

Mapping Oyster Reefs in Apalachicola Bay

APALACHICOLA BAY SYSTEM INITIATIVE (ABSI) COMMUNITY ADVISORY BOARD (CAB)

January 13, 2021

Ray Grizzle, Krystin Ward
Jackson Estuarine Laboratory
University of New Hampshire

Tom Waddington, Tom Reis
Substructure, Inc.
Portsmouth, NH

Matt Davis, Sarah Cahill
FL Fish & Wildlife Cons. Comm.
Apalachicola, FL

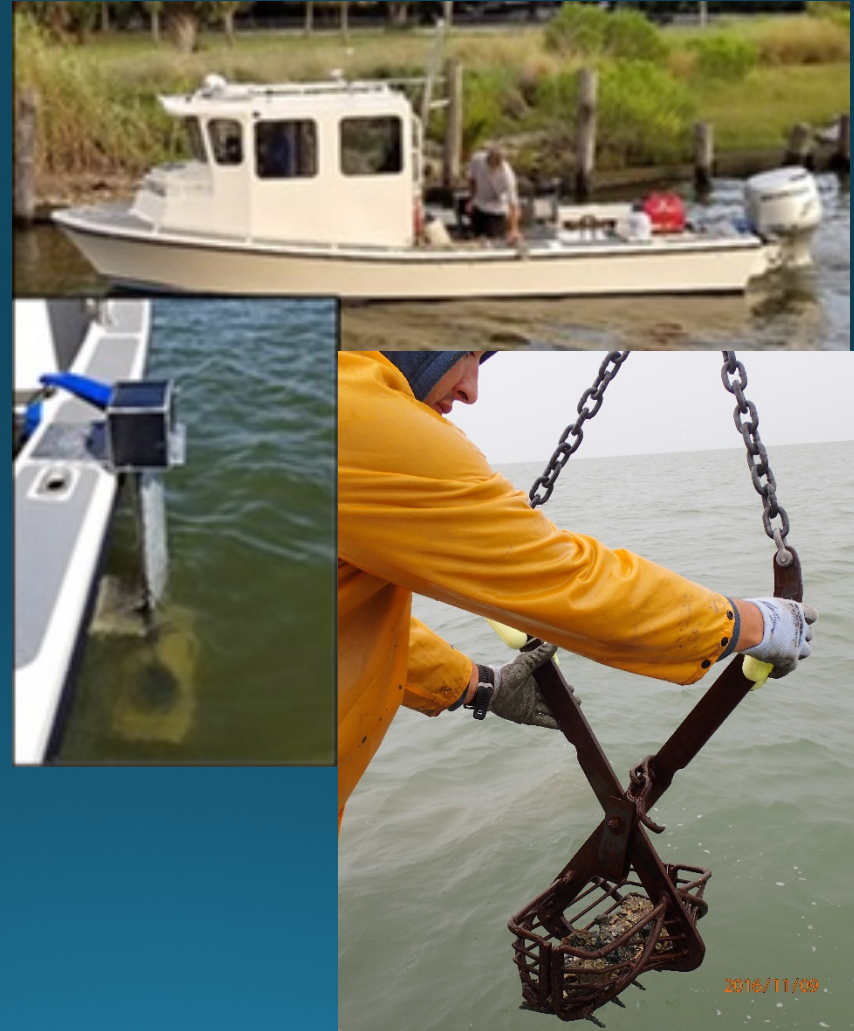
- **Previous Research: Mapping & Assessing Subtidal Natural Reefs**

(Florida FWC funded study; UNH & Substructure study; FWC assistance)

