

Southeast Reef Fish Survey

2022 Sampling Activities and Relative Abundance

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April 2023 SSC Meeting

Southeast Reef Fish Survey Overview

Survey Design

2022 Activities

Abundance, Length & Distribution for Selected Spp.

2023 Planned Activities



Southeast Reef Fish Survey (SERFS)

Current Funding & Sampling:

MARMAP + SEAMAP-SA + SEFIS

Historical Funding & Sampling:

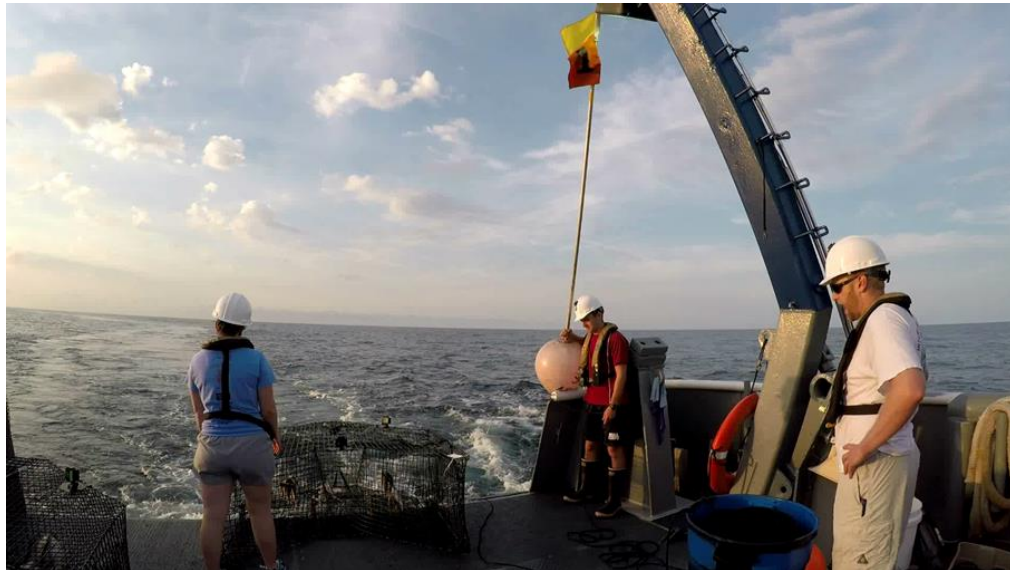
MARMAP

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



Chevron Video Trap (CVT) Sampling

- Target low to medium relief, live-bottom habitats
- Depths ~15-110 m
- Trap used consistently and standardized since 1990
- Baited with menhaden, soak time \approx 90 minutes
- Since 2011: all traps have 2 video cameras



CVT Universe

- \approx 4,300 trap sampling stations (NC– FL)
- \approx 1,500 randomly selected in 2022
- Sampling mid-April – mid-October

Sample and data processing & analyses

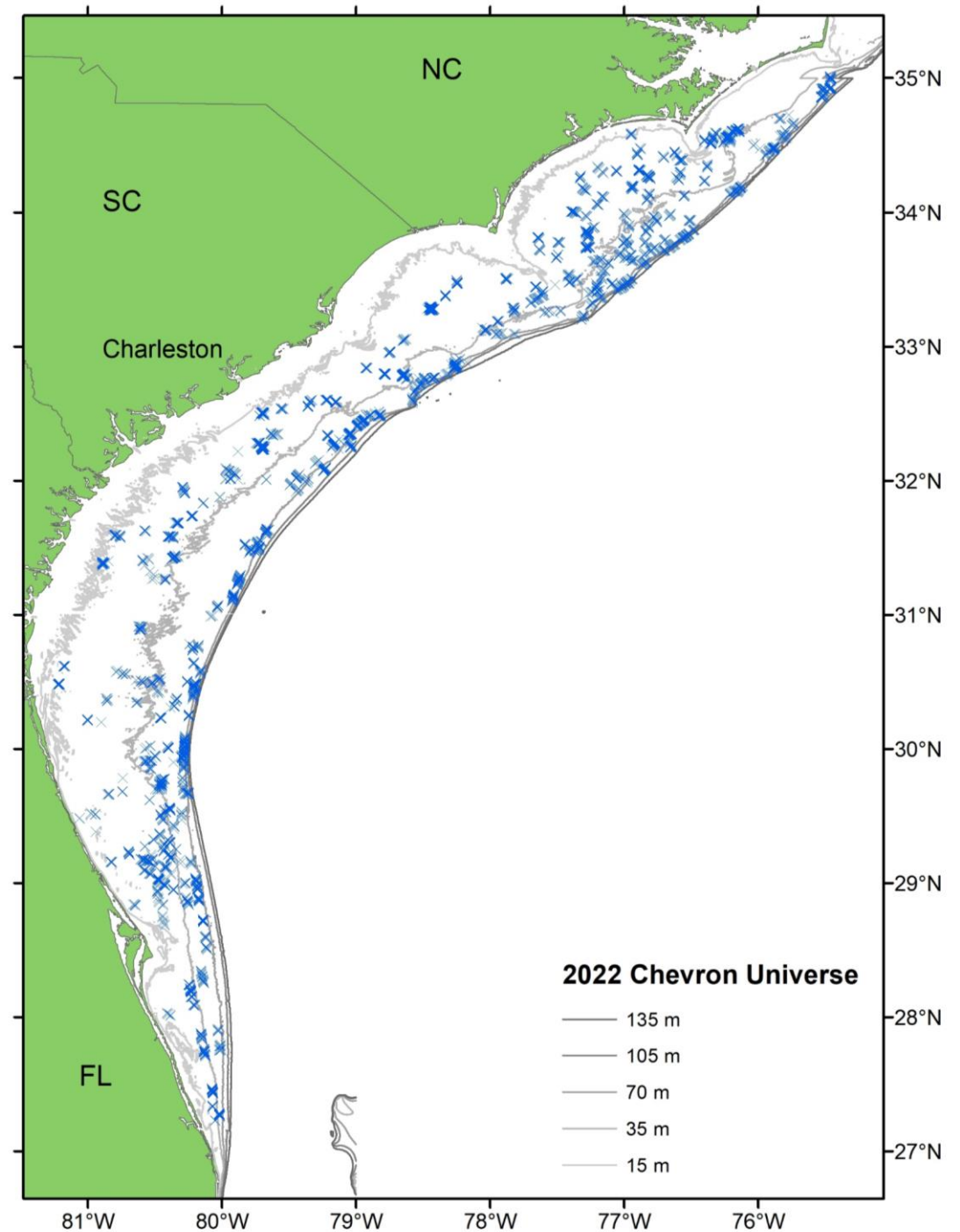
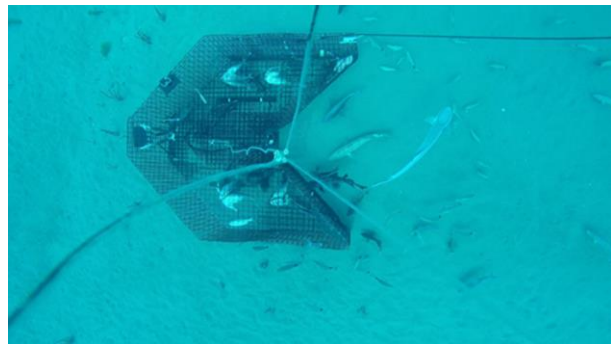
MARMAP/SEAMAP-SA (SCDNR):

- Trap indices
- Life history

SEFIS (SEFSC)

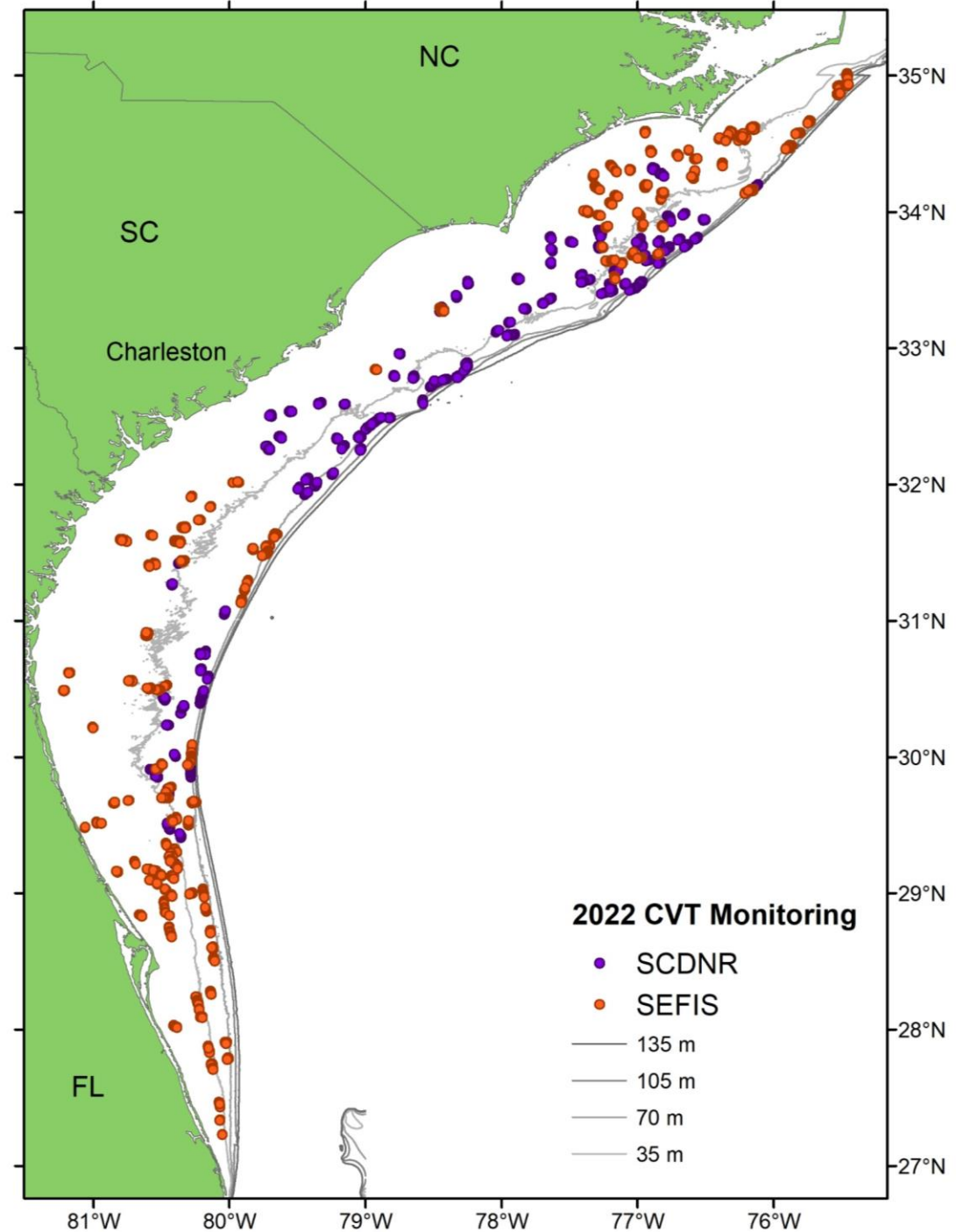
- Video indices

One combined database (SEAMAP.ORG)



2022 SERFS Activities

- **86** days at sea
- **1,945** gear deployments
 - 1,667** Chevron Video Traps
 - 278** CTD casts
- **CVTs = 28,814** fish (**59** species) collected, measured, weighed
- **9,102** fish (**25** species) retained for life history (age, repro., DNA)



Overview of Relative Abundance

- Chevron index (1990-2022)
- Video index (2011-2021)
- No sampling in 2020
- Standardized using Zero-Inflated Negative Binomial model (ZINB)
Most appropriate method, reduces uncertainty

Traps:

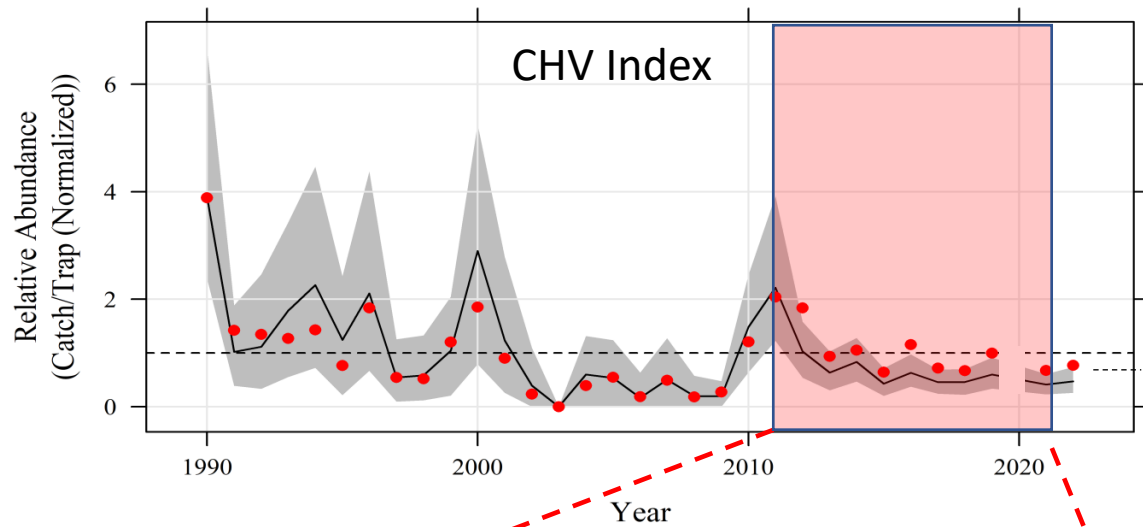
- Number of fish
- Trap soak time

Videos:

- MeanCount
- 10 min after trap lands on bottom
- One snapshot every 30 s for 20 min



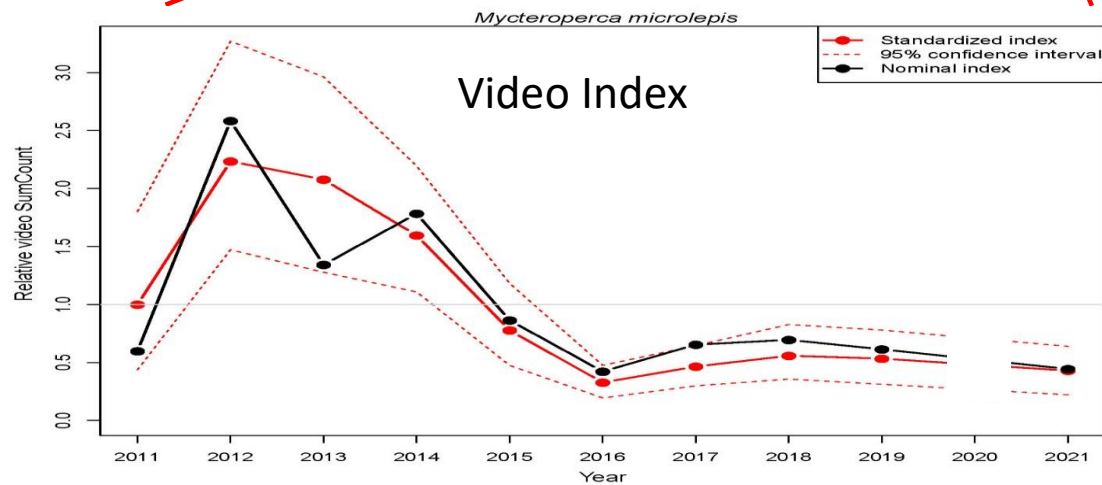
Indices- Example



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

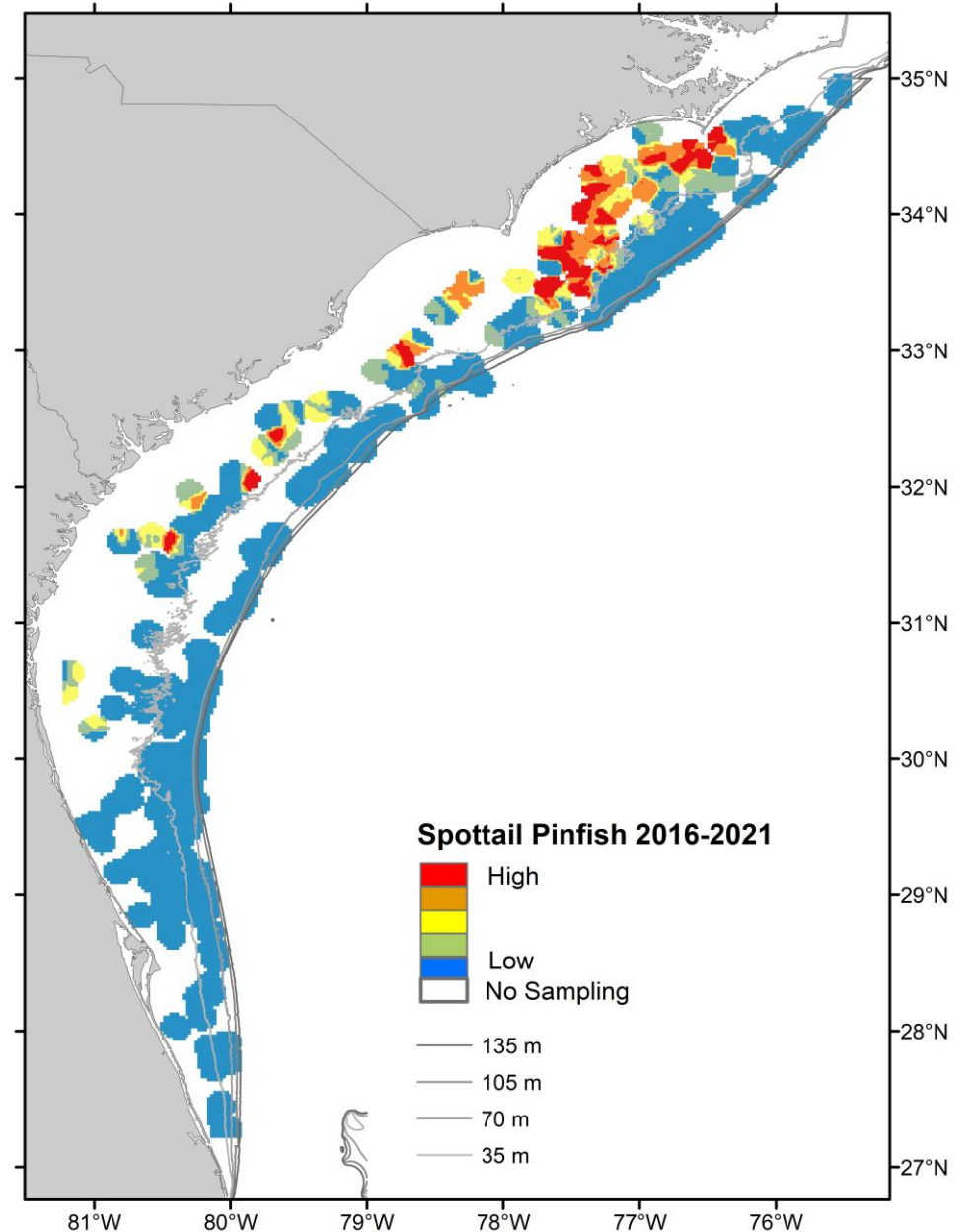
e.g. 2 = twice long-term average, and 0.5 = half long-term average

