

# EVOLUTION OF THE FEDERAL STANDARD

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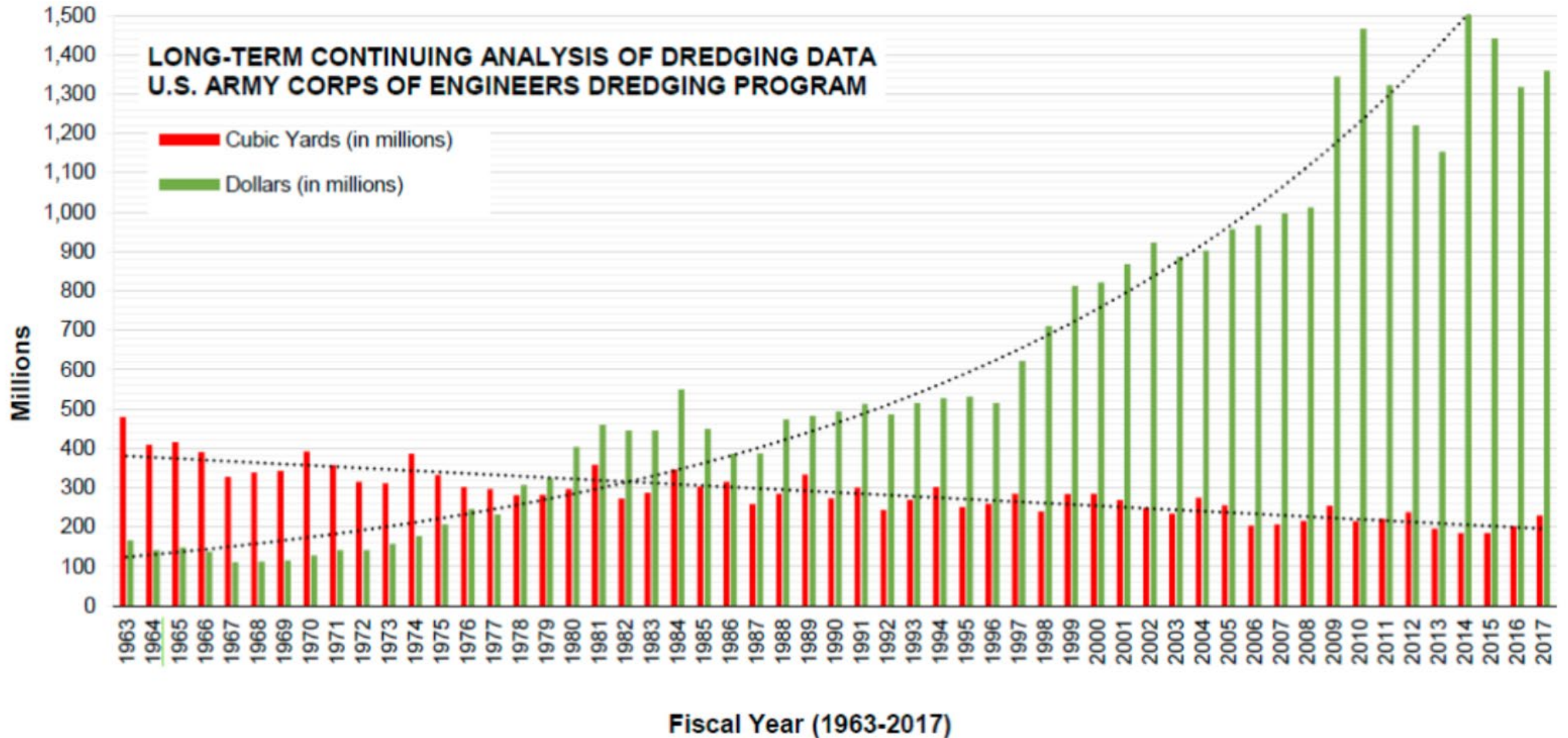
US Army Corps  
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# USACE DREDGING DATA



(source: USACE, 2018)



# THE FEDERAL STANDARD PURPOSE

Federal funds available for maintenance of Federal navigation channels nationwide are limited, and thus must be allocated and spent responsibly and carefully.





# THE FEDERAL STANDARD



The term "Federal Standard" comes from the Corps' Operation and Maintenance regulations of 26 April 1988 -33 CFR 209, 335, 336, 337, and 338.

