



THE WATER INSTITUTE & PORT FOURCHON

November 14, 2018

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Business Development Principal



**THE WATER INSTITUTE
OF THE GULF®**



- The Water Institute of the Gulf is a **not-for-profit, independent** research and technical services resource with a mission to help communities around the world thoughtfully prepare for the future through water management strategies.
- Through an **integrated and inter-disciplinary** approach, the Institute's work helps create more resilient communities, thriving economies, and a healthy environment.

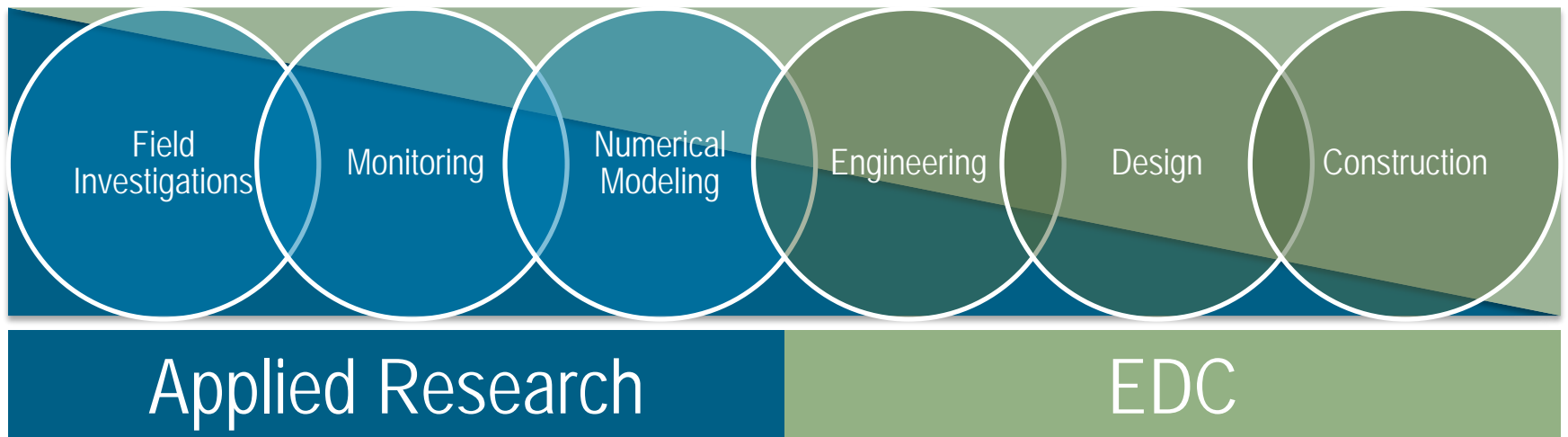
ABOUT US



INSTITUTE'S APPLIED SCIENCE ROLE

Water Institute

Private Sector Firms



RESEARCH FOCUS AREAS

INTEGRATED WATER RESOURCES MANAGEMENT

RESILIENCY LAB

DYNAMICS OF RIVERS, DELTAS, AND COASTS

ECOSYSTEM-BASED MANAGEMENT

HUMAN AND NATURAL SYSTEMS MODELING



P3+ OBJECTIVES

The Public-Private-NGO Partnership (P3+) will combine the resources and expertise of public, private, and non-governmental organizations to enhance coastal habitat and provide protection to critical infrastructure and communities.



MUTUAL BENEFITS



COMMUNITY



INFRASTRUCTURE

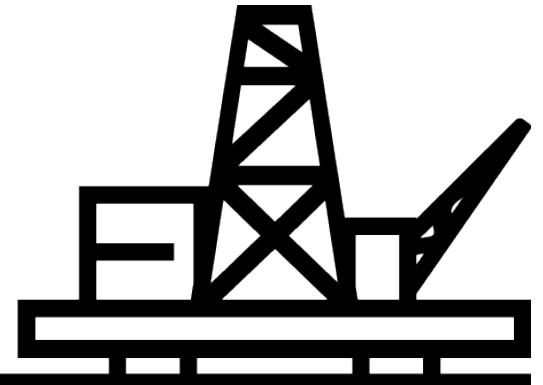


HABITATS

CO²

CARBON CAPTURE
& SEQUESTRATION





PARTNERSHIP FOR
OUR
WORKING COAST

PUTTING PUBLIC-PRIVATE PARTNERSHIPS TO WORK

FOURCHON RESEARCH PROJECTS

An aerial photograph of a coastal area, likely a port or industrial zone, featuring a large body of water, a complex network of canals and waterways, and various structures including buildings, parking lots, and what appears to be a large rectangular basin or pond. The surrounding landscape includes marshland and some greenery. The sky is clear and blue.

