

REGIONAL SEDIMENT MANAGEMENT (RSM) CHALLENGES AND OPPORTUNITIES OF BENEFICIALLY USING 20 MILLION CUBIC YARDS OF SAND FROM THE TAMPA HARBOR NAVIGATION IMPROVEMENT PROJECT

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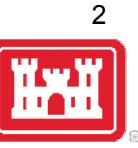
US Army Corps
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WHY DO WE CARE ABOUT BENEFICIAL USE OF DREDGE MATERIAL (BUDM)?



1. Maintain sediment in the natural system/ maintain natural system features direct correlation to navigation benefits.

Texas Study found that loss of an in-bay protective barrier island increased siltation by 500% along the GIWW.





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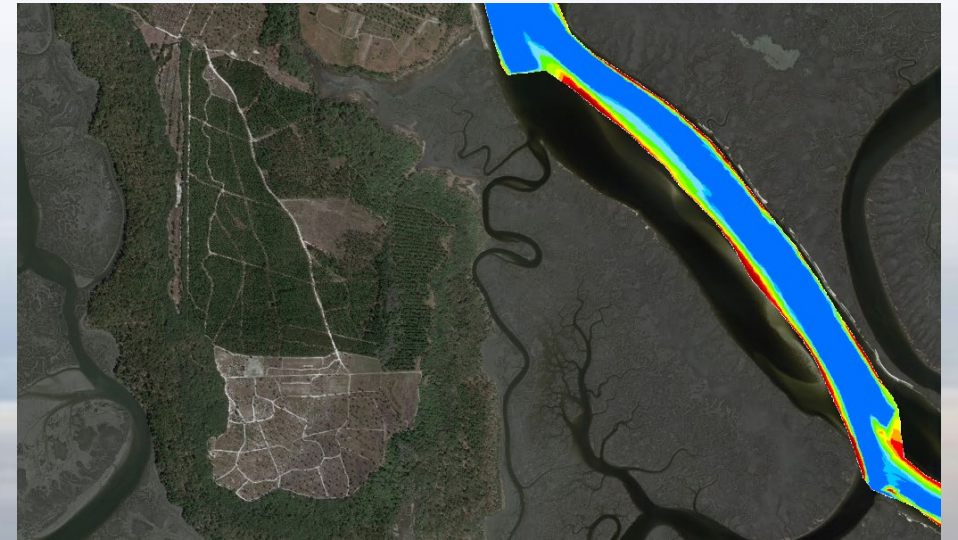
\$15/cy Existing DMMA



\$18/cy BUDM



\$29/cy New DMMA

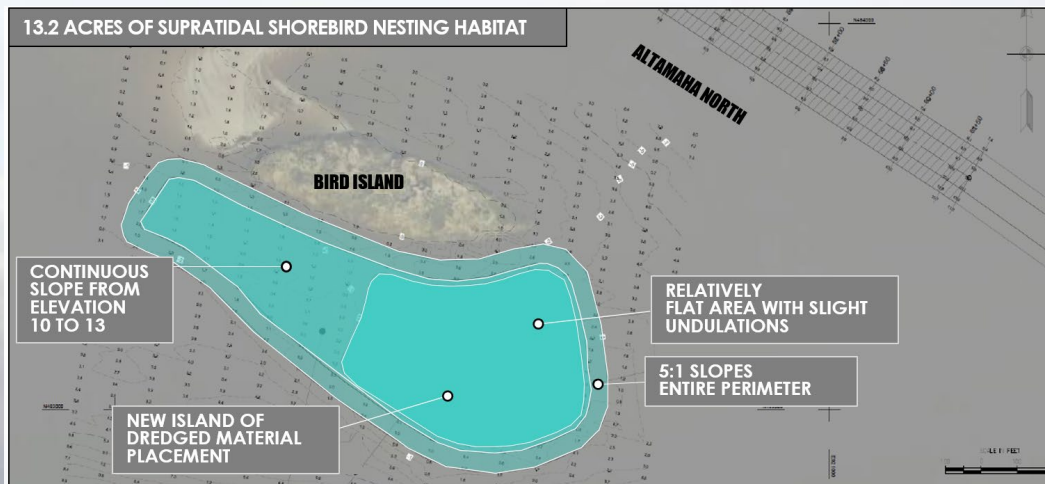




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3. Build habitat - creation/restoration (Natural/Nature-based Features - NBNF) has direct environmental and recreational (tourism) benefits

