# Beneficial Use of Dredged Material at Horseshoe Bend: An Engineering With Nature Case Study

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US Army Corps of Engineers
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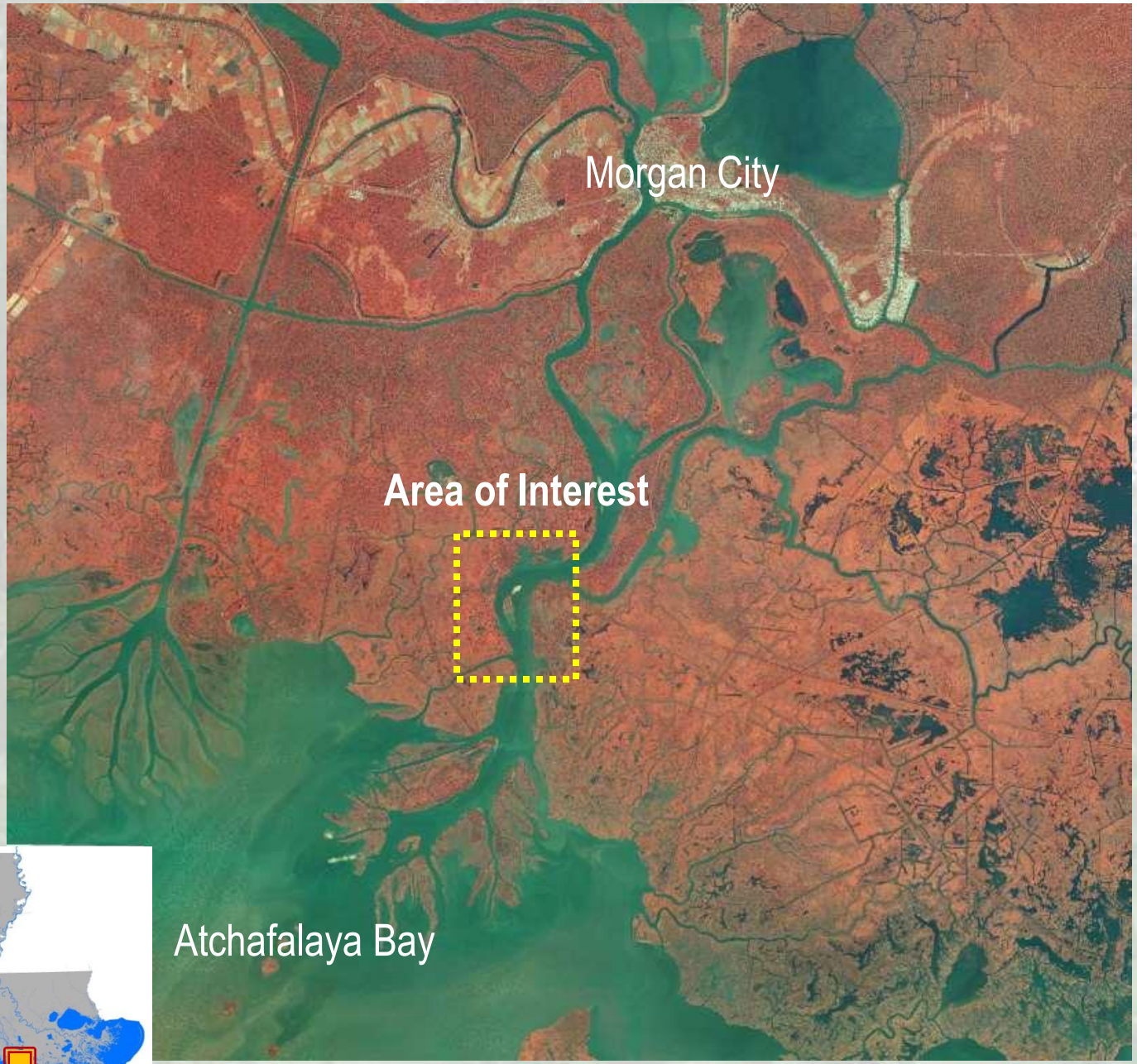
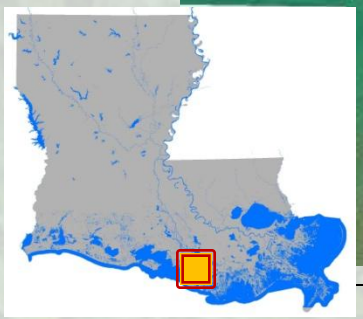
# *USACE Case Study*