Gear	ZINB Index	95% C.I.	Nominal Values
CHV	Black Line	Gray Shading	Red Dots
Video	Red Line	Dotted Lines	Black Dots + Line

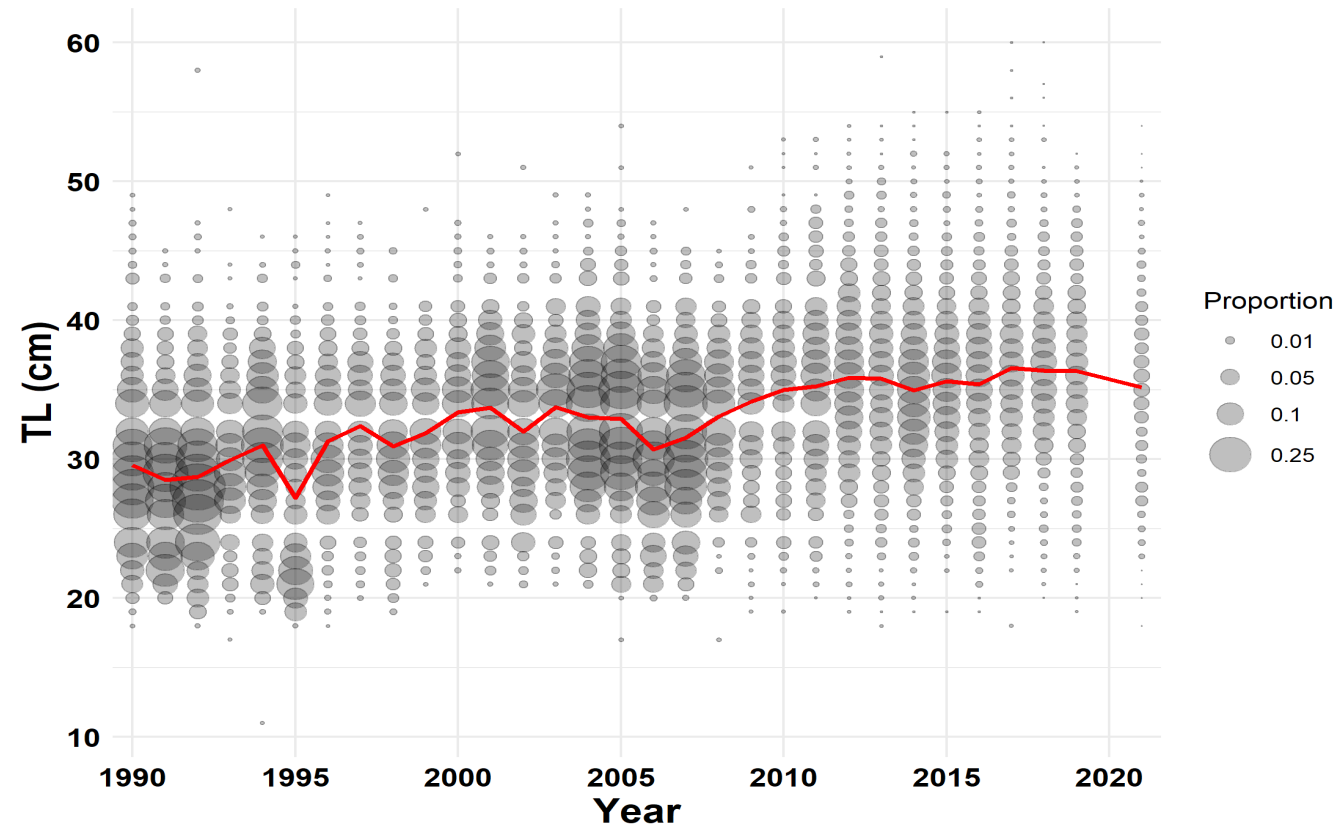


Maps- Example

- Nominal CHV abundance in quintiles (5 bins)
 - # fish / trap hour
- 2016-2019 & 2021
- Cooler colors => lower nominal abundance
- Warmer colors => higher nominal abundance
- White => no sampling
- Not updated since last year



Length Compositions- Example



- Chevron Trap Only
- Maximum (Pinched) Total Length (cm)
- 1-cm Length Bins
- Bubble size = # fish in length bin / total fish measured in a year
- **Red Line** = Average TL
- "Missing" length bins in some graphs are result of converting between FL & TL and rounding to cm

Relative Abundance Overview

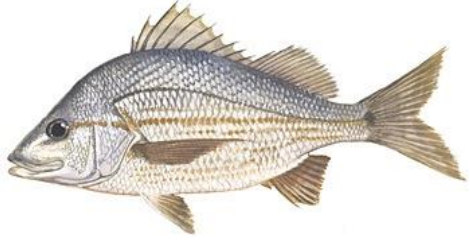
Caveats



- Not an update of stock status
- Trap: Constraints, stratification, units, and models may be different from those used in (SEDAR) stock assessments
- Video: Index for species that have been assessed through SEDAR, with video index model used in the assessment
- Not all species have been assessed or updated (SEDAR) and not all updated trends and analyses have been discussed in assessment framework

Selected Species

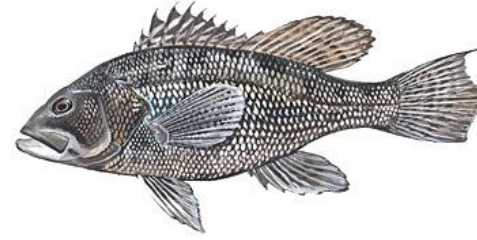
2022 CHV Catch Rankings



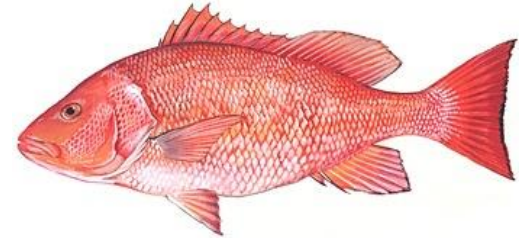
1. Tomtate



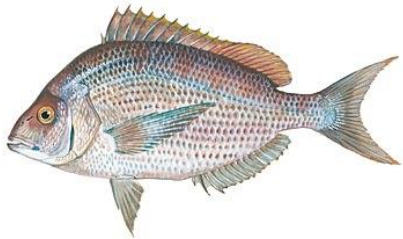
2. Vermilion Snapper



3. Black Sea Bass



4. Red Snapper



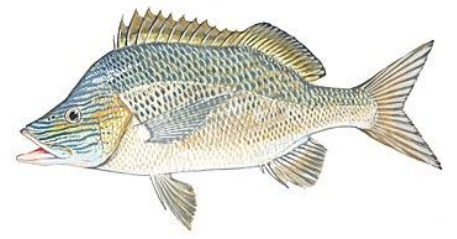
5. *Stenotomus* spp.



6. Gray Triggerfish



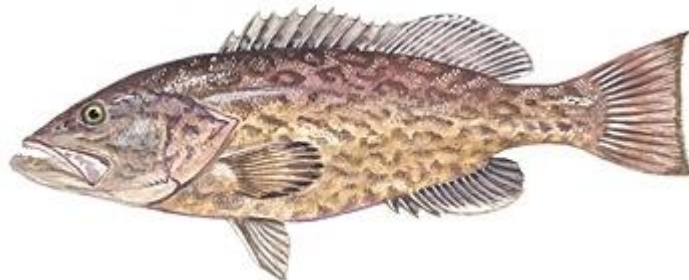
7. Red Porgy



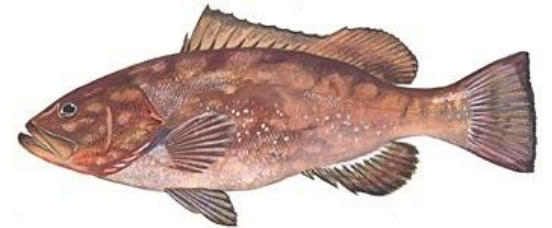
8. White Grunt



18. Scamp

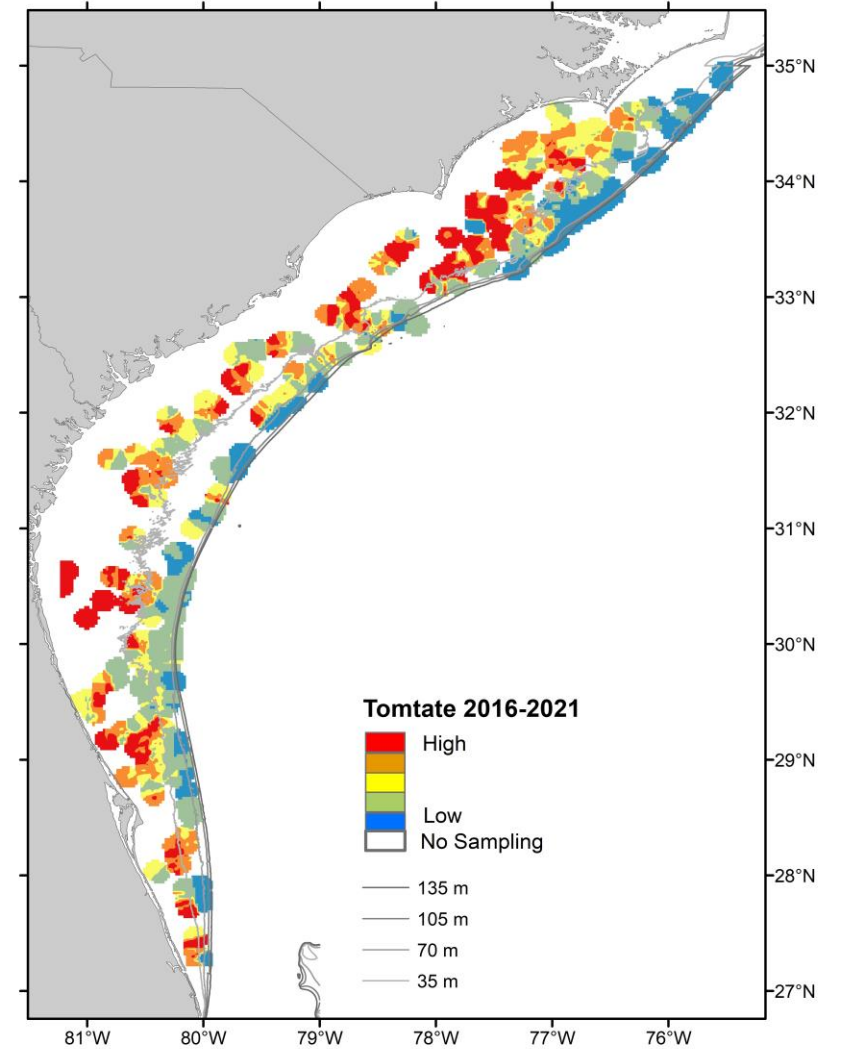
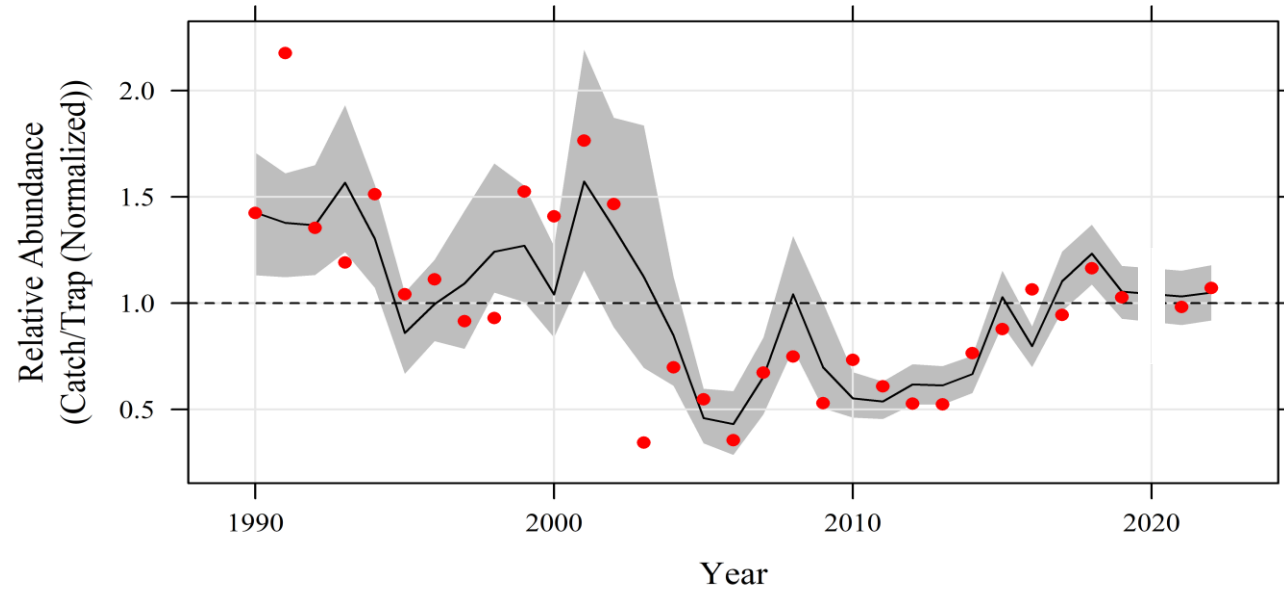
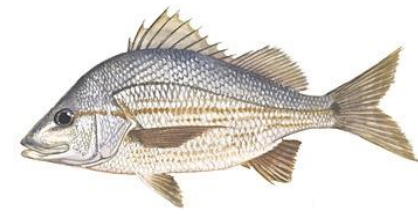


22. Gag

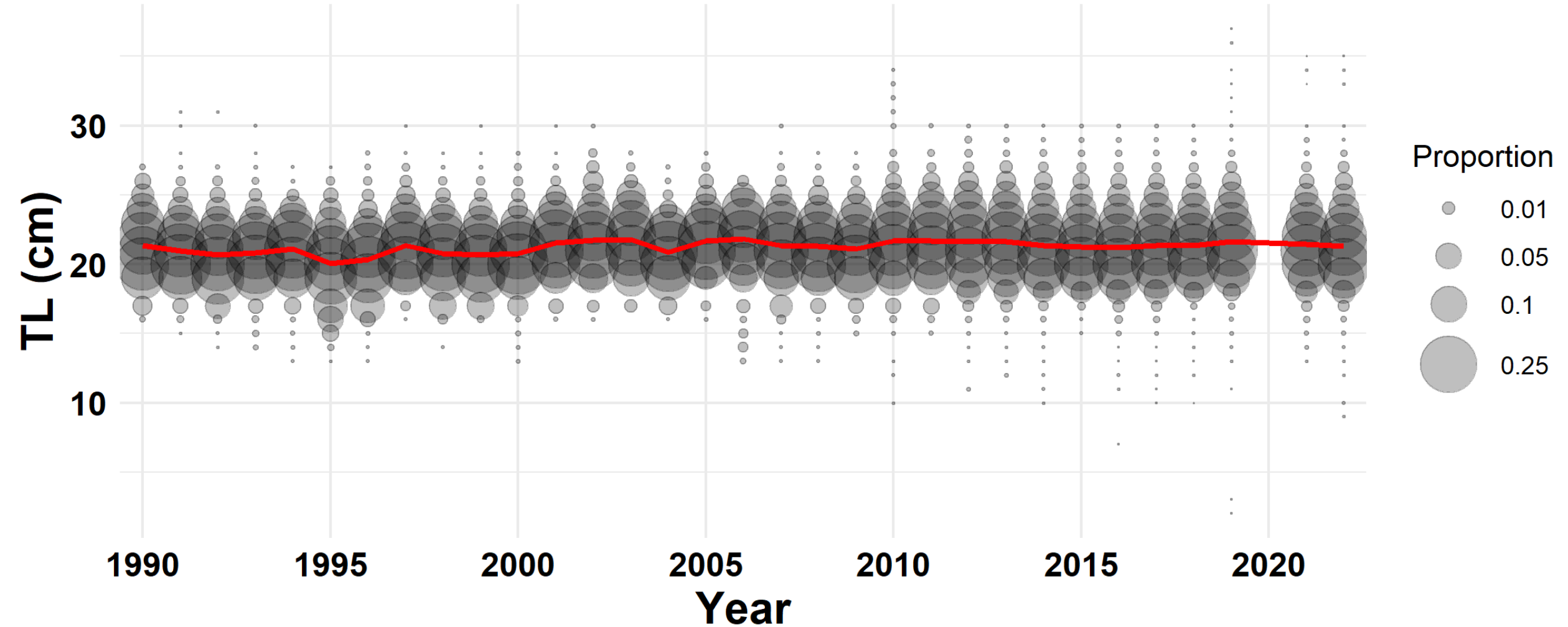
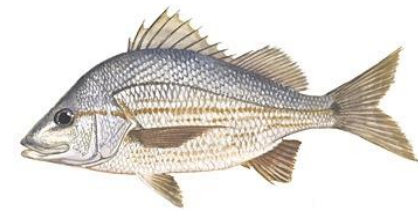


