BENEFICIAL USE OF DREDGED MATERIAL FOR COASTAL HABITAT RESILIENCY| SOUTH CAROLINA SUMMARY

PROJECT OVERVIEW

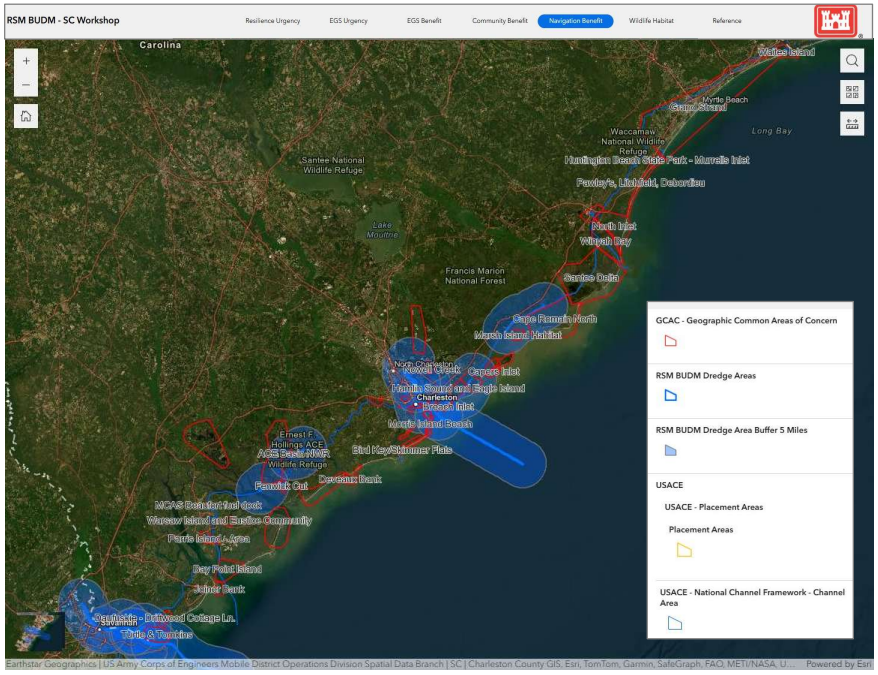
As sea level rises, our coastal salt marshes and intertidal ecosystems have two options: migrate or drown. If salt marsh accretion is unable to keep pace with sea level rise, beyond the inherent loss of habitat value, increased inundation may result in conversion to open water, increased hazards to navigation such as higher waves, and increased siltation of navigation channels. The U.S. Army Corps of Engineers (USACE) dredges over 39 million cubic yards of sediment, annually/cyclically, from areas in North Carolina, South Carolina, and Georgia. Through Regional Sediment Management (RSM) planning and Beneficial Use of Dredged Material (BUDM) we can improve ecosystem health and provide habitat for numerous species and climate hazard risk. This effort brought together key regional partners to analyze sediment availability and match future dredging plans to specific coastal restoration priority areas. Through an interactive process, stakeholders identified four sites, and appropriate BUDM project types, in each state with potential to beneficially use dredged material from nearby channels to restore habitat.

BENEFICIAL USE SITE SELECTION

A web mapping application was used during stakeholder workshops to facilitate discussion, evaluation, and delineation of potential BU sites.

The tool provides the ability to view aspects of the current condition of potential sites as well as future impacts of sea level rise. Site selection focused on considering these conditions in combination with a site's proximity to navigation channels that can provide appropriate sediment to maintain, restore, or create desired habitat.

Use this QR code to access the tool:



SC Webapp Tool: https://experience.arcgis.com/experience/794a832145324b19bfe1adb811338eb0/

BENEFICIAL USE SITE EVALUATION

The web mapping application provides a data-driven approach to score and compare potential sites based on six beneficial use site prioritization metrics* (BUSPM):

1) **Resilience Urgency** – calculated flood risk to environmental and cultural resources, infrastructure, and socially vulnerable populations plus proximity to NFWF Resilience Hubs.
2) **Ecosystem Goods and Services (EGS) Urgency** – measured level of ecosystem change or estimated vulnerability to future change.
3) **Ecosystem Goods and Services (EGS) Benefit** – estimated loss of EGS benefits under predicted sea level rise and habitat conversion.
4) **Community Benefit** - proximity to a disadvantaged community as mapped by the Climate and Economic Justice Screening Tool.
5) **Navigation Benefit** - proximity to a mapped dredged area with potential to provide sediment for beneficial use and increased risk of channel shoaling.
6) **Wildlife Habitat** - level of opportunity to improve and protect important wildlife habitat areas based on multiple data layers and expert knowledge.

The site evaluation provided each delineated site with BUSPM scores of low=1, medium=2, or high=3 which were added for a cumulative score. Sites with the highest scores include:

Score	Site SOUTH CAROLINA	Resilience Urgency	EGS Urgency	EGS Benefit	Community Benefit	Navigation Benefit	Wildlife Habitat
18	Marsh Island Habitat	3	3	3	3	3	3
18	Copahee Sound and Dewees Island	3	3	3	3	3	3
17	Plum Island	3	3	3	2	3	3
17	Huntington Beach State Park - Murrells Inlet	3	2	3	3	3	3
16	Fenwick Cut	2	3	2	3	3	3
16	Hamlin Sound and Eagle Island	2	3	3	2	3	3
16	Capers Marsh	2	2	3	3	3	3
16	Santee Delta	2	2	3	3	3	3

*BUSPM are based on published authoritative federal, state, NGO, and academic geospatial data sources.