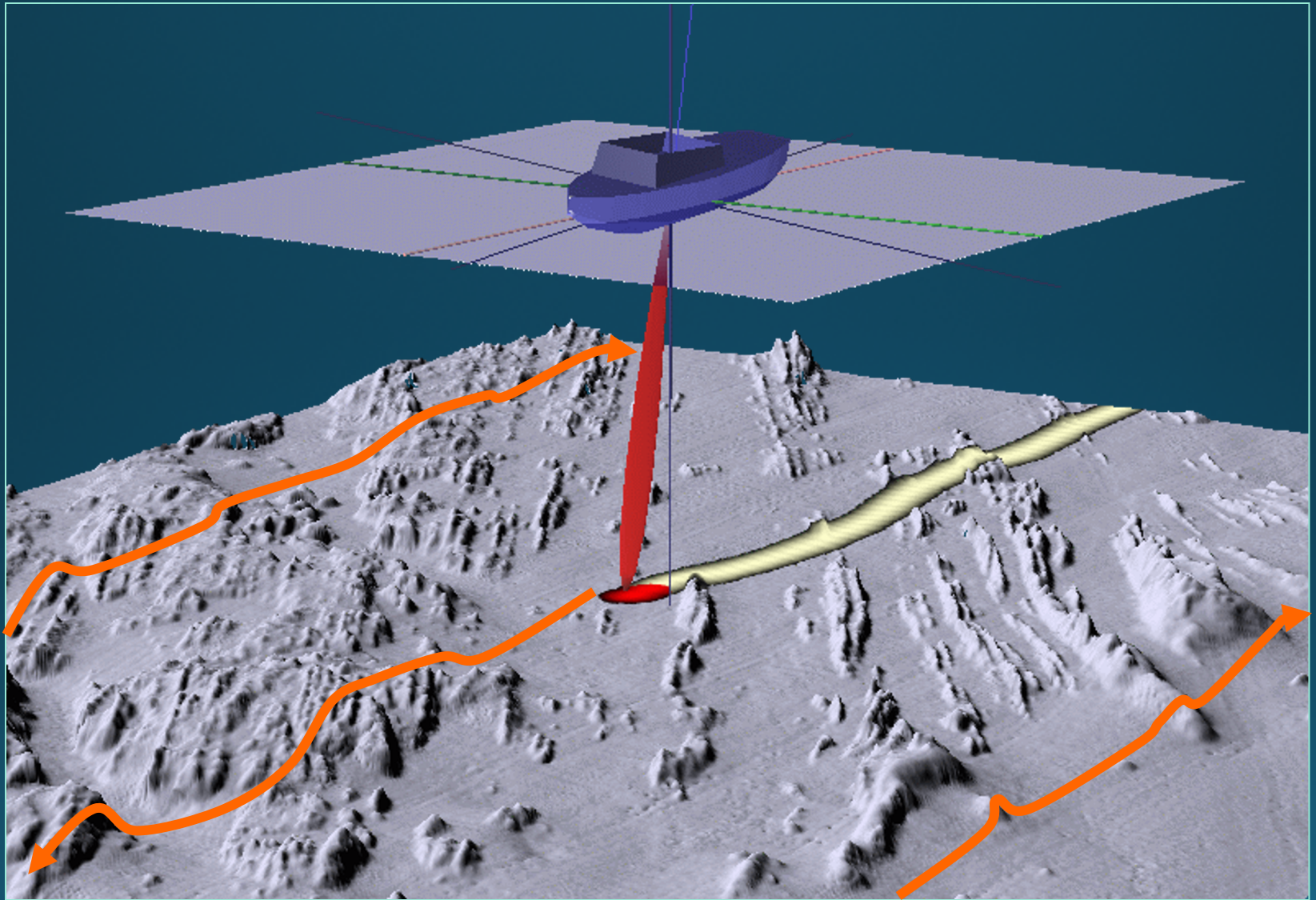
- **Goal and deliverables for present project**
- **Methods and status of present project**

PREVIOUS PROJECT: Mapping & Assessing Subtidal Reefs

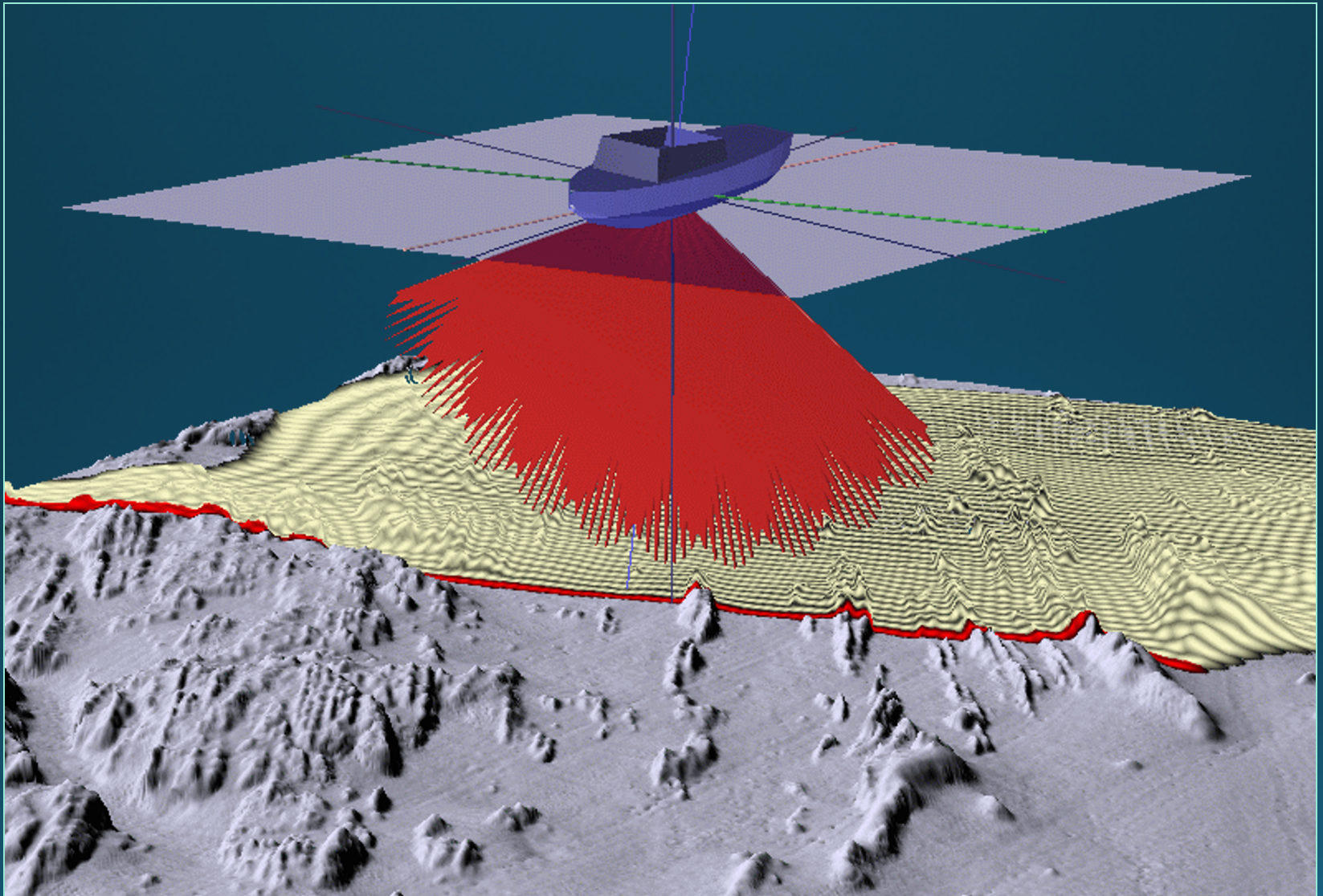
- Collect sonar (acoustic) data on natural/harvested reefs
- “Ground-truth” (sample) the reefs with patent tongs and compare to data from FWC diver-excavated quadrats
- Determine effective approach for larger scale mapping



