

Beneficial Use of Dredged Sediments for Coastal Marsh Restoration

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Beneficial Use of Sediments -“productive and positive uses of dredged material, which cover broad use categories ranging from fish and wildlife habitat development, to human recreation, to industrial/commercial uses”

> 1 million metric tons dredged from ports, harbors and waterways each year

Traditional Sediment Disposal

Offshore

Confined Disposal (CDF)

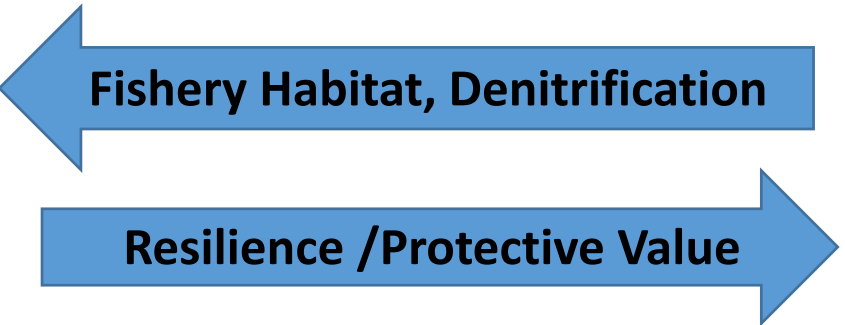
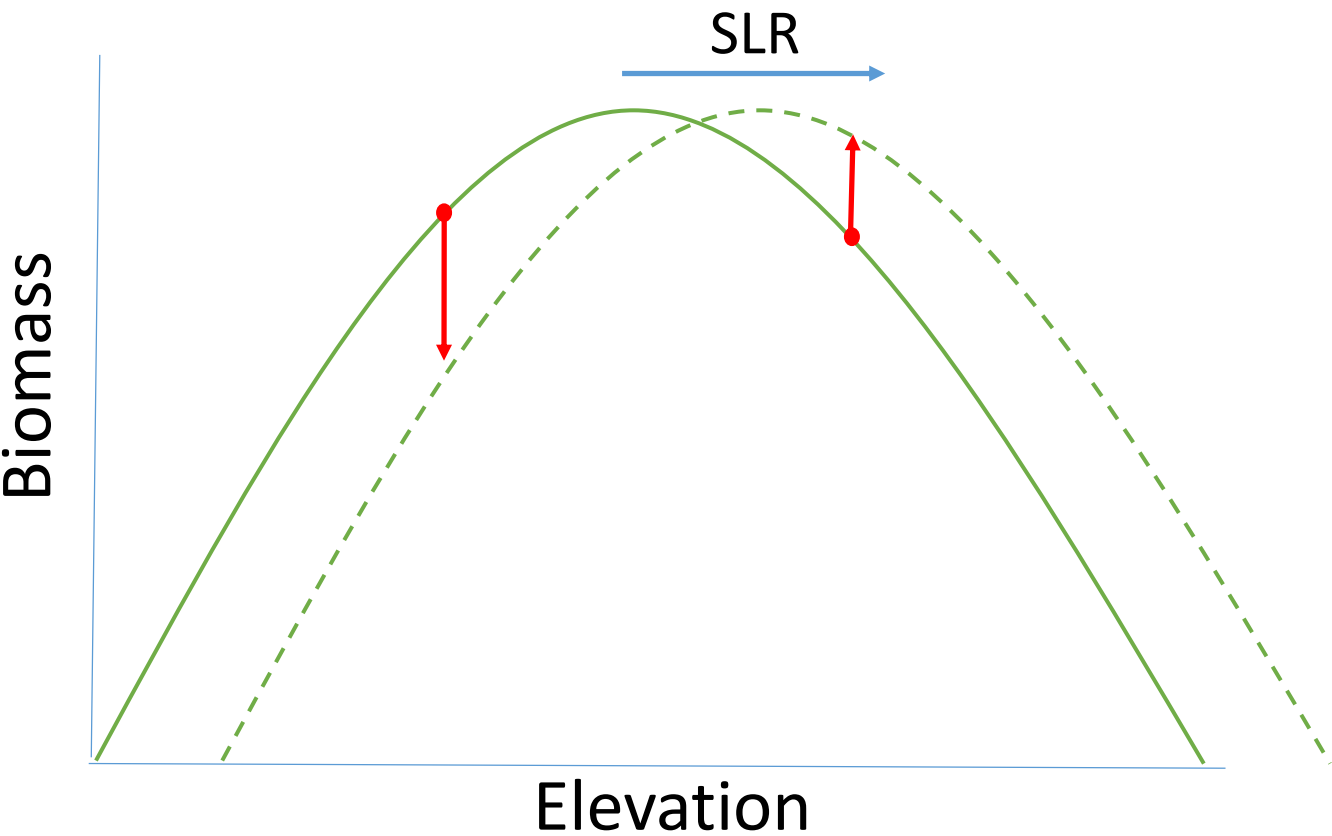
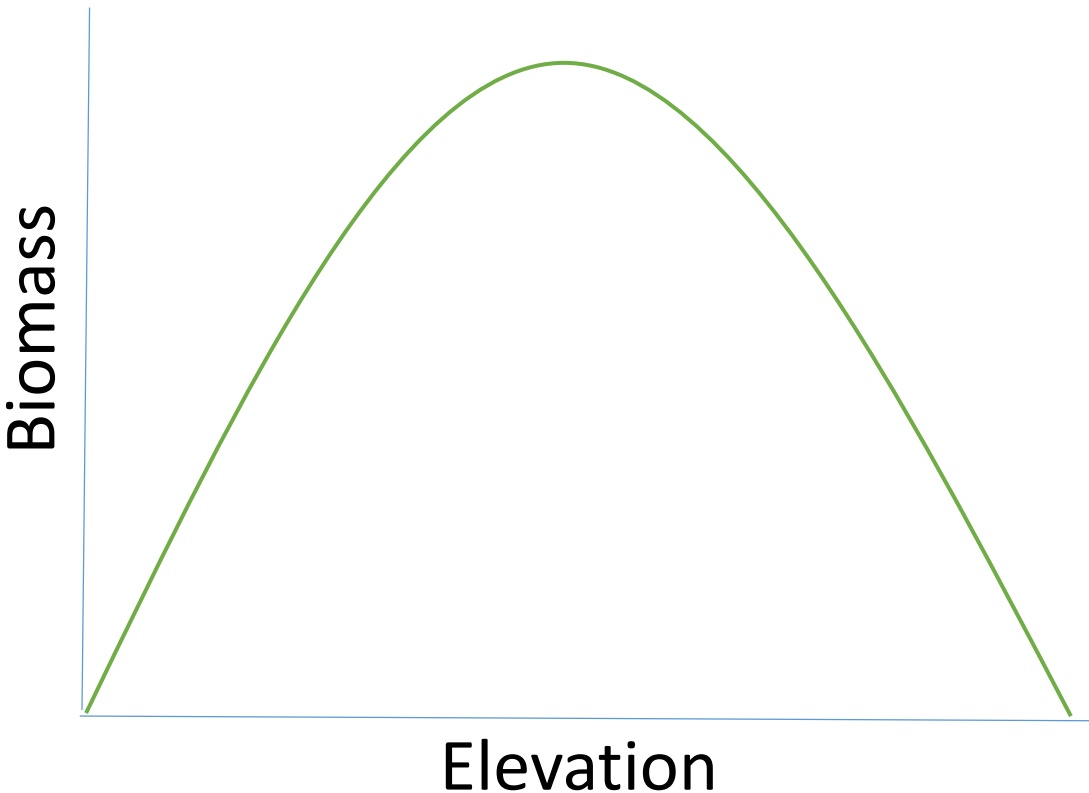
Beneficial Use

