South Atlantic Region Fishery Independent Surveys Update

SAFMC Habitat AP Meeting

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Outline

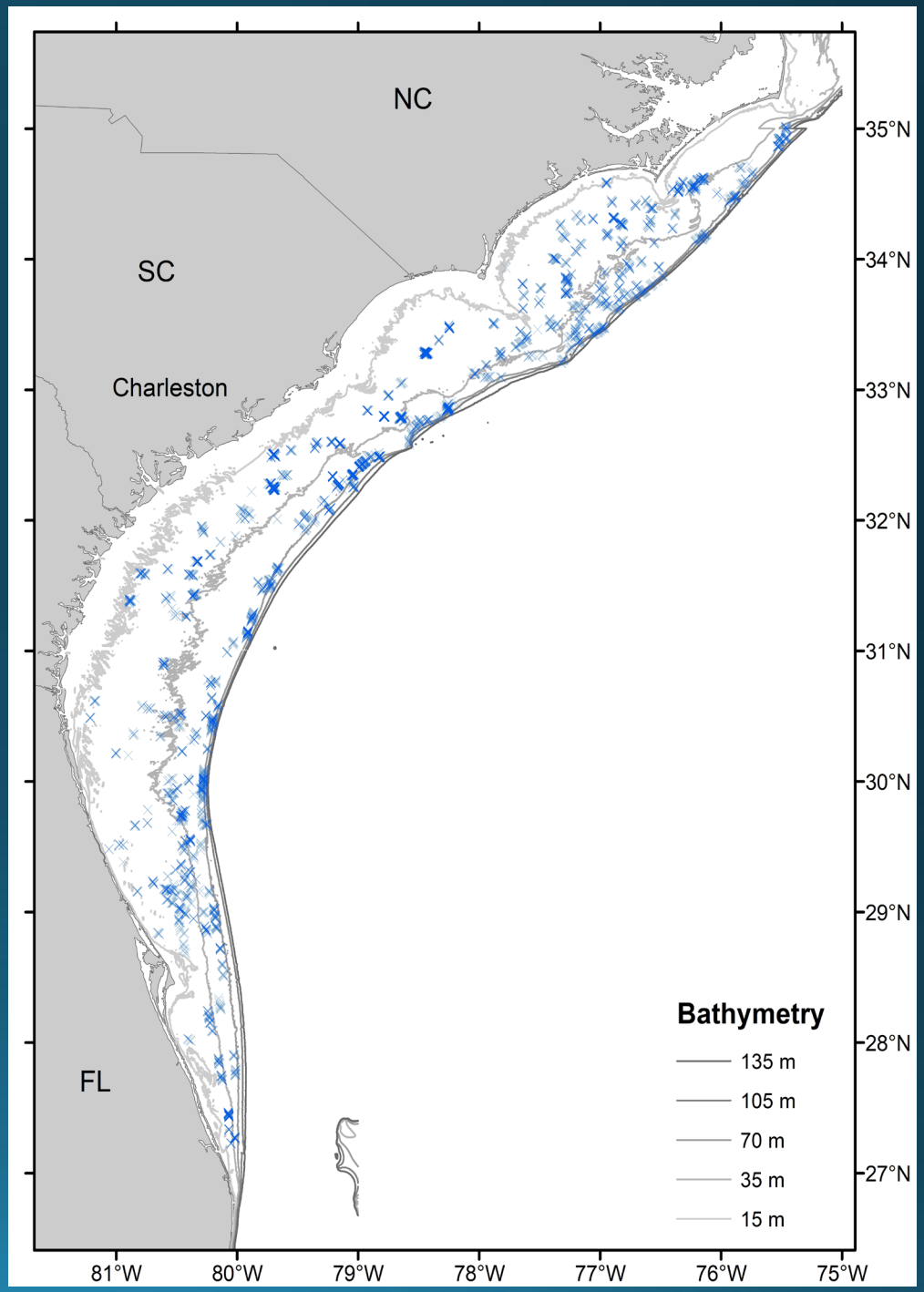
- Southeast Reef Fish Survey
- SADLS Deepwater Longline Survey
- SEAMAP Coastal Trawl Survey

SouthEast Reef Fish Survey (SERFS)

- MARMAP + NOAA SEFIS + SEAMAP SA Reef Fish Survey
  - Long-term fishery-independent survey (est. 1972)
  - Study abundance and life history of U.S. South Atlantic snapper/grouper
  - Primary gear: chevron trap
    - Longline
  - Video cameras (est. 2009)
    - Abundance
    - Species interactions
    - Habitat confirmation