Atchafalaya River
Federal Navigation Channel

Environmental Benefits Derived from a
Novel Dredged Material Disposal Practice
at Horseshoe Bend



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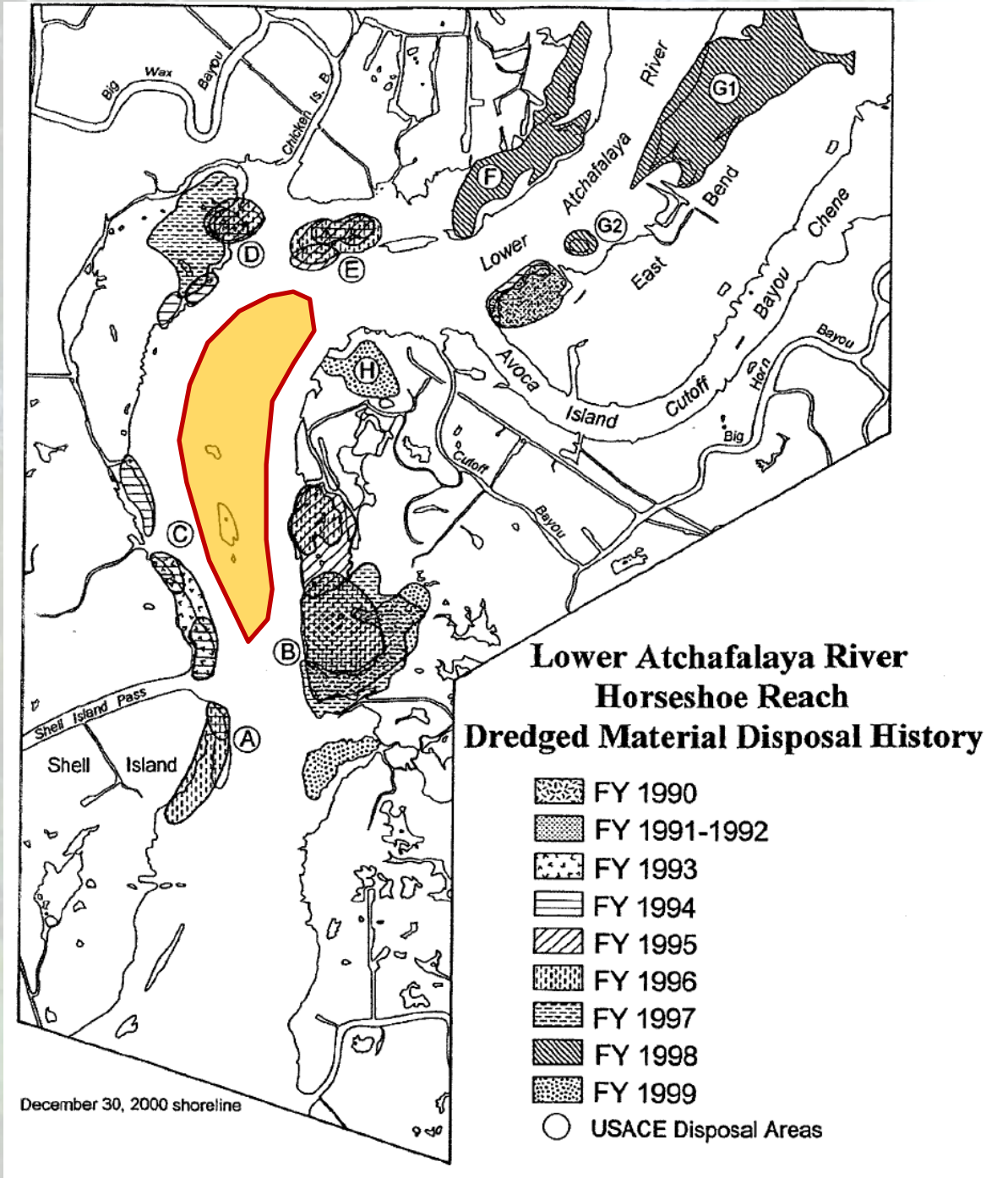