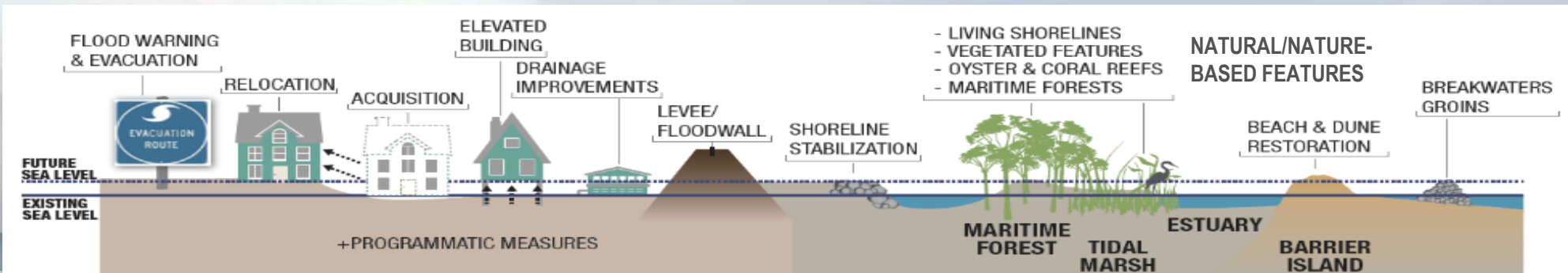




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5. **The Cost of NOT implementing BUDM would be ~\$100M additional per dredge cycle across the South Atlantic Division coastal program.**