Beach/Dune Renourishment

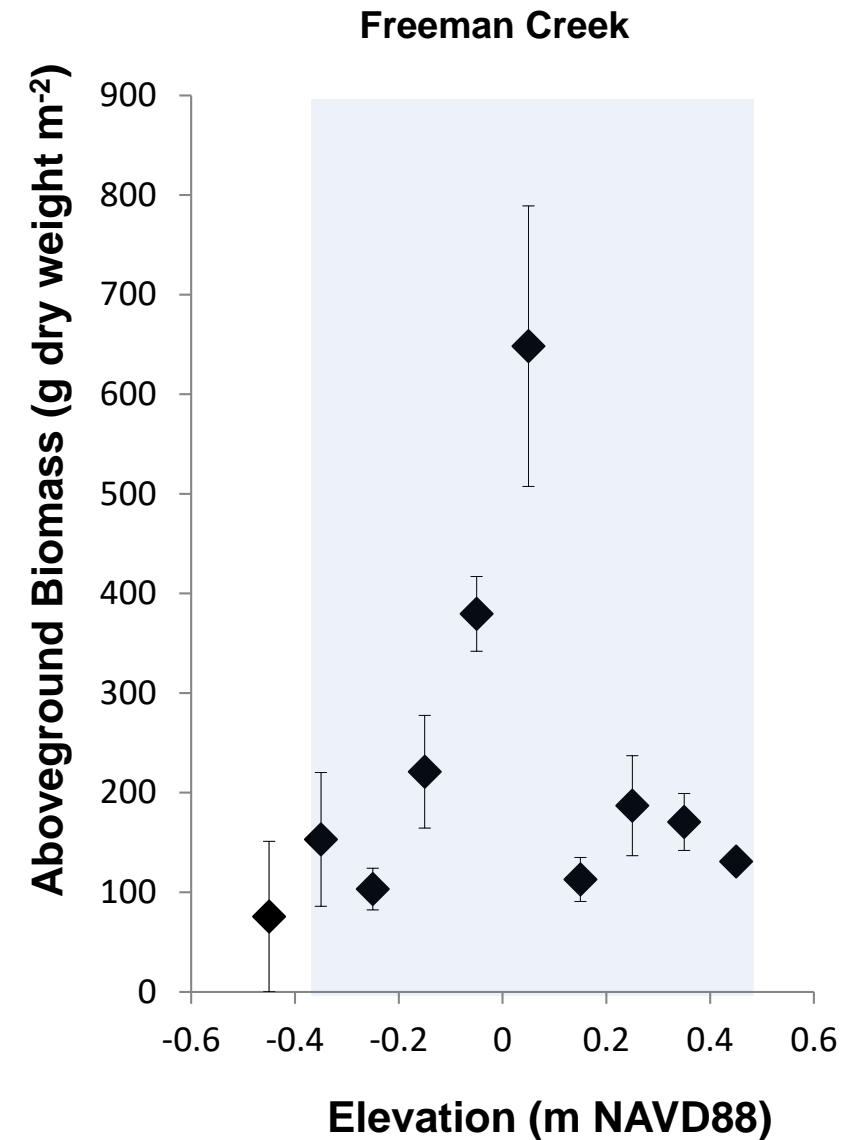
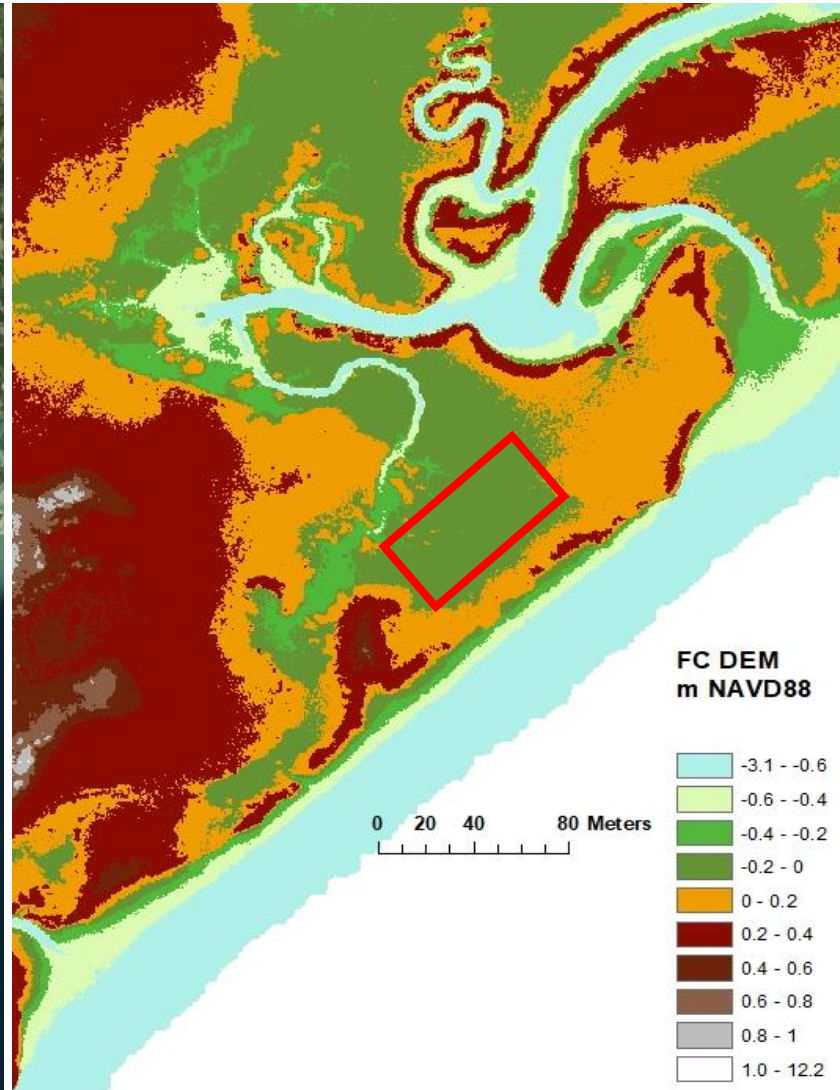
Wetland Creation & Restoration

