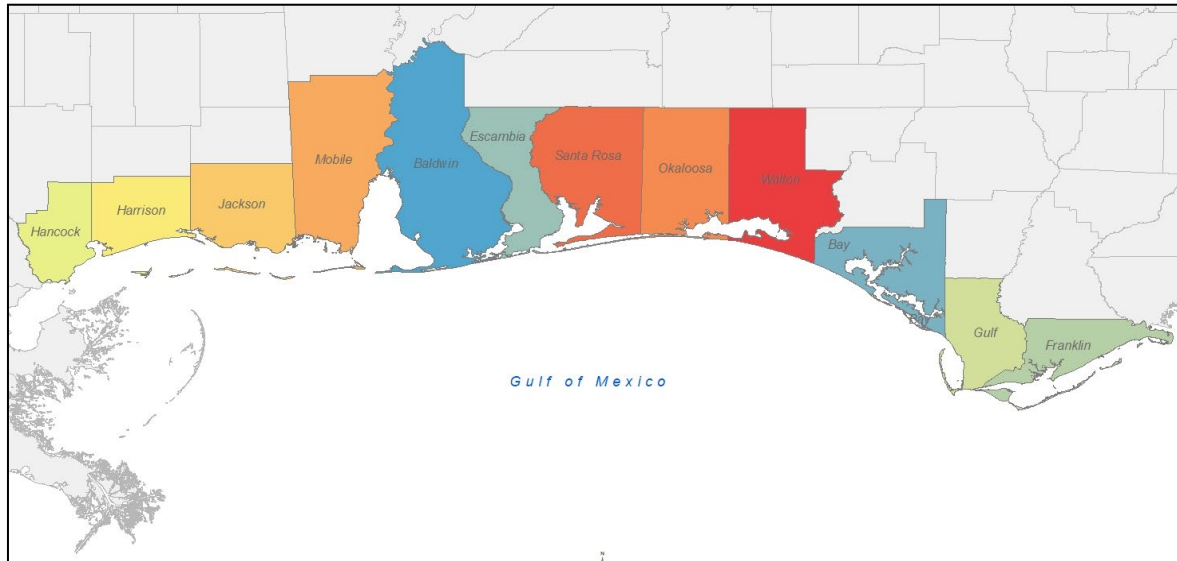


U.S. Army Corps of Engineers Regional Sediment Management (RSM) Update

BOEM Gulf of Mexico Offshore Sand Management Working Group Gulf of Mexico Sand Inventory Initiatives and Cooperative Agreements



December 8, 2022

Elizabeth S. Godsey, P.E.

Coastal and RSM Engineering Technical Lead

EWN[®] Implementation Practice Lead

US Army Corps of Engineers, Engineering Division, Mobile District



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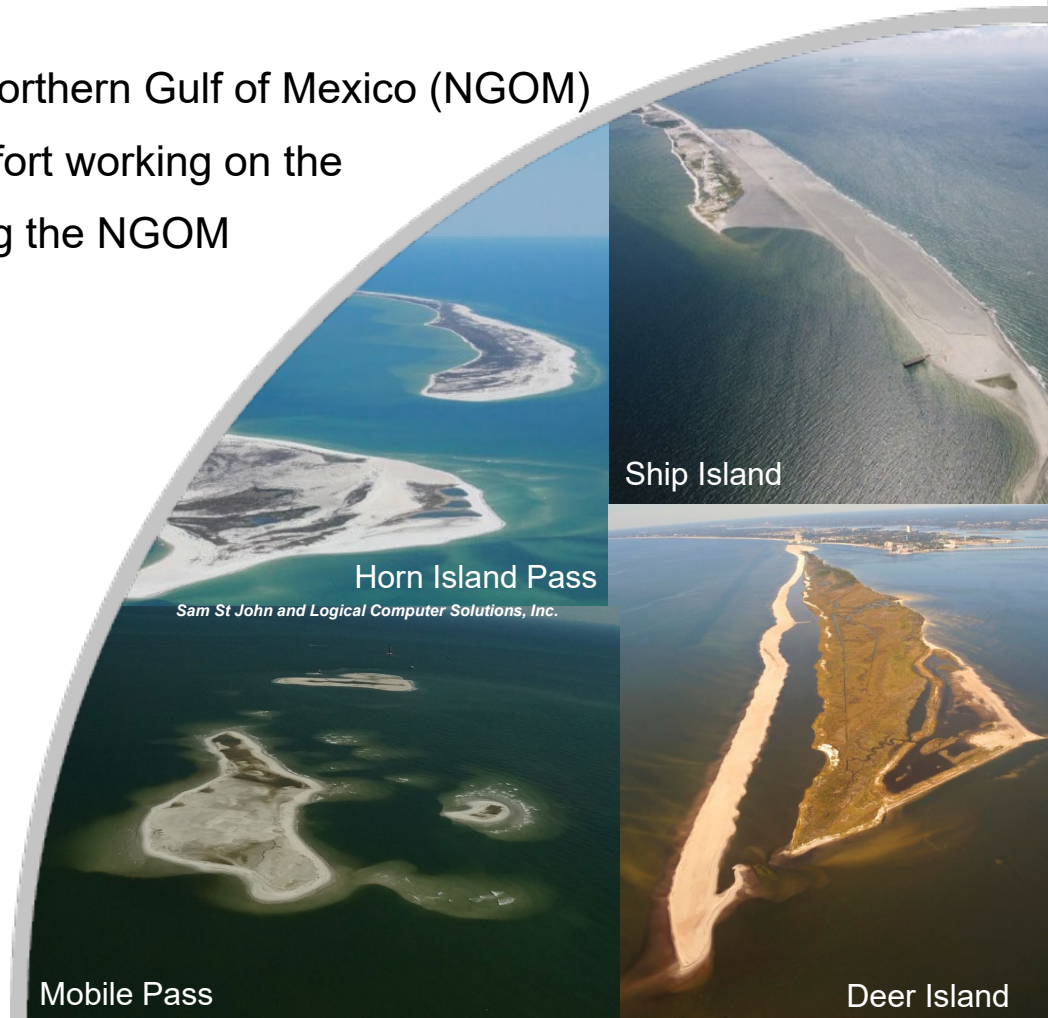
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U.S. Army Corps of Engineers Regional Sediment Management (RSM) Update