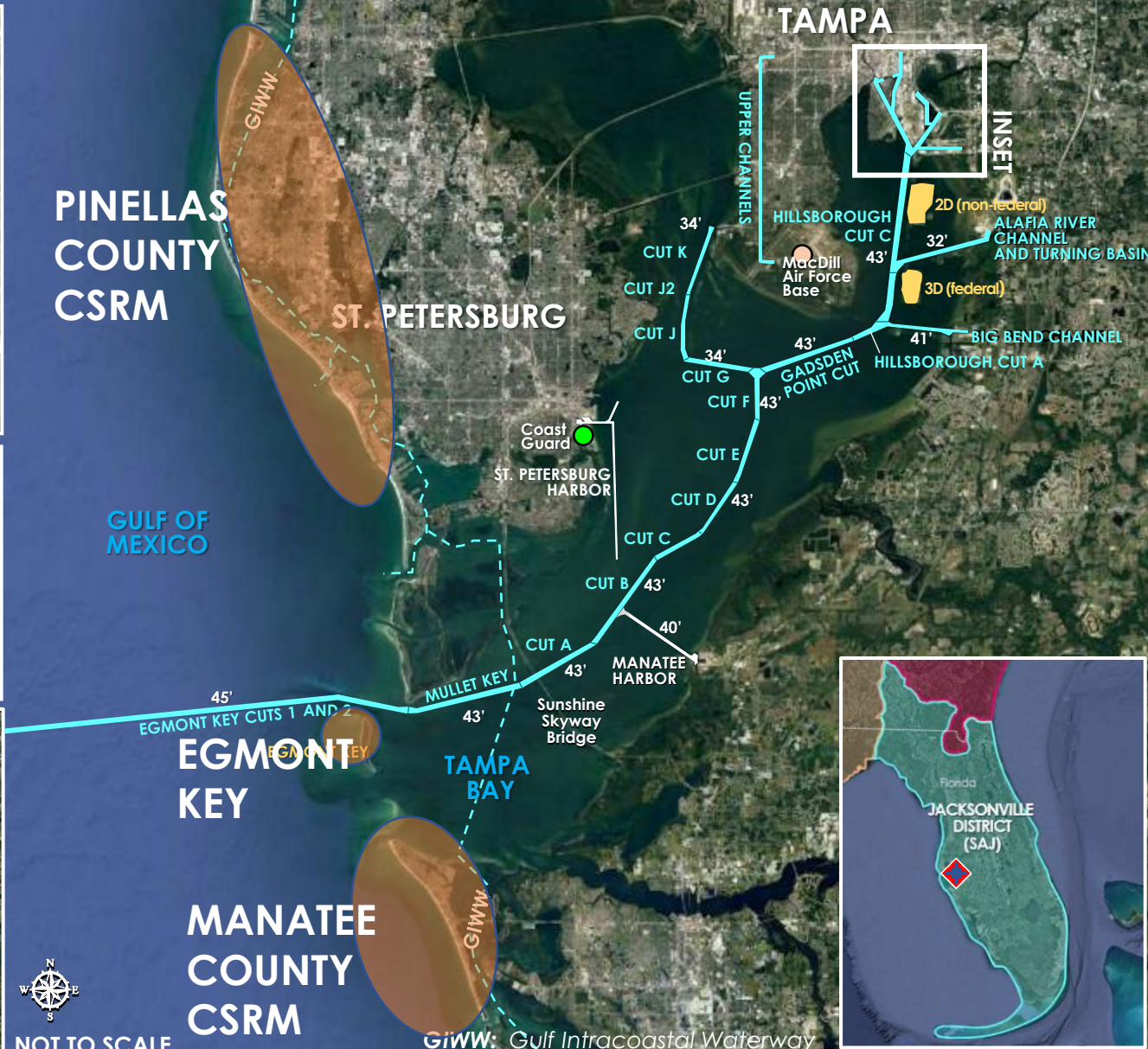
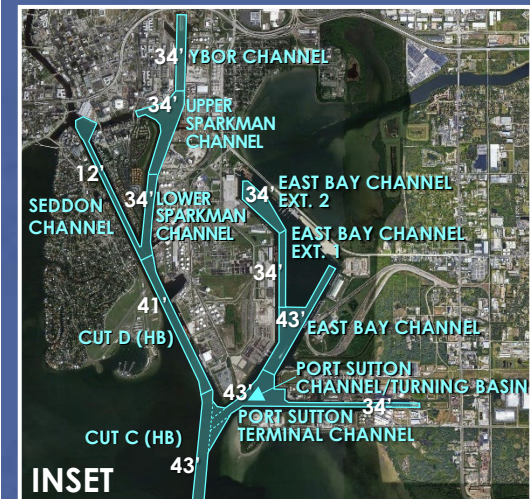
TAMPA HARBOR

Local Sponsor: Port Tampa Bay



0221

Placement Areas
 Turning Basins
 # Depths
 Military: ● Coast Guard ● Air Force



CARGO TYPES
<ul style="list-style-type: none"> ▪ Cargo ▪ Container ▪ Cruise
TONNAGE (millions)
29.3
DOLLAR VALUE (billions)
\$ 8.7

MAINTENANCE
<ul style="list-style-type: none"> ▪ Dredging Frequencies (averages): <ul style="list-style-type: none"> - Entrance (Egmont Cuts, Mullet Key): 6 years - Tampa Bay Cuts (Cut A-F): 2 years - Gadsden/Hillsborough Bay Cuts: 3 years - Upper Channels: 3 years - Alafia River: 3 years - Big Bend: 4 years (not yet maintained) - Old Port Tampa (Cuts G-K) : 5 years ▪ No dredge restrictions; typically, Hopper in the main channel (Egmont through Hillsborough Bay Cuts) and cutter-suction/mechanical in upper and side channels ▪ Advance Maintenance: <ul style="list-style-type: none"> - Alafia River Channel (33' + 1') and Turning Basin (34' + 1') - Hillsborough Cuts A and C, and Port Sutton Channel and Turning Basin (44' + 1')
SPECIAL CONSIDERATIONS
<ul style="list-style-type: none"> ▪ Undergoing Feasibility Study