BENEFICIAL USE OPTIMIZATION

SUBSIDENCE

BLUE CARBON / CARBON SEQUESTRATION

COMMUNITY RESILIENCE – SOCIETAL BENEFITS

ENVIRONMENTAL COMPLIANCE / PERMIT SUPPORT

OPTIMIZING DREDGED MATERIAL PLACEMENT



Land/Water definitions used in 2017 Master Plan development

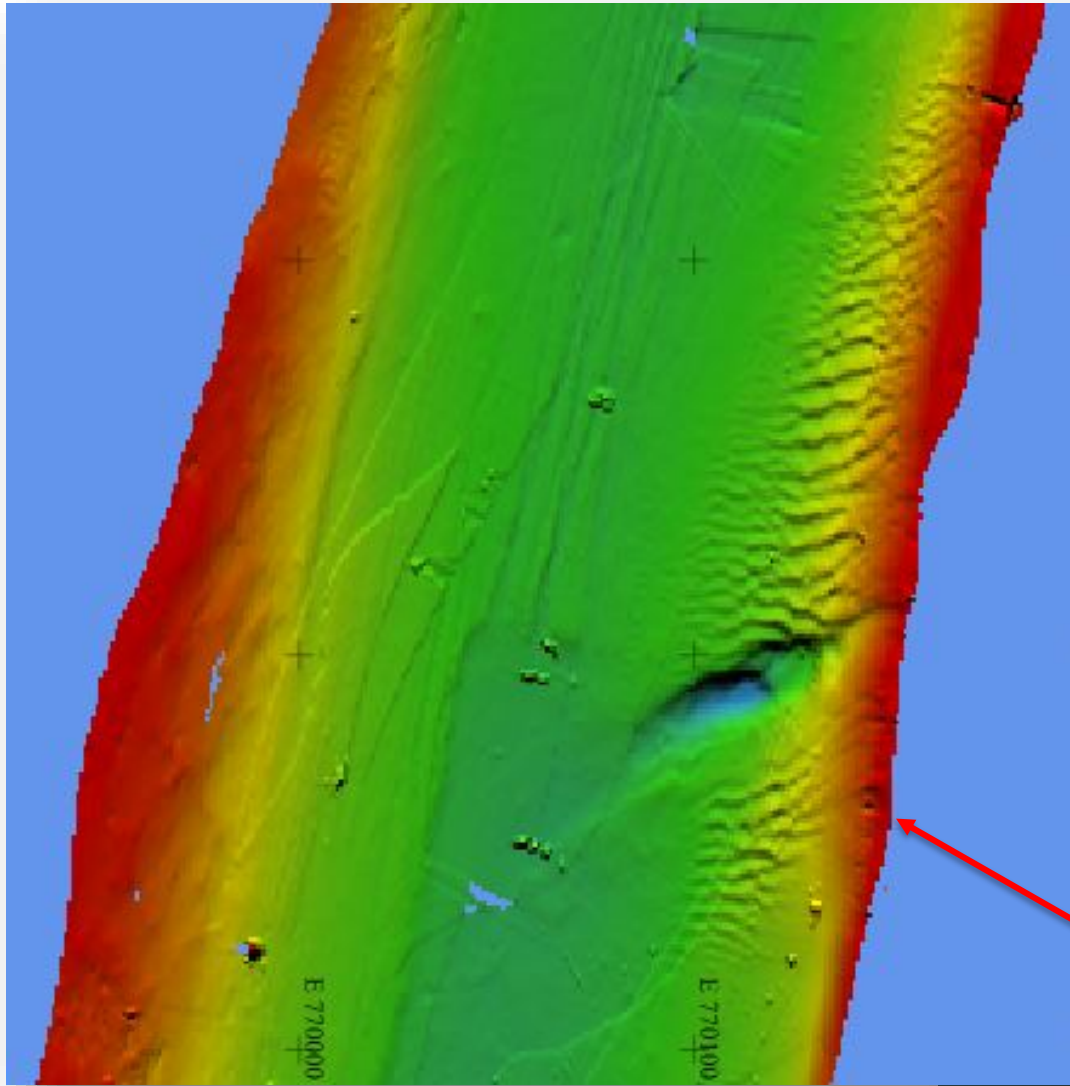
- Land (as defined in 2014 from remote sensing imagery)
- Water (as defined in 2014 from remote sensing imagery)
- Flotant marsh (as defined in 2014 from remote sensing imagery)
- Water deeper than 2.5-ft (MWL = 0.43-ft NAVD88)