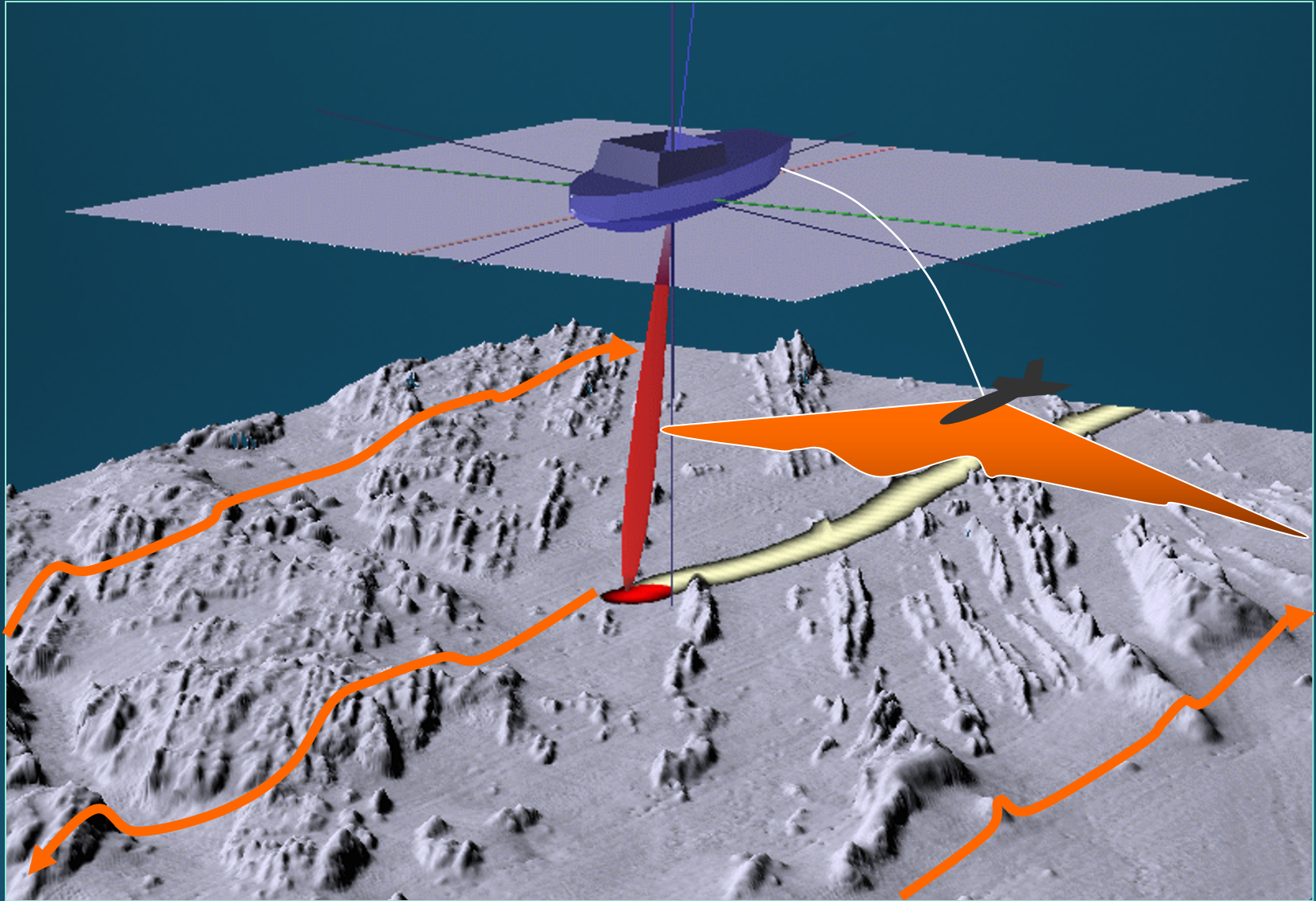
Single Beam Sounder



Multibeam Sonar

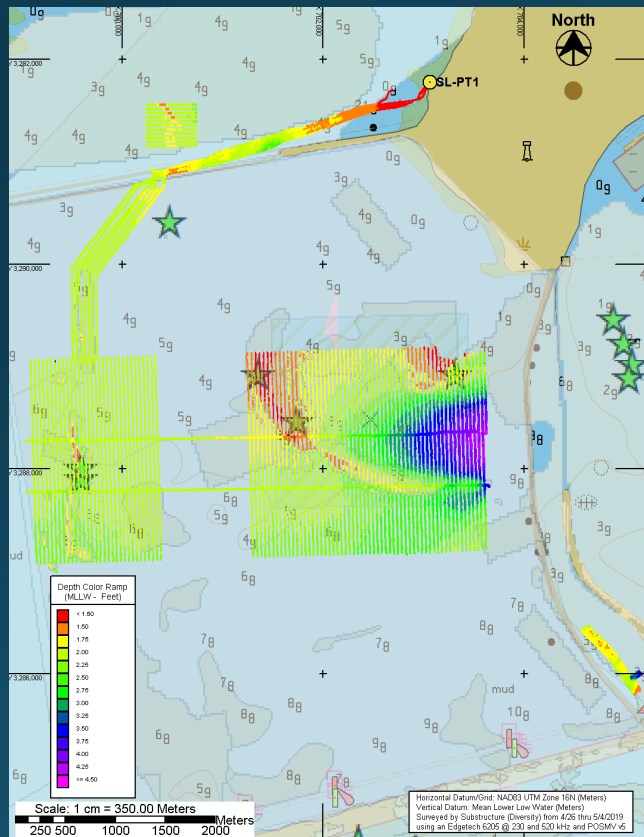


Sidescan Sonar

