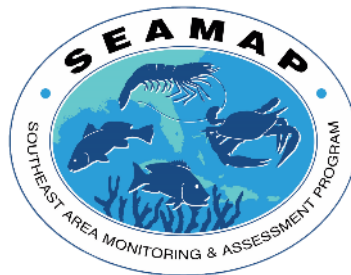


SCDNR Updates for Regional Fishery-independent Surveys

Relative Abundance Trends, Distributions & Demography

Tracey Smart, Julie Vecchio, Margaret Finch, Amy Zimney,
Dimitrios Kyridis, Elizabeth Bullard & Walter Buble (SCDNR)
Nathan Bacheler, Kevin Craig & Christina Schobernd (SEFSC)

September SAFMC Meeting



Presentation Overview

Regional Fishery-Independent Surveys

MARMAP/SERFS Chevron-Video Trap

Coastal Trawl Survey

South Atlantic Deep-water Longline Survey

Survey Design

Data Products Methods

Distribution, Abundance & Length for Selected Spp.

Caveats for Today's Data Products

- Not updates of stock status
- One (of several) data inputs
- May not have been reviewed as data inputs (SEDAR or otherwise) yet
- Model formula may be different from those used as data inputs (SEDAR or otherwise)





Southeast Reef Fish Survey (SERFS)

2010-Present:

MARMAP + SEAMAP-SA + SEFIS

Chevron-Video Trap

1990-2009:

MARMAP

Chevron Trap



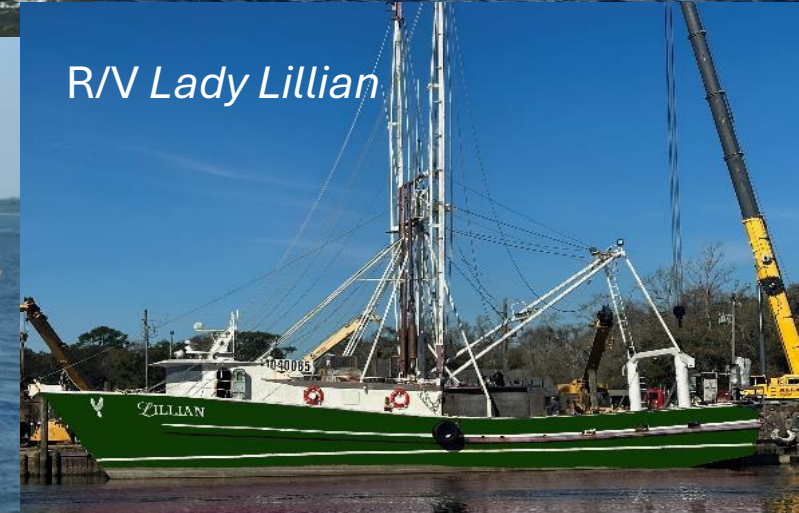
R/V Savannah



NOAA Ship Pisces



R/V Palmetto

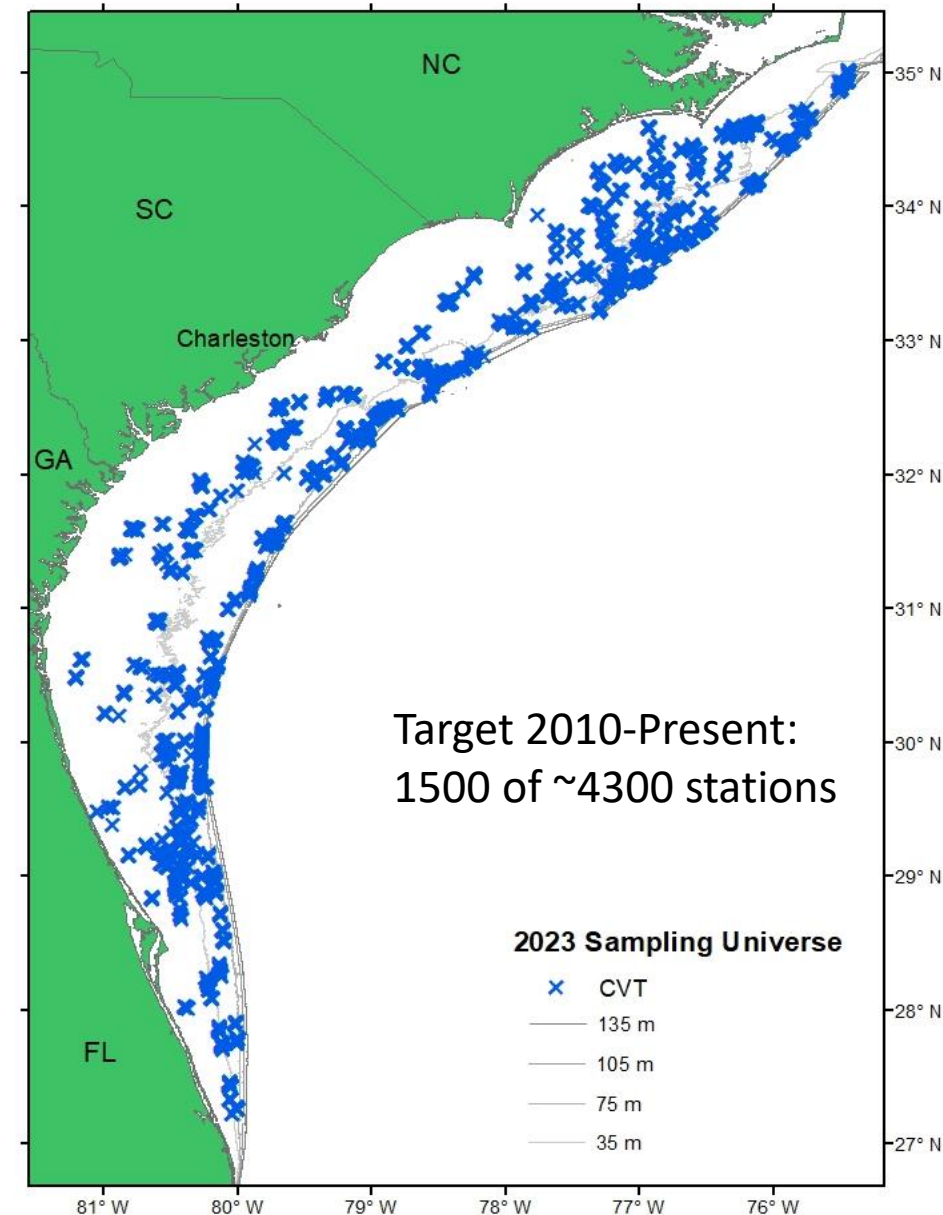
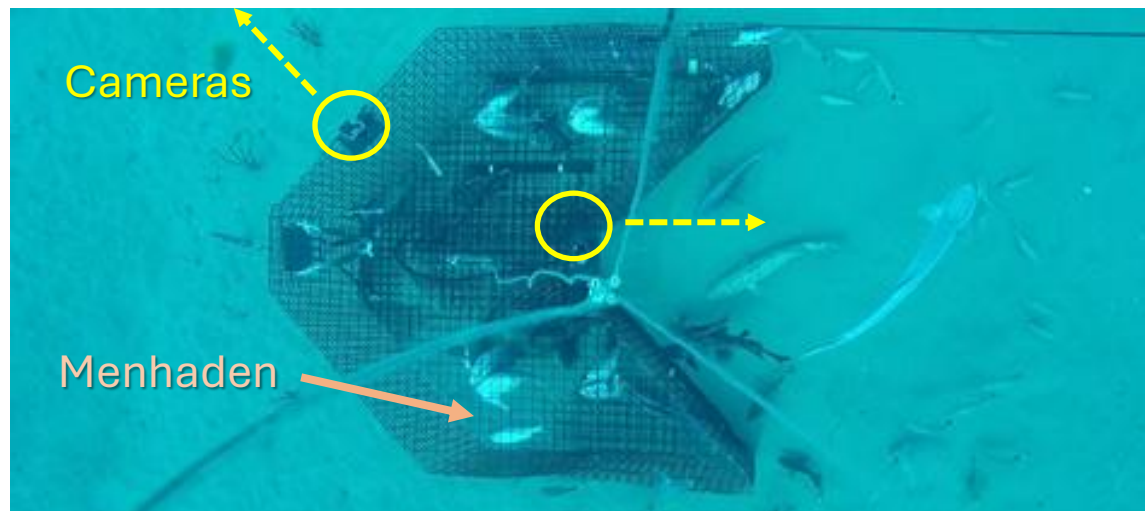


R/V Lady Lillian

Marine Resources Monitoring, Assessment & Prediction Program (SCDNR)
Southeast Area Monitoring & Assessment Program - South Atlantic (SCDNR)
Southeast Fishery-Independent Survey (SEFSC)

Chevron-Video Trap (CVT) Design

- Natural hard-bottom habitats
- Depths ~15-110 m
- ~April 15 - Oct. 14
- Simple, random selection
 - with Common-Sense execution to distribute coverage
- Paired with bottom water temperature
- 2011: all traps have 2 video cameras (2010 ~half)





2025 SERFS Sampling

85 Days on the Water

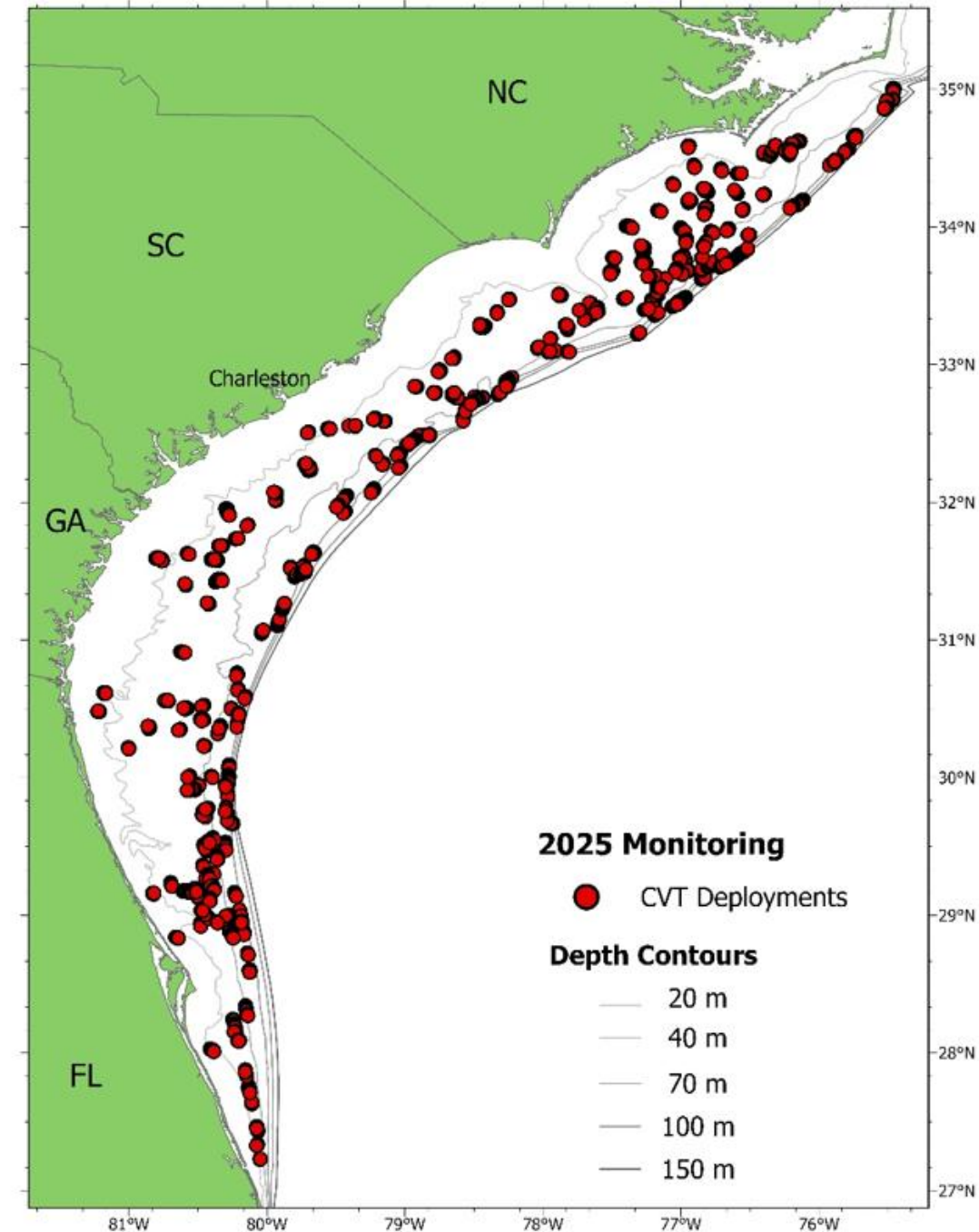
~1,400 Scientist Eye Days

1,518 Stations sampled (100% completion)

38 Potential stations investigated

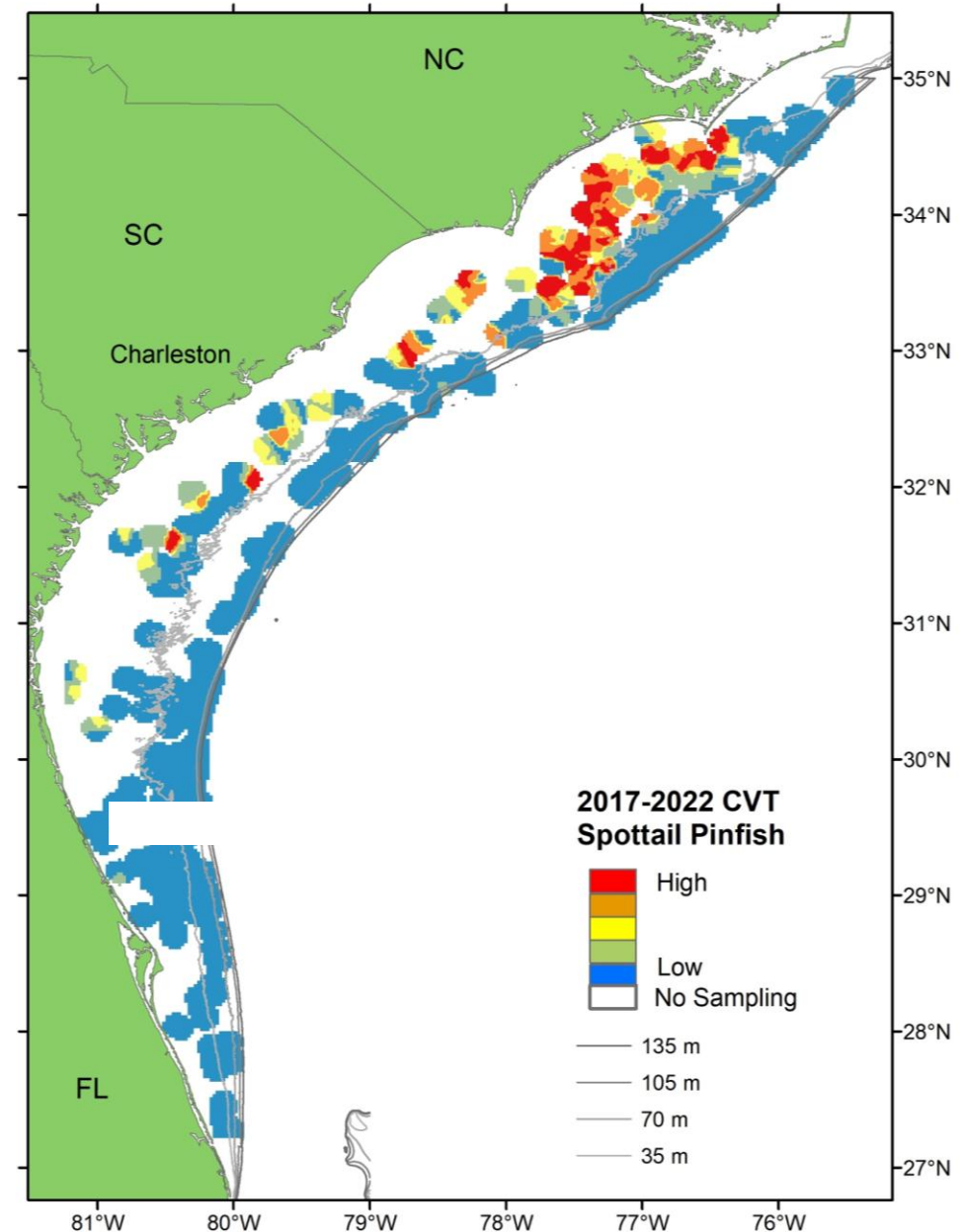
60 Species counted, weighed & measured

26 Species sampled for ages, sex & maturity



Data Products Methods: CVT Distributions

- 5 most recent years: 2021-2025
- “Nominal” abundance
 - Straight out of trap count per species
 - Divided by trap time on bottom
- Nominal abundance in quintiles (5 blocks)
 - Cooler colors = lower nominal abundance
 - Warmer colors = higher nominal abundance
 - White = no sampling



Data Products Methods: CVT Abundance Indices

Zero-Inflated Negative Binomial (ZINB) or Poisson (ZIP) model

- Depth
- Day of Year
- Latitude
- Bottom Temperature
- Video: Bottom Habitat, Water Clarity, Current Direction

Catch:

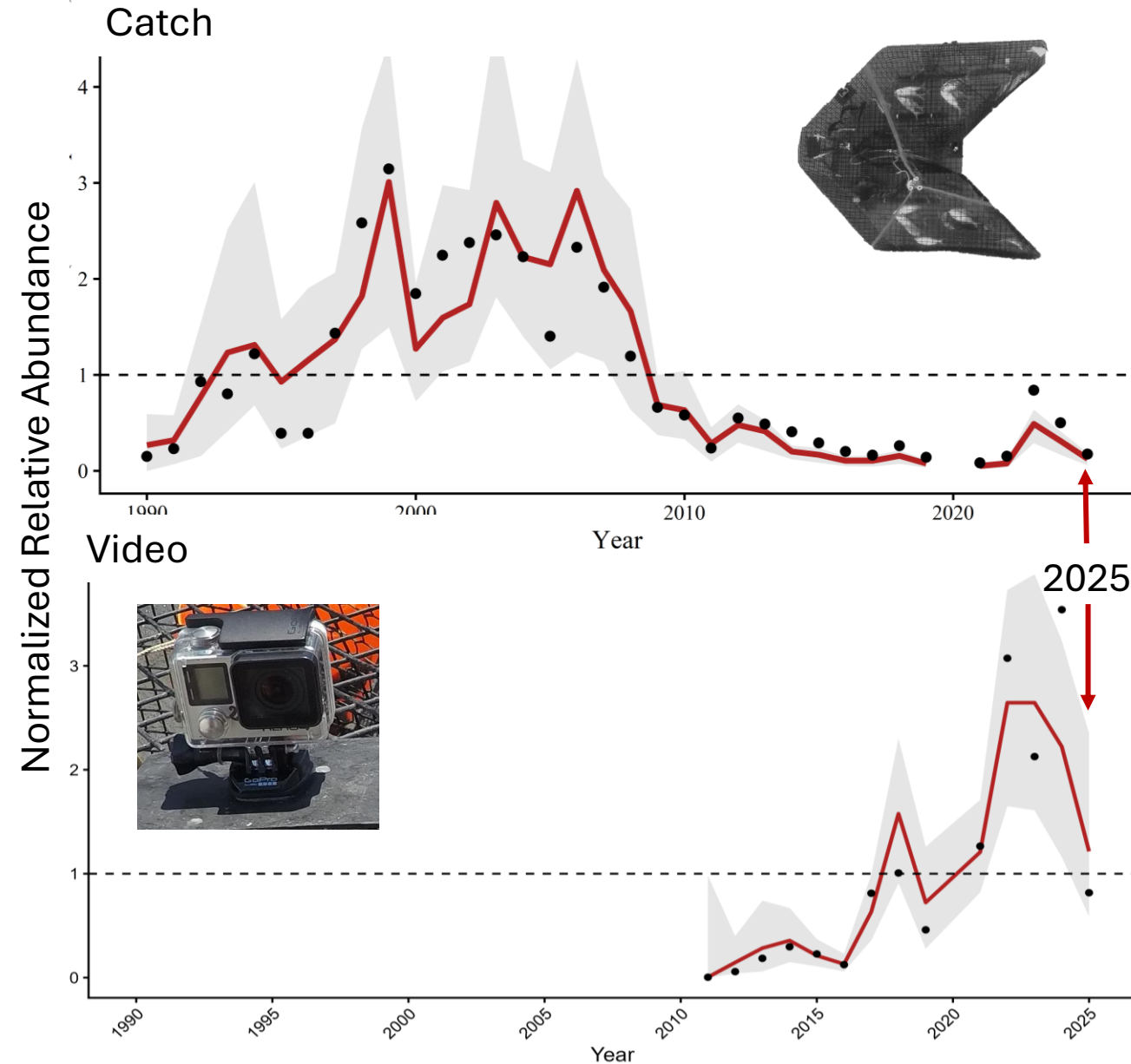
- Number of fish
- Trap time on bottom

Video:

- SumCount
 - 10 min after trap lands
 - One frame every 30 s for 20 min



Indices- Example

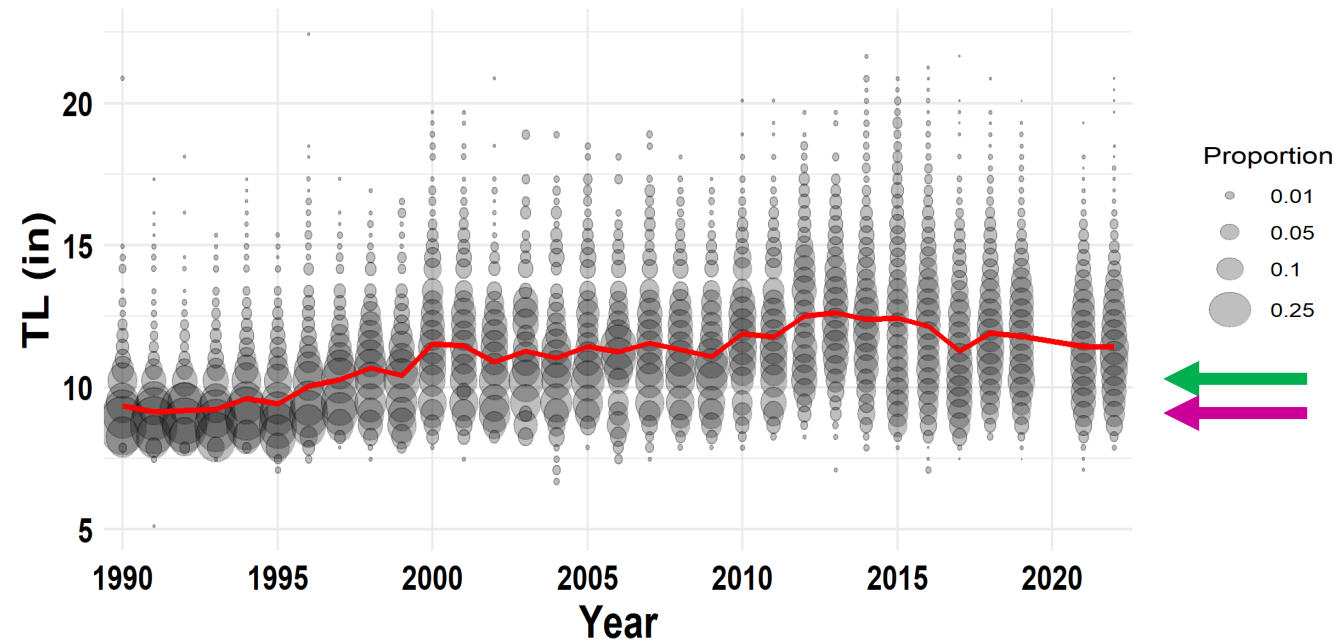


Red Line	Index Time Series
Gray Shading	95 % Confidence Interval (“error”)
Black Dots •	Nominal Values (“basic counts”)

Normalized to long-term average
(dashed line at 1)

- 2 = twice long-term average
- 0.5 = half long-term average

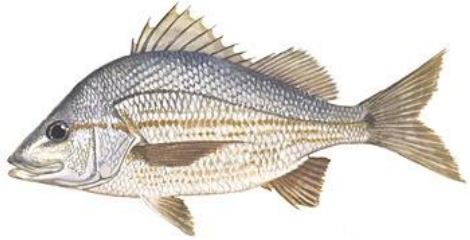
Data Products Methods: CVT Length Compositions



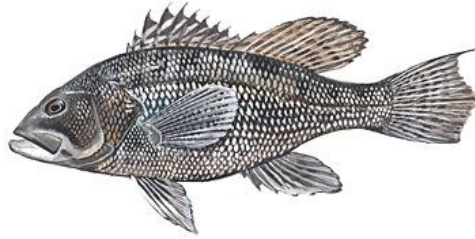
- Catch Only
- Maximum (Pinched) Total Length (in)
- 1-in Length Bins
- Bubble size = # fish in length bin / # fish measured in a year
- Red Line = Average TL
- Green Arrow = Commercial MSL
- Pink Arrow = TL at 50% Maturity, Female

CVT Catch Only* or Catch & Video Selected Species

= 2025 Catch Rankings



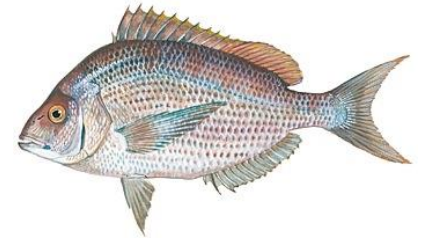
1. Tomtate*



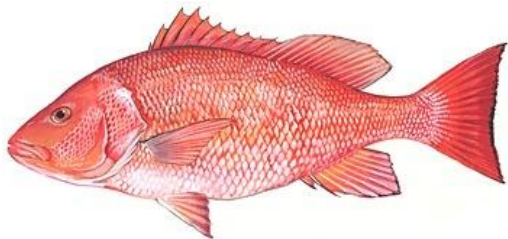
2. Black Sea Bass



3. Vermilion Snapper



4. *Stenotomus* spp.*



5. Red Snapper

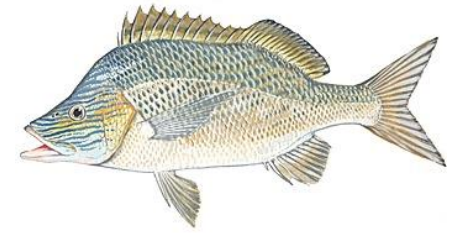


6. Gray Triggerfish

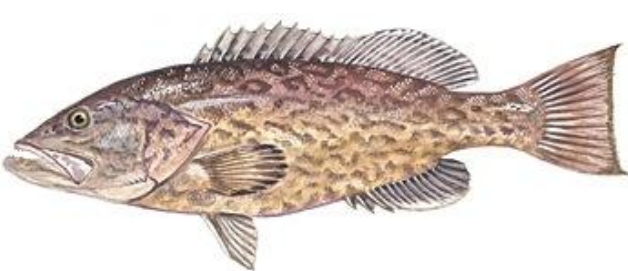
...



9. Red Porgy

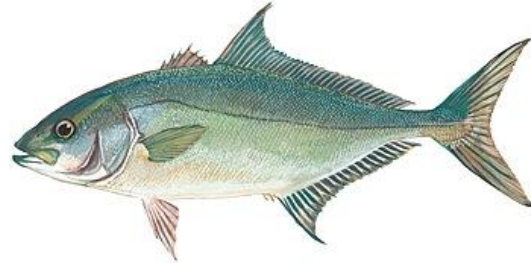


10. White Grunt



...

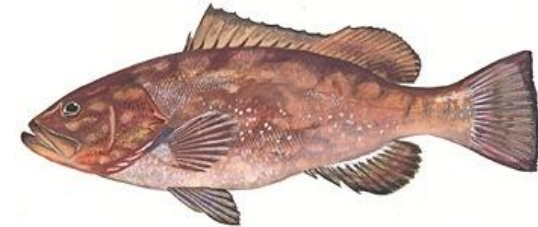
14. Gag



15. Almaco Jack

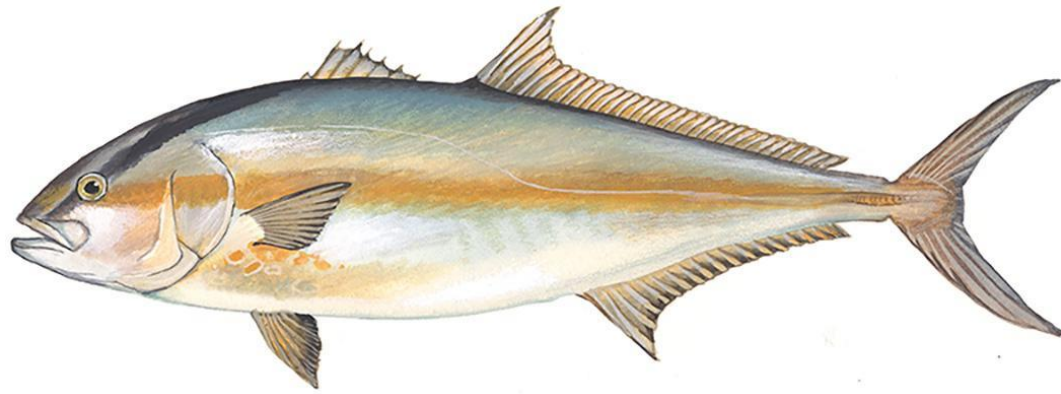


16. Scamp

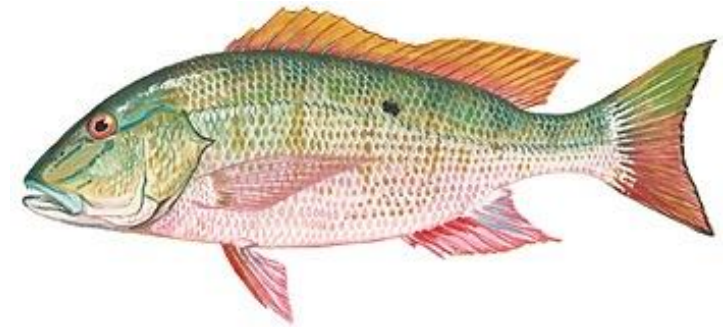


20. Red Grouper

CVT Video Only Selected Species



Greater Amberjack

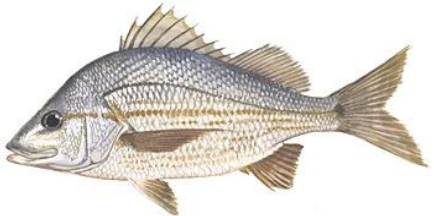


Mutton Snapper

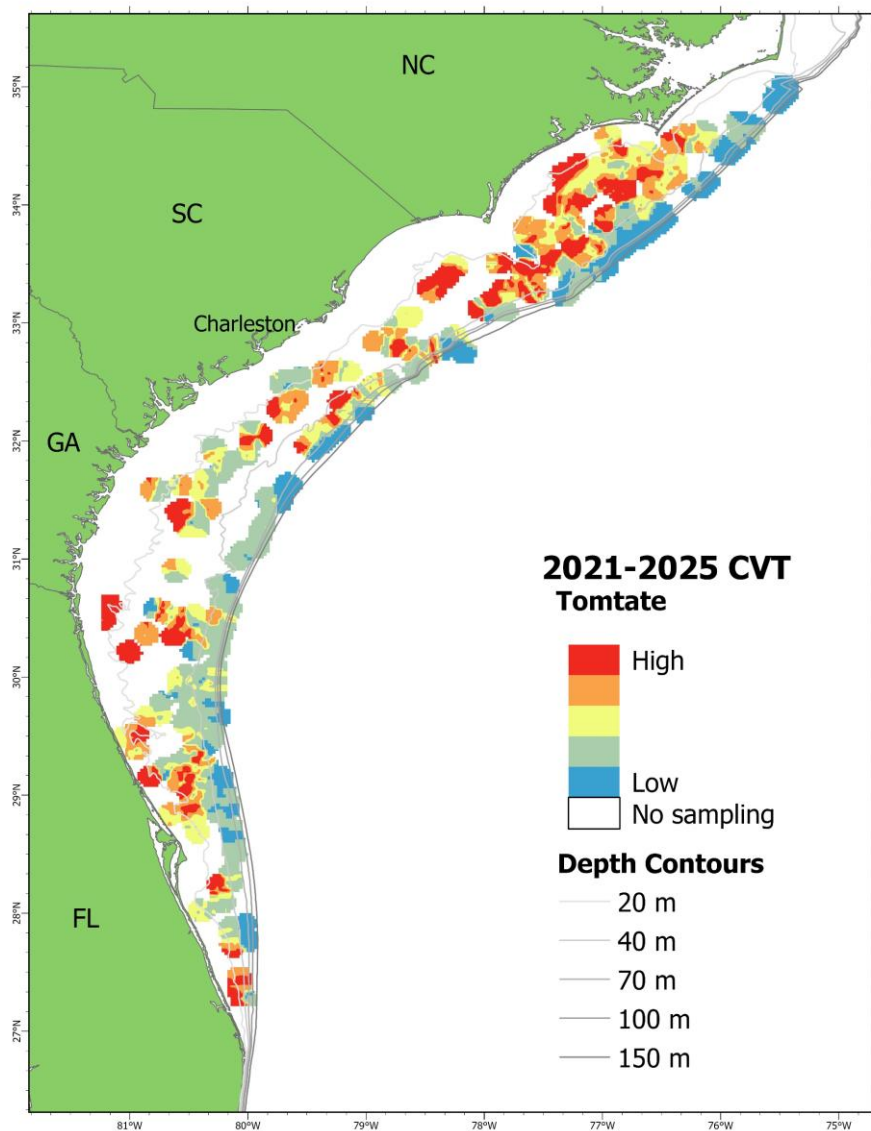
CVT Video Only Selected Species



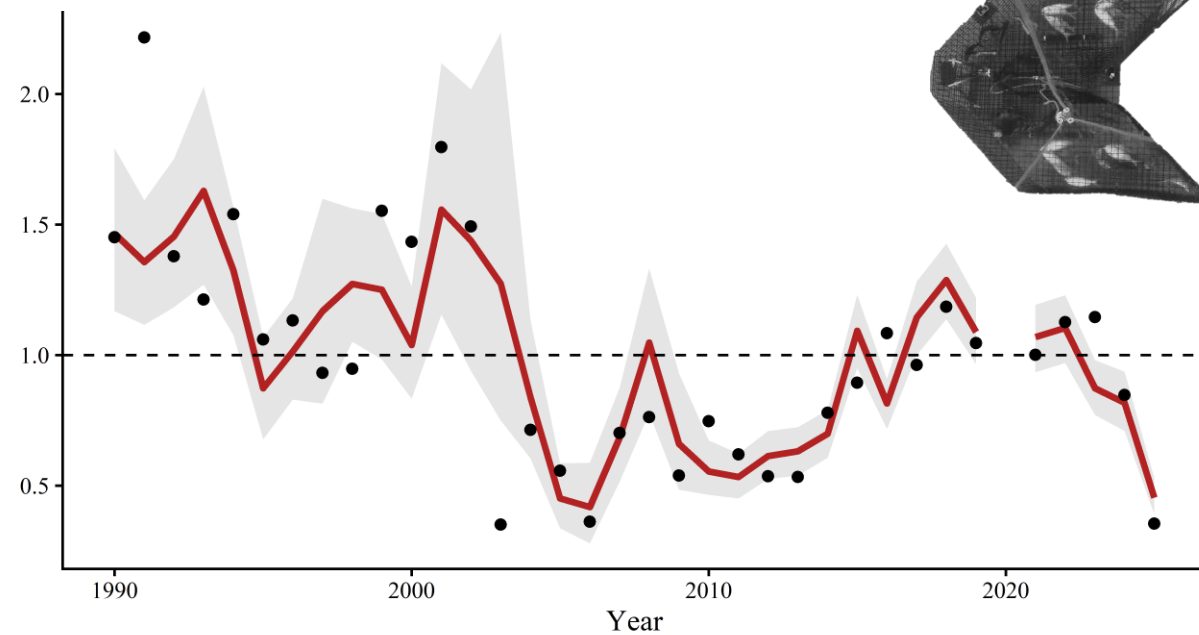
SEDAR 107 Cobia?



