gototraining.com/r/4994559464465664002
Meeting Purpose

1. Provide an Update on Overall SACS Progress since the last Quarterly Webinar in March 2020
2. Review Status, Regional Study Products
3. Update on the Progress of State Appendices
4. Preview of Upcoming Workshops: Focus Areas/Environmental/Cultural
5. Q&A via Chat Function (15-20 min)
# SACS Quarterly Update Webinar: Agenda

<table>
<thead>
<tr>
<th>SACS Overview</th>
<th>Regional Products Update</th>
<th>Updates from District Project Managers</th>
<th>Next Steps and Closing Remarks</th>
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</thead>
<tbody>
<tr>
<td>• Team Introductions • SACS Shared Vision Statement • Schedule Overview</td>
<td>• SAND Workshops and Interim Findings • Geospatial Update • State/Territory Appendices Overview • Focus Area Overview • Planning Aid Report • Environmental Update • Coastal Hazard System • Institutional and Other Barriers Interim Findings</td>
<td>• Wilmington • Charleston • Savannah • Jacksonville • Mobile</td>
<td>• 21 Focus Area Action Strategy Workshops • Regional Environmental Workshop • Finalization of SAND Report • Measures and Cost Library refinement • CHS SA/GoMex CSTORM runs</td>
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<thead>
<tr>
<th>Questions &amp; Discussion</th>
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<tbody>
<tr>
<td>• Questions            • Open Discussion</td>
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</table>
# Team Introduction

## Command Center Team:
- **Pam Castens** - Regional Project Manager
- **Lisa Clark** - Outreach Lead
- **Idris Dobbs** - Economics Lead
- **Trevor Lancaster** - Geospatial Lead
- **Kelly Legault** - Engineering Lead
- **Kristina May** - Environmental Lead
- **Clay McCoy** - Regional Sediment Management Lead
- **Matt Schrader** - Planning Lead

## District Project Managers:
- **Brennan Dooley** - Wilmington District PM
- **Diane Perkins** - Charleston District PM
- **April Patterson** - Savannah District PM
- **Ashleigh Fountain** - Jacksonville District PM
- **Meredith Ladart** - Mobile District PM

*Working Today to Build a Better Tomorrow*
"The SACS vision is to provide a common understanding of risk from coastal storms and sea level rise to support resilient communities and habitats. This collaborative effort will leverage stakeholders’ actions to plan and implement cohesive coastal storm risk management strategies along the South Atlantic and Gulf Coast shorelines, including the territories of Puerto Rico and the U.S. Virgin Islands."

Hazard + Performance + Exposure + Vulnerability + Consequences = Risk

Figure 1: Risk Conceptualized (ER 1105-2-101)
SOUTH ATLANTIC COASTAL STUDY KEY PRODUCTS

**RISK ASSESSMENT**
Assessment based on exposure of population and infrastructure, environmental and cultural resources, and social vulnerability to inundation hazards.

**REGIONAL SEDIMENT MANAGEMENT (RSM) OPTIMIZATION**
Identifies and quantifies total contribution of RSM principles to projects in the SACS study area that support long-term coastal resiliency.

**SAND AVAILABILITY & NEEDS DETERMINATION (SAND)**
Determines the need and availability of sediment to maintain beaches for the next 50 years.

**COASTAL HAZARDS SYSTEM (CHS)**
Provides current and projected water elevation data for the study area.

**GEOPORTAL**
Provides the public access to study datasets, products, and documentation.

**MEASURES & COSTS LIBRARY**
Detailed list of Coastal Storm Risk Management (CSRM) measures and their costs developed to a screening level for use in USACE and stakeholder planning.

**COASTAL PROGRAM GUIDE**
Outreach and information package to help communities better leverage needed resources on a disaster-wide, statewide, or community-wide basis.

**STATE & TERRITORY APPENDICES**
Specific information for each state and territory will be provided in stand-alone appendices to the main report.

**PRIORITY ENVIRONMENTAL AREA IDENTIFICATION**
Priority environmental areas will be identified using Tier 1 data, the USFWS Planning Aid Report, and stakeholder tools. Resiliency to coastal storms and sea level rise will be evaluated and measures to increase resiliency will be recommended.

**PLANNING AID REPORT (US FISHER AND WILDLIFE SERVICE (USFWS))**
Report of priority biological resource habitats in the South Atlantic region that are vulnerable to harm from coastal storms and sea level rise with a focus on areas used by federally listed species. Report will also include a description of risk to coastal national wildlife refuges.