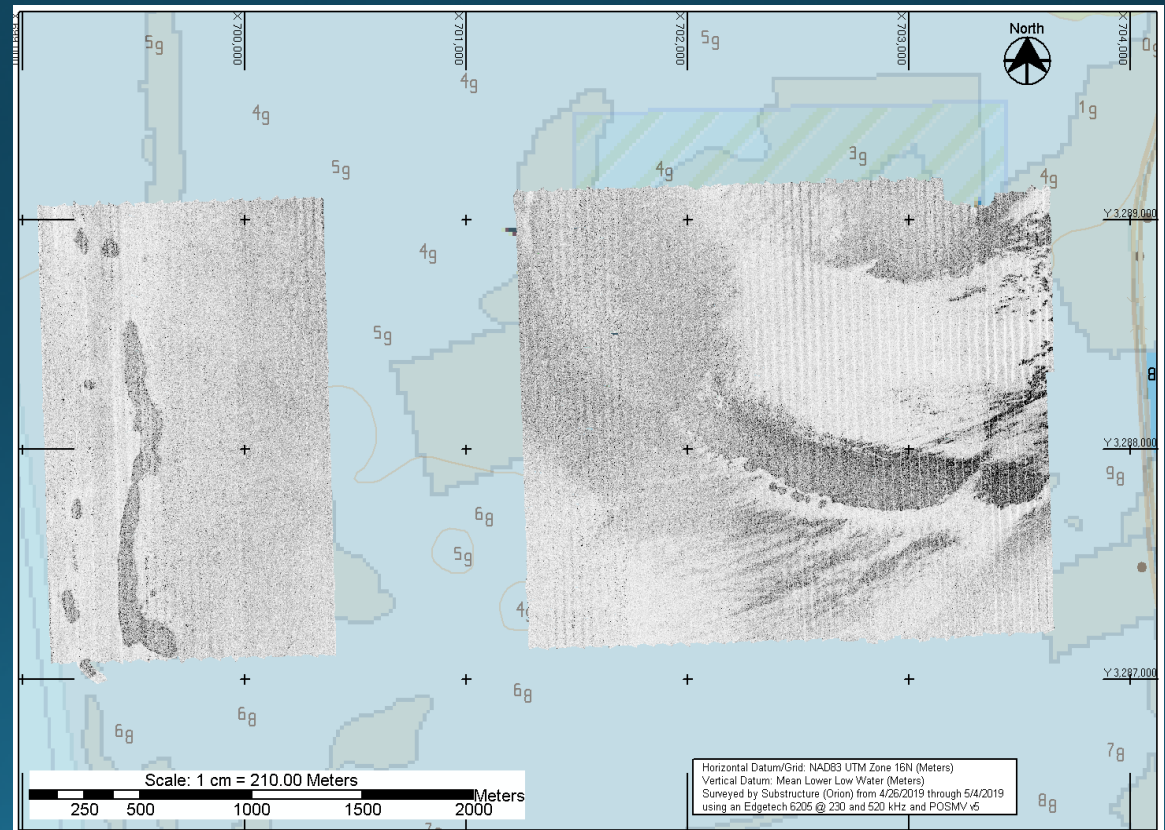


PREVIOUS PROJECT: Mapping & Assessing Subtidal Natural Reefs

Color-coded MLLW depth plot of
