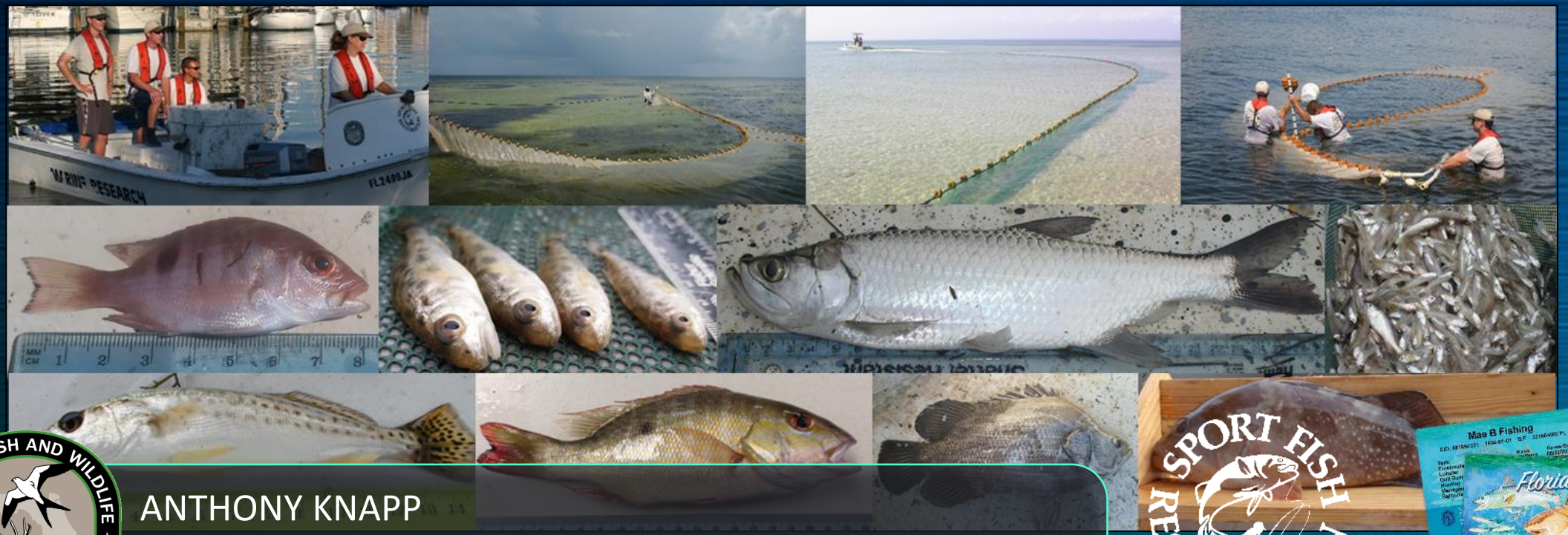
# Florida's Fisheries-Independent Monitoring (FIM) Program in the Big Bend