**INSTITUTIONAL & OTHER BARRIERS ANALYSIS**
Document identifies institutional and other barriers to providing comprehensive protection for affected coastal areas. The report will include information on the performance of existing federal CSRM projects and recommendations for improvement.

**FOCUS AREA ACTION STRATEGIES**
Focus area action strategies (FAAS) will use SACS products in combination with other resources to develop actionable risk reduction strategies with stakeholders. FAAS will serve as examples for how vulnerabilities in other high risk locations can be addressed.

For more information, visit the SACS website: [https://www.sad.usace.army.mil/SACS/](https://www.sad.usace.army.mil/SACS/)
Regional Product Updates
South Atlantic Coastal Study

STAKEHOLDERS

- Federal, 358
- County, 164
- State, 268
- NGO, 102
- Tribal, 58
- Other, 60
- Academia, 70
- Local, 125
- 1200 Strong

Email: SACS@usace.army.mil

Geoportal

https://sacs.maps.arcgis.com/apps/MapSeries/index.html?apid=c54beb5072a04632958f2373eb1151cf

https://www.sad.usace.army.mil/SACS

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Working Today to Build a Better Tomorrow
SAND: Sand Availability and Needs Determination

• Activities during Q2
  – Completed availability and needs assessment
  – In-house technical workshop: 28 May
  – District stakeholder workshops: (available at: ftp.taylorentechnology.com; SANDWorkShops; HappySand)
    • Savannah – 8 June
    • Charleston – 9 June
    • Wilmington – 11 June
    • Jacksonville – 16 June
    • Mobile – 17 June

• Upcoming activities
  – Final data input: 3 July
  – Finalize database and write report
  – Project complete: end of October
SAND Preliminary Results

- Highlights
  - > 1.2 billion CY need in South Atlantic Division for next 50 years
  - All states except GA currently have availability to meet needs
  - All states have areas with significant sediment deficits
    - Most of NC
    - South Florida
    - Florida Panhandle
SAND Preliminary Recommendations and Next Steps

- Investigate Unverified Plus sites for areas with sand deficits
  - Resource areas hypothesized to exist based on limited data
- Innovate to reduce contingency factor
  - 55%: borrow area inefficiencies, dredging losses, future project performance including sea level rise impacts
- Utilize flexibility in state regulations
  - Nearshore placement
  - Beneficial use
SACS Geospatial Update

• Complete
  – Tier 1 Risk Assessment – Puerto Rico & USVI →

• In-Progress
  – Tier 1 Risk Assessment Download Web Application
  – HAZUS Web Application
  – SACS OpenData Site →
  – State and Territory Appendix Web Applications
  – Environmental Vulnerability Analysis

**Working Today to Build a Better Tomorrow**
Economic Risk Estimation

- **Economic Risk**
  - Structure & Contents
  - Depreciated Replacement Losses
  - Expected Annual Damages

- **Spatial Extent**
  - CONUS (NC, SC, GA, FL, AL, MS)
  - OCONUS (PR, USVI)

- **Part of Tier-2 Analysis**

- **Uses**
  - Used to Augment Potential High Risk Area Determination
  - Comparison with cost of risk reduction measures
Measures & Cost Library

• Suite of risk reduction options considering:
  – Hazard Conditions
    • Inundation
    • Wave Attack
    • Erosion
  – Shoreline Conditions
    • Exposure to Wave & Tidal Energy
    • Shoreline substrate, shape, slope,
    • Development
    • Coastal Wetlands
  – Exposure – What do we want to reduce risk to?

• Risk Reduction Philosophy
  – Retreat & Adapt
  – Shoreline Restoration
  – Shoreline Stabilization
  – Shoreline Armoring

• Cost Considerations
  – Regional Location
  – Uncertainty

Manage the Hazard:
• Shoreline Stabilization
• Shoreline Restoration
• Shoreline Armoring

Reduce the Exposure:
• Retreat
• Buyout / Acquisition

Adapt to the Hazard:
• Asset Elevation
• Wet Flood Proofing
• Dry Flood Proofing

Inundation, Wave Attack, Erosion

Working Today to Build a Better Tomorrow
MCL & Damage Estimation Present & Future Activities

- **Present**
  - QC Review of MCL
  - Completion of MCL & FADE technical write-ups

- **Near Future Considerations**
  - Linkage of $ damage risk & shoreline types
  - Linkage of MCL & shoreline types
  - Finalization of MCL by Contractor

- **Future Considerations**
  - Development of data model linking components of Tier-2 economic risk assessment & measures
  - Development of web-tools for public access
State & Territory Appendices – High Risk Locations

- Summary tables of high risk locations based on Tier 1 and Tier 2.
- Include factors indicating potential high risk.
- Environmental and cultural resource considerations to be added.
- Example DRAFT table excerpted from northeast Florida (all locations not shown).