multibeam bathymetric data



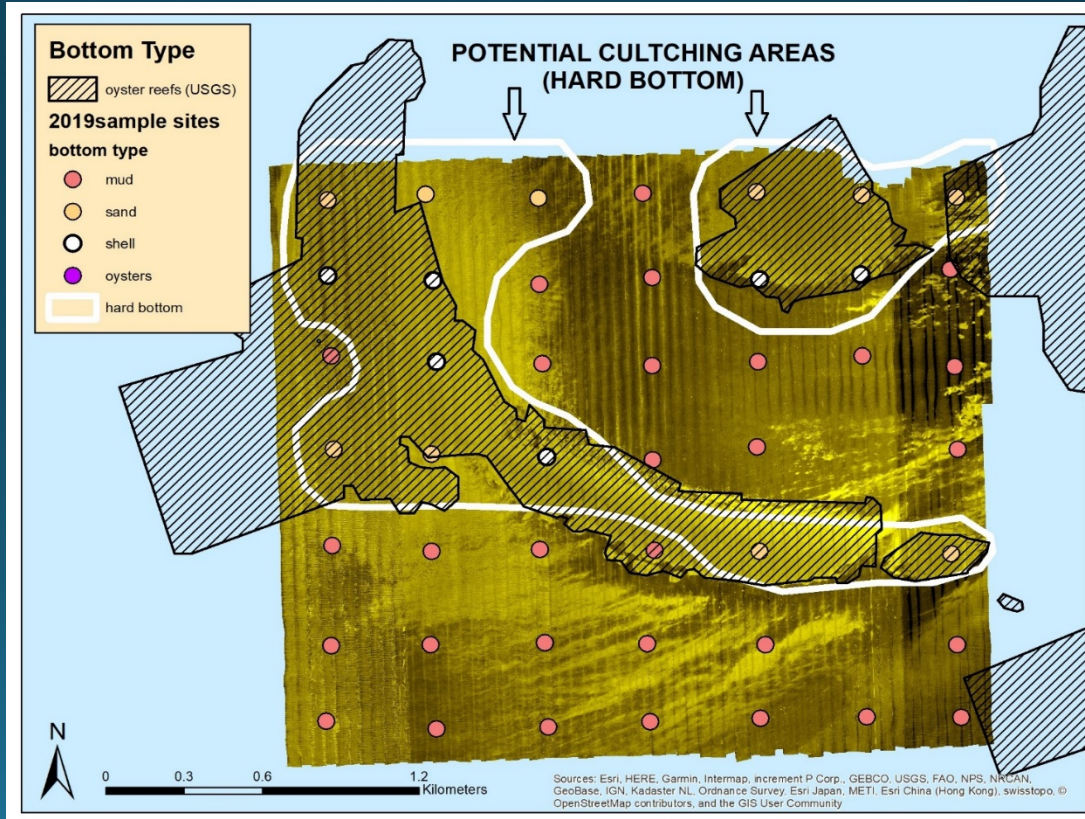
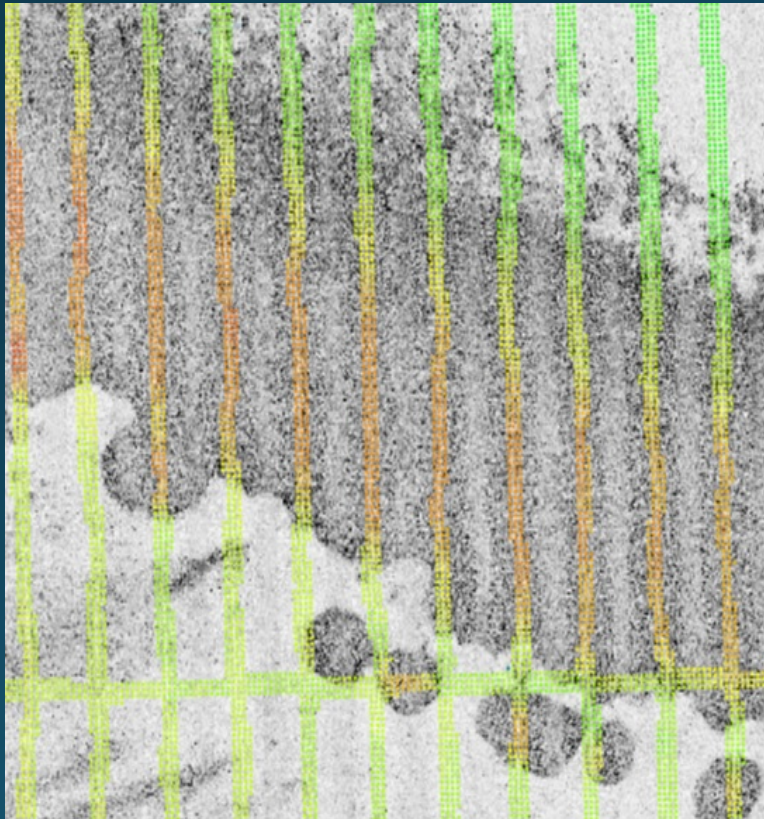
Mosaics produced from side-scan sonar data