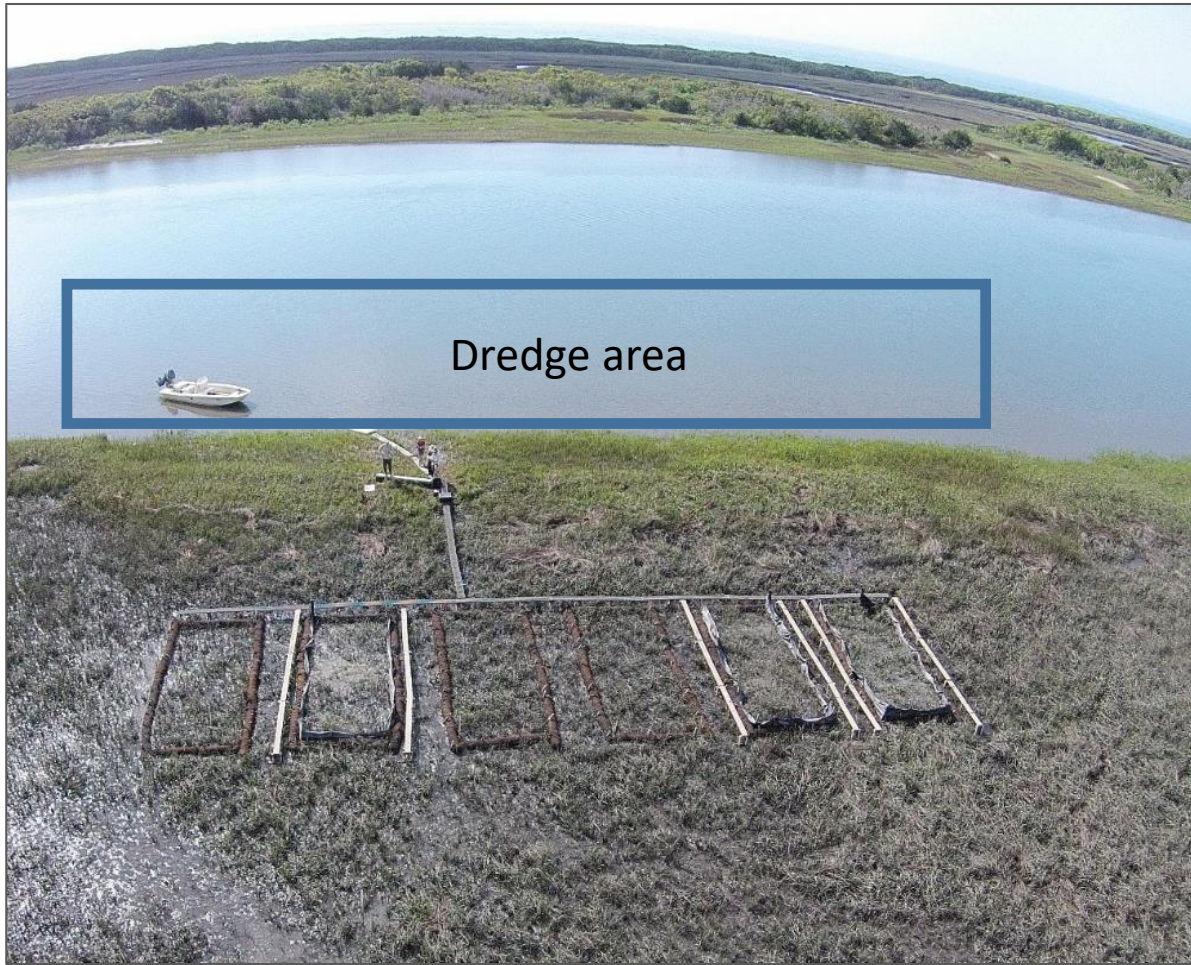
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Beneficial Use to Enhance Coastal Marshes : Where and Why?