Tomtate

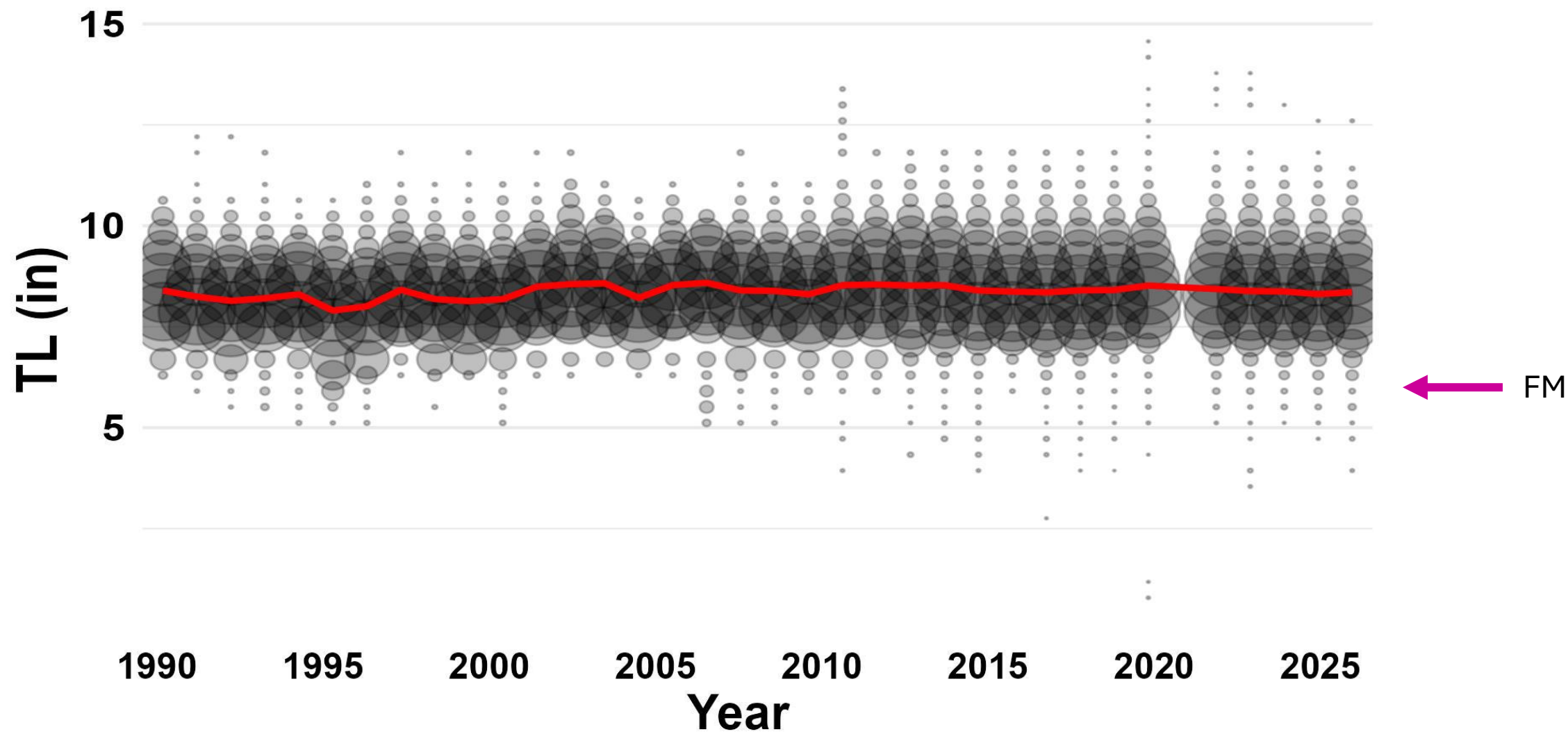


Normalized Relative Abundance



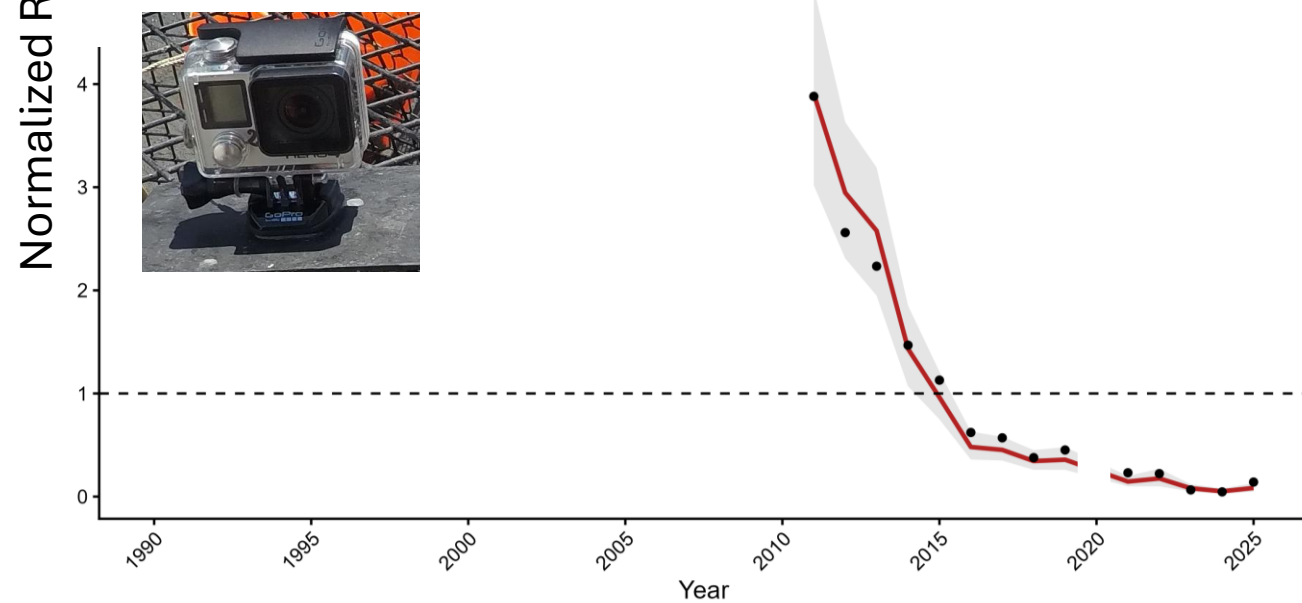
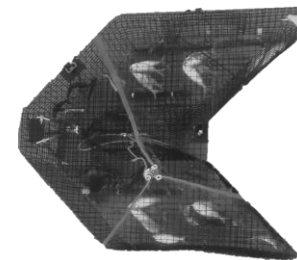
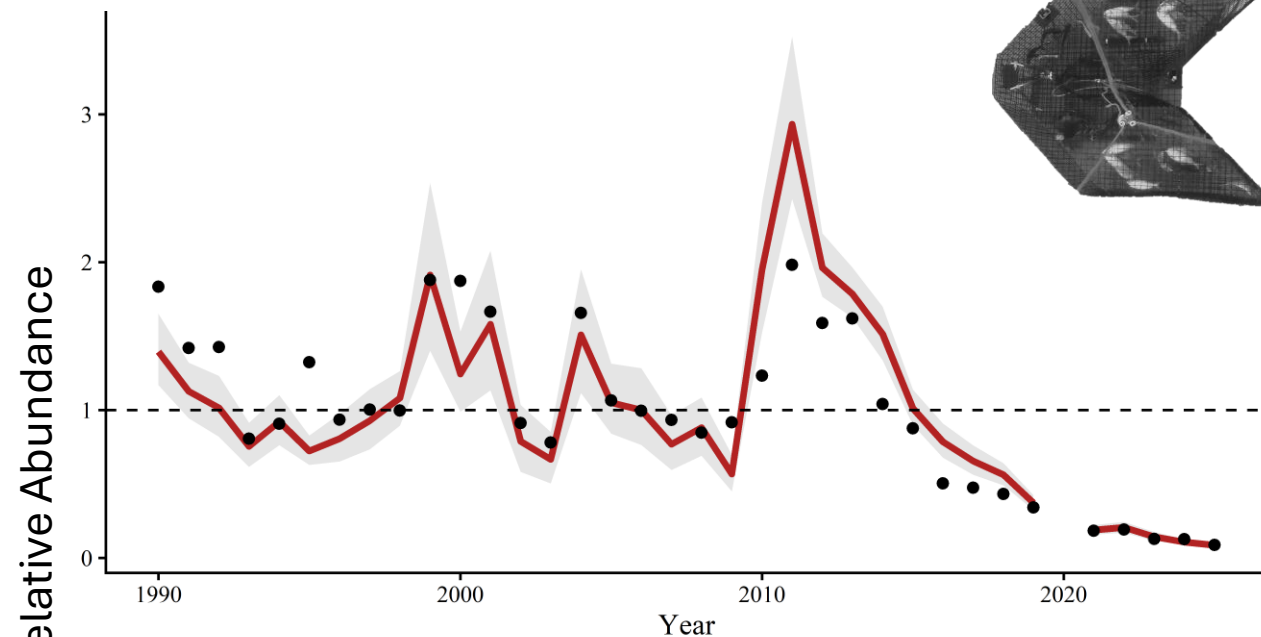
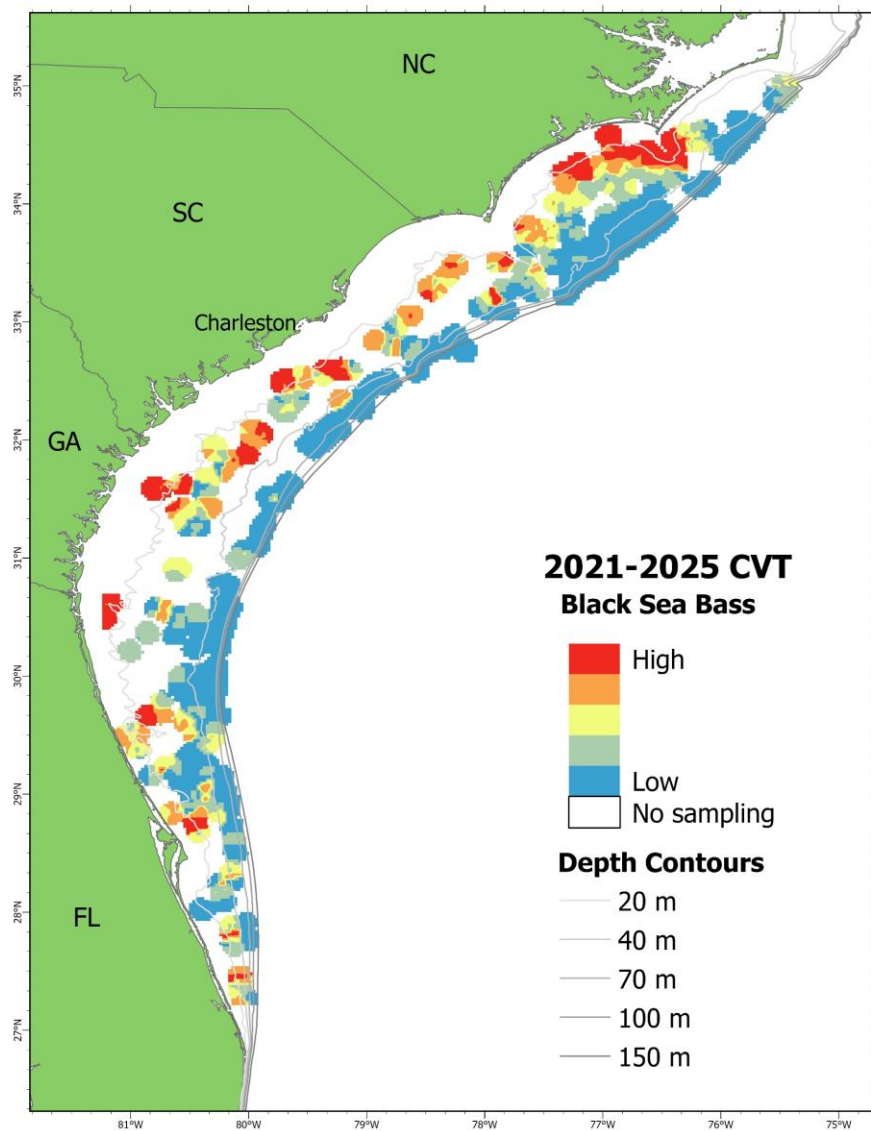


Tomtate



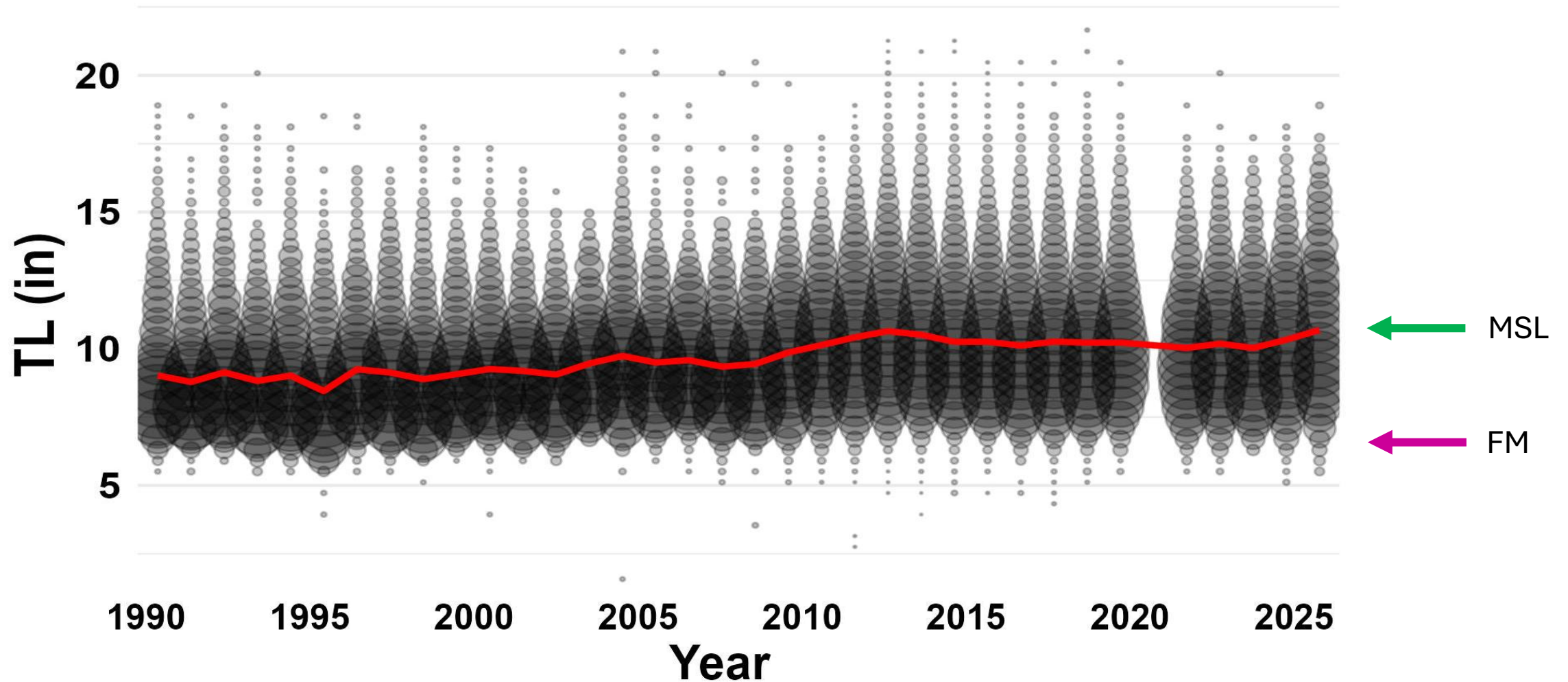


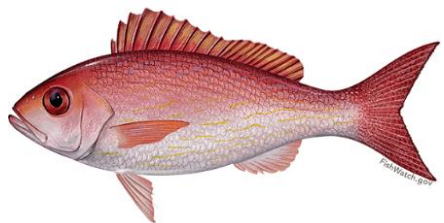
Black Sea Bass



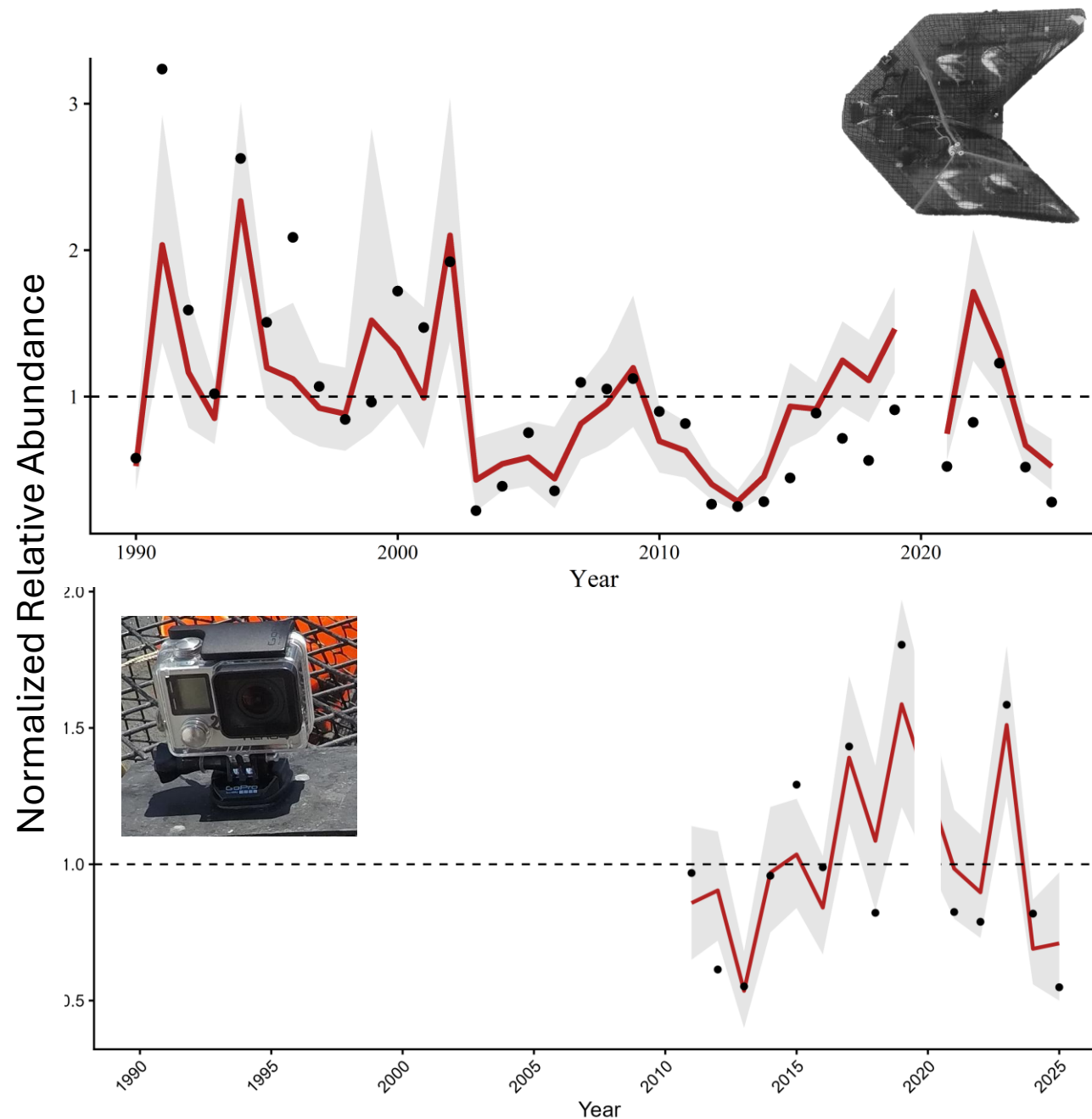
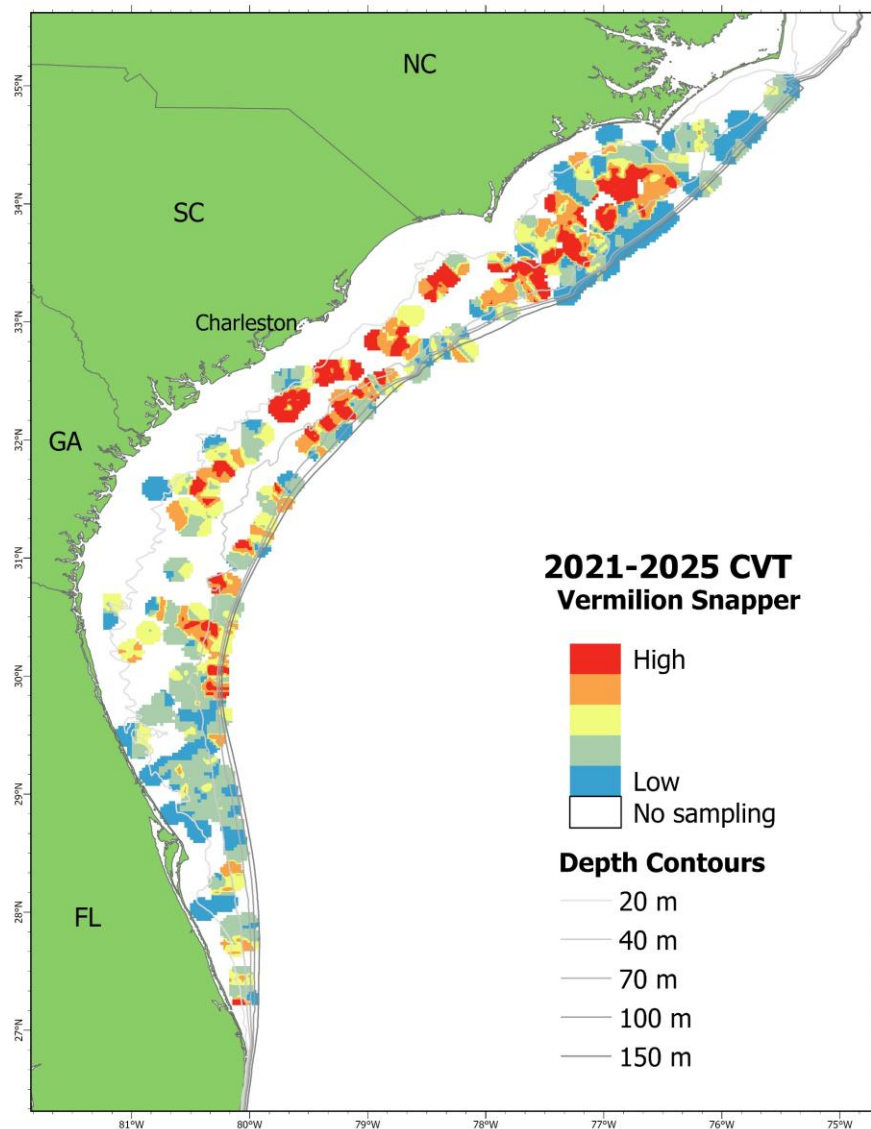


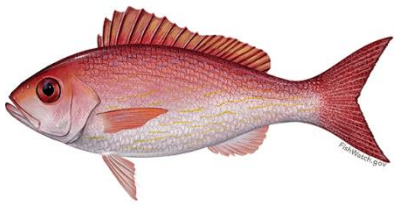
Black Sea Bass



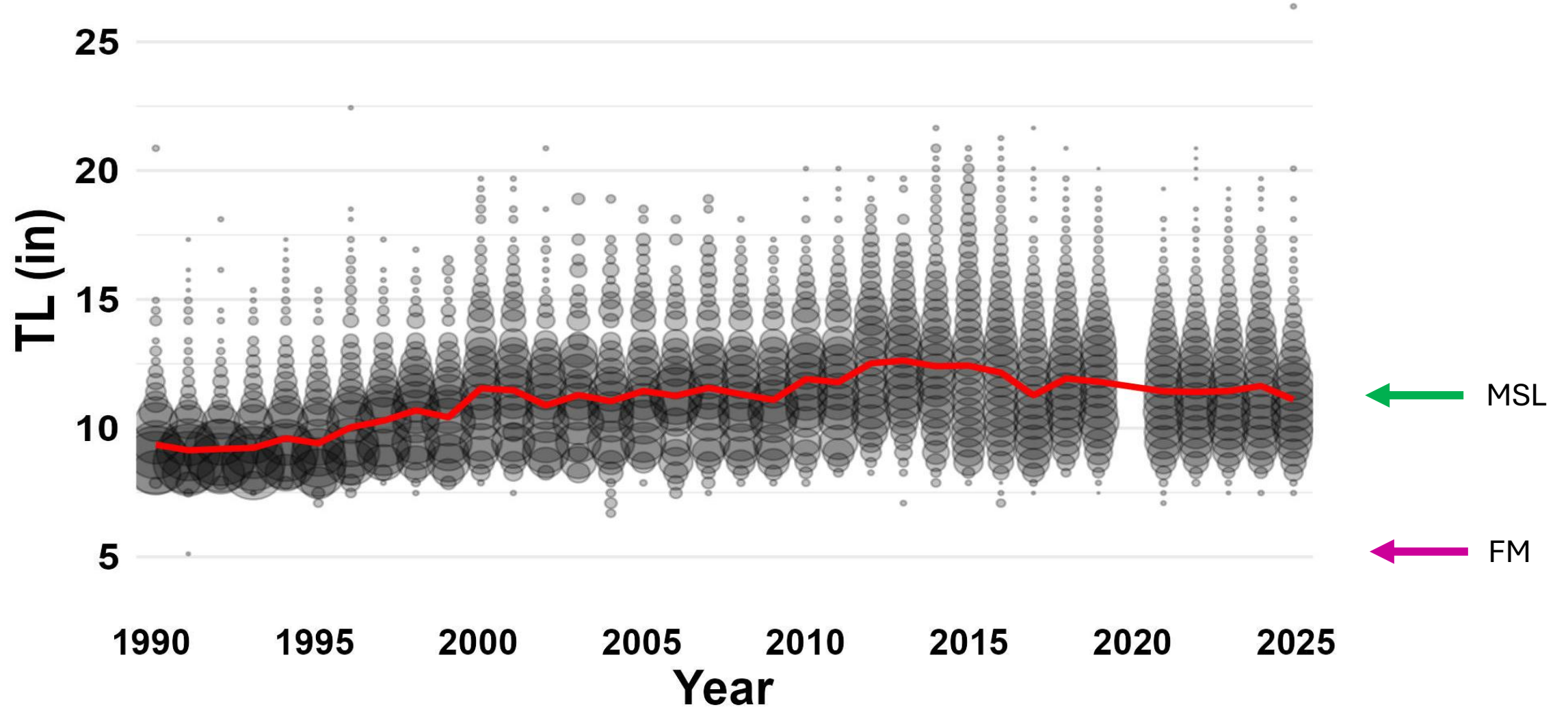


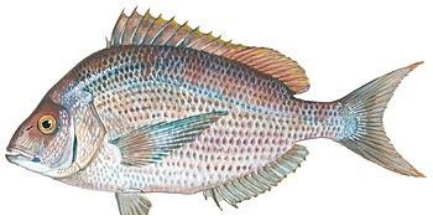
Vermilion Snapper



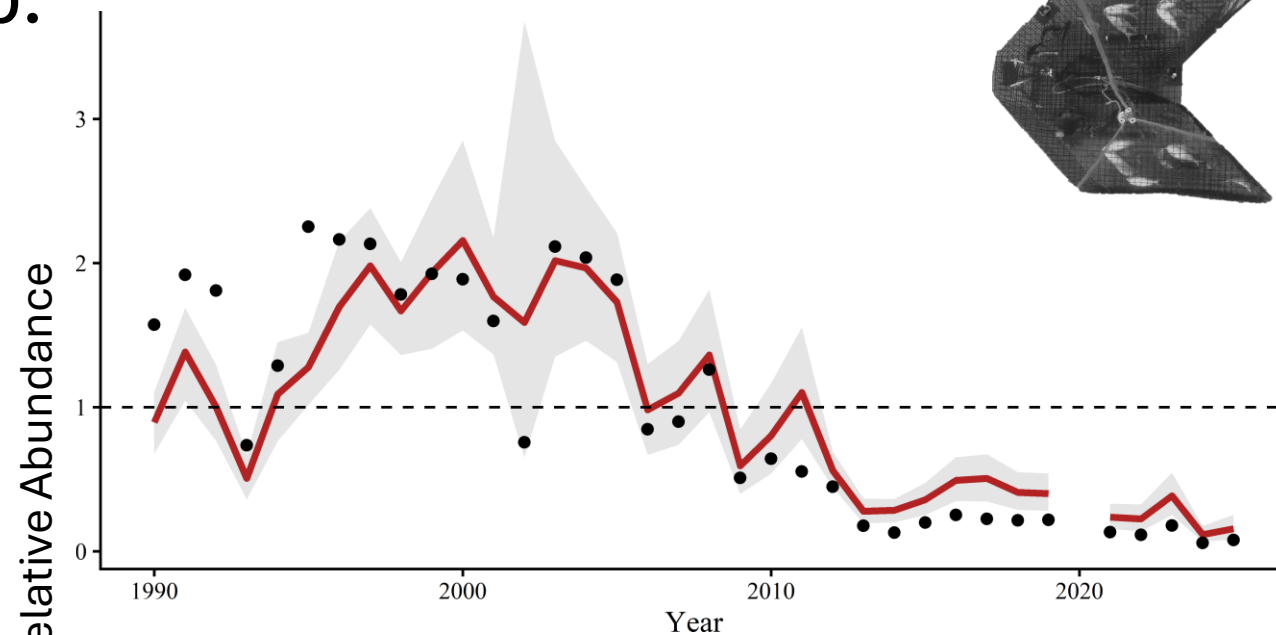
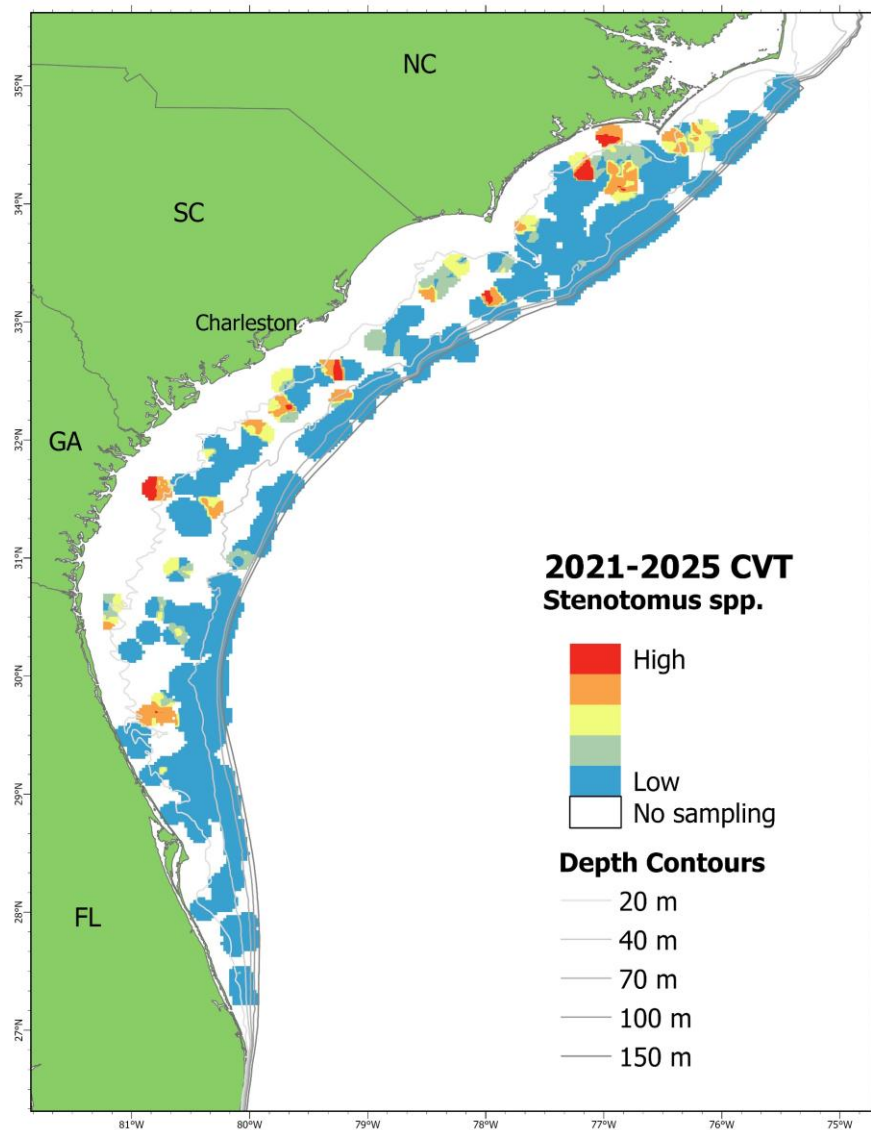
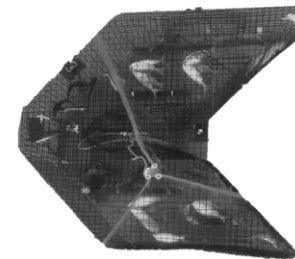


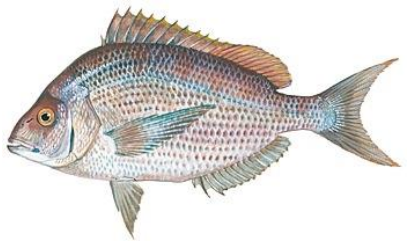
Vermilion Snapper



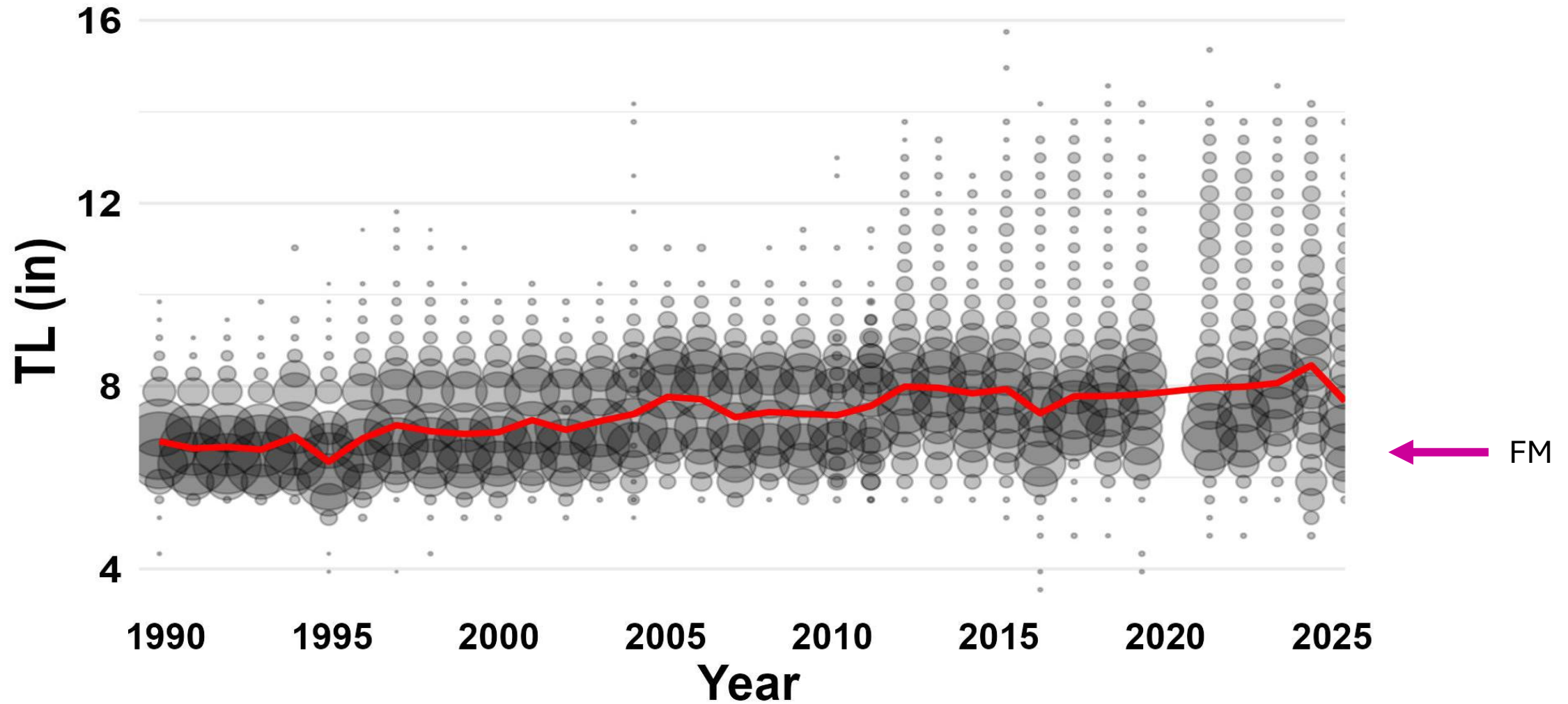


Stenotomus spp.



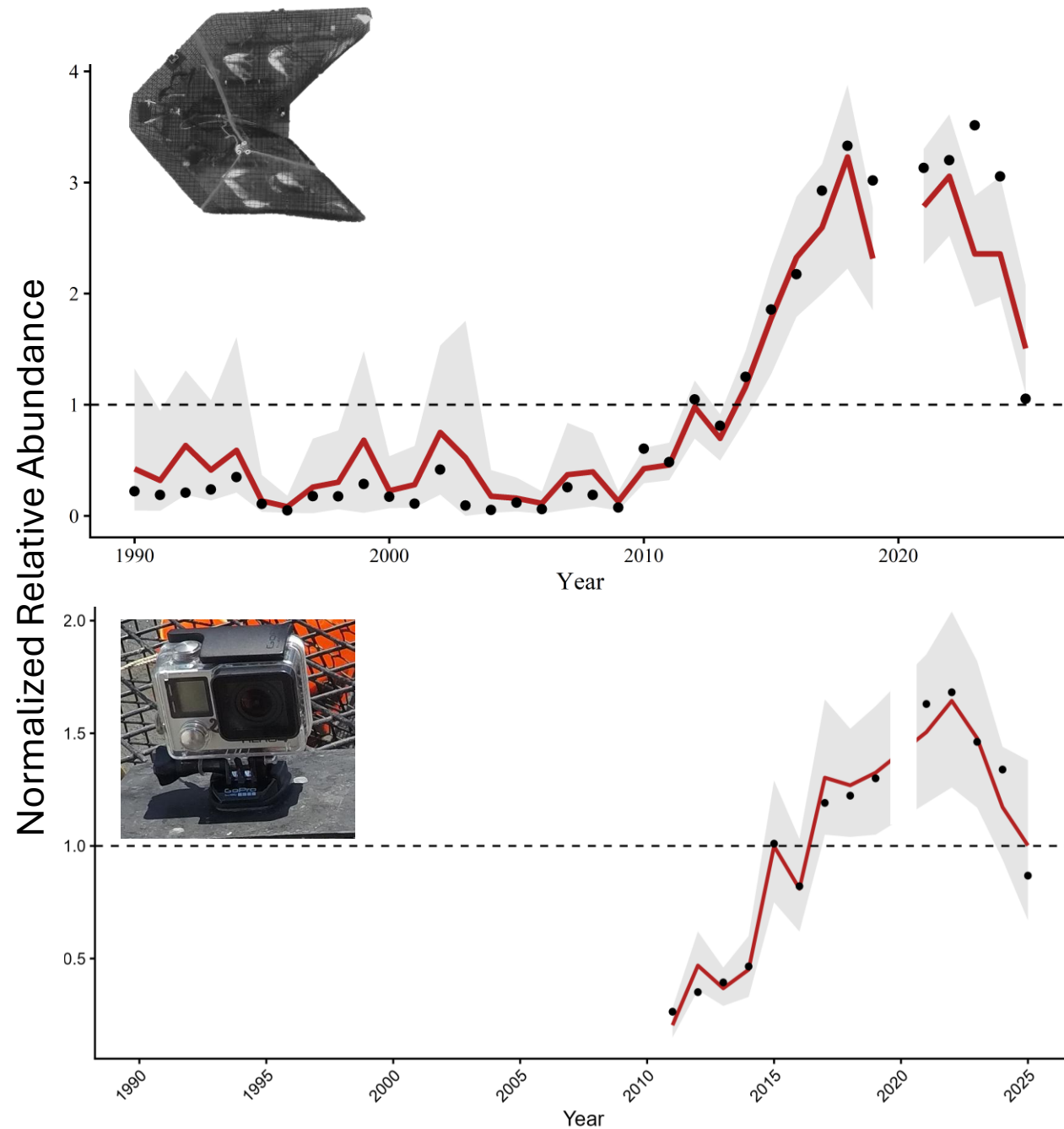
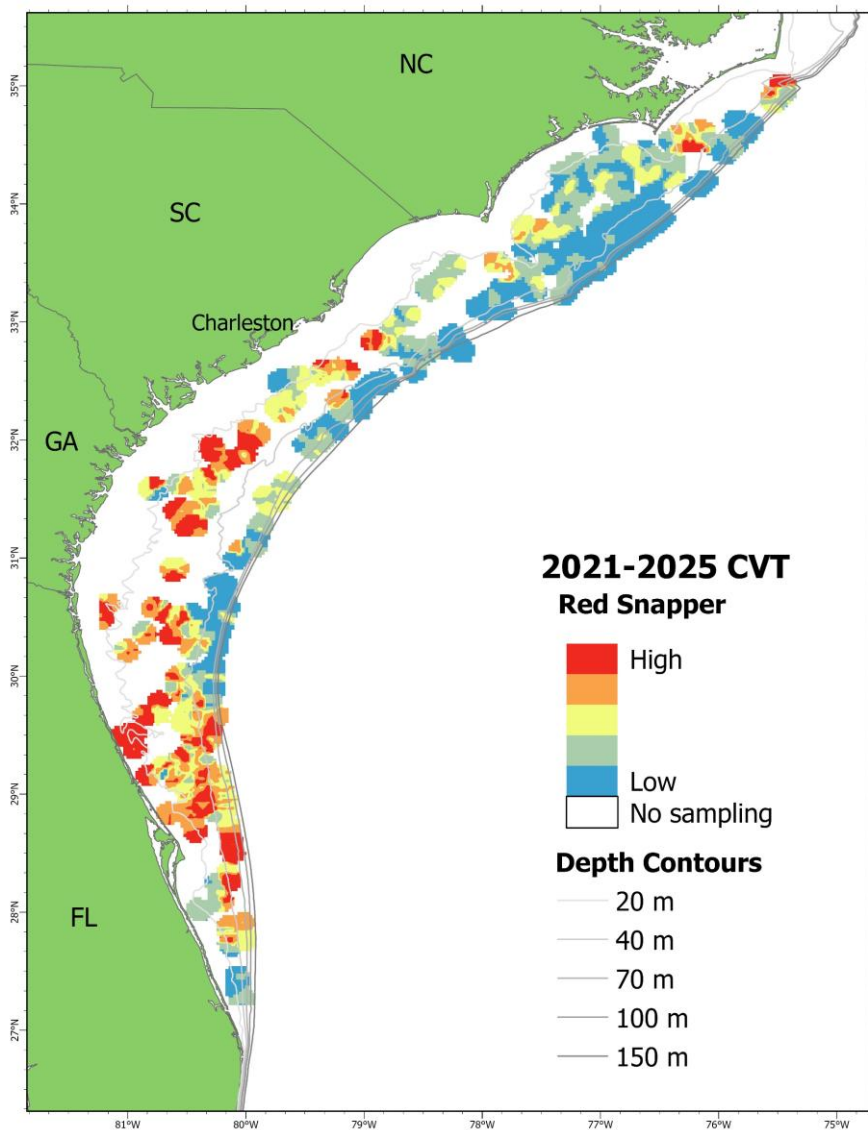


Stenotomus spp.