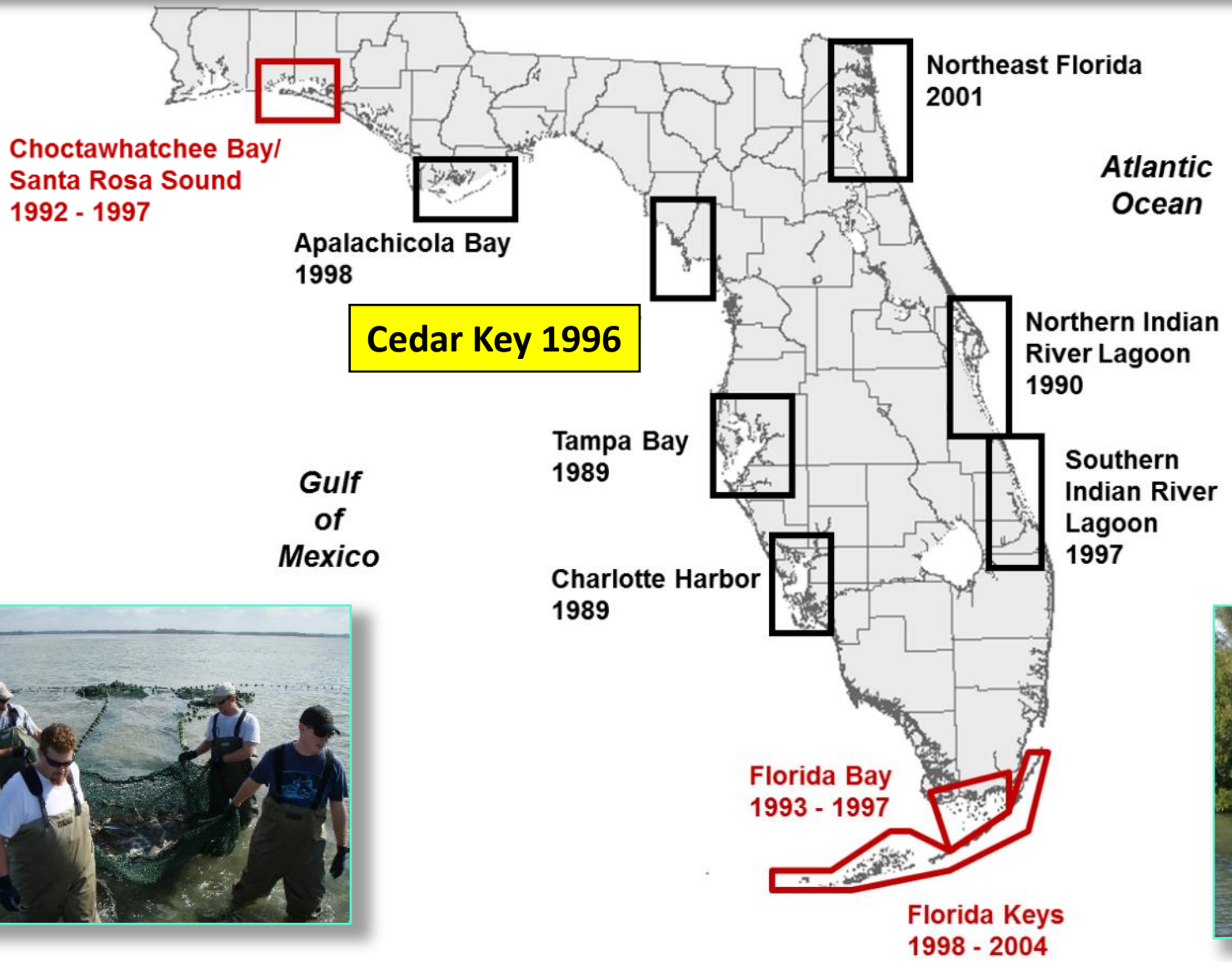

ANTHONY KNAPP

Fish & Wildlife Research Institute | Fisheries-Independent Monitoring Program
Cedar Key Field Lab | Horseshoe Cove and Suwannee Sound Workshop | March 2021

SPORT FISH RESTORATION


Saltwater Recreational Fishing License

# FWC's FIM program – Cedar Key & across the state




# Florida's Fisheries-Independent Monitoring (FIM) Program – Mission Statement

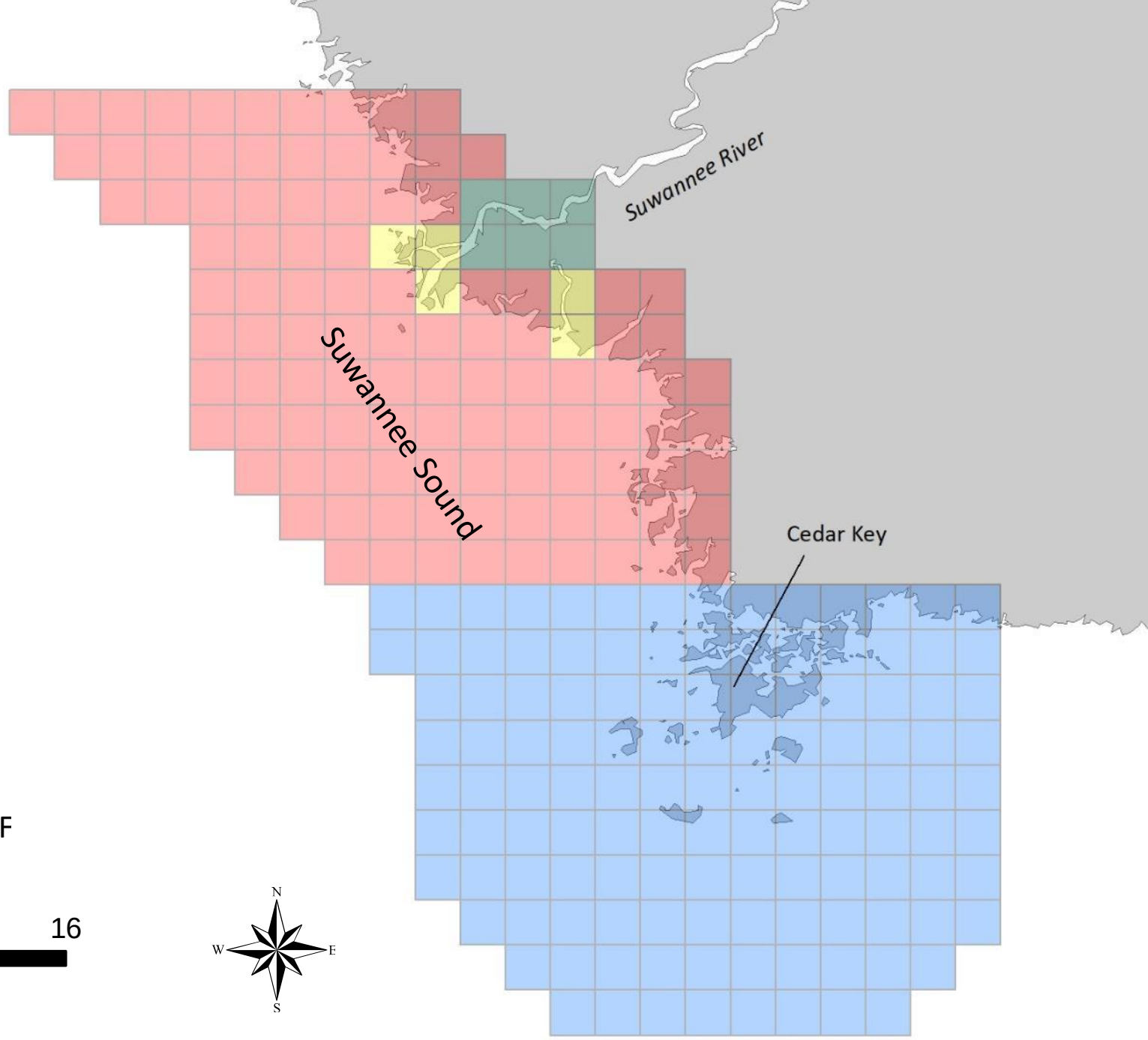
To provide **timely, accurate and consistent fisheries-independent data** and **analysis** to fisheries managers for the conservation and protection of Florida's fisheries.