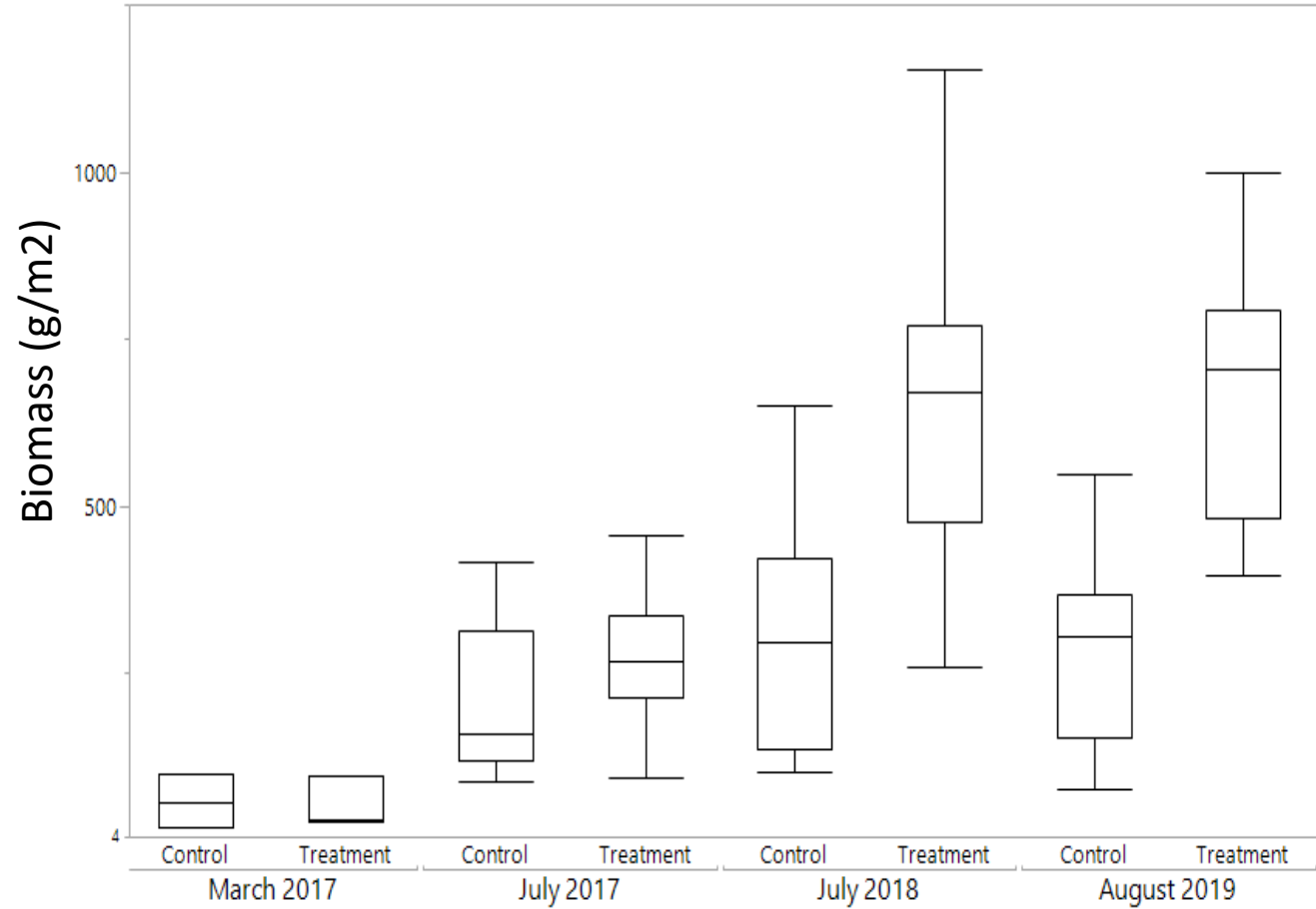


Example 1: Thin layer application of sediment provides a means of helping marshes keep up with sea level rise