28. Red Grouper

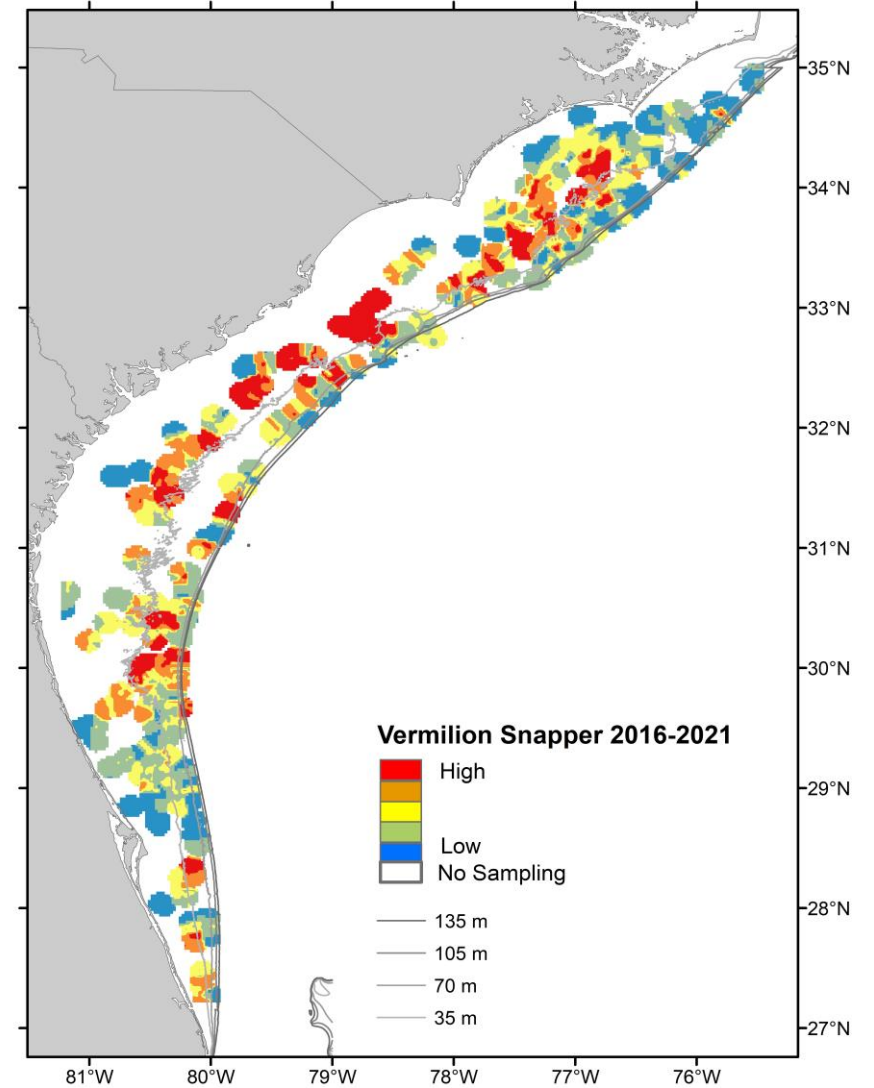
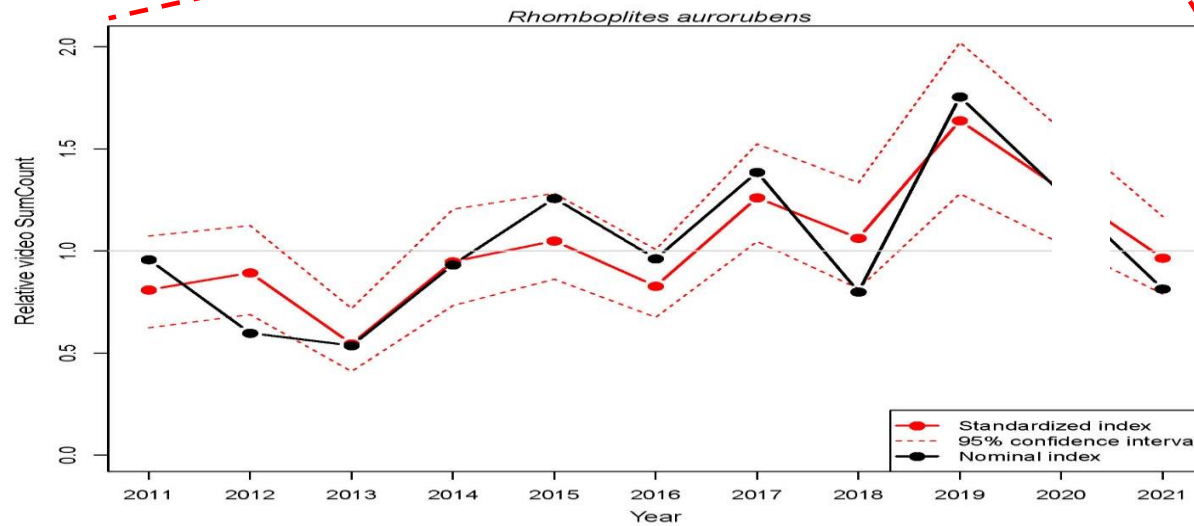
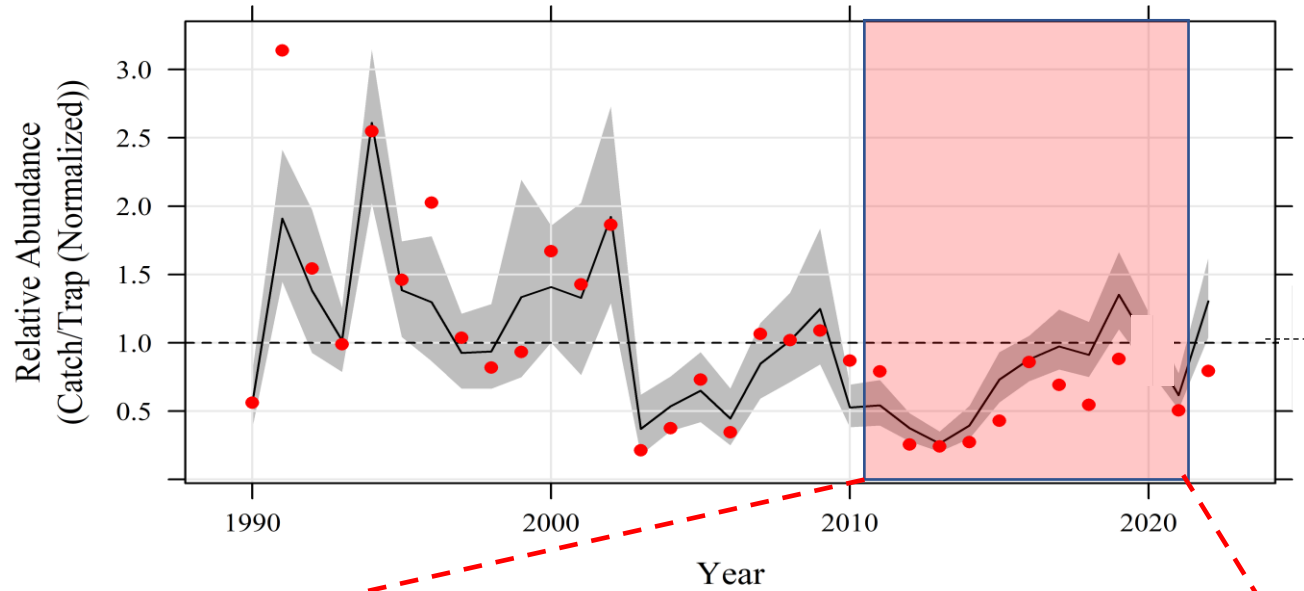
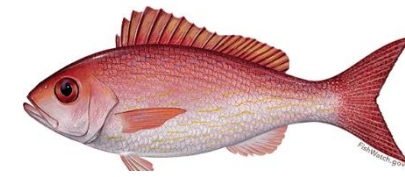
Tomtate



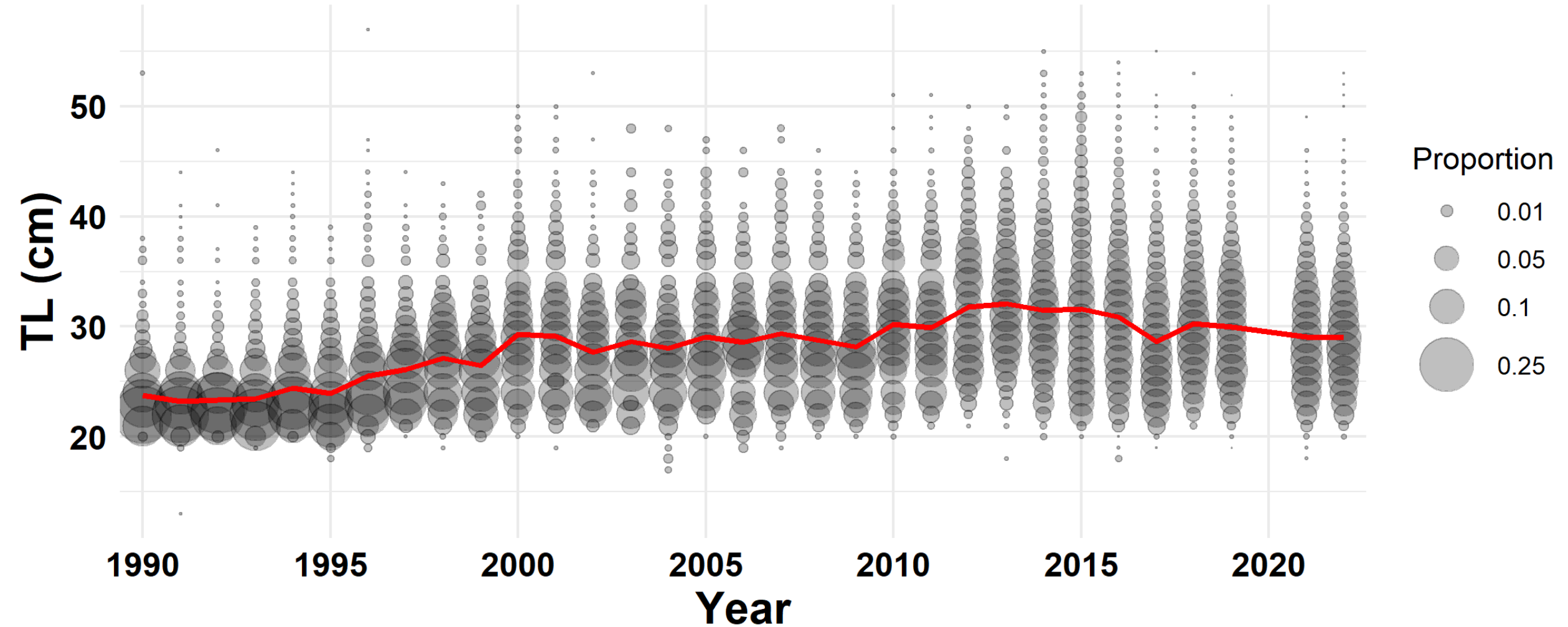
Tomtate



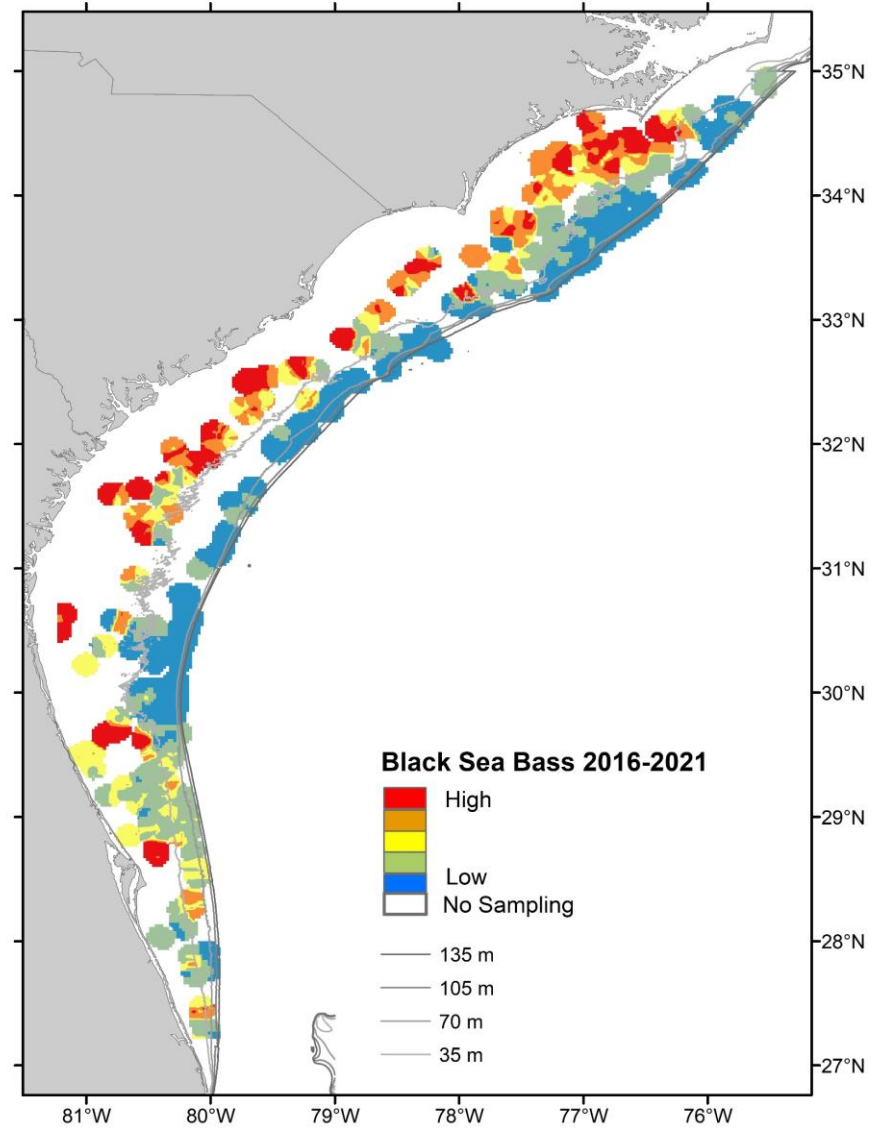
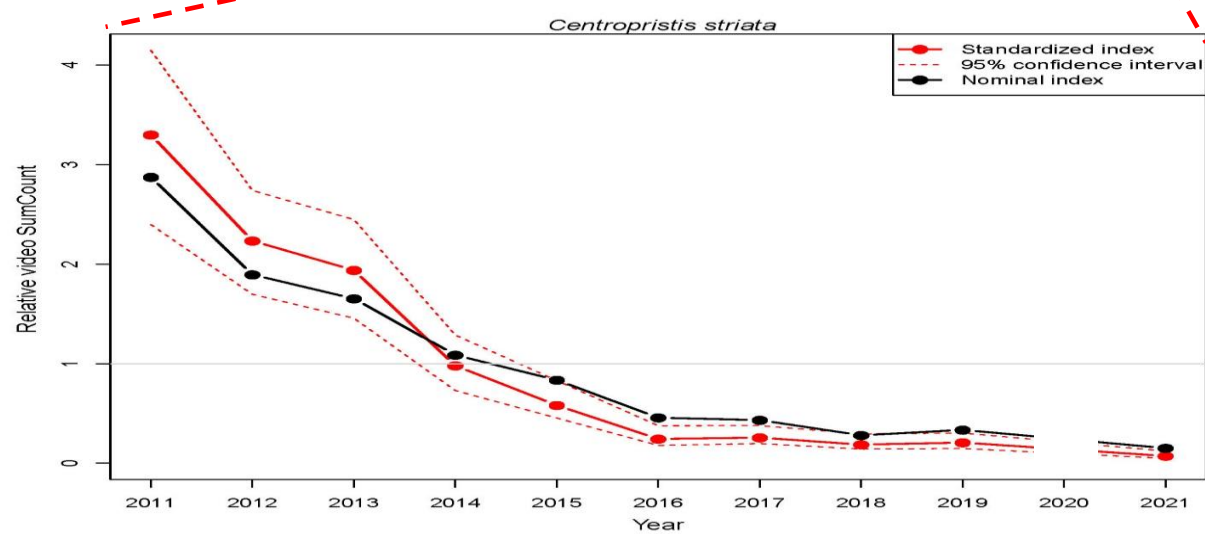
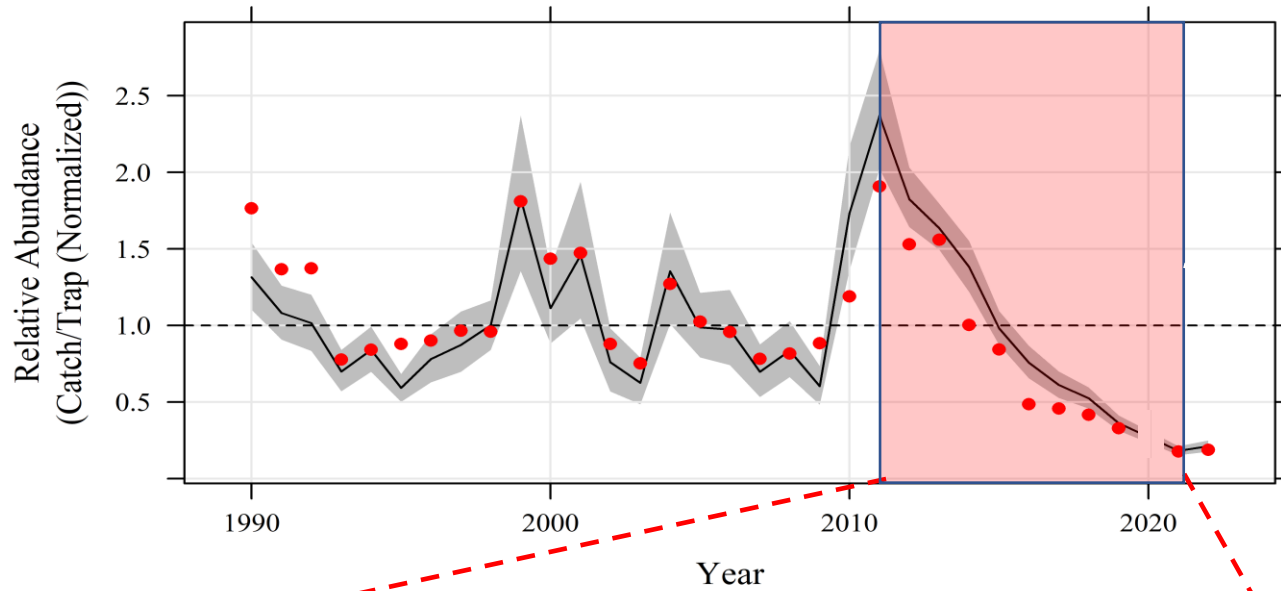
Vermilion Snapper