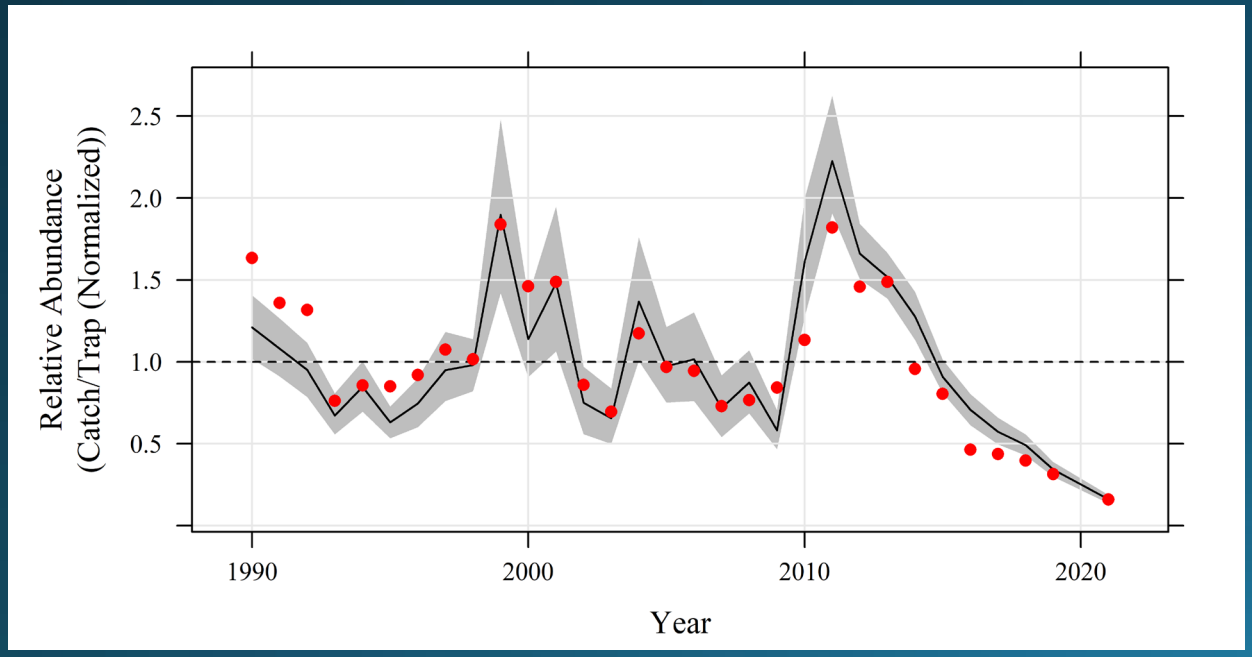
SERFS Survey Area

- Cape Hatteras, NC – Port St. Lucie, FL
- Live-bottom / hard-bottom habitat
- April-October
- At least 1,500 traps deployed per year
  - Randomly selected from universe of ~5,000 stations