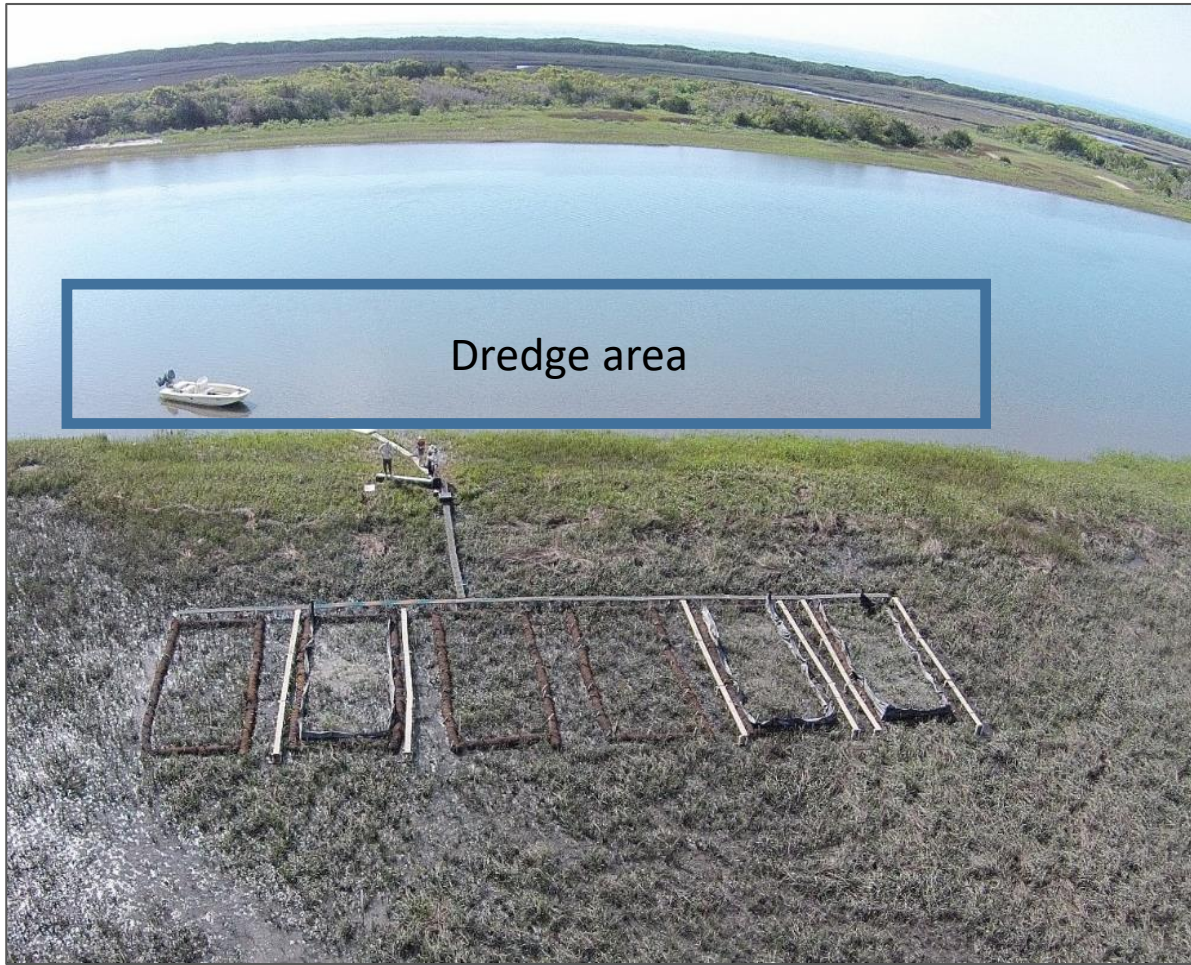




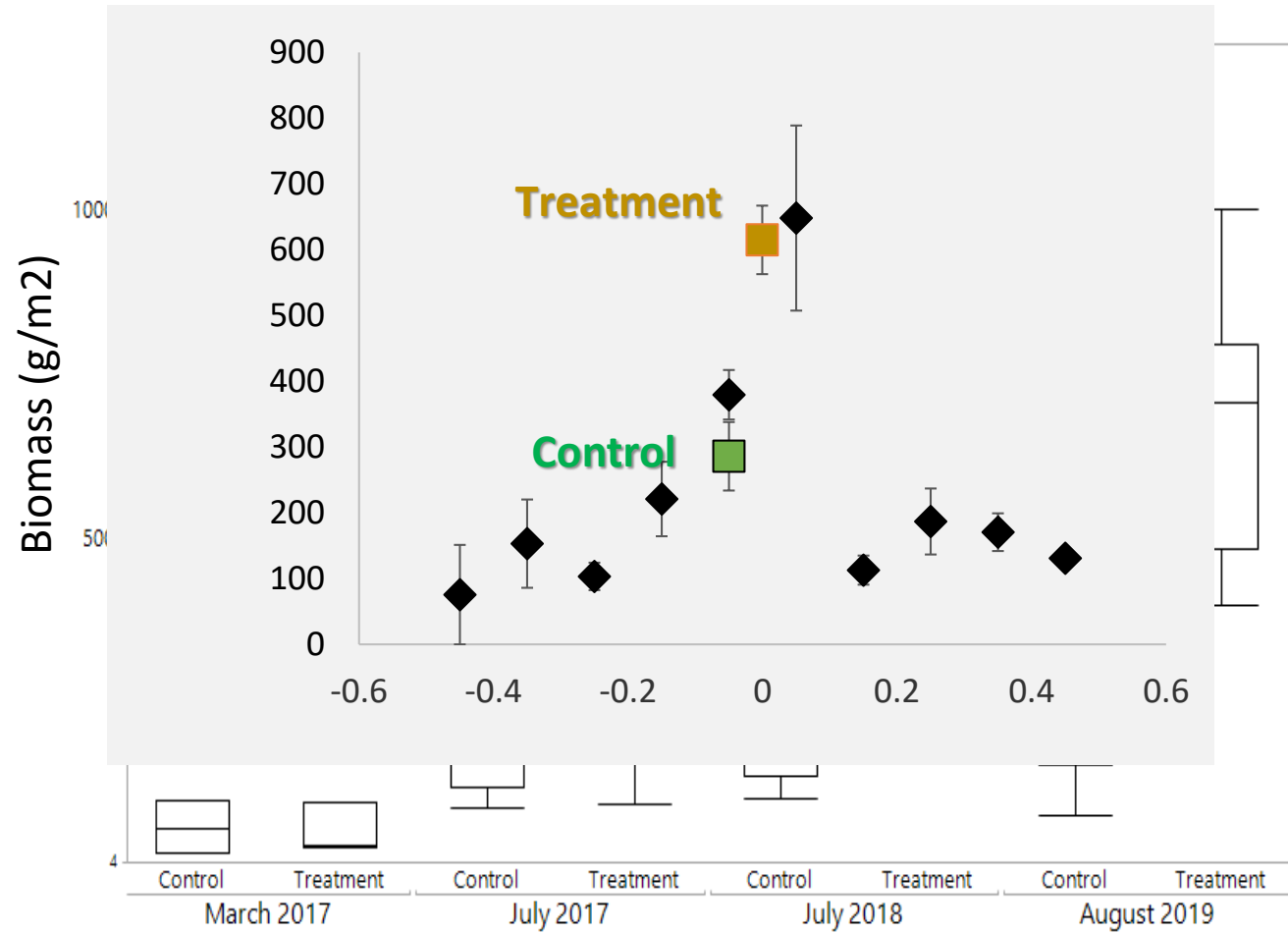
5 x 8 meter cell
 Nationwide permit
 ~ 8cm elevation increase