Feasibility Study

- Purpose is to develop a plan to reduce navigation transportation costs and improve navigation efficiency.
- Scheduled to produce a Tentatively Selected Plan by May 2023.
- Study will include a 50-year analysis of dredge material management



NOT TO SCALE

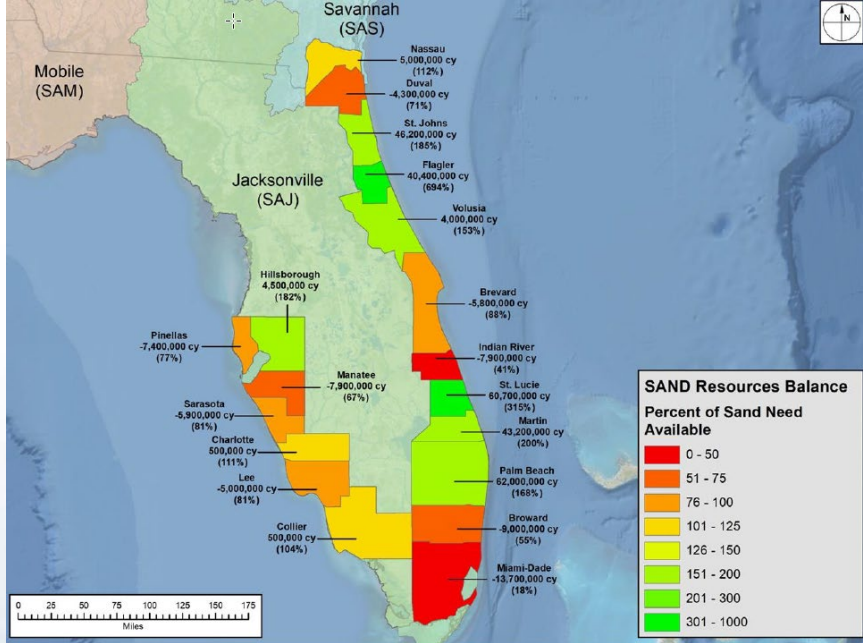
GIWW: Gulf Intracoastal Waterway



HOW VALUABLE IS SAND IN THIS REGION?



The Sand Availability and Needs Determination (SAND) study



PINELLAS BEACH EROSION CONTROL PROJECT -7,400,000 CY (77%)