- 33 C.F.R. 335.7, the term "Federal standard" means the dredged material disposal alternative or alternatives identified by the Corps which represent the least costly alternatives consistent with sound engineering practices and meeting the environmental standards established by the 404(b)(1) evaluation process or ocean dumping criteria

The Corps' 1996 Project Operation Engineering Regulation (ER 1130-2-520) states, "Dredging shall be accomplished in an efficient, cost-effective, and environmentally acceptable manner."



# SEDIMENT MANAGEMENT

Emphasis solely on *the least cost criteria* can result in actions that remove sediment from the littoral system through upland, isolated or offshore placement.



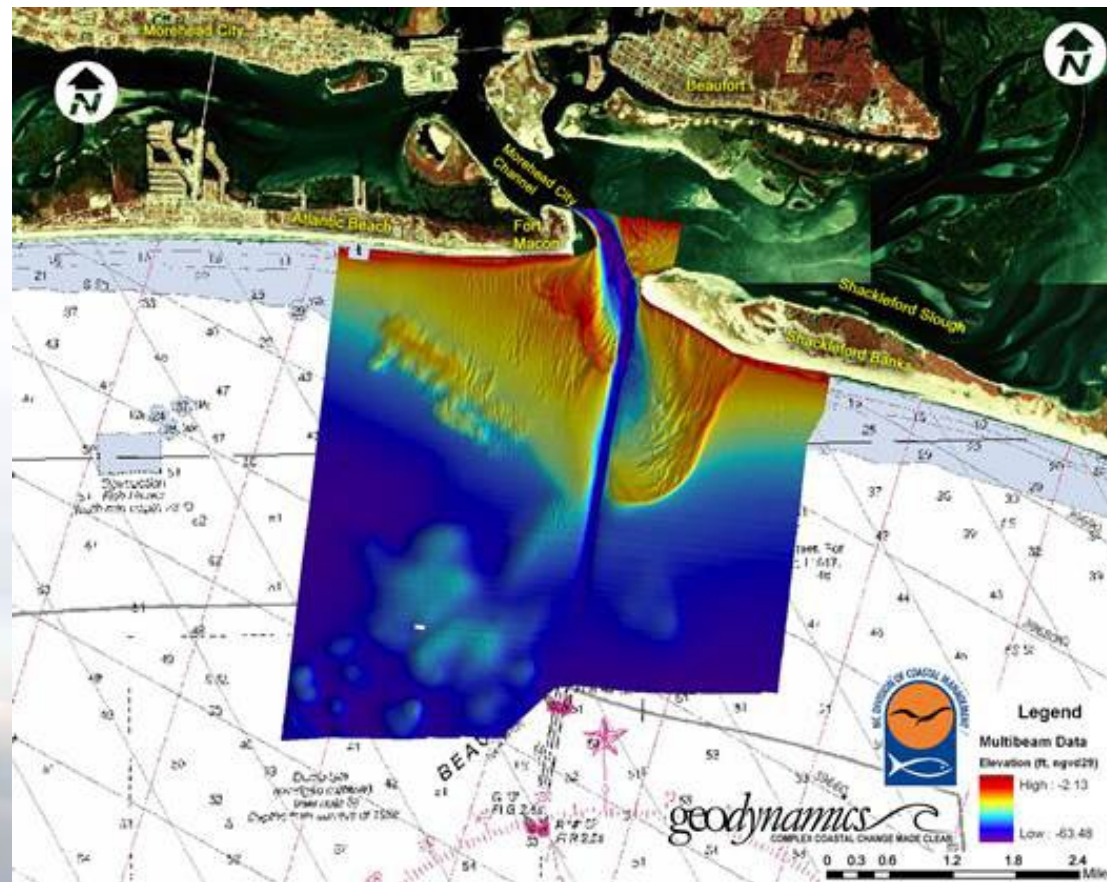
| <b>Too Much Sediment:</b>   | <b>Too Little Sediment:</b>  | <b>Sediment as a Resource:</b>   |
|---|--|--|
| <ul style="list-style-type: none"><li>▪ Obstruction of channels</li><li>▪ Rivers fill and flood</li><li>▪ Reefs get smothered</li><li>▪ Turbidity</li></ul> | <ul style="list-style-type: none"><li>▪ Beaches erode</li><li>▪ Riverbanks erode</li><li>▪ Wetlands are lost</li><li>▪ River profile degradation</li></ul> | <ul style="list-style-type: none"><li>▪ Construction material</li><li>▪ Sand for beaches</li><li>▪ Wetland nourishment</li><li>▪ Agriculture soil enrichment</li></ul> |



# EMERGENCE OF REGIONAL SEDIMENT MANAGEMENT



In 1999, The Coastal Engineering Research Board (CERB) established a goal of retaining all suitable quality dredged material in the littoral zone in order to attempt to restore and maintain the national coasts as balanced natural systems.