Plants responded to increased elevation
 with increased biomass

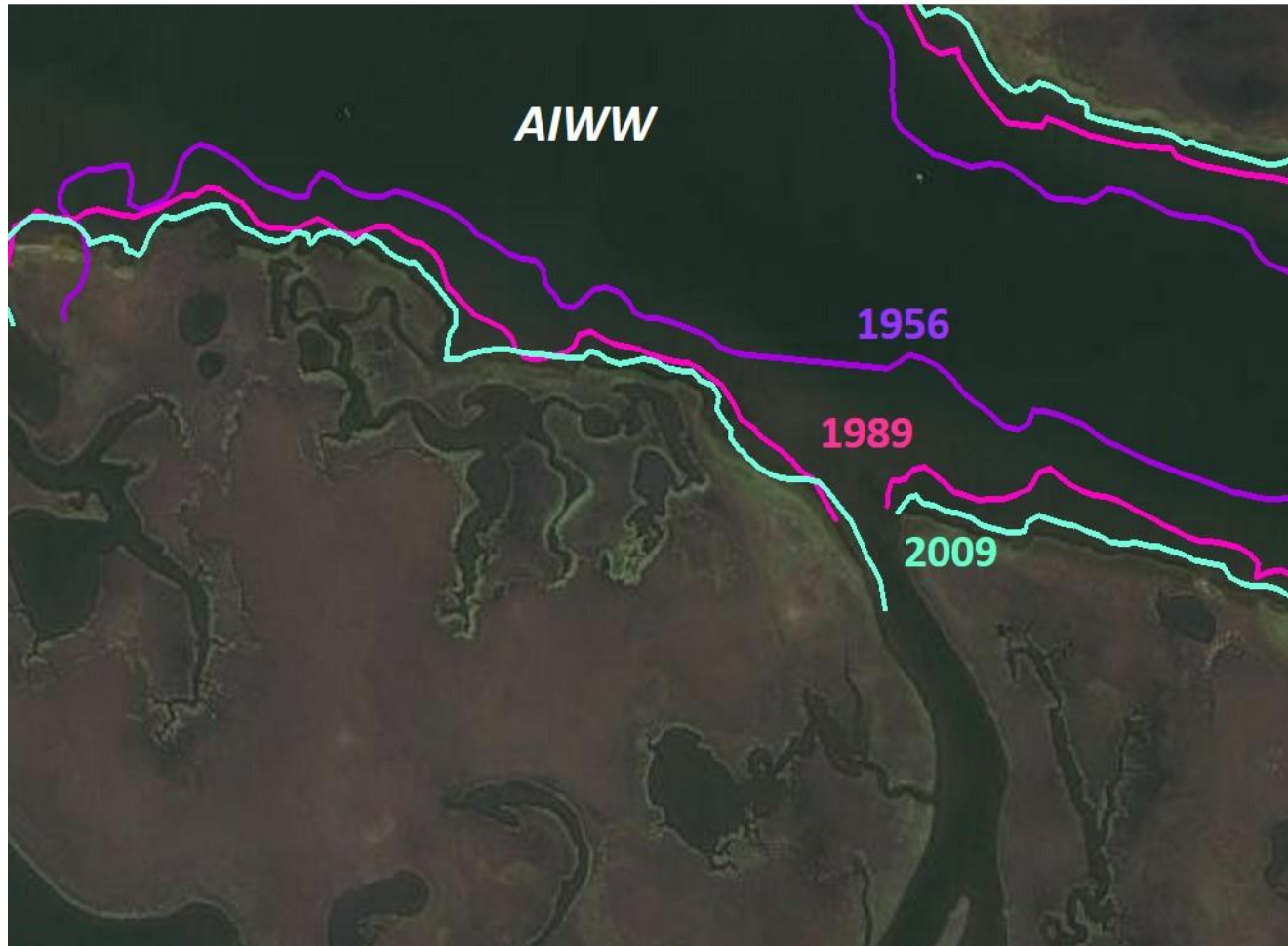


5 x 8 meter plots
 Nationwide permit
 ~ 8cm elevation increase

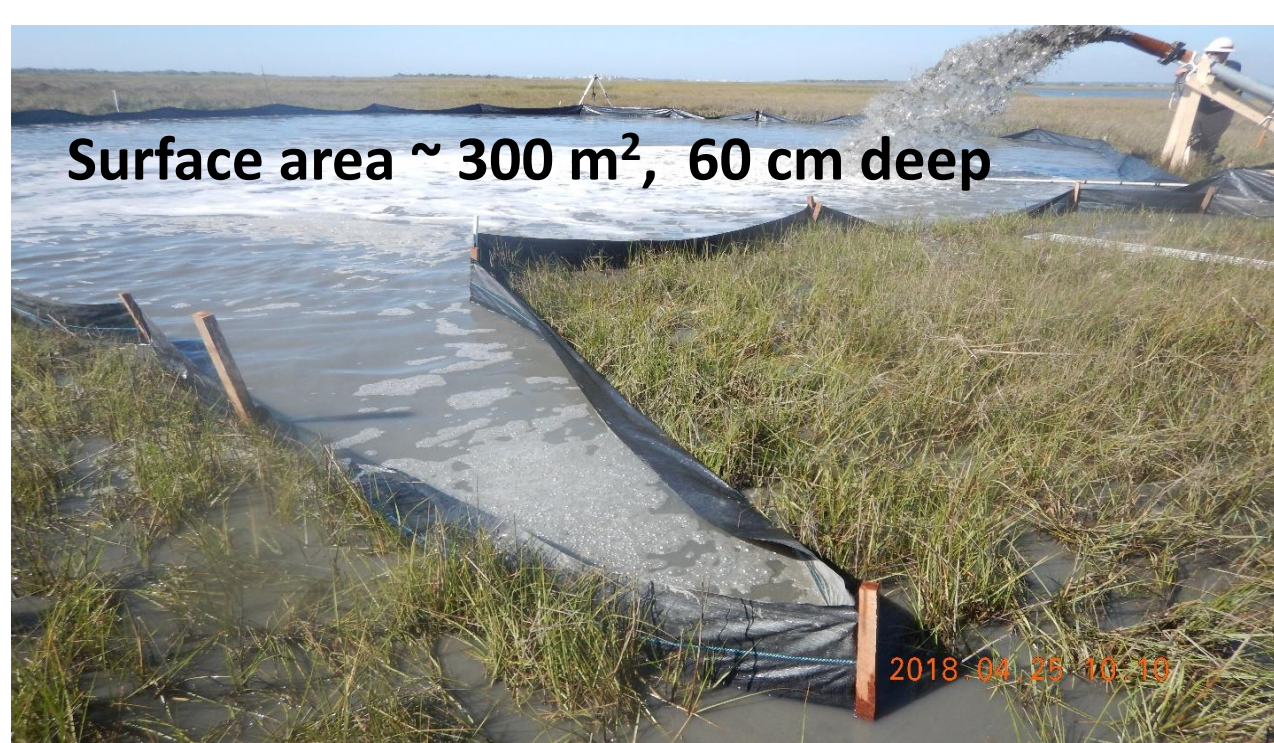


Plants responded to increased elevation with increased biomass