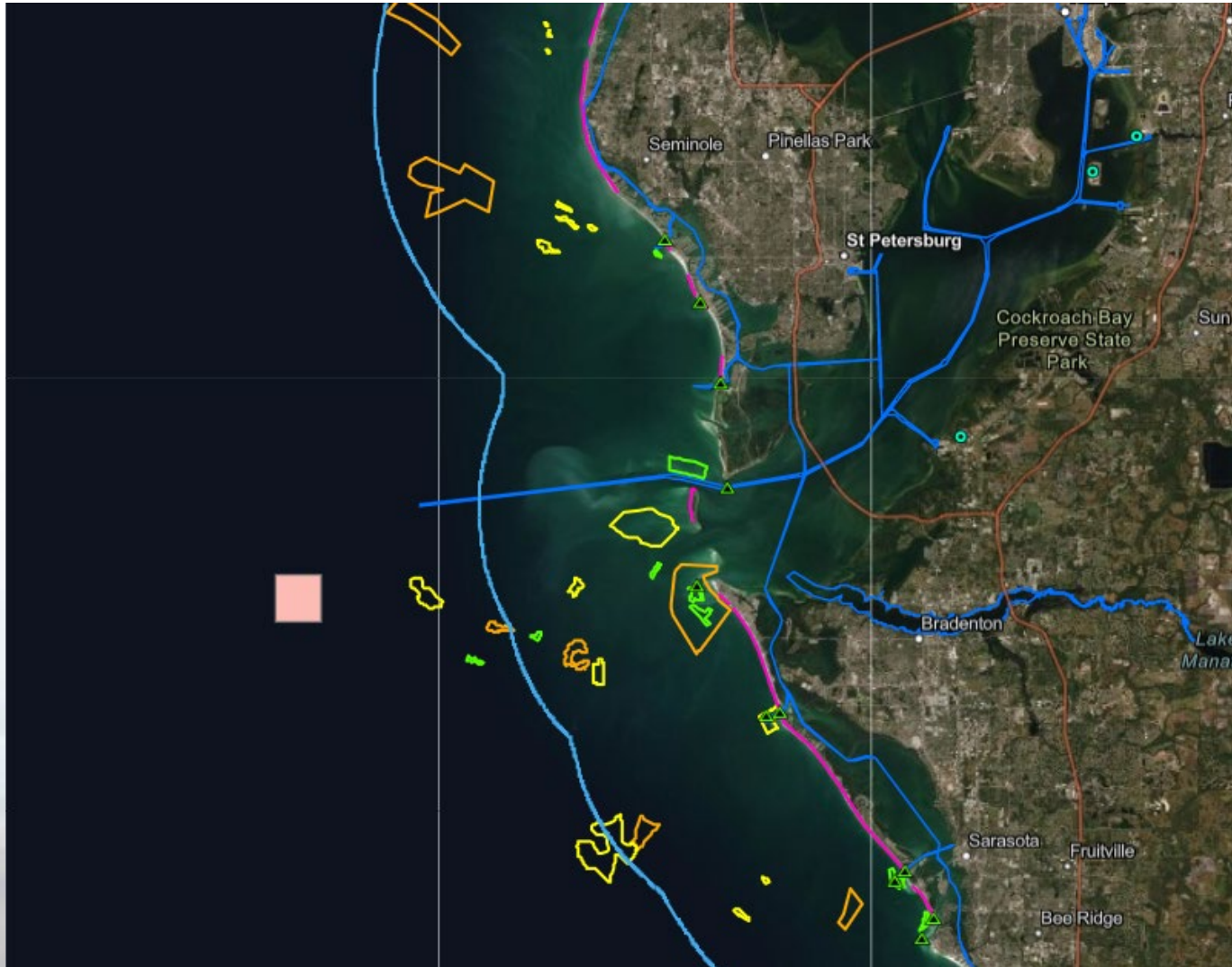
MANATEE COUNTY SHORE PROTECTION PROJECT -7,900,000 CY (67%)



The 50-year sand needs reflect an estimated volume based on the average annualized fill volume of past nourishments forecast over 50 years.



BENEFICIAL USE OF SAND OPPORTUNITIES



1. Beach nourishment (federal and non-federal opportunities)
2. Nearshore placement to act as feeder berms.
3. Recharging previously used borrow areas.
4. Staging sand in other areas for future use, and/or to allow fines to winnow out.

