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

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Fish & Wildlife Research Institute | Fisheries-Independent Monitoring Program
Cedar Key Field Lab | Horseshoe Cove and Suwannee Sound Workshop | March 2021
FWC’s FIM program – Cedar Key & across the state
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 sampling universe zones
- Zone B
- Zone C
- Zone F
- River to bay transition Zone B/F

Kilometers
FIM’s inshore research vessel – mullet skiff
Types of inshore habitats sampled

- Salt Marsh
- Seawall
- Seagrass
- Tidal Tributary
- Unvegetated Shoreline
- Tidal Flats
- Live Bottom
- Mangrove
- Spoil Island/Oyster Reef
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

Bay set

Boat set – *tidal rivers*
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)
FIM sampling universe zones

Big Bend
- Econfina (Zone B)
- Steinhatchee (Zone D)

Cedar Key
- Zone B
- Zone C
- Zone F
- River to bay transition Zone B/F

Kilometers
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)*

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<th>Richness</th>
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<th>Effort</th>
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<td>Large mesh seine</td>
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<td>🟢</td>
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<td>🟦</td>
<td>Otter trawl</td>
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**Total annual effort** 636

*Samples per month = ~53*
Monthly multi-gear stratified-random sampling

1997 - 2020

Animals  Richness
2,558,597  265

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Total effort = 18,330

Samples per month = ~66
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

[Image of offshore reef fish program setup with diagrams and data]

[Map showing 2021 GFISHER Camera Sites]

[Data table showing reef fish measurements]

[NOAA and National Marine Fish and Wildlife Foundation logos]
Questions?

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