Overview

- RSM Program Overview
- Highlight RSM Initiatives along the Northern Gulf of Mexico (NGOM)
- Update on the RSM Collaborative Effort working on the Synthesis of Sediment Budgets along the NGOM



U.S. Army Corps of Engineers Regional Sediment Management (RSM) Program

RSM is a systems approach using best management practices for more efficient and effective use of sediments in coastal, estuarine, and inland environments = Healthy Systems.

National RSM Program

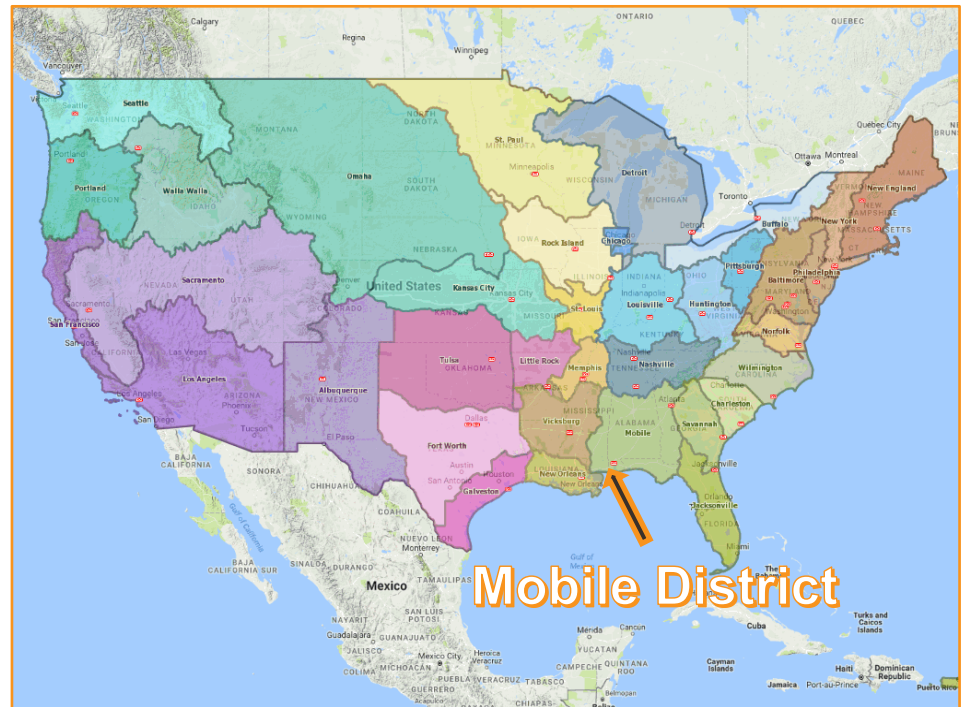
Dave Perkey, Program Manager
Tate McAlpin, Deputy Program Manager

Regional RSM Center of Expertise

Laurel Reichold, Program Manager
Matt Shrader, Planning Deputy

Mobile District Leads

Don Mroczko, Planning Lead
Herb Bullock, Operation Lead
Elizabeth Godsey, Engineering Lead



[Regional Sediment Management Website](#)