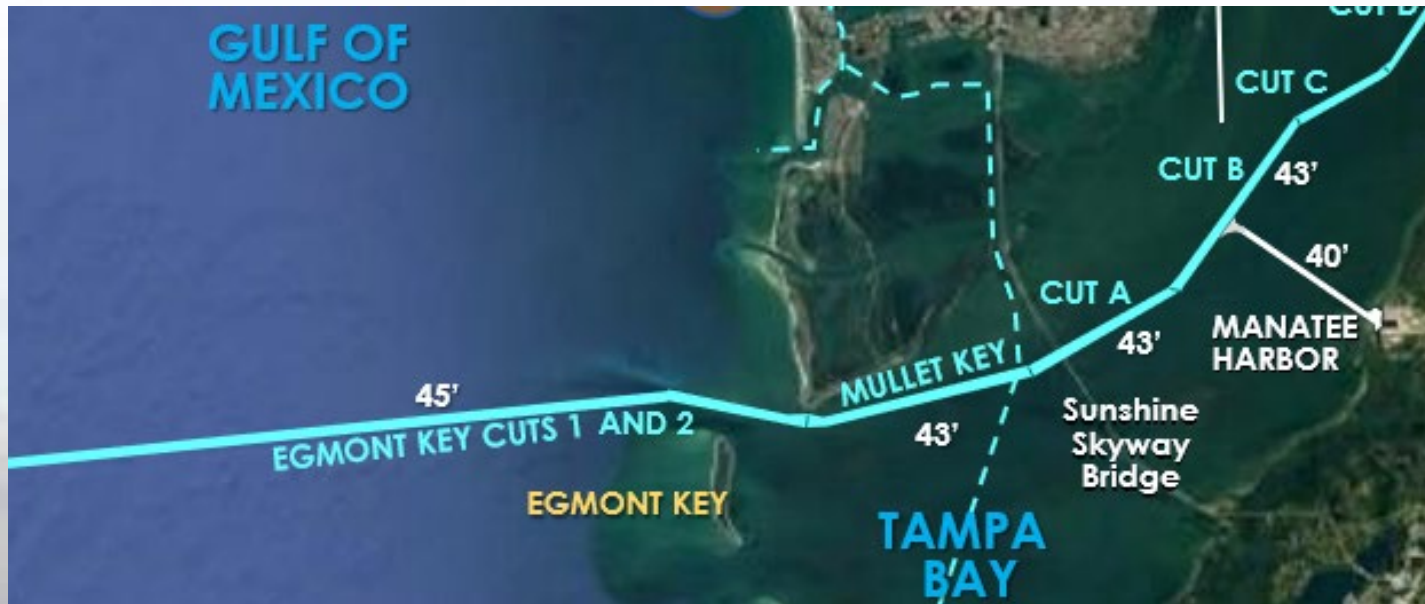
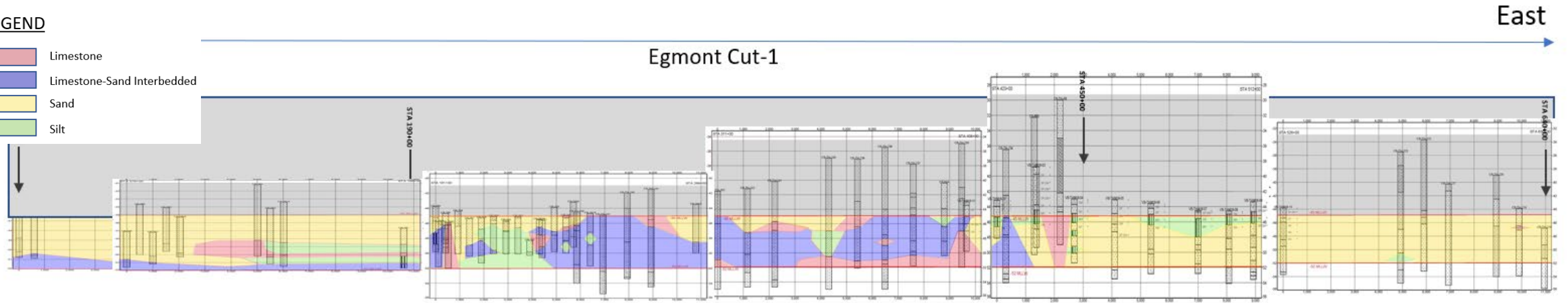


HOW MUCH SAND IS IN THE DREDGING PRISM?