SOUTH CAROLINA PRIORITY SITES

Metrics used in the site evaluation represent important considerations when prioritizing decisions for BUDM but do not represent all considerations used for final site selection. The South Carolina stakeholder group prioritized the following four sites based on the process described above as well as implementation readiness, expert knowledge, and several other factors. Additional information on each site is provided on the reverse side.

MARSH ISLAND HABITAT, BULLS BAY

FENWICK CUT, EDISTO

SANTEE DELTA, SC

CAPE ROMAIN MARSH

A collaborative, data-driven approach to identify and prioritize beneficial use of dredged material (BUDM) opportunities for coastal habitat resilience throughout Georgia, South Carolina, and North Carolina.

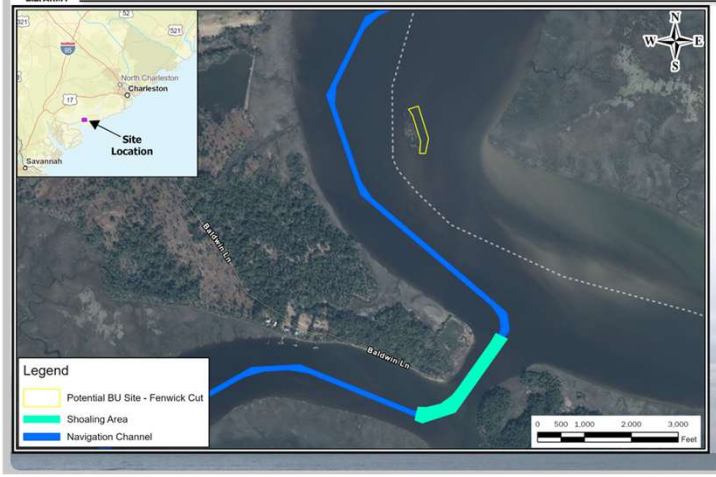
BENEFICIAL USE OF DREDGED MATERIAL PRIORITY SITES | SOUTH CAROLINA

MARSH ISLAND HABITAT BULLS BAY, SC

Sediment Source: ~180kcy of dredge material from the AIWW Graham Creek Reach (5179+00 to 5244+00), silt/mix material. Dredge frequency is 36 months. Distance from source is approximately 4 miles.

Restoration Potential:~24 acres backside marsh/intertidal mud flat habitat for seabirds. Construction to avoid nesting season and potential for multiple placement events to achieve desired footprint. Could be a recurrent project to support shoal formation and build out the back marsh.

FENWICK CUT EDISTO, SC



Sediment Source: ~21kcy of dredge material from the AIWW Fenwick Cut 48-68% sand material. Dredge frequency is 36 months. Distance from source is approximately <1 mile.

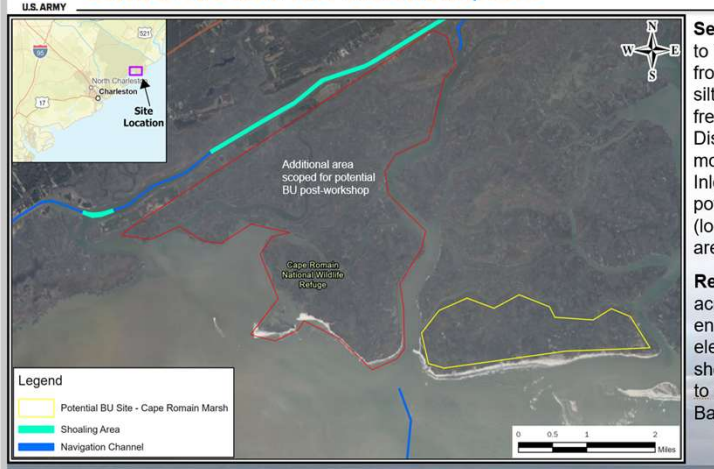
Restoration Potential:~3 acres bird Island and nesting habitat. (similar to Cabin Bluff, GA site)

SANTEE DELTA, SC

Sediment Source: ~350kcy of dredge material from the AIWW Cut 62-93% sandy material. Dredge frequency is 5 years. Distance from source is approximately 6 miles.

Restoration Potential:~16 acres bird Island and nesting habitat. Area requires increase in elevation, construction outside of bird nesting season. Area is designated seabird sanctuary that would benefit from additional sediment placement (similar to Crab Bank, SC)

CAPE ROMAIN MARSH, SC



Sediment Source: ~500kcy to 750kcy of dredge material from the AIWW Cut 90-98% silty material. Dredge frequency is 36 months. Distance from source is at most 6 miles. Town Creek Inlet could be another potential source of material (located to south of both areas).

Restoration Potential: 100+ acres of marsh habitat enhancement to support elevation increase and shoreline stabilization (similar to Swan Island, Chesapeake Bay, and Avalon, NJ sites)

BENEFICIAL USE ROADMAP TO IMPLEMENTATION

1. **Identify site and potential sediment sources.**
2. **Evaluate available sediment characteristics and volume.**
3. **Delineate site by determining appropriate BUDM type and size.**
4. **Design BUDM, estimate costs and benefits.**
5. **Permitting, funding, and final scheduling.**
6. **Implementation!**

This project helped facilitate the completion of steps 1, 2, and 3.