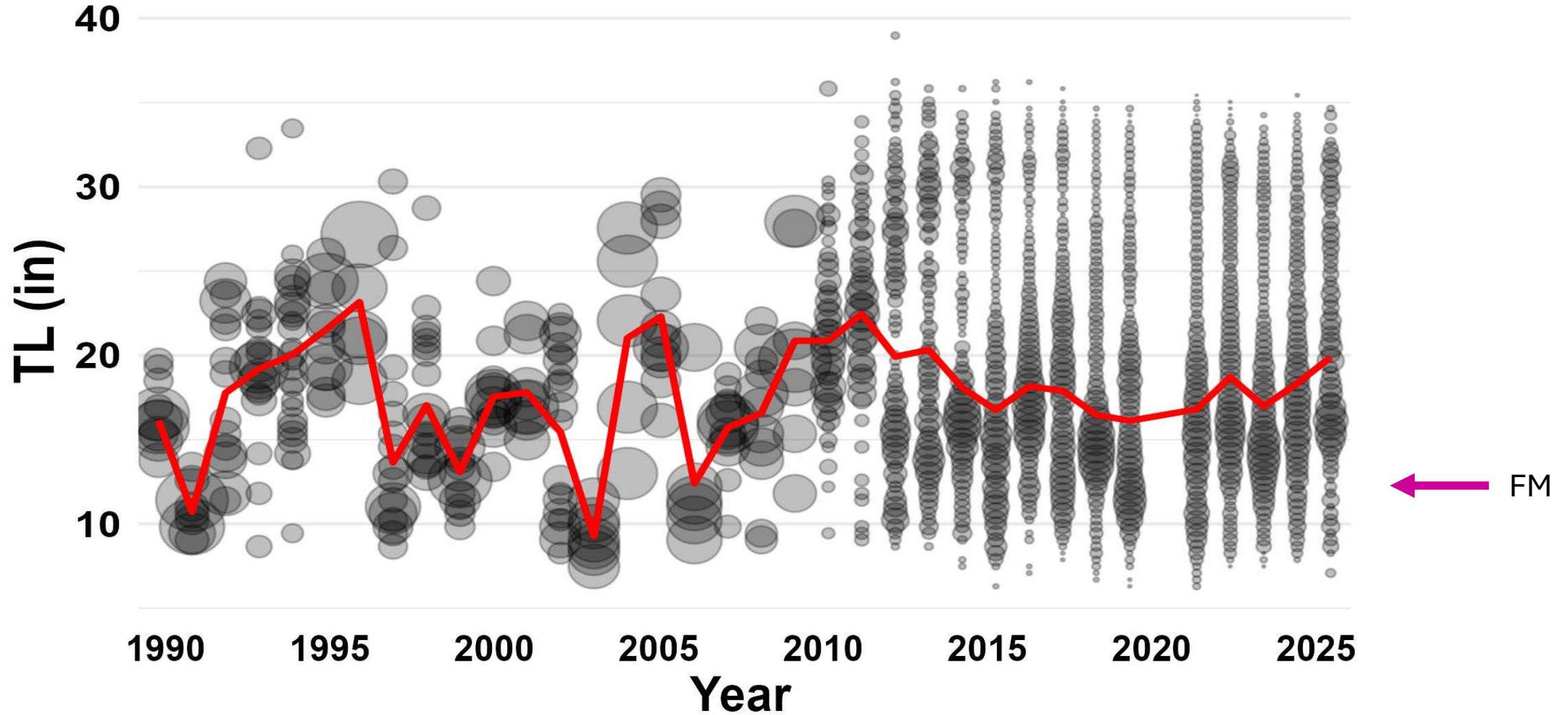


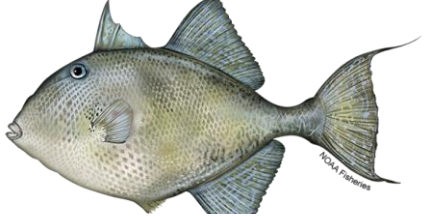
Red Snapper



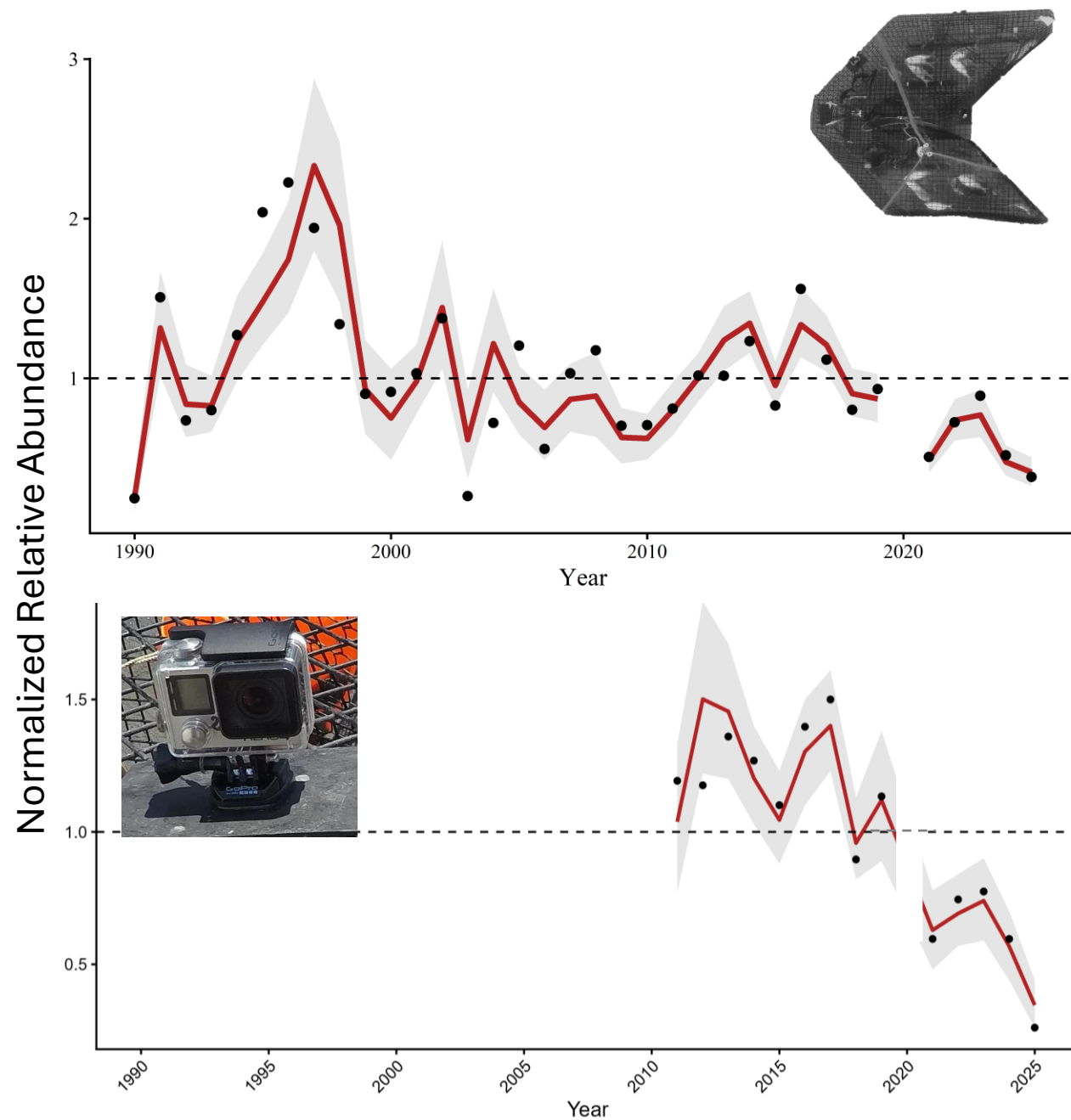
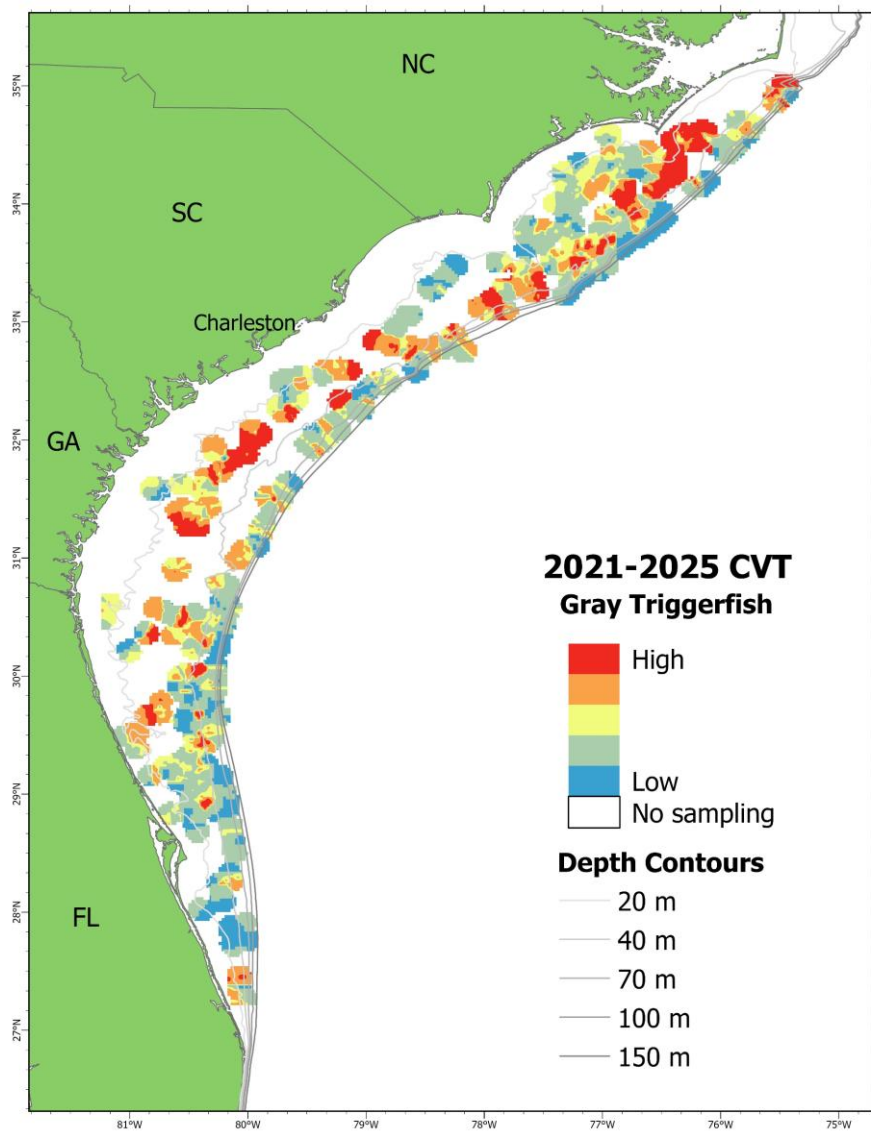


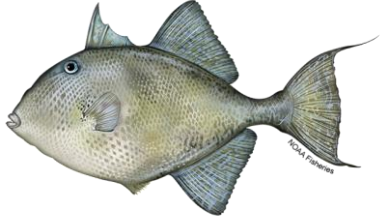
Red Snapper



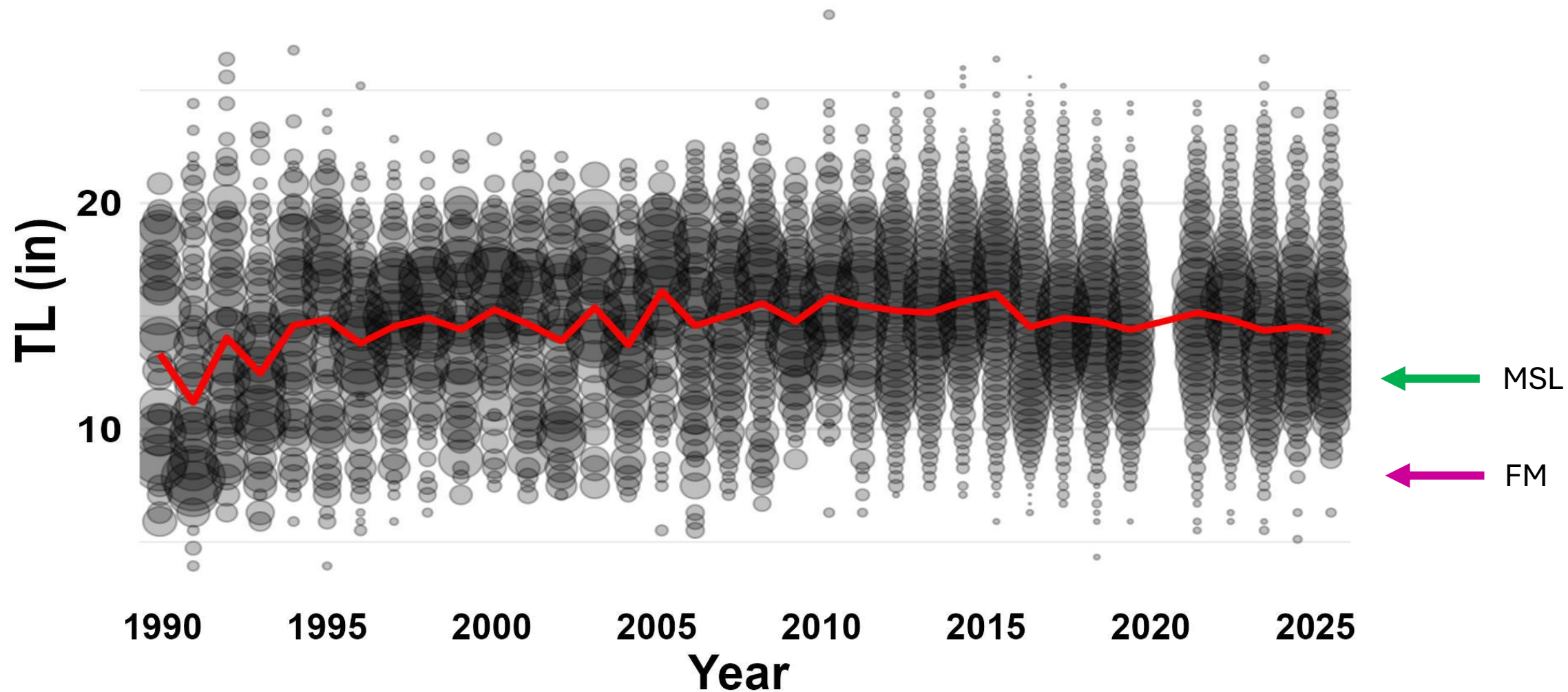


Gray Triggerfish



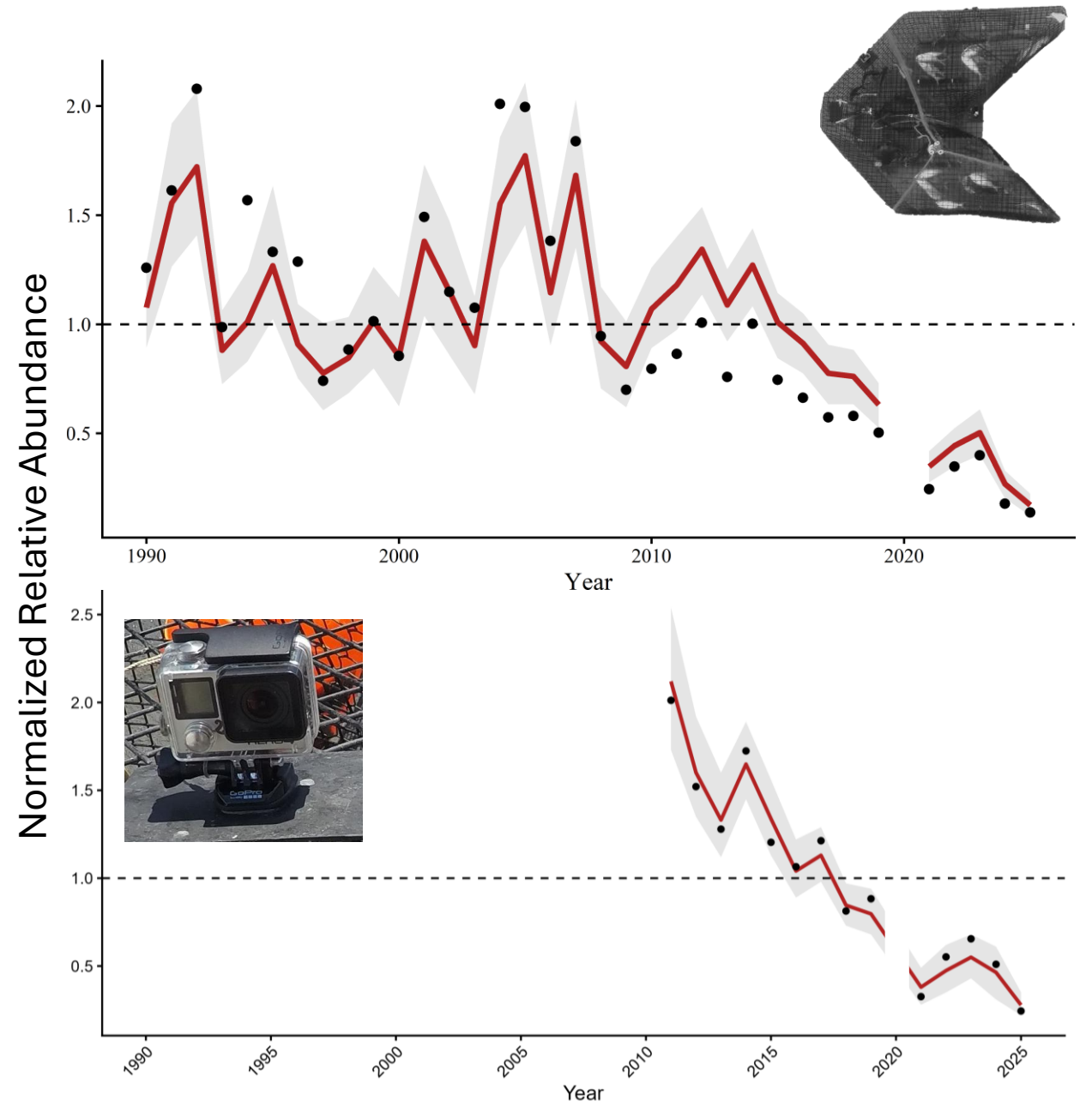
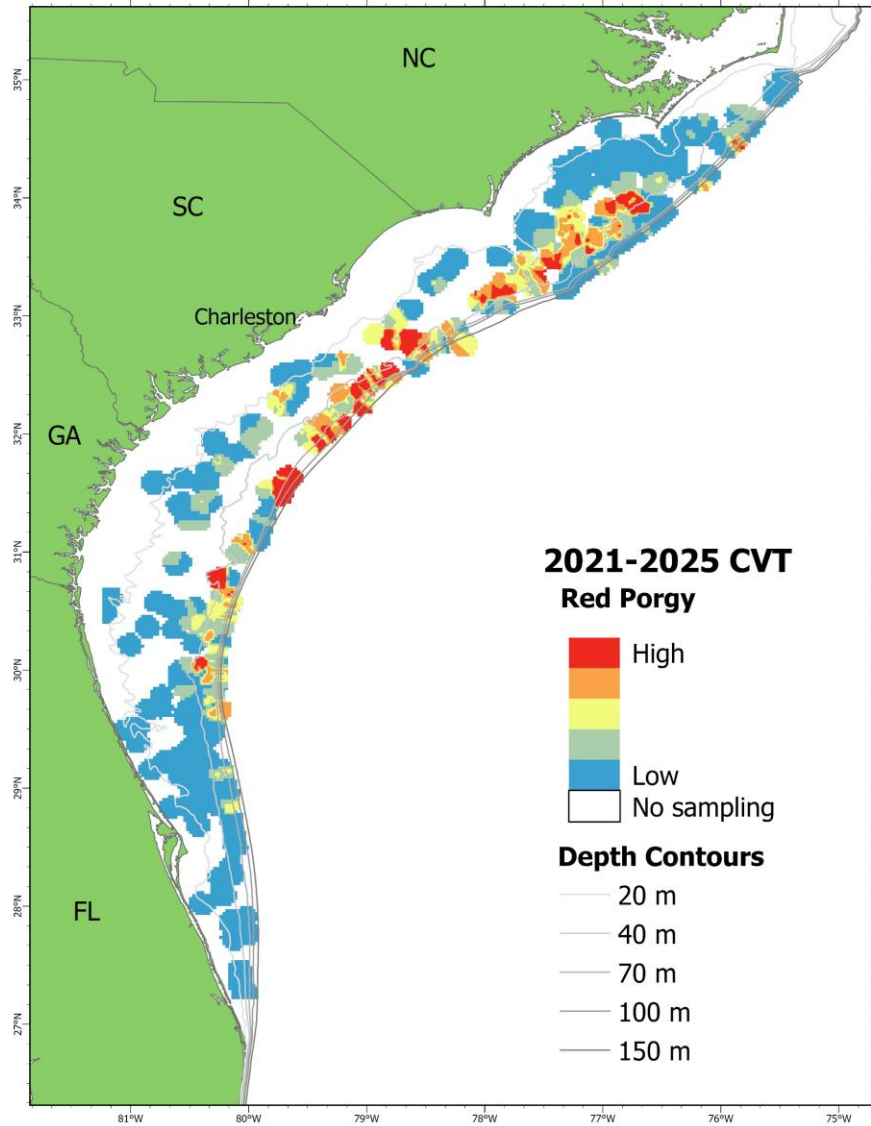


Gray Triggerfish



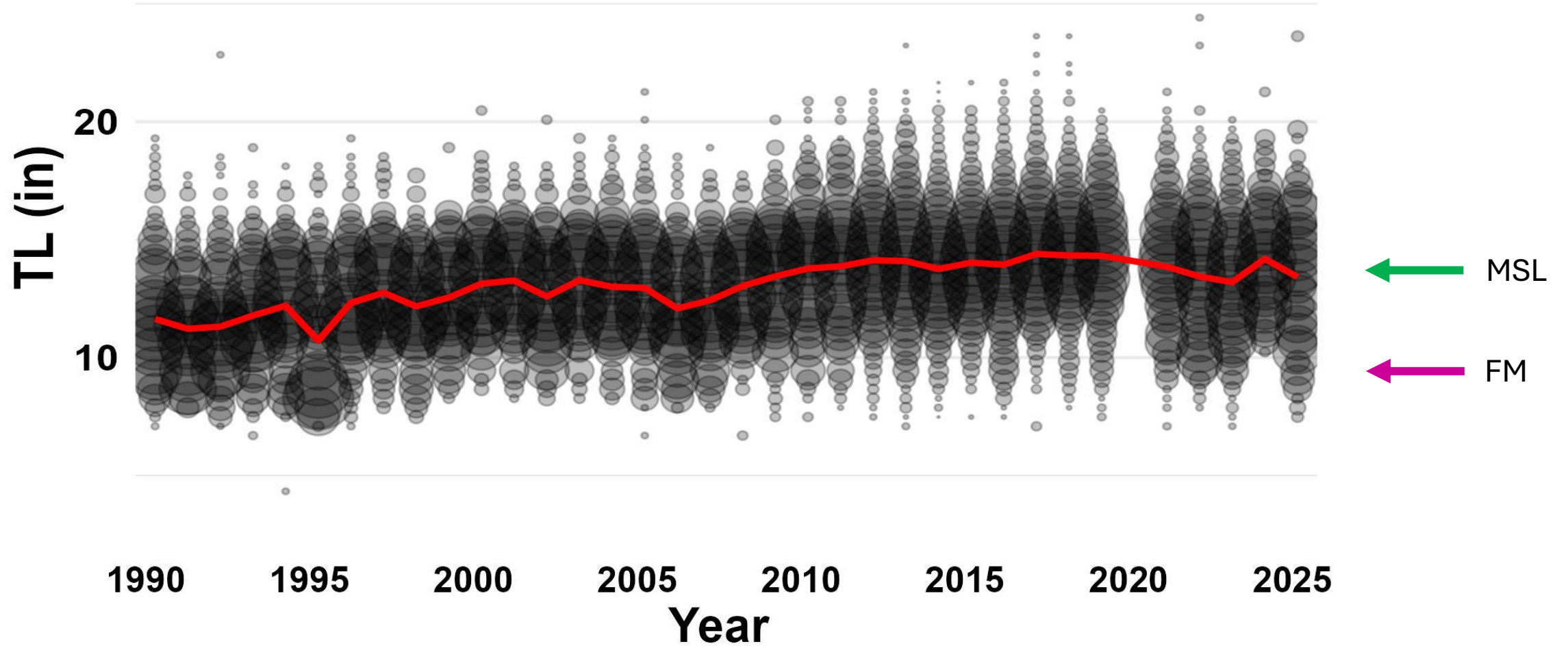


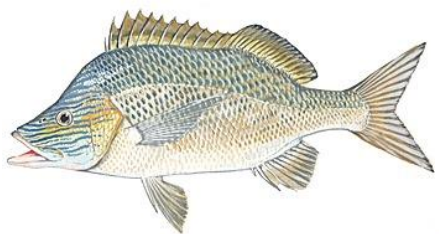
Red Porgy



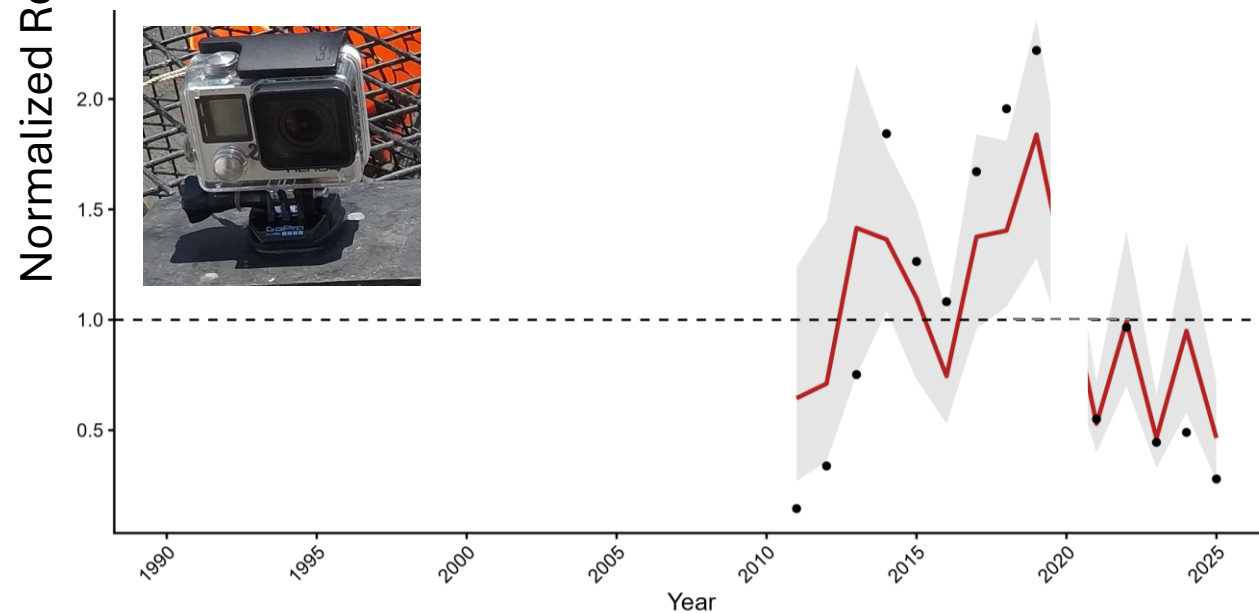
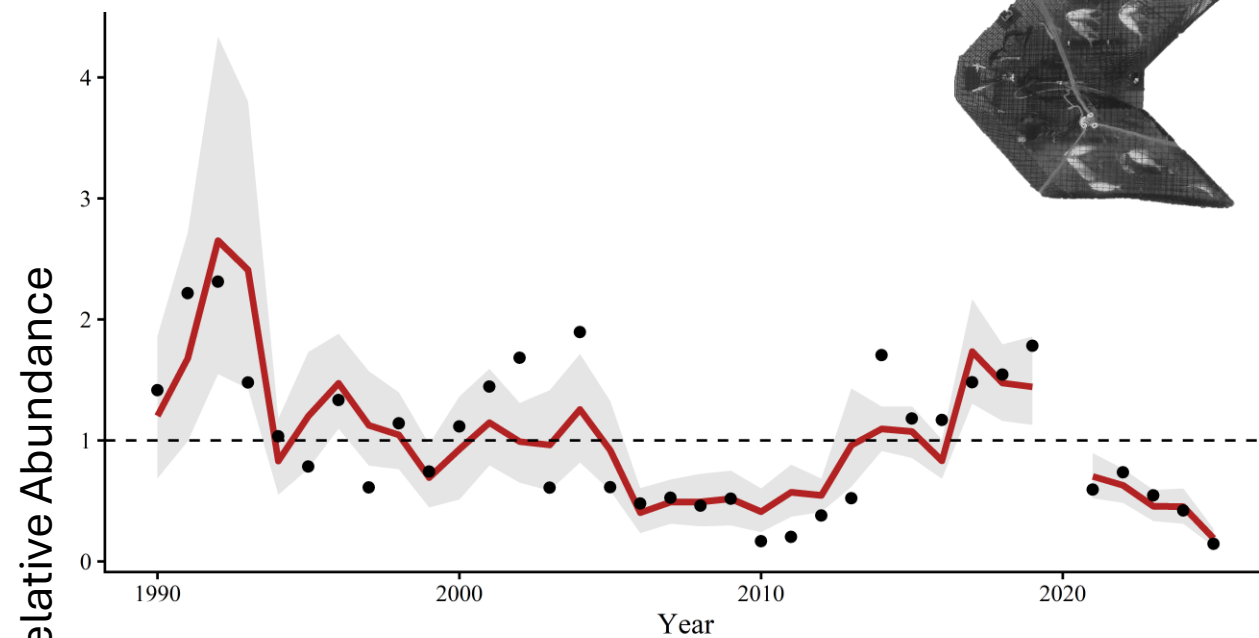
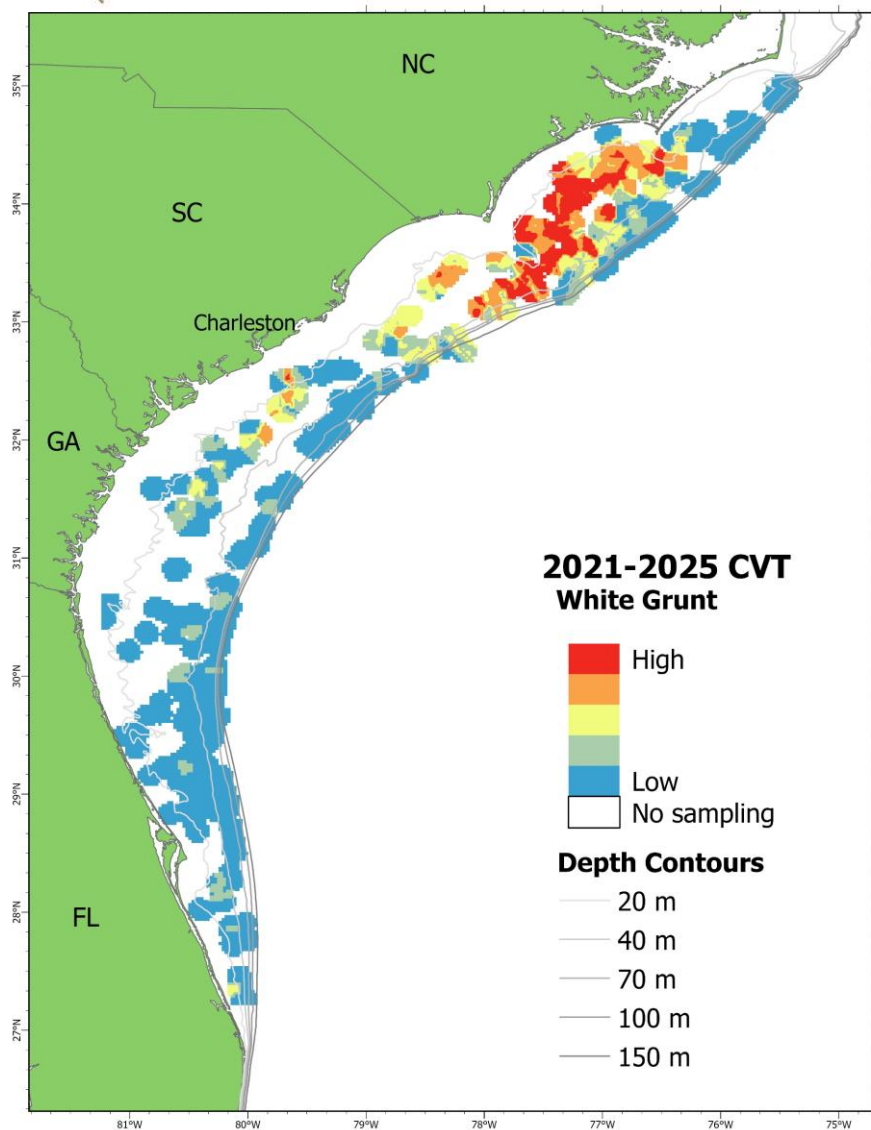