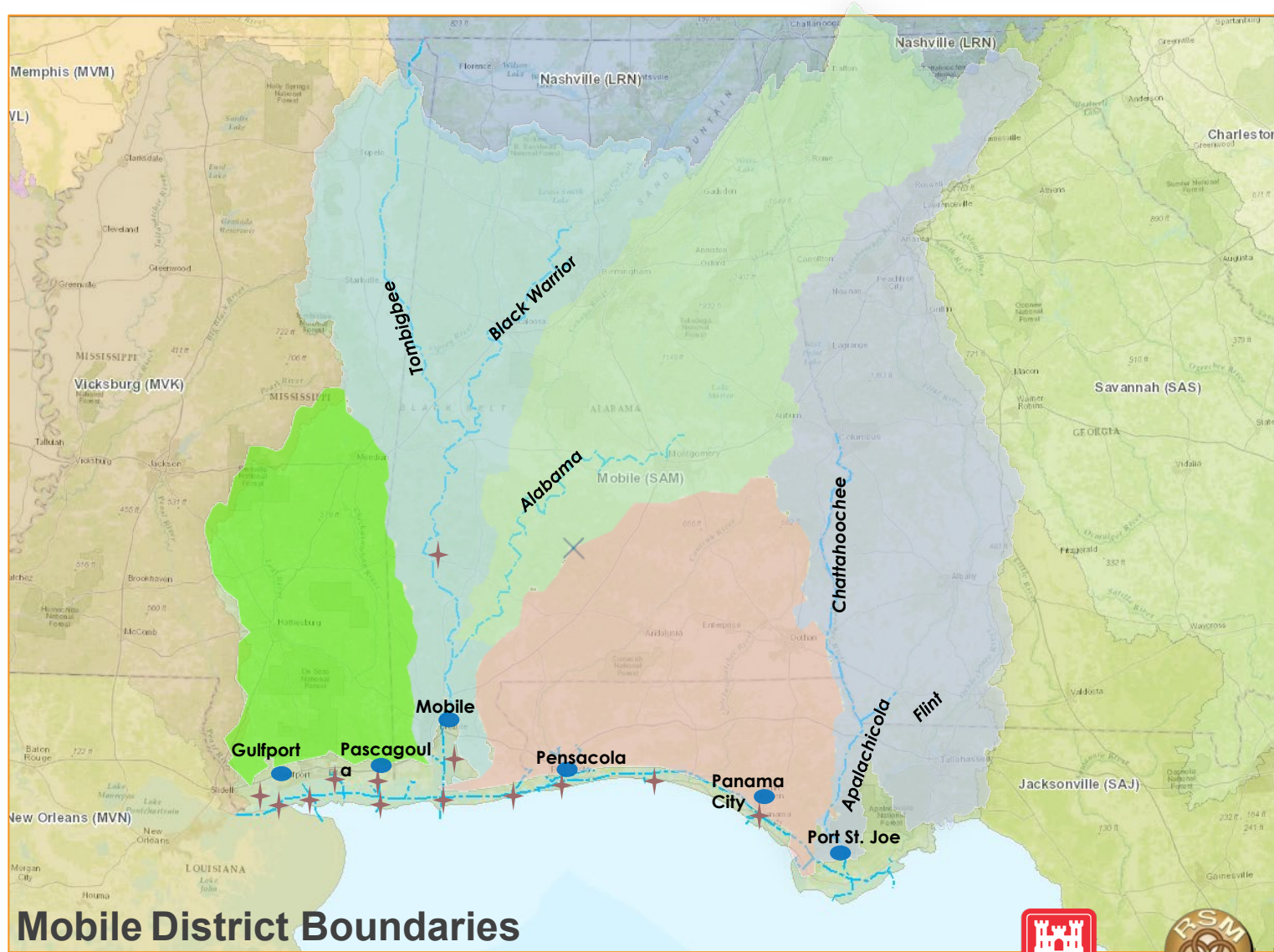
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U.S. Army Corps of Engineers Mobile District Regional Sediment Management (RSM) Initiatives



