New Coastal & Estuarine Surveying for Recreational Boating Safety and Coastal Resource Management

Dr. Clark Alexander

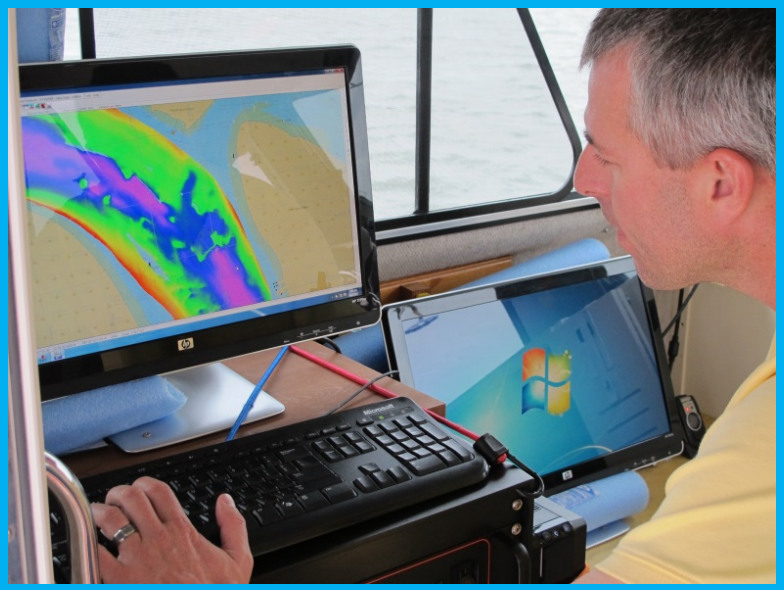
Skidaway Institute of Oceanography
University of Georgia

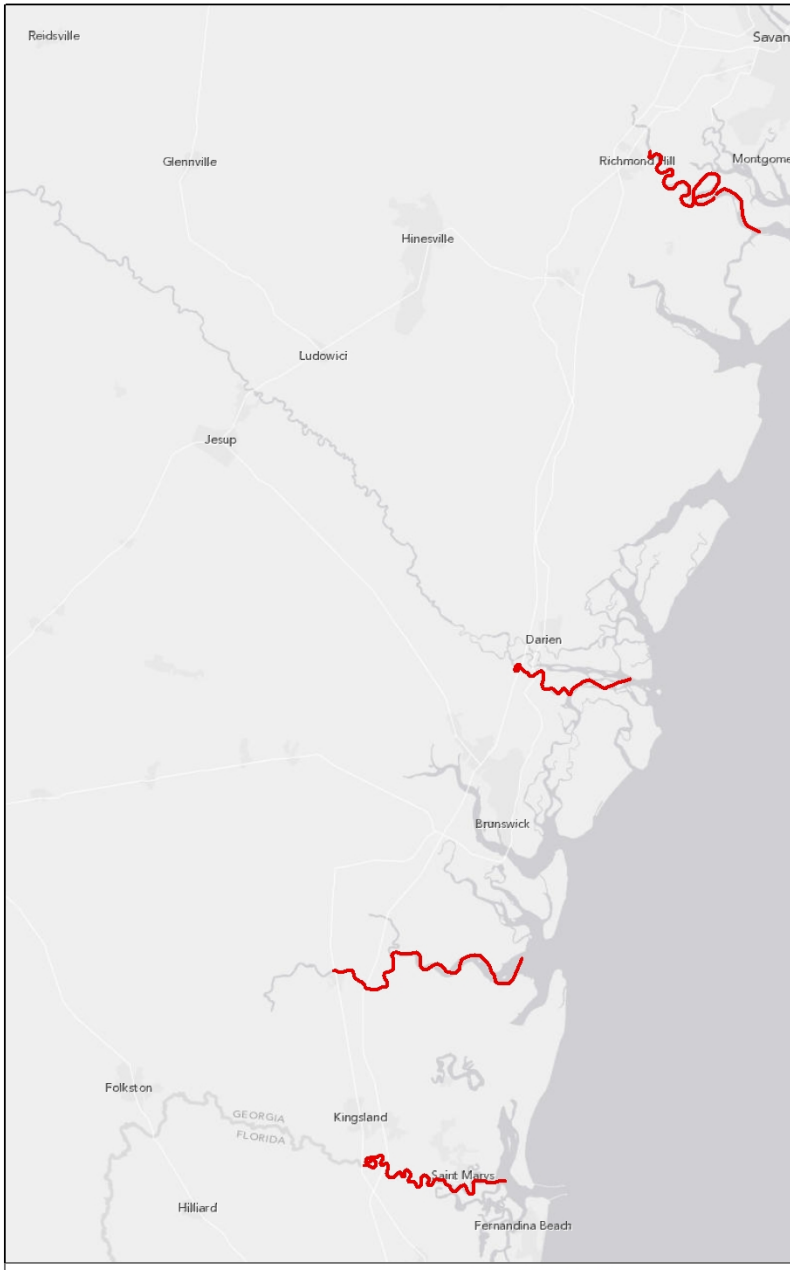
Applied Coastal Research Laboratory
Georgia Southern University

Swath Bathymetry and Sidescan Sonar For Navigation and Habitat Mapping

Edgetech 4600 Interferometric Sidescan Sonar System

- Swath 12x water depth
- Hypack/Discover software
- SMC MRU
- AML MINOS-X SVP
- Trimble 2-antenna RTK-GPS
- 28’ Parker - RV Jack Blanton



