THE APALACHICOLA BAY SYSTEM INITIATIVE (ABSI)

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RESEARCH UPDATE DECEMBER 18, 2019

Science advisory board

First meeting was held on December 9, 2019

Dr. Ray Grizzle
University of New Hampshire

Dr. Roger Mann
Virginia Inst. Marine Science

Ms. Laura Geselbracht
The Nature Conservancy

Dr. Bill Pine
University of Florida

Mapping of oyster reefs, quantification of oyster ecosystem services, restoration methods

Marine invertebrate ecology, larval biology, recruitment, oyster reef restoration

Resilience and restoration of coastal ecosystems affected by anthropogenic stressors.

Using quantitative ecology to develop adaptive management for estuarine ecosystems

RESEARCH

Objective A. Assess temporal and spatial changes in oyster communities

Use the historic ANERR environmental data and FDACS data on oyster density and size structure to assess the effects of past extreme events on oyster populations

Hurricane Elena 1985
Severe drought 2007-2009
Severe drought 2011-12

Use FWC FIMM data to assess impacts on other species in the bay.

RESEARCH

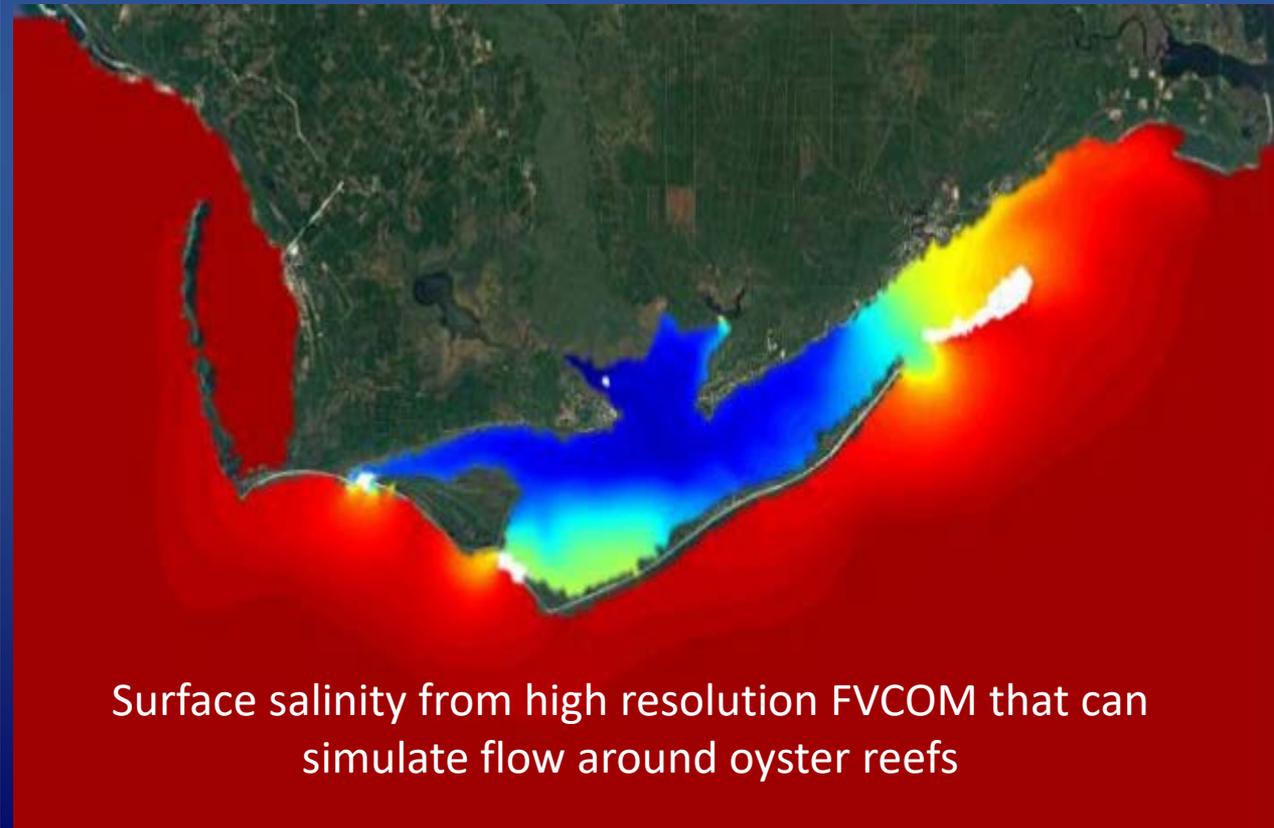**Objective B.** Construct a pilot-scale oyster hatchery