Mobile District Boundaries

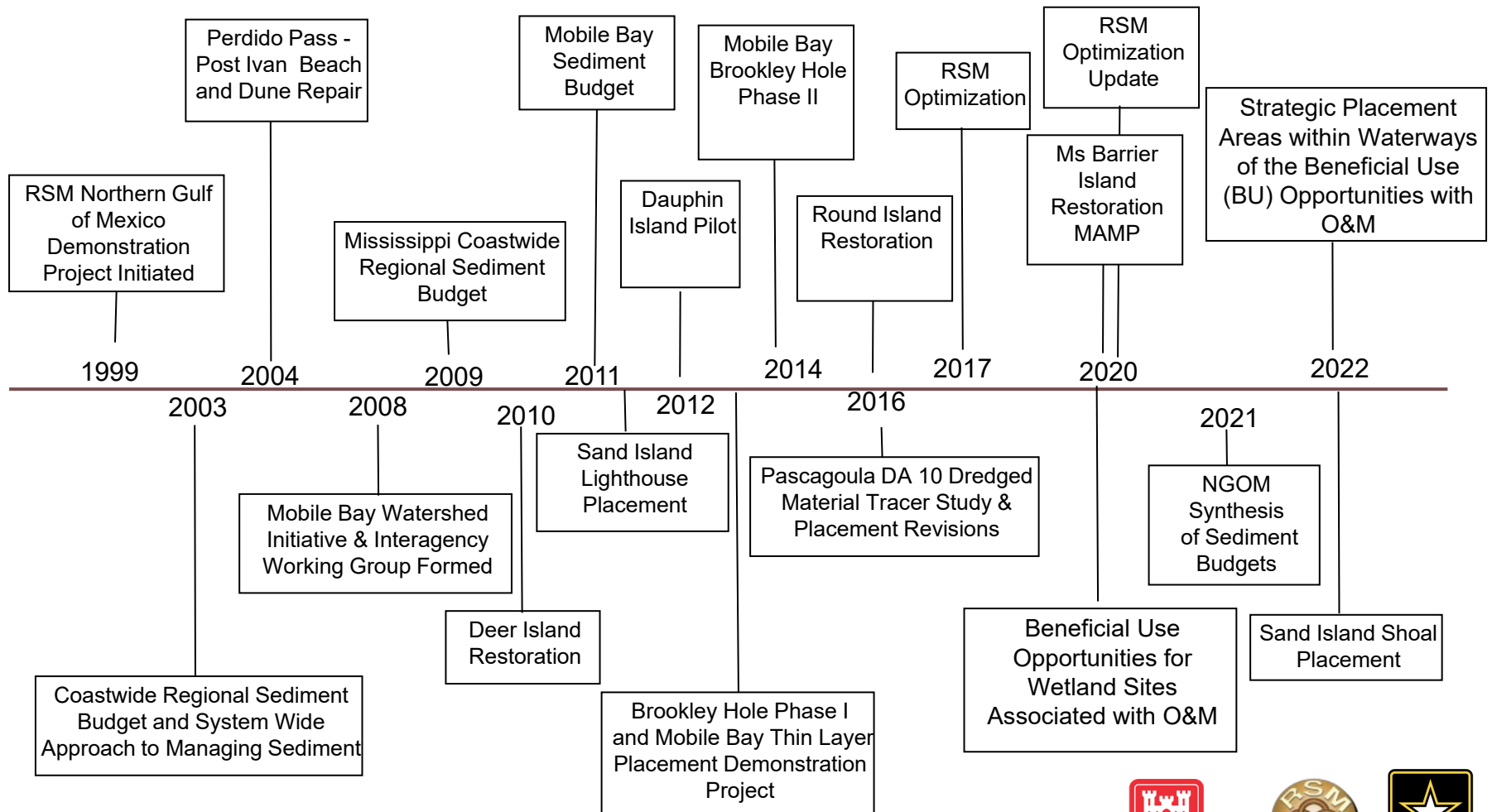
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U.S. Army Corps of Engineers Mobile District Regional Sediment Management (RSM) Initiatives



Timeline of U.S. Mobile District RSM Initiatives



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Synthesis of Sediment Budget Assessments along the Northern Gulf of Mexico

Core Project Team

Elizabeth Godsey, USACE, Mobile District

Rose Dopsovic, USACE, Mobile District

Charlene Sylvester, Engineering Research and Development (ERDC)

Sean McGill, ERDC

Mark Byrnes, Applied Coastal

Soupy Dalyander, The Water Institute of the Gulf

Rob Hollis, The Water Institute of the Gulf

Stakeholders/Partners

Florida Department of Environmental Protection (FDEP)

Alabama Geological Survey (GSA)

Mississippi Department of Marine Resources (MDMR)

National Park Service (NPS)

United States Geological Survey (USGS)

The Water Institute of the Gulf (TWI)

Gulf Mexico Alliance (GOMA)

Consulting Groups



And more...