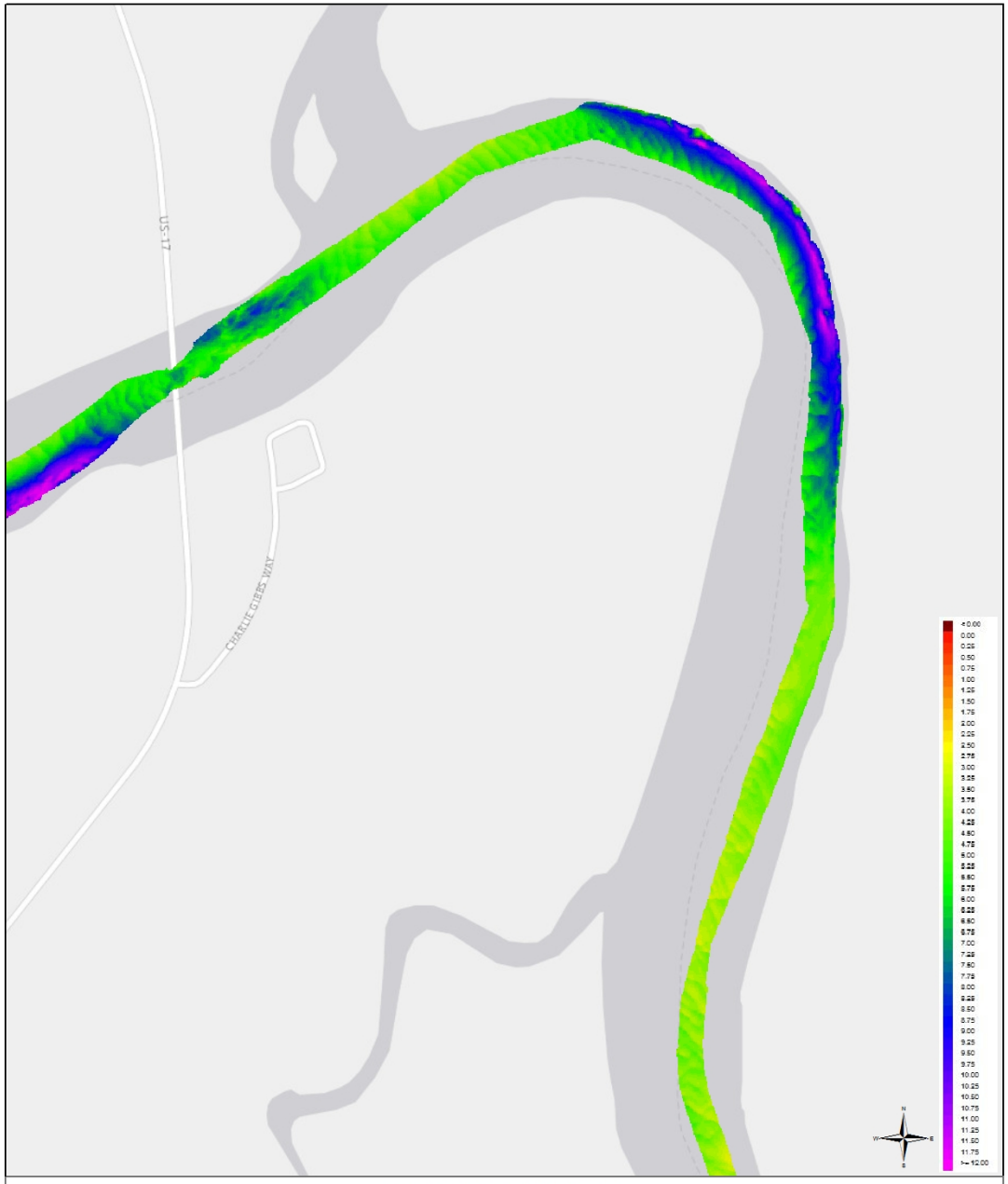


Bathymetric Coverage

Dr. Clark Alexander - clark.alexander@skio.uga.edu

The University of Georgia, Skidaway Institute of Oceanography

0 5 10 15 20 Nautical Miles



Altamaha River, Georgia

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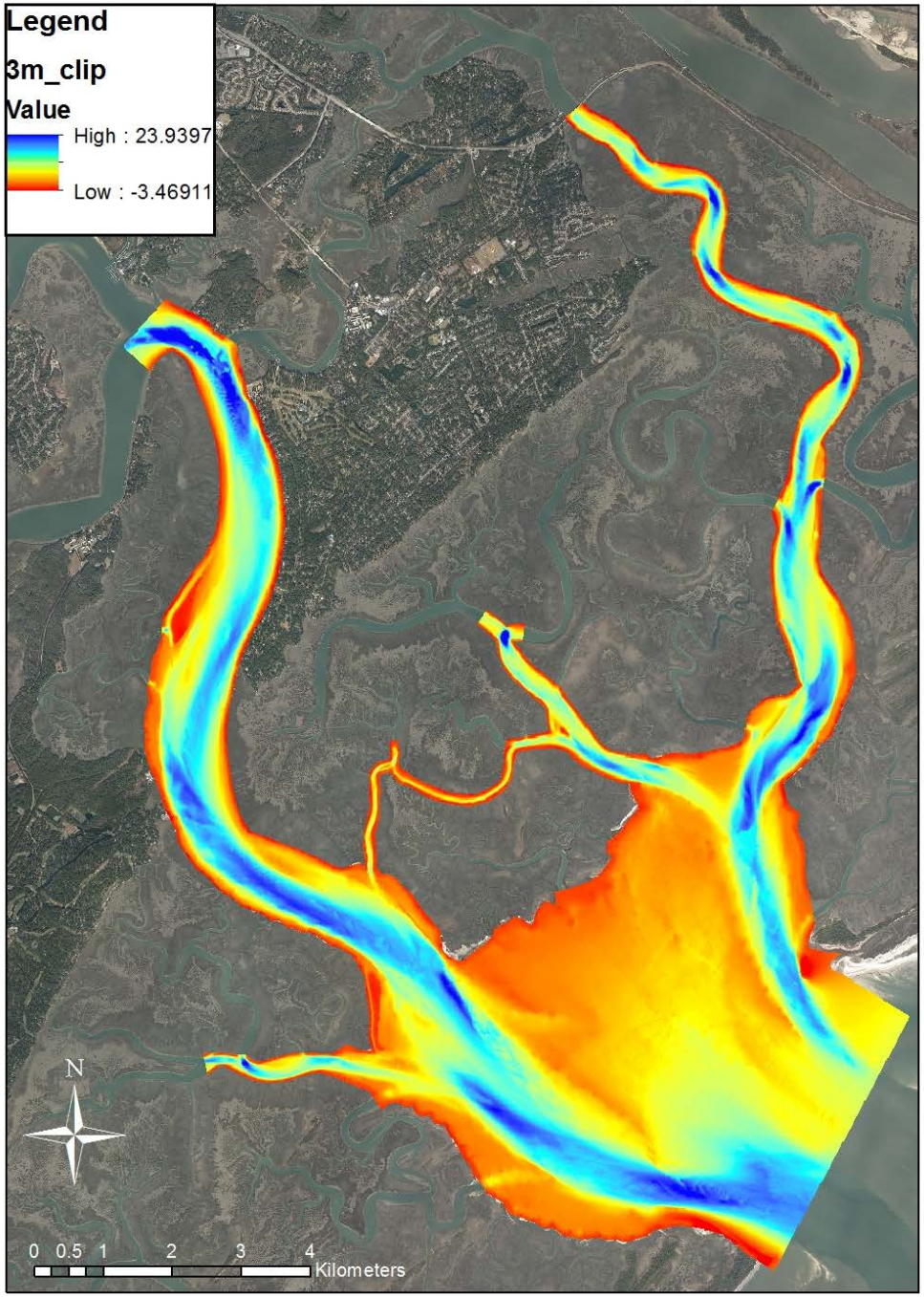
Soundings in Meters - MLLW