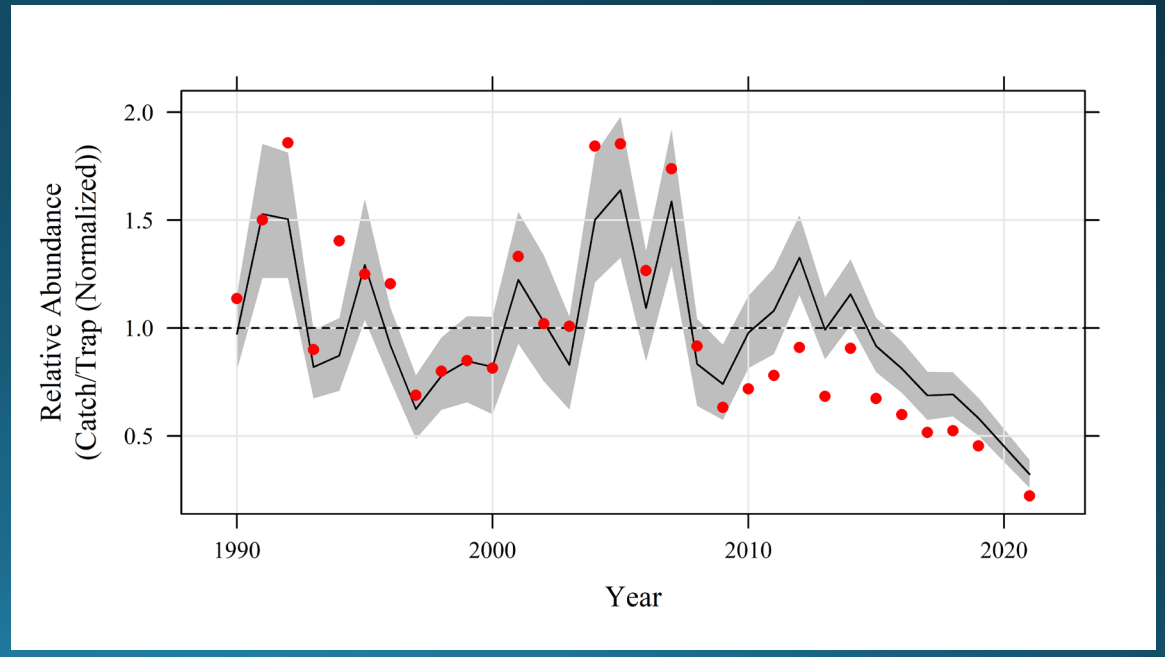


SERFS Recent trends

Black Sea Bass

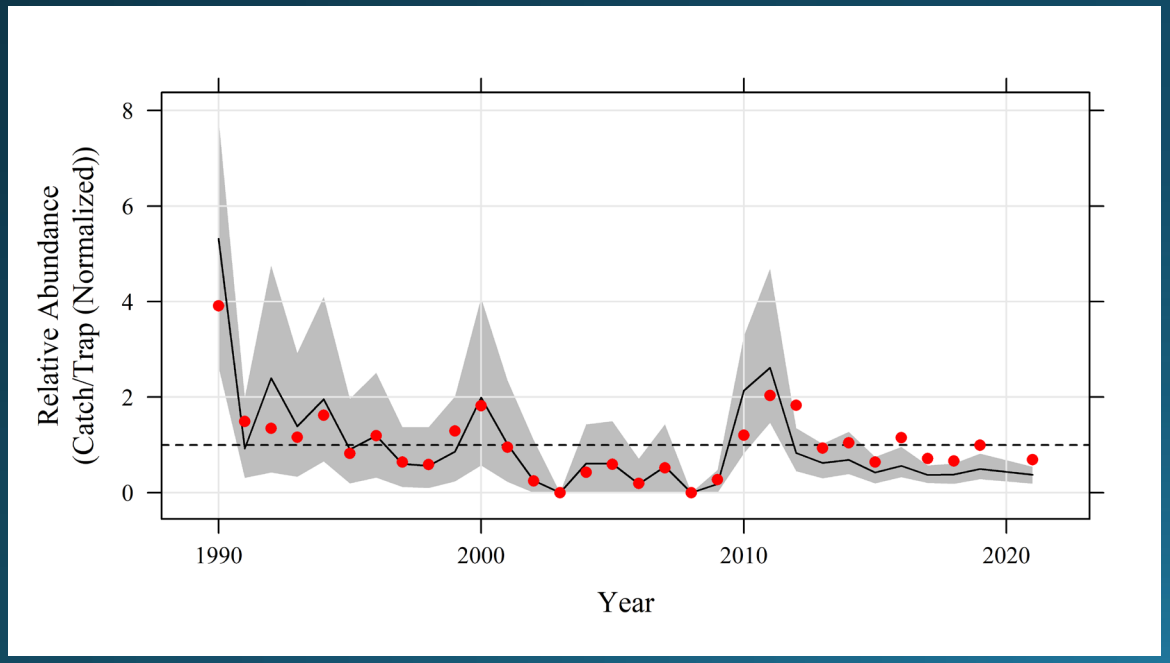


Red Porgy

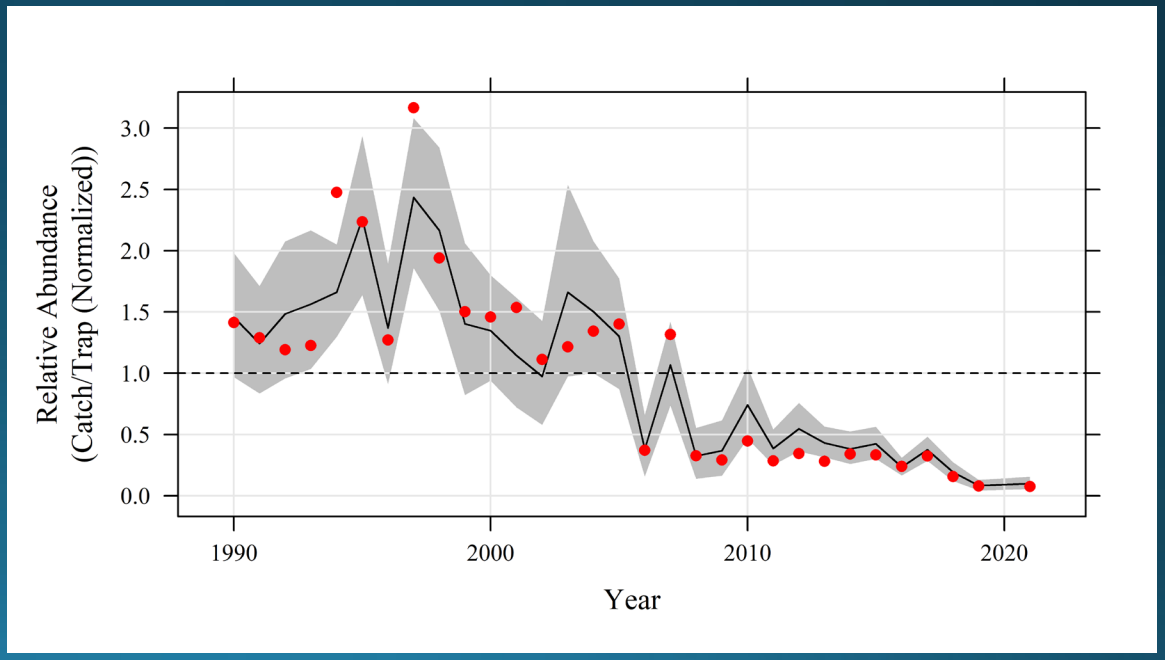


SERFS Recent trends

Gag Grouper

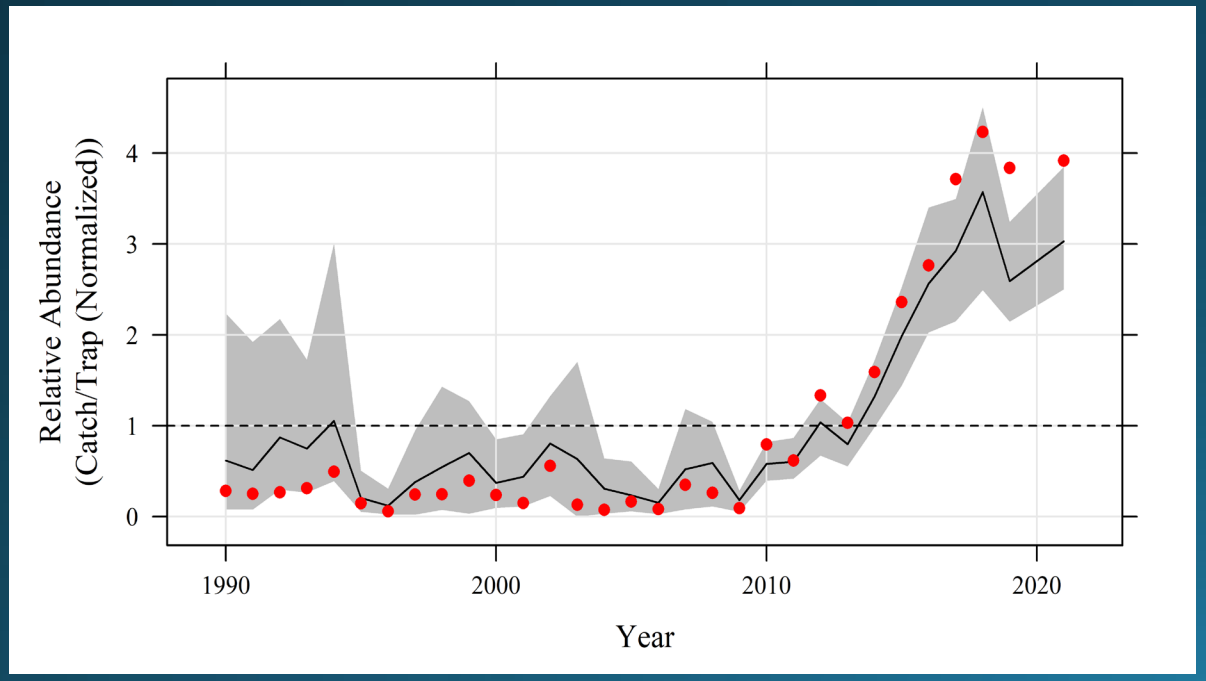