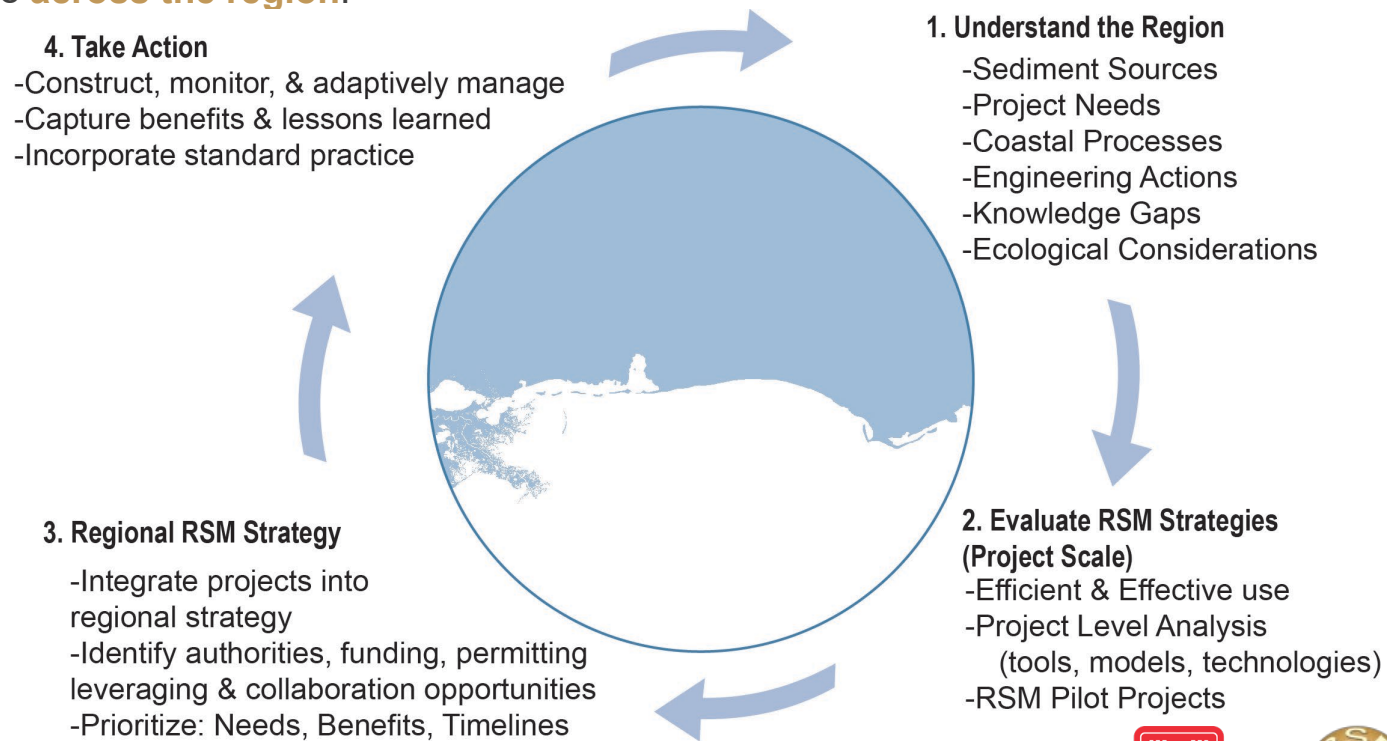
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Synthesis of Sediment Budget Assessments along the Northern Gulf of Mexico

BLUF: Multiple funding streams have provided a means by which numerous sediment transport/budget analysis have been conducted across much of the northern Gulf of Mexico. This provides a **unique** opportunity to **work with** a set of **diverse stakeholders** to **synthesize** a large body of knowledge **across the region**.



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Synthesis of Sediment Budget Assessments along the Northern Gulf of Mexico

Over **21.7 million cubic yards of sediment** has been moved along the Northern Gulf of Mexico within the Mobile District through RSM implementation to include those of the 2000 Regional Sediment Management Northern Gulf of Mexico Demonstration Project that looked at the Northern Gulf of Mexico as a system.

Past efforts conducted as part of the 2000 Regional Sediment Management Northern Gulf of Mexico Demonstration Project has led to regional sediment management **benefits of over \$2 million a year** as documented in the 2020 South Atlantic Division Regional Sediment Management Optimization Update. These benefits are primarily the economic value demonstrated in the integration of Navigation (NAV) and Coastal Storm Risk Management (CSRSM)

Relationship building, knowledge and tool sharing, better system understanding, and collaboration leads to long term RSM benefits.

[Regional Sediment Management: Background and Overview of Initial Implementation Report](#)

[USACE - South Atlantic Coastal Study Website](#)



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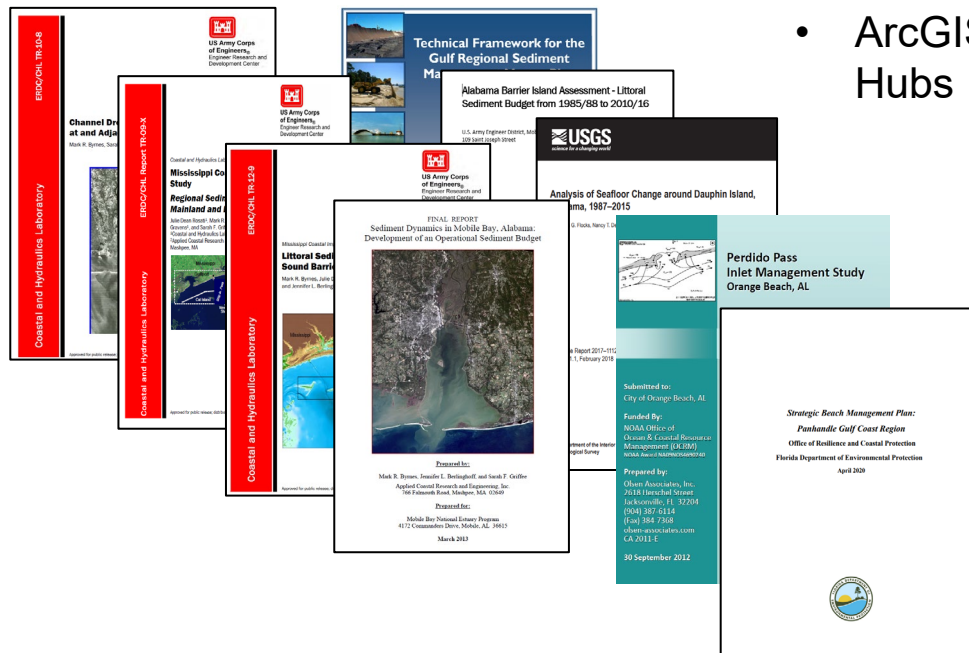
Synthesis of Sediment Budget Assessments along the Northern Gulf of Mexico