Leveraged existing data sources for analysis

- Topobathymetric digital elevation model & land use/cover data from USGS
 - Developed in 2014
 - High resolution (30-m)
 - Widespread coverage (coastwide)
- Future Scenario simulations under various sea level rise assumptions
 - Water level
 - Salinity
 - Land loss/gain

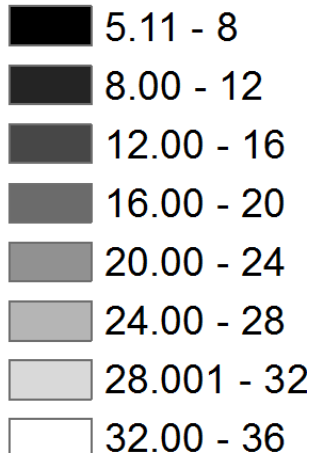


OPTIMIZING DREDGED MATERIAL PLACEMENT



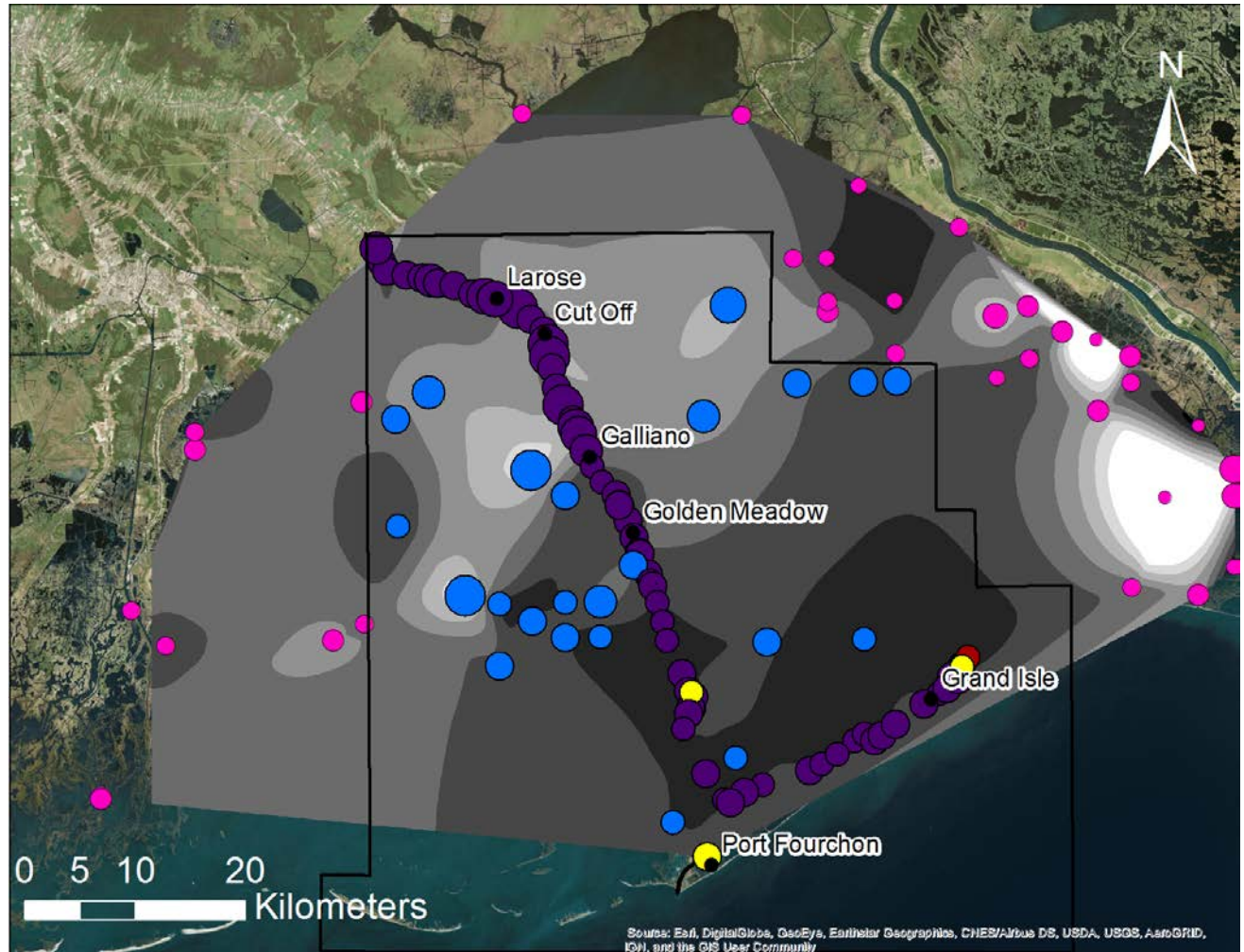
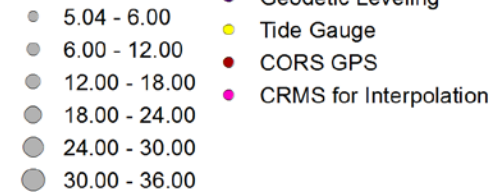
SUBSIDENCE