PREVIOUS PROJECT: Mapping & Assessing Subtidal Natural Reefs

40 m spacing survey lines: multibeam bathymetry (6-8 m wide color lines) over grayscale side-scan mosaic

Our side-scan base map, USGS 2004 data, our bottom sampling → potential cultching areas



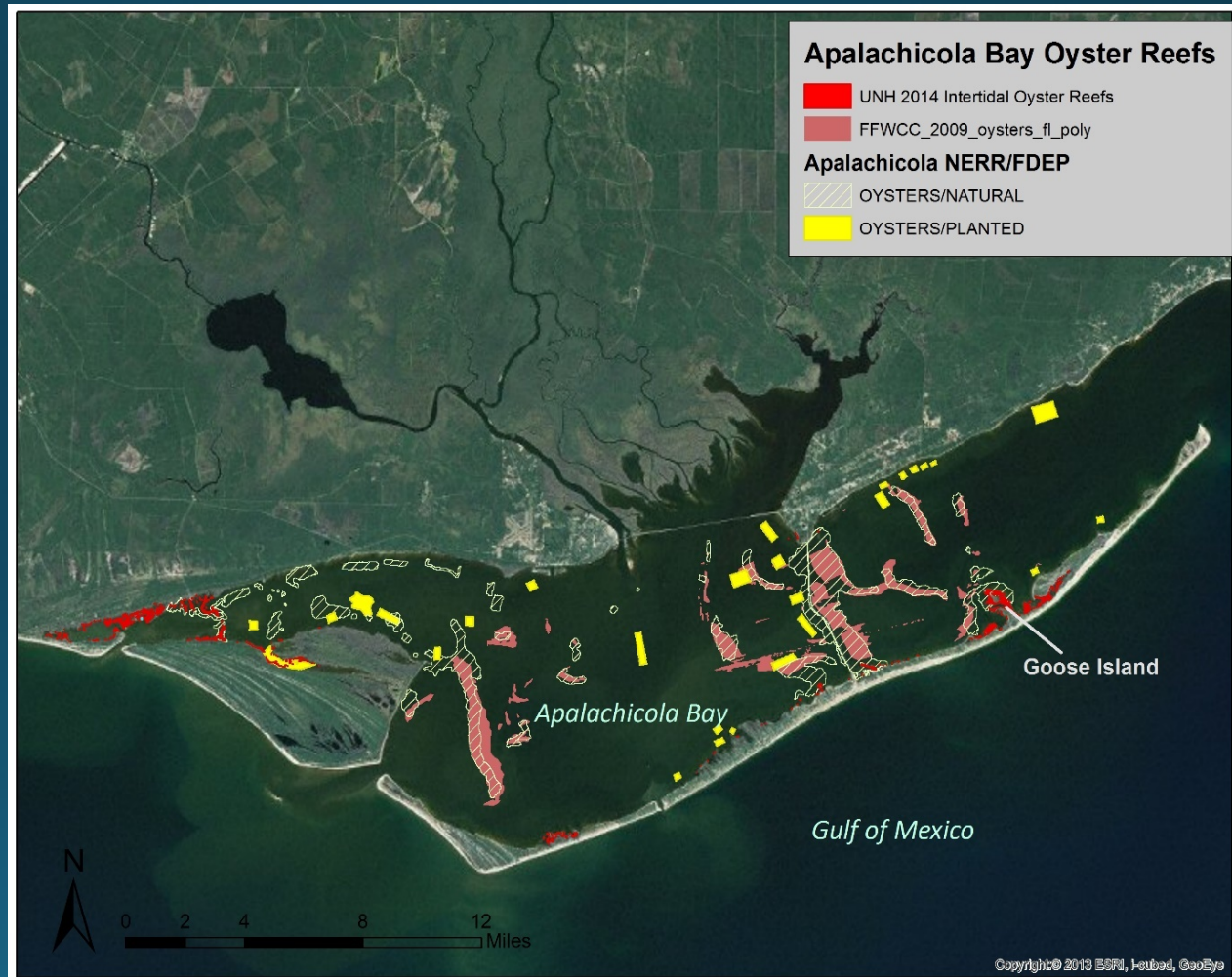
FWC Apalachicola Bay (and Suwanee Sound) oyster reef mapping component of NFWF ID: 65905