## *Problem*

Capacity of Bankline Disposal Areas Exhausted

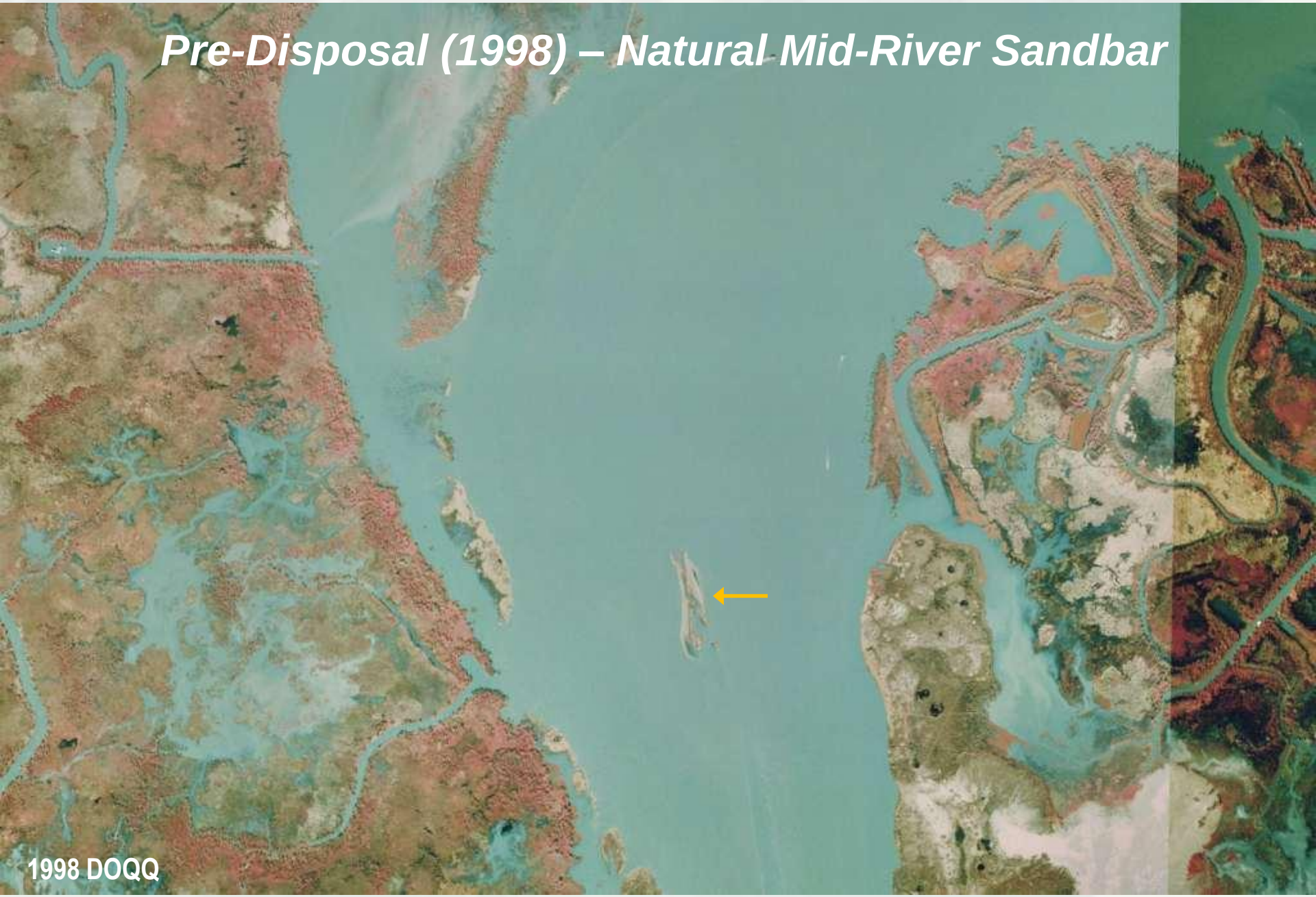
## *Alternatives*

~~Conversion