# FIM Program – Objectives

Improve existing knowledge for:

- Single-species management:
  - Distribution, abundance and occurrence
  - Life history data (age, growth, maturity, fecundity)
- Multi-species ecosystem-based management and modeling:
  - Community structure
  - Trophic relationships
  - Connectivity between estuarine & offshore fish communities
- Emerging issues:
  - Large-scale perturbations (e.g., hypoxia, hurricanes, red tide, oil spill)
  - Climate change & sea level rise
  - Fishing activities, changes in regulations
  - Fish health

# Monthly multi-gear stratified-random sampling



# FIM's inshore research vessel – mullet skiff

# Types of inshore habitats sampled









# FIM's inshore gears & samples – for small nekton

- **21.3-m small mesh seine:** targets young-of-year (YOY) and sub-adult fishes in water depths ≤ 1.8m


# FIM's inshore sampling gears – for large nekton

- **183-m large mesh seine:** target sub-adult and adult fishes in water depths ≤ 2.5m

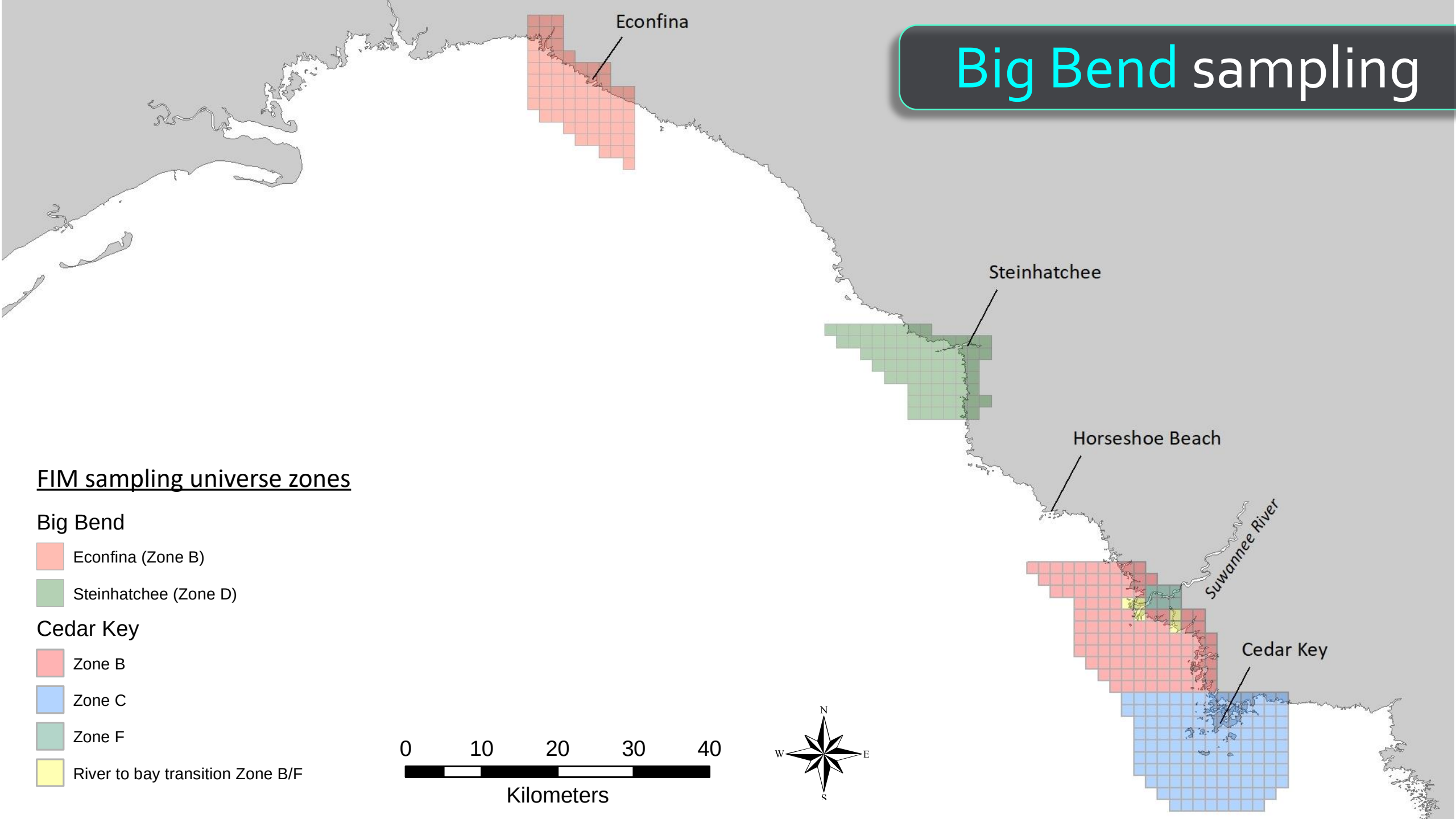
# FIM's inshore gears & samples – for small & large nekton