Scamp Grouper

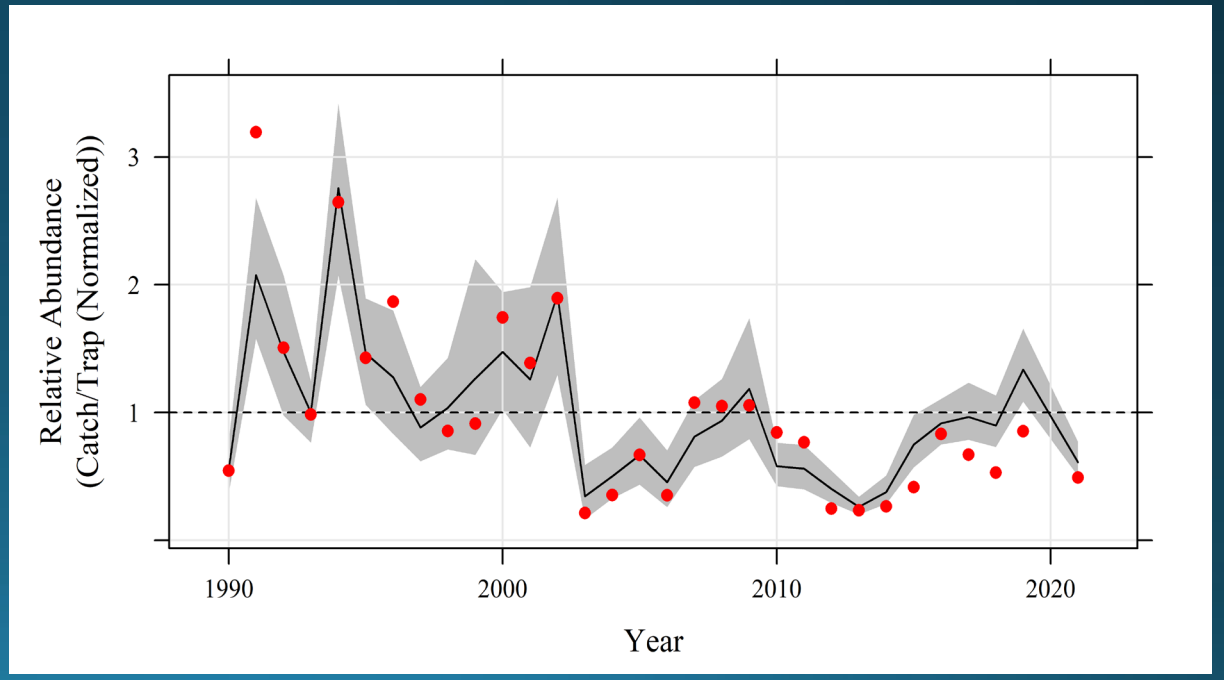


SERFS Recent trends

Red Snapper



Vermilion Snapper



SADLS

- Implemented in 2020

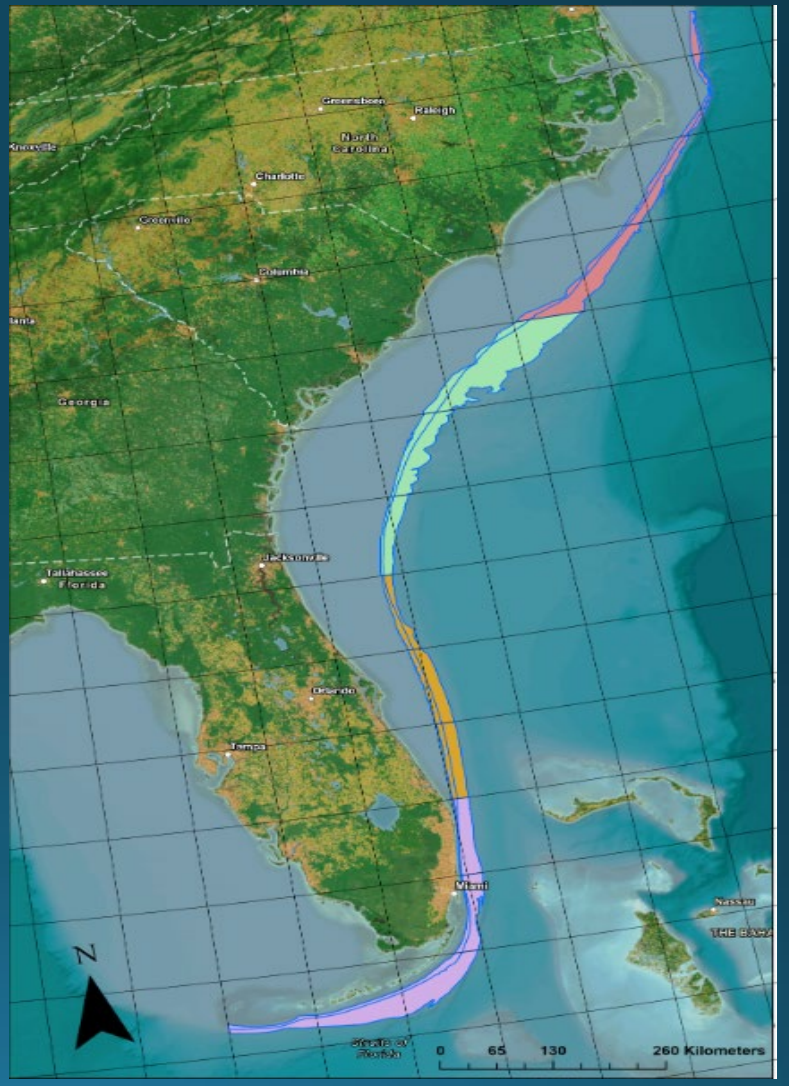
South Atlantic Deepwater Longline Survey (SADL)