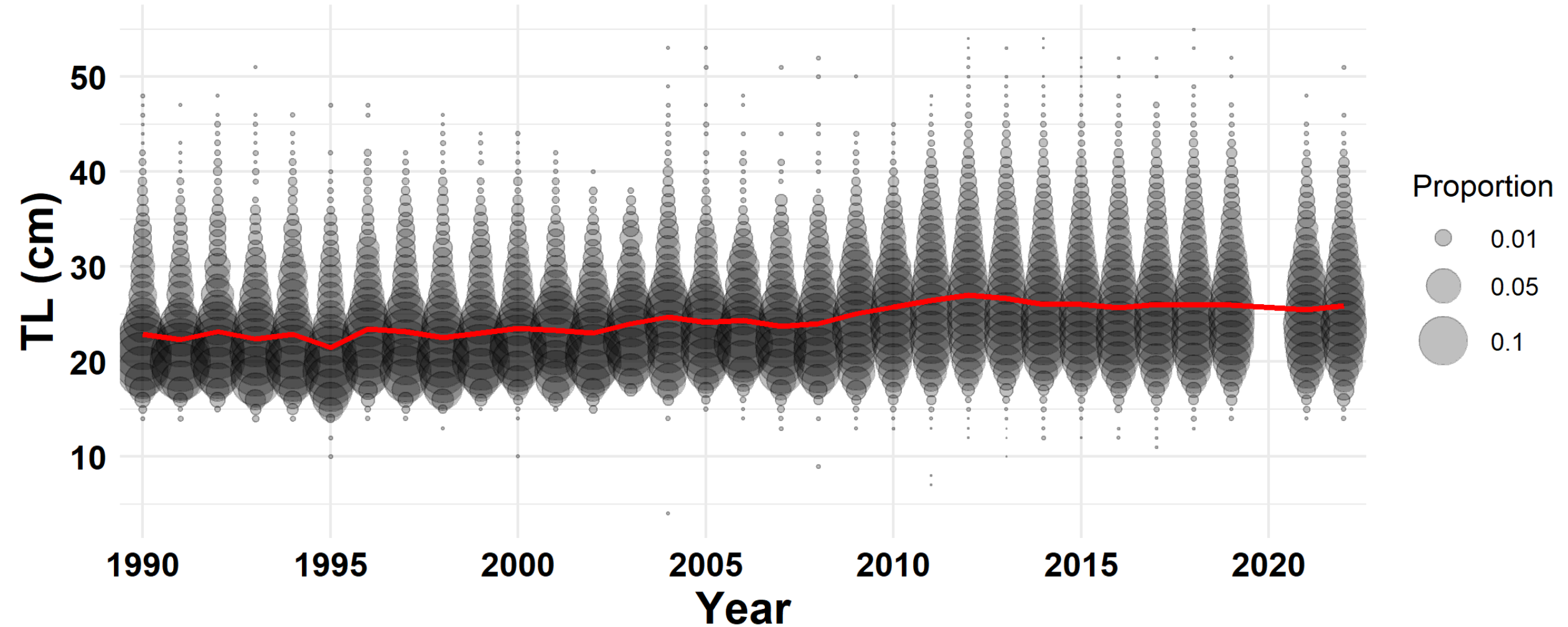
Vermilion Snapper



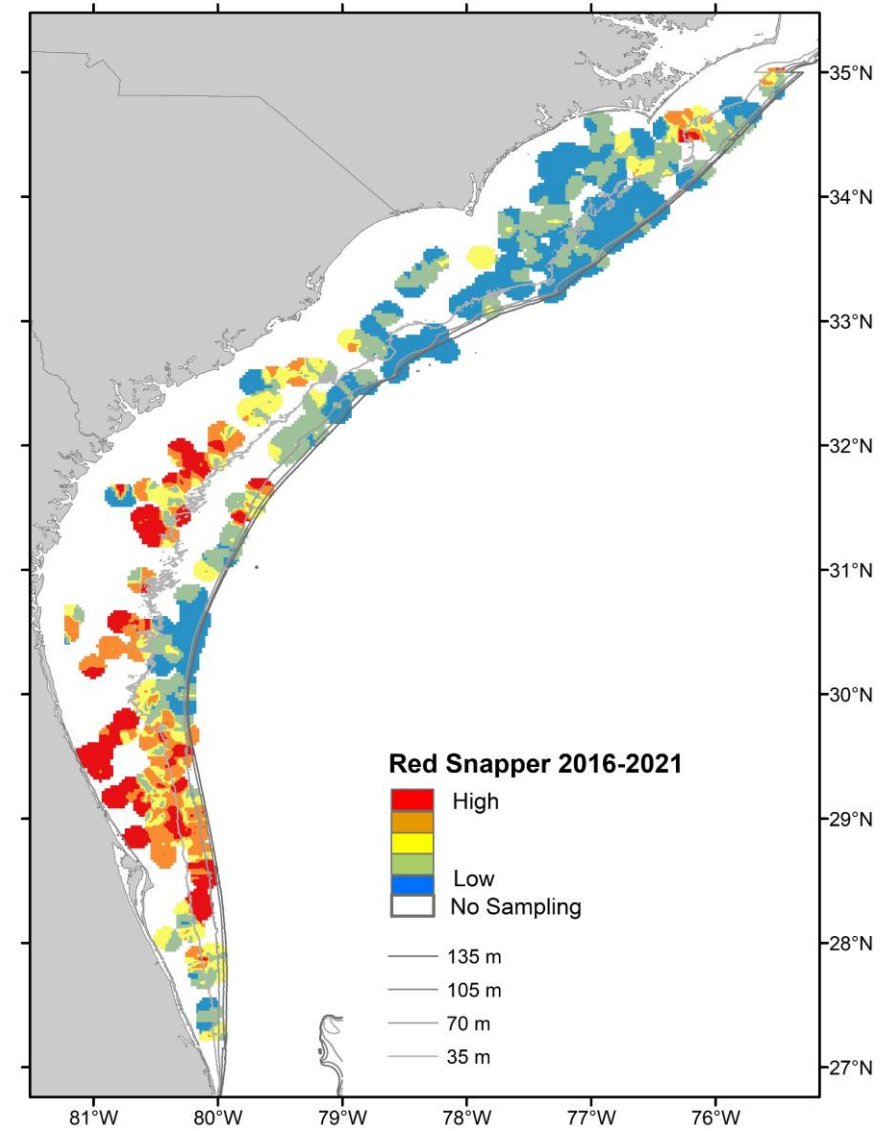
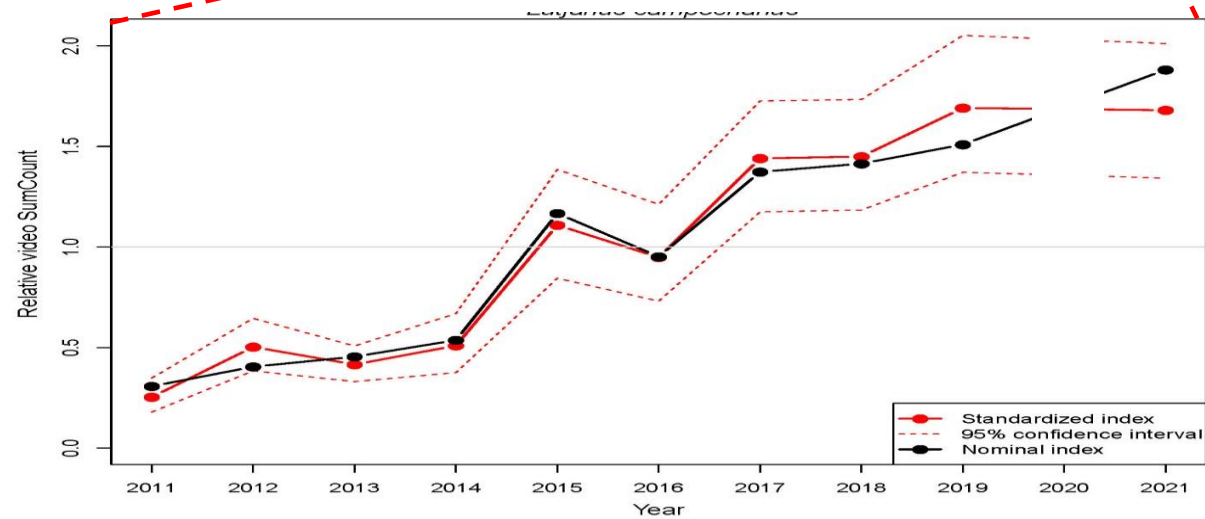
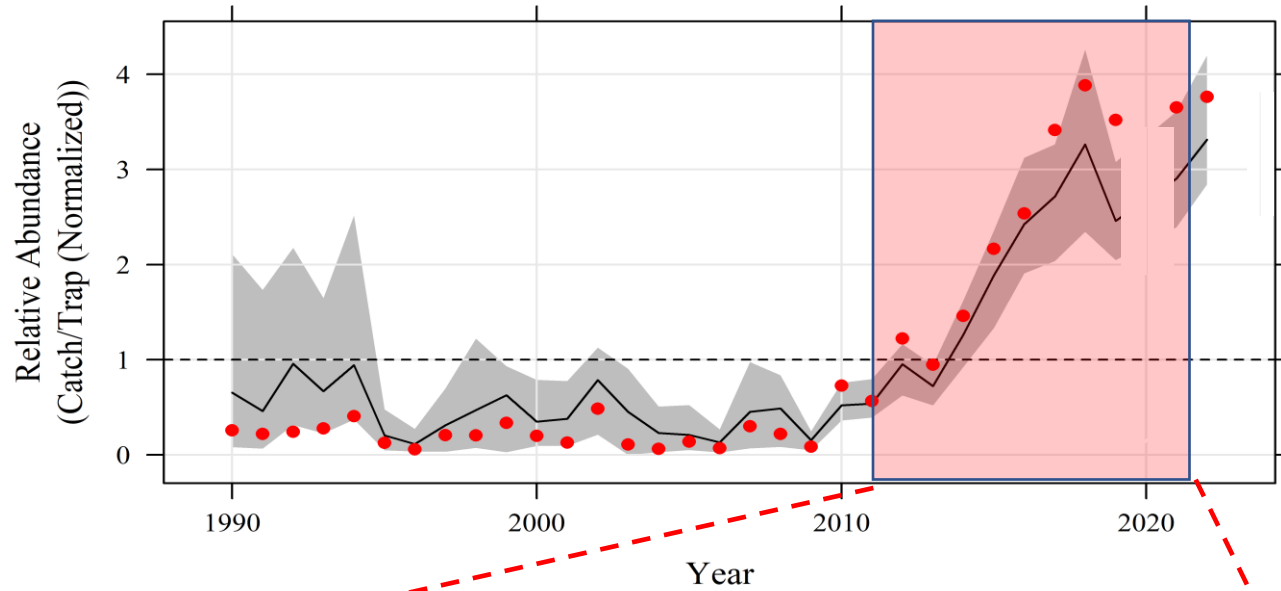
Black Sea Bass



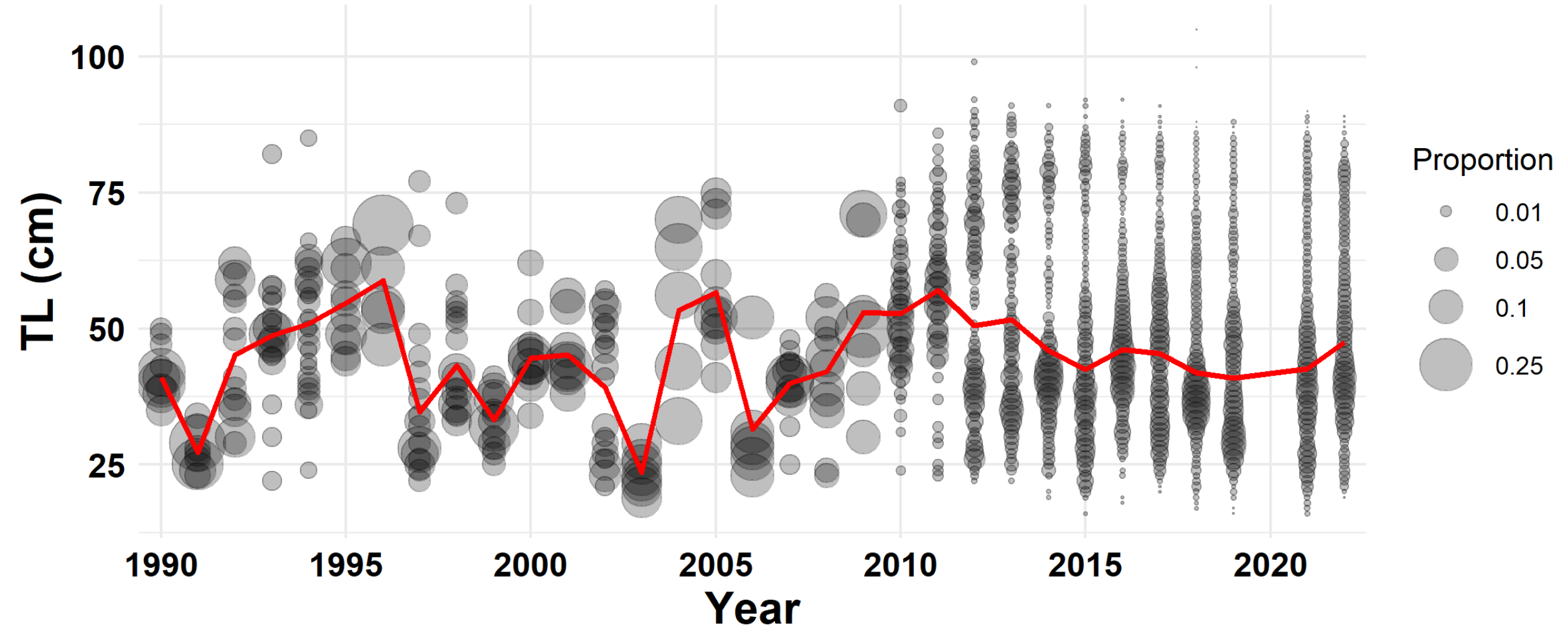
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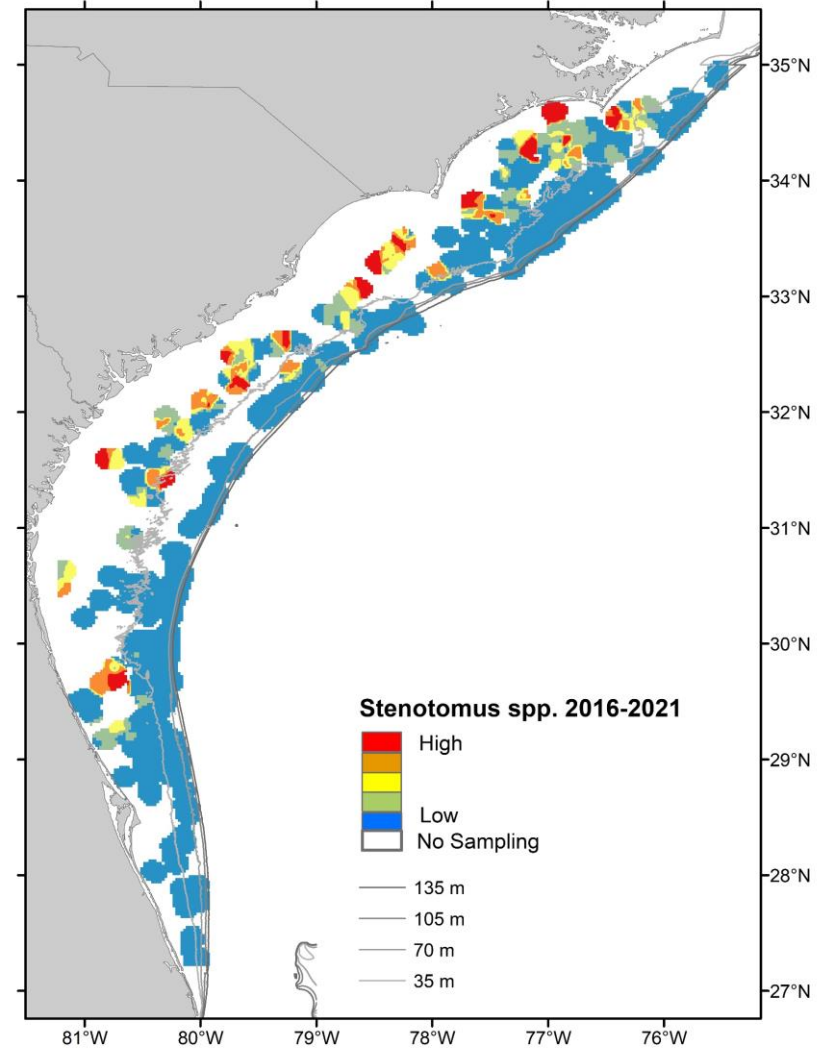
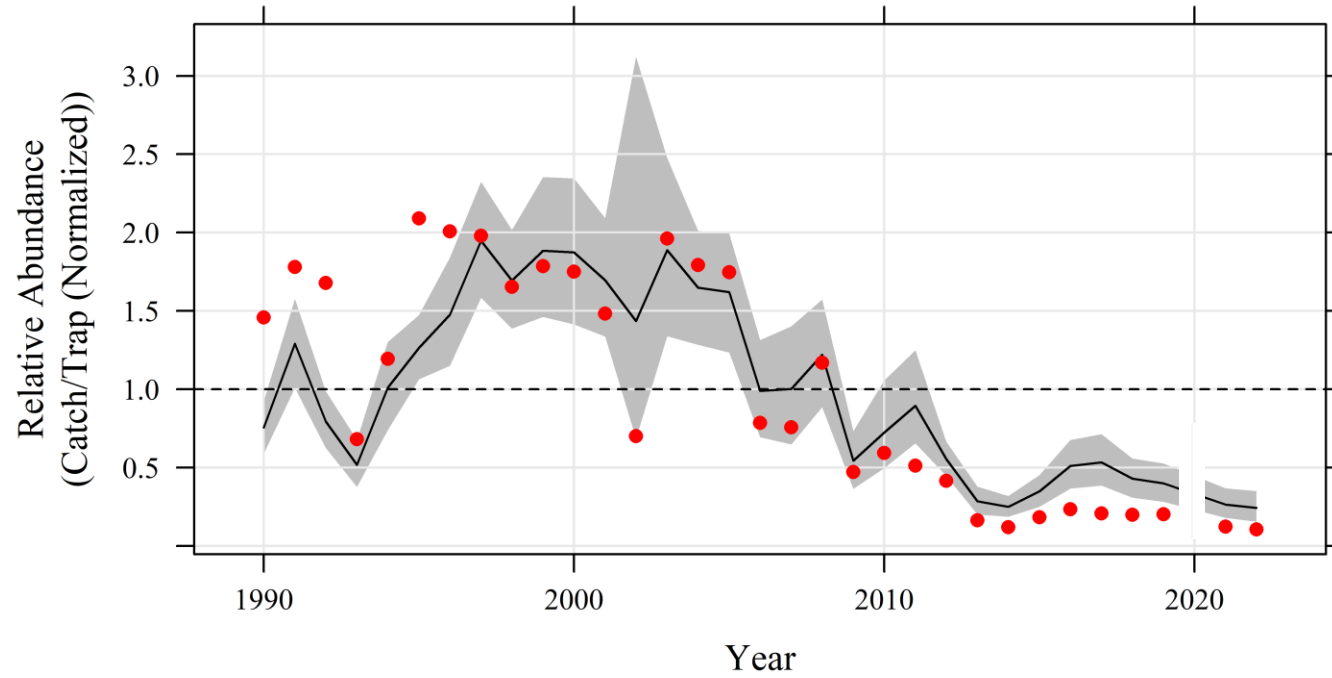
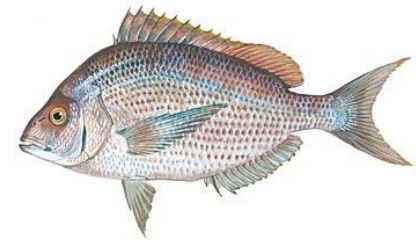
Red Snapper