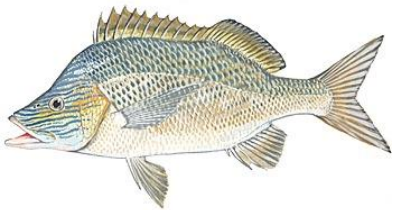
Red Porgy



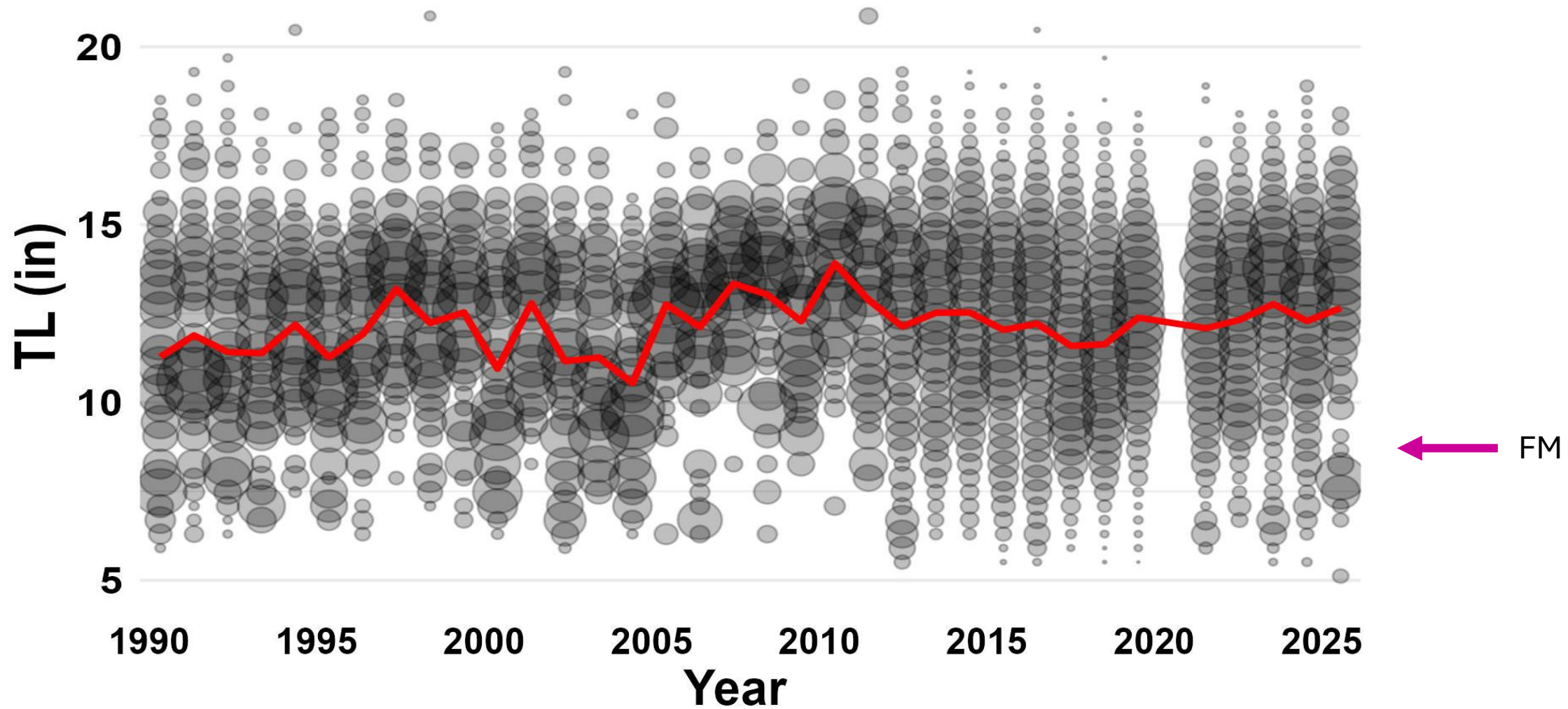


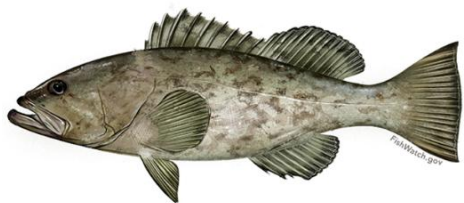
White Grunt



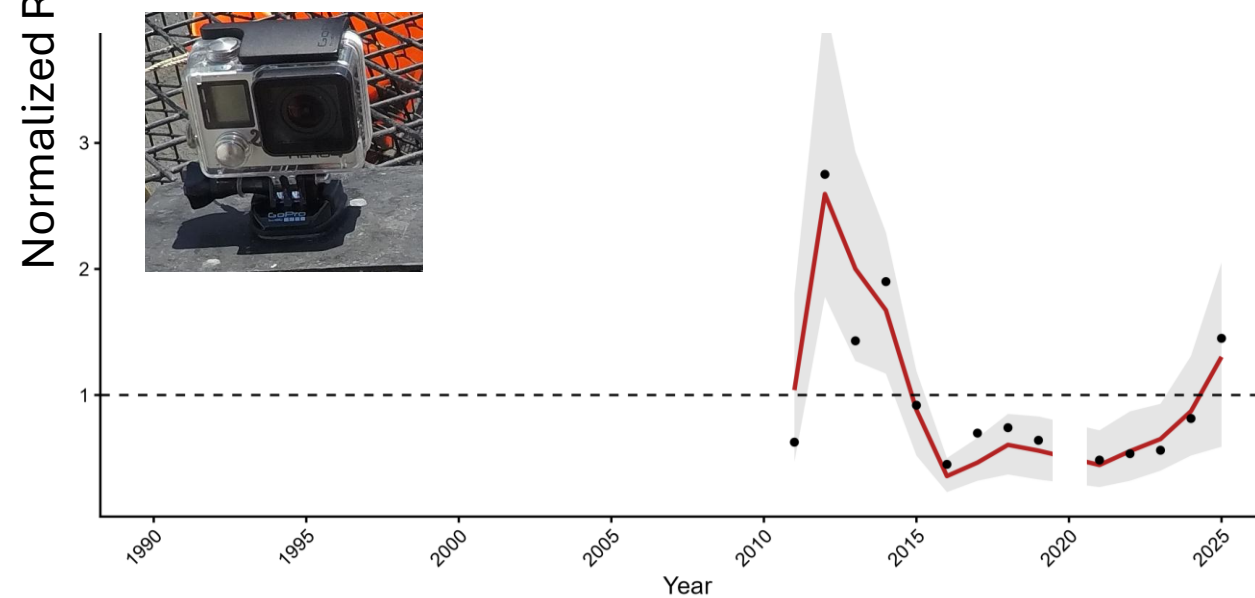
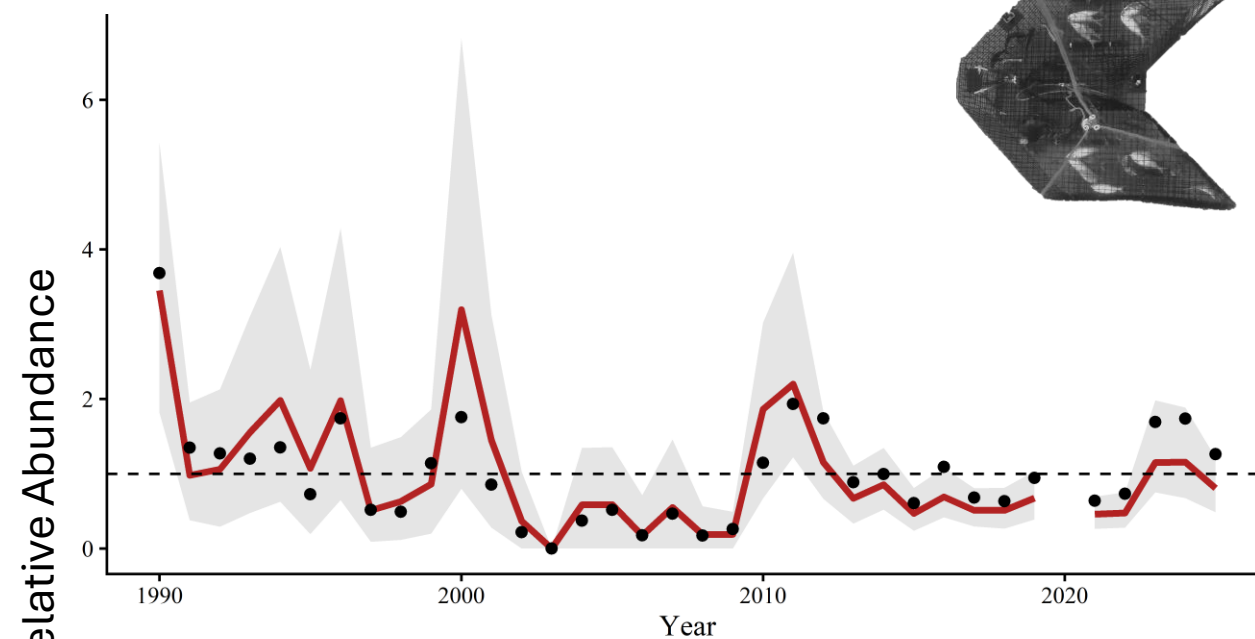
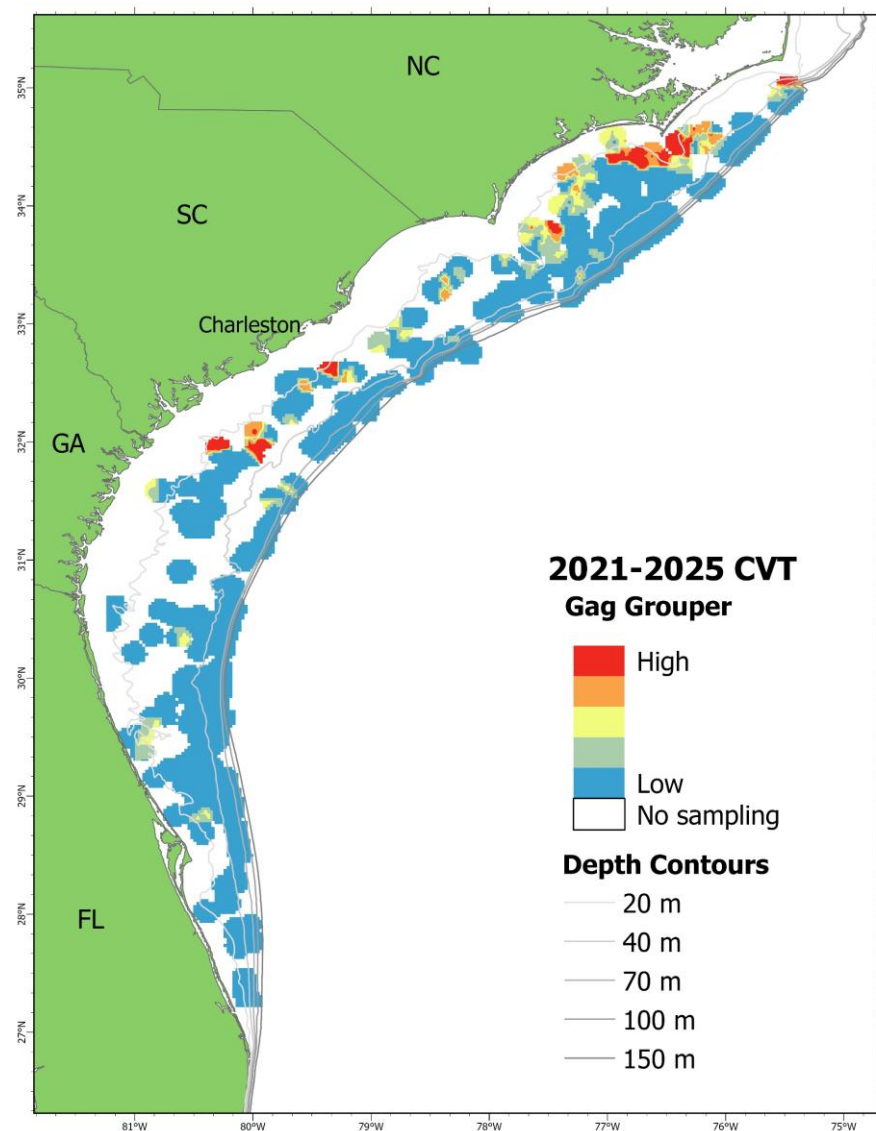


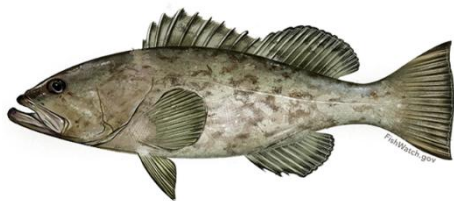
White Grunt



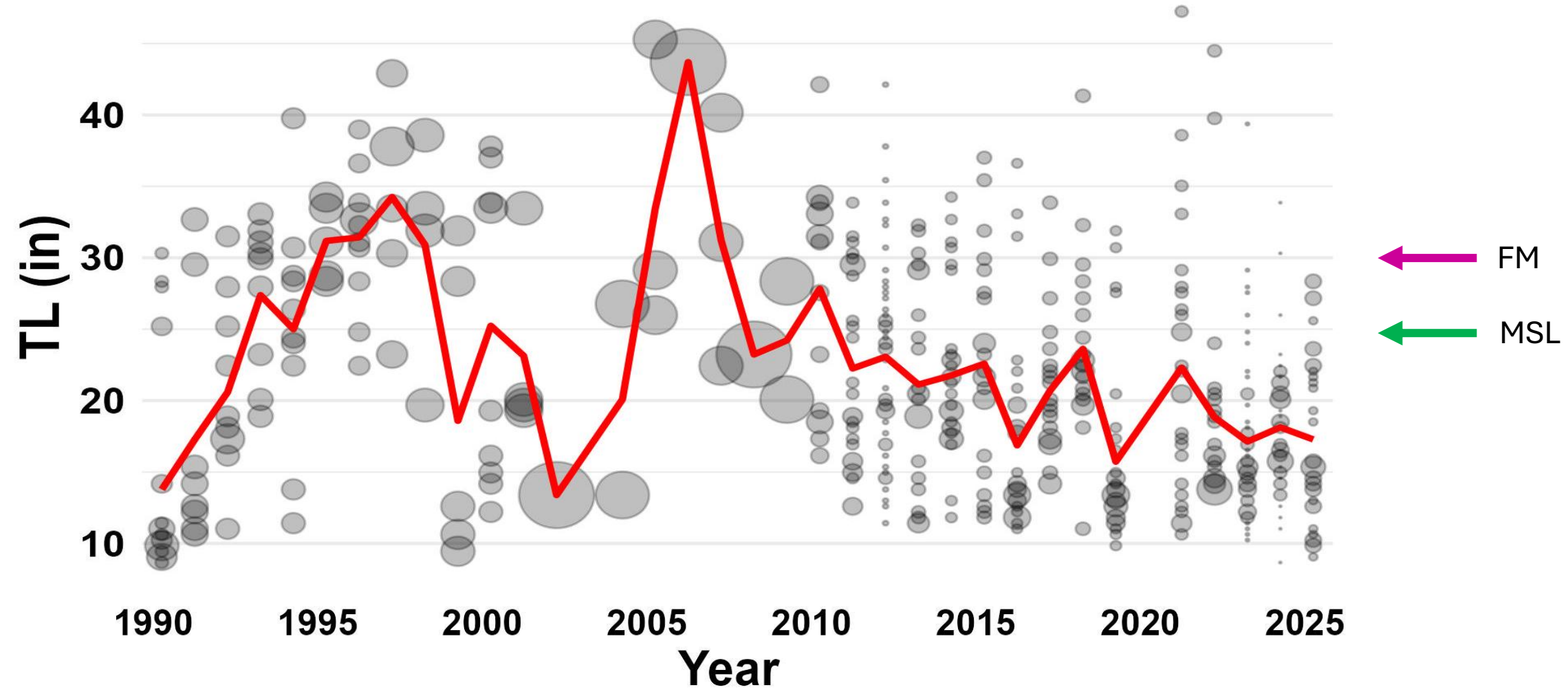


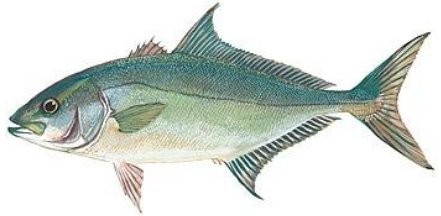
Gag Grouper



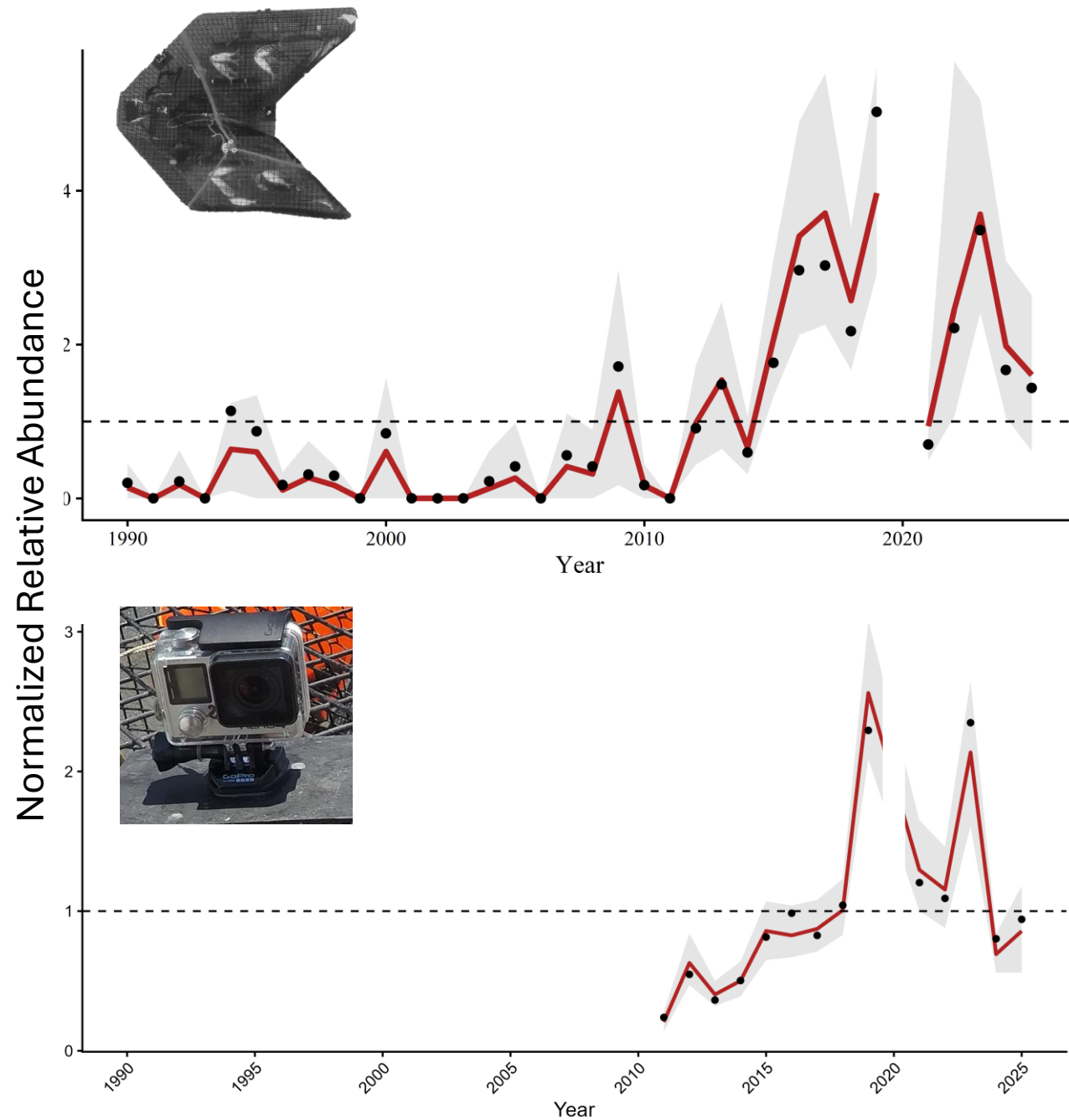
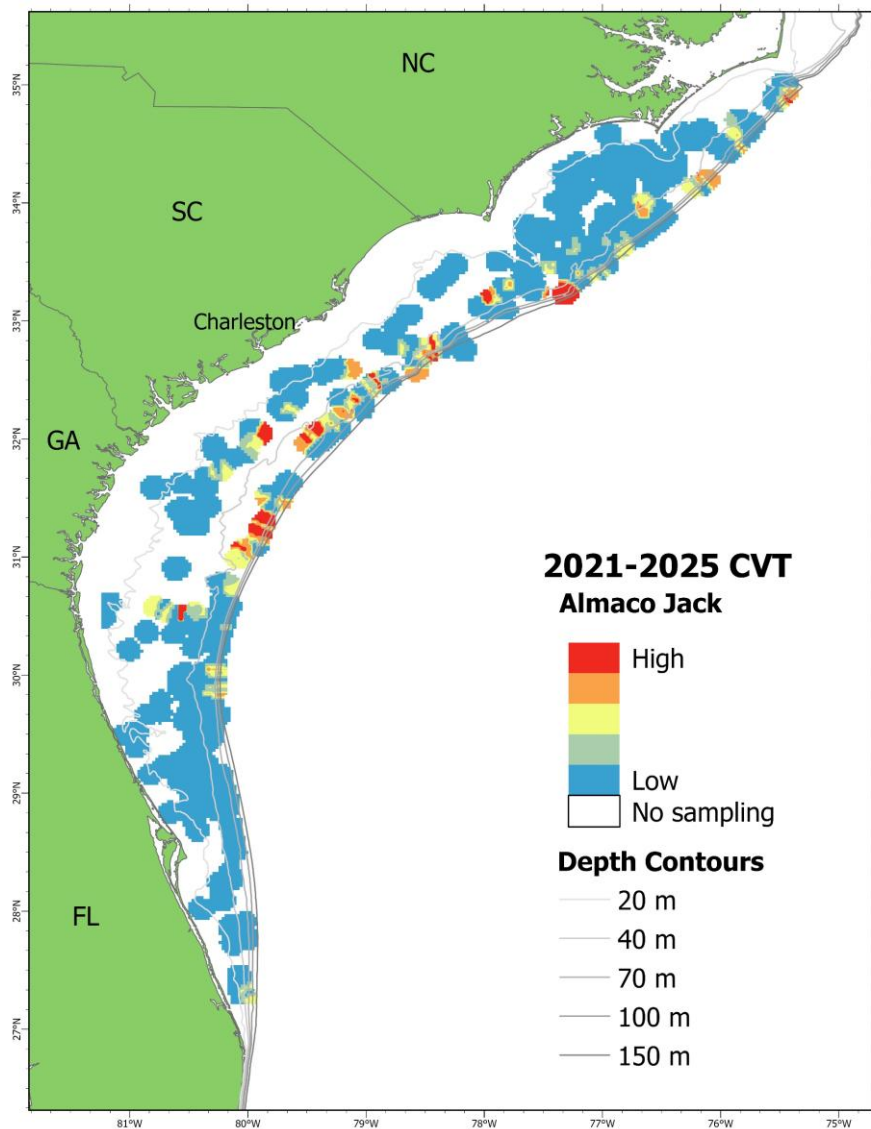


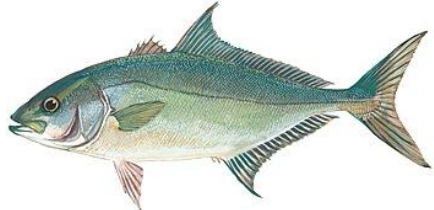
Gag Grouper



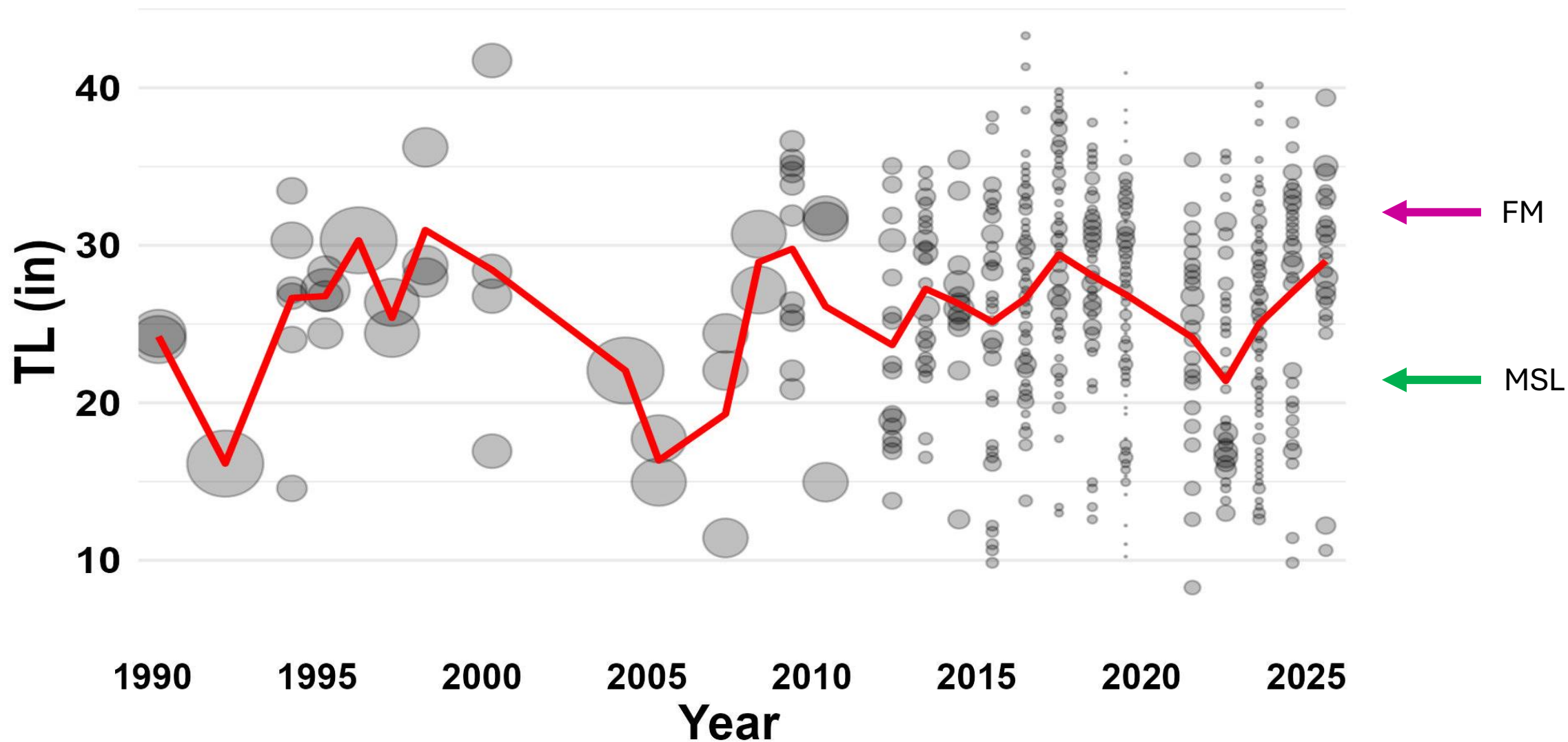


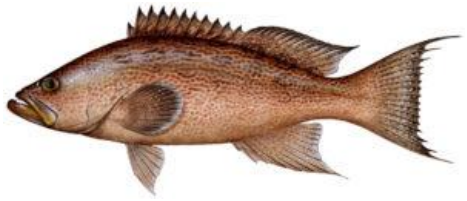
Almaco Jack



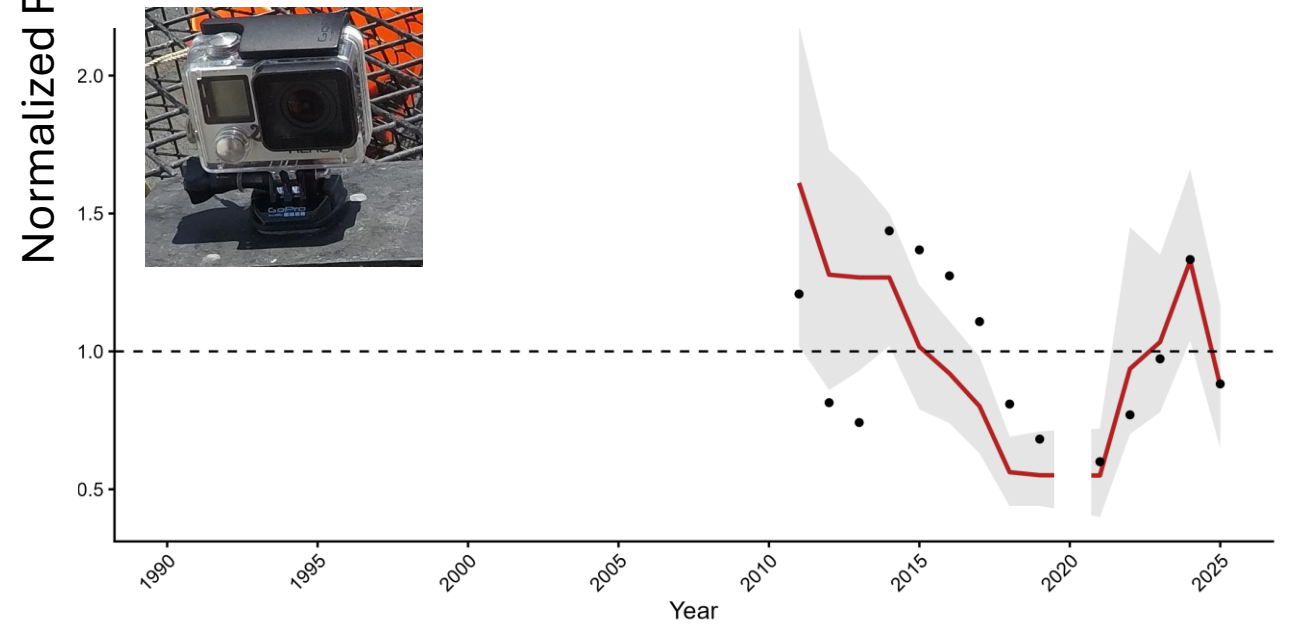
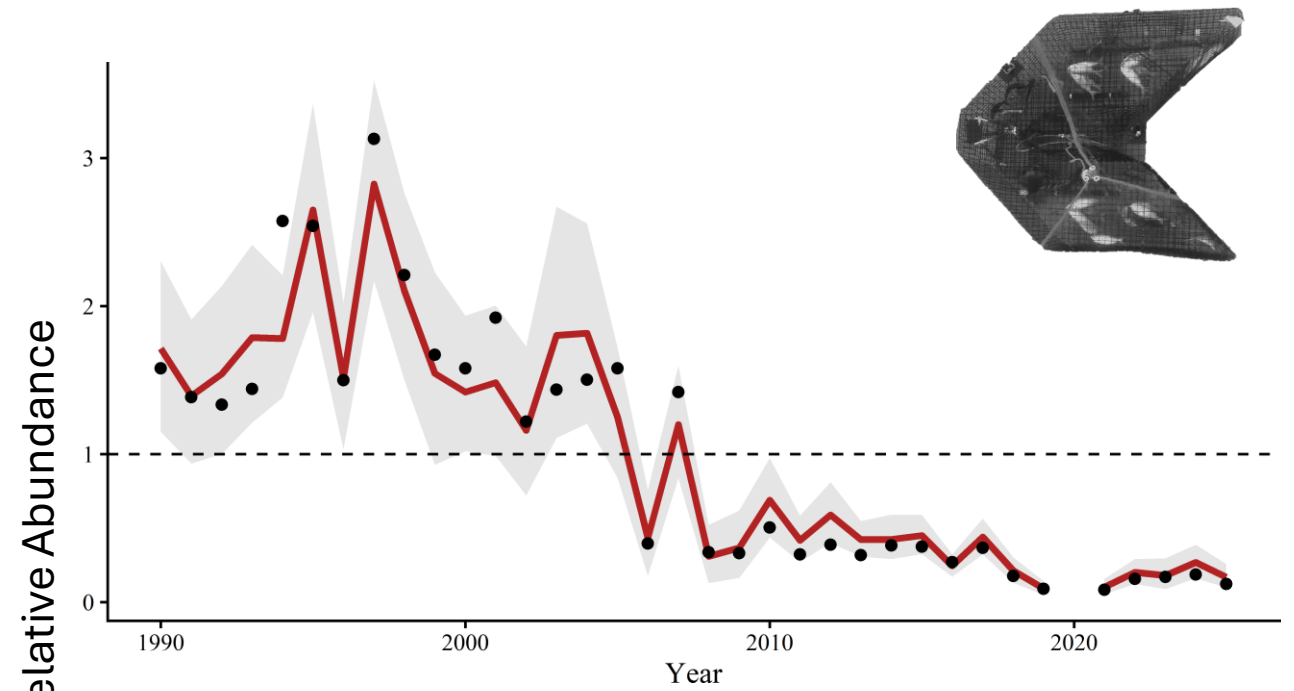
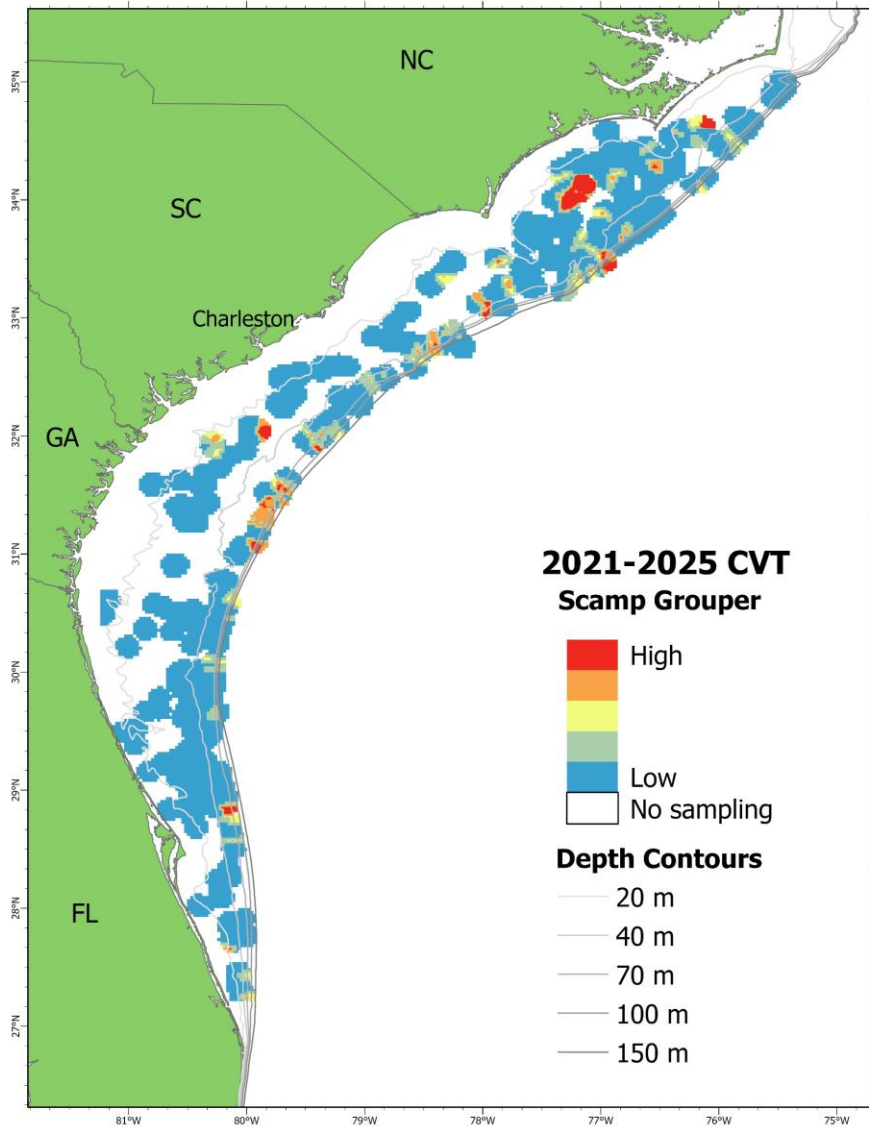