<table>
<thead>
<tr>
<th>Northeast Florida (FL_06) High Risk Locations</th>
<th>Tier 1 Risk Assessment</th>
<th>Tier 2 Hazus (Level 1)</th>
<th>FDEP Critically Eroded Area</th>
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</thead>
<tbody>
<tr>
<td>County</td>
<td>Census Place or Location Name</td>
<td>Identified as Existing High Risk Location</td>
<td>Identified as Future High Risk Location</td>
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<td>Clay</td>
<td>Oakleaf Plantation</td>
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<td>X</td>
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<td>Clay</td>
<td>Fleming Island</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Flagler</td>
<td>Beverly Beach</td>
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<tr>
<td>Flagler</td>
<td>Marineland</td>
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<td>Flagler</td>
<td>Hammock</td>
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<td>Jacksonville Beach</td>
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<td>Duval</td>
<td>Atlantic Beach</td>
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<td>X</td>
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<td>St. Johns</td>
<td>Palm Valley</td>
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<td>Volusia</td>
<td>Daytona Beach</td>
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<td>X</td>
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<tr>
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<td>Ormond Beach</td>
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<td>Duval</td>
<td>Neptune Beach</td>
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<td>Flagler</td>
<td>Flagler Beach</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Flagler</td>
<td>Fox Cut back bay</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Tier 1 Potential High Risk Location Thresholds

- med-high and/or high potential risk (amber and red colors):
  - cover at least 50 acres and
  - cover at least 0.5% of census place
## State & Territory Appendices – High Risk Locations

### Tier 2
- Tier 2 data added detail and/or additional high risk areas.
- Hazus data provided for entire SACS study area.
- Other state/territory-specific data included.

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<thead>
<tr>
<th>County</th>
<th>Census Place</th>
<th>Identified as Existing High Risk Location</th>
<th>Identified as Future High Risk Location</th>
<th>Identified as FDEP Critically Eroded Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay</td>
<td>Oakleaf Plantation</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Clay</td>
<td>Fleming Island</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Flagler</td>
<td>Beverly Beach</td>
<td>$491,000 Low</td>
<td>$1,223,000 Low</td>
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<tr>
<td>Flagler</td>
<td>Marineland</td>
<td>$20,000 Low</td>
<td>$58,000 Low</td>
<td></td>
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<tr>
<td>Flagler</td>
<td>Hammock</td>
<td>$3,441,000 Low-Med</td>
<td>$12,119,000 Med</td>
<td></td>
</tr>
<tr>
<td>Duval</td>
<td>Jacksonville Beach</td>
<td>X</td>
<td>X</td>
<td>R59-R080</td>
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<tr>
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<td>X</td>
<td>R39-R53</td>
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<td>St. Johns</td>
<td>Palm Valley</td>
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</tr>
<tr>
<td>Volusia</td>
<td>Daytona Beach</td>
<td>$11,573,000 Low-Med</td>
<td>$44,472,000 Med-High</td>
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<tr>
<td>Volusia</td>
<td>Ormond Beach</td>
<td>$7,472,000 Low-Med</td>
<td>$34,032,000 Med-High</td>
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<tr>
<td>Duval</td>
<td>Neptune Beach</td>
<td>$3,194,000 Low</td>
<td>$12,491,000 Low-Med</td>
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<tr>
<td>Flagler</td>
<td>Flagler Beach</td>
<td>$6,608,000 Low-Med</td>
<td>$13,024,000 Low-Med</td>
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</tr>
<tr>
<td>Flagler</td>
<td>Fox Cut back bay</td>
<td>$12,399,000 Med</td>
<td>$25,258,000 Med-High</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazus (Level 1)</th>
<th>FDEP Critically Eroded Area</th>
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</thead>
<tbody>
<tr>
<td>Hazard is inundation. Exposure is composed of infrastructure.</td>
<td>Hazard is erosion. Exposure is composed of infrastructure, recreational resources, wildlife habitat, and cultural resources.</td>
</tr>
</tbody>
</table>