Natural Neighbor Interpolation Full Extent



Total Elevation Change Rate (mm/yr)

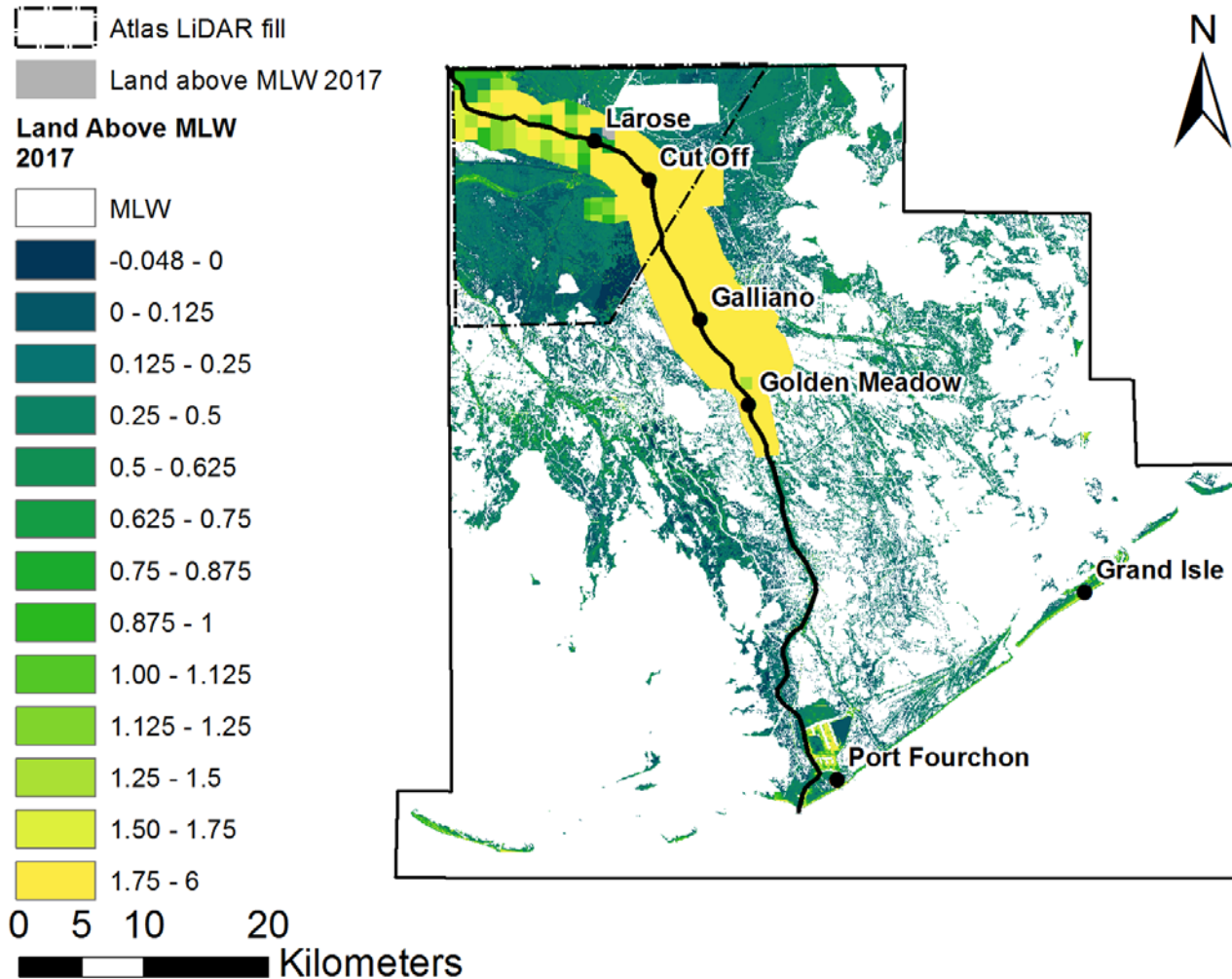