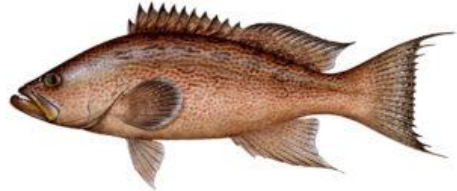
Almaco Jack



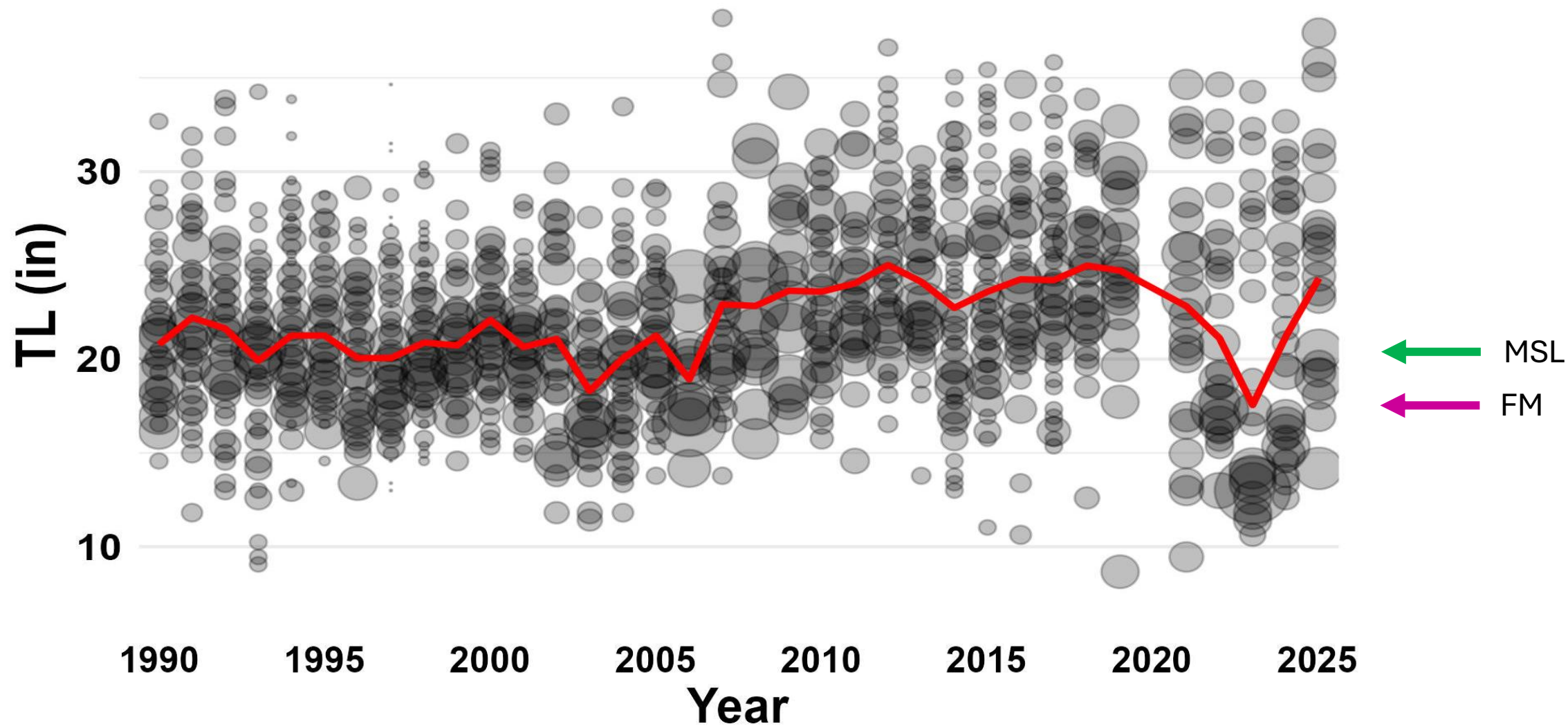


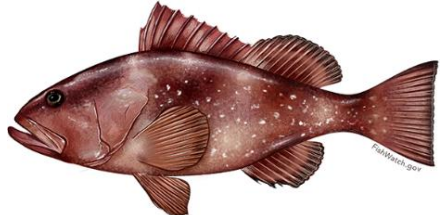
Scamp Groupe



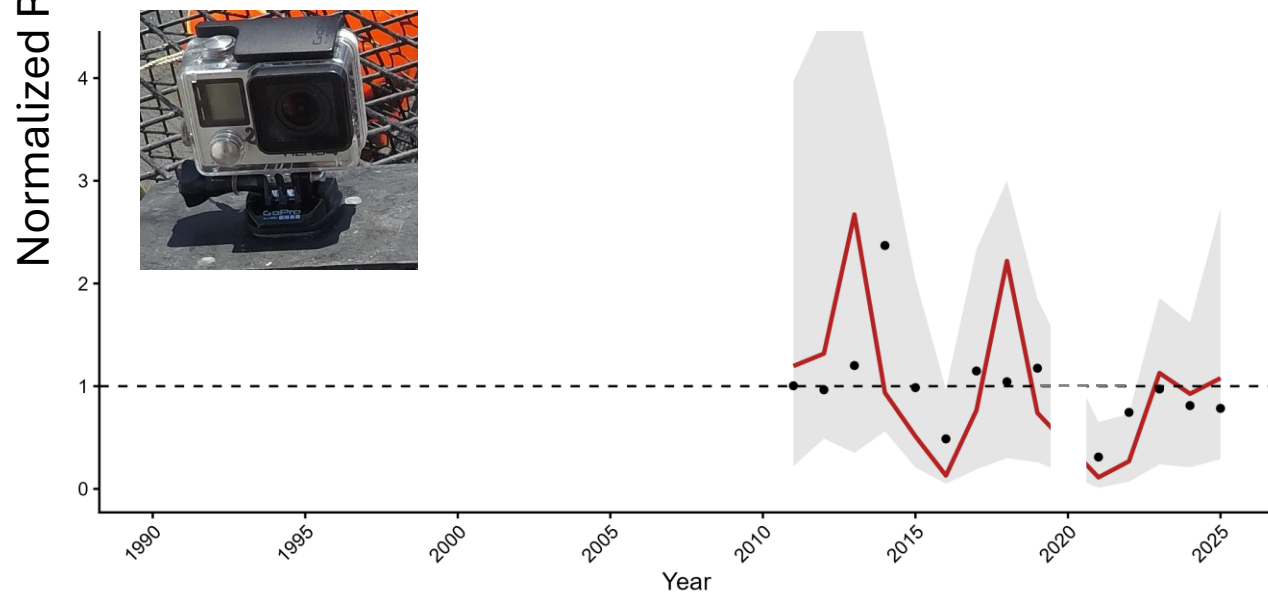
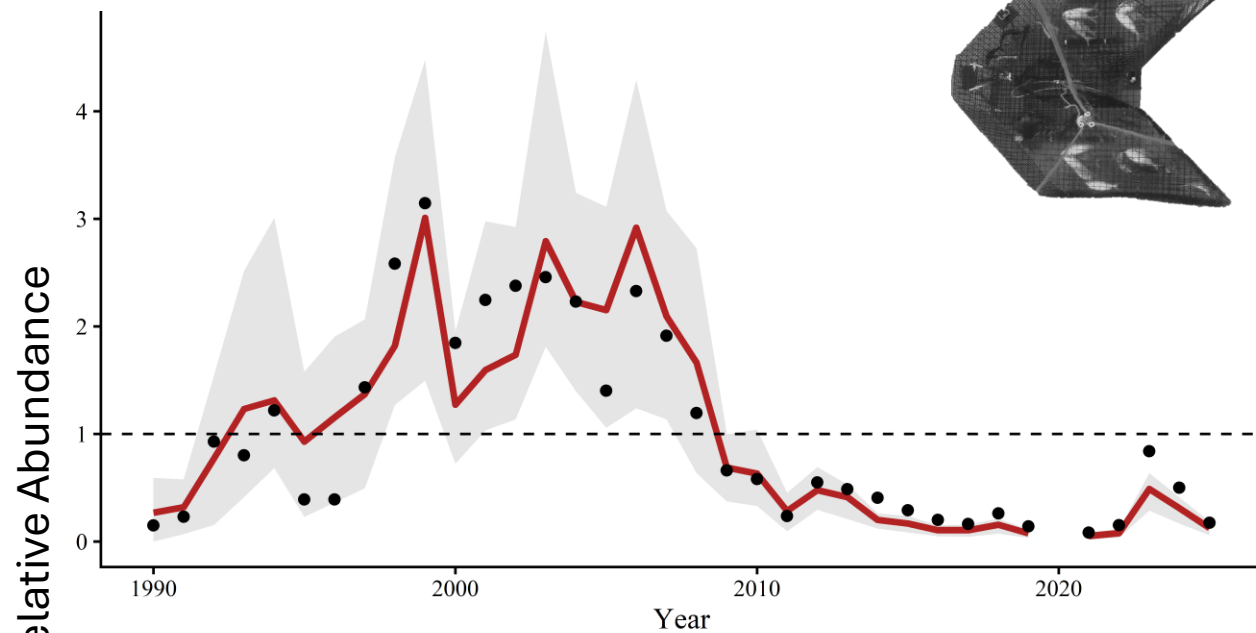
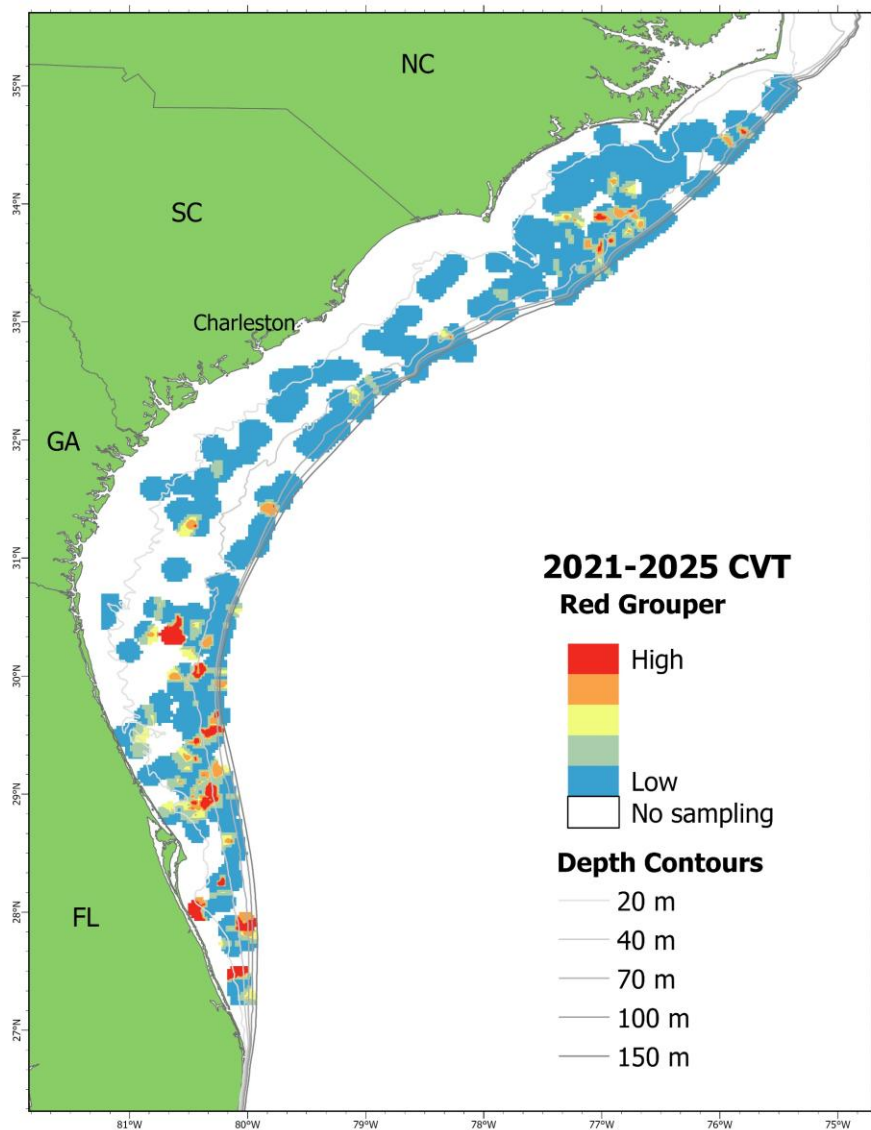


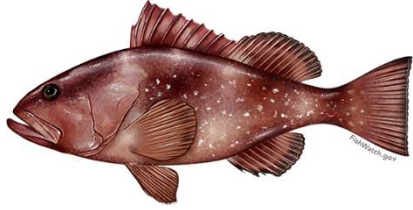
Scamp Grouper



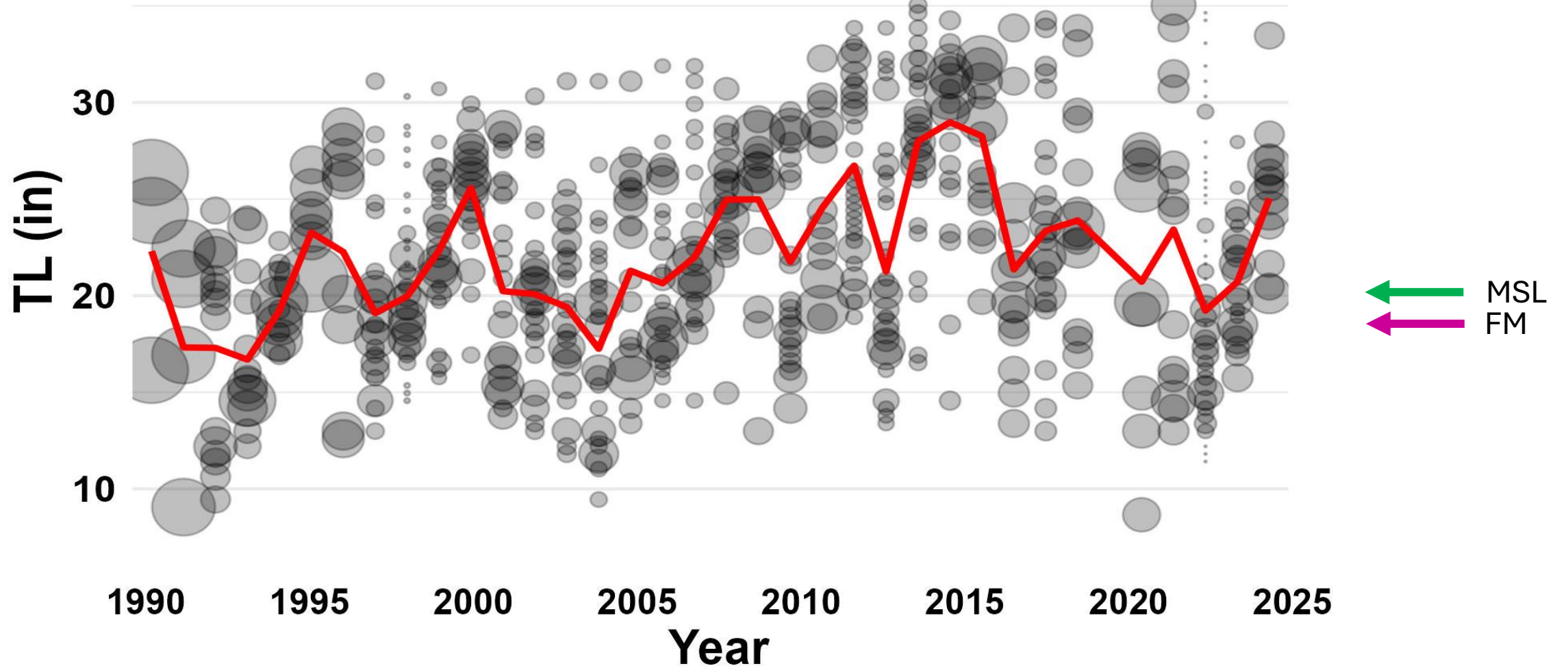


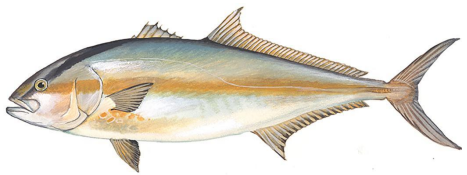
Red Grouper



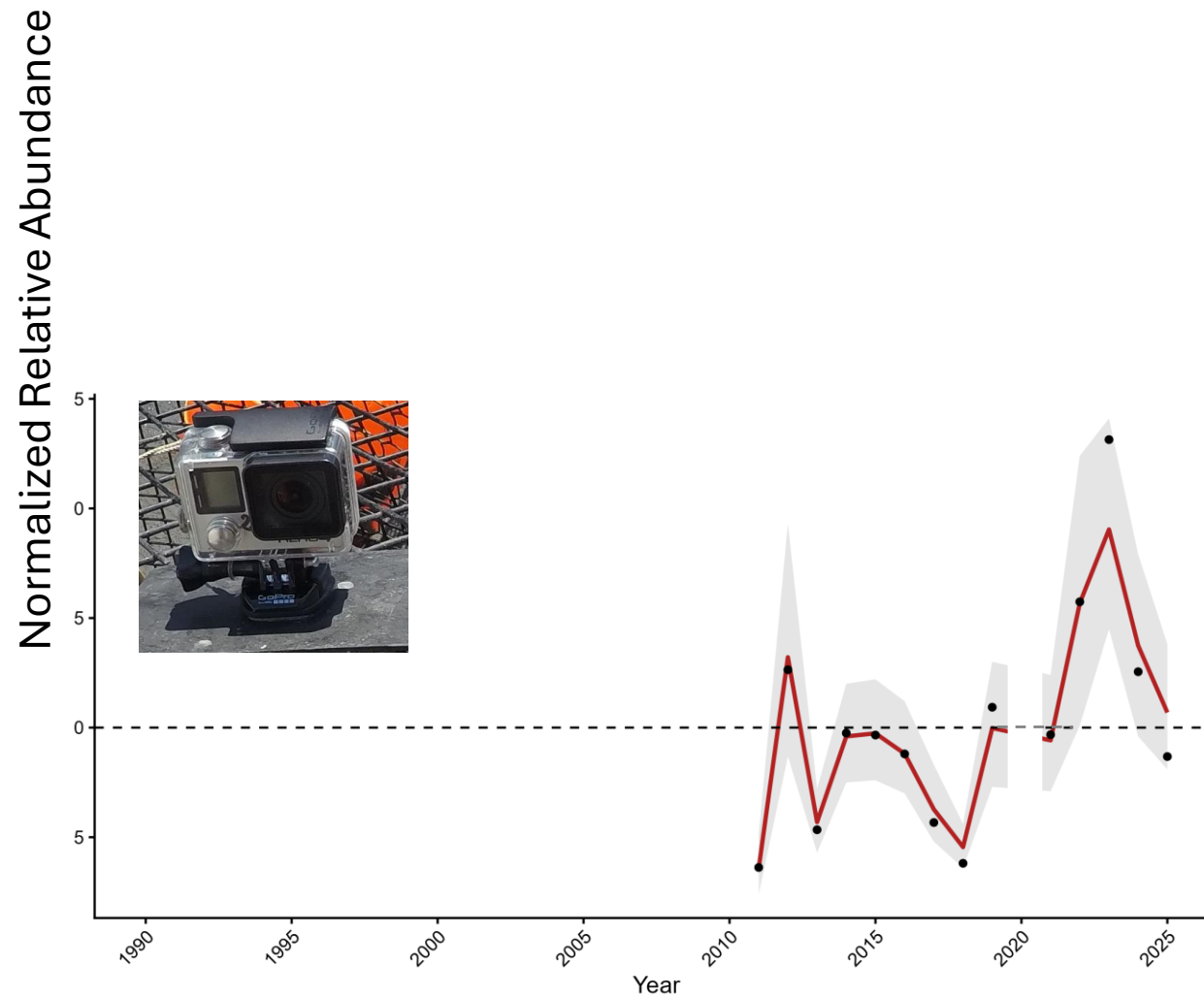


Red Grouper



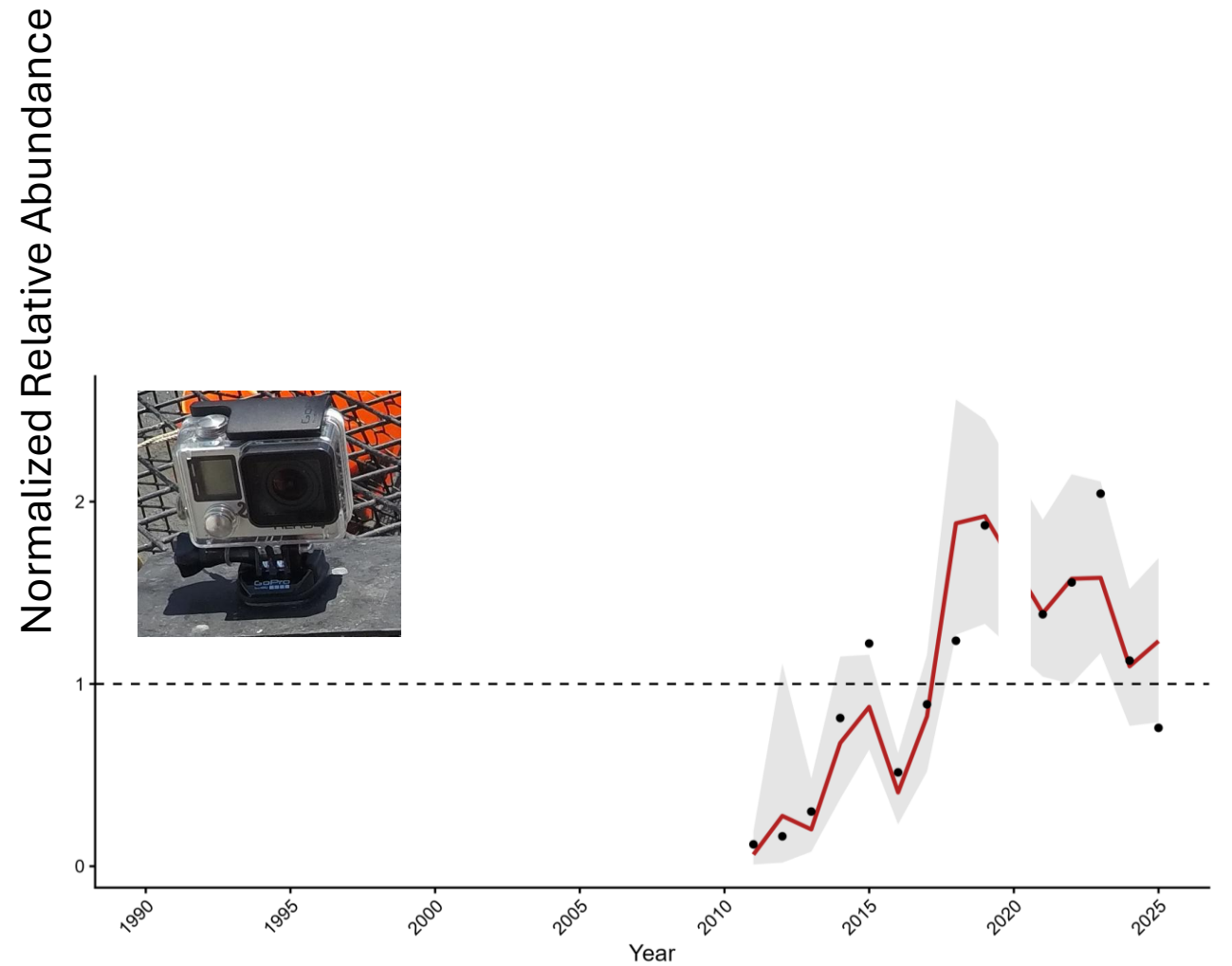


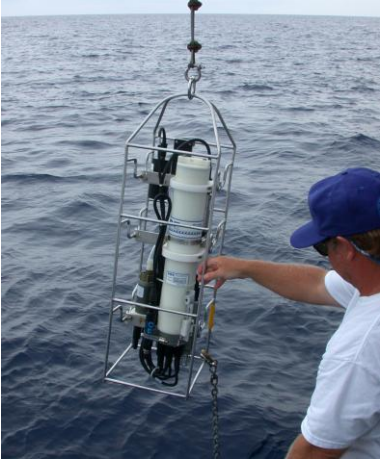
Greater Amberjack



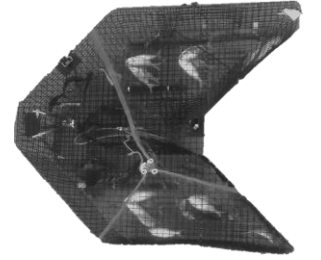


Mutton Snapper





Bottom Temperature



Generalized Additive Model to
standardize for:

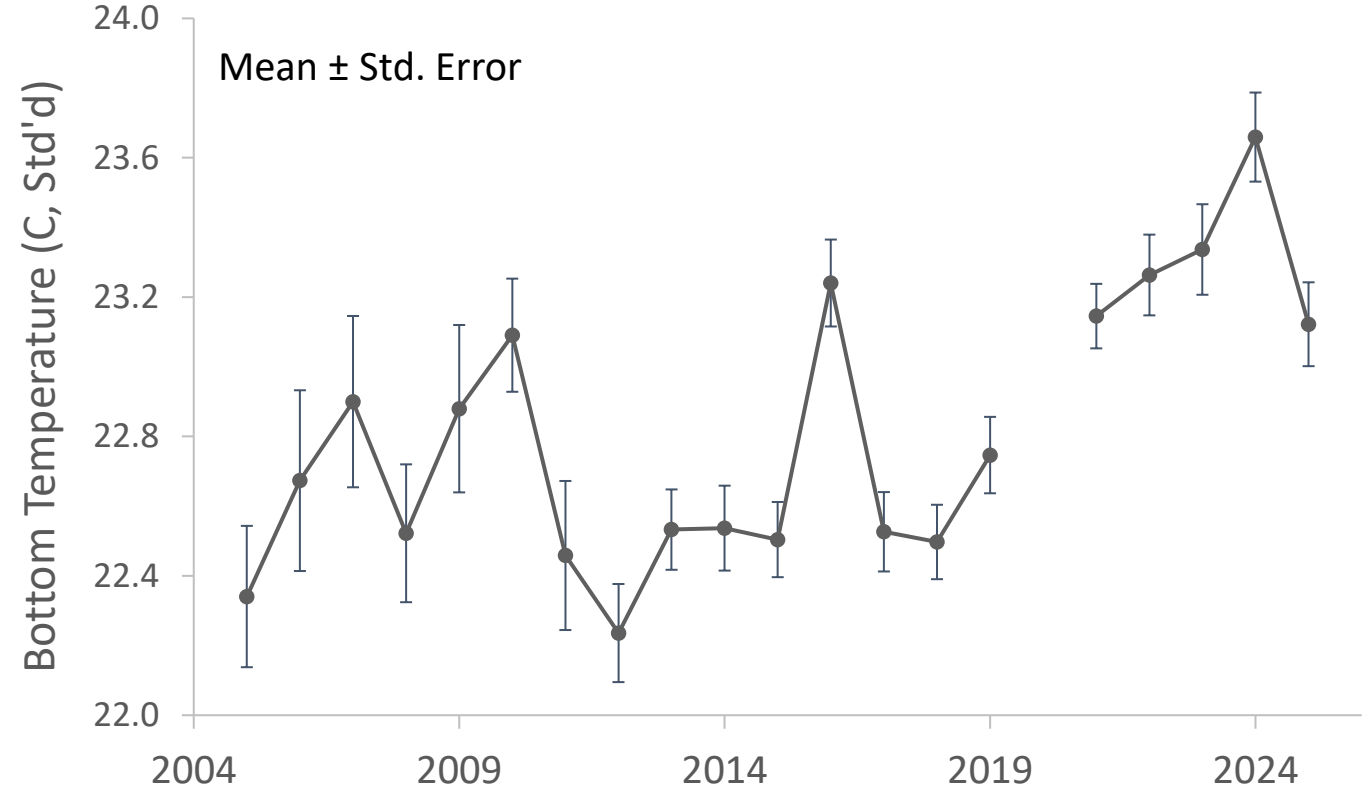
Location

Depth

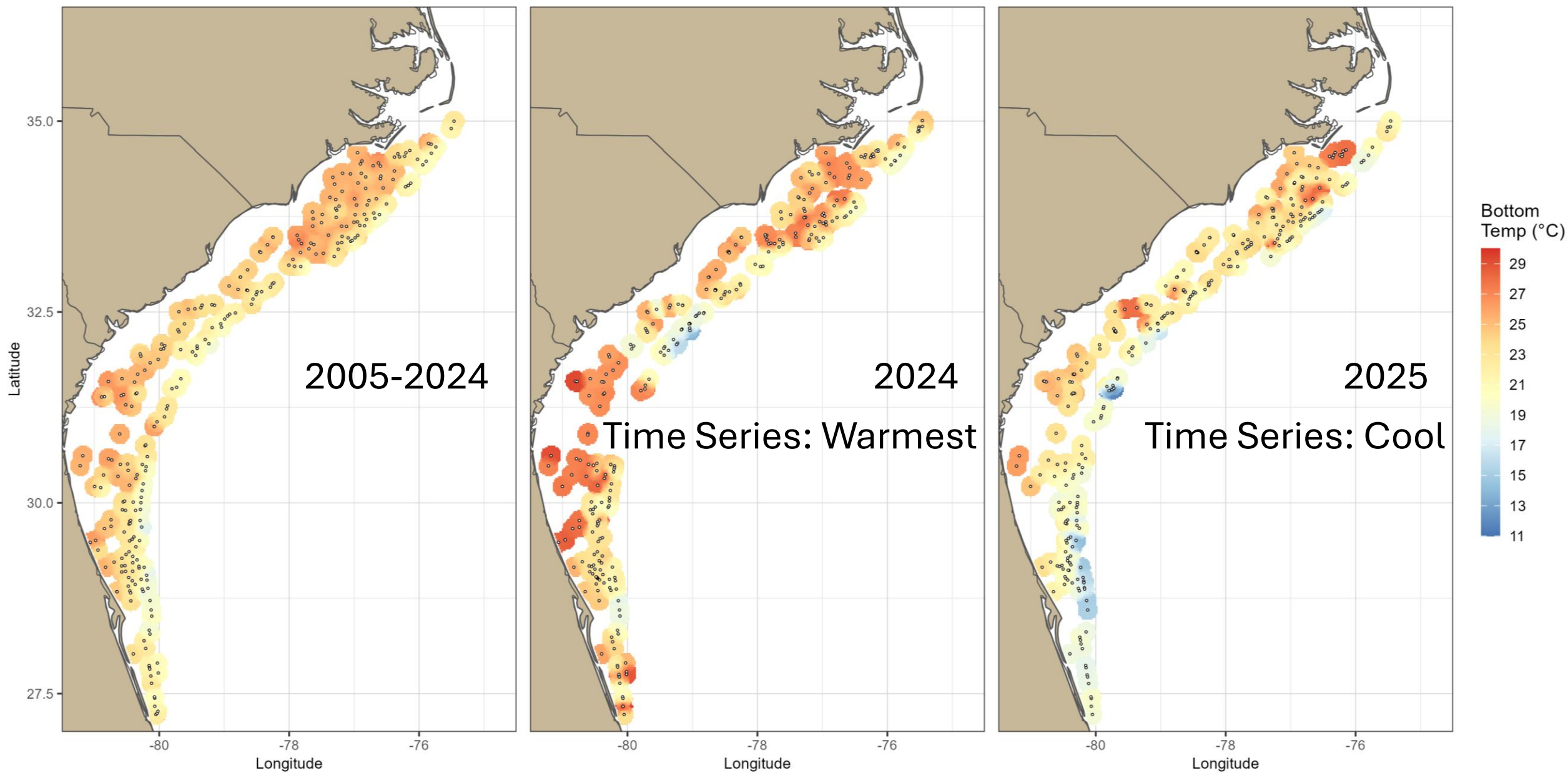
Day of Year

(similar to Craig et al. 2021)

2005-2025 included all 4 states



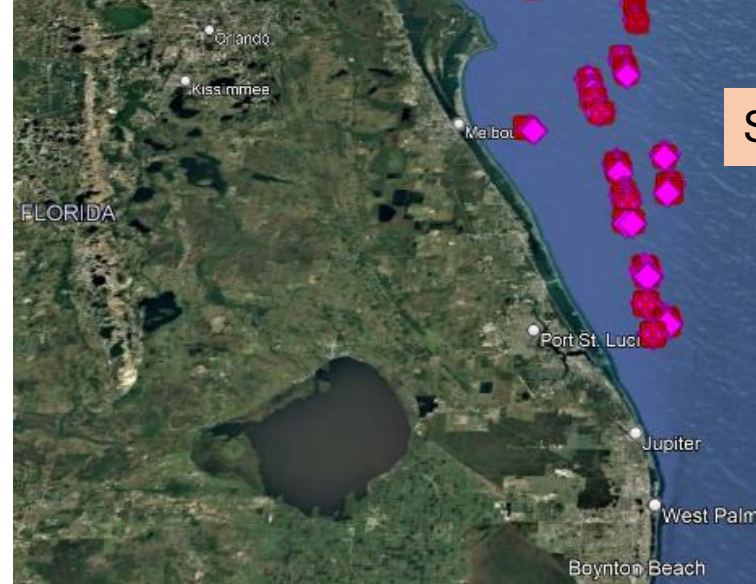
Bottom Temperature



2026 SERFS & Related Activities



SERFS Southern Expansion



SERFS Base Footprint

Currents!

Tiny Shelf

Hogfish

More Currents!

Mutton Snapper

Corals

Black Grouper

More Currents!

Special Permit

Yellowtail



SERFS Southern Expansion 2026

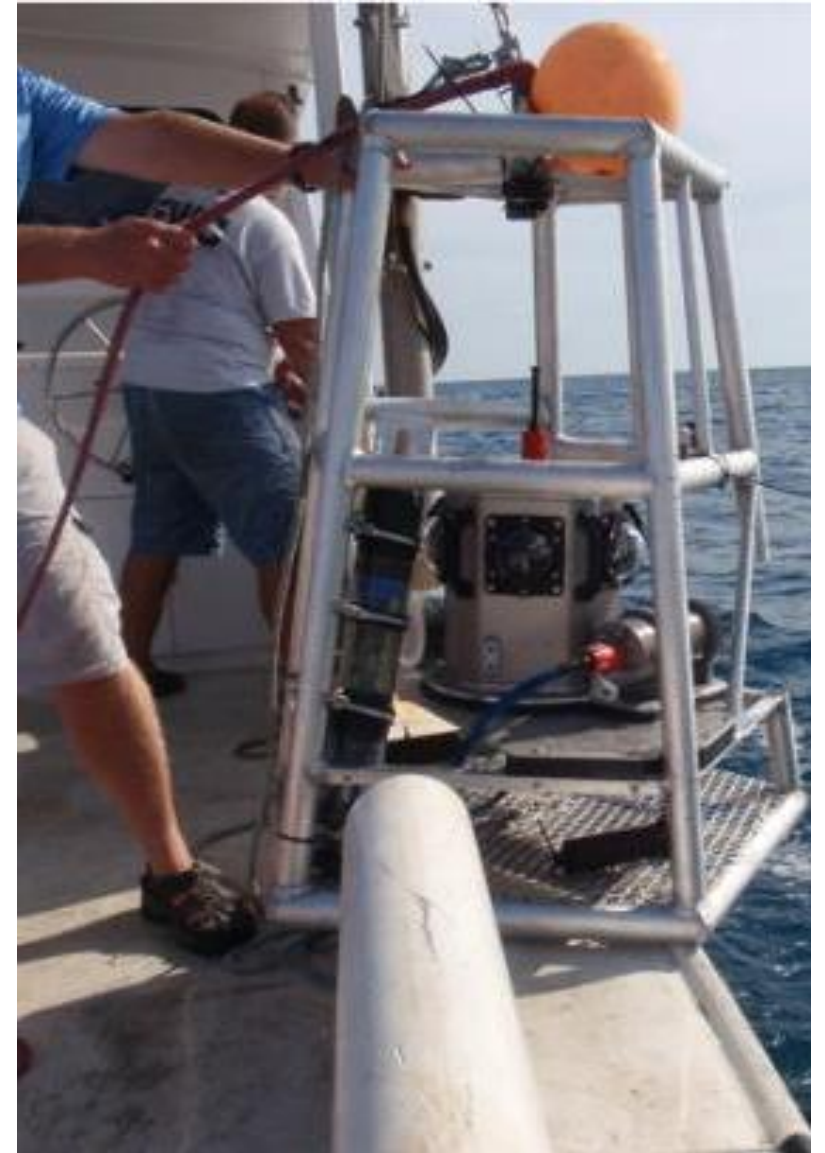
FWC, NOAA, SCDNR

**Camera Pods to reduce
footprint, “trapability”
limitations, current impacts**

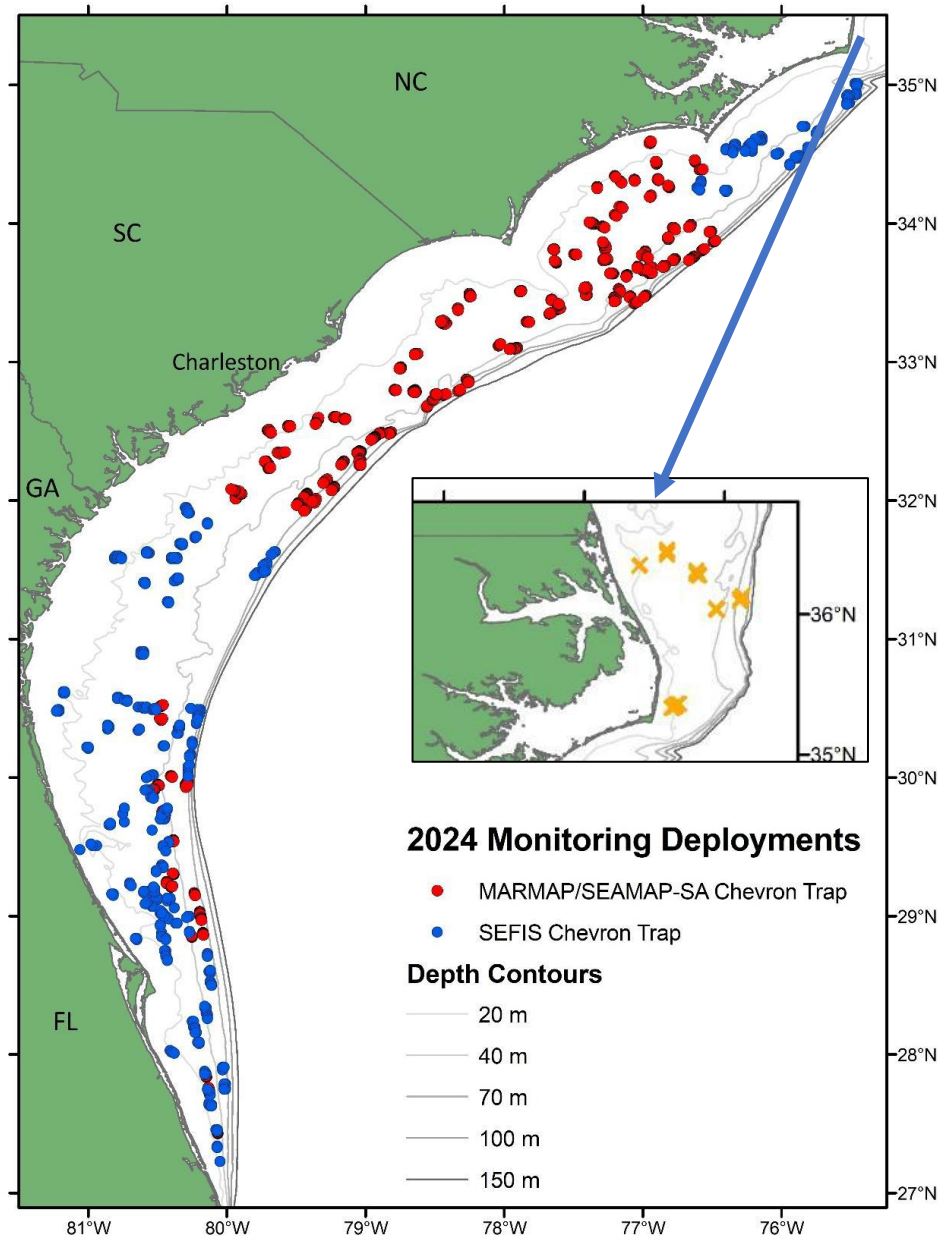
Stereo cameras

Side scan sonar

**Species composition,
counts, lengths & habitat**

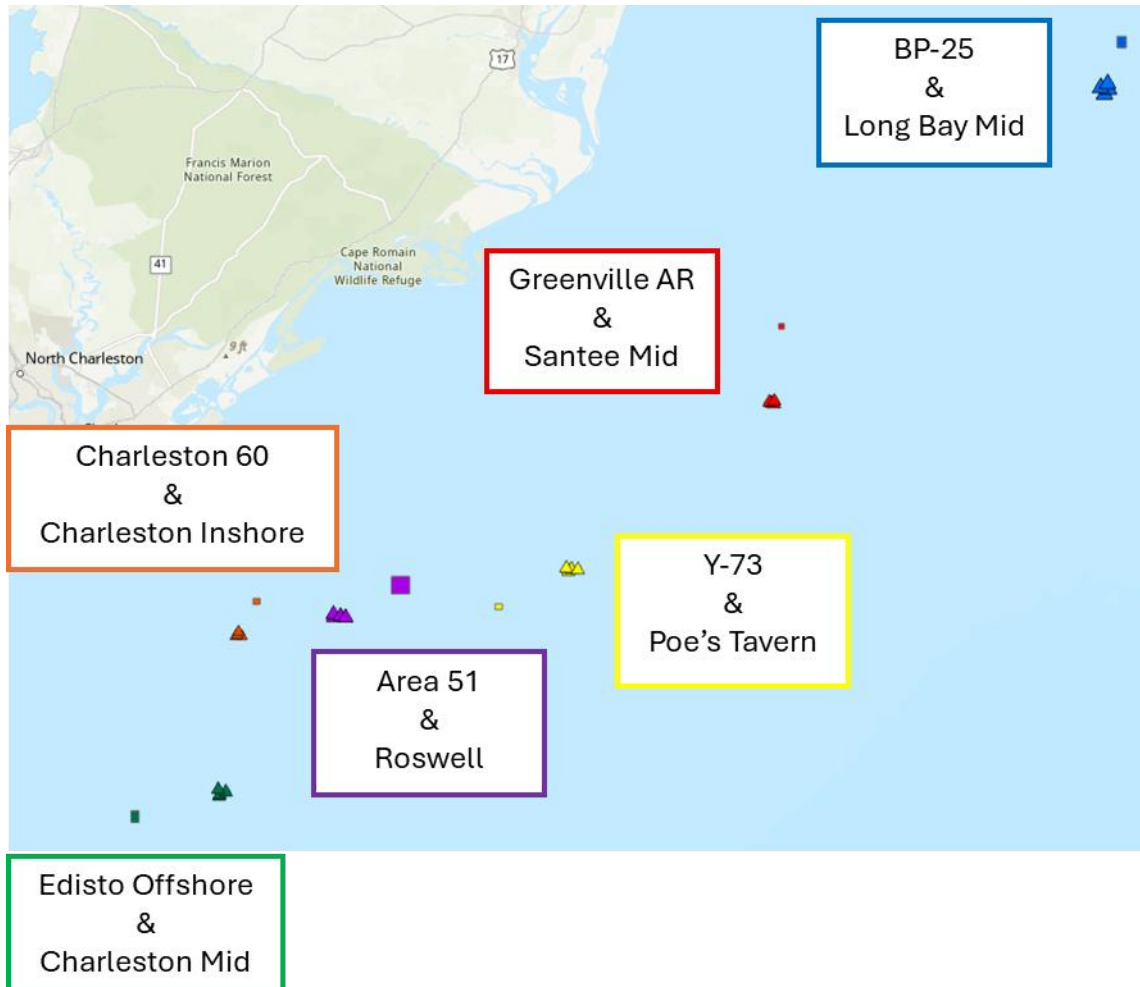


SERFS Northern Expansion 2026 Revisit



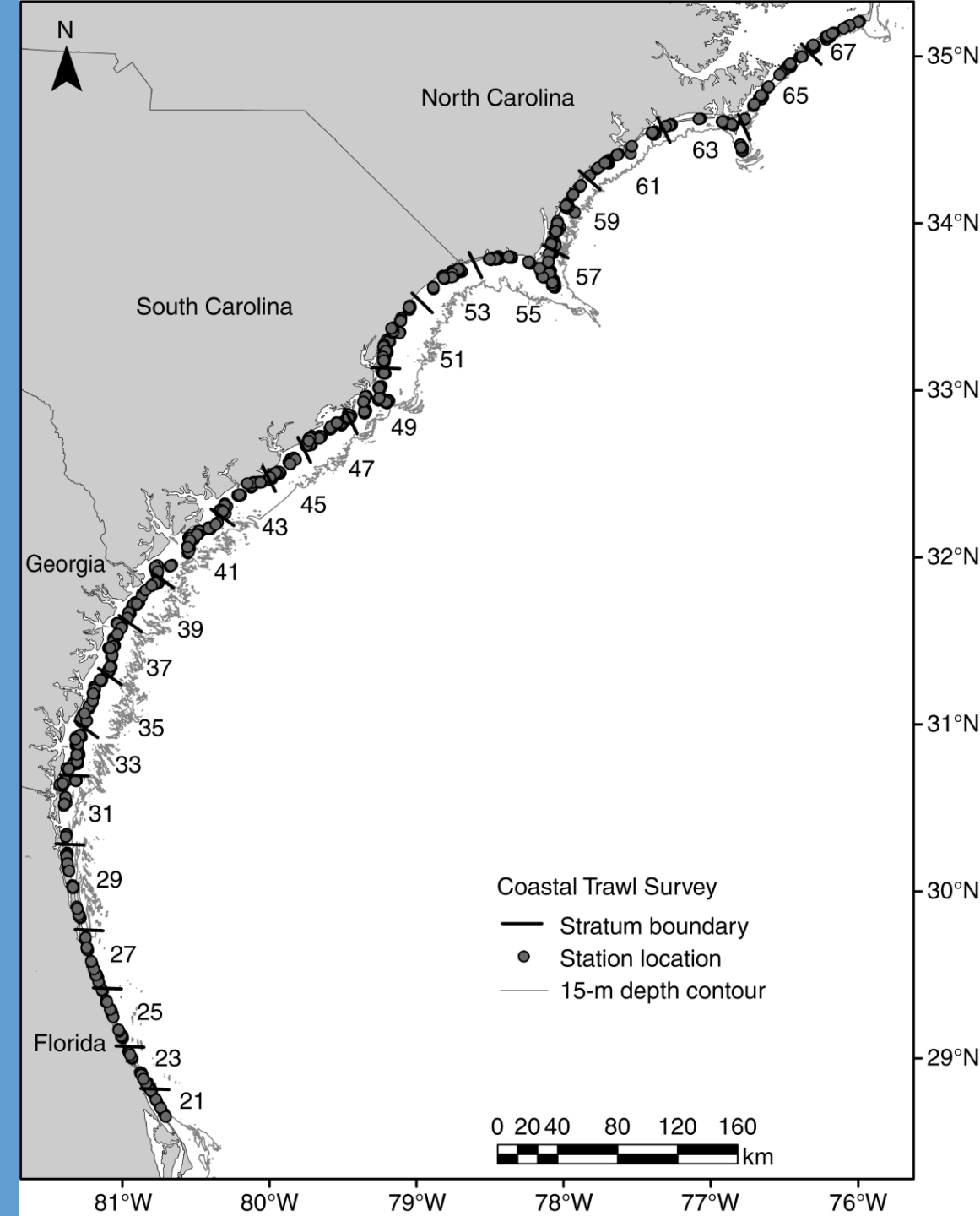
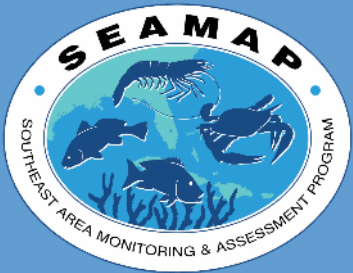
- New stations and mapping 2024
 - Random selection for sampling
- Additional mapping
- Additional reconnaissance CVTs