## Tier 2

<table>
<thead>
<tr>
<th>Existing Infrastructure Damage ($)</th>
<th>Damage Rating</th>
<th>Future Infrastructure Damage ($)</th>
<th>Damage Rating</th>
<th>Identified as FDEP Critically Eroded Area</th>
<th>FDEP Range Monuments</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5,000</td>
<td>Low</td>
<td>$67,000</td>
<td>Low</td>
<td>X</td>
<td>R055.2-R067</td>
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<tr>
<td>$17,699,000</td>
<td>Med</td>
<td>$44,639,000</td>
<td>Med-High</td>
<td>X</td>
<td>R001-R004</td>
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<tr>
<td>$491,000</td>
<td>Low</td>
<td>$1,223,000</td>
<td>Low</td>
<td>X</td>
<td>R066.5-R093</td>
</tr>
<tr>
<td>$20,000</td>
<td>Low</td>
<td>$58,000</td>
<td>Low</td>
<td>X</td>
<td>R055.2-R067</td>
</tr>
<tr>
<td>$3,441,000</td>
<td>Low-Med</td>
<td>$12,119,000</td>
<td>Med</td>
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**WORKING DRAFT**
ICLUS residential housing density development increases through 2100 are compared with the 1% AEP and 10% AEP storm surge plus 3’ of SLR. (Continental U.S.)

- Useful for general planning purposes to identify locations where areas of potential future development overlap future storm surge inundation.

- **NOTE:** ICLUS data was computed at a national level and does not include all local land use or planning/development considerations.
Focus Area Action Strategies (FAAS)

- **Focus Areas:**
  - Geographic areas of identified high risk based on Tier 1 Assessment and input from stakeholders at 2019 Field Workshops
  - At least one per state/territory

- **FAAS:**
  - Actionable risk reduction strategies developed with stakeholders using SACS products and other resources
  - Will serve as examples of how vulnerabilities in other high-risk locations can be addressed
# FAAS Workshop Schedule

FAAS Workshops will consist of three webinars per focus area:

<table>
<thead>
<tr>
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<th>July 6 -17</th>
<th>August</th>
<th>Sept/Oct</th>
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<tbody>
<tr>
<td><strong>1. Kick-Off</strong></td>
<td>- Focus Area Details</td>
<td>- Step through Framework</td>
<td>- Go over actions and input into overall strategy</td>
</tr>
<tr>
<td>(90 mins)</td>
<td>- Shared Vision Statement for Focus Area</td>
<td>- Review Tier 2 Results</td>
<td>- Gather input before finalization</td>
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<td></td>
<td>- Preparation for Strategy Development Workshop</td>
<td>- Develop Action Strategies</td>
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</table>

August:

- **Strategy Development Workshop**
  - (3-4 hours)
  - Step through Framework
  - Review Tier 2 Results
  - Develop Action Strategies

Sept/Oct:

- **Wrap-up**
  - (1 hour)
• State-by-state descriptions of national wildlife refuges and biological resources and habitats vulnerable to sea level rise and storm activity in the SACS study area

• Adaptation strategies added to final report

• Information from the report will be used in SACS state appendices and in the SACS environmental assessment

• Report located on SACS website at https://www.sad.usace.army.mil/SACS/
Adaptations for Resilience

• Winyah-Sewee Conservation and Resiliency Planning Project recommendations include expansion and connection of protected areas at the Cape Romain National Wildlife Refuge (NWR).

• Research and monitoring of the mangrove ecosystem at the J.N. “Ding” Darling NWR to identify changes resulting from sea level rise and whether mangroves are adapting to the changes.

• Partnership between the USFWS, The Conservation Fund and the Alabama Department of Conservation and Natural Resources to add 470 acres of coastal habitat to the Bon Secour NWR that were under threat to development.
SACS Environmental Vulnerability Assessment

• Purpose is to identify natural areas at risk to increased coastal storm damages as a result of sea level rise and to develop risk-reduction strategies for the high-risk areas

• Scored vulnerability of natural areas to coastal storm hazards

• Currently in process of assessing vulnerability maps and identifying high-risk natural areas
SACS Cultural Resources Assessment

- Qualitative analysis to identify cultural and archeological resources at risk to increased coastal storm damages as a result of sea level rise.