The University of Georgia, Skidaway Institute of Oceanography

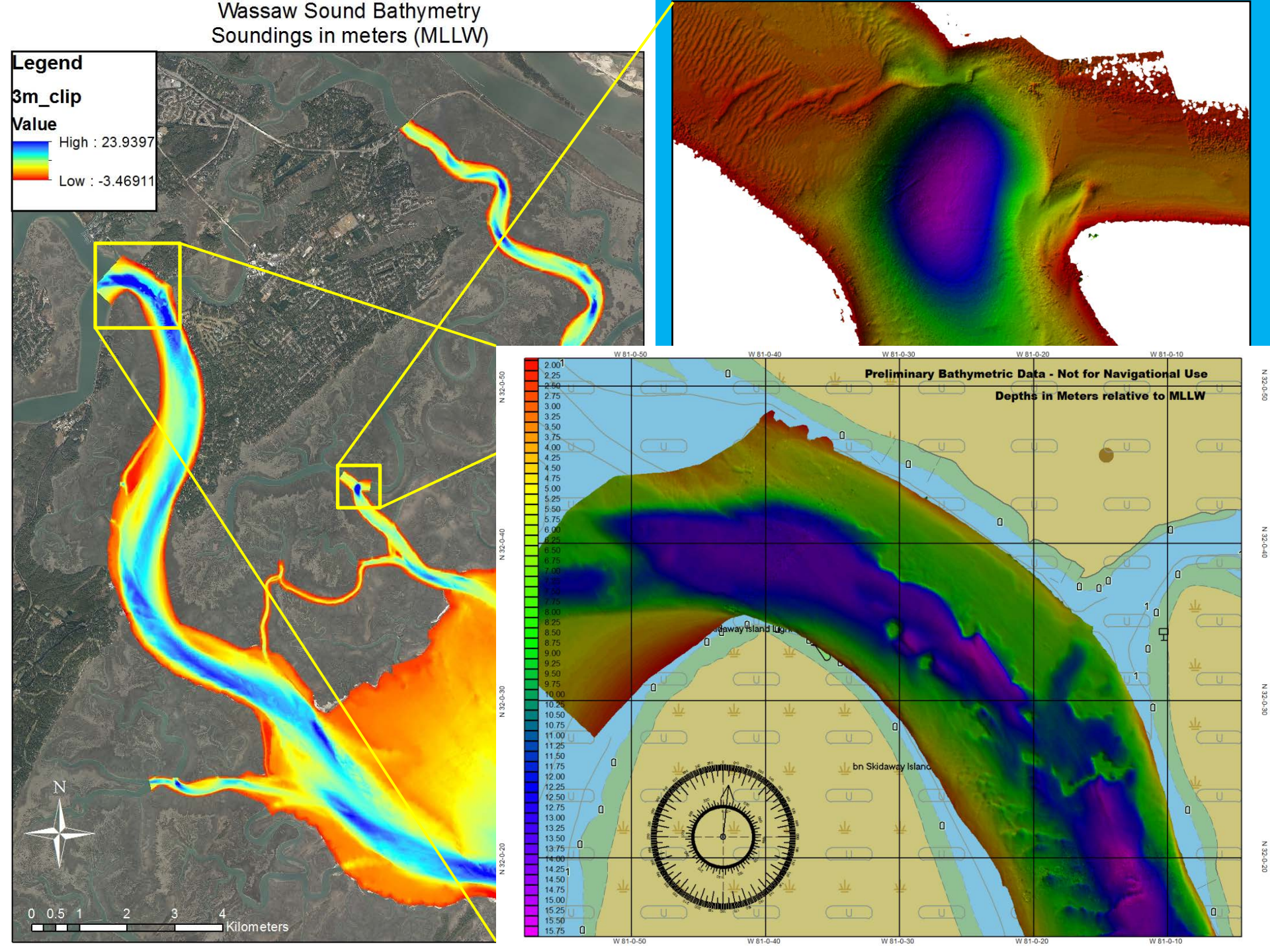
0 0.1 0.2 0.3 0.4 Nautical Miles

Applied Coastal Research Lab