State Wildlife Grant: Artificial & Natural Reefs



Coastal Trawl Survey Design

- Soft bottom & hard pavements, 4-10 m
- Stratified, random sampling design
 - 24 latitude-based strata
 - Station pool
 - 2025 target 102 per season
- 2021: Reduced 2 to 1 Net Processed
 - <https://doi.org/10.3354/meps15110>
- 2023: Spring, Summer, Fall to Spring, Fall



Coastal Trawl Survey Design

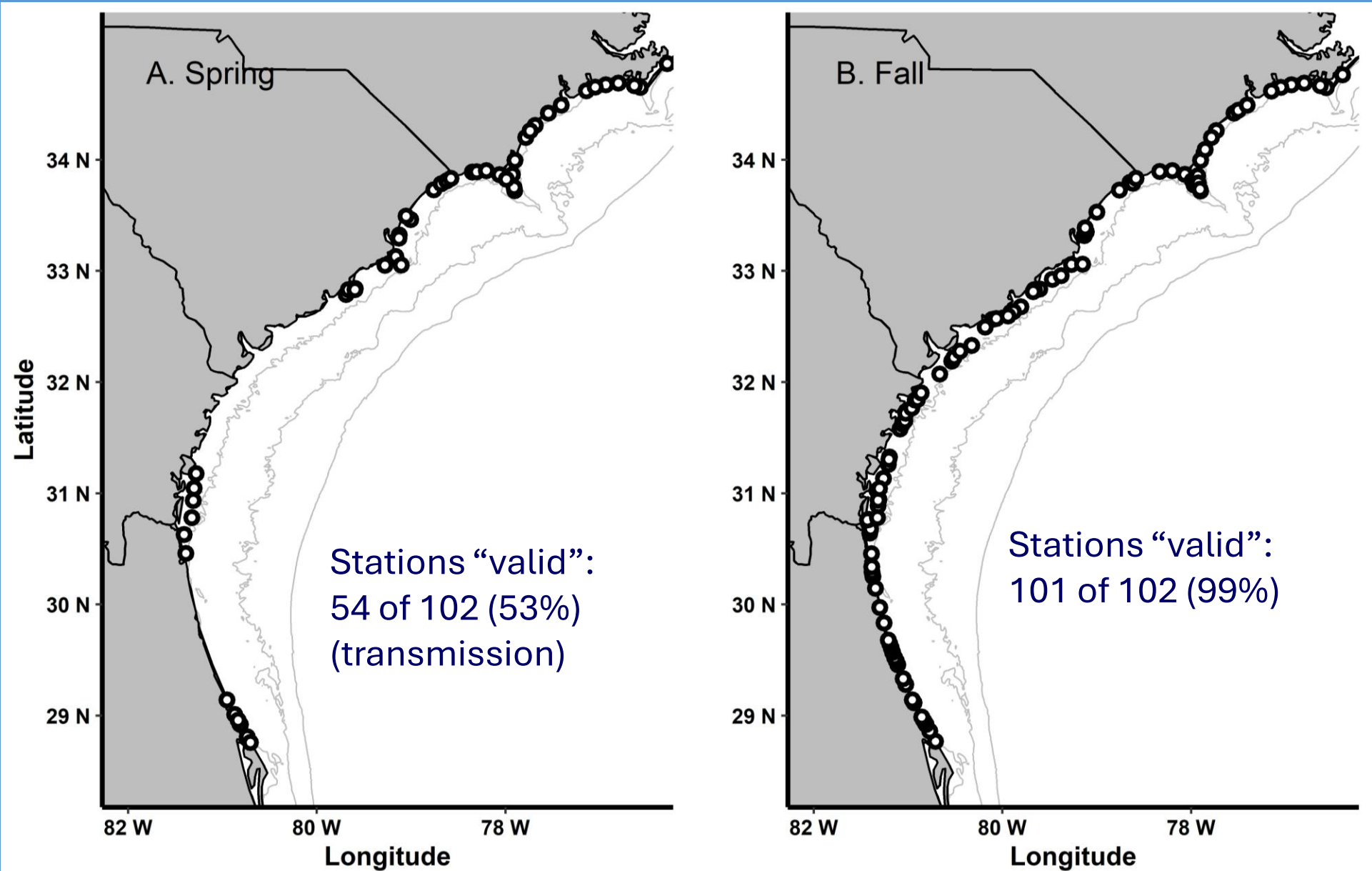
2024: Vessel and Gear Changes

- R/V Lady Lillian, stern trawler
- 60' Webster Trawl (high rise, flat net)
- Same mesh sizes
 - Selectivity checked
- Net Geometry to correct effort
- ZINB standardization
 - DOY not Season

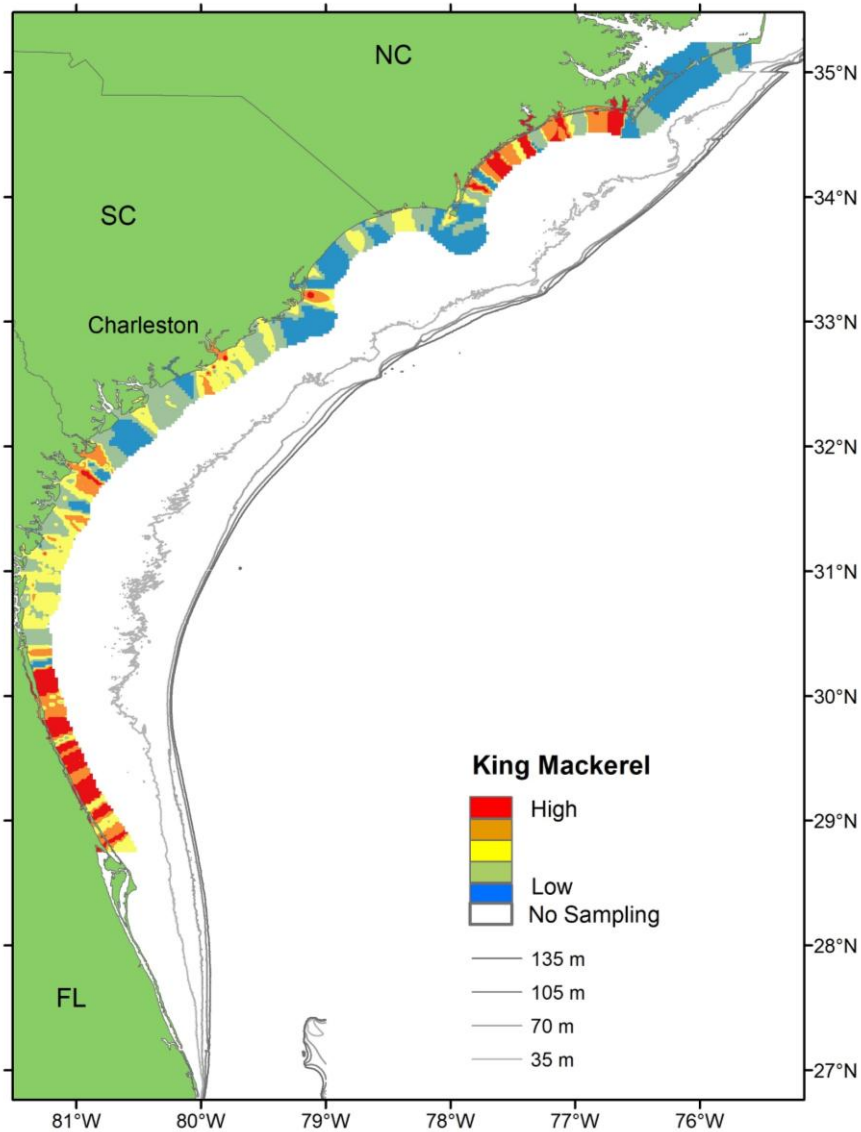
R/V *Lady Lillian*



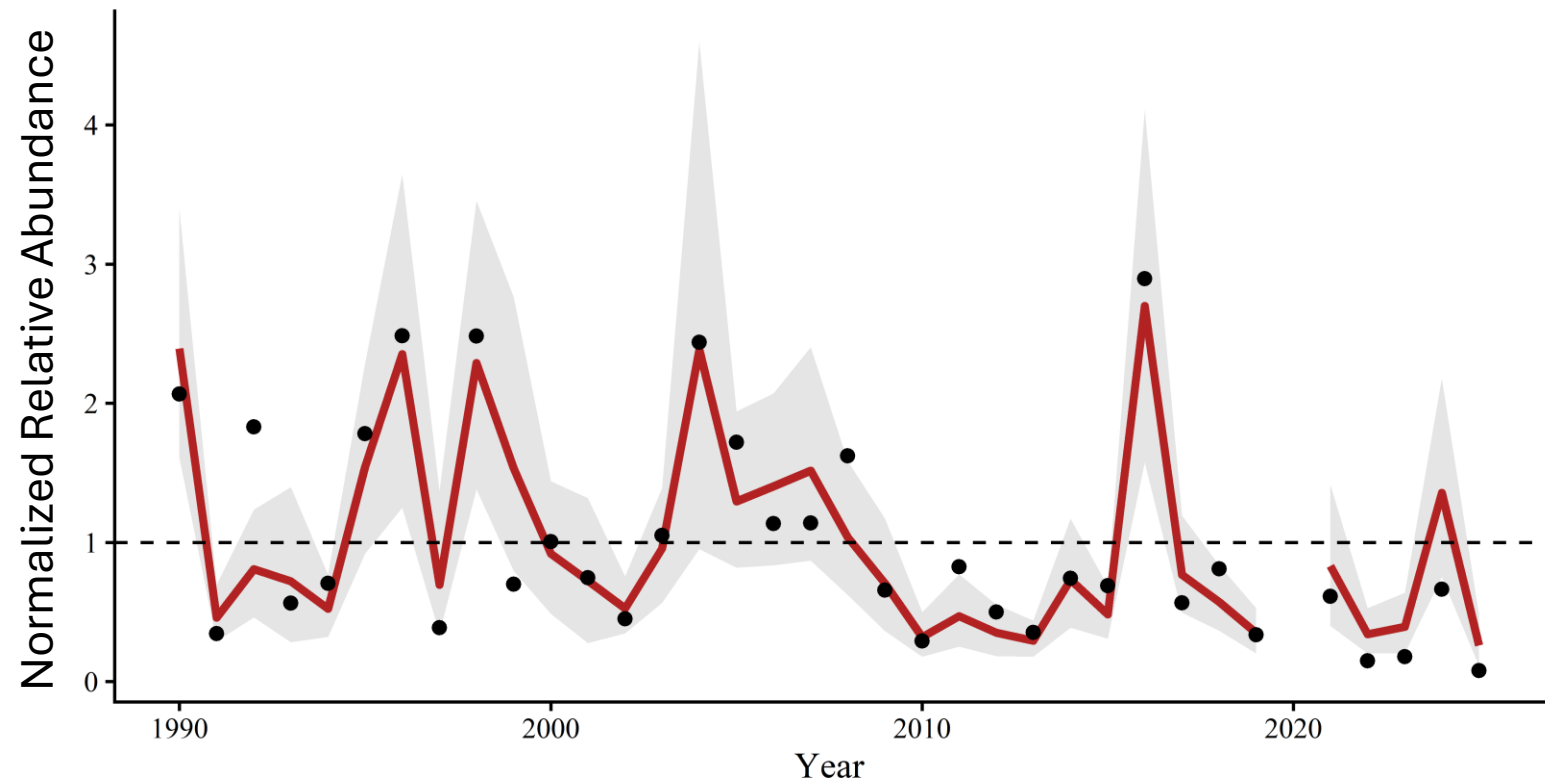
2025 Coastal Trawl Sampling



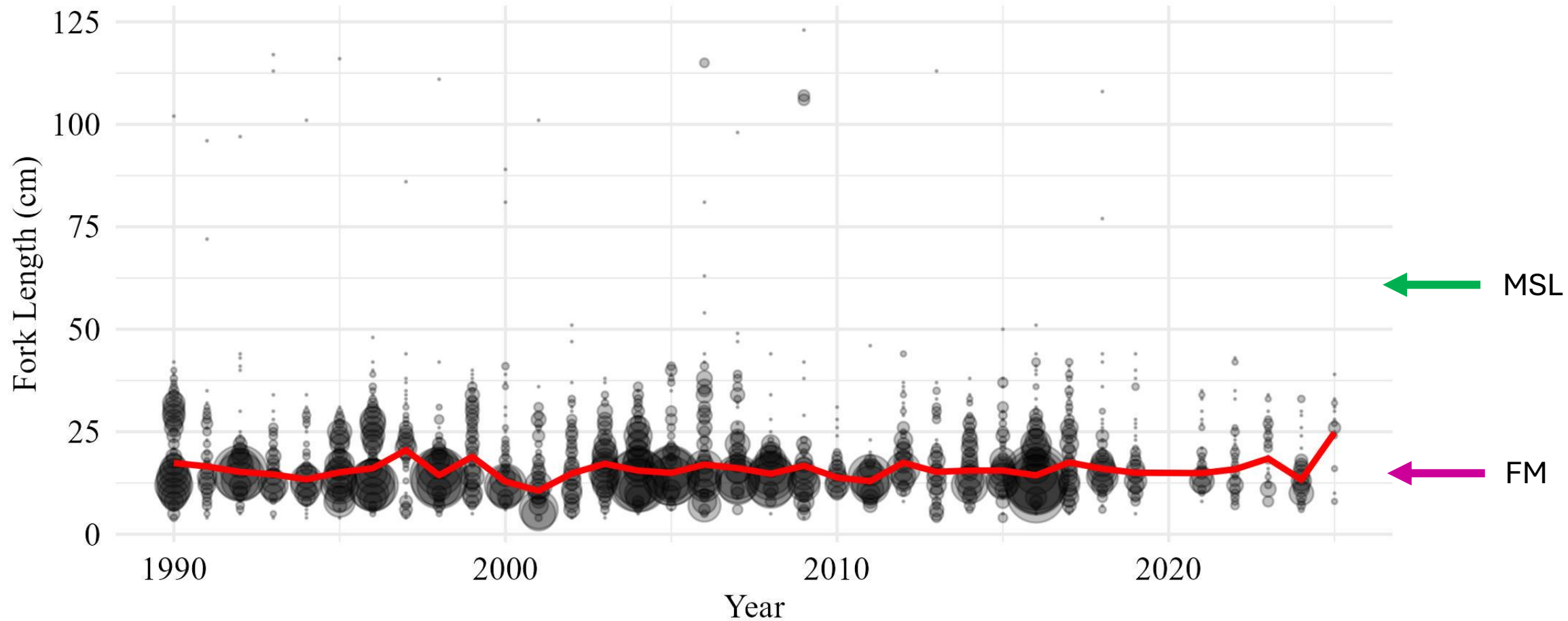
King Mackerel (Age-0 +)



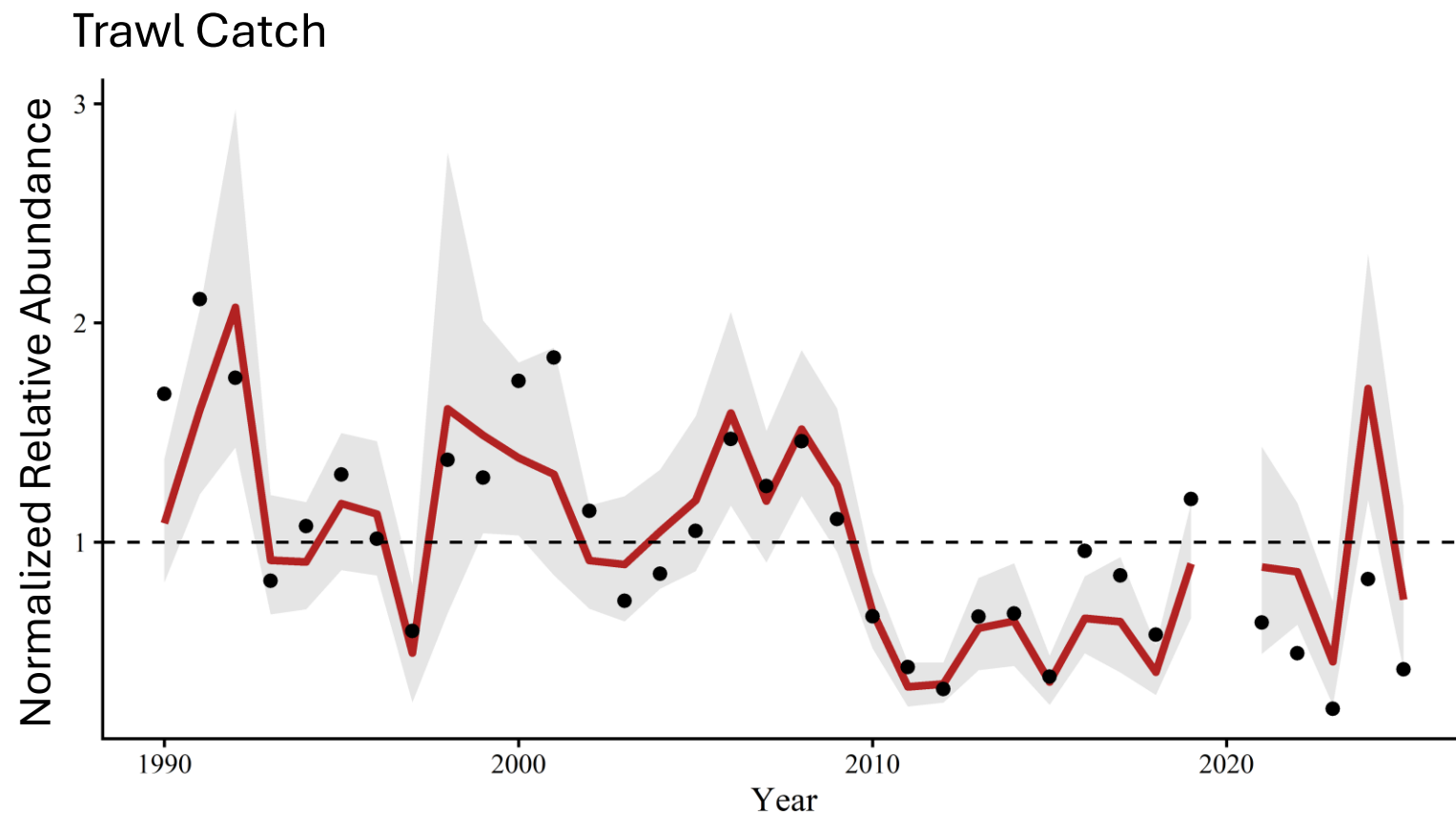
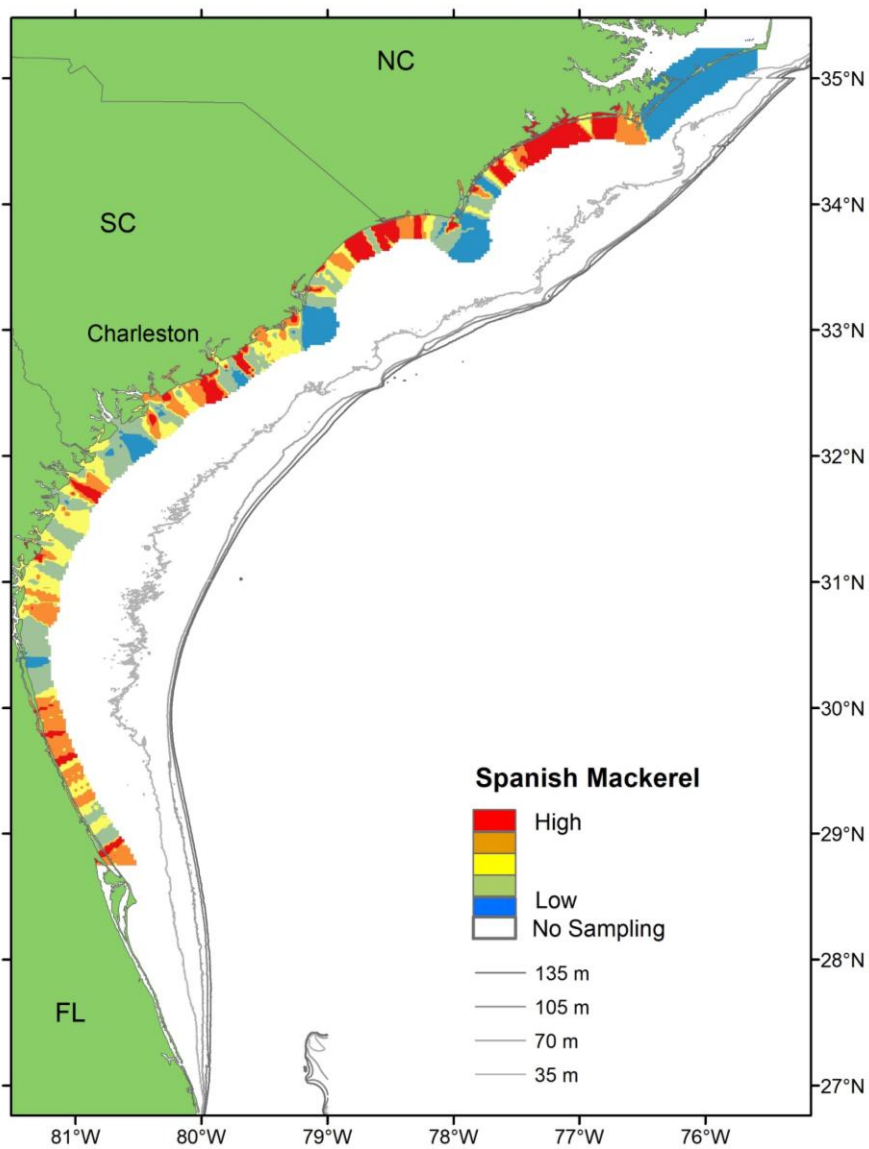
Trawl Catch



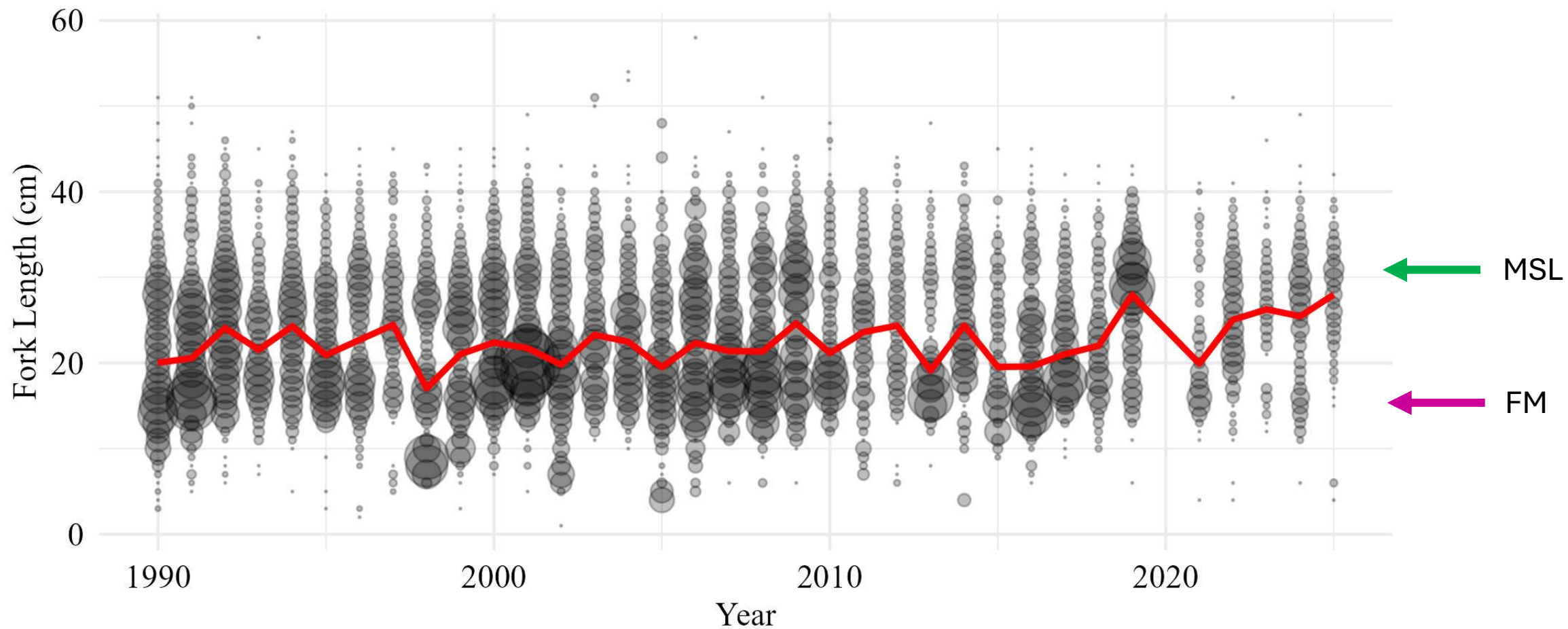
King Mackerel (Age-0 +)



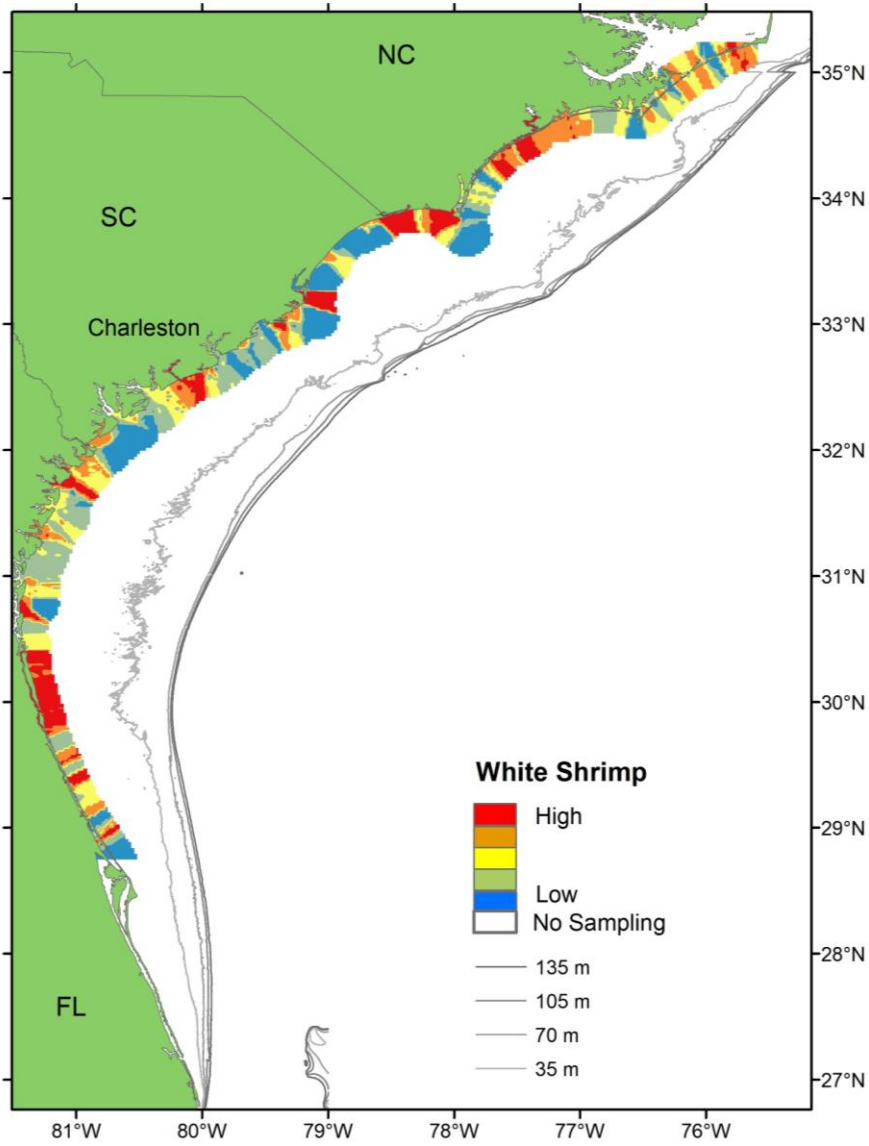
Spanish Mackerel (Age-0 +)



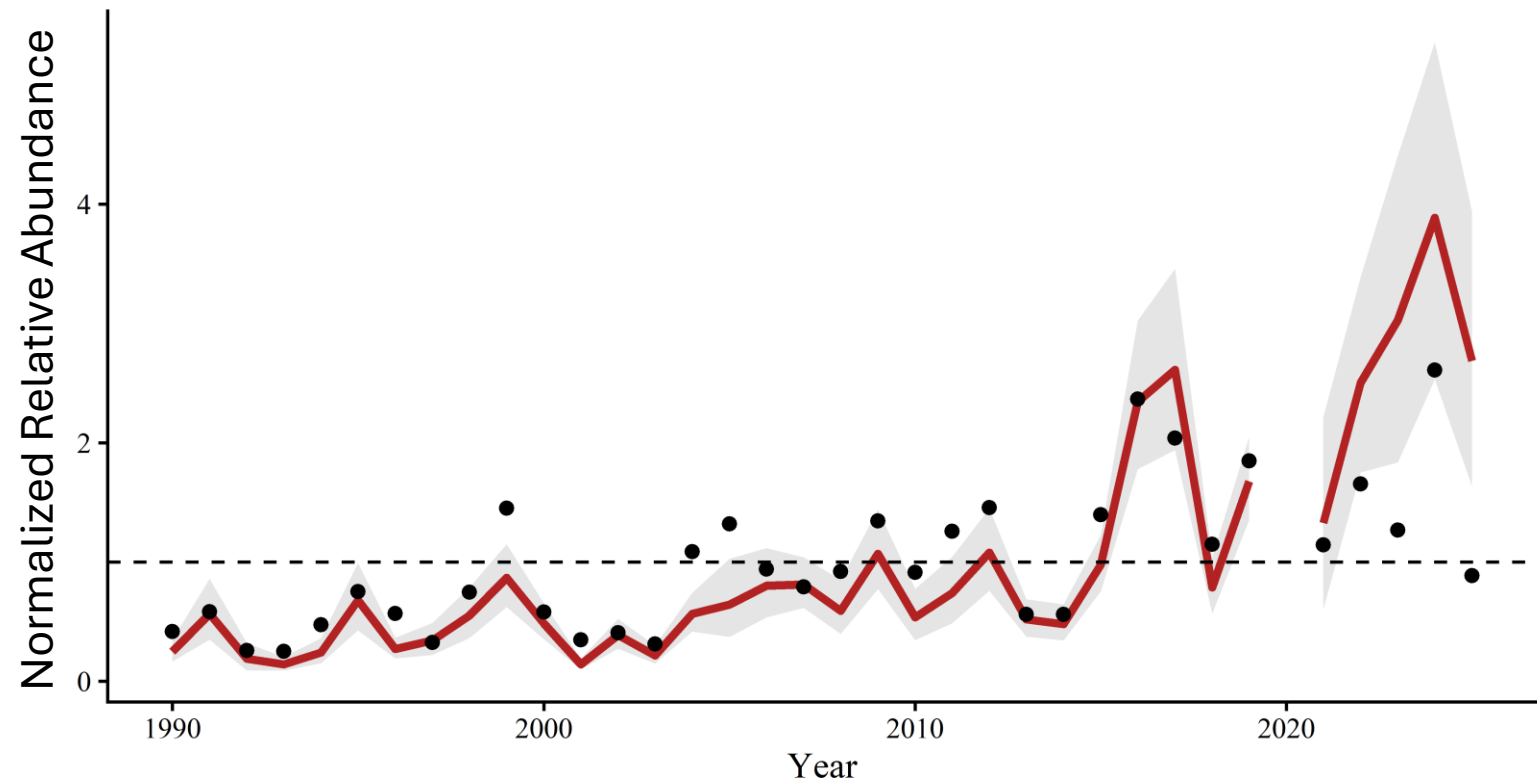
Spanish Mackerel (Age-0 +)