Example Findings:

❖ Guana Tolomato Matanzas National Estuarine Research Reserve and Fort Matanzas sites at risk to erosion:
  - 61 recorded archeological sites
  - Minorcan Well and other archaeological resources adjacent to the Tolomato River
  - Fort Matanzas National Monument

❖ Sapelo Island, GA
  - Culturally-significant Hog Hammock Community located at a low elevation on the south side of the island is susceptible to flooding from coastal storm surges that will worsen with sea level rise.

Historic Resources recorded in Georgia’s Natural, Archaeological and Historic Resources GIS database located in Georgia Reach 05
CHS AEP Surge elevations are output at over 6000 save locations for Puerto Rico and USVI to inform future studies of expected WSEs under SLR conditions.

Under Present Day conditions, the median surge elevation for save locations in PR and USVI is approximately 1 meter. Under 2.13 meters of SLR (USACE High @ 2120), the median surge elevation increases to just under 3 meters.
Additional 100-yr Storm Surge
(100 yr WSE $\text{SLC}_2$ – 100yr WSE present – 2.1 ft SLR (m))

Amplification of storm surge will exist along the North Coast of Puerto Rico and in some areas of STT and STJ in excess of additional inundation due to SLC, alone.

Increase $H_s$
(100 yr $H_s$ $\text{SLC}_2$ – 100yr $H_s$ existing (m))

Under Future SLC conditions (USACE High Curve @ 2120) Storm wave heights will increase in excess of 1 meter island-wide for Puerto Rico and USVI.
Examination of the difference in wave energy ($\alpha H^2$) from the Present Day 100-Year Significant Wave Height to the Future with SLR (USACE High Curve at 2120 = 2.13 m) shows that the northern coast of Puerto Rico, from Carolina west through the Rincon Region as well as the South Eastern portion of PR will be exposed to a significant increase in Wave Energy. Similarly, there are regions throughout STT and STJ that will be subject to significant increases in wave energy under Sea Level Rise.
Institutional and Other Barriers Report

Top 5 Identified Sub-Themes

- Need for coordination and leadership at all levels
- Lack of funding
- Lack of political will to make hard decisions about long-term solutions
- Lack of capacity and capability at the local/state level
- Public acceptability of risk management measures

Risk and Resilience Standards 15%
Local Planning and Financing 17%
Risk Management 17%
Risk Communication 19%
Science, Engineering and Technology 6%
Leadership and Institutional Coordination 26%
Institutional and Other Barriers Report

Top 5 Stakeholder Recommendations to Address Barriers

- Impose stricter building/development requirements
- Provide dedicated and continuous proactive funding for pre-disaster, mitigation projects
- Update codes and standards to account for climate change
- Enforce the existing regulations already in place
- Floodplain management policies should be strengthened
District Updates
Wilmington District Update

STATUS:
- Sept 2019 – Stakeholder Workshop Meetings
- Nov 2019 – Drafted Focus Areas
- Dec 2019 – Drafted Tier 1 Risk Analysis
- Mar 2020 – Drafted Tier 2 Risk Analysis
- Jun 2020 – Revised Draft State Appendix
- Jun 2020 – SAND Stakeholder Workshop

WAY AHEAD:
- Tier 2 – Evaluate vulnerable environmental and cultural resources with federal and state agencies
- Focus Area Action Strategies Meetings (3)
  - Dare County / Outer Banks – July 15, 2020
  - Carteret / Craven Counties – July 16, 2020
  - New Hanover / Brunswick Counties - July 17, 2020

*Working Today to Build a Better Tomorrow*
Wilmington District Update

Estimated Exposure Value: $126,802,185,227

Estimated # Structures: 262,498

(RSI data)

Working Today to Build a Better Tomorrow
Charleston District Update (South Carolina)

Diane.Perkins@usace.army.mil

Working Today to Build a Better Tomorrow
## Charleston District Update

**Tier 1, Status: T1 draft**

### South Carolina High Risk Locations

<table>
<thead>
<tr>
<th>County</th>
<th>Census Place or Location Name</th>
<th>SCDHEC</th>
<th>Method:</th>
<th>Hazus (Level 1)</th>
<th>Tier 1 Risk Assessment</th>
<th>Hazus (Level 1)</th>
<th>Tier 1</th>
<th>Tier 2</th>
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<tbody>
<tr>
<td>Beaufort</td>
<td>Hilton Head Island</td>
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</tr>
<tr>
<td>Horry</td>
<td>North Myrtle Beach</td>
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<tr>
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<tr>
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</tbody>
</table>