of Wetland Disposal Areas into Upland~~

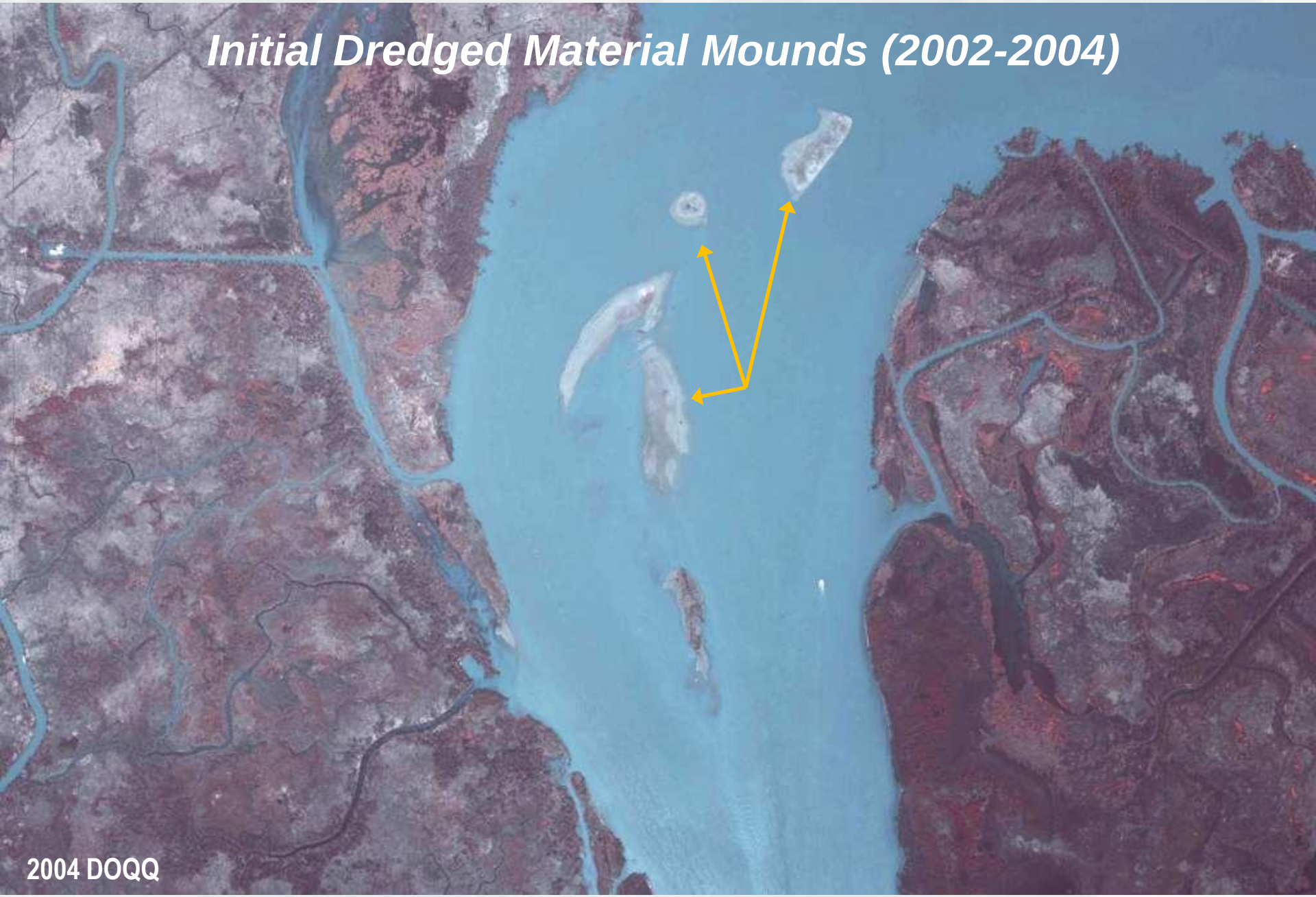
~~Open Water Disposal in Atchafalaya Bay~~