- **What?**
  - **Deepwater longline survey intended to generate indices of abundance and life-history information (e.g., from otolith and reproductive samples) to support stock assessments and management**
  - **Focal species - tilefishes and deepwater groupers**
- **How?**
  - **Cooperative effort with industry**
- **When?**
  - **Implemented in 2020, repeated in 2021, planned for 2022**
  - **Anticipated to continue annually**

South Atlantic Deepwater Longline Survey (SADL)

Survey methodology

- NC to FL Keys
- 75 - 366 m
- Stratified by depth and latitude
- Gear
    - 3-mile mainline
    - 150 hooks per mile
    - 12/0 offset circle hooks
    - Bait = squid (2-inch squares)



South Atlantic Deepwater Longline Survey (SADL)

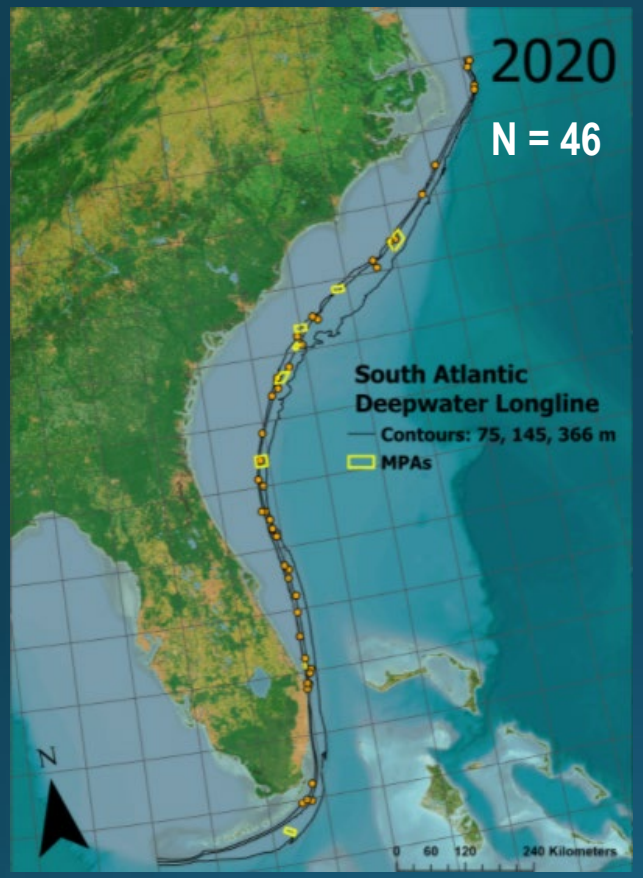
Survey methodology

- Site selection - three site types
  - Random
  - Universe random
  - Captain's choice
- Combination of site types allocated to each depth x latitude cell
- Equal allocation of effort across cells
- Anticipate stratified random site selection beginning in 2022

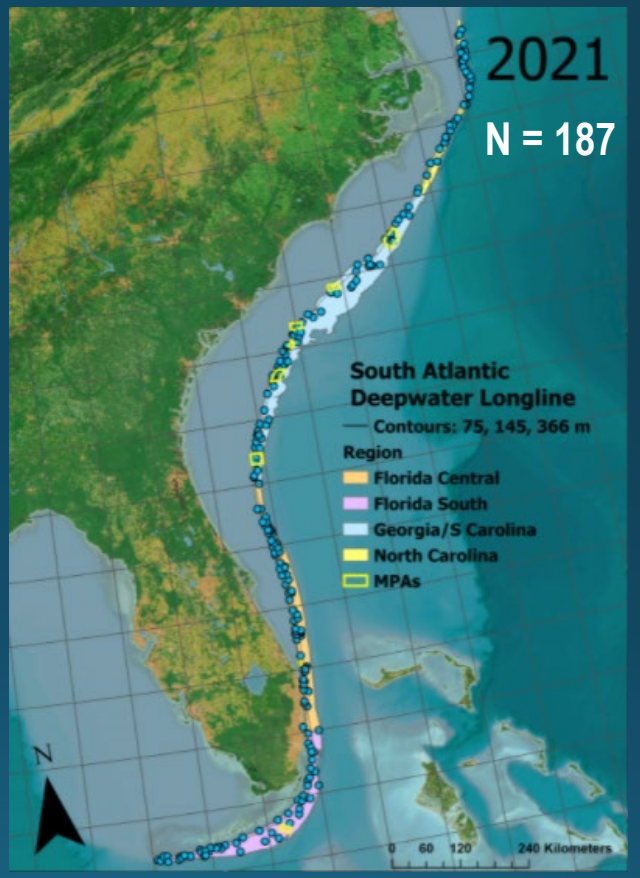
South Atlantic Deepwater Longline Survey (SADL)

- Industry participants - contracted by survey partner SCDNR
  - 2020 - two participants
  - 2021 - four participants
- Data collection at sea by NMFS observer
  - Site-specific details (date, latitude and longitude, depth, and time of sampling)
  - Species-specific lengths, abundance, and biological samples (otoliths and reproductive samples), when possible for selected species
  - Bottom temperature recorded for each deployment (sensor attached to gear)