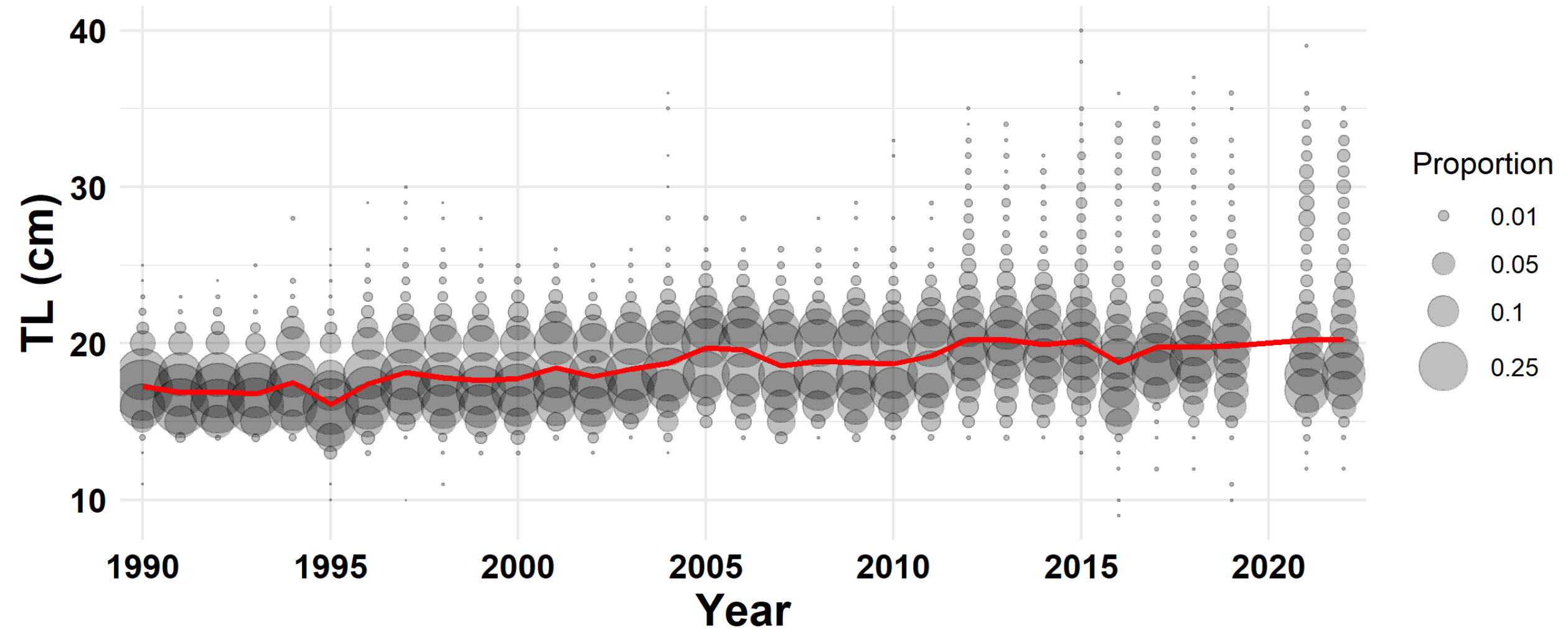
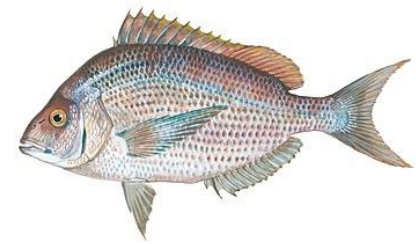
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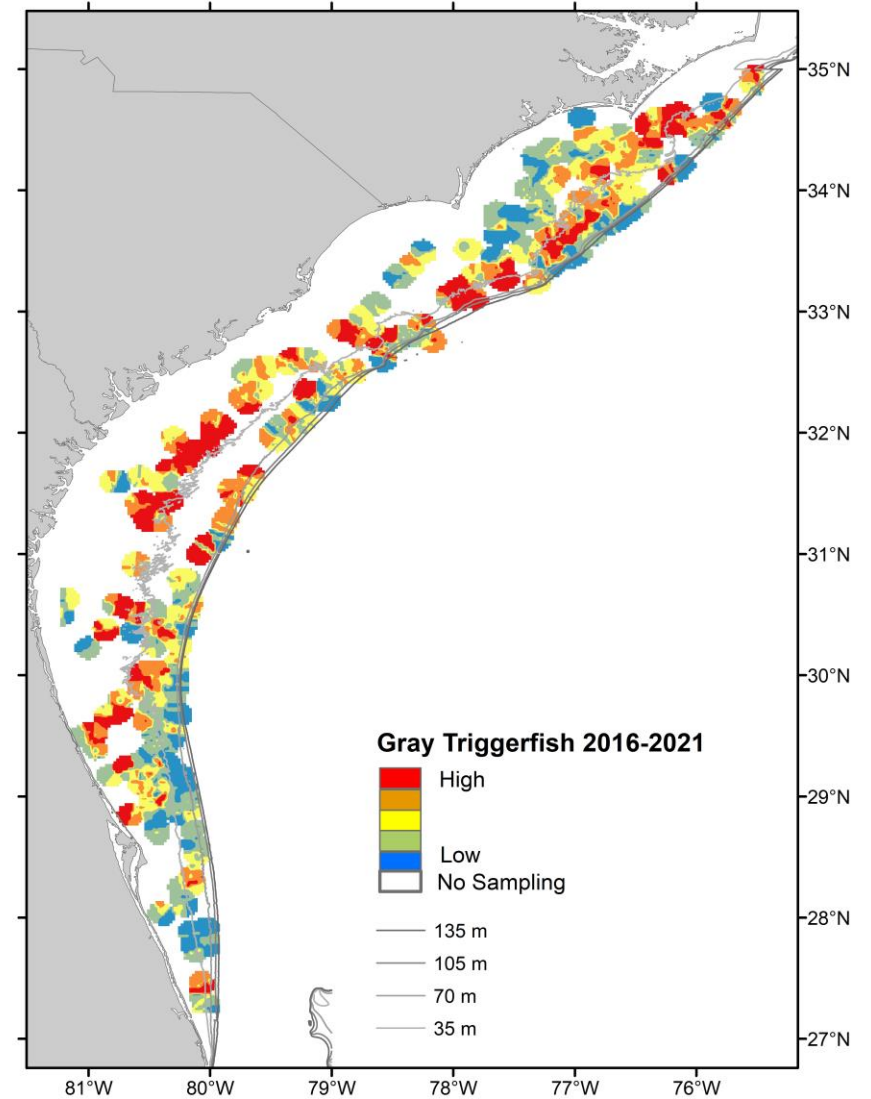
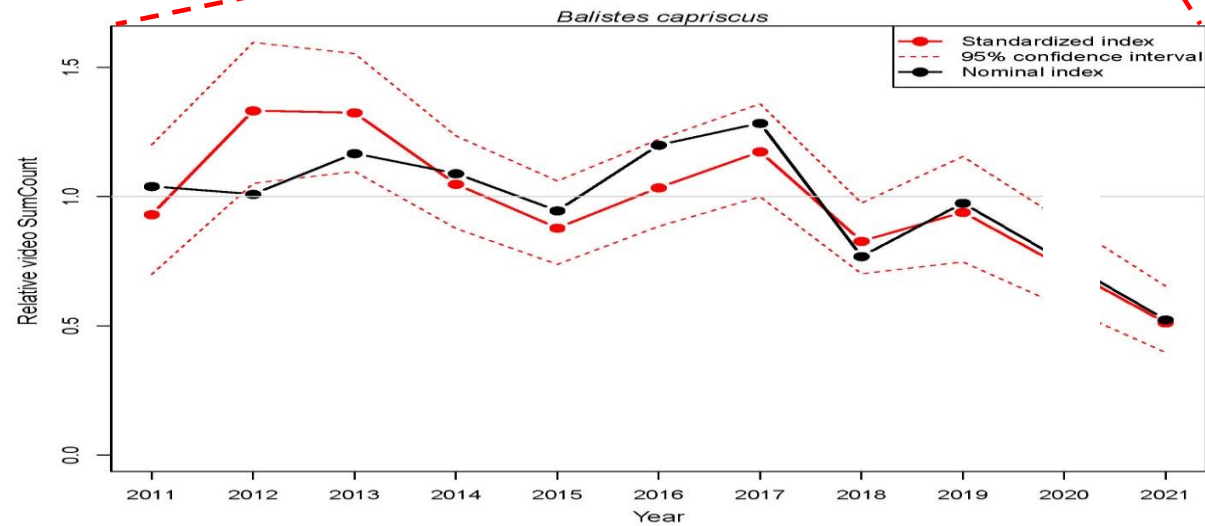
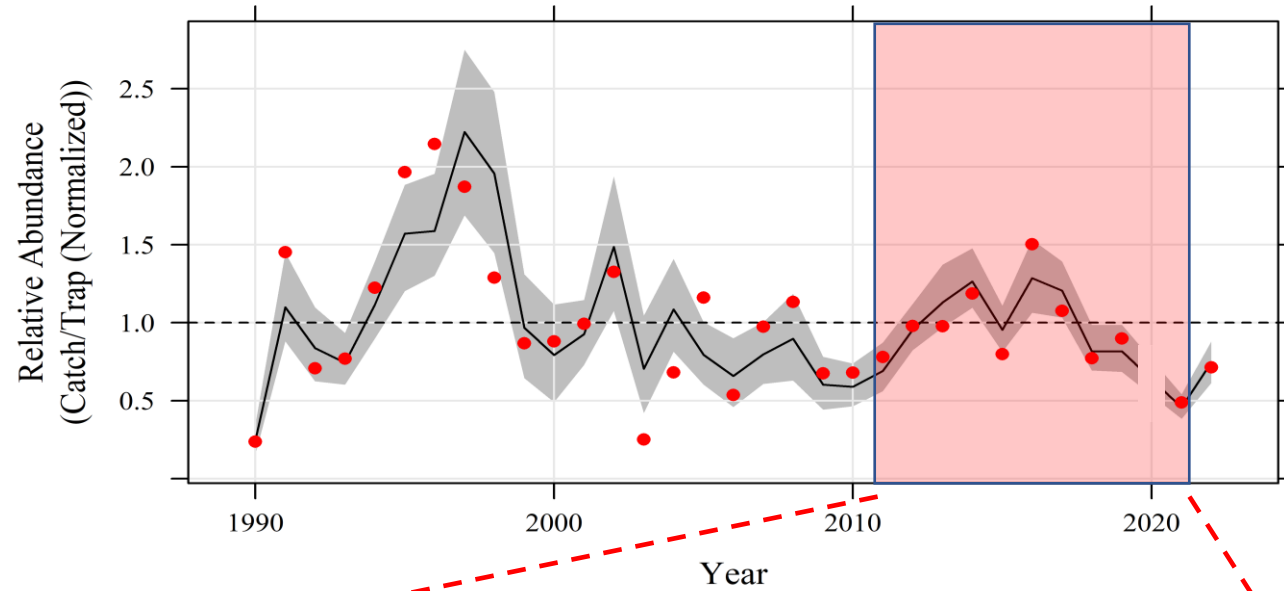
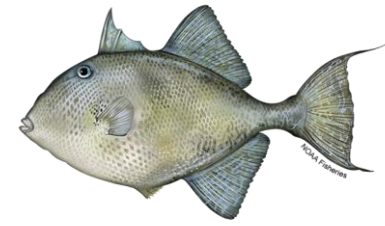
Stenotomus spp.