- **6.1-m otter trawl:** targets YOY, sub-adult and adult fishes in depths between 1.8–7.6m

# Data collected

- **Physiochemical & habitat metrics**
  - Location & temporal data
  - Habitat characteristics (i.e. bottom type, SAV, shore type)
  - Water chemistry (i.e. salinity, temperature, DO)
  - Weather (i.e. tide, wind, precipitation)
- **Species Data**
  - ID all fish and most invertebrates to species level, count & measure
- **Collect random culls**
  - Life history data (age, sex, etc.)
  - Dietary studies
  - Mercury analyses of muscle tissue
  - Fish health (specimens with obvious external abnormalities)

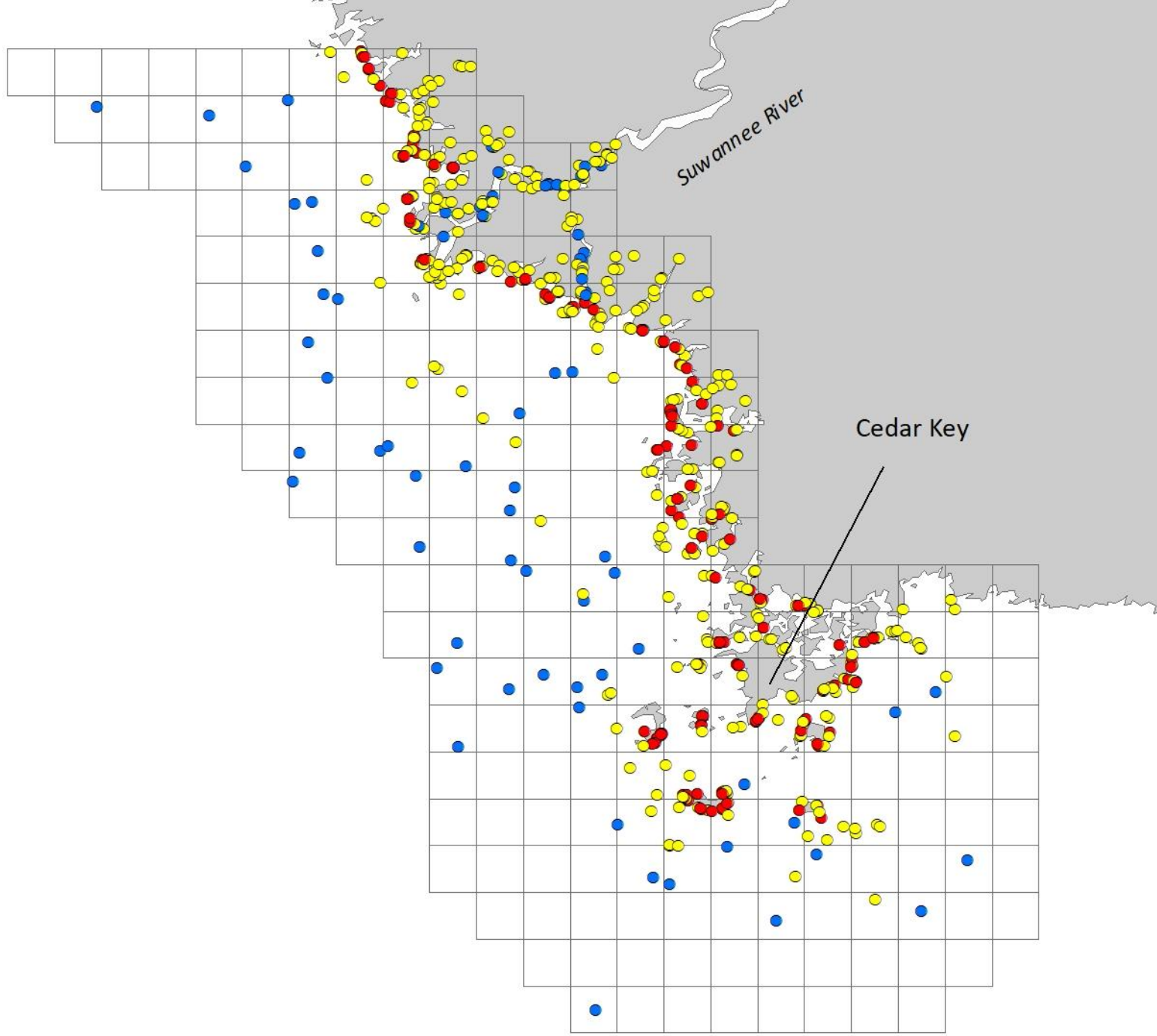
# Big Bend sampling



# Big Bend sampling– for juvenile reef fish

Targets young-of-year (YOY) and sub-adult reef fish over seagrass beds

# Monthly multi-gear stratified-random sampling



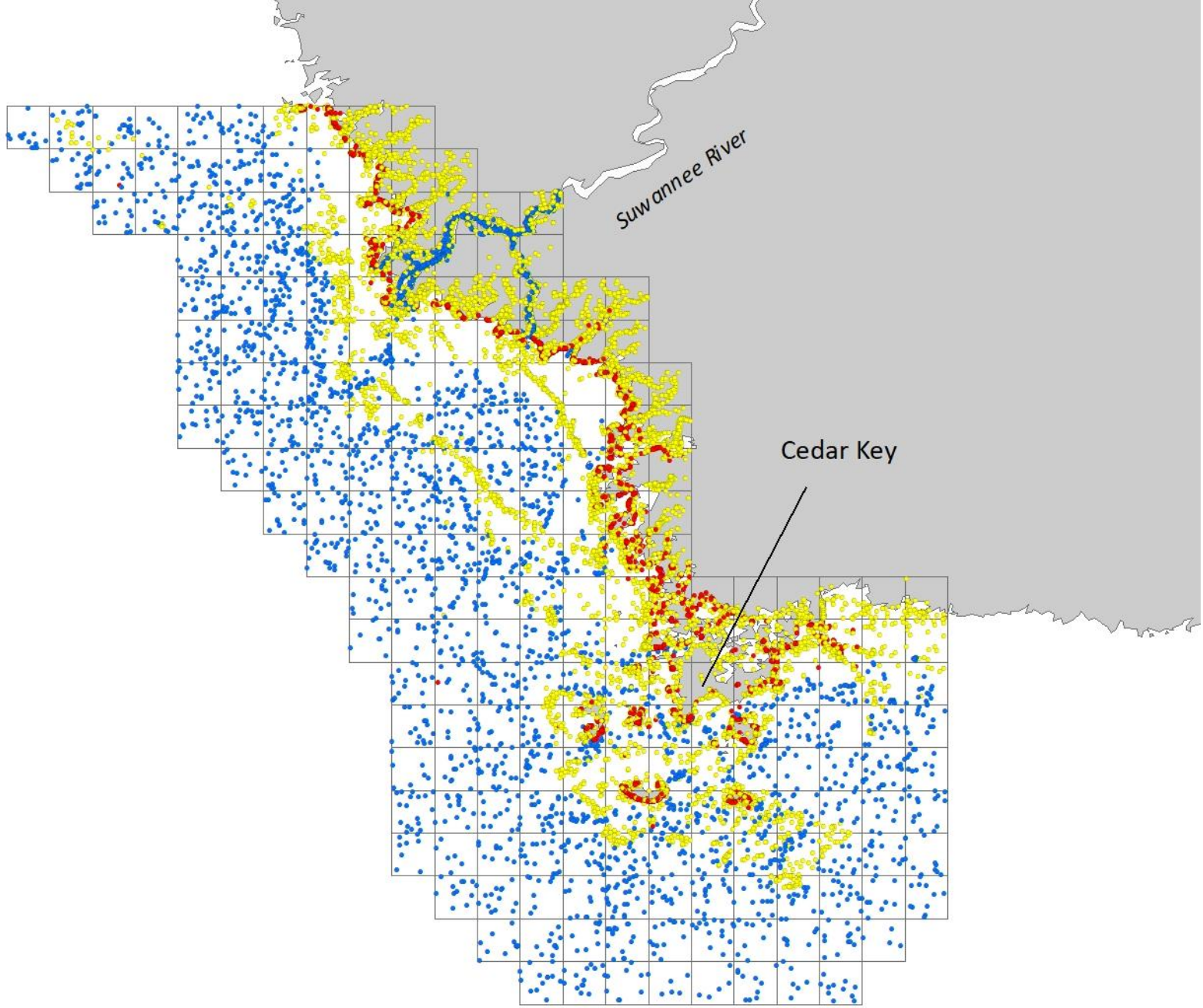

*2020 (Covid)

| Animals | Richness |
|---|---|
| **76,533** | **157** |

| Symbol | Gear | Effort |
|---|---|---|
| ● | Large mesh seine | 176 |
| ● | Small mesh seine | 385 |
| ● | Otter trawl | 75 |
| | **Total annual effort** | **636** |