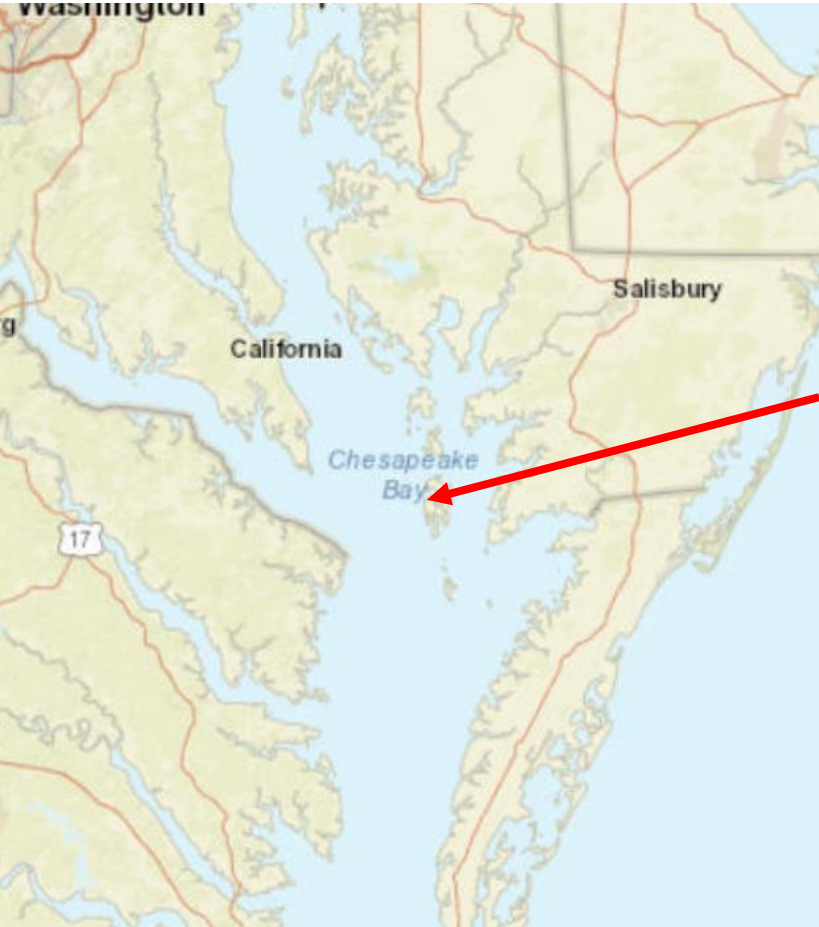
Example 2: Sediment Application to Restore Fragmented Marshes



Marsh fragmentation likely contributes to the high erosion rates along this stretch of the water way



Example 3: Strategic Application of Beneficial Use to Increase Coastal Resilience