LEGEND

- Limestone
- Limestone-Sand Interbedded
- Sand
- Silt





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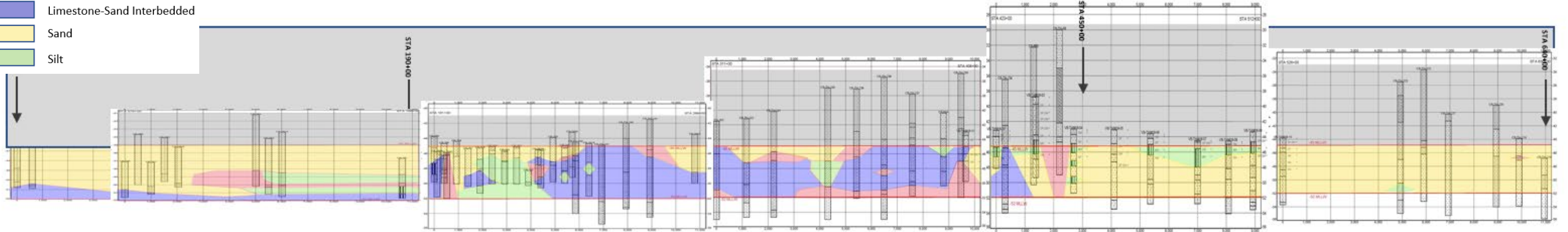


LEGEND

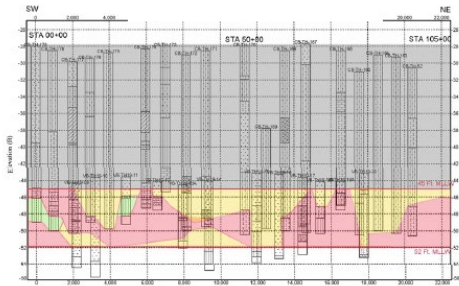
- Limestone
- Limestone-Sand Interbedded
- Sand
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East

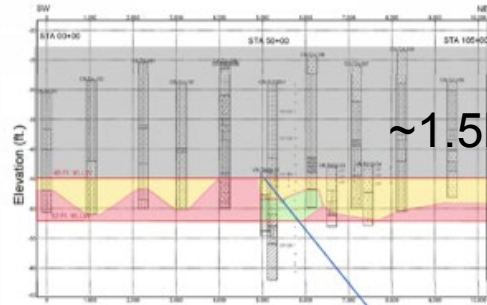
Egmont Cut-1



Cut-B (TB)



Cut-C (TB)

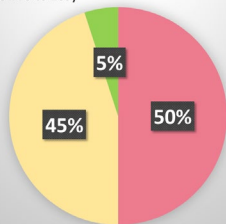


Cut-D (TB)

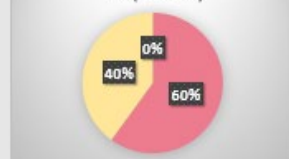


~1.5MCY

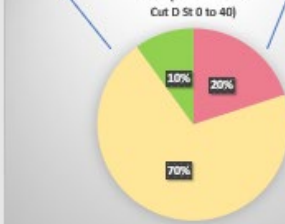
Cut B (STA 0 to 209)



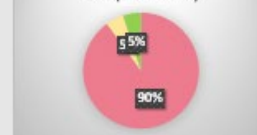
Cut C (STA 0 to 50)



Cut C (STA 50 to 105
Cut D St 0 to 40)



Cut D (STA 40 to 131)