November 2019

RESEARCH

Objective C. Bio-physical modeling

Use the historic data to 'hindcast' the models
Create initial models at management scale,
followed by high resolution for scientific objectives

Surface salinity from high resolution FVCOM that can simulate flow around oyster reefs

RESEARCH

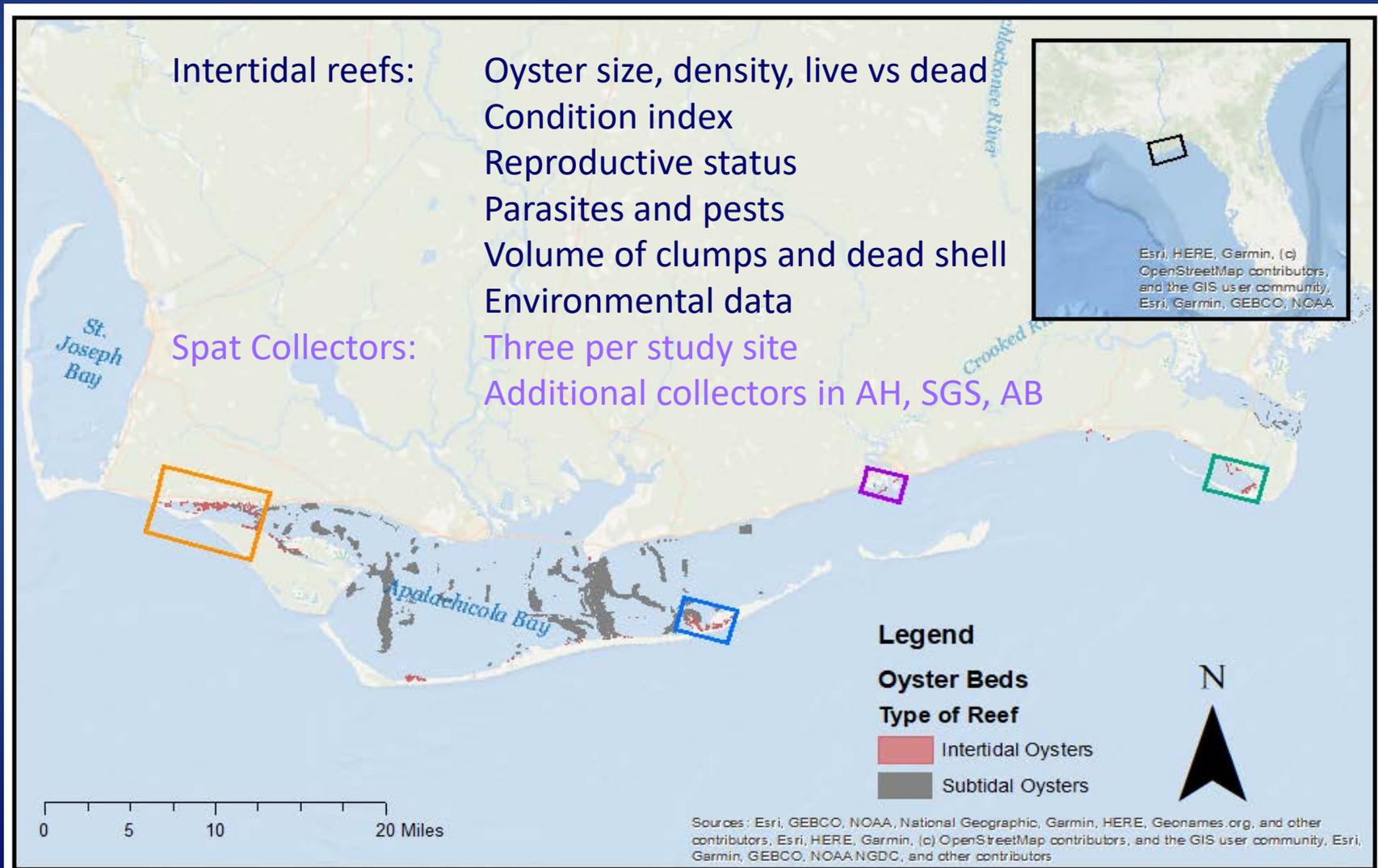Intertidal mapping expansion - high resolution drone imagery