Mid-River Mounding of Dredged Material

# *Pre-Disposal (1998) – Natural Mid-River Sandbar*



# *Initial Dredged Material Mounds (2002-2004)*



# *Developed Island with Upriver Feeder Mounds (2010)*

2010 BUMP

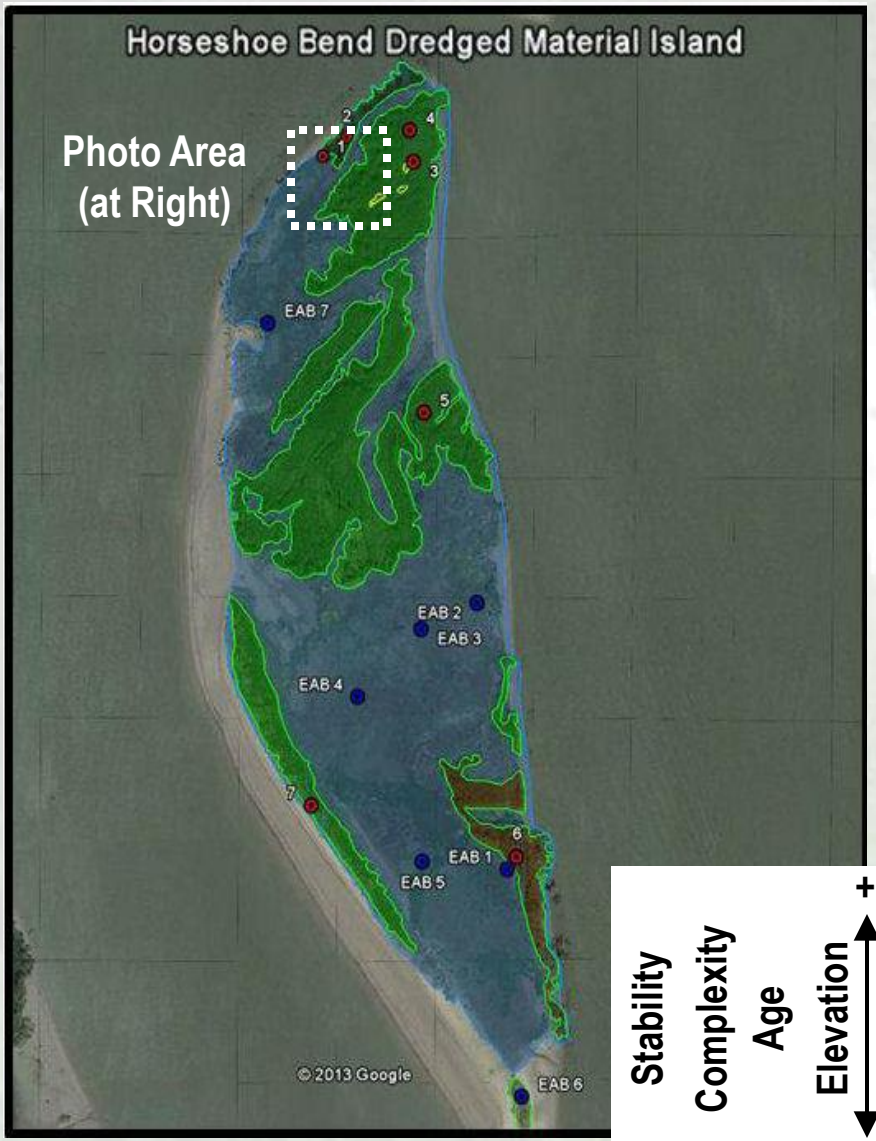
# *Quantification of the Environmental Benefit*