The overall goal of the mapping portion is to determine benthic composition and spatial location and extent of potential oyster substrate and live oysters in the study areas.

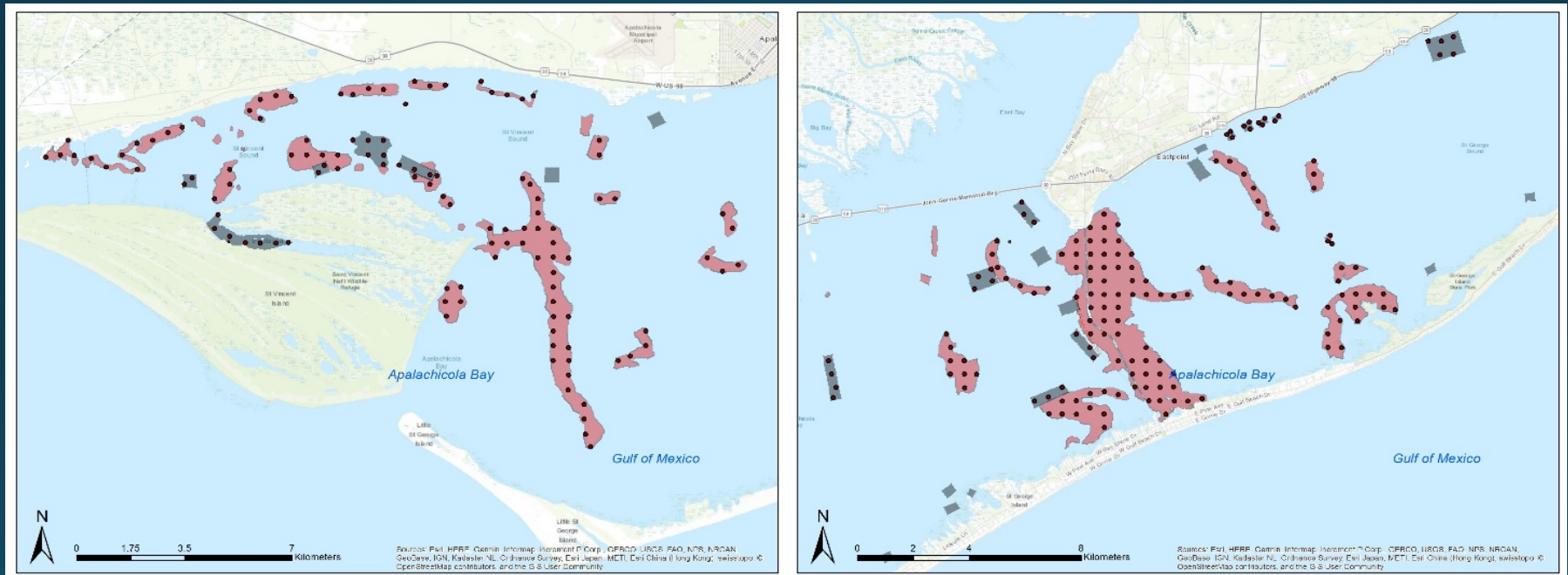
The major deliverable will be a final report that contains three-dimensional maps (i.e., providing x, y and z components where practical) based on a combination of sonar methods for subtidal reefs, satellite and other aerial imagery for intertidal reefs, field-based ground-truthing, and synthesis of the resultant data to construct final maps of the distribution of both subtidal and intertidal oyster reefs in both study areas.

Oyster Reefs in Apalachicola Bay

- Oysters occur in subtidal and intertidal zones
- Sonars used (by USGS in 2006) to map subtidal reefs
- Online satellite imagery used to produce new map of intertidal reefs



Preliminary Sampling – Nov 2020



Black dots (on “known” oyster reefs and shell planting areas) represent target areas for preliminary bottom sampling to determine general areas for sonar mapping.