Duke University Marine Robotics and Remote Sensing
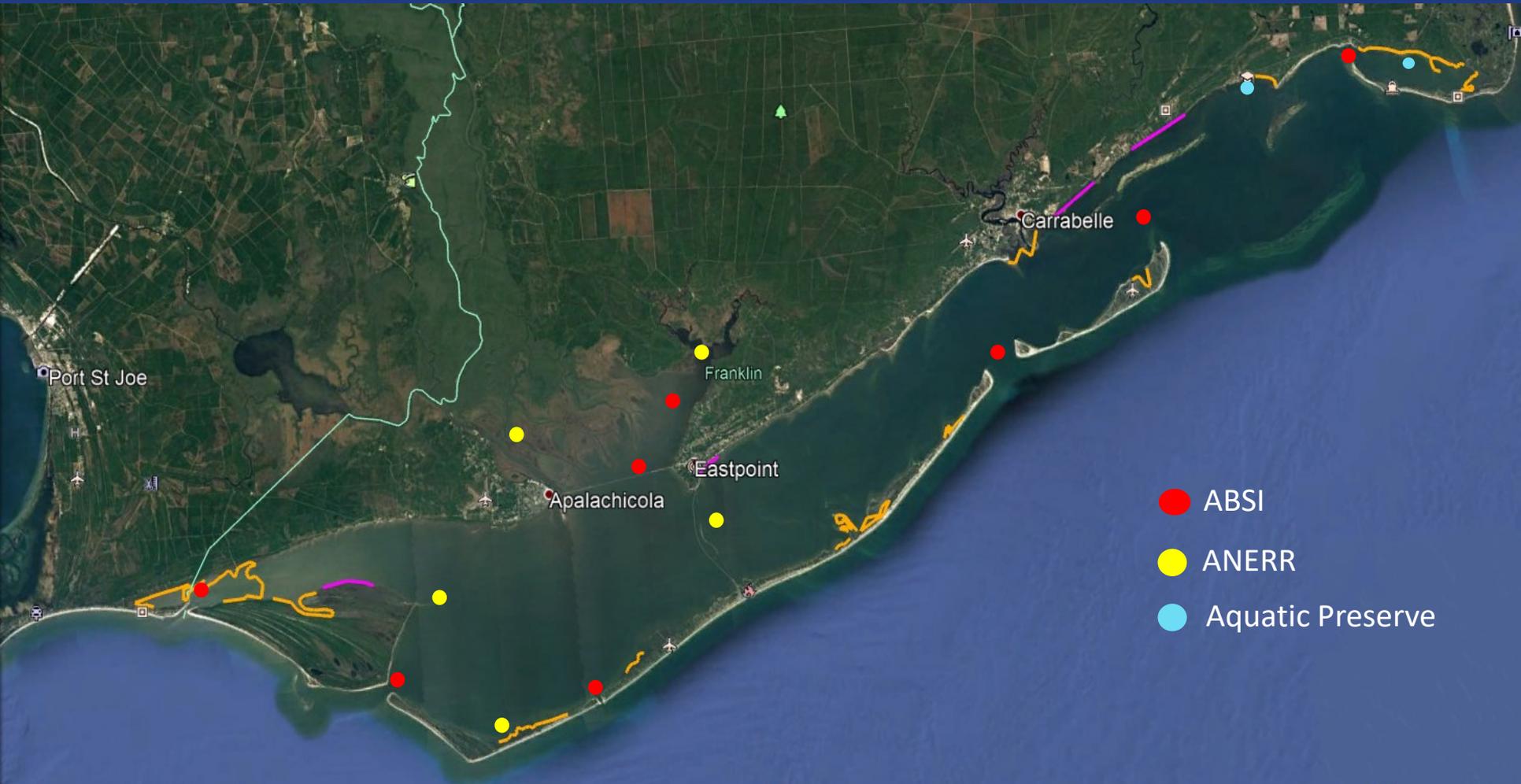
Grizzle et al 2018

RESEARCH

Objective D. Monitoring of oyster communities and their environment

Intertidal reefs: Oyster size, density, live vs dead
Condition index
Reproductive status
Parasites and pests
Volume of clumps and dead shell
Environmental data

Spat Collectors: Three per study site
Additional collectors in AH, SGS, AB

RESEARCH

Instrument deployment

Legend:
- ABSI (red)
- ANERR (yellow)
- Aquatic Preserve (cyan)

RESEARCH

Objective F. Experimental ecology

Interviews with prospective new faculty – hiring in 2020

Environmental tolerance – epigenetic adaptation?