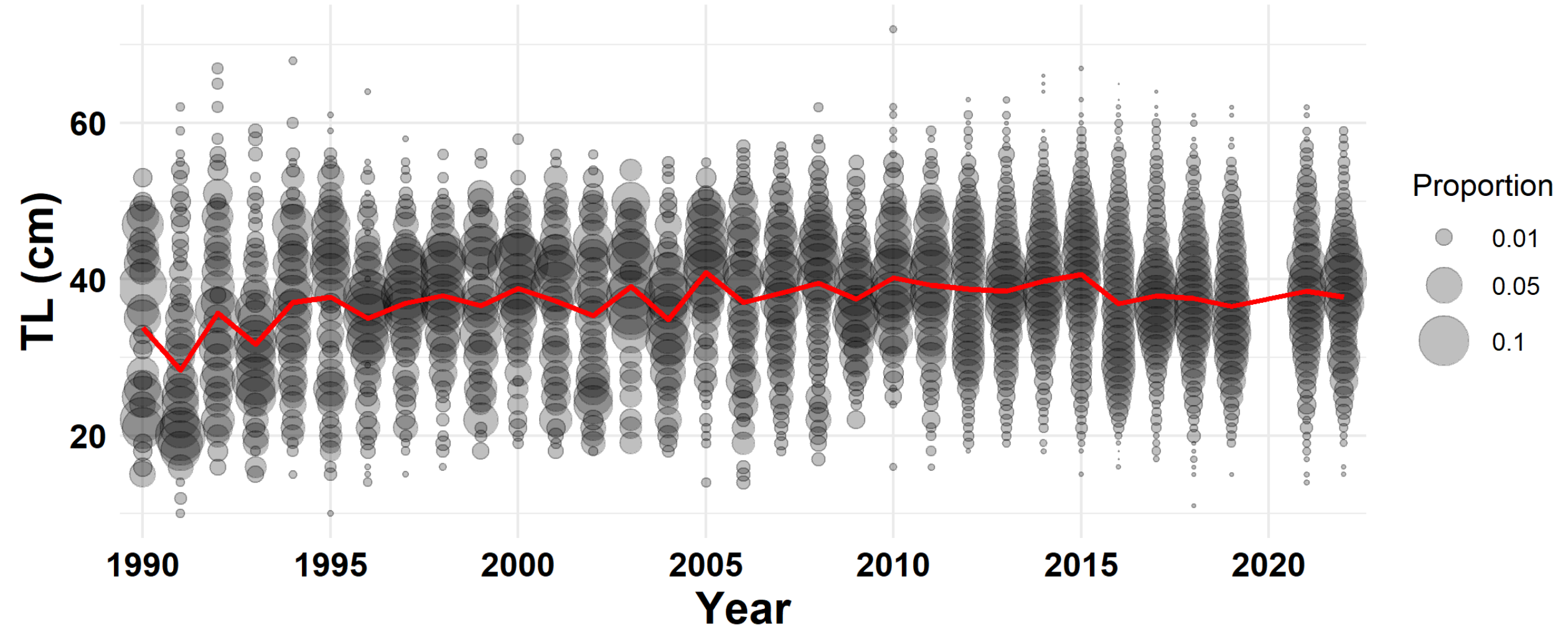
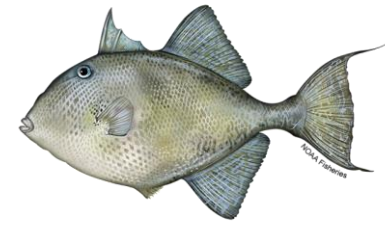
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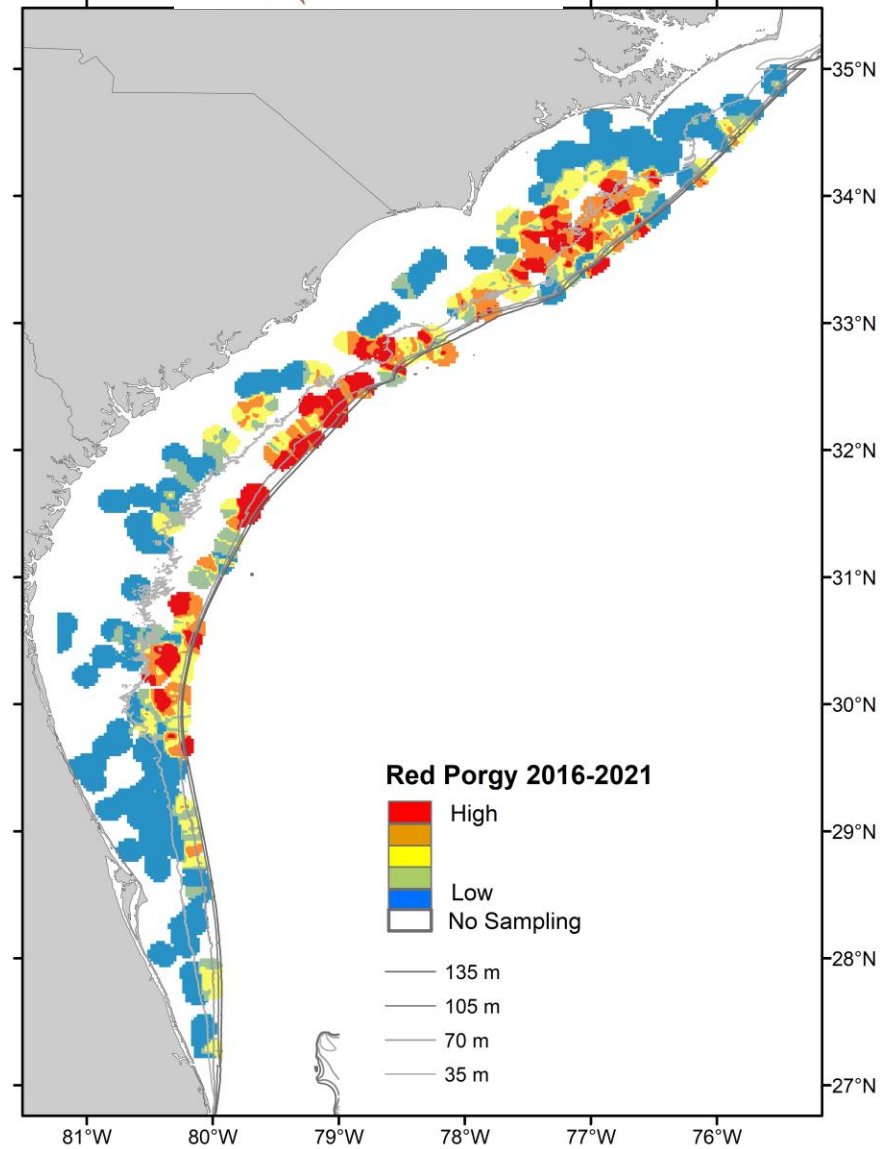
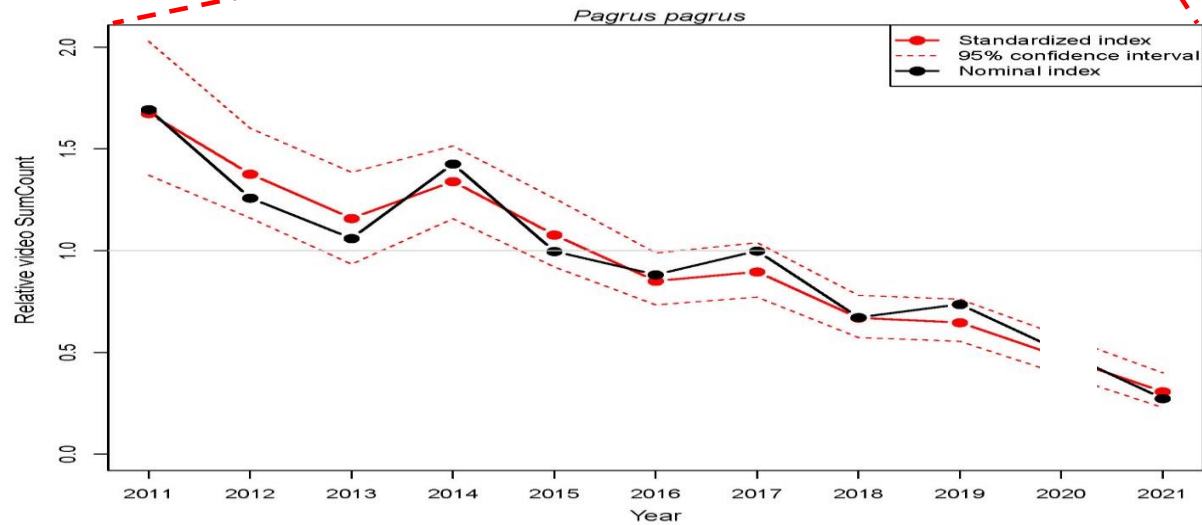
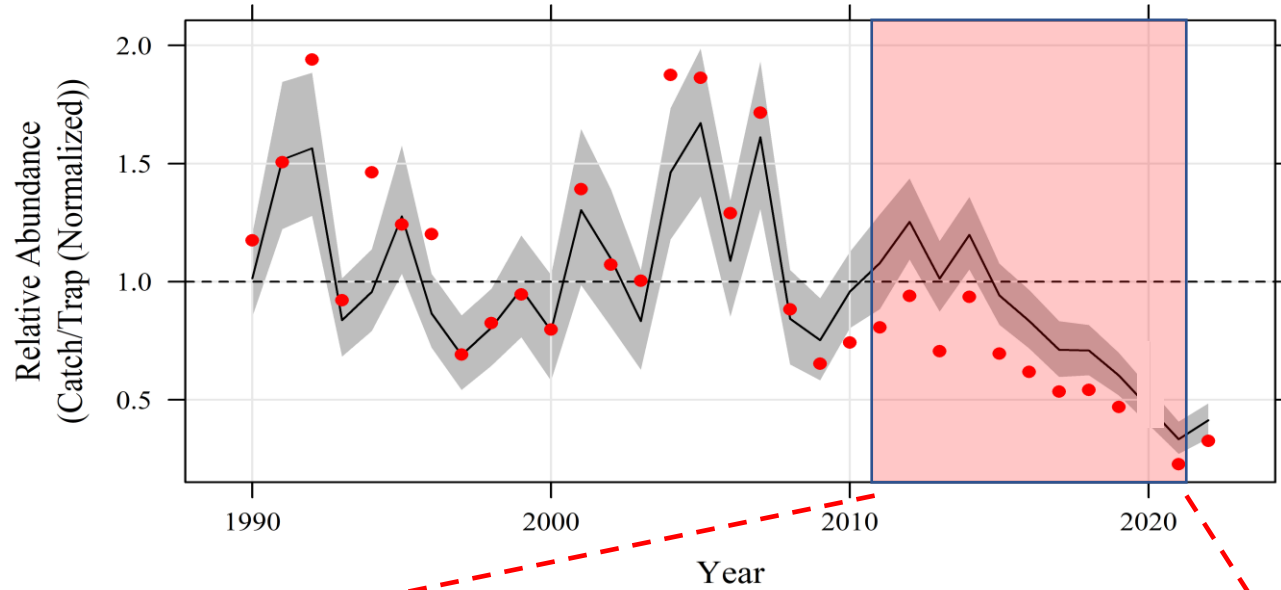
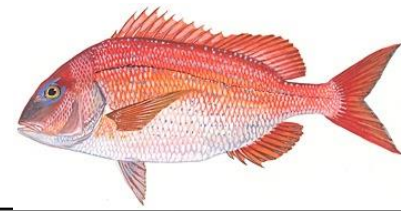
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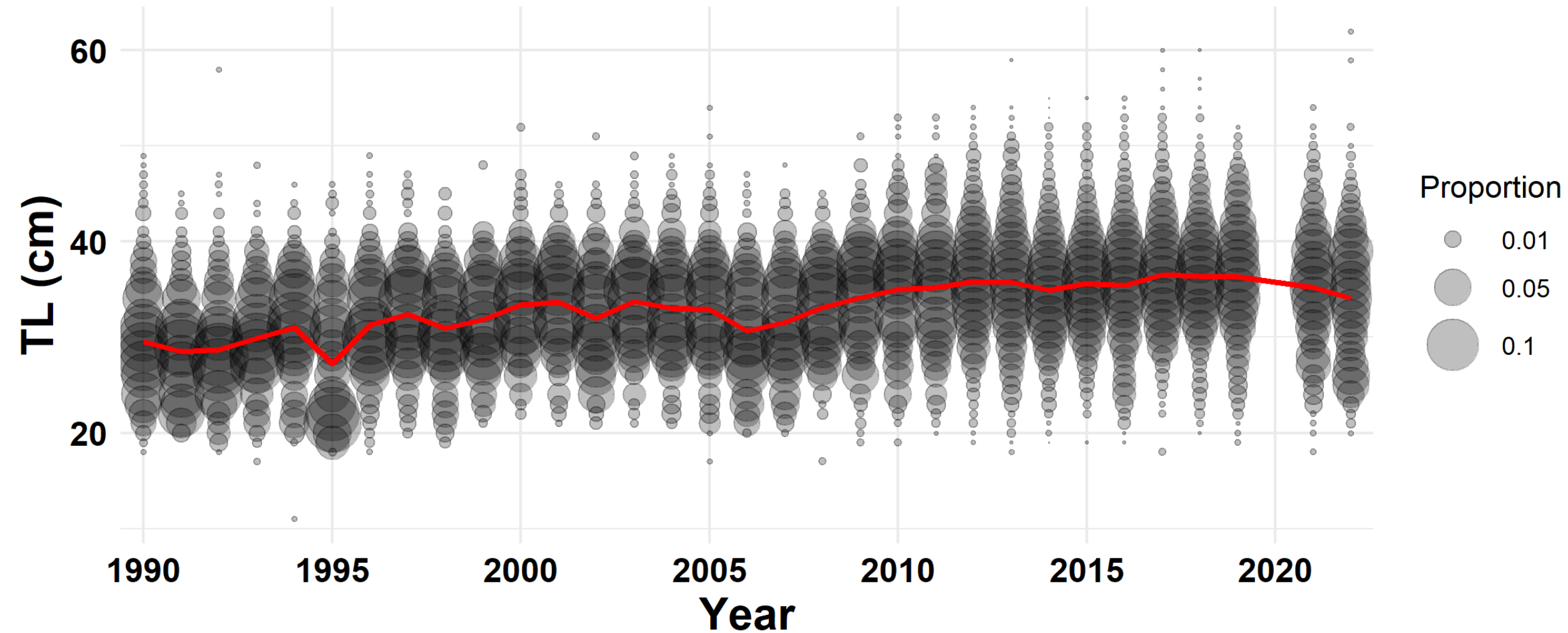
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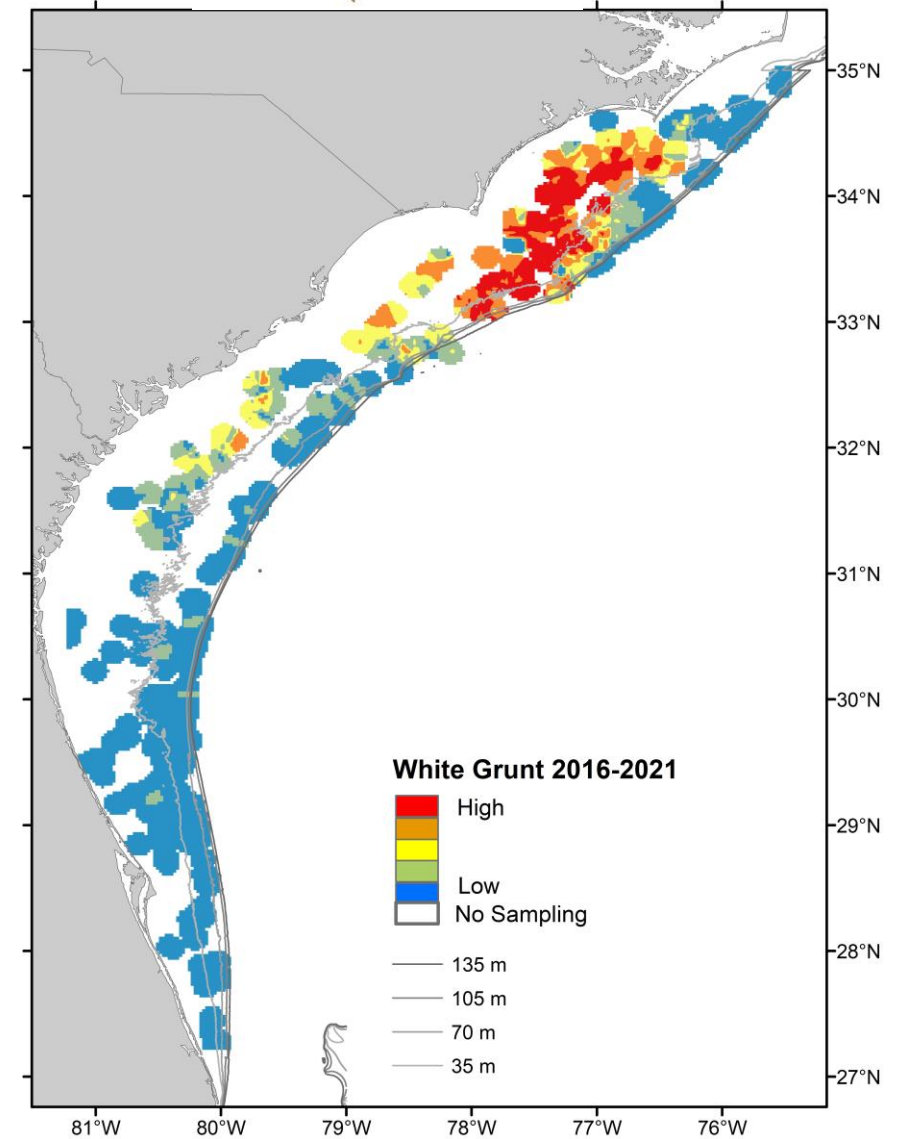
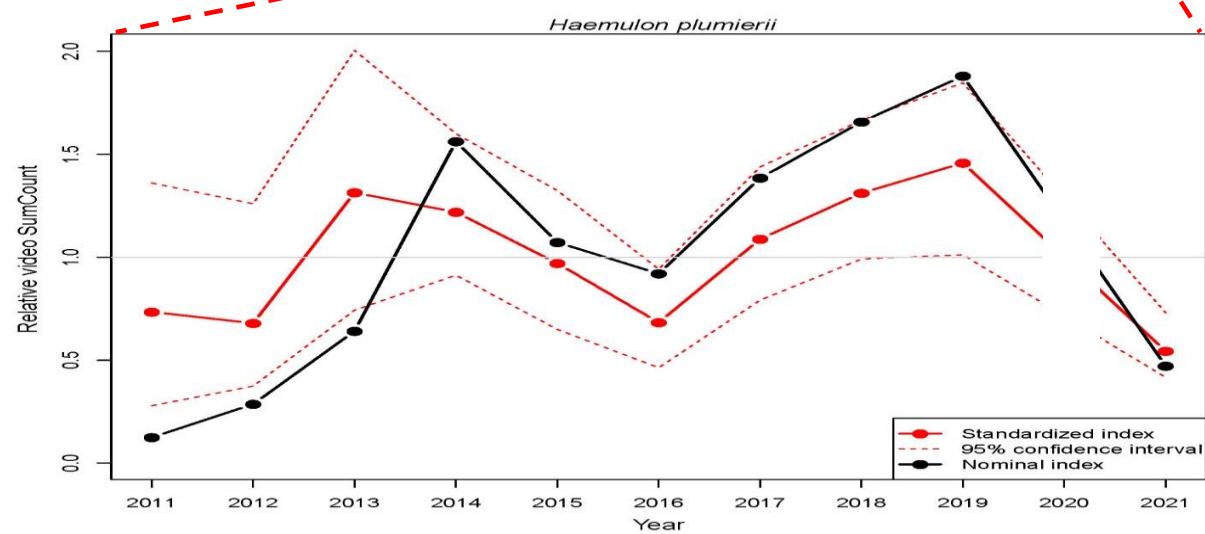
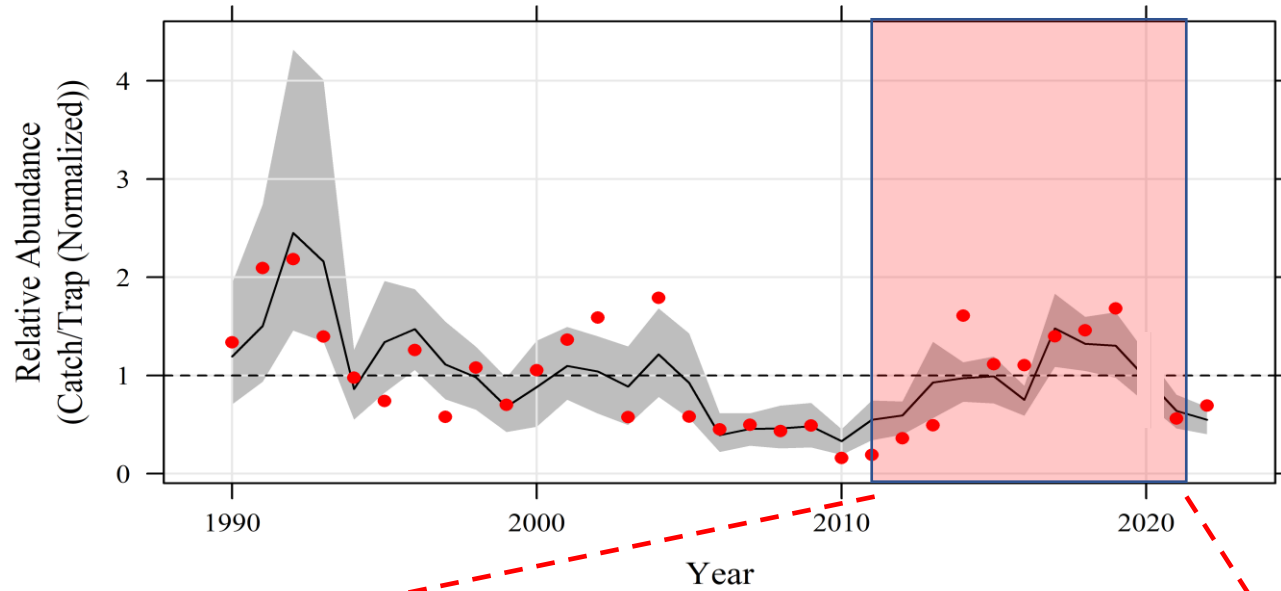
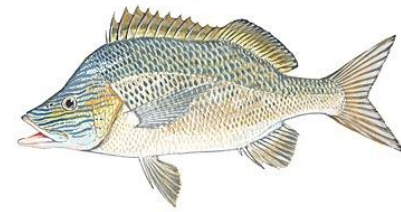
Red Porgy