# FEDERAL STANDARD EVOLUTION



RSM = New approach to evaluating investment decisions

Promotes cost efficiencies in the short term, as well as potential longer-term costs savings, and best management of resources across projects within a region.

Goal to ultimately reduce overall Civil Works expenditures across accounts in a region, better serving the Nation!





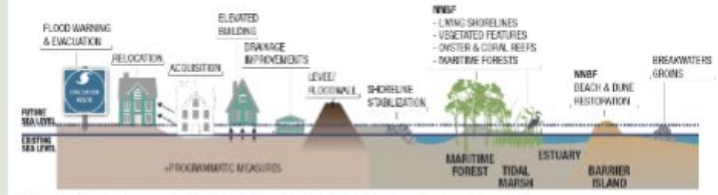
# BENEFICIAL USE OF DREDGED MATERIAL (BUDM)

## WHAT IS BENEFICIAL USE OF DREDGED MATERIAL (BUDM)?

Productive and positive uses of dredged material, which cover broad use categories ranging from fish and wildlife habitat development, coastal resiliency to human recreation, to industrial/commercial uses (USACE Beneficial Uses of Dredged Material, Engineer Manual 1110-2-5026).

### BUDM PROGRAM GOALS

- Optimize USACE mission integration
- Maintain sediment in the natural system
- Implement coastal and Sea Level Rise (SLR) resilience solutions
- Save Dredged Material Management Area (DMMA)/confined disposal facility (CDF) capacity
- Optimize habitat creation/restoration (Natural/Nature-based Features - NNBf)
- Protect community infrastructure
- Execute cost-effective projects

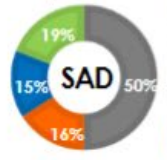


### COST EFFICIENCY DRIVERS

- Reducing transport or pumping distances for dredged material
- Reducing dredging time
- Expanding operational flexibility
- Linking multiple projects with interim mobilizations
- Implementing effective adaptive management strategies
- Ensuring collaborative partnership amongst all stakeholders

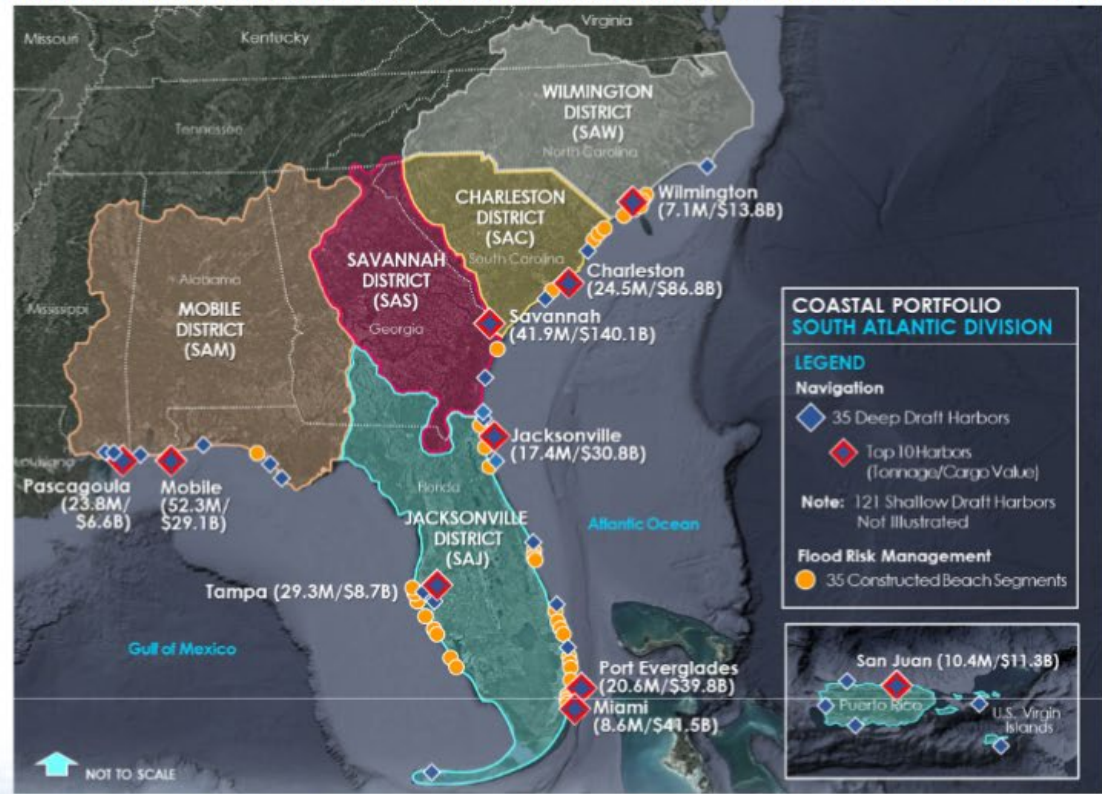
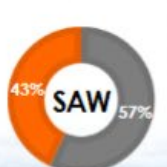
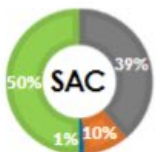
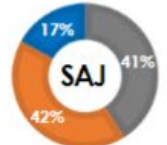
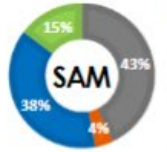
## SOUTH ATLANTIC DIVISION (SAD) REGIONAL SEDIMENT MANAGEMENT OPTIMIZATION UPDATE