*Samples per month = ~53*

# Monthly multi-gear stratified-random sampling




1997 - 2020

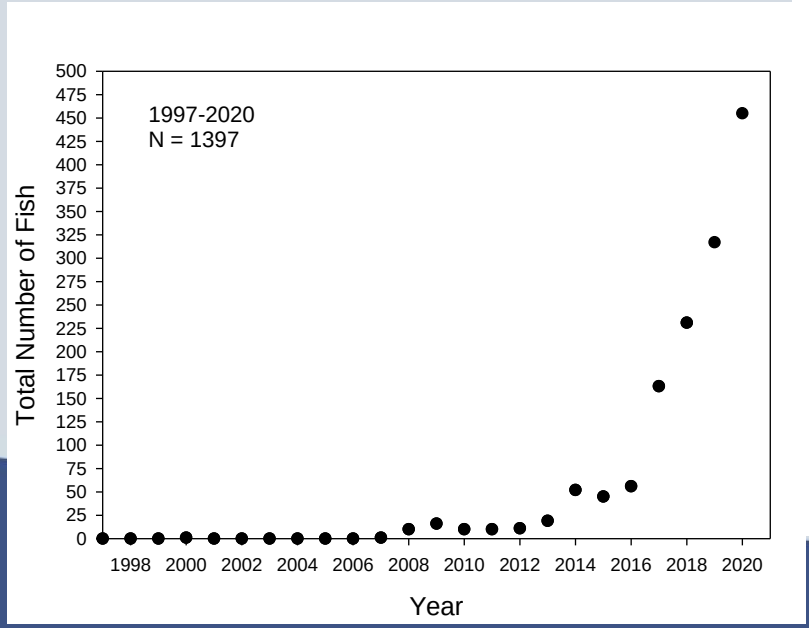
| Animals | Richness |
|---|---|
| **2,558,597** | **265** |

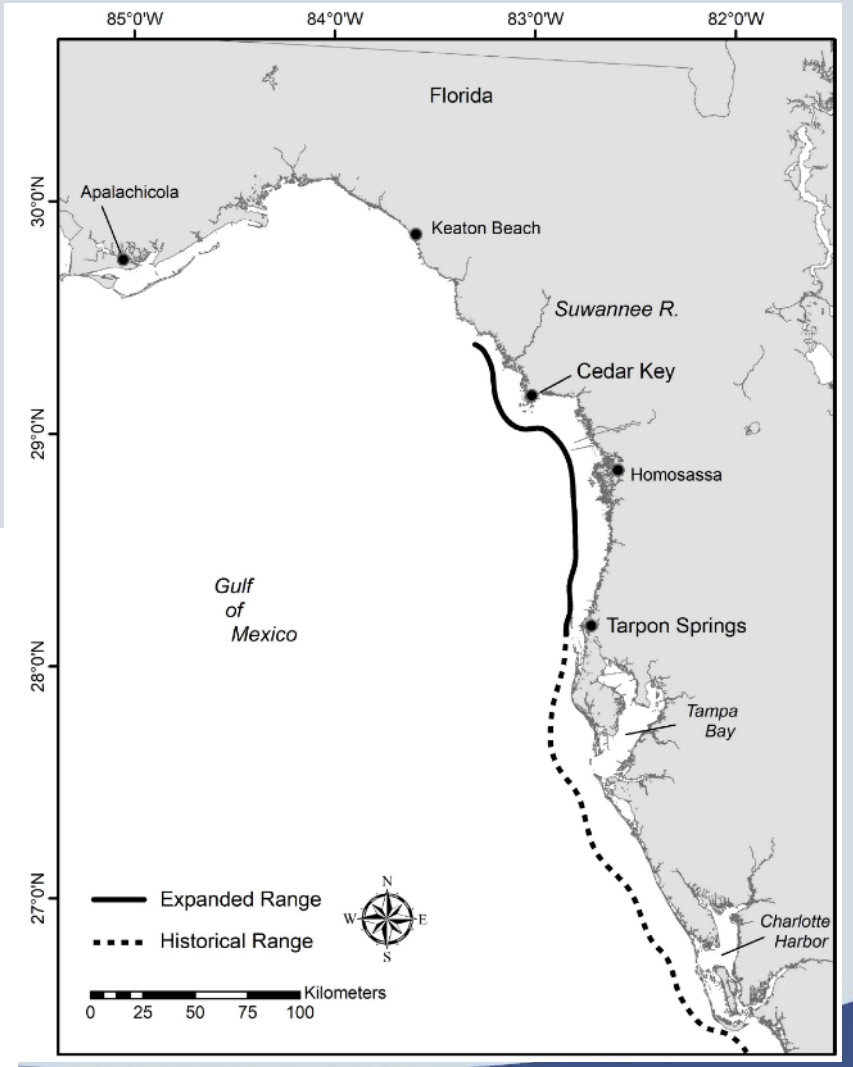
| Symbol | Gear | Effort |
|---|---|---|
| ● | Large mesh seine | 4,423 |
| ● | Small mesh seine | 10,029 |
| ● | Otter trawl | 3,878 |
| | **Total effort** | **18,330** |