### Number of High Risk Places Id’d in Tier 1 Analyses

- **32 Tier 1 Existing Med-High to High Risk**
- **3 Tier 1 Additional Future Med-High to High Risk**
- **35 Tier 1 ALONE SUBTOTAL/TOTAL**

---

*Working Today to Build a Better Tomorrow*
Charleston District Update

Tier 2, Preliminary Findings: SC03 Population and Infrastructure Exposure

Existing (uses NSI data)

Future (uses EPA data)

**WORKING DRAFT**

*Working Today to Build a Better Tomorrow*
Charleston District Update

Tier 2, Preliminary Findings: SC04 Population and Infrastructure Exposure

Existing (uses NSI data)

Planning Reach SC_04 Estimated Exposure Value

Estimated Exposure Values: 252,764,433,493

Estimated # Structures: 342,617

Residential 43%
Commercial 20%
Industrial 8%
Agriculture 6%
Religion 5%
Government 5%
Education 5%

Future (uses EPA data)

Housing Density Projections 2020 to 2100

Working Today to Build a Better Tomorrow

WORKING DRAFT
## Charleston District Update

### Tier 2, Status: T2 Hazus & Erosion draft

<table>
<thead>
<tr>
<th>South Carolina High Risk Locations</th>
<th>Tier 1 Risk Assessment</th>
<th>Hazus (Level 1)</th>
<th>Tier 2</th>
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<tbody>
<tr>
<td>State</td>
<td>Identified as Existing</td>
<td>Identified as Future</td>
<td>SC DHEC</td>
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<tr>
<td>SACS Planning Resch</td>
<td>County</td>
<td>Census Place or Location Name</td>
<td>Risk High Location</td>
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<td>Hilton Head Island</td>
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<td>SC_04</td>
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<td>SC</td>
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<td>SC</td>
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<tr>
<td>SC_03</td>
<td>Georgetown</td>
<td>Littlefield / Pawleys / Debordieu</td>
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<tr>
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<td>Horry</td>
<td>Little River</td>
<td>SC</td>
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</tbody>
</table>

**WORK IN PROGRESS**

**DRAFT**

**NUMBER OF HIGH RISK PLACES ID’D IN TIER 2 ANALYSES (SO FAR)**

3 Tier 2 Additional Hazus Existing Med-High to High Risk
10 Tier 2 Additional Hazus Future Med-High to High Risk
9 Tier 2 Additional SCDHEC Erosion >5'

22 Tier 2 ALONE SUBTOTAL (so far)

57 Tier 1 & Tier 2 CUMULATIVE TOTAL (so far)

39% are from Tier 2 analyses - nearly doubled already!

---

*Working Today to Build a Better Tomorrow*
Charleston District Update

WAY AHEAD:

- Two (2) Focus Area Action Strategies Locations
  - Grand Strand Area
  - Charleston Metro Area (tri-county)
- Focus Area Action Strategies = July kickoffs, & August workshops
- More Tier 2 workshops
  - Evaluate vulnerable environmental resources with federal and state agencies
  - Evaluate vulnerable cultural resources with federal and state agencies

Working Today to Build a Better Tomorrow
Savannah District Update (Georgia)

April.N.Patterson@usace.army.mil

Working Today to Build a Better Tomorrow
Savannah District Update

STATUS:
- June 2019 – Met with Tybee Island to discuss performance of Federal CSRM project
- Oct 2019 – GA Face to Face Meeting
- Nov 2019 – Drafted Interim Study Recommendations
- Jun 2020 – Met with SAND stakeholders regarding RSM projects in Georgia

WAY AHEAD:
- Tier 2 – Evaluate vulnerable environmental and cultural resources with federal and state agencies
- Two (2) Focus Areas
- Focus Area Action Strategies Kick Off Meetings
  - July 13, 2020: Glynn Co. / Brunswick / Jekyll Island / St. Simons Island
  - July 14, 2020: Chatham Co. / Savannah / Tybee Island

Tier 2 Data from the National Structural Inventory (NSI) that is within the footprint of the 1% AEP floodplain plus 3 feet of SLR. The estimated average population at risk (PAR) is approximately 550,000 people.
Savannah District Update