The pie charts illustrate the percentage of dredge material by placement results across SAD.



| ANNUAL RSM VALUE                        |           |
|---|-----------|
| NAV:                                    | \$ 68.8 M |
| FRM:                                    | \$ 19.4 M |
| OTHER:                                  | \$ 16.0 M |
| TOTAL:                                  | \$104.2 M |
| BENEFICIAL USE OF DREDGED MATERIAL: 50% |           |

RSM OPPORTUNITY: \$20M IDENTIFIED IN NEARSHORE PLACEMENT, ESTUARINE/RIVERINE PLACEMENT, AND REUSE OF UPLAND MATERIAL



## Annual RSM Value

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 FRM: \$19.4 M  
 OTHER: \$16.0 M  
**TOTAL: \$104.2 M**

Beneficial Use of Dredged Material:  
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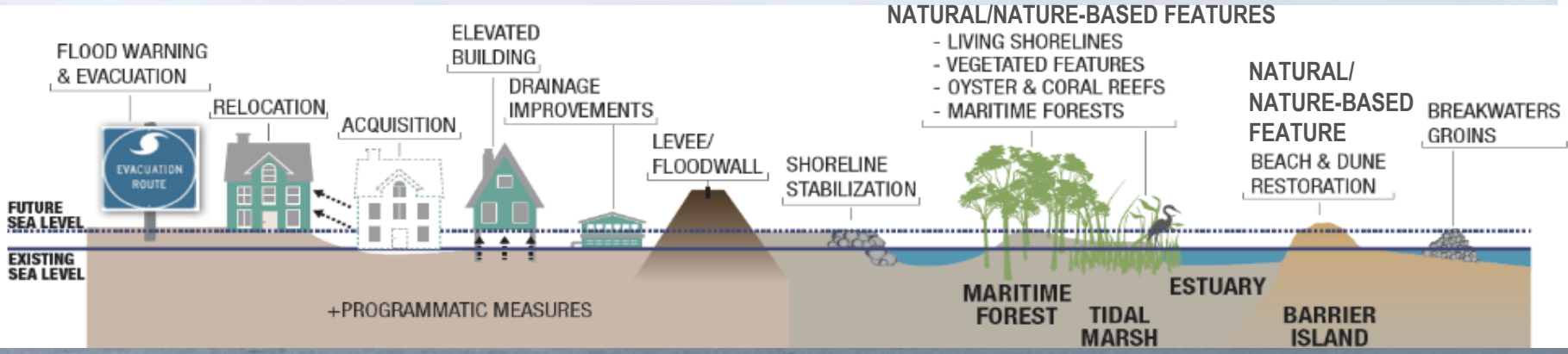
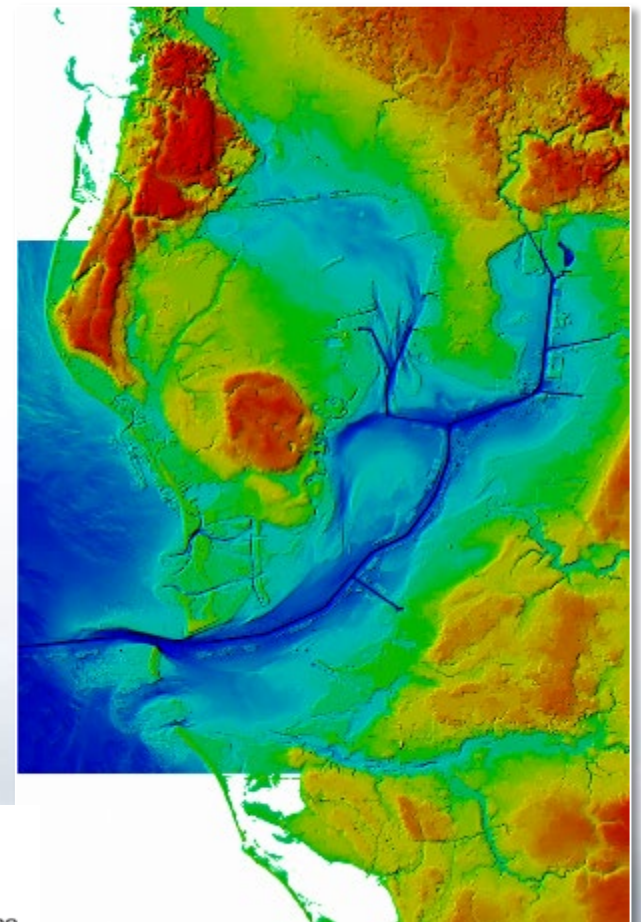
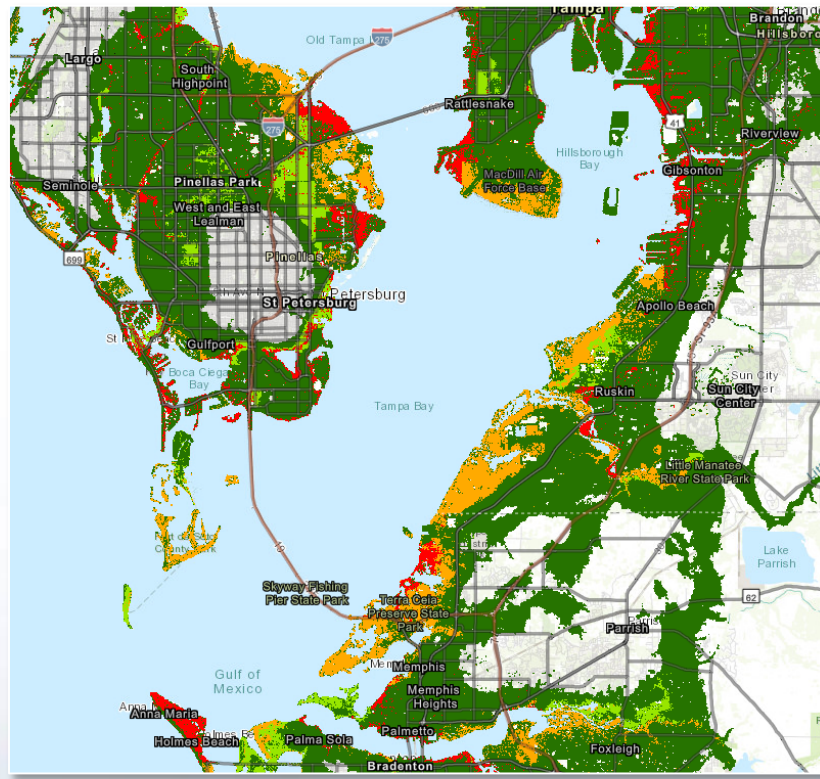
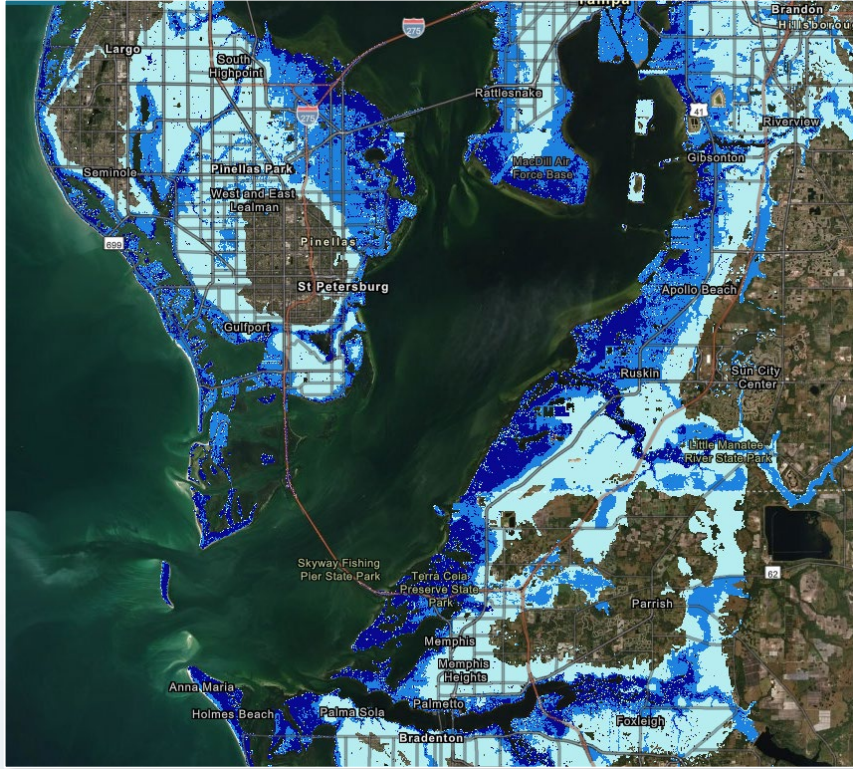
(USACE RSM Optimization, 2020)