*Samples per month = ~66*

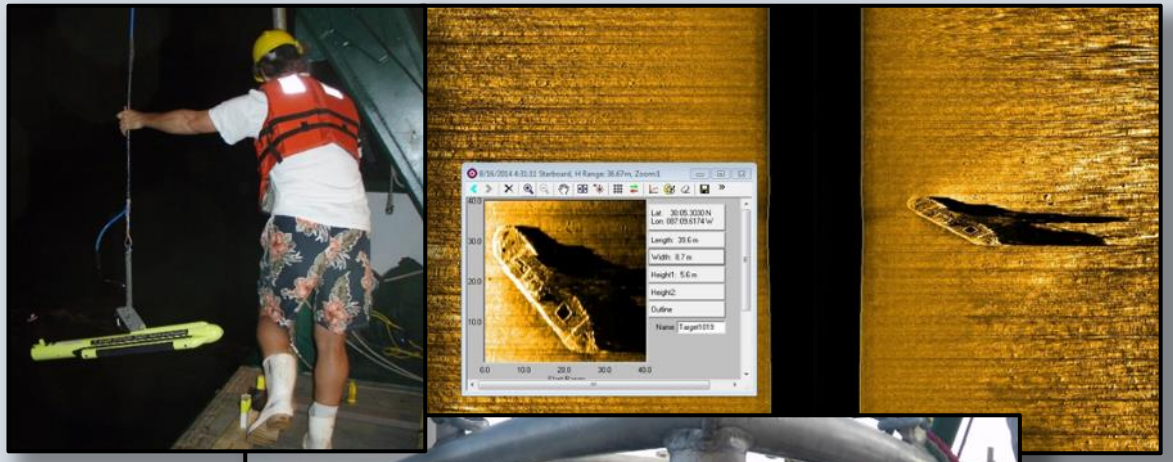
# FWC/UF(NCBS) Collaborative Research – Snook

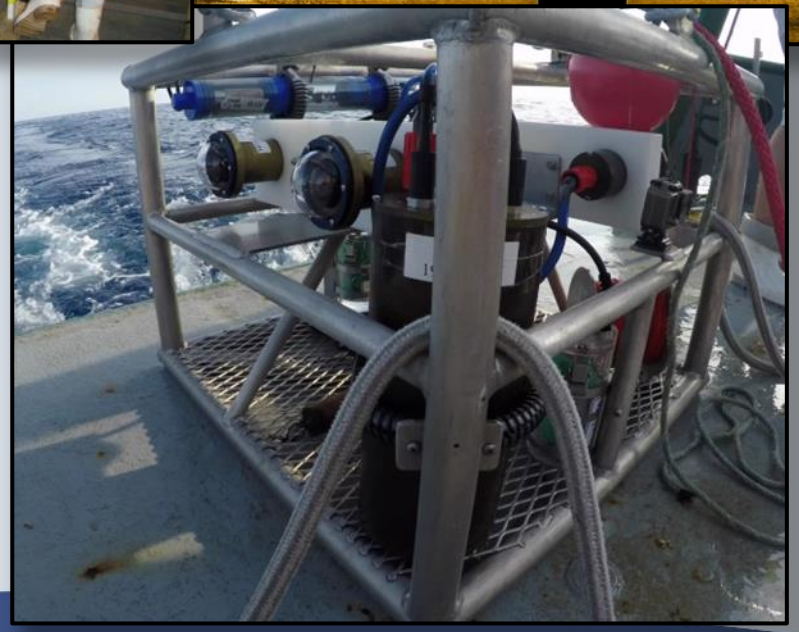
1. Recent Common Snook Expansion into the Big Bend region (Purtlebaugh et al. 2020)
2. Winter movement patterns of Common Snook
3. Regional Age and Growth Examination of Gulf Coast Common Snook
4. Diet and habitat analysis of 3 piscivores in the Suwannee estuary: Competition for essential habitat resources?
5. Self recruiting population of snook?