Challenge/Objectives

- Highlight existing tools and technologies
- Synthesize available sediment budgets
- Identify existing methods and gaps (spatial areas with limited and/or outdated coverage)
- Identify opportunities across multiple management entities

Approach

- Highlight existing tools and technologies to include:
 - Compile and format data input into a single repository and database that can be spatially referenced
 - ArcGIS Pro Sediment Budget Analysis System
 - ArcGIS Online Dashboards and Hubs

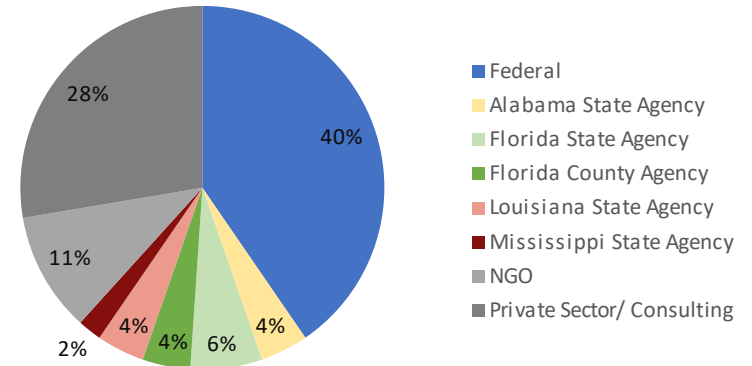


Synthesis of Sediment Budget Assessments along the Northern Gulf of Mexico

Workshop #1 (6/21/2022)

- Introduction of USACE Initiative
- Overview of draft NGOM Sediment Budget Synthesis Tool
- Discussion: synergies with other efforts, priori needs, etc.

Workshop 1 Participants

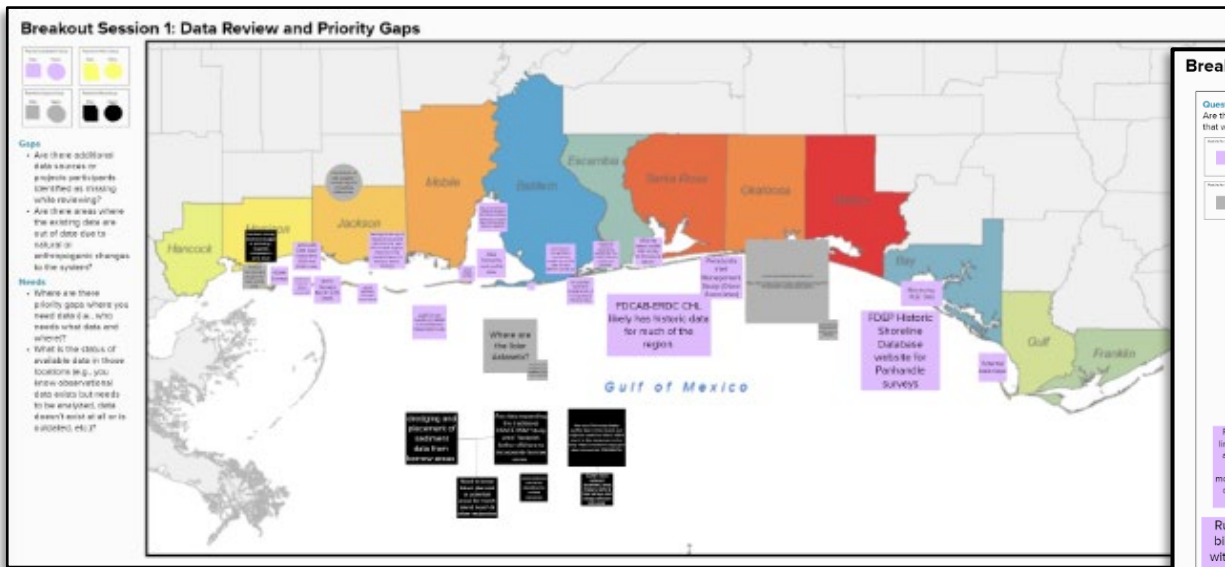
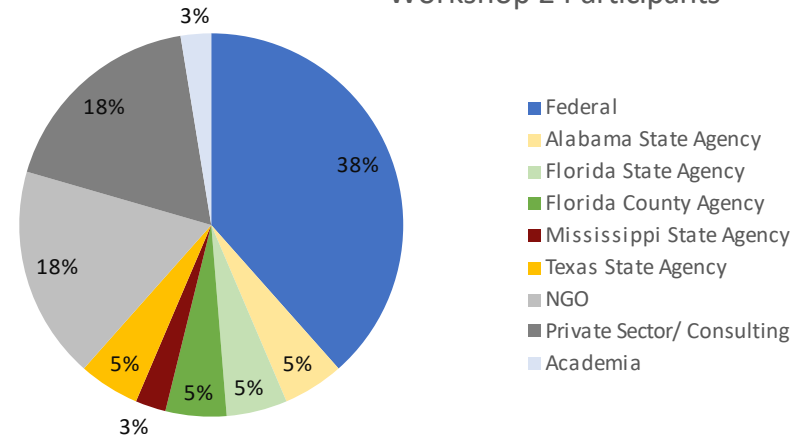