Rate Source



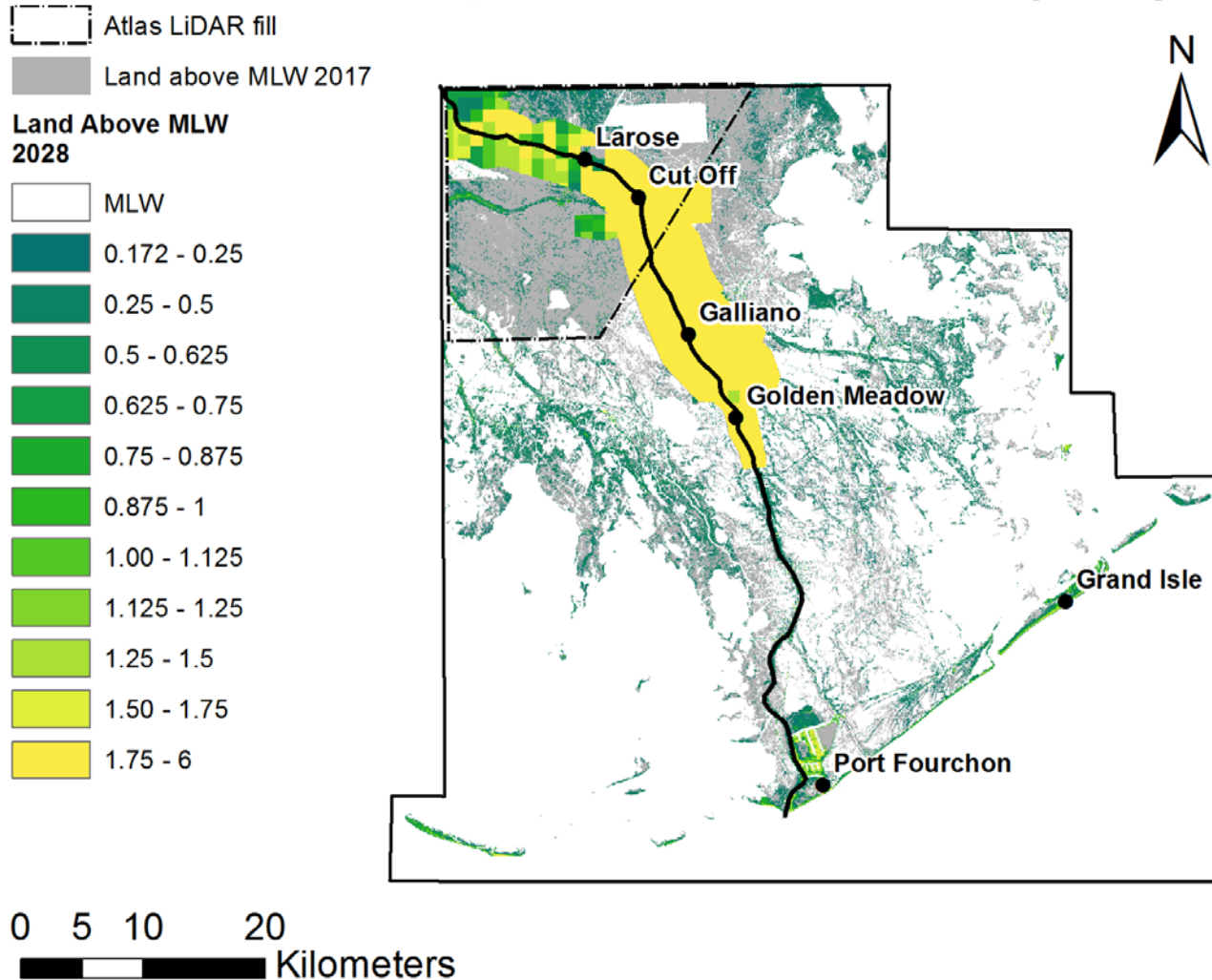
Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