* Identify & Classify Distinct Habitat Types

* Catalogue Plants & Animals

* Evaluate Soil Horizons

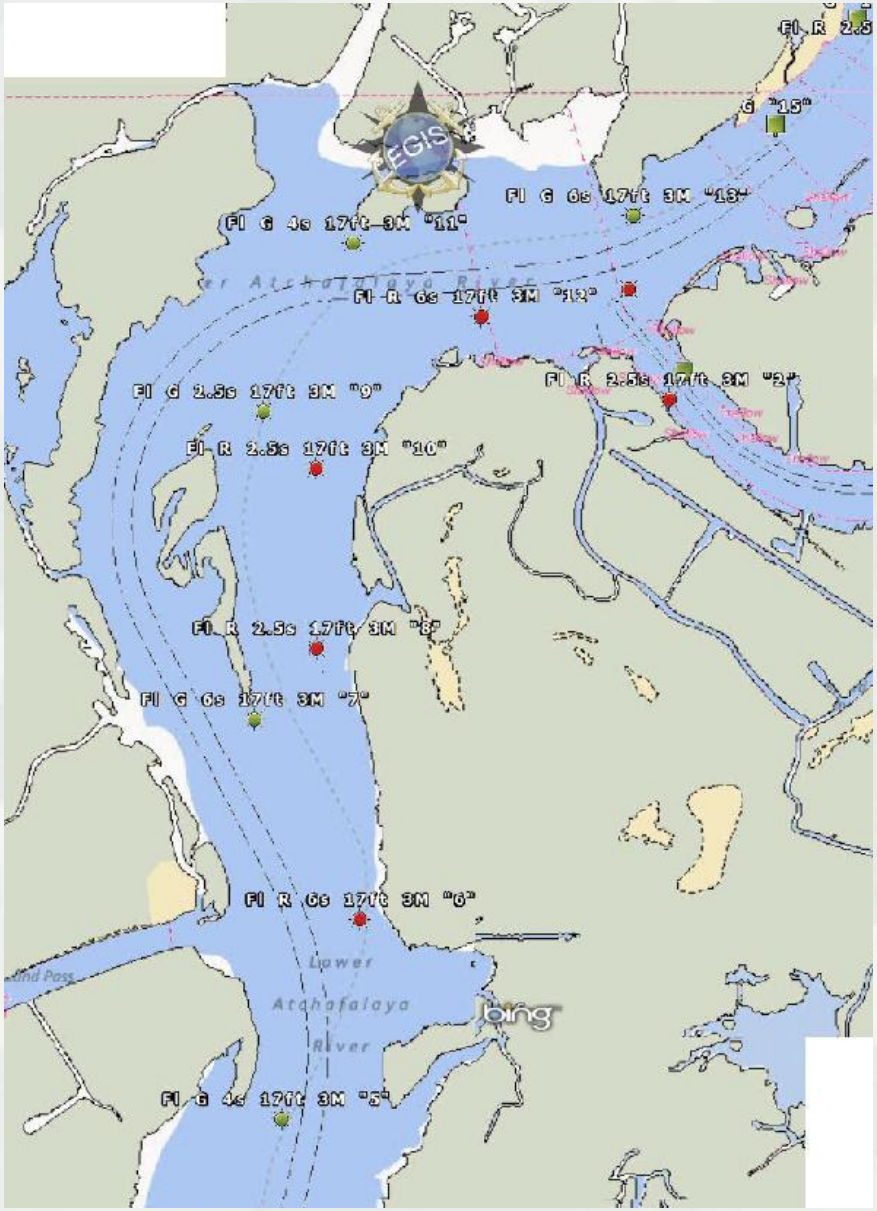
# Habitat Classification




Stability
Complexity
Age
Elevation
+
–

- Mature Forested & Scrub-Shrub Wetlands
- Young Forested & Scrub-Shrub Wetlands
- Emergent Wetland Transition Zone
- Aquatic Bed Features

## *Navigation Benefit*




## *Environmental Benefit*

USCG Crewboat Cut Realignment

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# 20” Soil Plugs Evaluated for Zonation, Color, Texture & Redox Features

# *Social Benefit*

# *Summary of Environmental Benefits*

* Four Distinct Wetland Habitats within a Small Area (35 ha), Support a Larger than Expected Variety of Plants & Animals

* 81 Plant Species Observed on Island, Compared to 53 Plant Species Noted for Natural Wetlands along the Lower River

* Island Performs Like a Natural Wetland, Traditional Dredge & Fill Wetlands take 5-10 Years to Develop

* Soils are Active, Function to Cycle Nutrients & Sequester Carbon

# *What Happens Next?*

* Continue Scientific Research
  (Hydrology & Environment)

* Document Positive / Negative
  Channel Maintenance Impacts

* Communicate Findings Widely
  (Publications, Conferences,
  Press Releases)

* Seek other Applications for this
  Novel Disposal Practice