Results - 2020 vs 2021



Random = 63%
Universe random = 26%
CC = 11%



Random = 48%
Universe random = 29%
CC = 23%

Results: 2020-2021

Species	Number caught - 2020	Number caught - 2021	Proportion positive - 2020	Proportion positive - 2021
Blueline Tilefish	38	1371	0.17	0.25
Tilefish Golden	166	898	0.22	0.25
Snowy Grouper	29	229	0.17	0.27
Almaco Jack	23	134	0.13	0.16
Mutton Snapper	36	82	0.15	0.09
Red Snapper	11	73	0.13	0.09
Red Porgy	14	58	0.09	0.07
Greater Amberjack	5	31	0.11	0.06
Blackline Tilefish	1	26	0.02	0.02
Gag Grouper	7	18	0.11	0.05
Yellowedge Grouper	5	13	0.04	0.04
Scamp Grouper	16	11	0.07	0.04

Results: Index development

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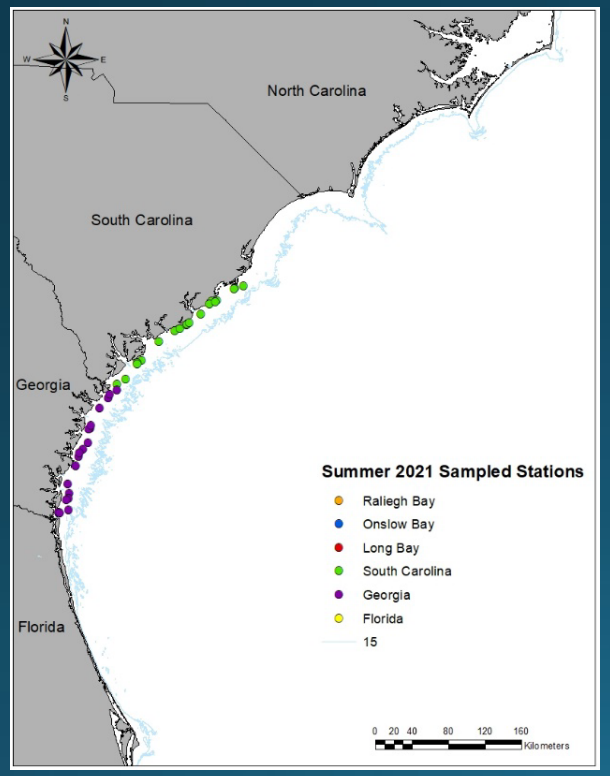
SEAMAP Coastal Trawl Survey

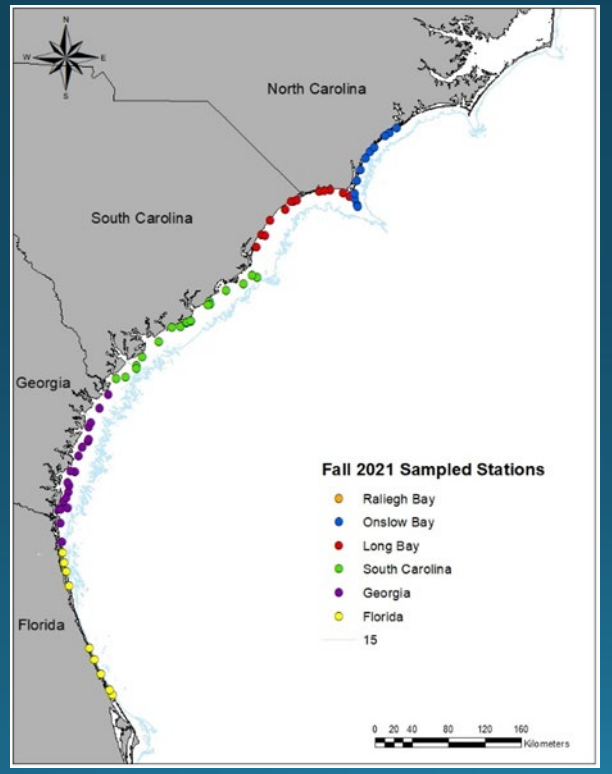
Only long-term regional trawl survey in SE (1986)

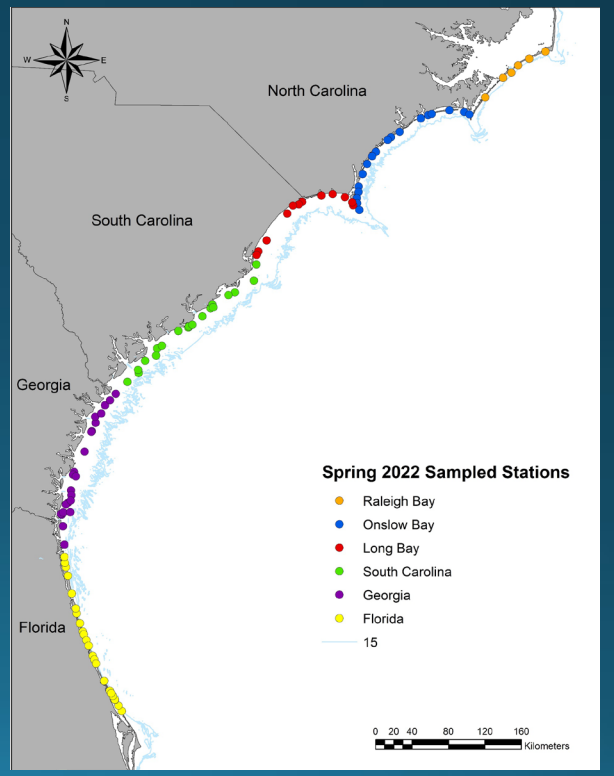
- **Seasonal cruises (Spring, Summer, Fall)**
- **102-112 stations targeted each season**
- **Shallow coastal waters (15-30 ft)**
- **20 minute tows**
- **No TED (data on turtles)**
- **> 850,000 fish and invertebrates each year**

SEAMAP Coastal Trawl Survey

- Target stations maintained at 102 for 2021/2022
- 38 of 102 stations sampled in summer 2021
- 74 of 102 stations sampled in fall 2021
- 102 stations sampled in spring 2022







Coastal Trawl Survey

- Scientific crew operated with 4 staff
- Catch from one net processed
- Net comparison analyses completed in 2020
- Simrad PX Multisensor mensuration gear deployed in summer 2021
  - Rigged on processed net
  - Door spread and tongue height
  - Trawl geometry highly variable

SCoastal Trawl Survey, Overview

- 278,167 individuals (684 ind./ha), biomass of 19,454 kg, 153 taxa
- Top 3 species, by abundance, followed by next 10 priority species.