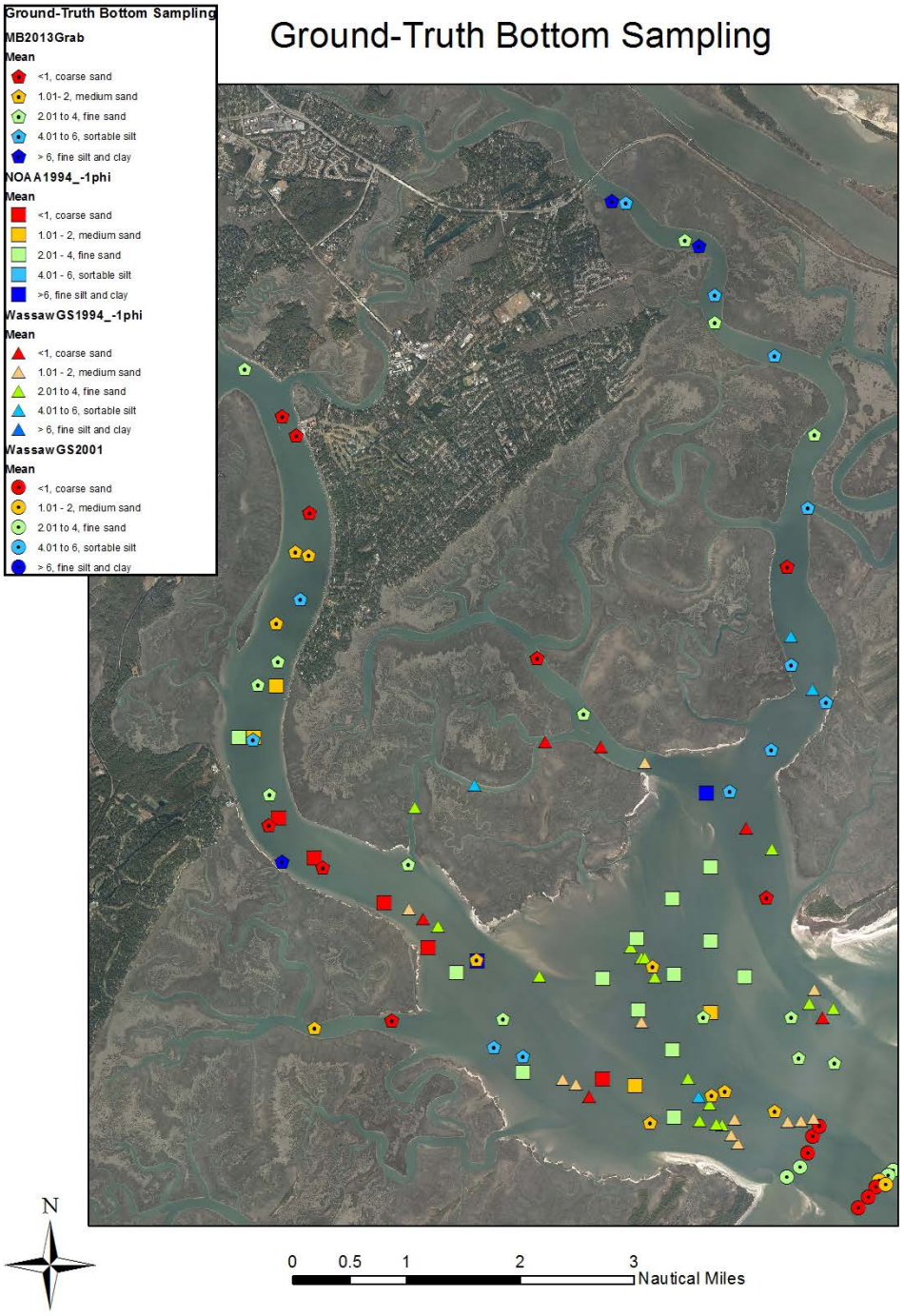
Wassaw Sound Bathymetry
Soundings in meters (MLLW)



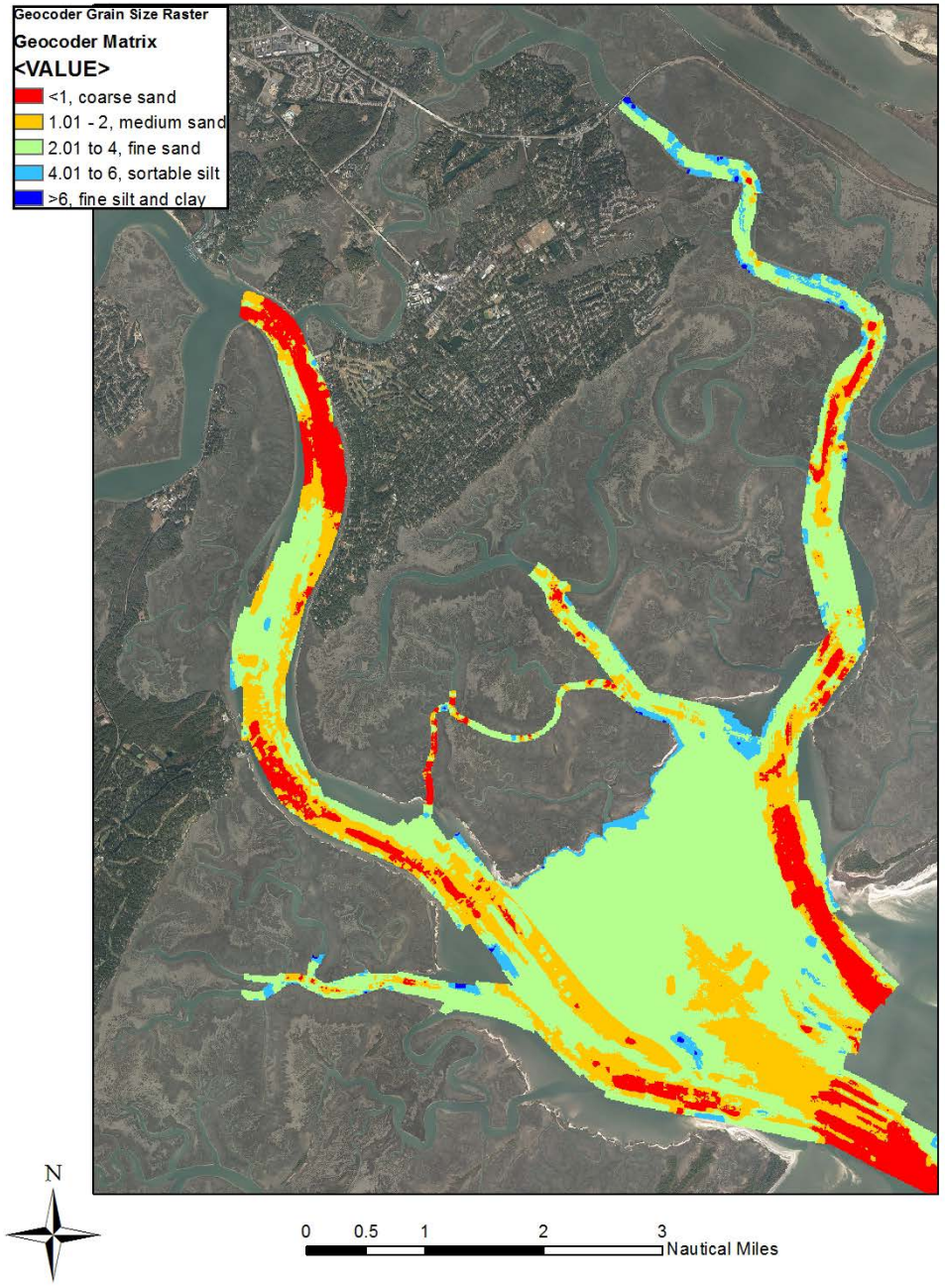
Wassaw Sound Project Area
Chatham County, GA