Synthesis of Sediment Budget Assessments along the Northern Gulf of Mexico

Workshop #2 (8/25/2022)

- Updates to NGOM Sediment Budget Synthesis Tool
- Working sessions:
 - Available data & analysis, priority
 - Regional tool development

Workshop 2 Participants



Breakout Session 2: Regional Tool Development

Question Prompt:
 Are there modifications that can be made to the NGOM Sediment Budget Synthesis Tool that would enhance its use?

Legend:
 Needs: Purple (Priority gaps where you need data), Yellow (Who needs what data and when?), Black (What is the status of available data in those locations (e.g., you know observational data exists but needs to be analyzed, data doesn't exist at all or is a different unit?))

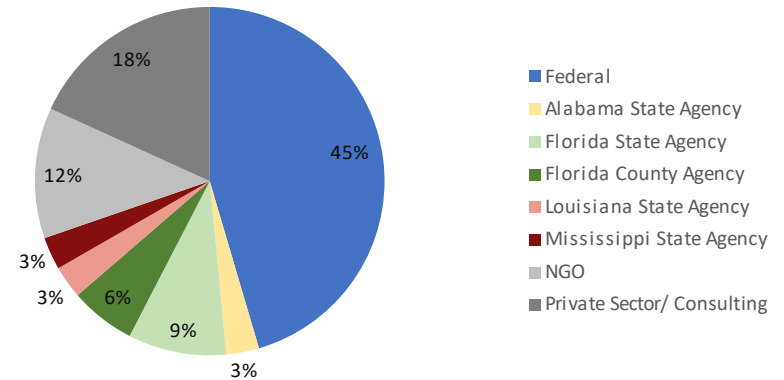
Notes on Session:
 - "Add of map of all data that is available at individual layers (BOW, ...)"
 - "For the resources by phase-based budget calculations and final budgets - would be nice if these could be organized or coded by general time frame (event, decadal, historic, ...)"
 - "FDEP OCULUS links can provide access to post-construction monitoring reports or other similar reports."
 - "Running live bibliography with links, etc. (possibly pulled from the project entries?)"
 - "Page that list the existing databases and things you find. Quick links. Comprehensive description that is there. How would you use it."
 - "add human use and storm impacts has value"
 - "Data gaps: (1) Data gaps in the..."
 - "Data gaps: (2) Data gaps in the..."
 - "When adding data sets to the tool, if a project report is not available for a data set, please make sure a descriptive report of the data set is provided - details, limitations, inaccuracies."


Synthesis of Sediment Budget Assessments along the Northern Gulf of Mexico

Workshop #3 (11/9/22)

- Stakeholder Priorities
- Options for continued, coordinated action
- Identification of pathways to next steps (coordination, funding, etc.)

Workshop 3 Participants





Conceptual framework to establishing screening level regional sediment budget

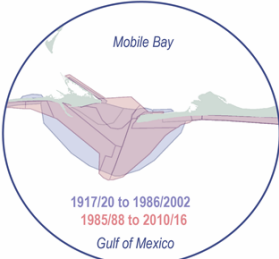
- 1) Resolve discrepancies between existing Mississippi/Alabama sediment budgets
 - 1a) Standardize littoral cell definitions
 - 1b) Build budgets for new timescales where needed
 - 1c) Use observational data as verification for model derived rates, unless observational data has high uncertainty
- 2) Use available resources (bathymetry, dredge records, lidar and beach surveys) to fill gaps between existing sediment budgets
- 3) Identify and implement priority data collection to complete regional sediment budget
- 4) Work with partners to develop screening tool/framework for disseminating information
- 5) Create plan for maintaining/updating regional sediment budget and screening tool