Abundance Rank	Priority species	Total Number	Total Weight (kg)
1	*Micropogonias undulatus* (Atlantic Croaker)	96,715	5,474
2	*Leiostomus xanthurus* (Spot)	42,773	2,522
3	*Litopenaeus setiferus* (White Shrimp)	21,528	532
5	*Farfantepenaeus aztecus* (Brown Shrimp)	9,216	109
8	*Peprilus triacanthus* (Butterfish)	6,982	193
12	*Menticirrhus americanus* (Southern Kingfish)	4,691	421
17	*Peprilus paru* (American Harvestfish)	2,880	230
21	*Cynoscion regalis* (Weakfish)	1,765	199
31	*Scomberomorus maculatus* (Spanish Mackerel)	388	50
32	*Sphyrna tiburo* (Bonnethead)	330	248
36	*Rhizoprionodon terraenovae* (Atlantic Sharpnose)	280	370
37	*Brevoortia tyrannus* (Altantic Menhaden)	276	10
39	*Pomatomus saltatrix* (Bluefish)	259	28

Coastal Survey, Life History

- Otoliths from Atlantic Croaker, Southern Kingfish, Spot, Weakfish, Bluefish, and Spanish and King Mackerel
- Reproductive samples from Bluefish and Spanish Mackerel

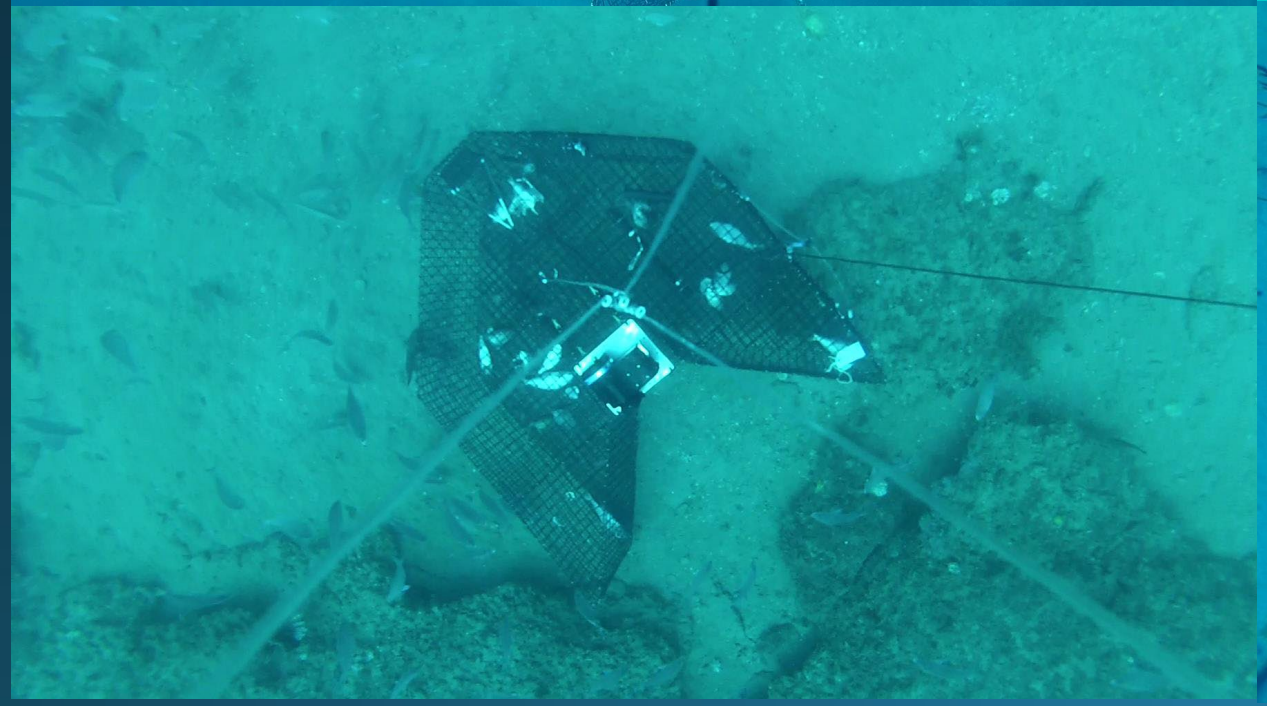
2021/22 Sample Count	Otoliths	Maturity samples
Southern Kingfish	724	
Spot	692	
Atlantic Croaker	672	
Weakfish	320	
Spanish Mackerel	212	156
Bluefish	63	47
King Mackerel	63	

SEAMAP-SA : Additional projects

Est. 2009

- Red Drum & Coastal Shark Longline Survey (NC, SC, GA)
- Pamlico Sound Survey (NC)
- Southeast Regional Taxonomic Center
- Data management