HIGH RISK AREAS:

• Tier 1:
  • Evaluated the Composite Risk to Populations and Infrastructure (60%), Environmental and Cultural Resources (30%), and Social Vulnerability (10%)
  • Look at vulnerability of environmental and cultural resources and social vulnerability

• Tier 2 Data Sets:
  • FEMA HAZUS Flood Model
  • 2013 Hurricane Evacuation Study
  • WHSRN (Western Shorebird Reserve Network)
  • NOAA Fisheries and South Atlantic Fishery Management Council Essential Fish Habitat (EFH)
  • NOAA CCAP classes
  • Resilient Coastal Sites for Conservation in the South Atlantic (The Nature Conservancy)
  • GNAHRGIS (Georgia Natural, Archeological and Historic Resources GIS)
  • Center for Disease Control (CDC) Social Vulnerability Index at the Census Tract Level

<table>
<thead>
<tr>
<th>Census Place</th>
<th>Existing Asset Risk</th>
<th>Existing Risk Rating</th>
<th>Future Asset Risk</th>
<th>Future Risk Rating</th>
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<td>Med-High</td>
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<td>Savannah</td>
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<td>Whitemarsh Island</td>
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<td>Montgomery</td>
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<tr>
<td>Tybee Island</td>
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<td>St. Simons</td>
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<td>$53,731,000</td>
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<tr>
<td>Brunswick</td>
<td>$6,219,000</td>
<td>Med-High</td>
<td>$20,107,000</td>
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</tr>
</tbody>
</table>

Tier 2 – HAZUS Medium-High- and High-Risk Locations to populations and infrastructure based on census tracts
Tier 2 – Environmental Resources in the GA-05 Planning Reach, based on the NOAA CCAP classes they fit into and the CCGA vulnerability map, as expected, the emergent wetlands showing lower vulnerability than the forested wetlands CCAP classes. Their scores were overlaid onto the CAT 5 MOM.
Jacksonville District Update (Peninsular Florida, Puerto Rico, USVI)

Ashleigh.H.Fountain@usace.army.mil
Jacksonville District Update

- Appendices & Focus Area Action Strategies Documents underway!
  - Florida Appendix & 5 Focus Areas
  - Puerto Rico & 2 Focus Areas
  - USVI & 2 Focus Areas

- Focus Area workshops kicking off in July!
## Jacksonville District Update

### Tier 1

**Method:** Tier 1 Risk Assessment

- Hazard is inundation. Exposure is composed of population, infrastructure, environmental and cultural resources, habitat, and social vulnerability.

### Tier 2

**Method:** Hazus (Level 1)

- Hazard is inundation. Exposure is composed of infrastructure.

**FDEP Critically Eroded Area**

- Hazard is erosion. Exposure is composed of infrastructure, recreational resources, wildlife habitat, and cultural resources.

### Table

<table>
<thead>
<tr>
<th>AFFGEOID</th>
<th>SACS Planning Reach</th>
<th>County</th>
<th>Census Place or Location Name</th>
<th>State</th>
<th>Identified as Existing High Risk Location</th>
<th>Identified as Future High Risk Location</th>
<th>Existing Infrastructure Damage ($)</th>
<th>Damage Rating</th>
<th>Future Infrastructure Damage ($)</th>
<th>Damage Rating</th>
<th>Identified as FDEP Critically Eroded Area</th>
<th>FDEP Range Monuments</th>
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<td>Horseshoe Beach</td>
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<td>$1,588,000</td>
<td>Low-Med</td>
<td>X</td>
<td>R033-R037</td>
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<td>$0</td>
<td>Low</td>
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<td>1600000US1223050</td>
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<td>$1,973,000</td>
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<tr>
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<td>X</td>
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<td>Low-Med</td>
<td>$17,006,000</td>
<td>Med</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

### Observations

- **Tier 1:**
  - 263 Census places are high risk in the existing condition
  - 379 Census places high risk in the future condition with SLR (116 additional places)

- **Through Tier 2:**
  - Hazus identified an additional 43 risk areas
  - Critical Erosion data contributed an additional 57 areas at risk

---

*Working Today to Build a Better Tomorrow*
Jacksonville District Update

- Leveraging between ongoing USACE studies – Multiple Supplemental Coastal Studies in SAJ