# HOLISTIC SYSTEMS APPROACH



(Gesch et. al. 2001)

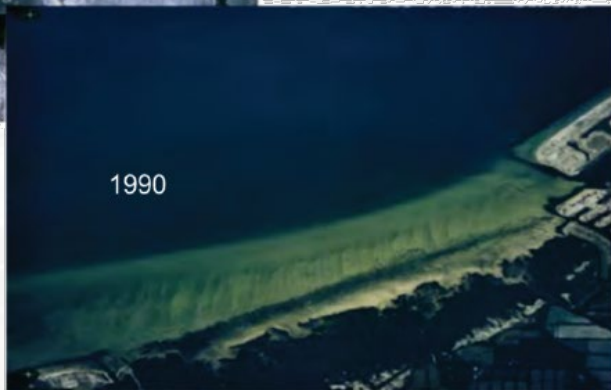


# DREDGED MATERIAL MANAGEMENT PLANS



## RSM STRATEGIES FOR ENTIRE AIWW

- Programmatic Plan and Road Map
- Long term DMMA cost evaluations
- Support and protect habitat via BUDM
  - ▶ Bird Islands and Longshore Bars
  - ▶ Open Water Dispersal
  - ▶ Thin Layer Placement

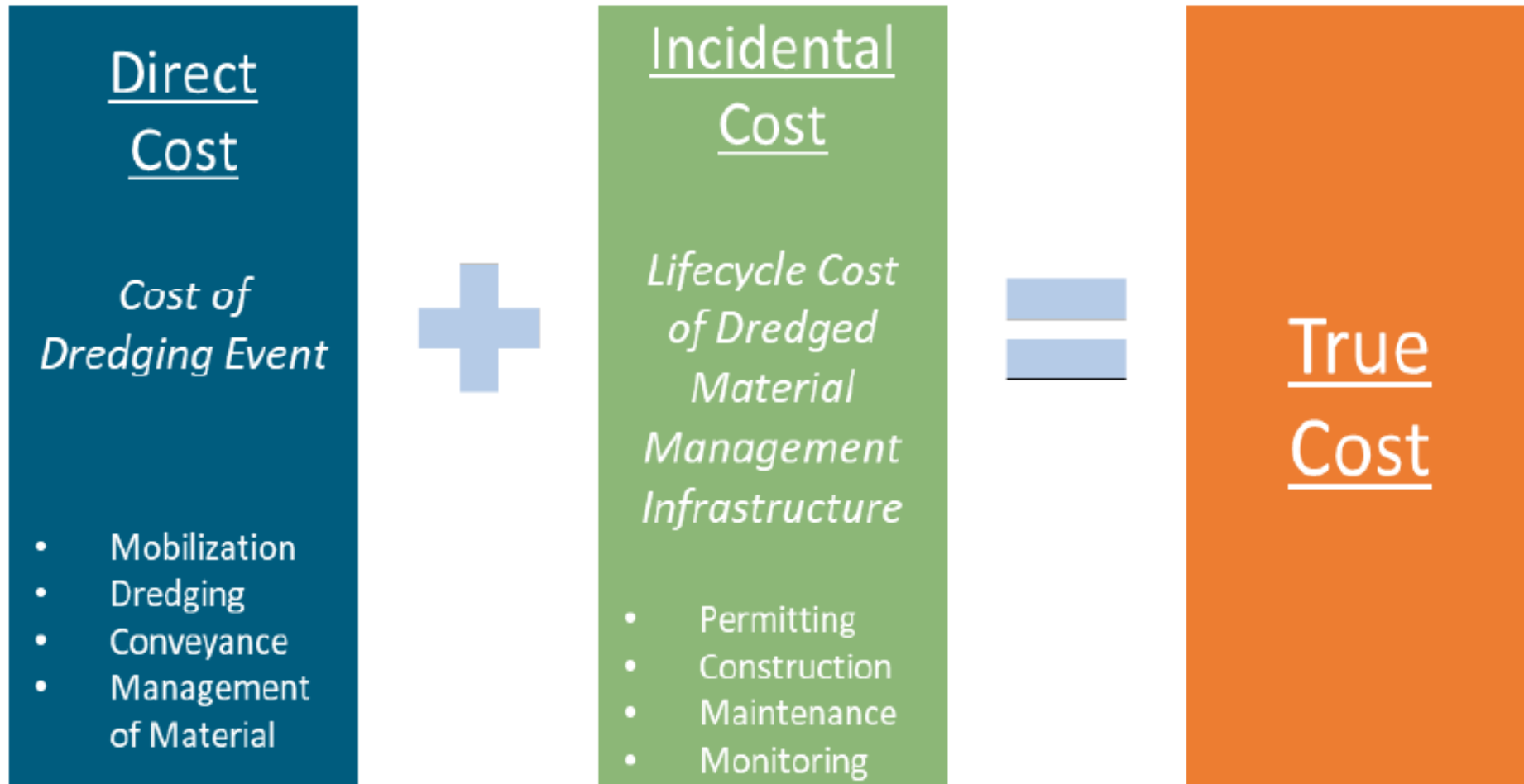


Source: Southwest Florida Water Management District





# LIFECYCLE ANALYSIS; TRUE COST OF DREDGING



(Summa et al., 2017; Taylor Engineering 2021)



# RECENT CASE STUDY APPLICATION



Navigation O&M material >90% sand with placement on a downdrift beach (erosional beach attributable to the channel feature)

| Placement Site | Direct Costs (\$/CY) | Incidental Costs (\$/CY) | True Cost (\$/CY) |
|----------------|----------------------|--------------------------|-------------------|
| Beach          | \$13.00              | \$2.00                   | \$15.00           |
| Nearshore      | \$12.50              | \$2.00                   | \$14.50           |
| DMMA           | \$6.00               | \$1.00                   | \$7.00            |

Traditional 20-year approach to dredged material management (E.R. 1105-2-100) would conclude that the DMMA contains 20 years of capacity, additional management considerations are not necessary, and the Federal Standard should be placement at the DMMA unless a sponsor is willing to pay incremental cost.

|                    |        |         |         |
|--------------------|--------|---------|---------|
| DMMA (replacement) | \$6.00 | \$12.00 | \$18.00 |
|--------------------|--------|---------|---------|



# FUTURE EVOLUTION OF FEDERAL STANDARD



- Stakeholders must come together to implement community resiliency goals, put in place plans, agreements and bring together funding (local, state and Federal).
- Implement WRDA 2020 Section 125 policy and develop easy and standard methods for Economic and Environmental benefits quantification.
- Develop Long Term Sediment Management plans that incorporate life cycle true dredging costs.
- Invest in understanding the natural hydrodynamic and sediment transport dynamics of the system, because sediment is a valuable resource.



# CONTACT AND LINKS OF INTEREST



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

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<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/>