Predator-prey relationships under different environmental regimes

Disease prevalence/resistance

Changes in freshwater flow vs oyster condition

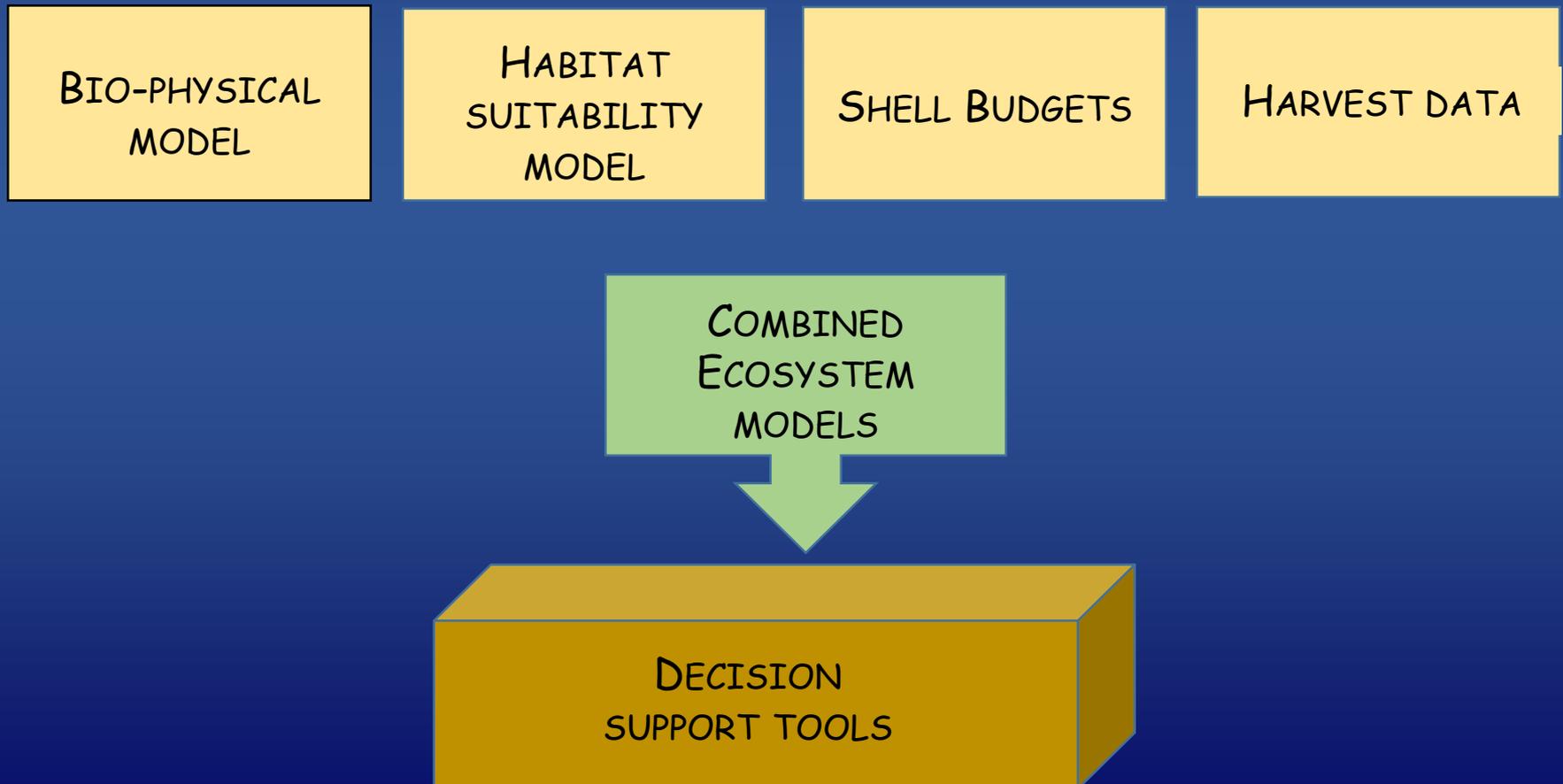Species population shifts under different environmental scenarios

Early life history influence on survival and condition

Etc…..

RESEARCH

Objective G. Coupled Ecosystem-Life History model

Combines different models and data

BIO-PHYSICAL MODEL	HABITAT SUITABILITY MODEL	SHELL BUDGETS	HARVEST DATA

COMBINED ECOSYSTEM MODELS

DECISION SUPPORT TOOLS

COMMUNITY ENGAGEMENT

Assessment of different shell recycling programs
– will inform a feasibility study for shell recycling program in Franklin Co.

QUESTIONS?

For additional information:

ABSI website: https://marinelab.fsu.edu/absi/
ABSI email: fsucml-absi@fsu.edu