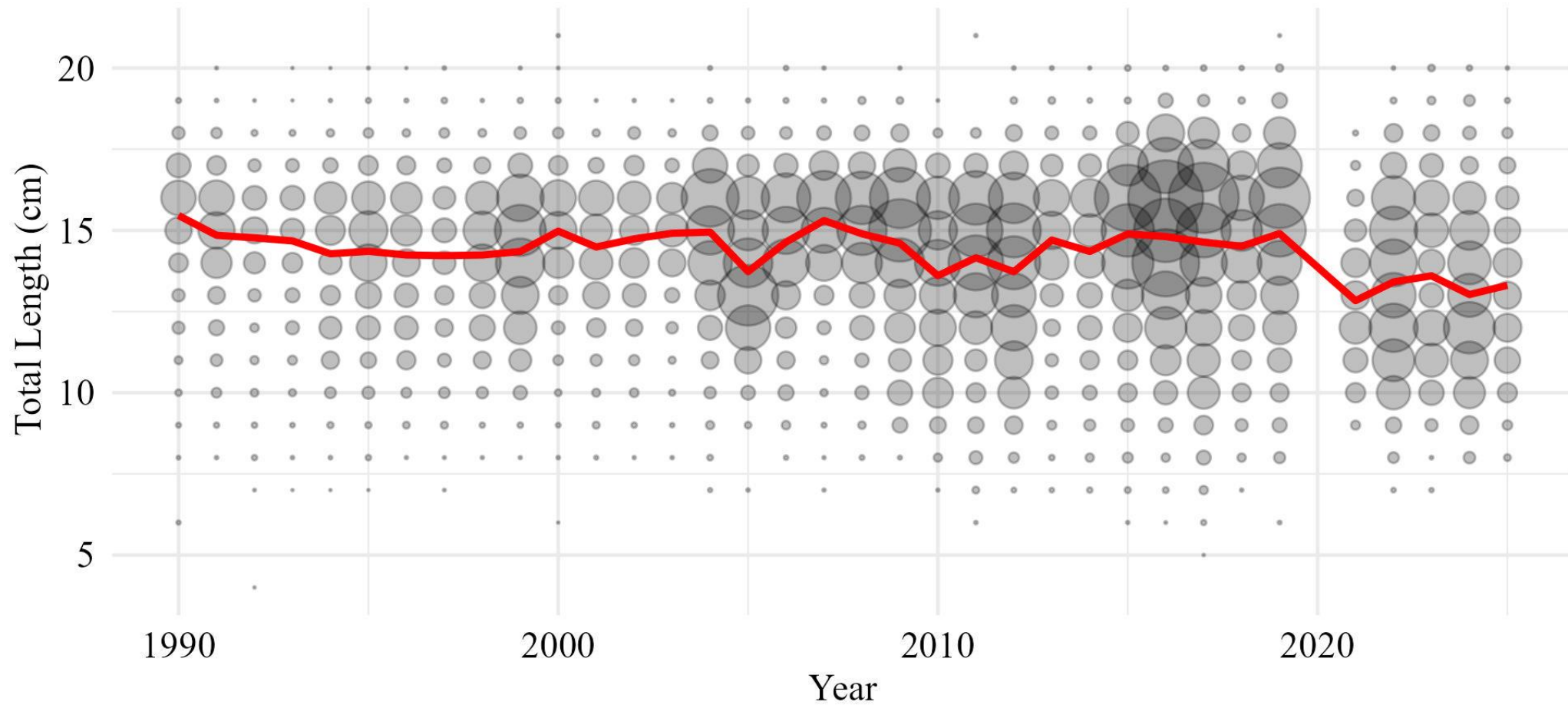
White Penaeid Shrimp



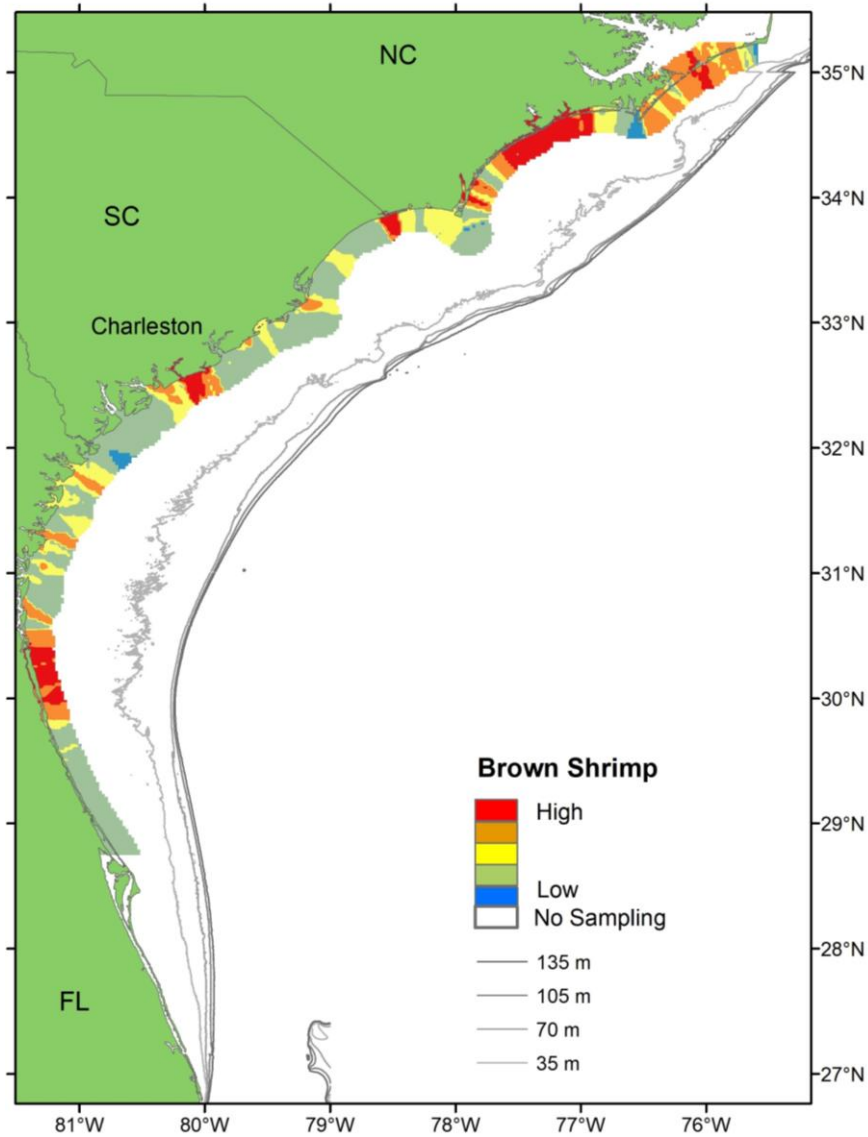
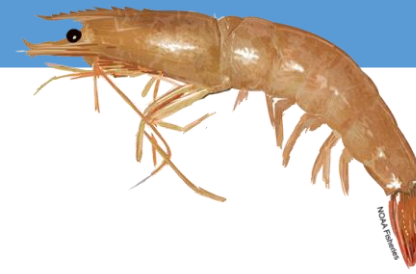
Trawl Catch



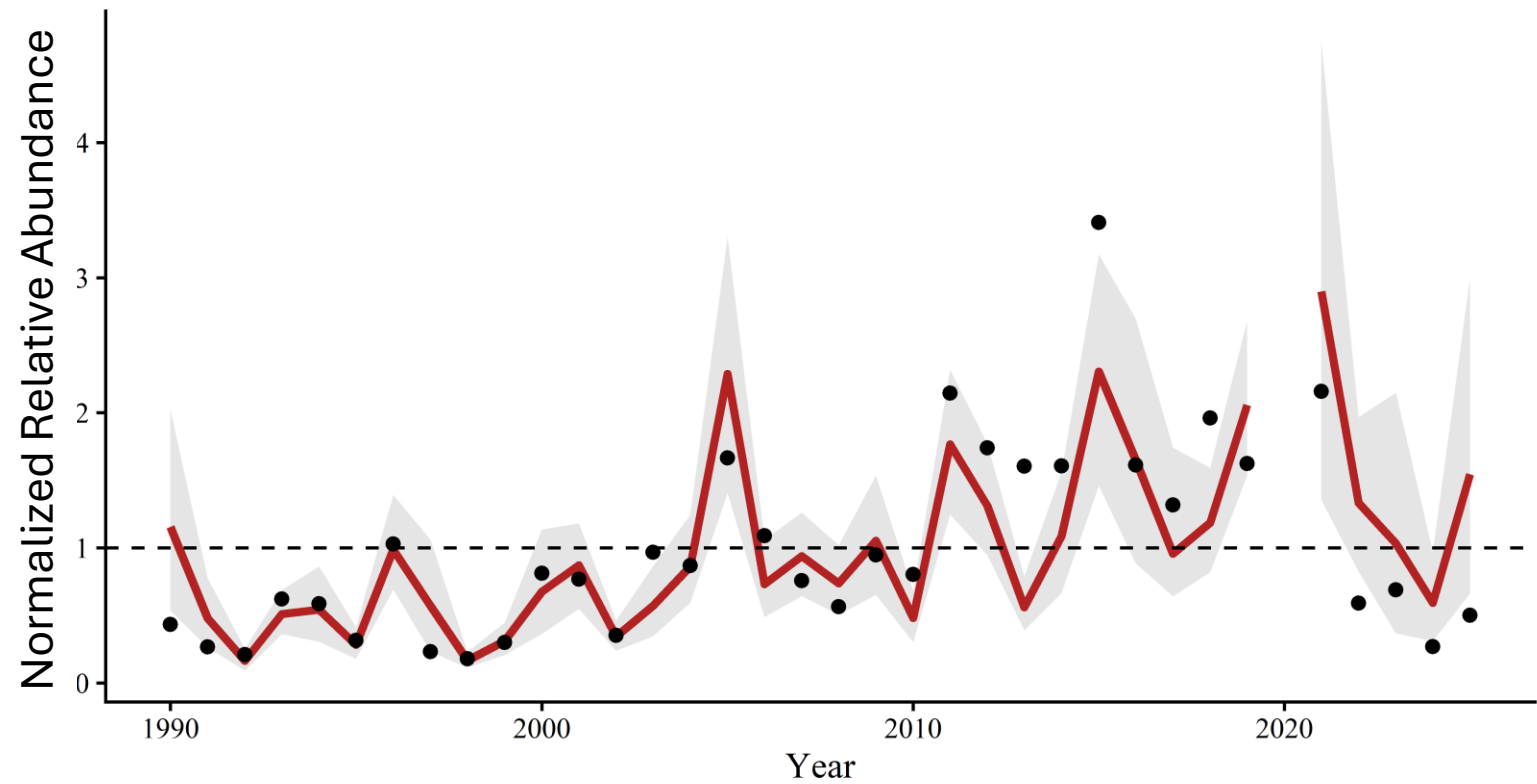
White Penaeid Shrimp



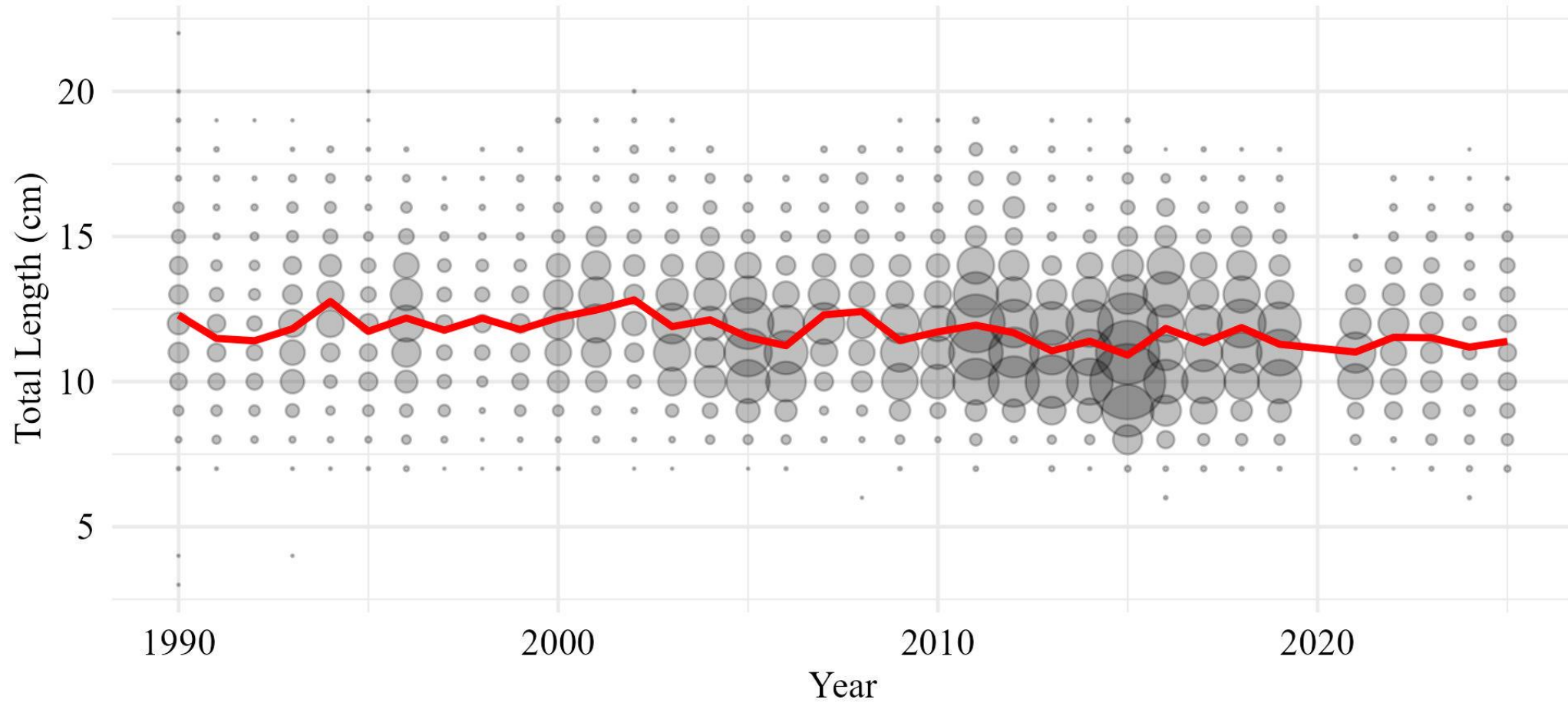
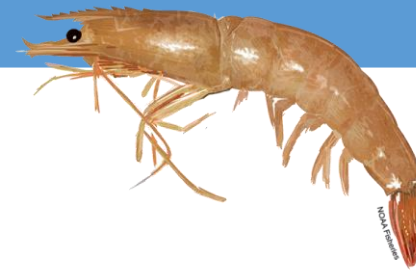
Brown Penaeid Shrimp



Trawl Catch

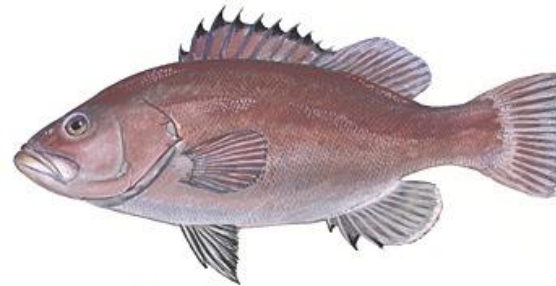


Brown Penaeid Shrimp



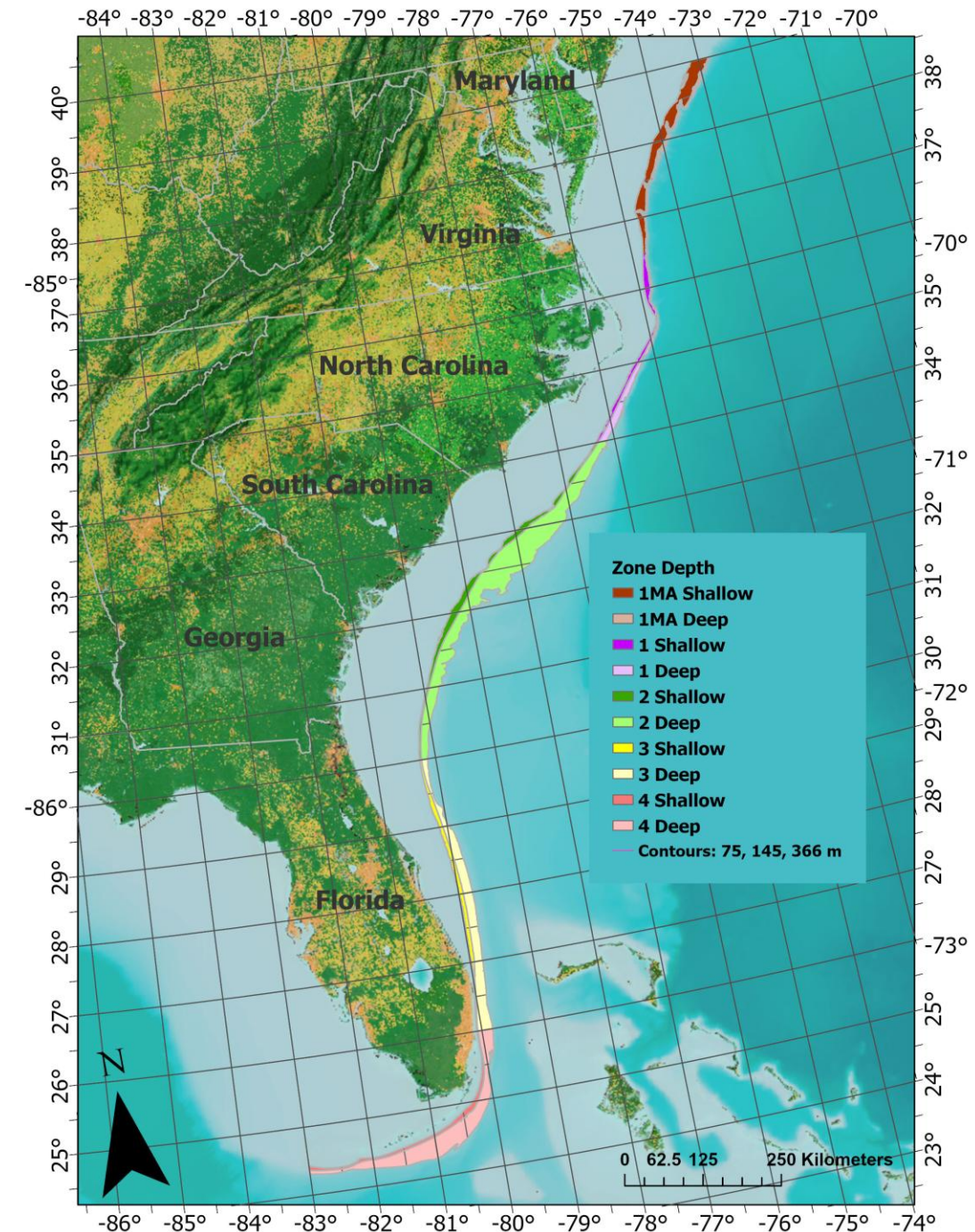
South Atlantic Deepwater Longline Survey (SADLS)

- Cooperative longline survey
 - Objective: Support stock assessments and management of deepwater species
 - Indices of abundance
 - Age and length compositions
 - Life history information
 - 2020-2025
 - NMFS, SCDNR, and industry participants
 - 4 cooperating fishers each year
- Standardized methods and gear
 - 3-mile mainline with 150 hooks per mile
- Focal Species
 - Blueline Tilefish, Golden Tilefish, and Snowy Grouper



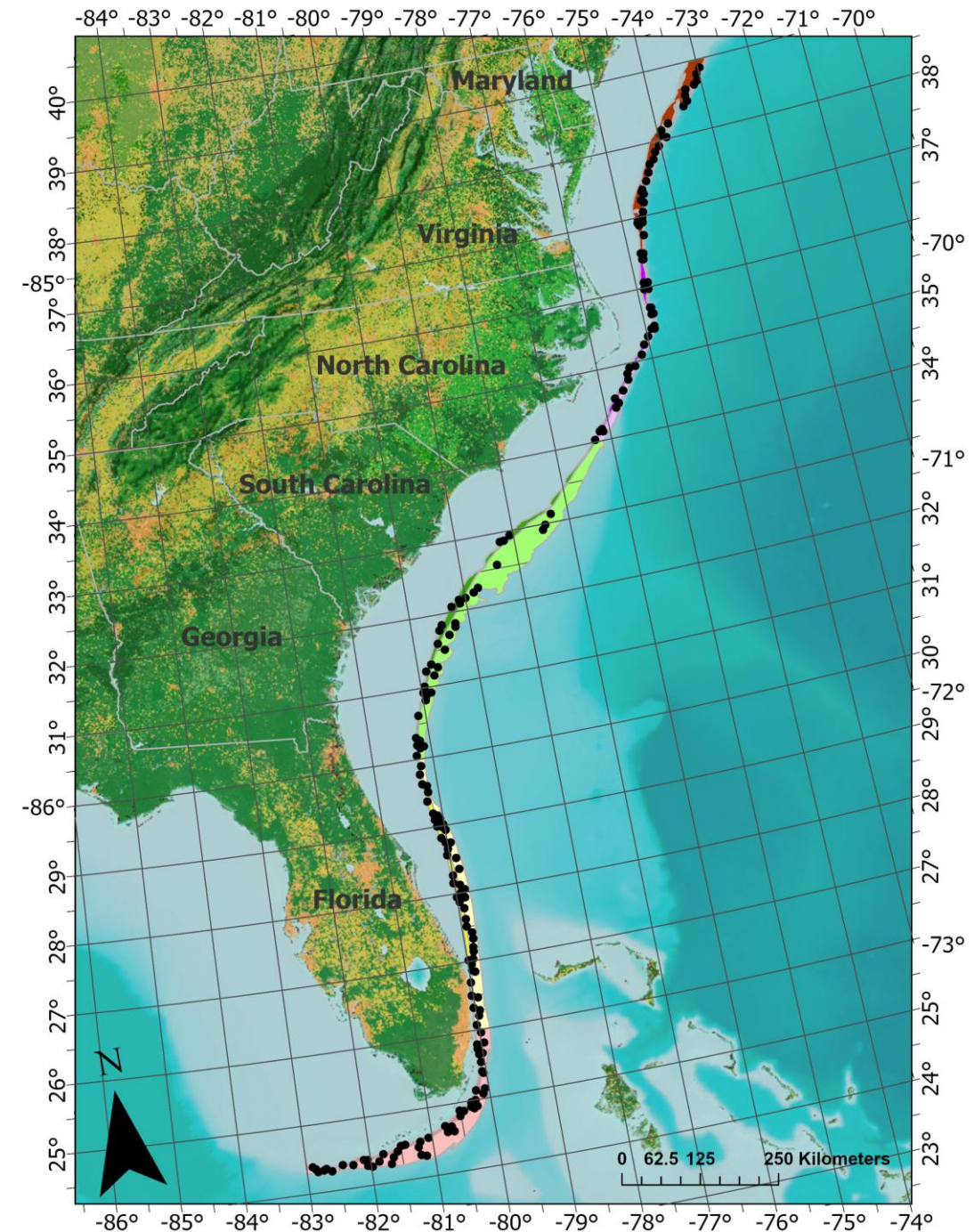
SADLS Design

- 4 Zones
 - NC-DE (Includes Mid-Atlantic stations)
 - GA-NC
 - Central and North FL
 - South FL and FL Keys
- Strata (34 total)
 - Latitude/longitude (1°) – 17 total
 - Depth – 2 total
 - Shallow: 75-145m
 - Deep: 146-366m
- Equal allocation – 6 per stratum:
 - 204 stations per year

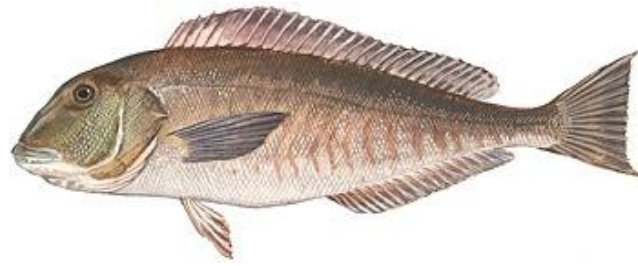


SADLS 2025 Sampling

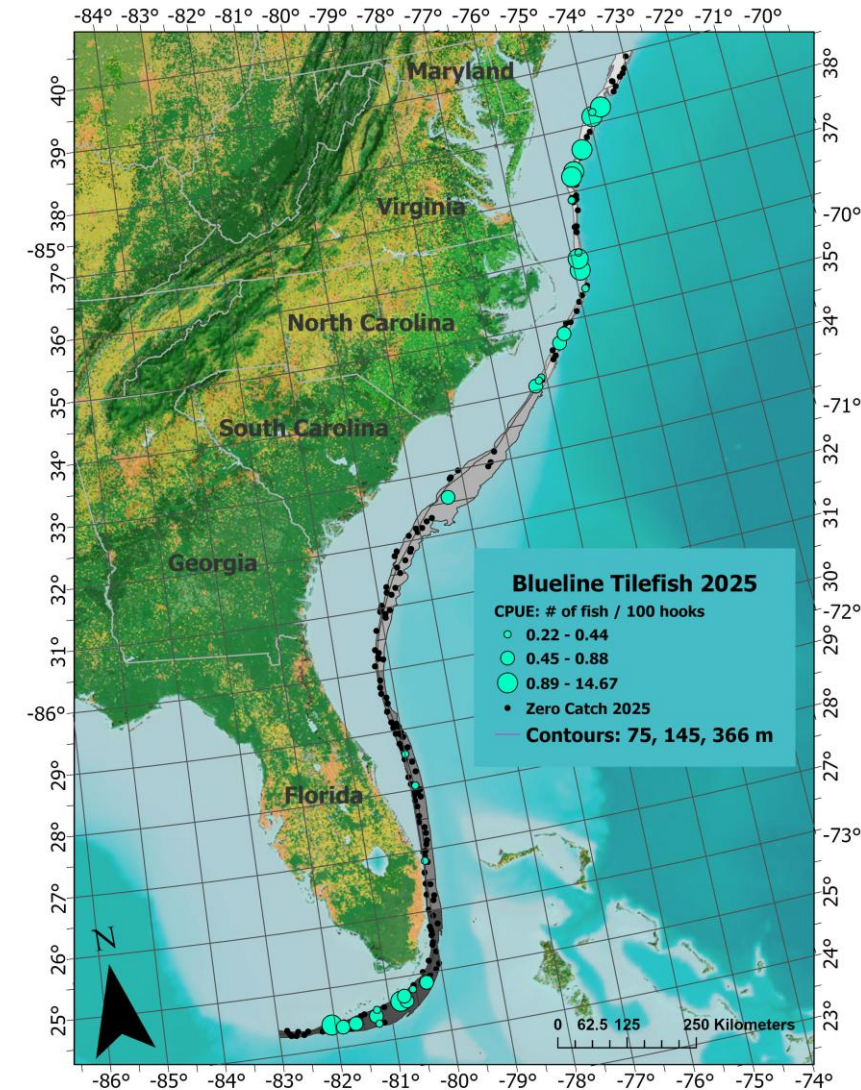
- Started August 25, 2025
- 50 sea days
- 194 of 204 stations completed
 - 30 stations in Mid-Atl (all)
 - 164 stations in S-Atl
 - 10 stations not sampled
- 3,097 individual fish caught
 - 87 species
- 886 individual fish worked up for life history
 - 20 species



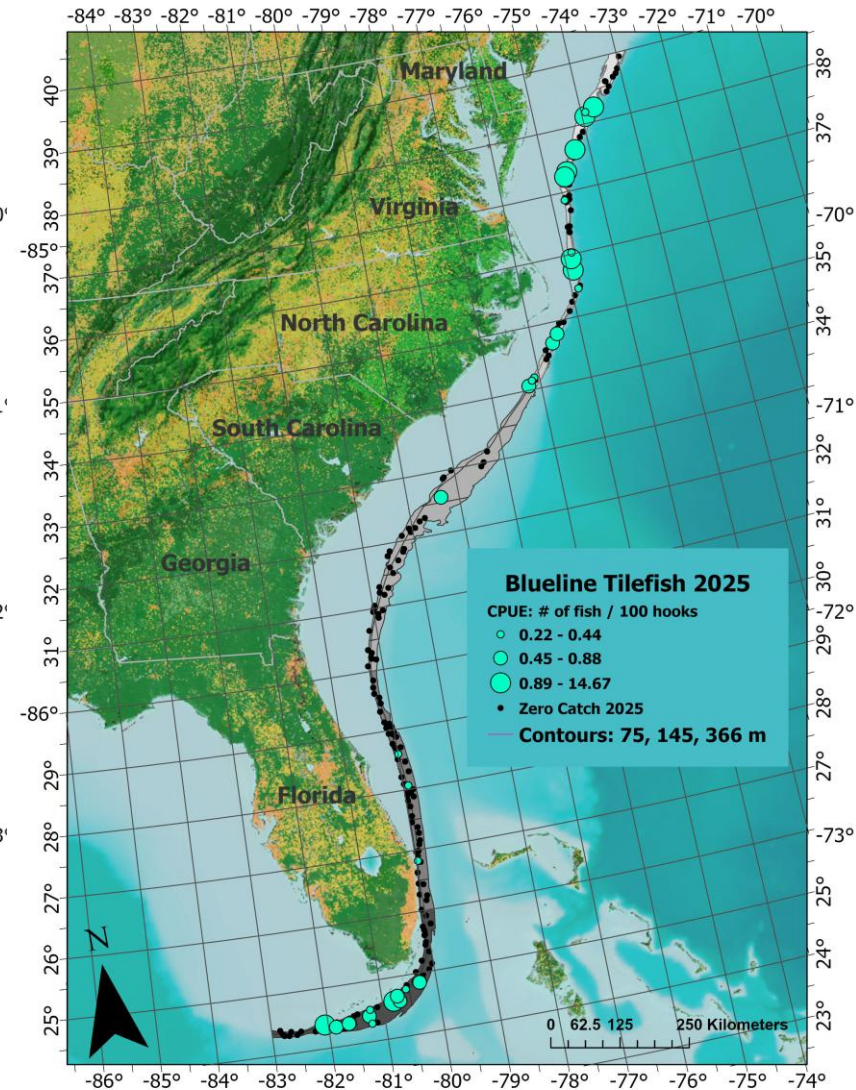
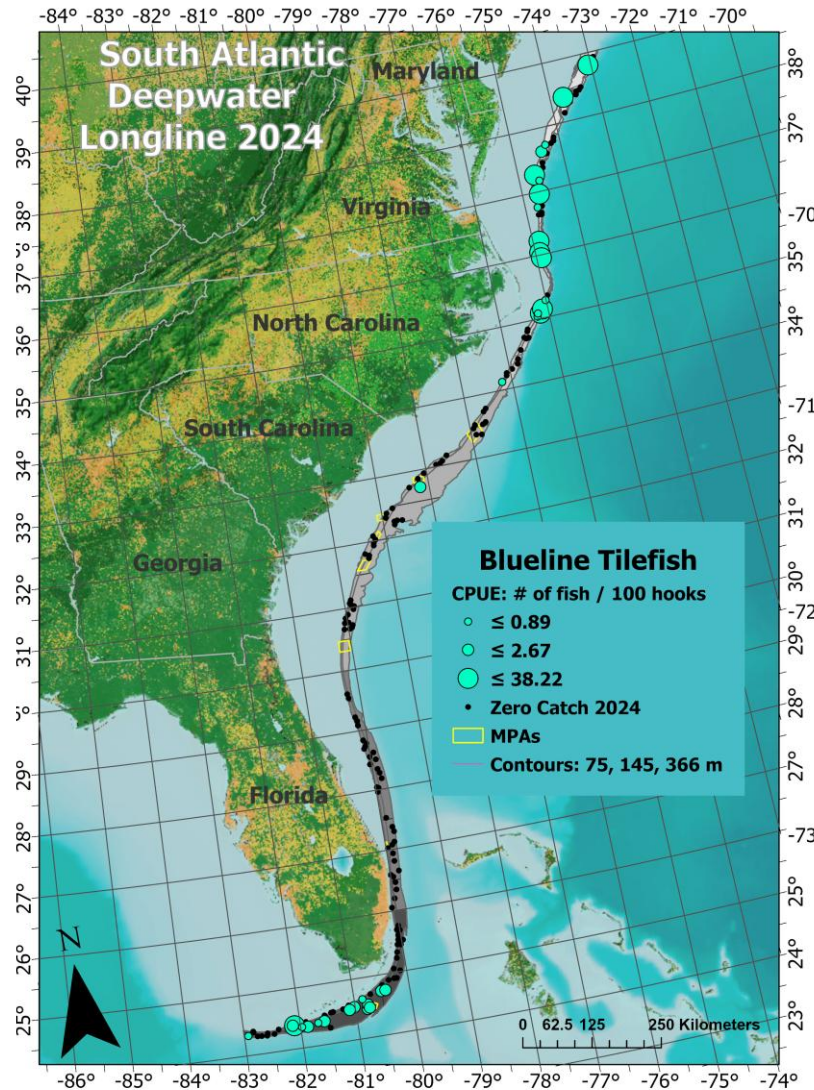
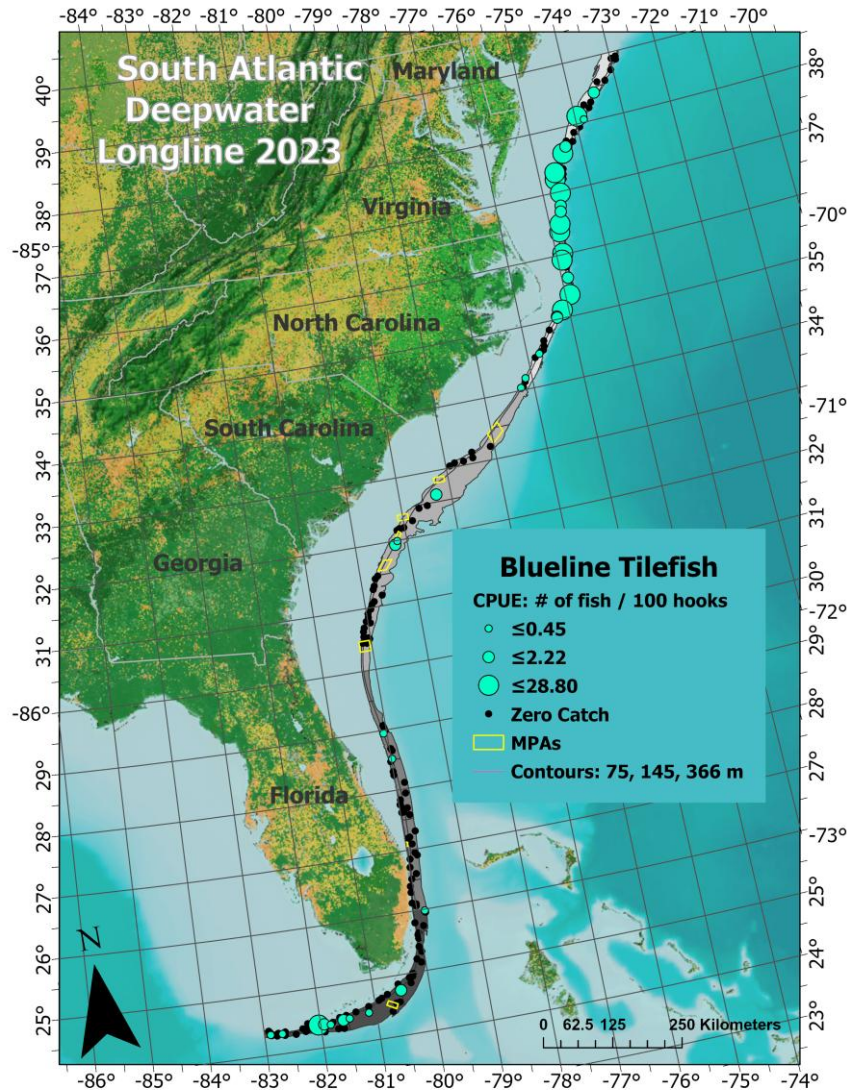
Blueline Tilefish



- 240 total fish caught
- Length range
 - 39 – 97 cm
- 176 total fish worked up for life history