Challenges of maintaining regional sediment budget

Storm impacts
Washover volumes
New inlet formation

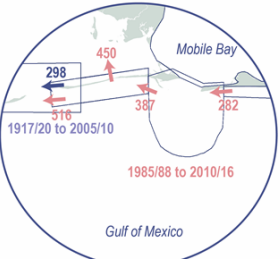
Human Modification
New dredging and placement
Hard structure modification/construction
Channel modification
Beach nourishment

Challenges of combining existing sediment budgets



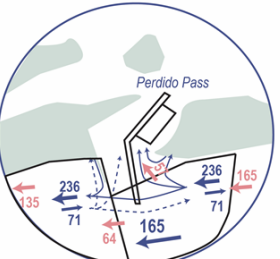
1917/20 to 1986/2002
1985/88 to 2010/16

Variable Defined Littoral Cells
Variable Timescales
Variable Datums



1917/20 to 2005/10
1985/88 to 2010/16

Down-drift discrepancies
Boundary Conditions

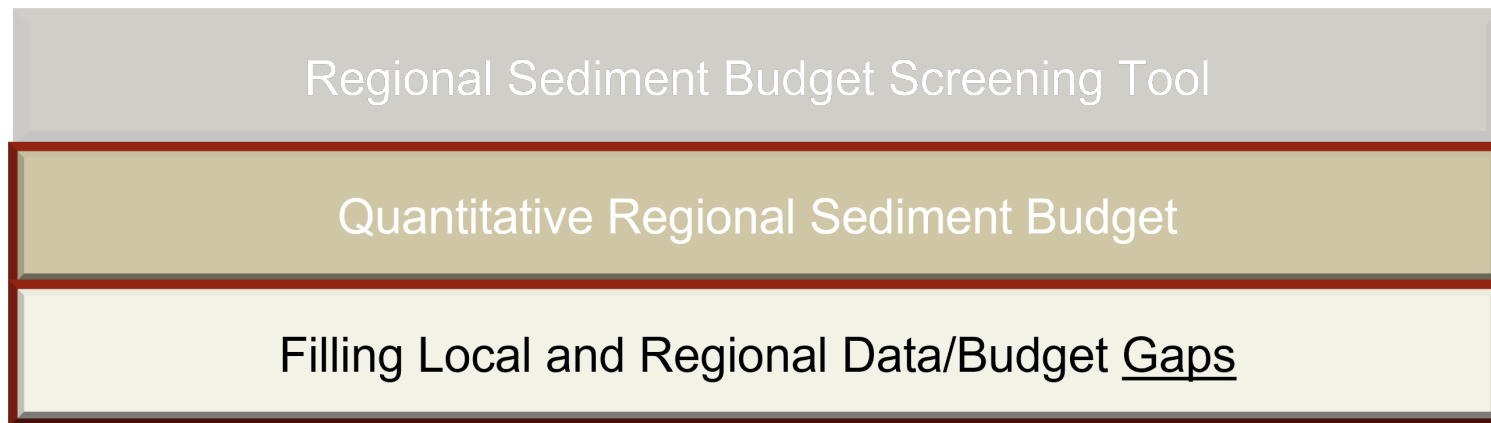


Data gaps between existing budgets
Budgets generated using different methods

Synthesis of Sediment Budget Assessments along the Northern Gulf of Mexico

Regional Sediment Budget Development: Input on Priorities

- **Regional Sediment Budget Screening Tool:** online tool that identifies hotspots, areas of priority data collection, etc. for use in efforts that might not have sediment budget information
- **Quantitative Regional Sediment Budget:** development of a robust regional sediment budget that integrates data and information across state, project boundaries
- **Filling Local and Regional Data/Budget Gaps:** focused data collection and sediment budget development in areas where information is missing or outdated



Synthesis of Sediment Budget Assessments along the Northern Gulf of Mexico

Accomplishments

NGOM Sediment Budget Synthesis Tool online and available for your use. “Living” tool for identifying available sediment budgets and data

Next Steps

Report summarizing workshops and suggested action items will be completed and released early 2022



Northern Gulf of Mexico: Sediment Budget Assessments

Home About NGOM Resources & Reports Resources by Phase Sediment Budget Process Submit your Resource!

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Multiple funding streams have provided a means by which numerous sediment transport/budget analysis have been conducted across much of the northern Gulf of Mexico. This provides a unique opportunity to work with a set of diverse stakeholders to synthesize a large body of knowledge across the region. [Learn More >>](#)

[View Resources & Reports](#) [Data Availability Survey](#)

Submit Resources & Reports

Fill out [our Data Availability Survey](#) to identify these projects or datasets to support the Northern Gulf of Mexico sediment budget.

This task identifies prior and ongoing projects collecting data and/or conducting analysis in support of an updated regional sediment budget for the northern Gulf of Mexico. This helps to synthesize available data and identify gaps. In addition this effort will help to identify synergies across multiple management entities to inform leveraging opportunities (e.g., externally funded studies that can be leveraged in USACE planning as well as advance and increase awareness of USACE regional sediment management).

[Northern Gulf of Mexico: Sediment Budget Assessments](#)