2019 and 2020 Apalachicola Bay, Florida Sample Sites

Bottom Type

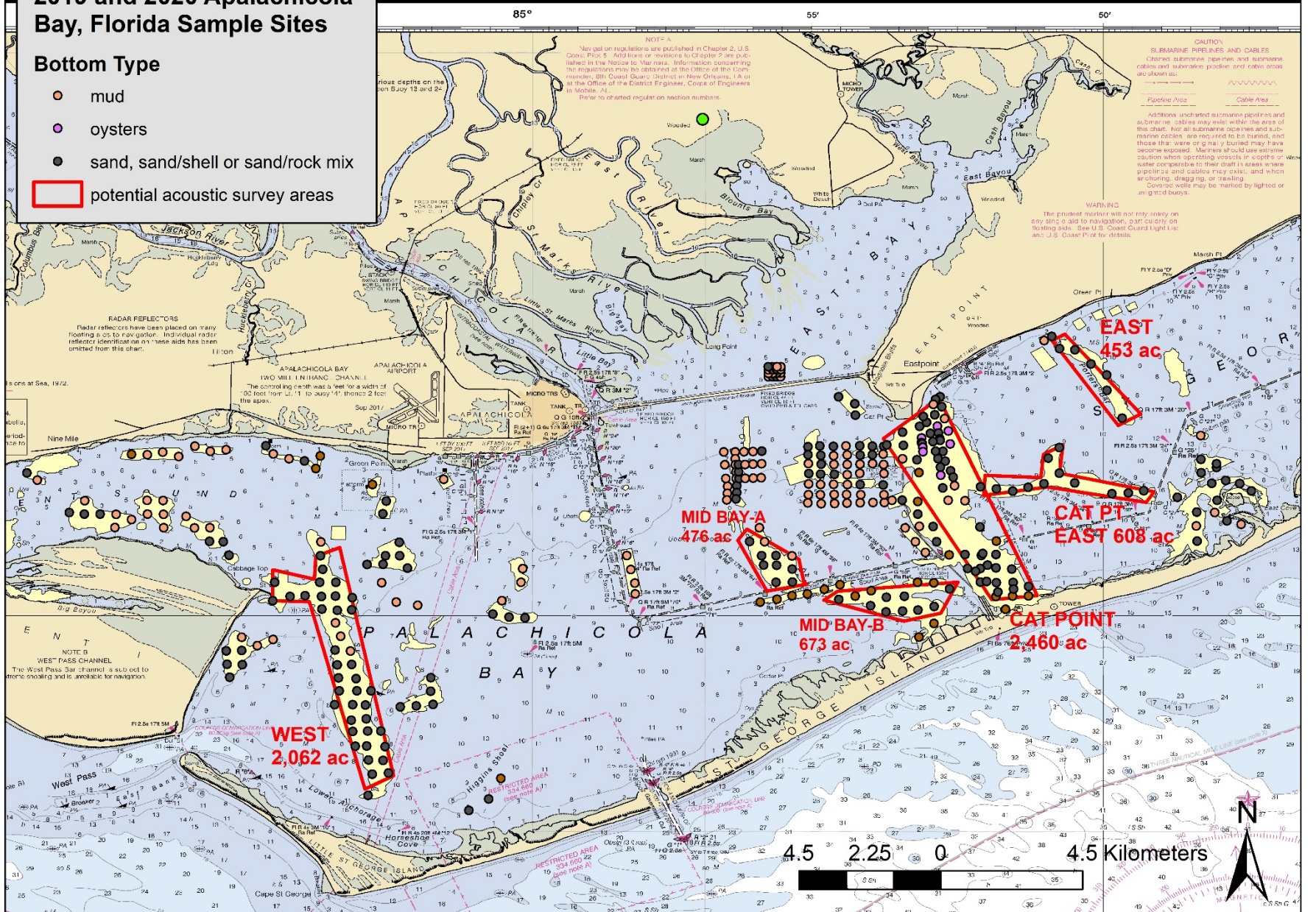
- mud
- oysters
- sand, sand/shell or sand/rock mix
- potential acoustic survey areas

APACHE 11036	DATE: 04/18/19	1:0	1:5	2:1
WGS: 11543	(09 35 43N/09 54 W)	1.0	1.5	2.1

East of (-) location datum columns indicate when a datum was for a 15-minute period. The water levels, depth contours, and tidal current directions are all relative to the datum. Vertical ellipsoids are shown.

POLLUTION REPORTS
 Report all spills of oil and hazardous substances to the National Response Center via 1-800-424-9333. Full text or to the nearest U.S. Coast Guard facility if telephone communication is impossible (33 CFR 117.9).

CAUTION
 Submarine pipelines and cables. Observe submarine pipelines and submarine cables and submarine practice and cable area callouts.



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