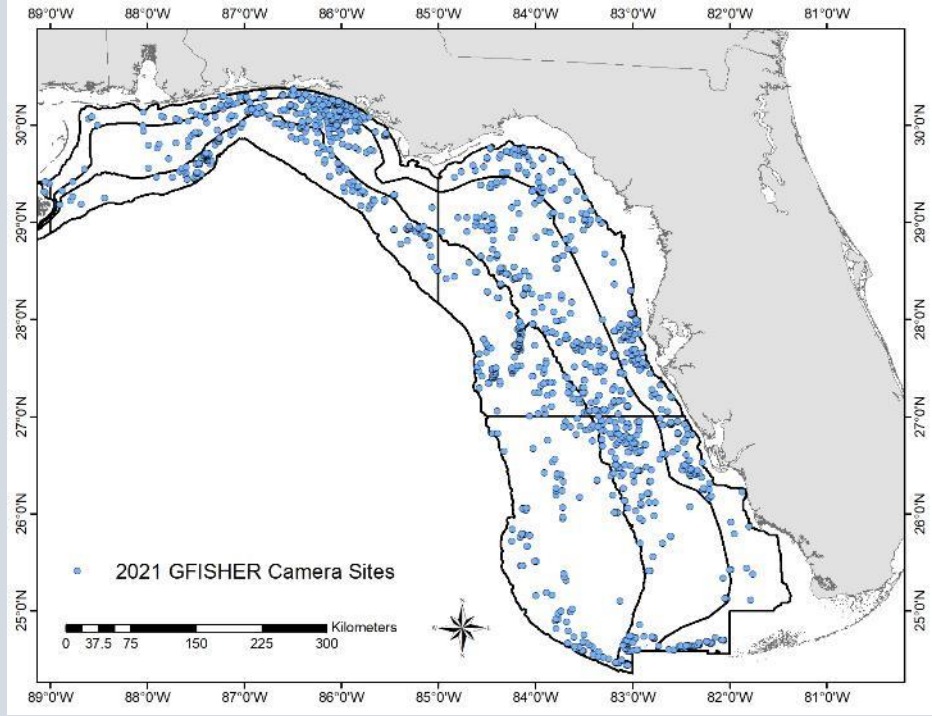


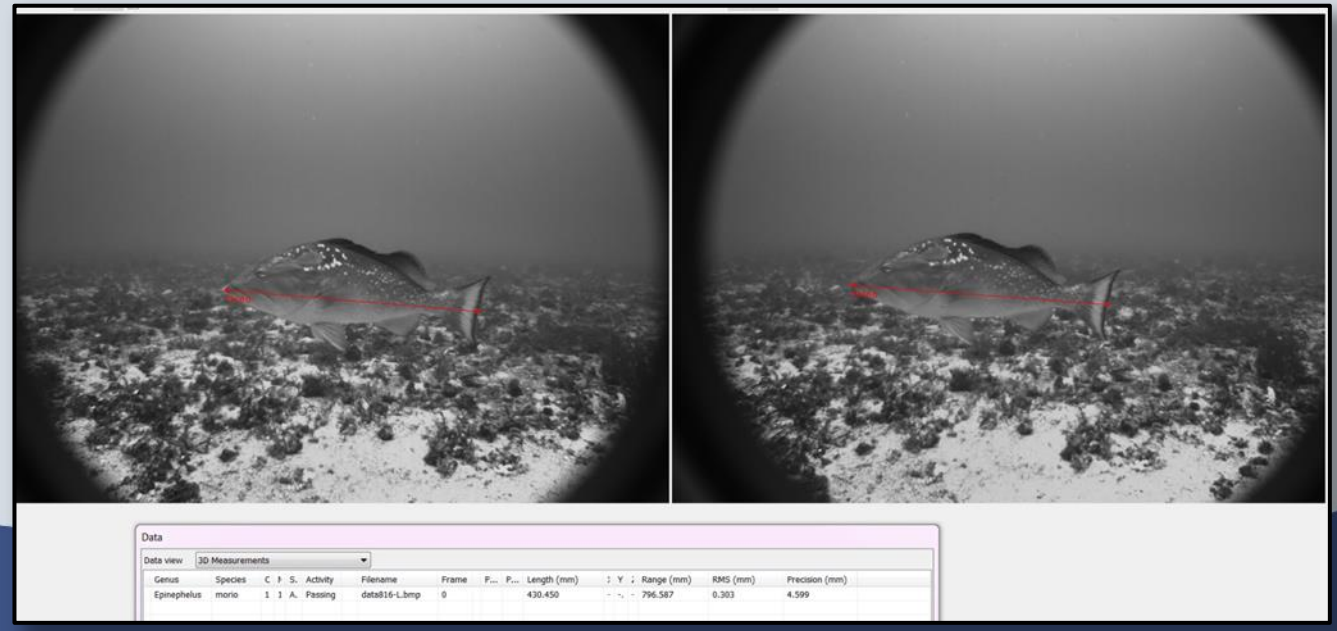



# Offshore Reef Fish Program– G-FISHER







# Questions?

Contact: Anthony.Knapp@myfwc.com