- Information Exchange internally & externally!
Jacksonville District Update

- Information Exchange internally & externally!
### Jacksonville District Update

**Tier 2: Evaluation of vulnerability of Tidal Control Structures in SE FL**

<table>
<thead>
<tr>
<th>Structure</th>
<th>Design discharge (cfs)</th>
<th>Design HW (ft-NGVD)</th>
<th>Design TW (ft-NGVD)</th>
<th>C-1 canal bank-full elevation (ft-NGVD)</th>
<th>2 yr</th>
<th>5 yr</th>
<th>10 yr</th>
<th>25 yr</th>
<th>50 yr</th>
<th>100 yr</th>
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<td>S-20F</td>
<td>2,900</td>
<td>1.90</td>
<td>1.40</td>
<td>4.40</td>
<td>0.93</td>
<td>0.63</td>
<td>0.41</td>
<td>0.20</td>
<td>0.00</td>
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<td></td>
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<td></td>
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<td>2061</td>
<td>2039</td>
<td>2034</td>
<td>2048</td>
<td>2032</td>
<td>2028</td>
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<tr>
<td>S-20G</td>
<td>900</td>
<td>2.00</td>
<td>1.50</td>
<td>7.00</td>
<td>&gt;3.0</td>
<td>&gt;3.0</td>
<td>&gt;2.78</td>
<td>2.68</td>
<td>2.64</td>
<td>2.54</td>
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<td></td>
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<td></td>
<td></td>
<td>2120</td>
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<td>S-20</td>
<td>450</td>
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<td>1.18</td>
<td>1.12</td>
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<td></td>
<td>2038</td>
<td>2043</td>
<td>2036</td>
<td>2063</td>
<td>2041</td>
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<td>2048</td>
<td>2041</td>
<td>2075</td>
<td>2046</td>
<td>2039</td>
</tr>
</tbody>
</table>

**Minimum SLR that would cause out of bank flooding for the evaluated storm surge recurrence, ft**

**Calendar year when overbank flooding would occur for the evaluated storm surge recurrence under USACE SLR projection Scenarios**

**FLORIDA**

**C-1 canal**

**bank-full elevation**

**(ft-NGVD)**
• Tier 2: Vulnerable Environmental Resources
Mobile District Update
(Alabama, Mississippi, Florida Panhandle)

Meredith.H.Ladart@usace.army.mil

Working Today to Build a Better Tomorrow
Mobile District Update

STATUS:

• Mar 30, 2020 – Completed Tier 2 Risk Analysis
• Jun 17, 2020 – SAND Stakeholder Workshop

WAY AHEAD:

• Tier 2 – Evaluate vulnerable environmental and cultural resources with federal and state agencies
• Focus Area Action Strategies Meetings (5)
  • Gulfport/Biloxi
  • Pascagoula
  • Western Mobile Bay
  • Florida Panhandle (2)
## Mobile District Update

### Census Places, Counties, & Planning Reaches

<table>
<thead>
<tr>
<th>County</th>
<th>Census Place</th>
<th>State</th>
<th>EC Risk Location</th>
<th>FC Risk Location</th>
<th>Existing $ Damage Risk</th>
<th>Existing Risk</th>
<th>Future $ Damage Risk</th>
<th>Future Risk</th>
<th>Significant Increase in Tier-2 Risk</th>
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<td>Orange Beach</td>
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<td>$50,027,000</td>
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<td>X</td>
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<td>Med-High</td>
<td>$34,635,000</td>
<td>High</td>
<td>Y</td>
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<td>X</td>
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**Working Today to Build a Better Tomorrow**
Mobile District Update

Mississippi Critical Habitats
South Atlantic Coastal Study
Mobile District Update
## Looking Ahead

### Next 3 months and beyond

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<tr>
<th>Month</th>
<th>Event</th>
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<td>JUL 2020:</td>
<td>Kick-off FAAS Workshops</td>
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<td>AUGUST 2020:</td>
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<td>Cultural Resources Agency Workshop</td>
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<td>OCT 2020:</td>
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<td>NOV 2020:</td>
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<td>Draft Coastal Program Guide</td>
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<td>OCT 2021:</td>
<td>Draft Report</td>
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</table>

*Working Today to Build a Better Tomorrow*
Questions & Discussion
Thank You

ADDITIONAL INFORMATION
https://www.sad.usace.army.mil/SACS/

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