Wassaw Sound Bathymetry
Soundings in meters (MLLW)
Legend
3m_clip
Value
High : 23.9397
Low : -3.46911
N
0 0.5 1 2 3 4
Kilometers
Preliminary Bathymetric Data - Not for Navigational Use
Depths in Meters relative to MLLW
W 81-0-50
W 81-0-40
W 81-0-30
W 81-0-20
W 81-0-10
N 32-0-50
N 32-0-40
N 32-0-30
N 32-0-20
bn Skidaway Island

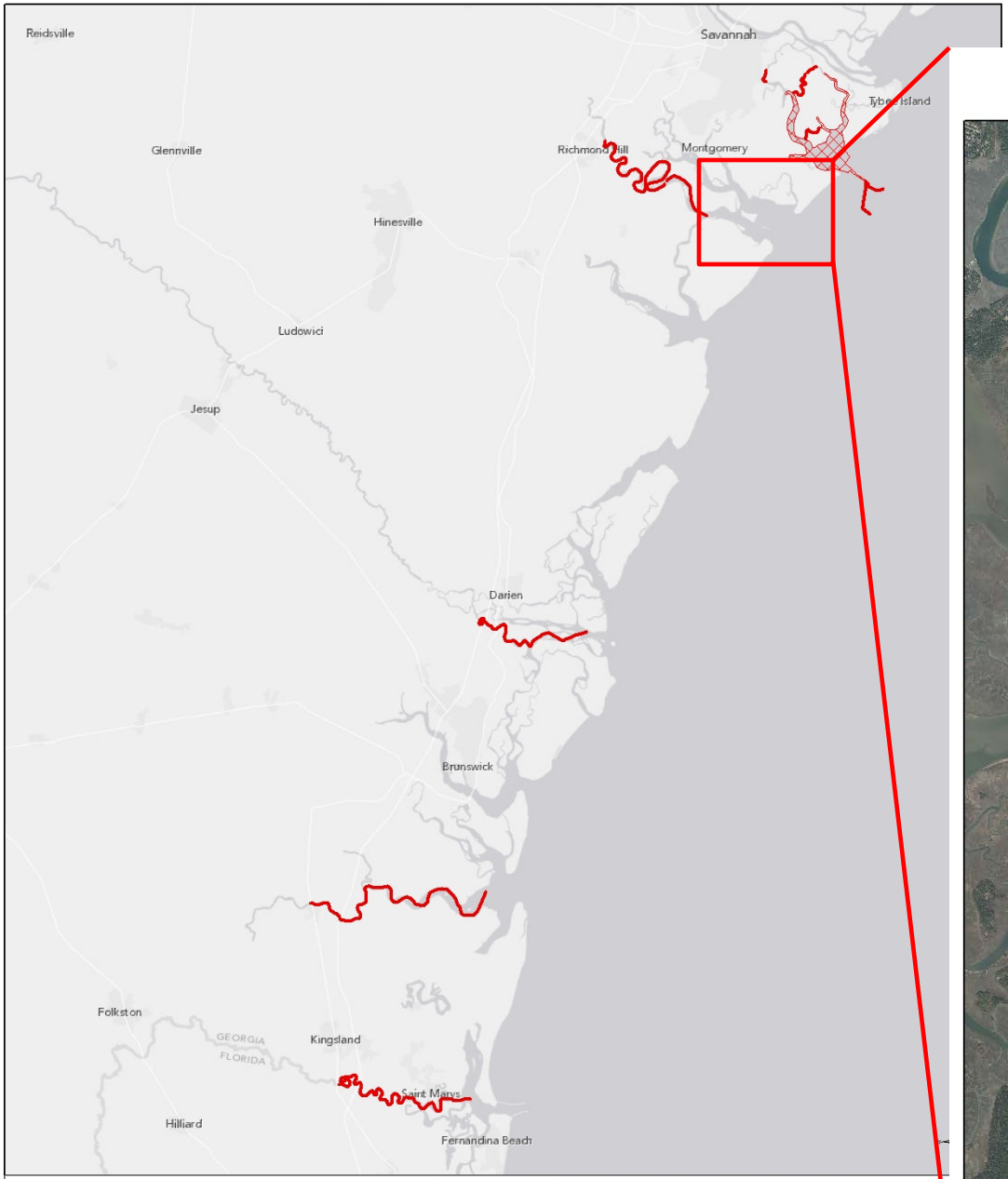
Ground-Truth Bottom Sampling



Geocoder Grain Size Raster



Ossabaw Sound Bathymetry Project



Bathymetric Coverage

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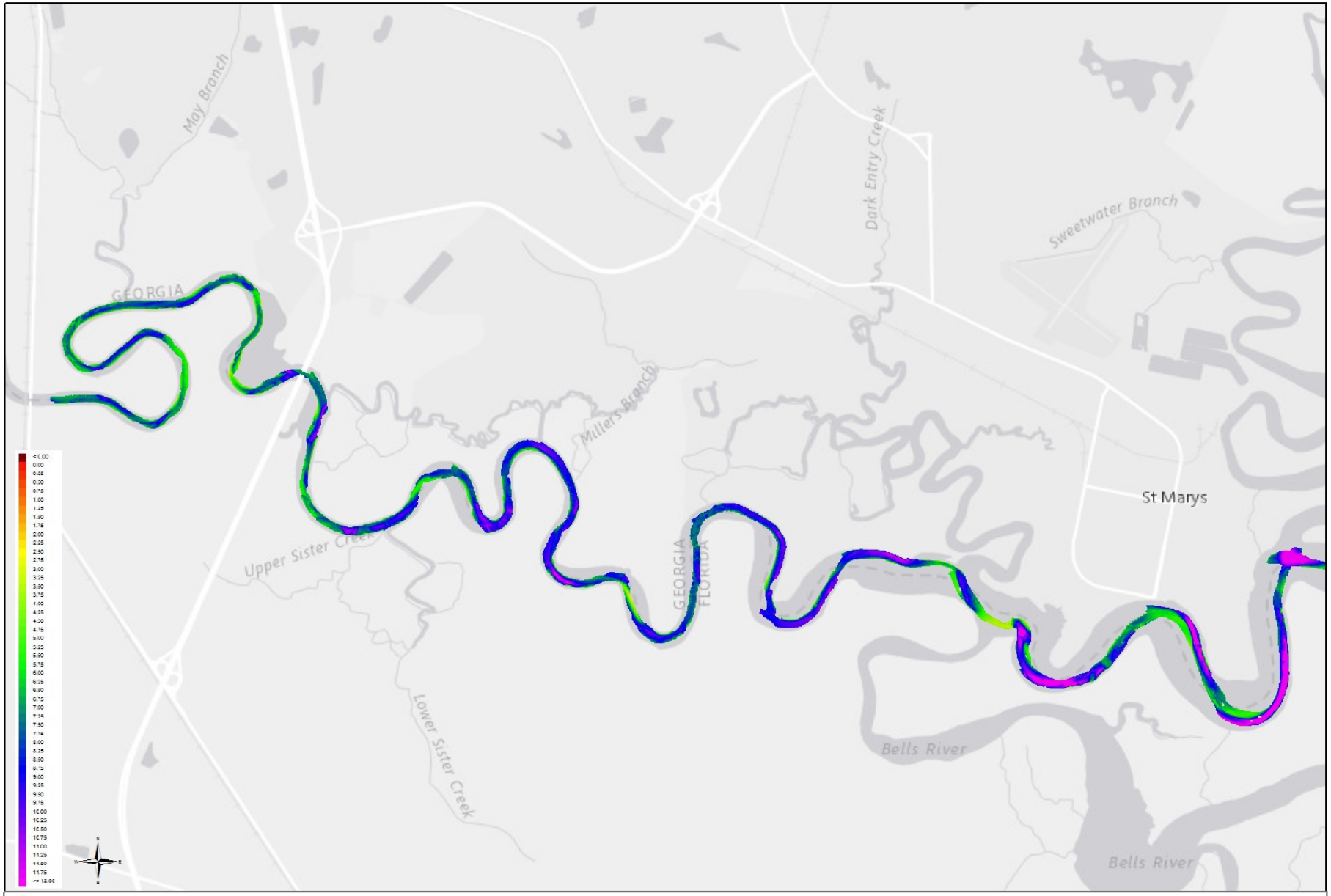
The University of Georgia, Skidaway Institute of Oceanography