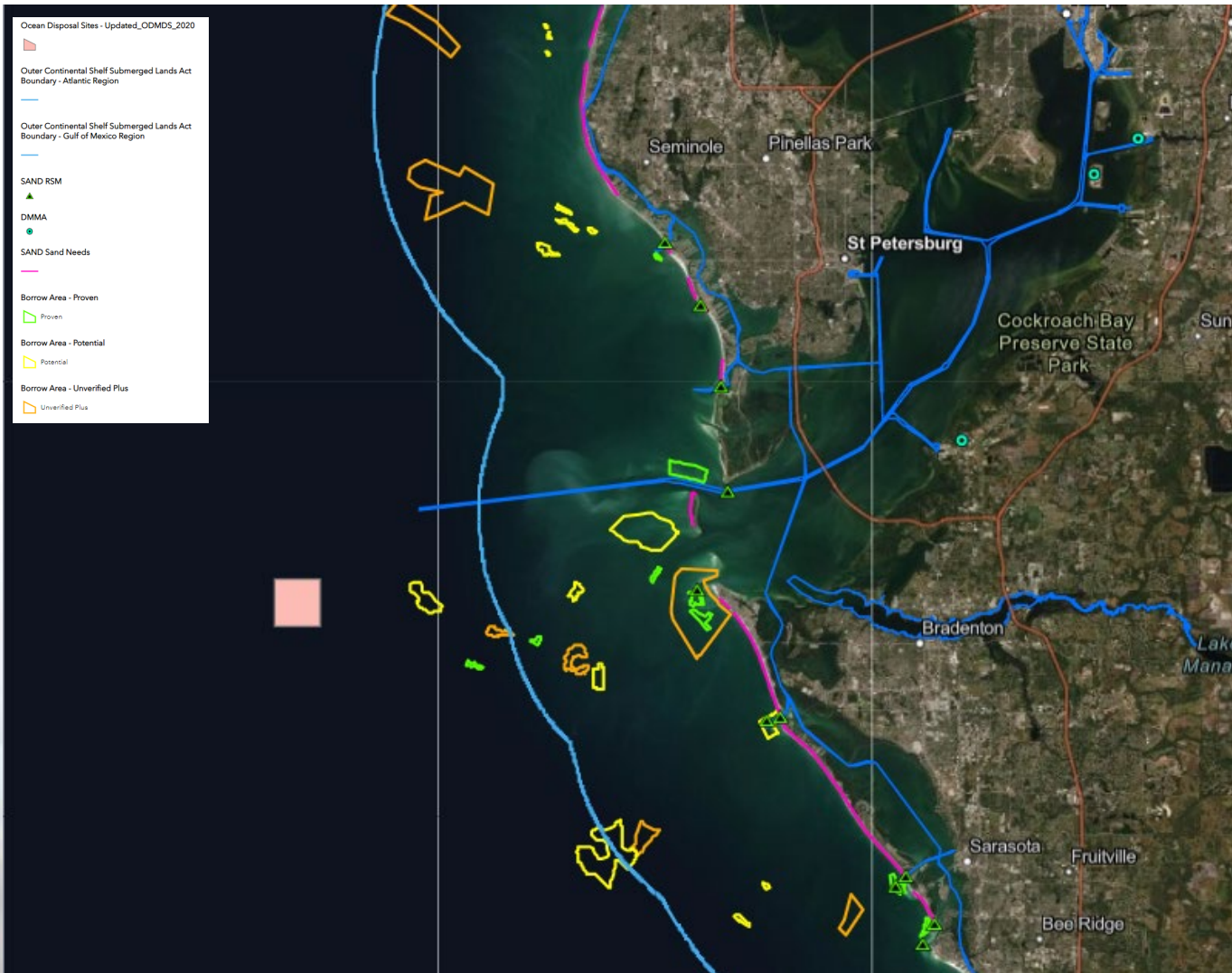
52' MLLW; total sand 17MCY

57' MLLW; total sand 33MCY

0-30% silt



MAXIMIZING BENEFICIAL USE OF THE SAND



CHALLENGES

At what point does extraction of the sand become overly burdensome and drive costs up?

What is the optimal dredge plant / haul distance formula to maintain the RSM savings?

Will up to 30% silt require extra monitoring for environmental impacts?

What are the legal and real estate constraints?

OPPORTUNITIES

Prolongs capacity for upland sites \$/CY savings.

Alleviates 50+ yr sand deficient(-15.3Mcy).

Saves money on additional investigations and permitting of new sites needed to address deficit.

R&D advancements to demonstrate fate of fines research, sorting and dredging innovations.

Demonstrates value of RSM recharge on large scale.



CONTACT AND LINKS OF INTEREST



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<https://rsm.usace.army.mil/>

<https://www.sad.usace.army.mil/RSM-RCX/>

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

<https://data-sacs.opendata.arcgis.com/pages/sand>

<http://sajgeo.saj.usace.army.mil/rsm-dash>

<https://data-sacs.opendata.arcgis.com/>

<https://ewn.el.erdc.dren.mil/>

<https://rsm.usace.army.mil/budb>



THANK YOU