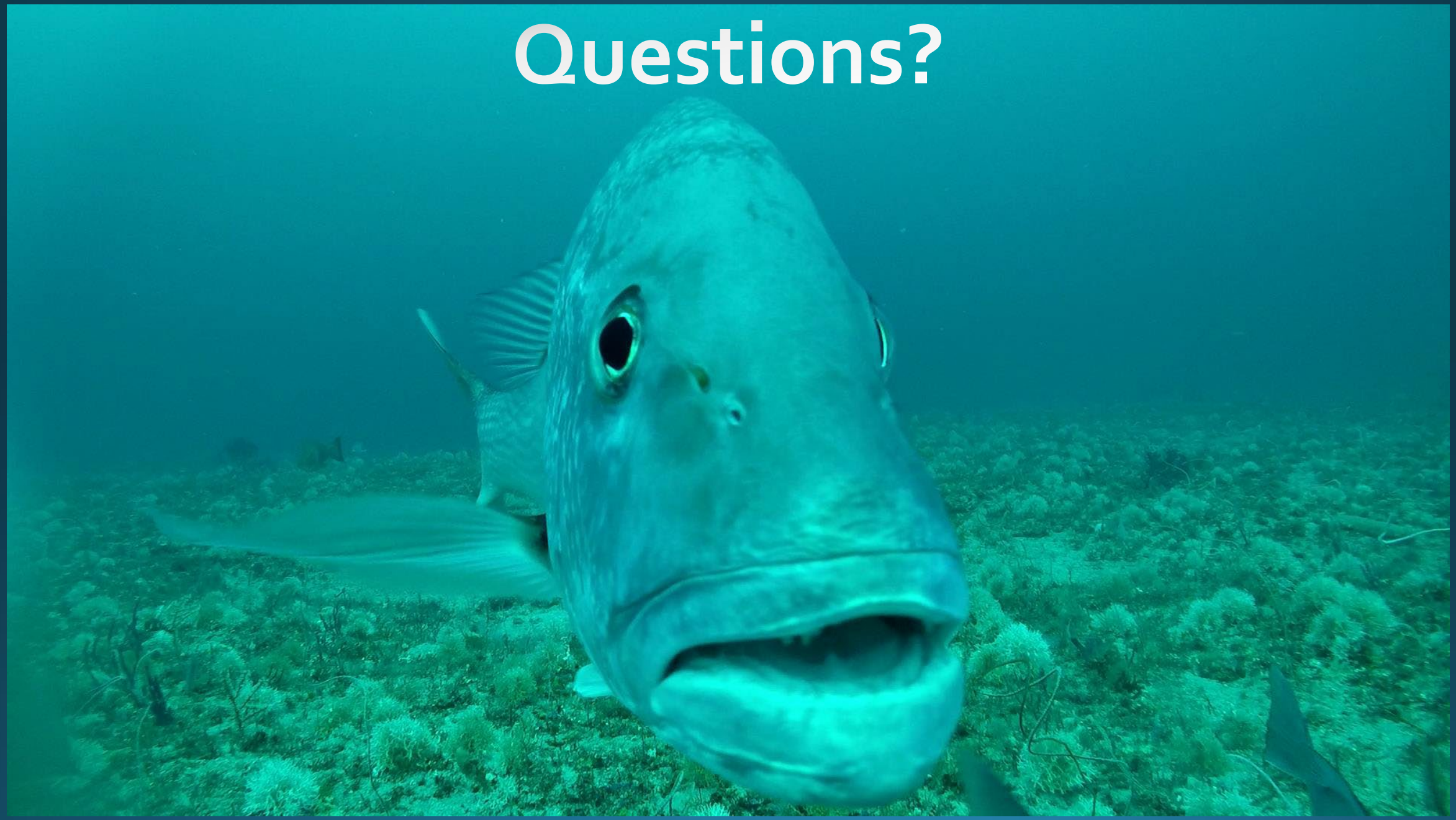





Acknowledgements

- SERFS Staff
- SCDNR and Vessel Operations
- SADLS
  - Todd Kellison
  - NMFS Observers
  - Cooperative research partners
    - Dewey Hemilright F/V Tar Baby
    - Steve Shelley F/V Mollie D
    - Jim and Mike Freeman F/V Little Jo
    - Vincent Bonura F/V Gale Mist

Questions?



Supplemental Slides

Biota Metrics

- **Attached Biota Type:**
- **ALGAE: ≥ 50% attached biota is macroalgae**
- ***Macroalgae does not include short fouling/turf/filamentous algae.***
- ***Record filamentous algae in comments section***
- **OTHER: ≥ 50% attached biota is coral, sponge, etc.**
- **MIXED: 50/50 algae and OTHER attached biota**
- **UNKNOWN: biota type cannot be estimated**
- **N/A: no attached biota present**
-
- **Attached Biota Height:**
- **LOW: maximum height is < 0.5 m**
- **HIGH: maximum height is > 0.5 m**
- **UNKNOWN: biota height cannot be estimated**
- **N/A: no attached biota present**

Substrate Metrics

- **Consolidated Substrate (Percent):** ***defined as visible rocks or boulders the size of a fist or larger, or visible hard pavement habitats***
- **BARE: (0-2%)**
- **SPARSE: (2-33%)**
- **MODERATE: (34-66%)**
- **DENSE: (67-100%)**
- **UNKNOWN: substrate cannot be estimated**

- **Consolidated Substrate Size:**
- **COARSE:≥ 50% consolidated sediment < 1.0 m in diameter**
- **CONTINUOUS:≥ 50% consolidated sediment > 1.0 m in diameter**
- **UNKNOWN: substrate cannot be seen > 1.0 meter**
- **N/A: no consolidated sediment present**

- **Consolidated Substrate Relief:**
- **LOW: maximum relief is < 0.3 m**
- **MODERATE: maximum relief is 0.3 - 1.0 m**
- **HIGH: maximum relief is > 1.0 m**
- **UNKNOWN: relief cannot be estimated**
- **N/A: no consolidated substrate relief present**