St. Marys River, Georgia

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Soundings in Meters - MLLW

0 0.5 1 1.5 2 Nautical Miles

The University of Georgia, Skidaway Institute of Oceanography

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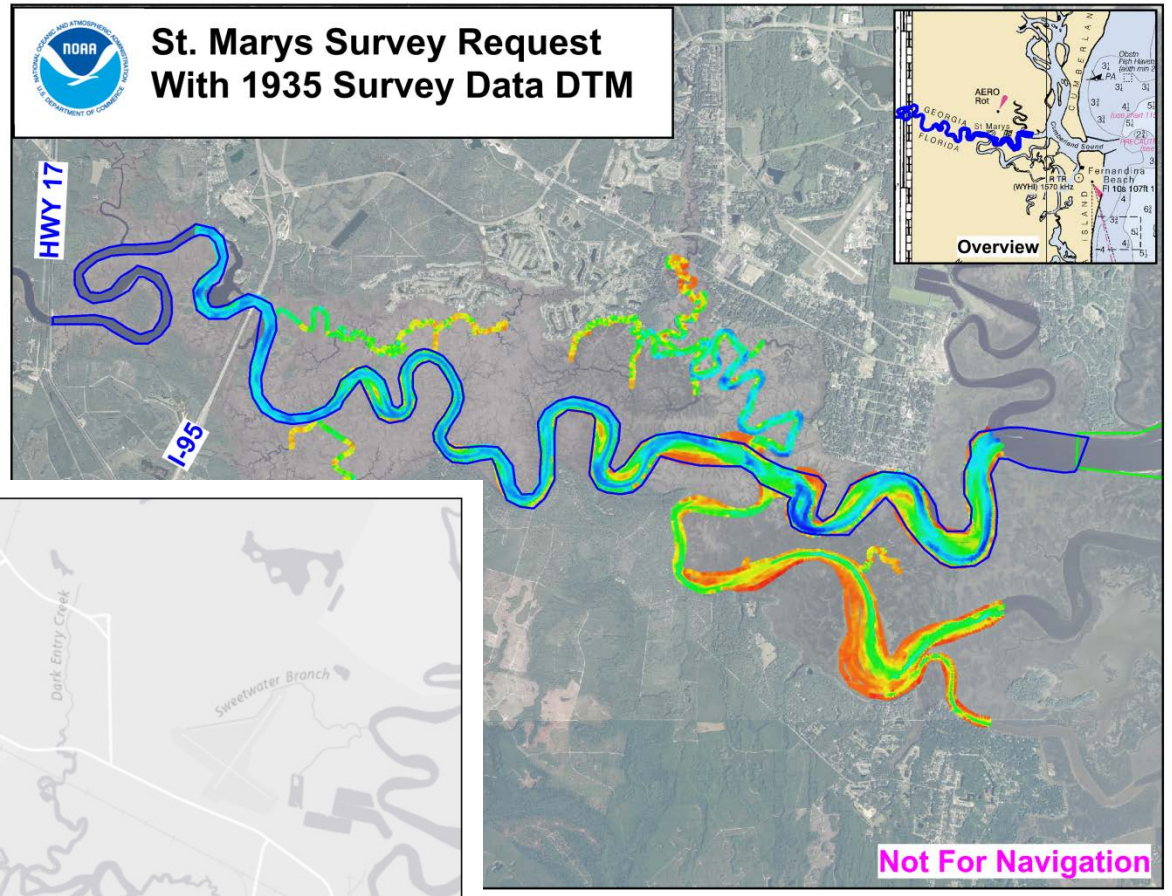
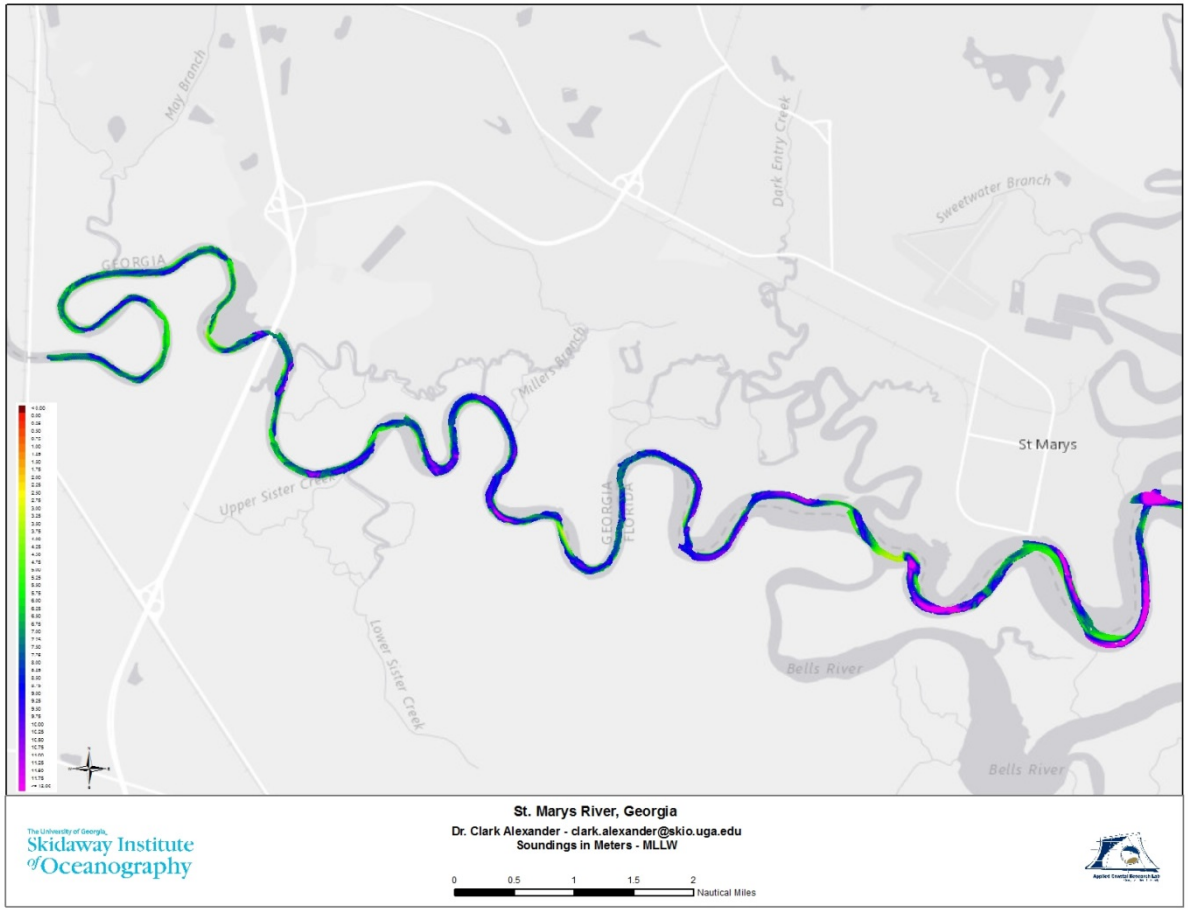
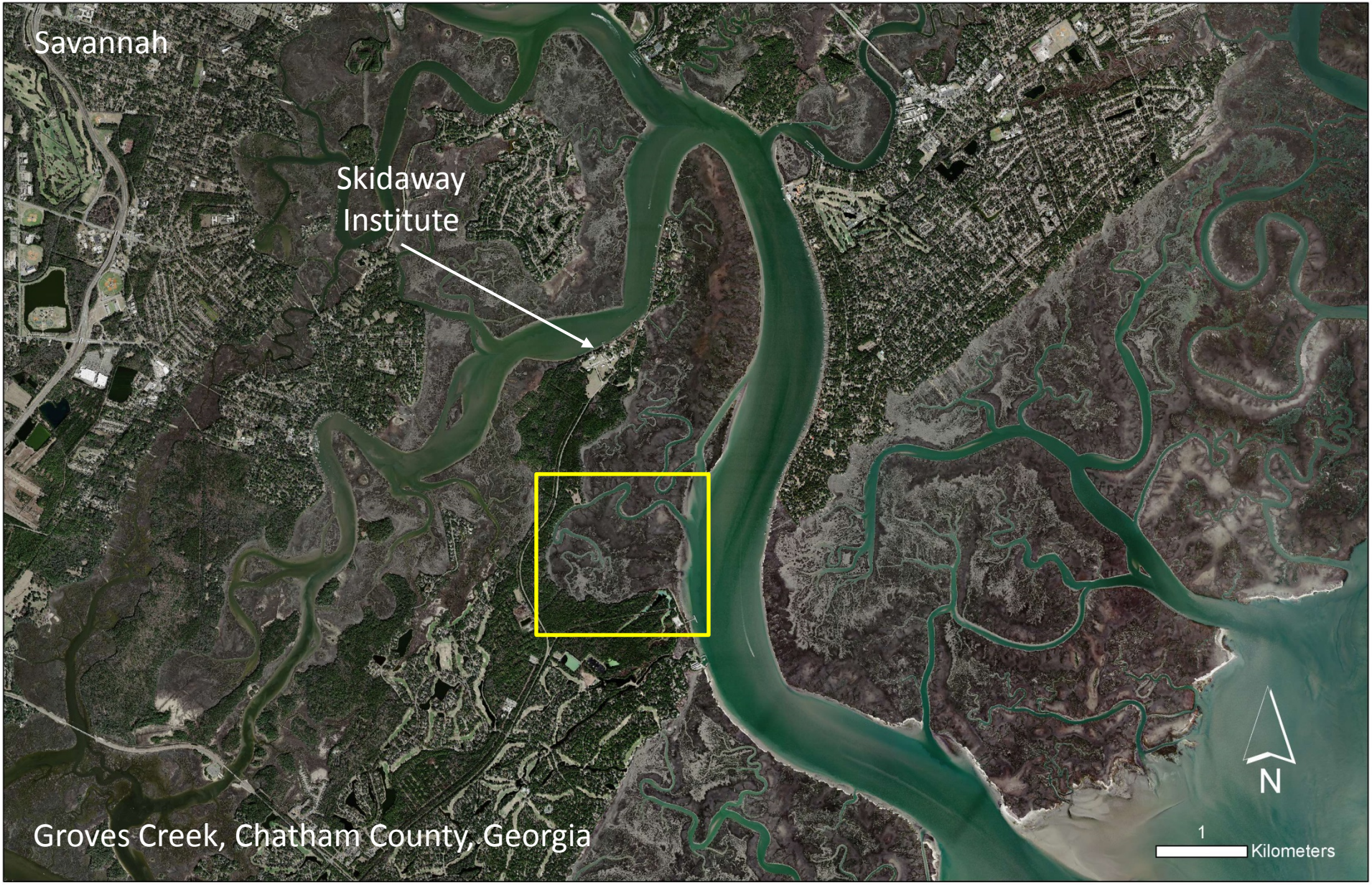
Developing Collaborative Mapping Efforts