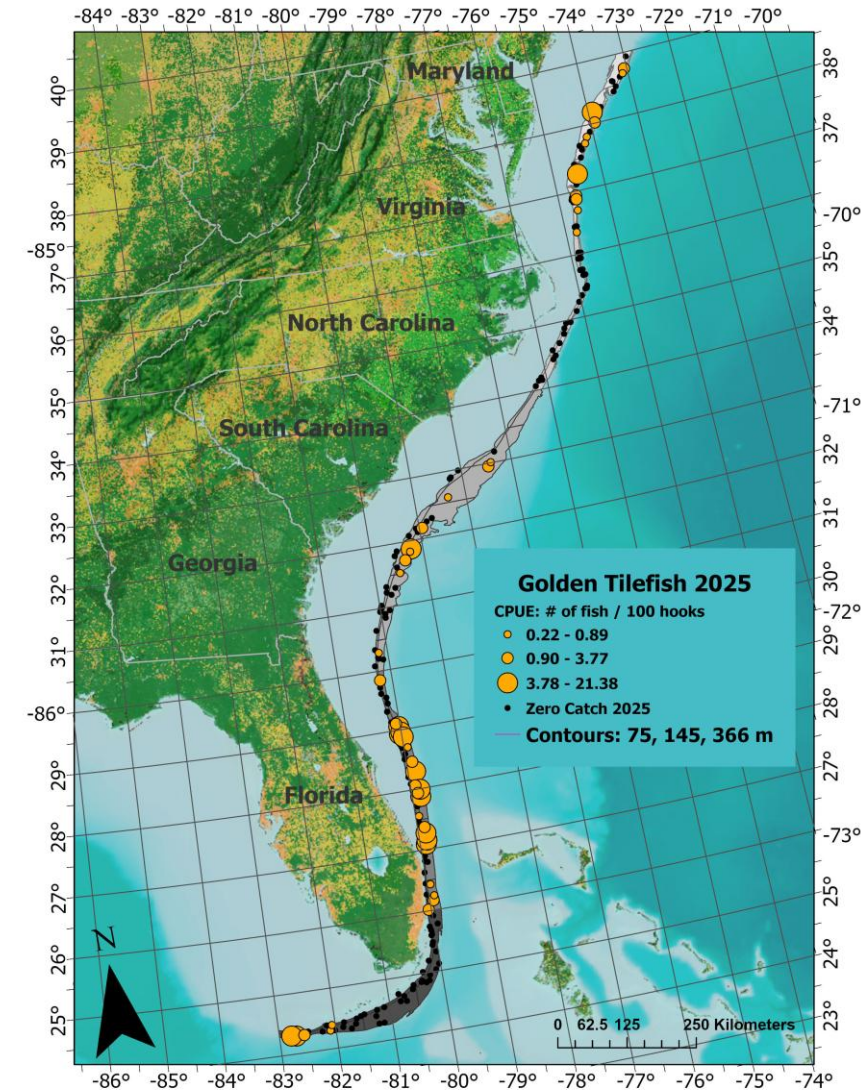
Blueline Tilefish



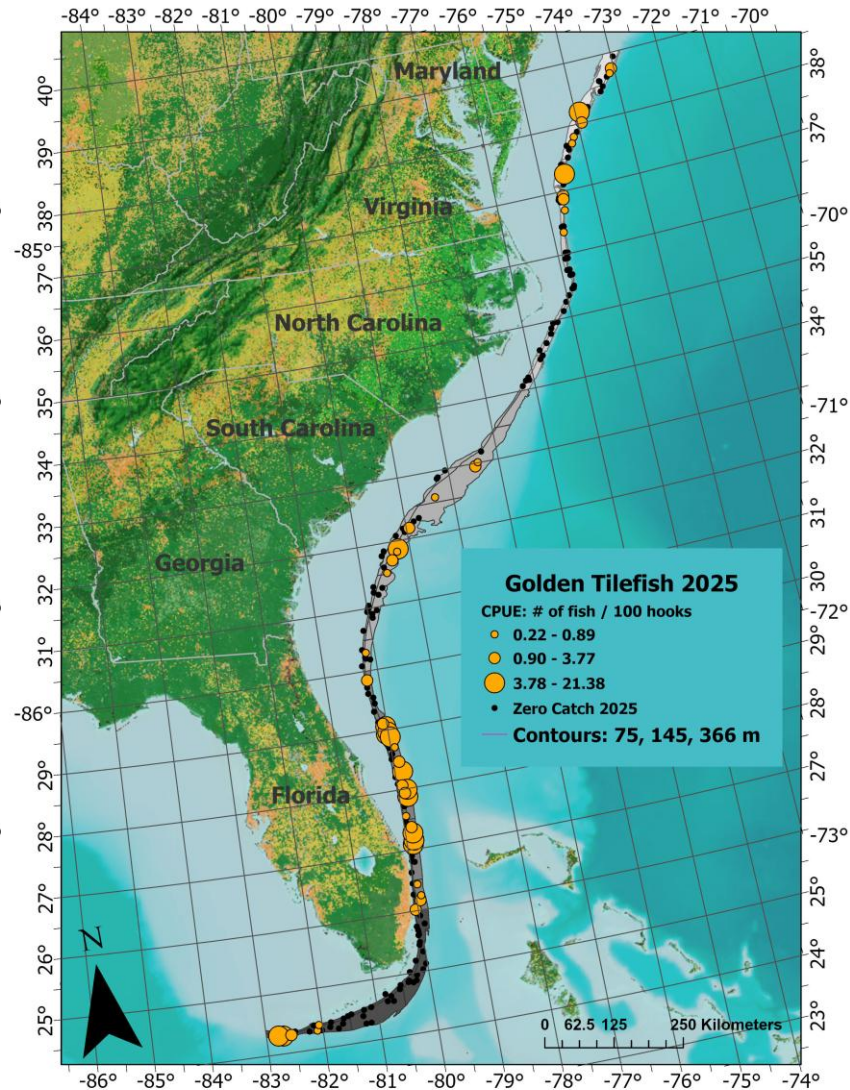
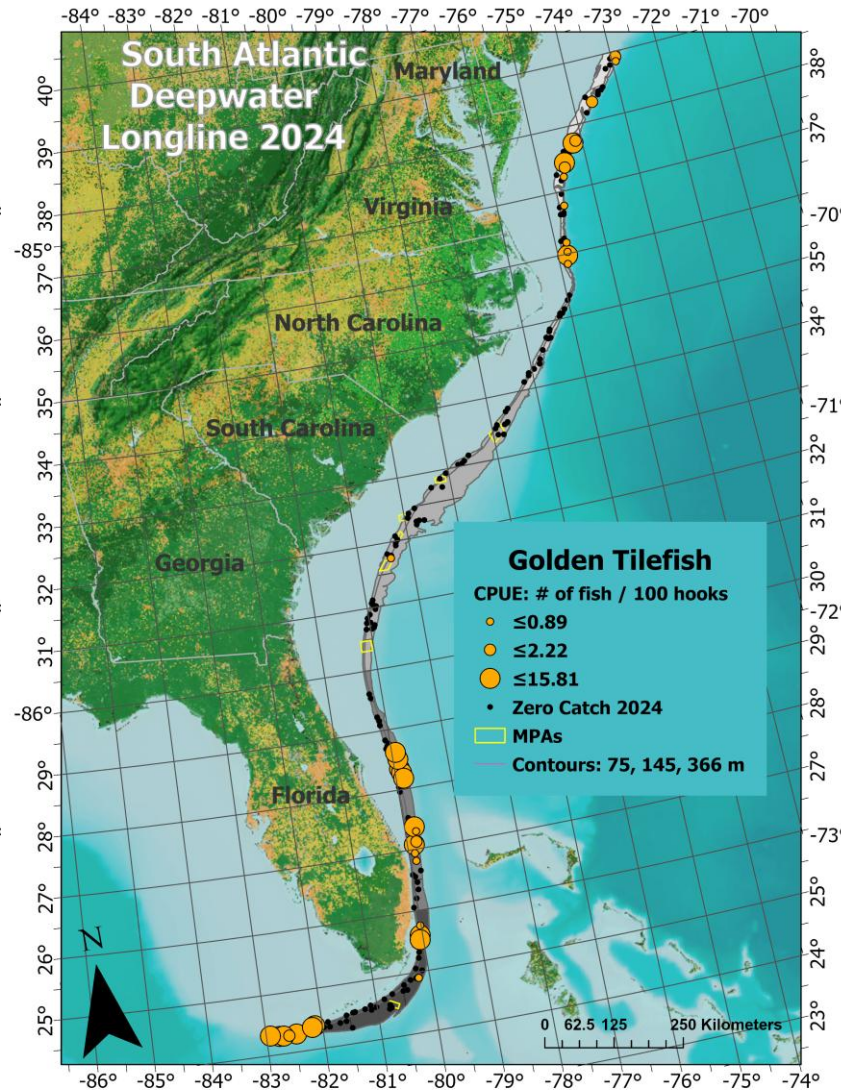
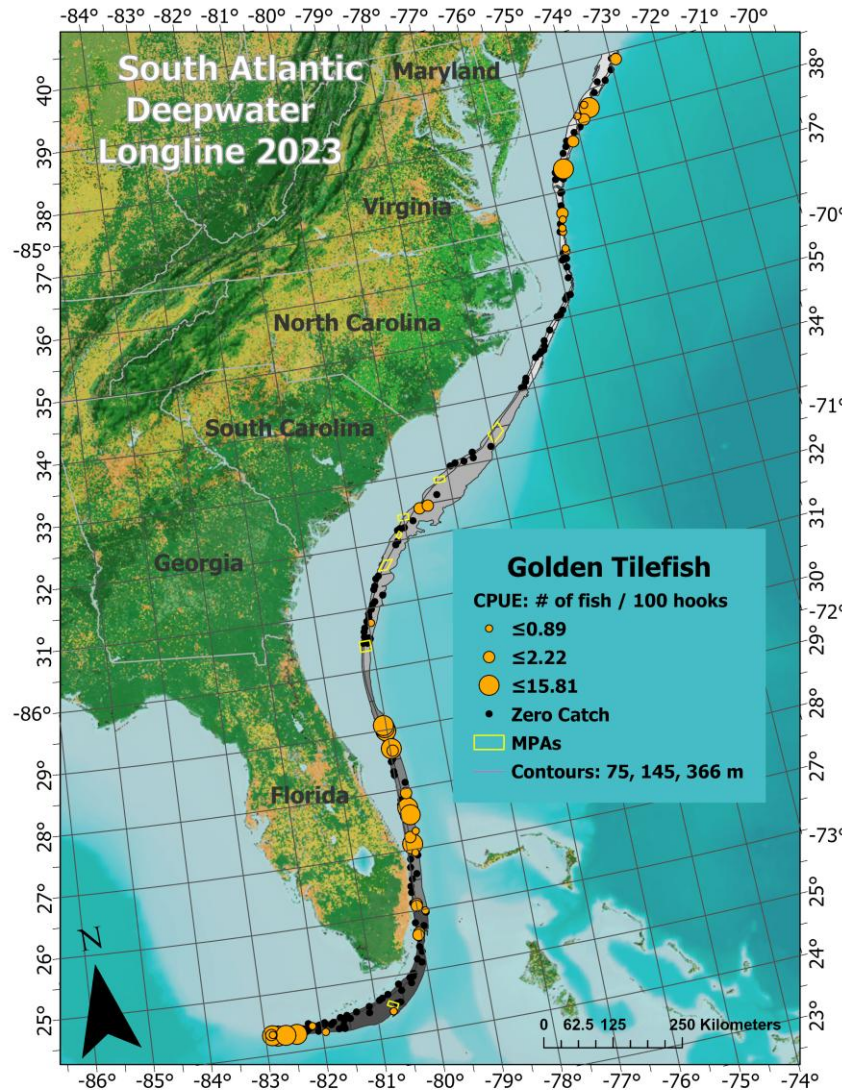
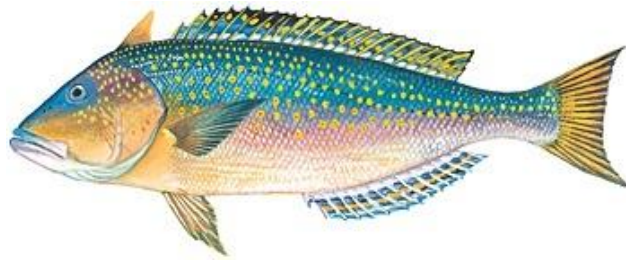
Golden Tilefish



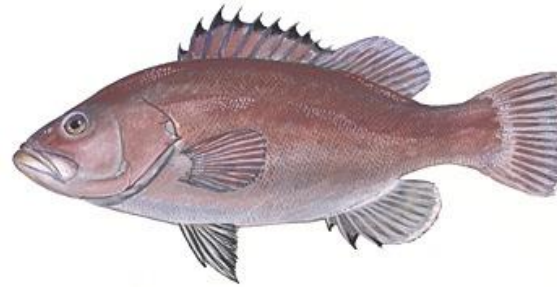
- 757 total fish caught
- Length range
 - 27 – 150 cm
- 545 total fish worked up for life history



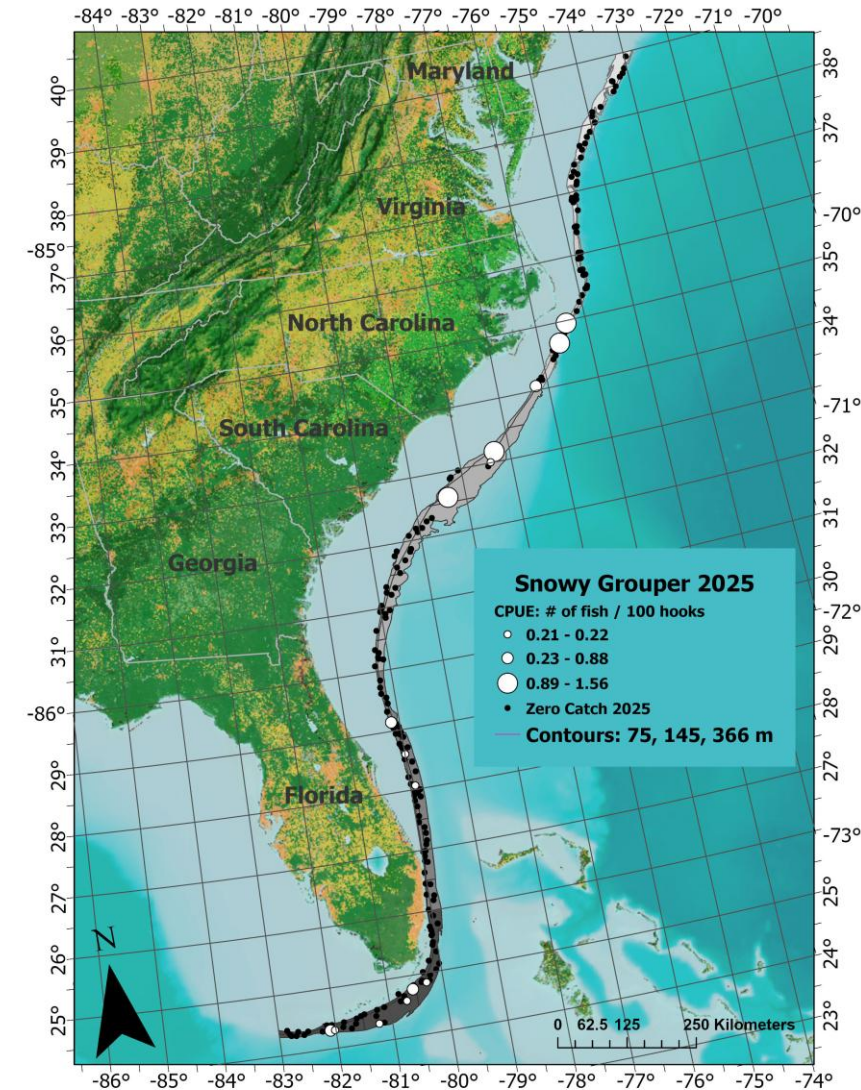
Golden Tilefish



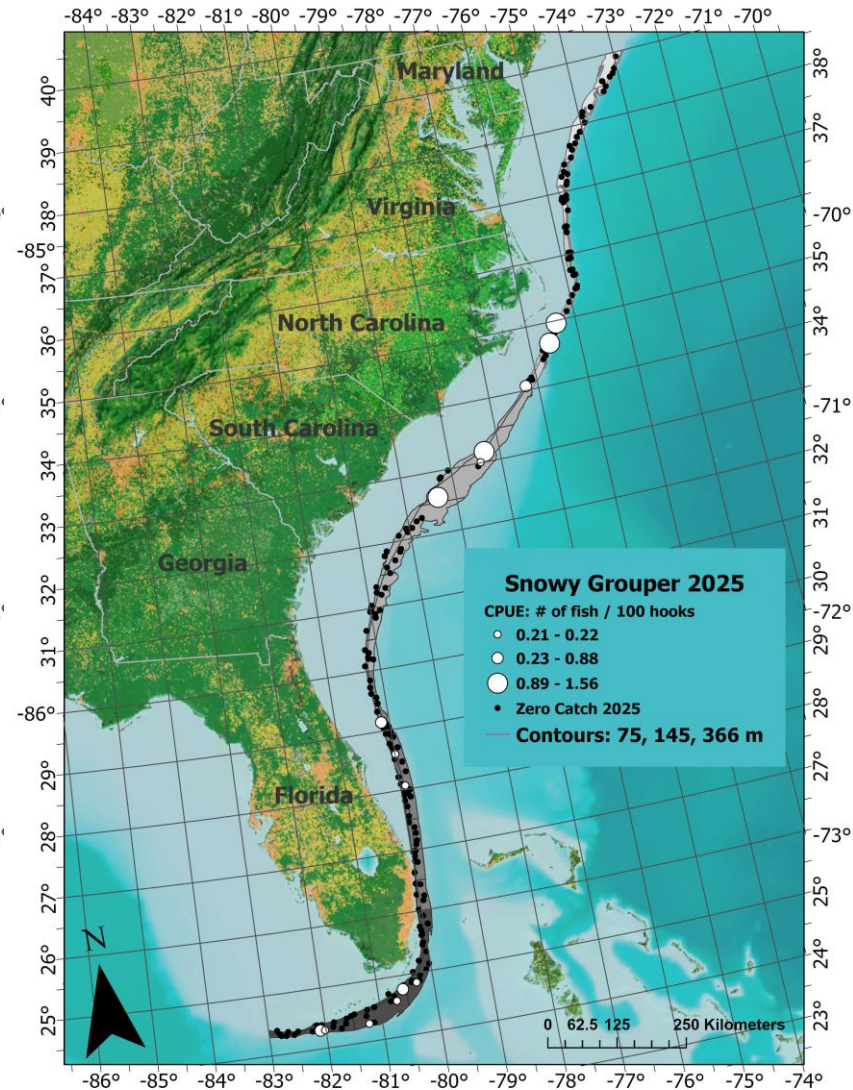
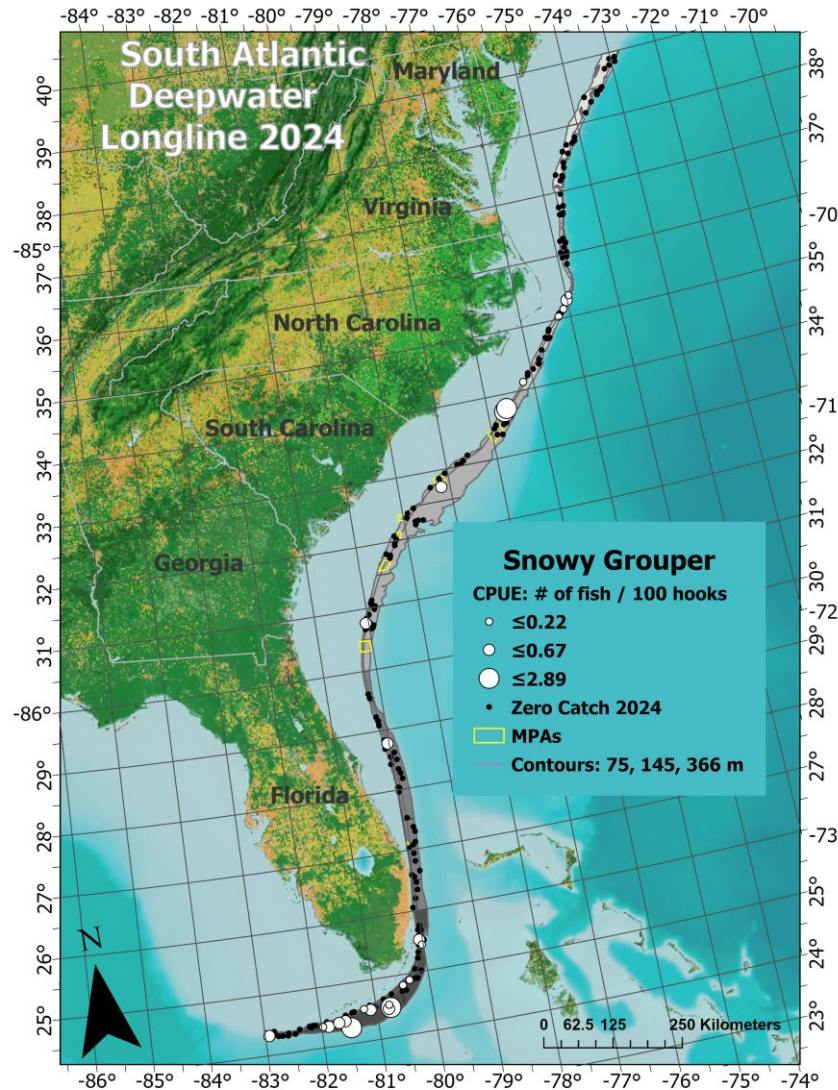
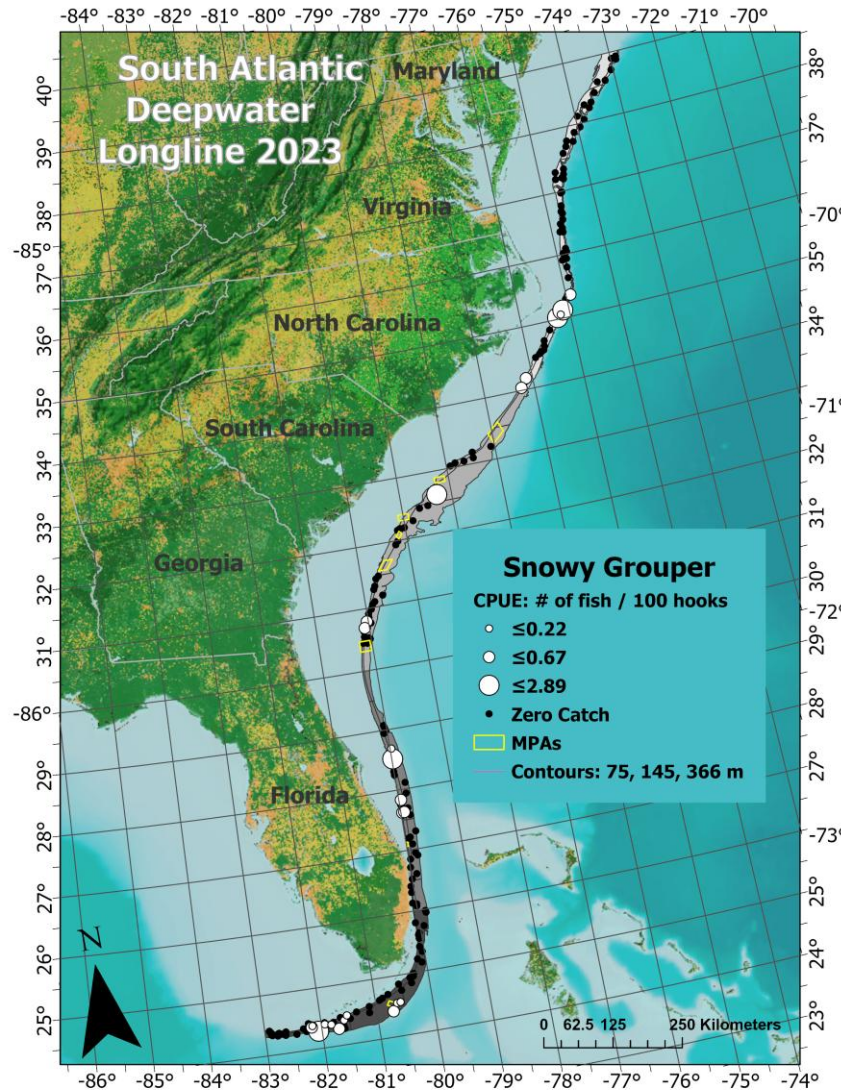
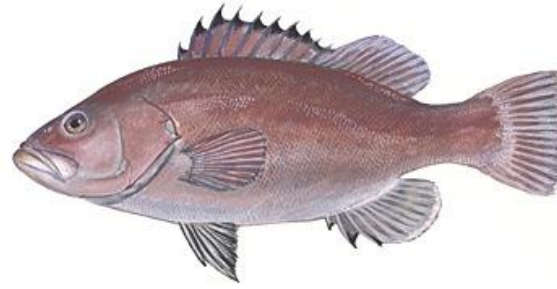
Snowy Grouper



- 38 total fish caught
- Length range
 - 30 – 110 cm
- 38 total fish worked up for life history



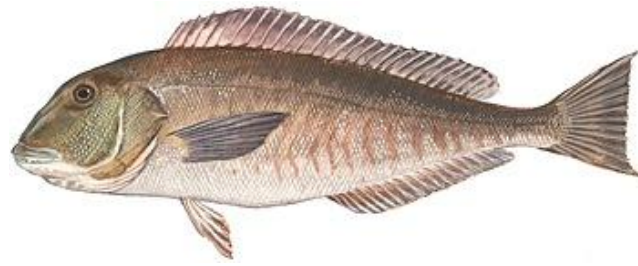
Snowy Grouper



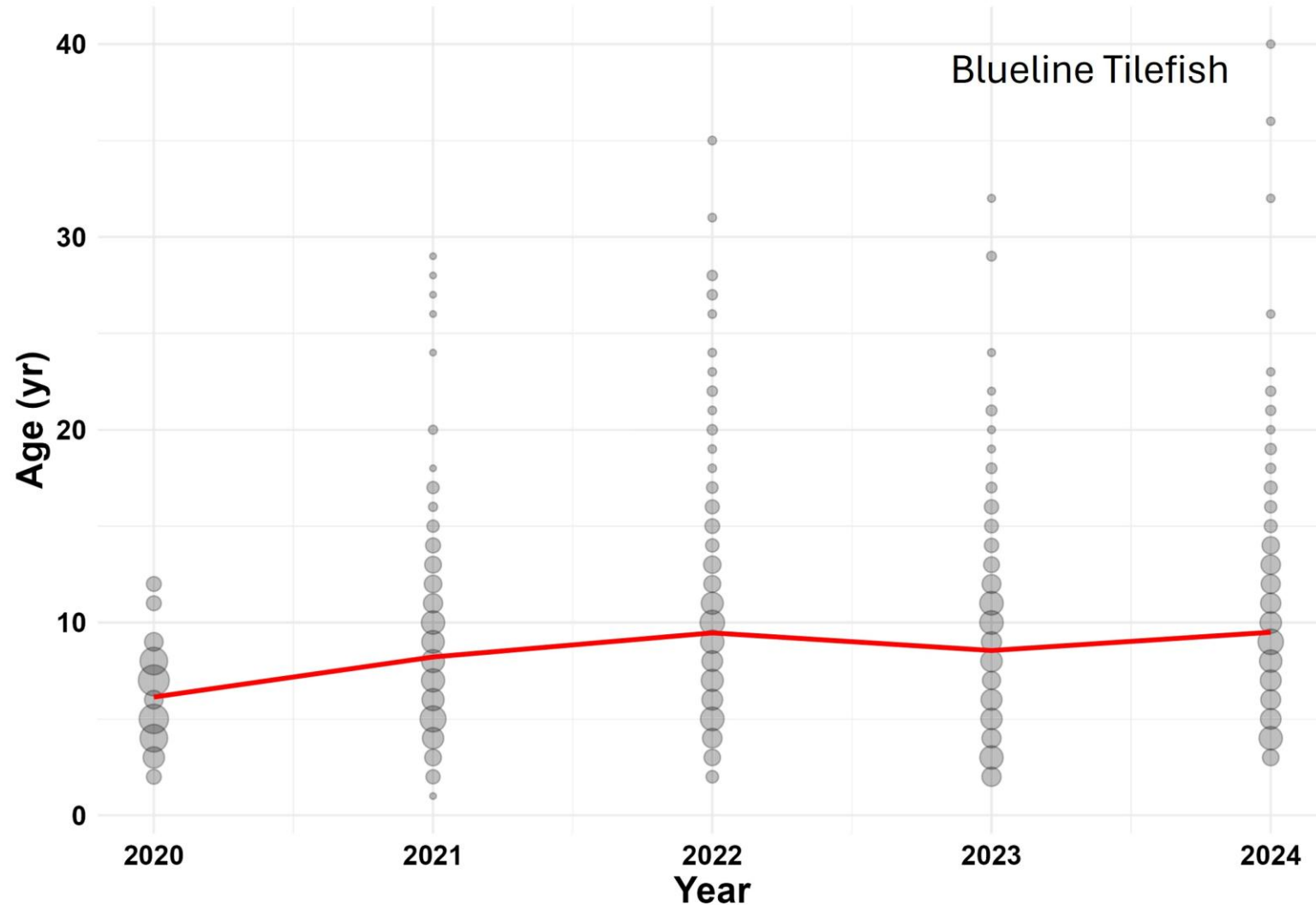
Life History Summary

- South Atlantic Fishery Management Council funded
 - Age estimates for all fish (2020-2024)
 - Except Blueline Tilefish from Zone 1 (2023-2025)
 - Funded by Mid-Atlantic Fishery Management Council
- 3,508 individual fish
 - 12 species
- Ages utilized in:
 - SEDAR-89 Golden Tilefish
 - SEDAR-90 Red Snapper
 - SEDAR-92 Blueline Tilefish

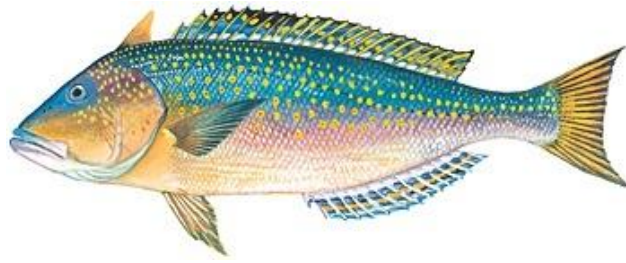
Blueline Tilefish



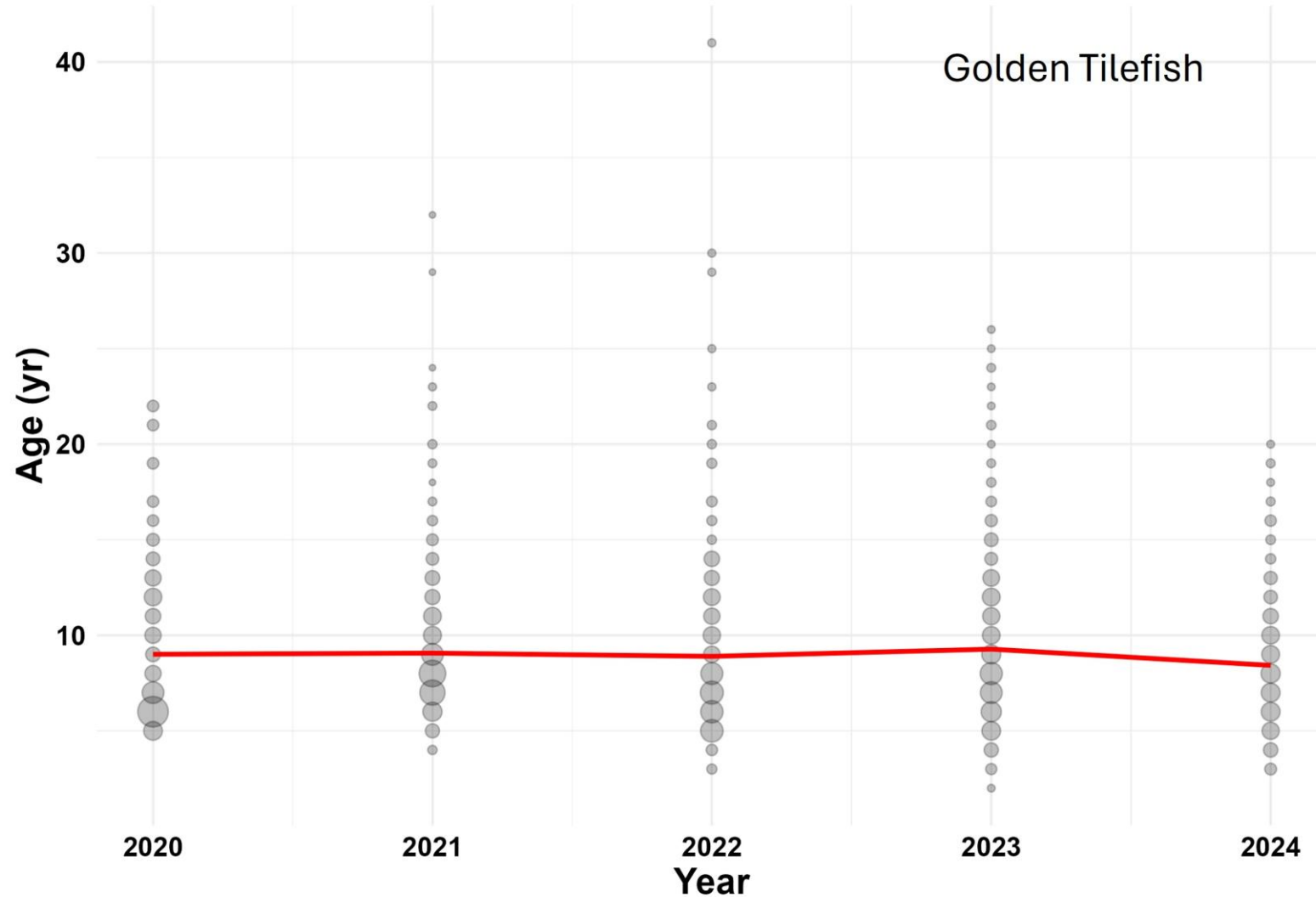
- 1,389 total fish aged
 - 756 from 2020-2022
- Length range
 - 32 – 94 cm
- Age range
 - 1-35 years



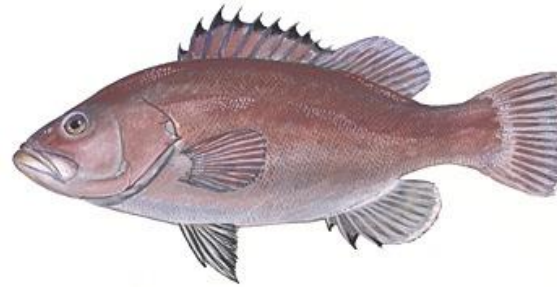
Golden Tilefish



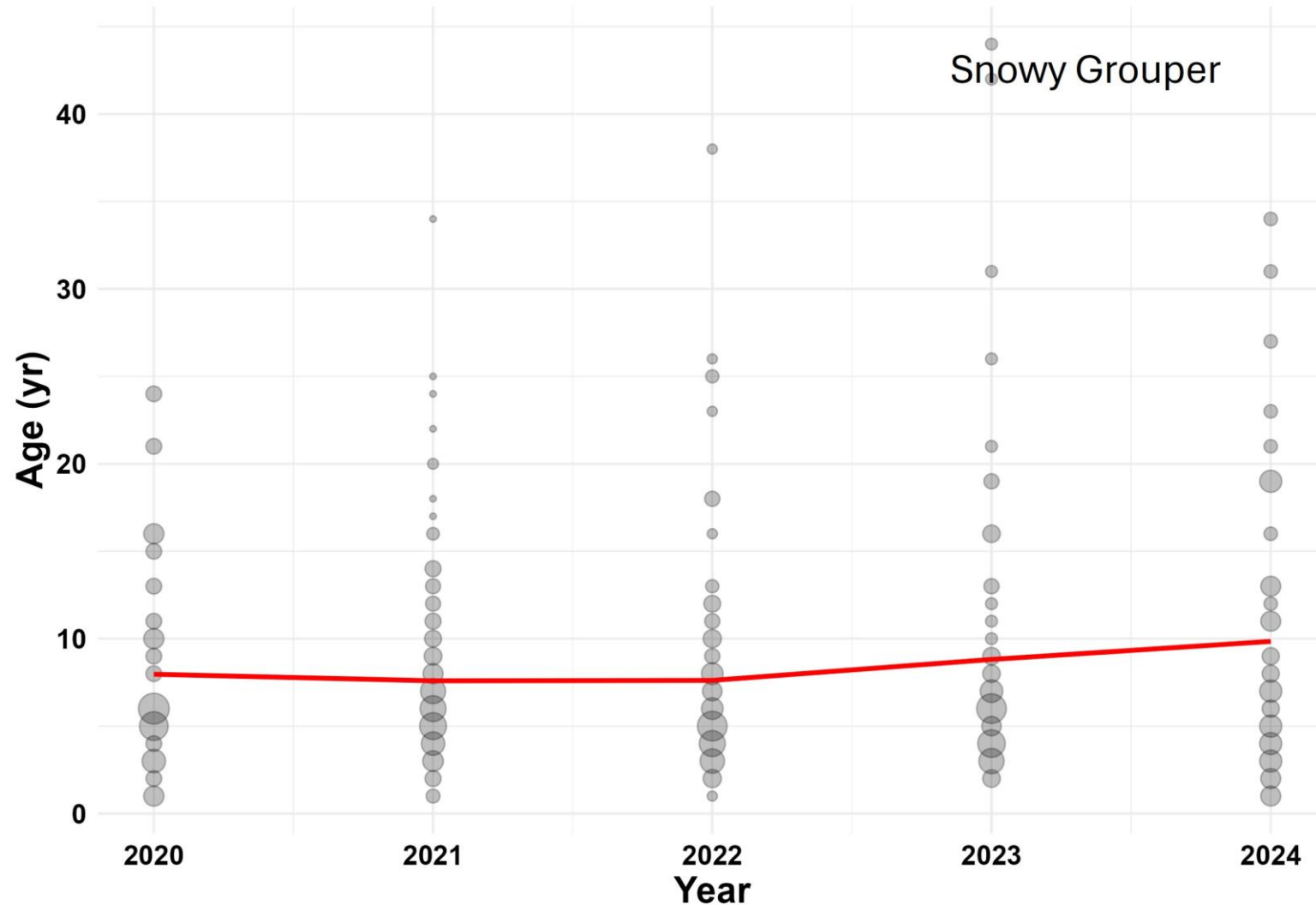
- 2,028 total fish aged
- Length range
 - 30 – 126 cm
- Age range
 - 2-41 years



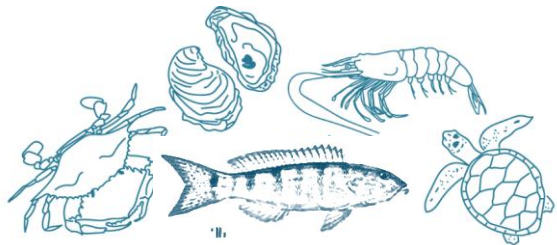
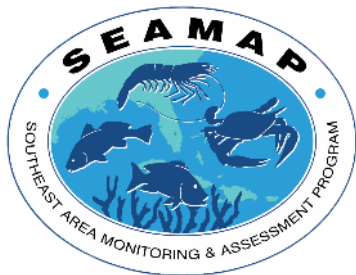
Snowy Grouper



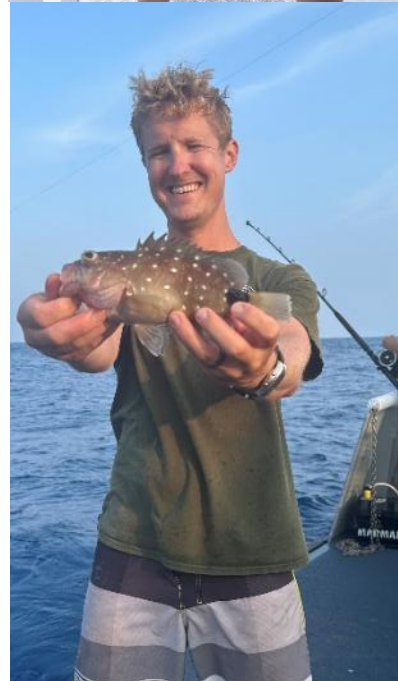
- 400 total fish aged
- Length range
 - 21 – 127 cm
- Age range
 - 1-44 years



Questions?



SCDNR Marine Resources Division
salty since 1972



Questions?

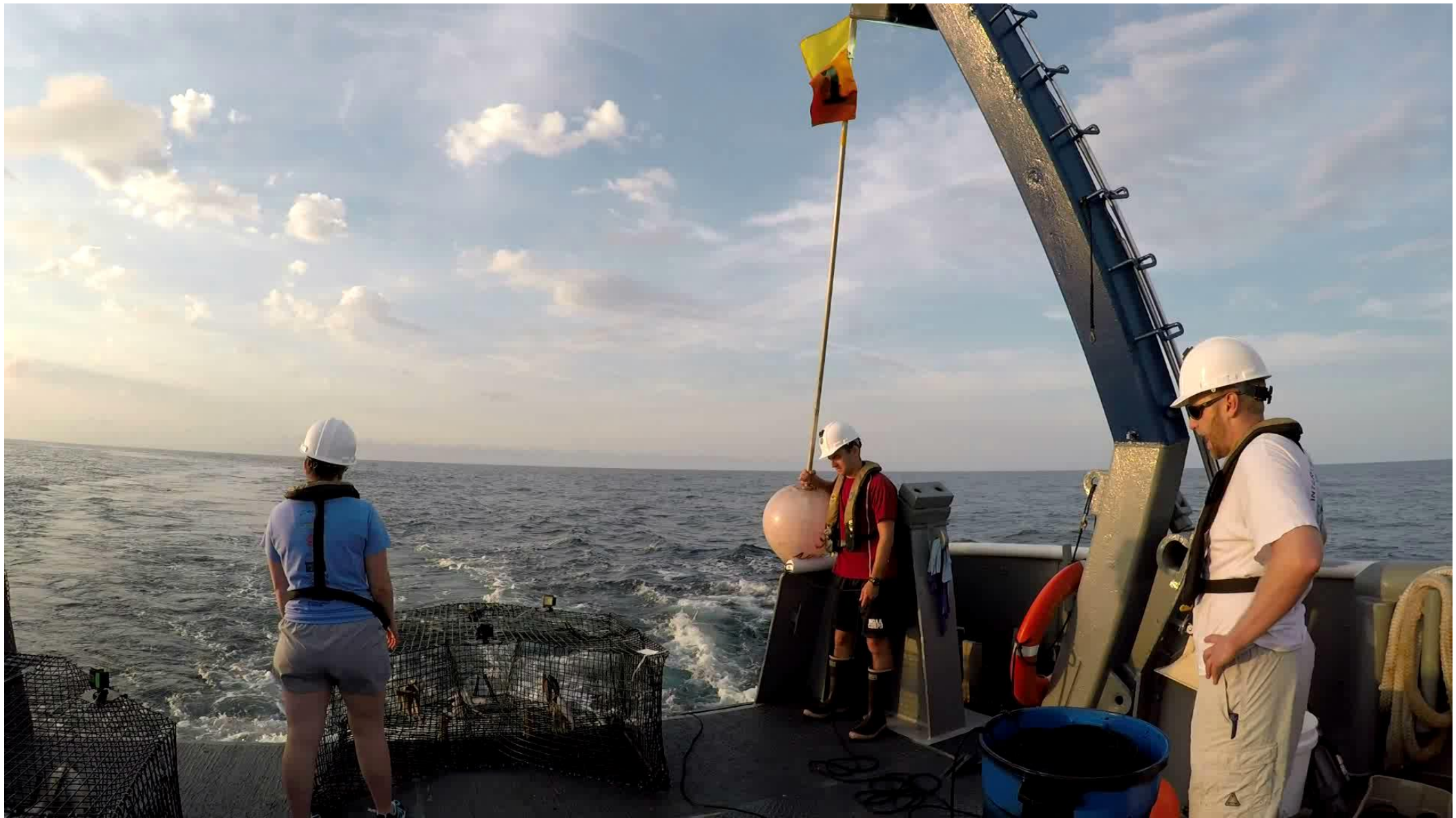


R/V Lady Lillian Ops

Questions?



R/V Lady Lillian Ops



Questions?

Questions?



R/V Lady Lillian Ops