SUBSIDENCE VULNERABILITY: LAND ABOVE MLW 2017



SUBSIDENCE VULNERABILITY: LAND ABOVE MLW 2028



BLUE CARBON CERTIFICATION

- Would allow beneficial use projects to receive carbon credits from voluntary carbon trading market
 - Field assessments of existing marsh creation projects
 - VCS blue carbon certification process

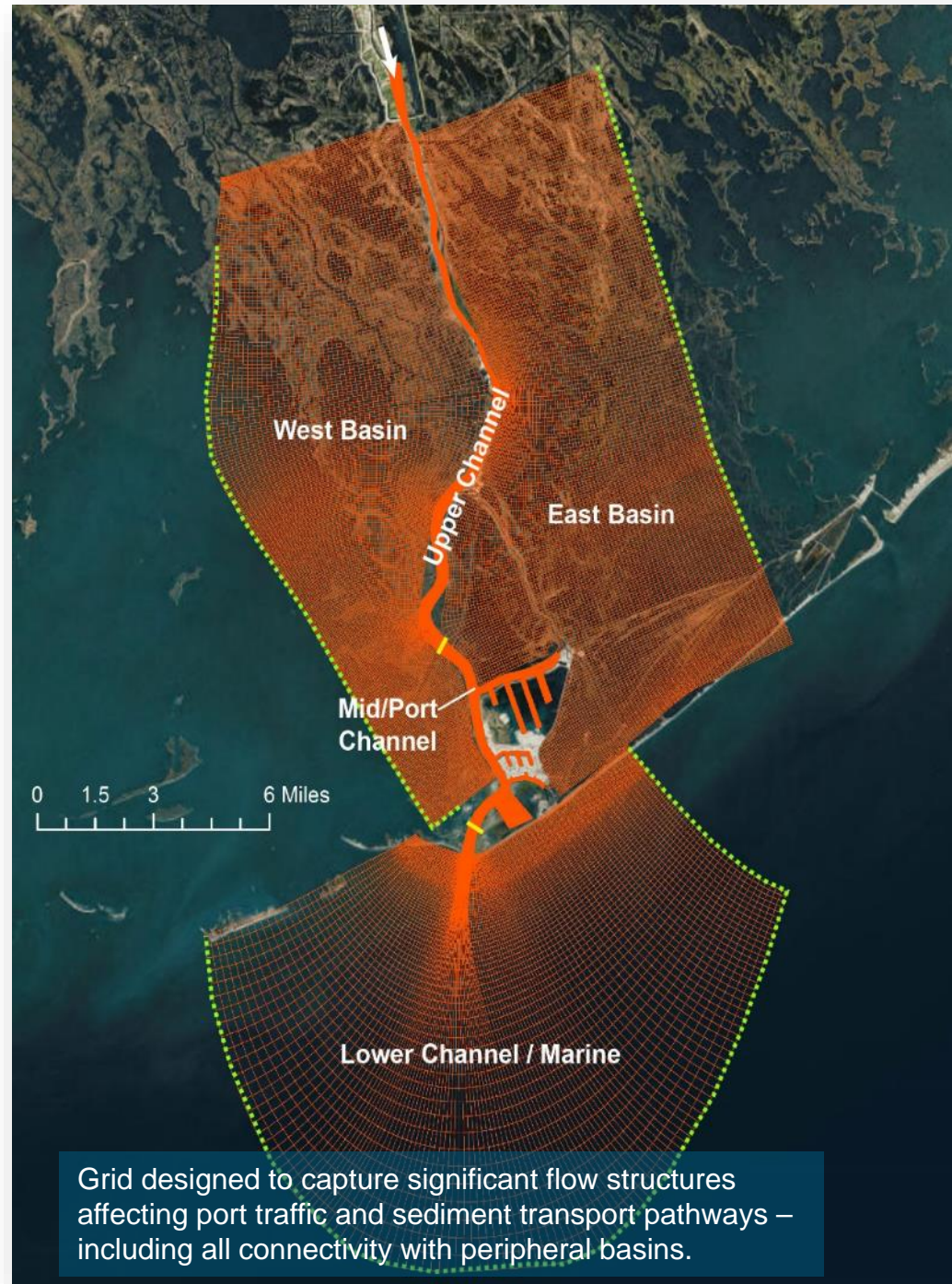


COMMUNITY-DRIVEN SCIENCE



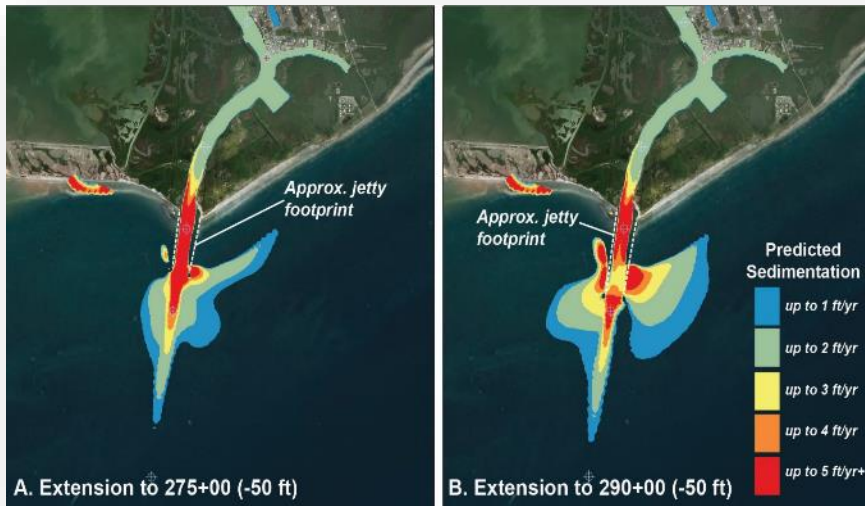
NAVIGATION & PORT EXPANSION MODELING

- **Deepen Belle Pass to -50'**
- **Deepen Bayou Lafourche, Flotation Canal, Northern Expansion to -30'**