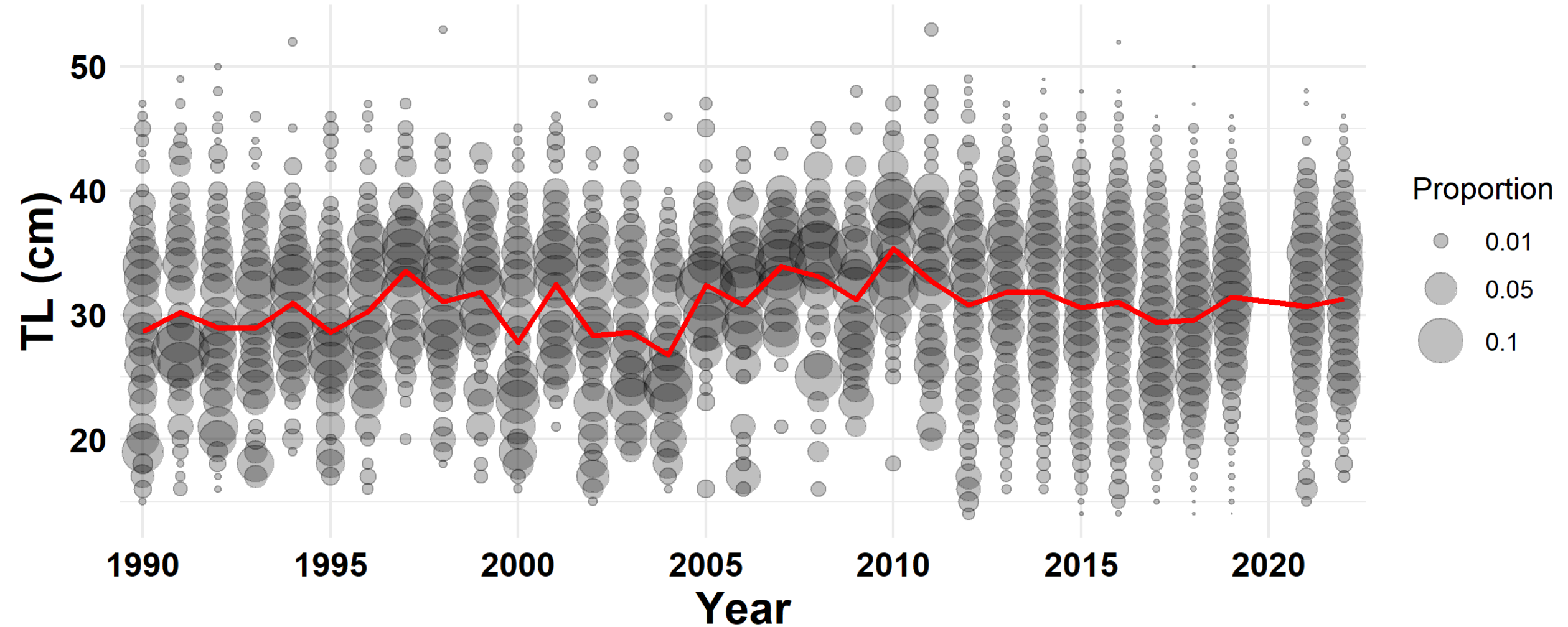
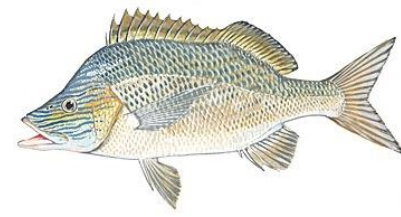
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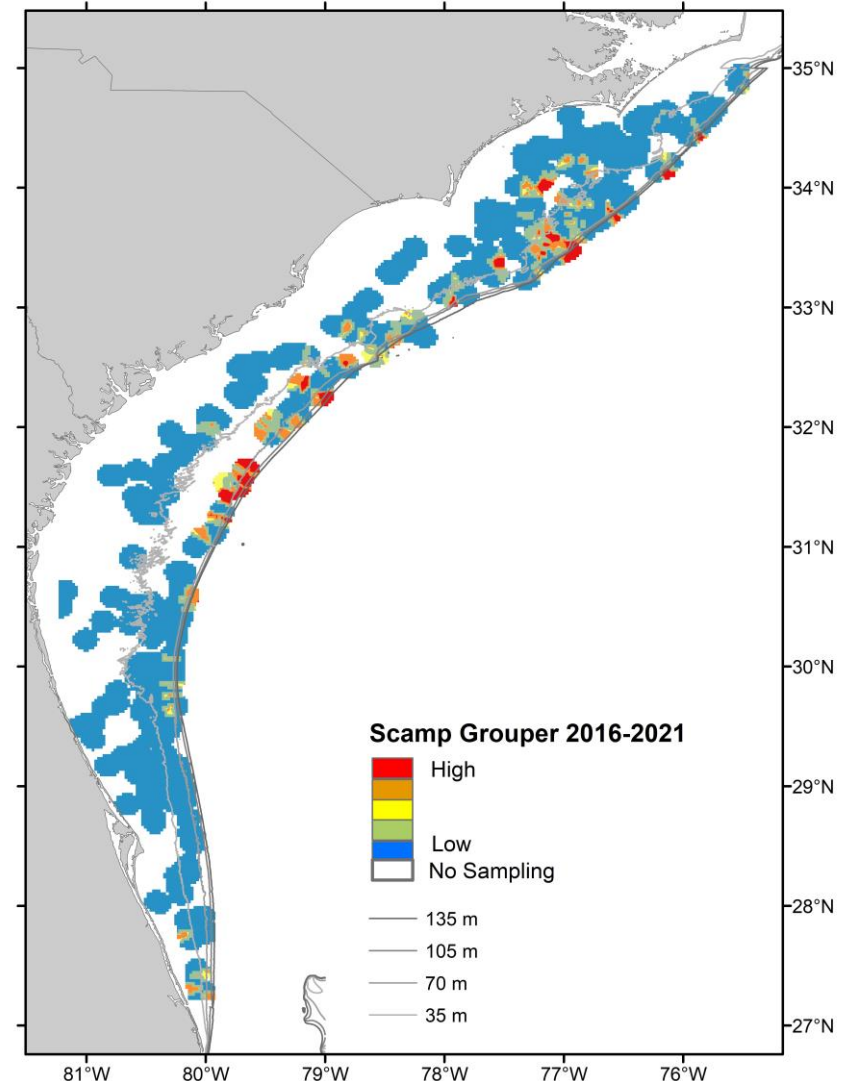
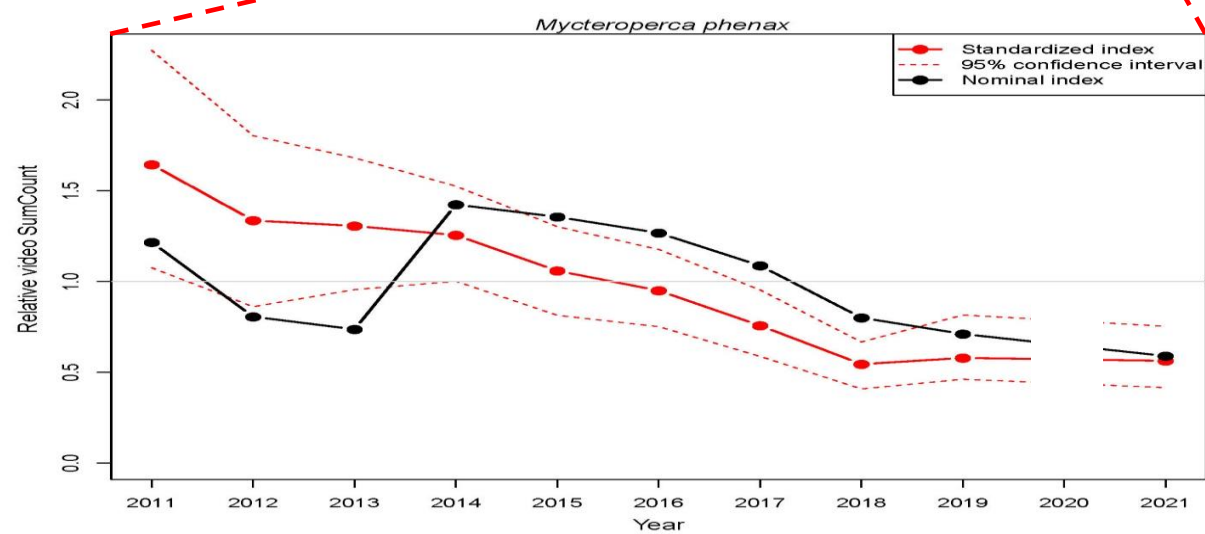
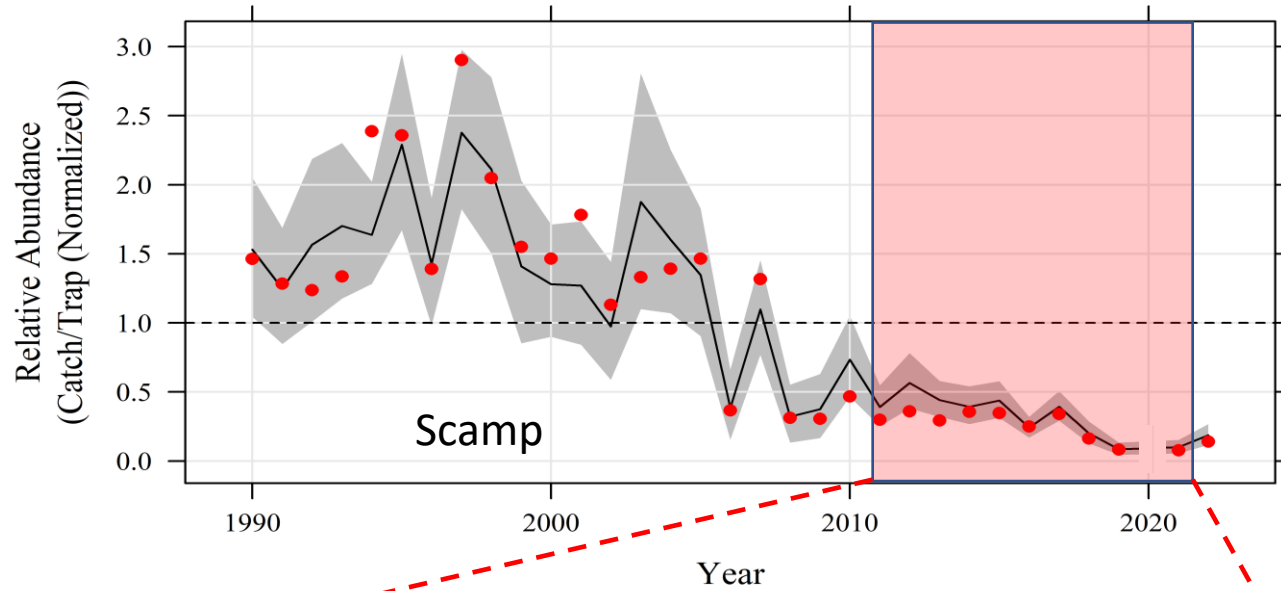
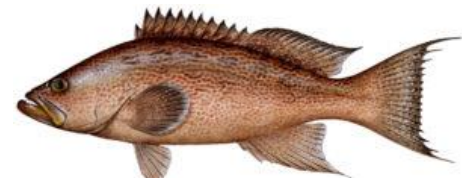
White Grunt



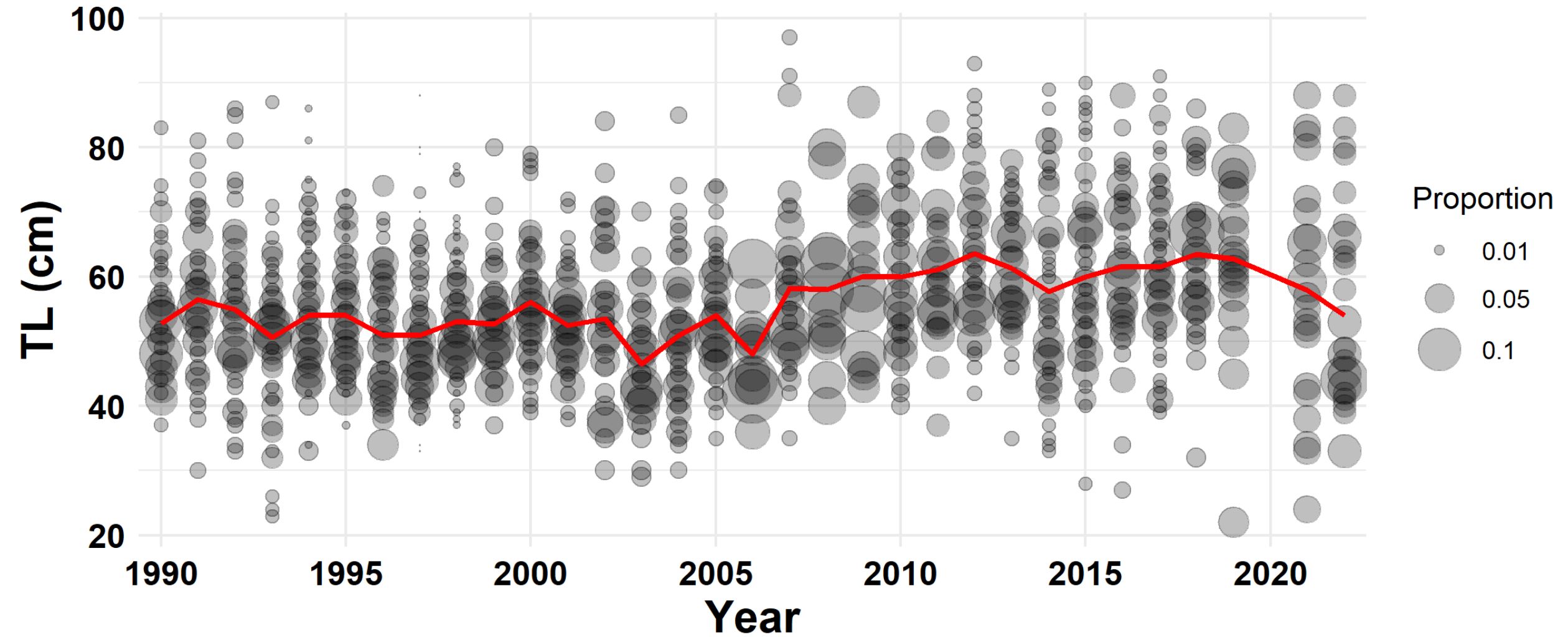
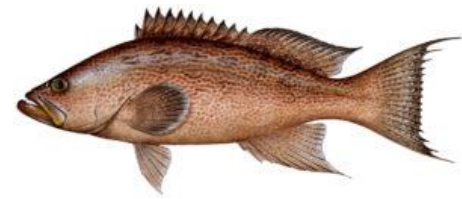
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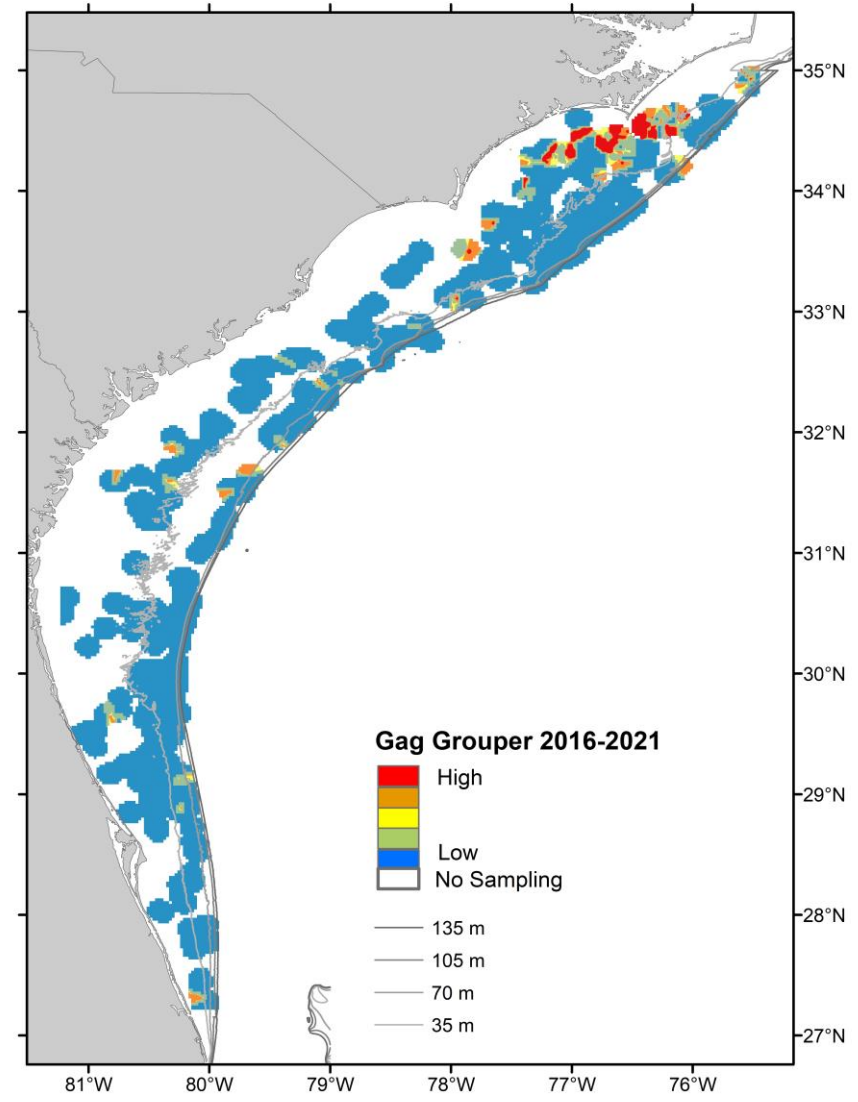
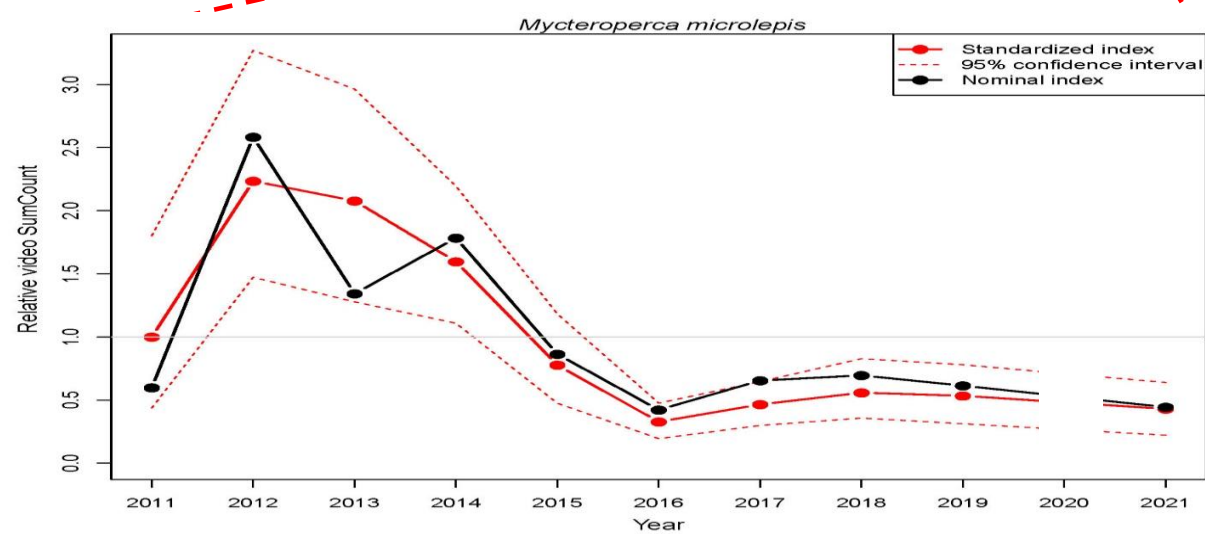
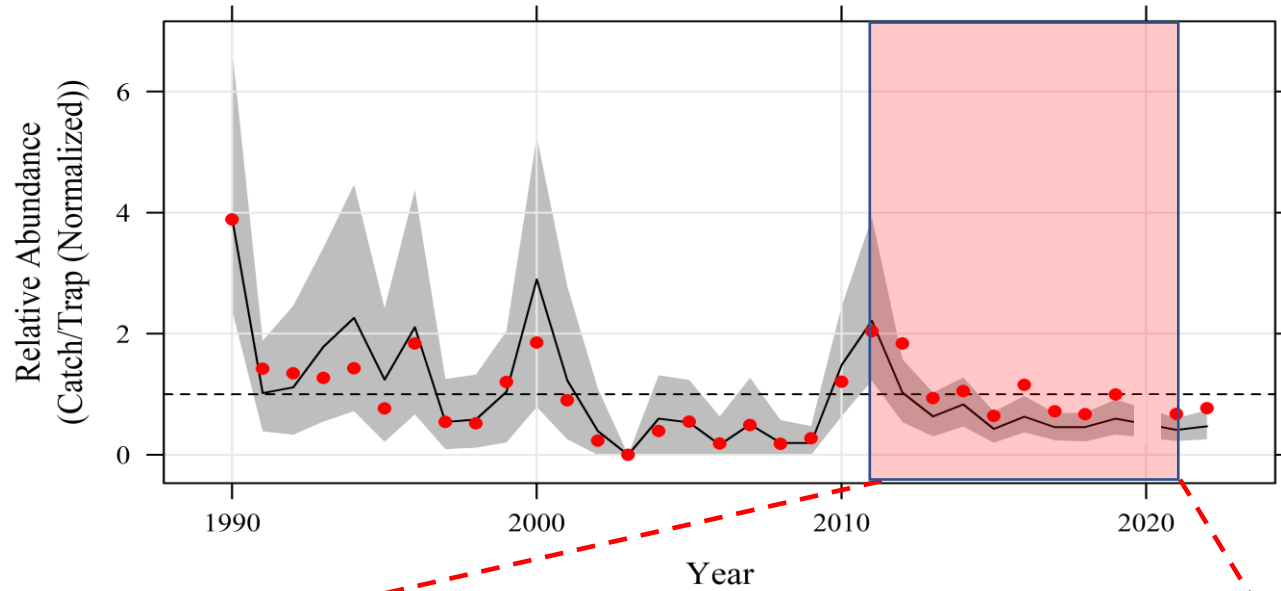
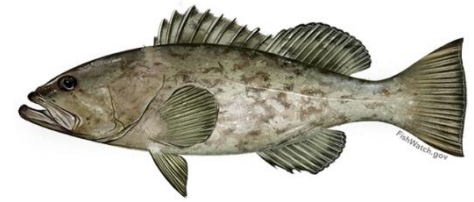
Scamp