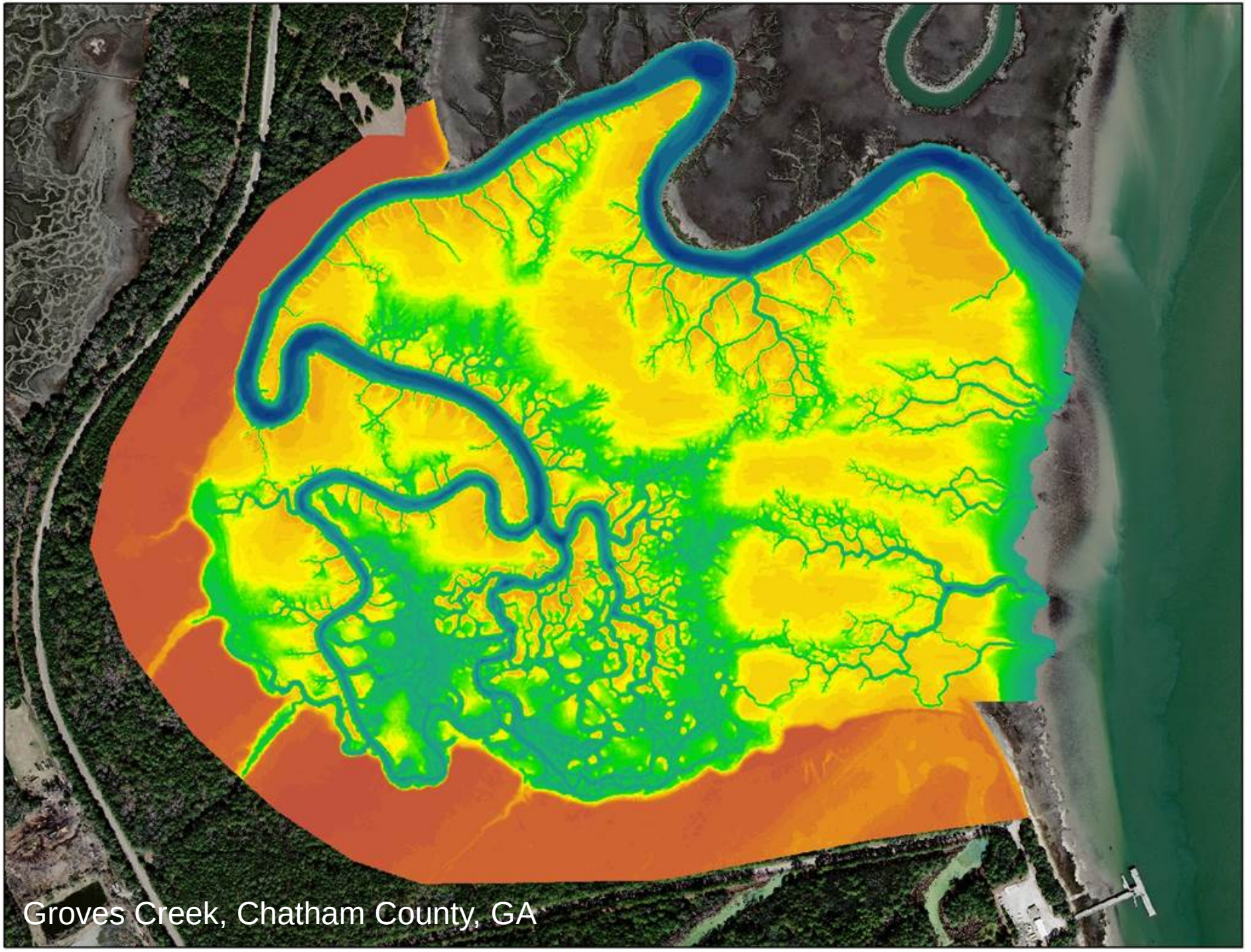




Map of 1935 data courtesy of
Kyle R. Ward
NOAA Navigation Manager
Southeast

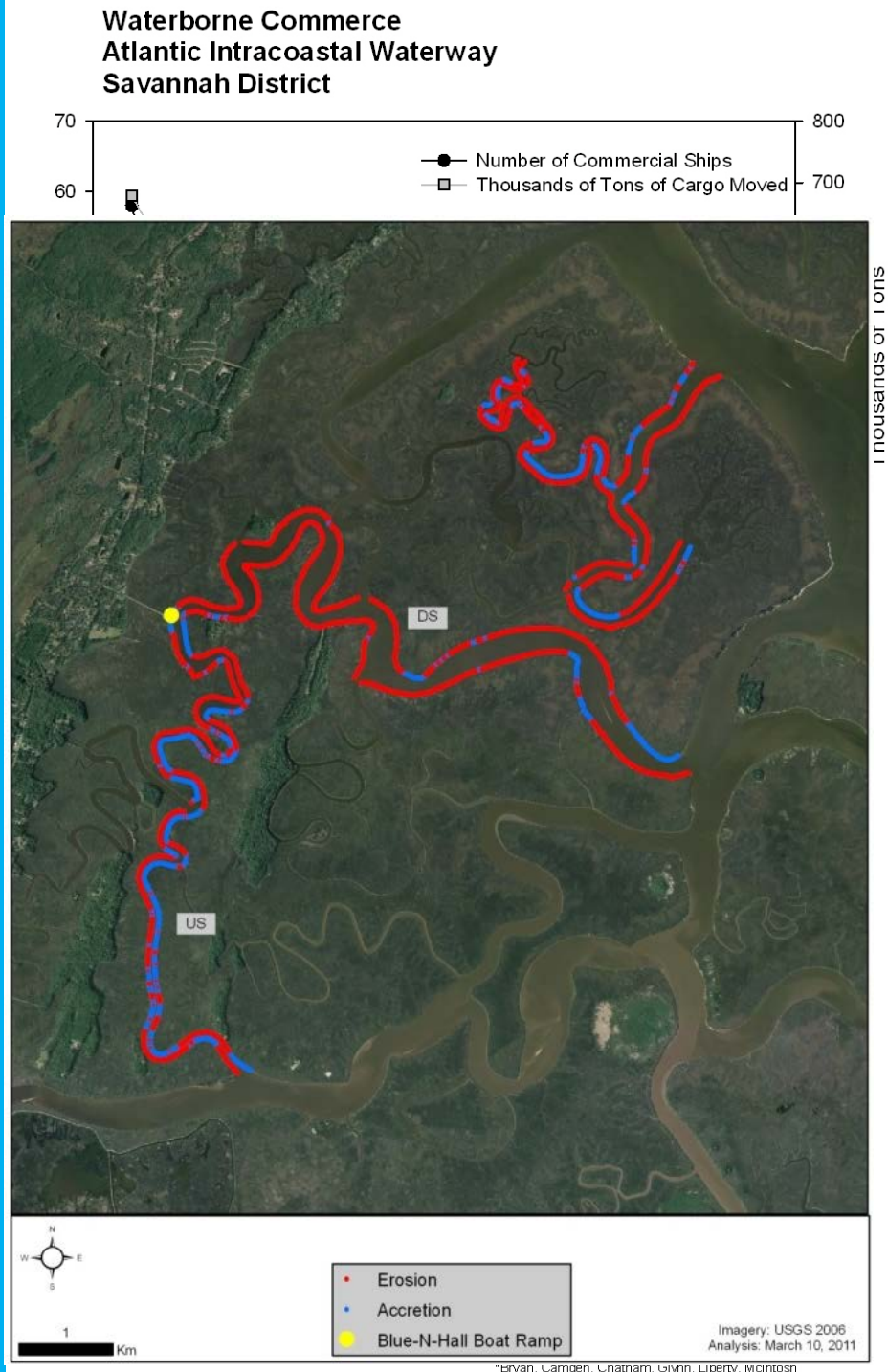
Other Mapping Activities




Groves Creek, Chatham County, GA

Estuarine Shoreline Mapping for Resource Management

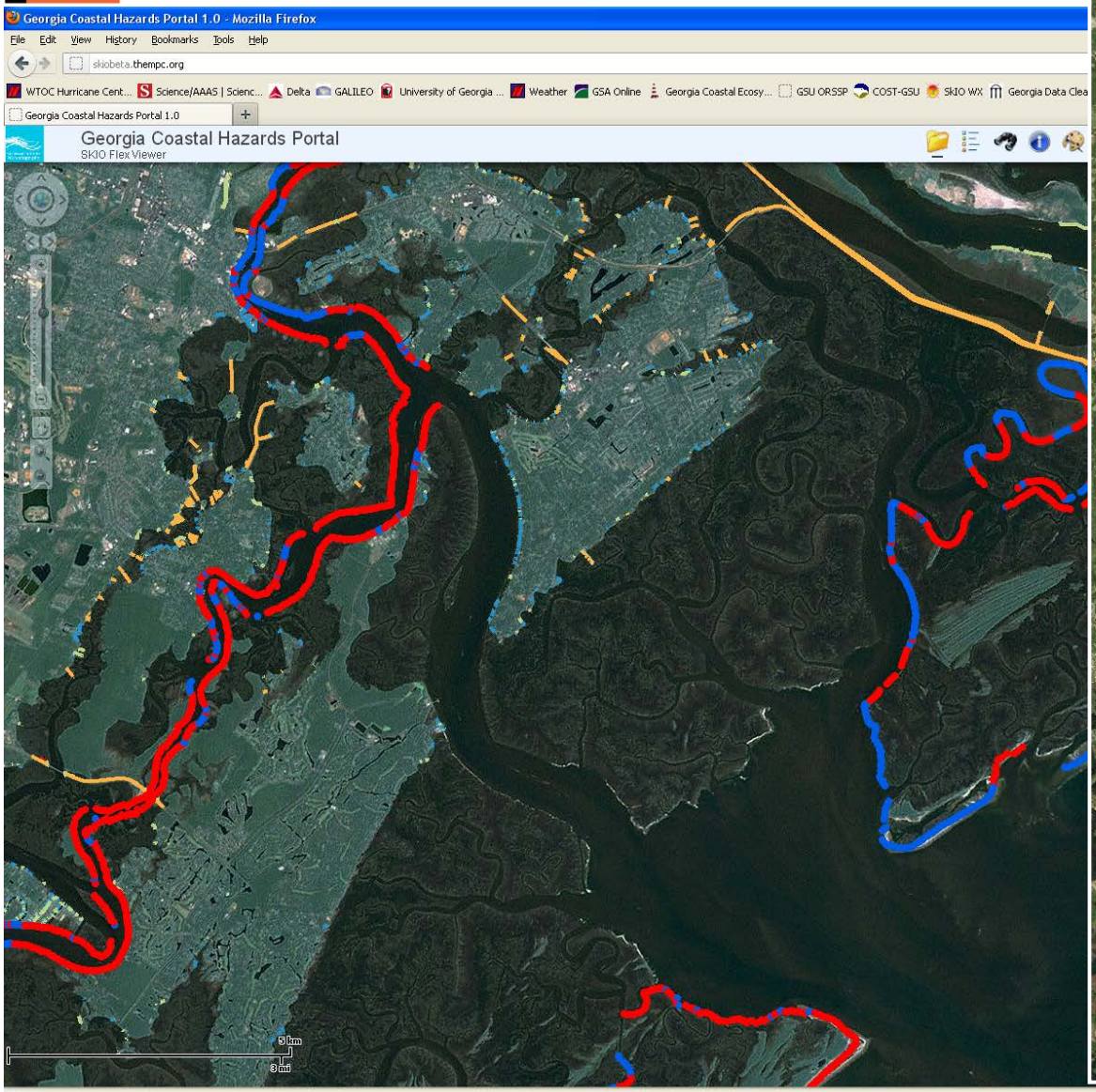
Contributing Factors to Shoreline Change on the AIWW