- **Purpose-built Deepwater Rig Repair and Refurbishment**
- **~20M cubic yards of fill construction**

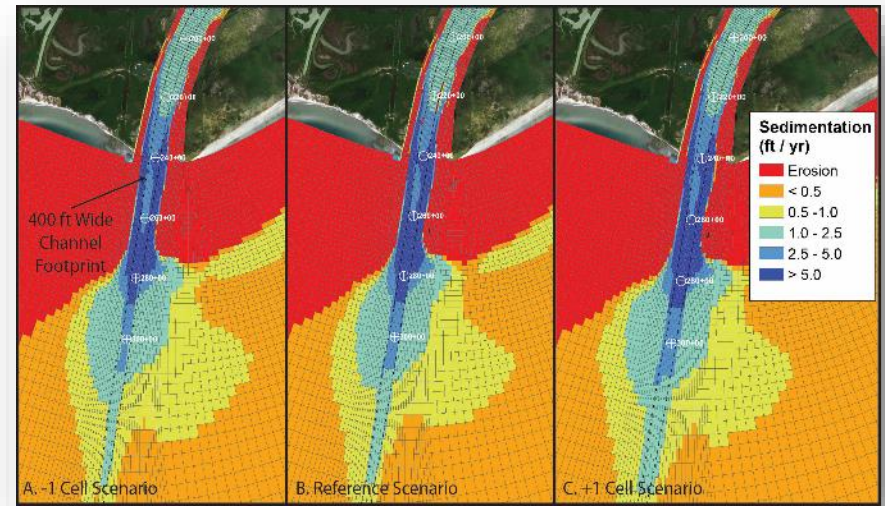


NAVIGATION & PORT EXPANSION MODELING

Numerical Modeling for Optimizing Project Design



Jetty modification: Investigated impacts of altering jetty length on navigation channel sedimentation.



channel widening: Investigated impact of altering mean channel widths from ~ 350 to 500 ft on navigation channel sedimentation.



AROUND THE WORLD





**PARTNERSHIP FOR OUR
WORKING COAST**

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