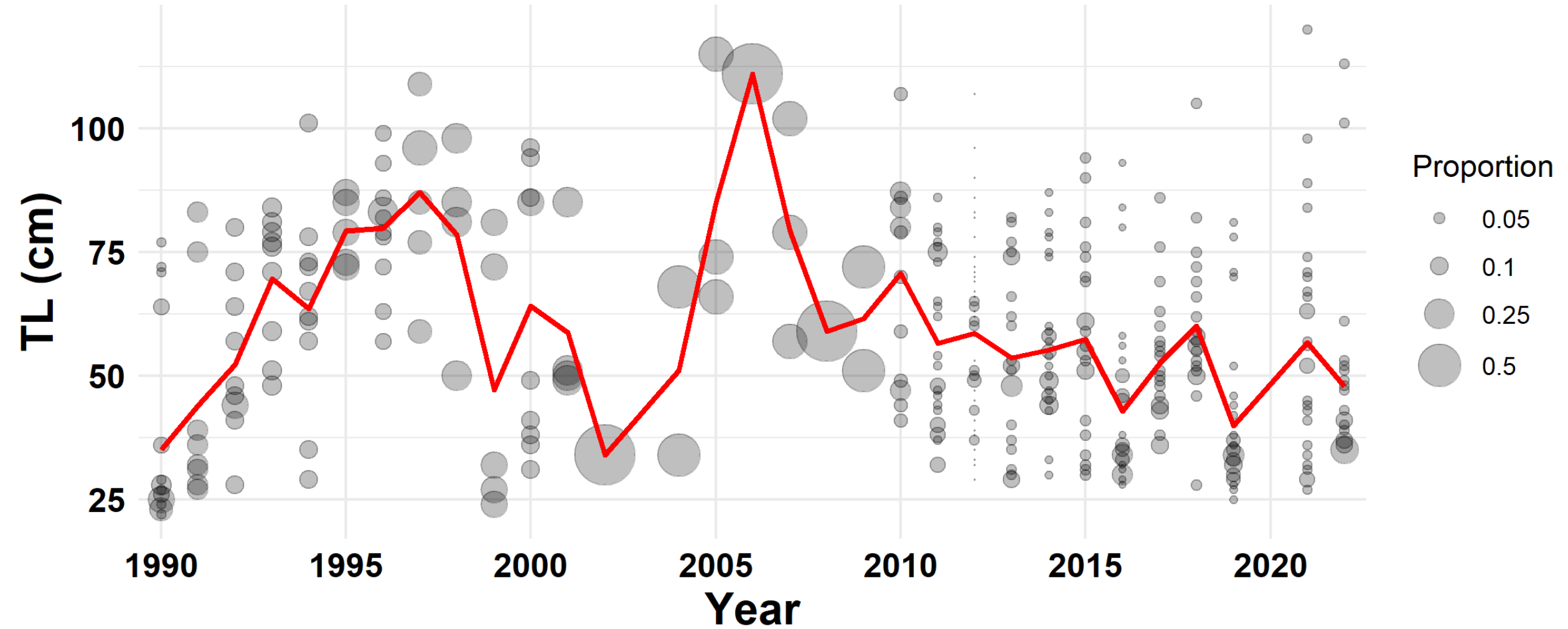
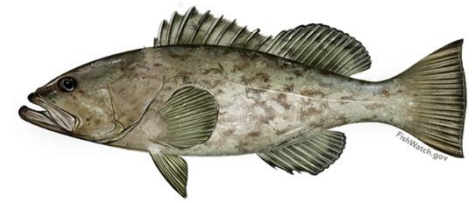
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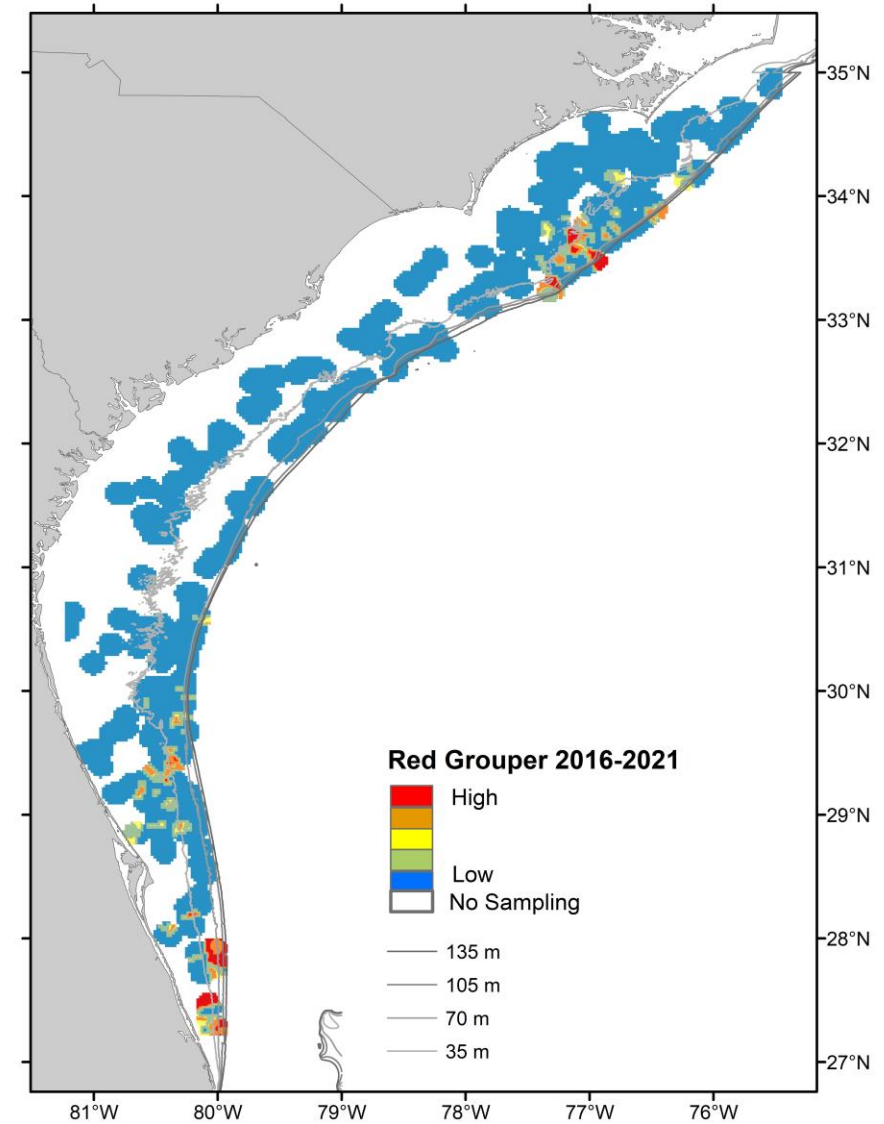
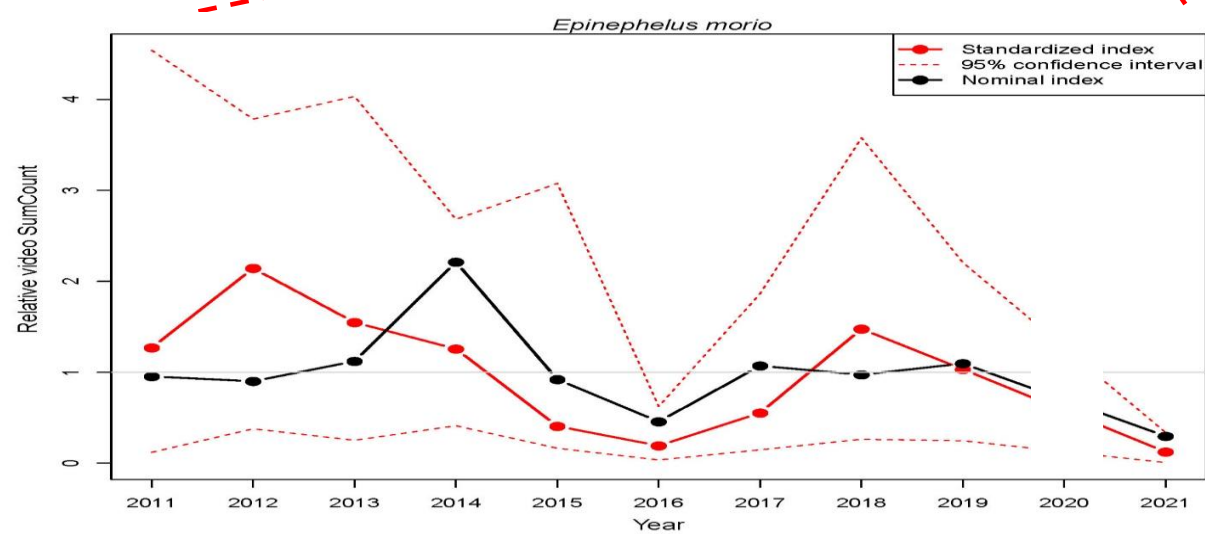
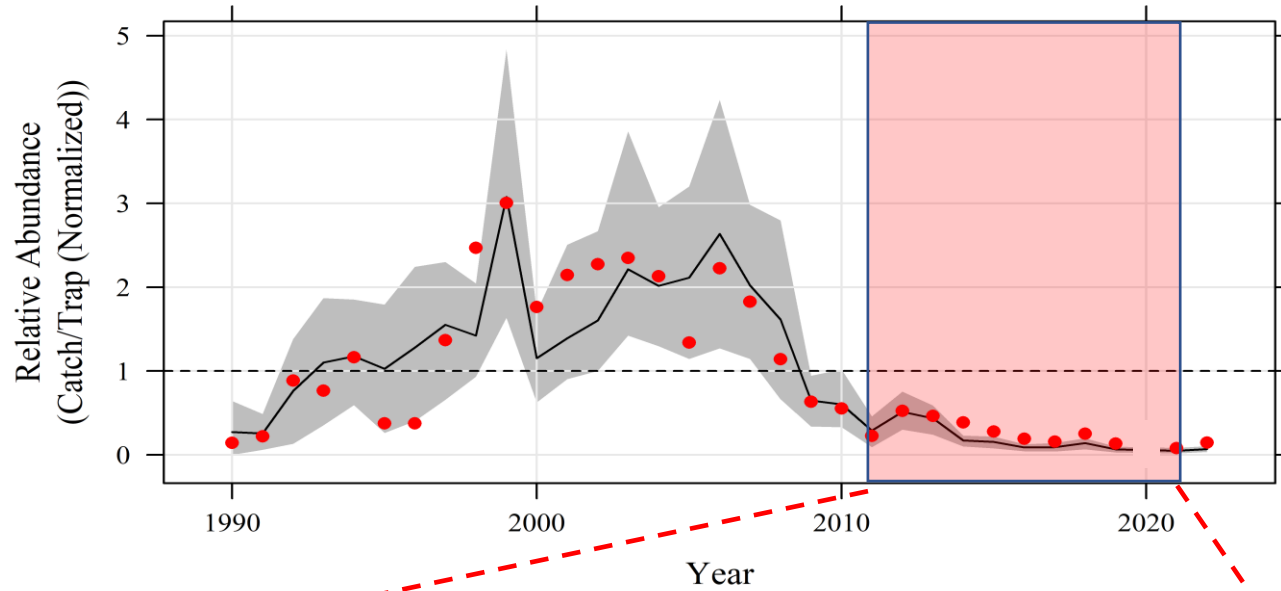
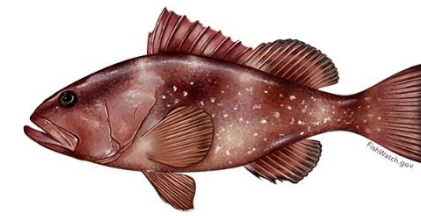
Gag



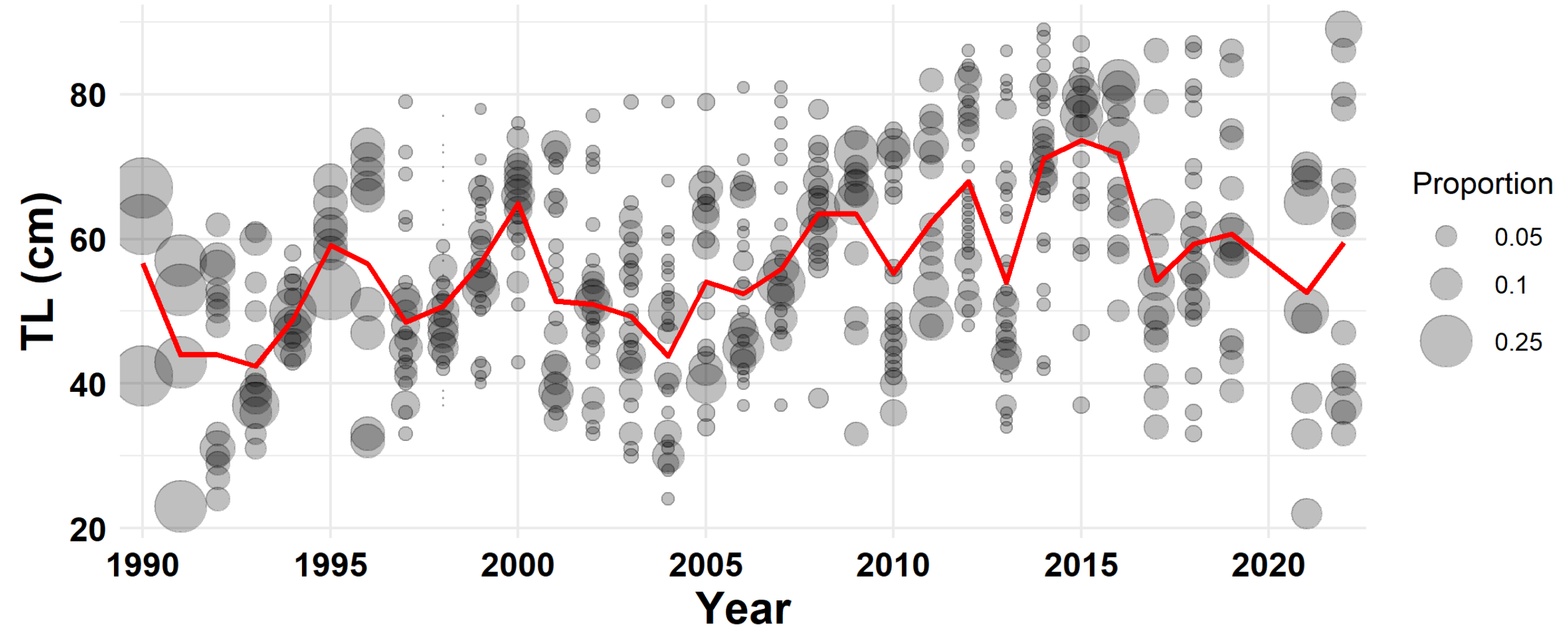
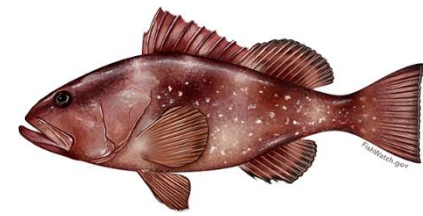
Gag



Red Grouper



Red Grouper



2023 SERFS Plans



Sampling Season:

Mid-April → Mid-October

≈ 85 days at sea

3 vessels- Chevron Video Trap

Complete scientific crew

Full life history sampling



Other Reef Fish Activities (SCDNR)

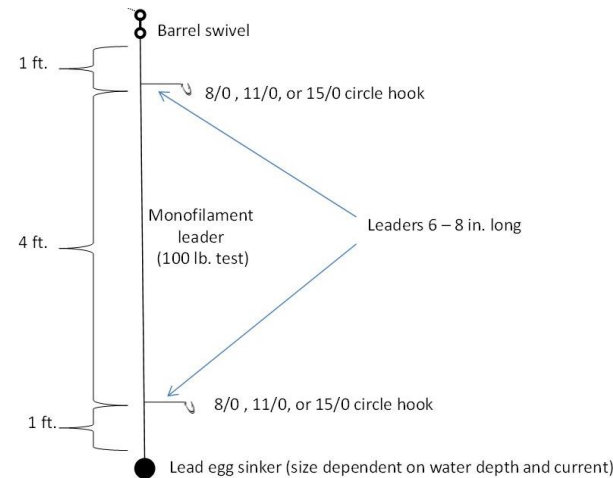
Short Bottom Longline Expansion



Gear Selectivity



Juvenile Snapper-Grouper Survey





Acknowledgements:

MARMAP/SEAMAP-SA/SEFIS
Staff & Students
Research Vessel Crews
Past and Present

NOAA funding
SCDNR support



Questions?