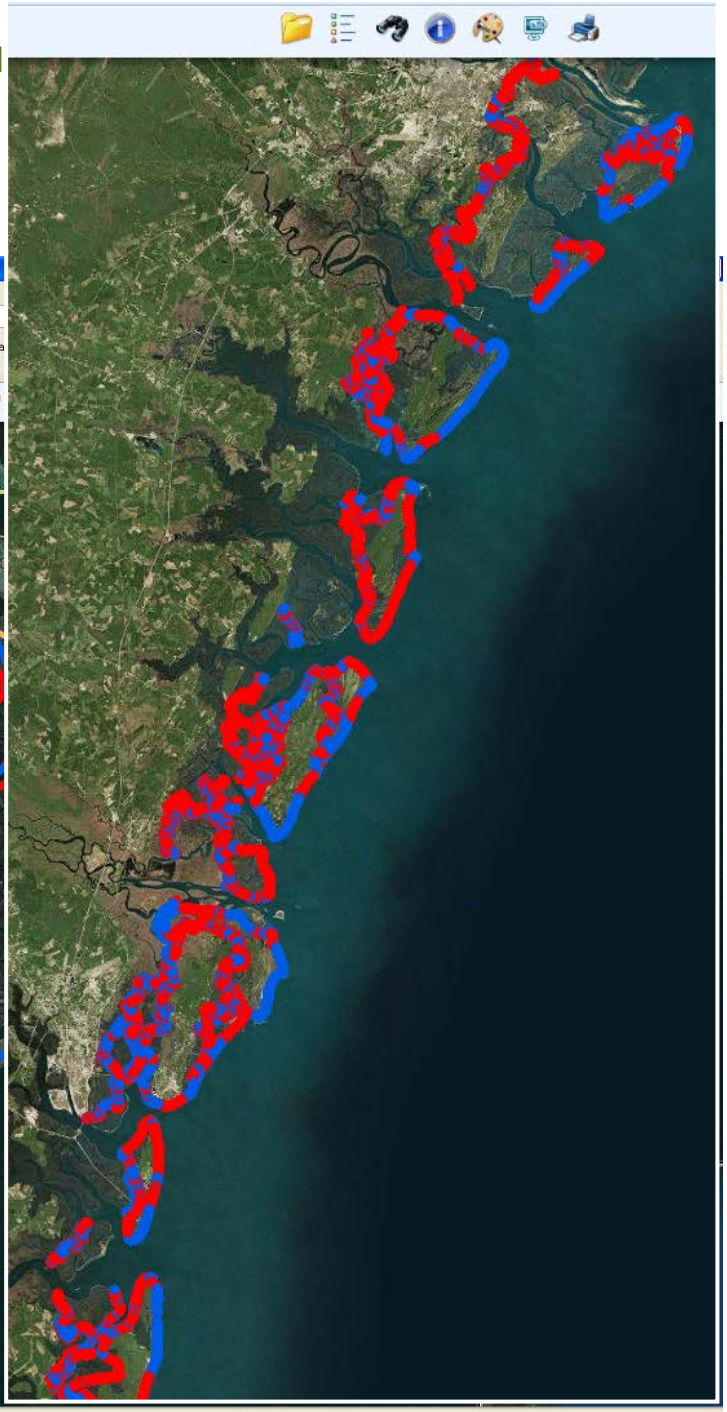


*Bryan, Camden, Chatham, Glynn, Liberty, McIntosh

Georgia Coastal Hazards Portal (gchp.skio.u

Shoreline Change Rates





Governors' South Atlantic Alliance

North Carolina • South Carolina • Georgia • Florida

New Coastal Hazard Vulnerability Assessment Tool for the Southeastern US

Technical Leads

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Julie Dennis
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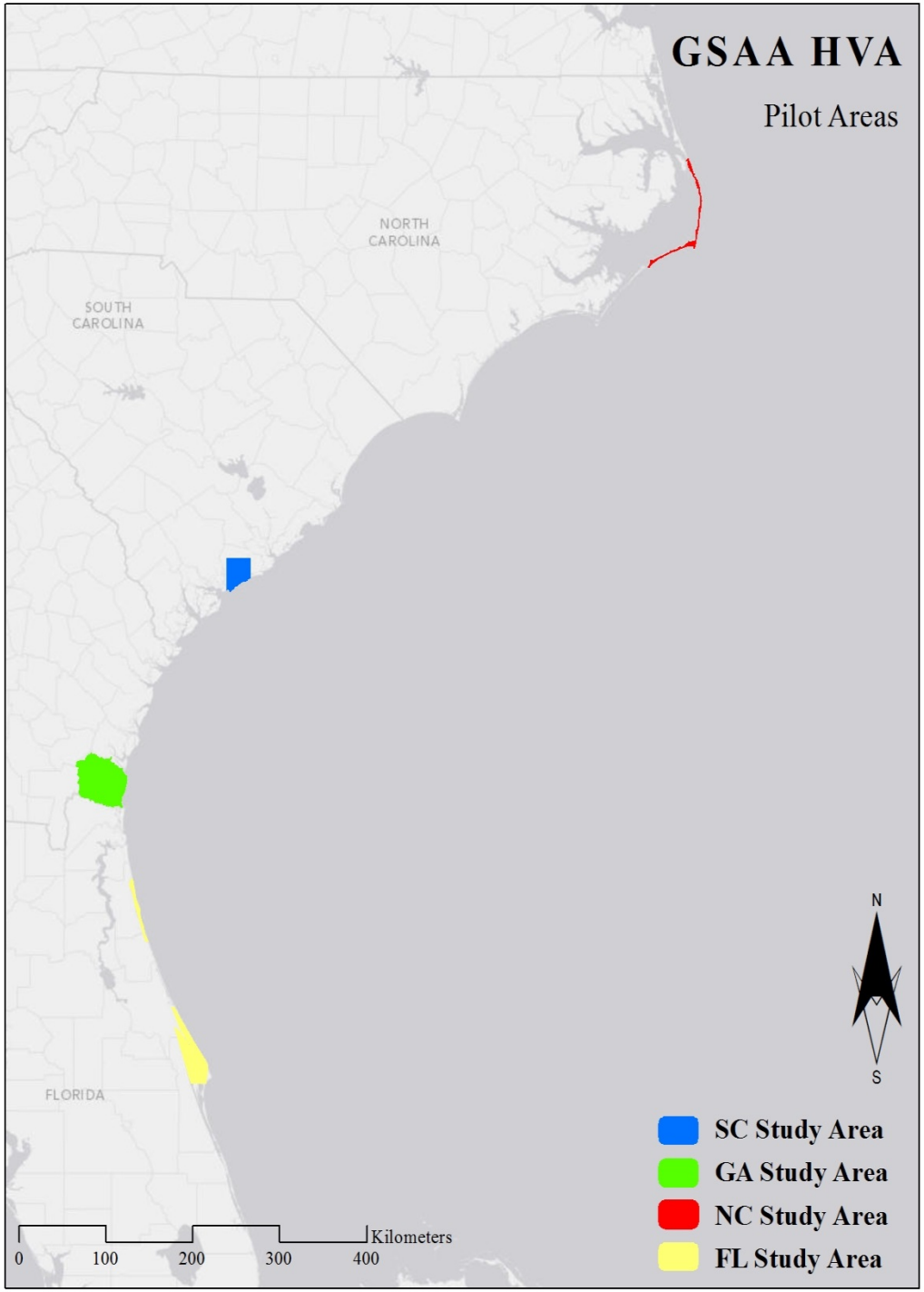
Georgia Department of Natural Resources

Ken Richardson
NCDNER – Division of Coastal Management



All pilot areas ~1000 km estuarine shoreline; variety of shoreline types, public and private ownership; tourism important; robust datasets.

- NC – Dare Co.; Cape Hatteras National Seashore, Pea Island NWR.
- SC – Charleston Co.; Edisto I., Wadmalaw I.
- GA – Camden Co.; Kings Bay NSB, Cumberland I. National Seashore.
- FL – various; Guana Mantanzas Tolomato NERR, NASA, Canaveral National seashore, SJWRMD. Marsh and mangroves.

AMBUR-HVA Targeted Geospatial Inputs

Layers	Description
Historical shorelines	Detailed shoreline positions and classifications including shoreline armoring. Shorelines are analyzed in AMBUR-SCA to generate shoreline change data.
AMBUR transects*	Shoreline change data generated from AMBUR-SCA . Contains erosion rates, morphologic classifications, variability of movements and other metrics (need to use v. 1.1.14).
SLOSH*	Estimates storm surge heights resulting from historical, hypothetical or predicted hurricanes (USACE or NWS polygon grids).
FEMA Q3/DFIRM*	Areas potentially impacted by flooding.
SoVI*	Social vulnerability index that assists with determining populations at risk to environmental hazards.
Pending Modules	
AMBUR fetch tool	Wind/wave exposure based on maximum open-water distances and seasonal climatology
ASCE 7-10 wind zones	Areas potentially impacted by hurricane force winds
Parcels/building Footprints/structures	Impacts on built environment from physical processes
Coastal Emergency Risks Assessment	ADCIRC coastal circulation and storm surge model + SWAN wave model

*For direct use in AMBUR-HVA v.0.9 beta tool for shorelines and inland areas.

Merged HVA Index (Inundation, SCA, SoVI)