**Swan Island
Maryland**





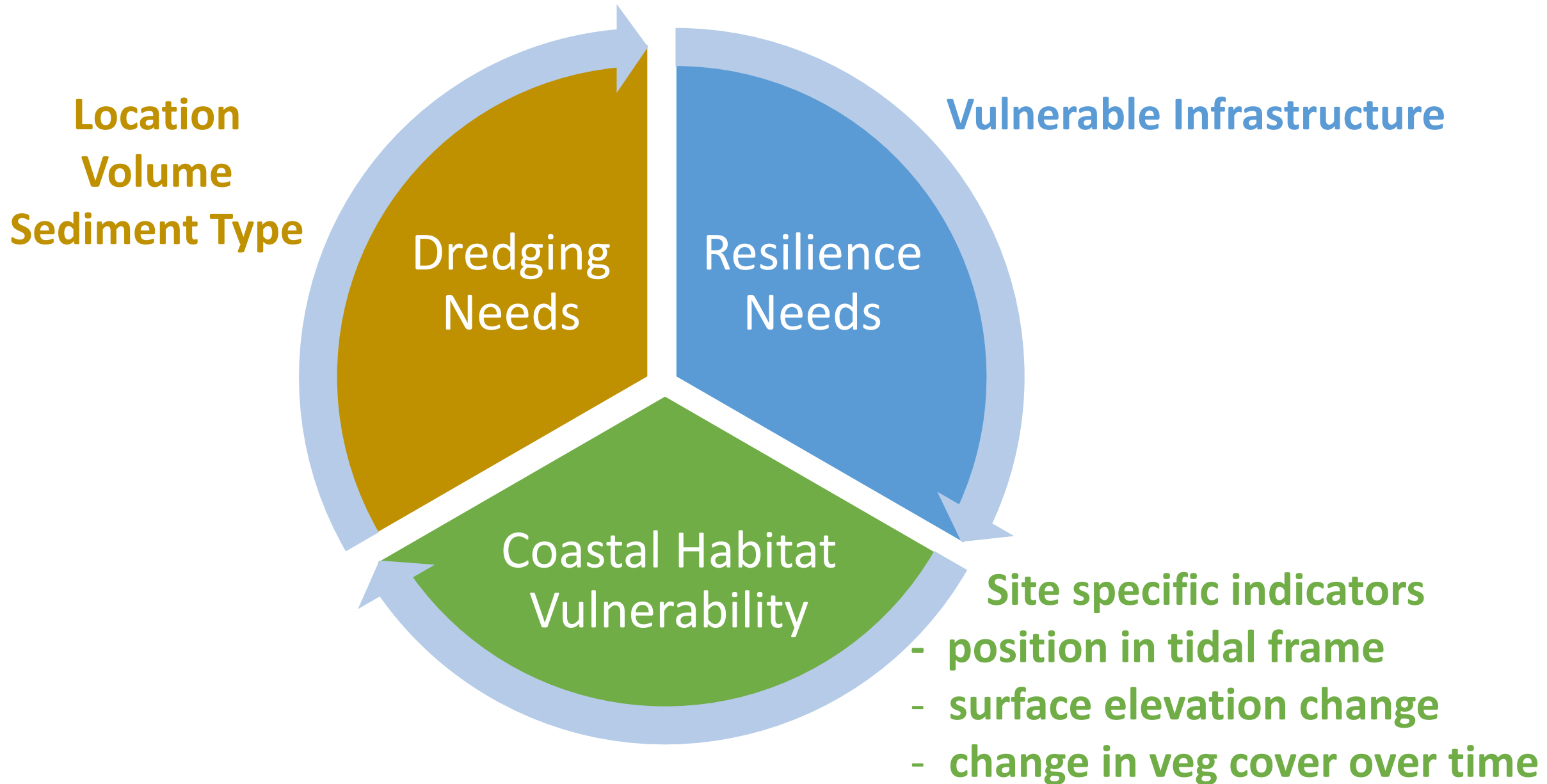
GOAL: long term resilience through restoration of multiple habitats within the original island footprint

before sediment application

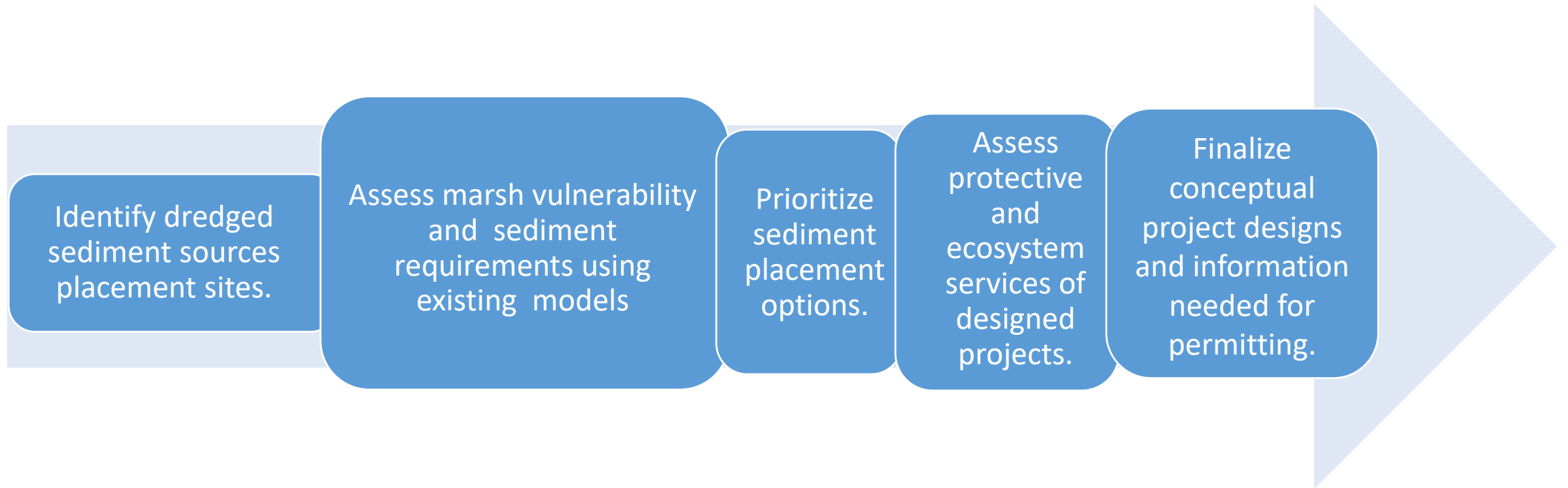
65,000 cubic yards of sediment
> 200,000 plants



Optimal Implementation of Beneficial Use Requires Coordination



Keeping it in the System



Challenges to Project Implementation

- **Proof of Concept to Address Regulatory Hurdles (and efficacy)**
- **Cost/Benefit**
- **Alignment of Restoration and Dredging Projects**

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