

Update Fishery Independent Surveys SA

Reef Fish Survey and Coastal Trawl Survey



SAFMC Habitat AP meeting
November 5-7, 2018

MARMAP and SEAMAP-SA

Long-term Regional Fishery Independent Monitoring Programs

MARMAP

1972

Various surveys (incl. trawls)

1978

Reef Fish Survey with fish traps,
bottom long lines, rod and reel

1989

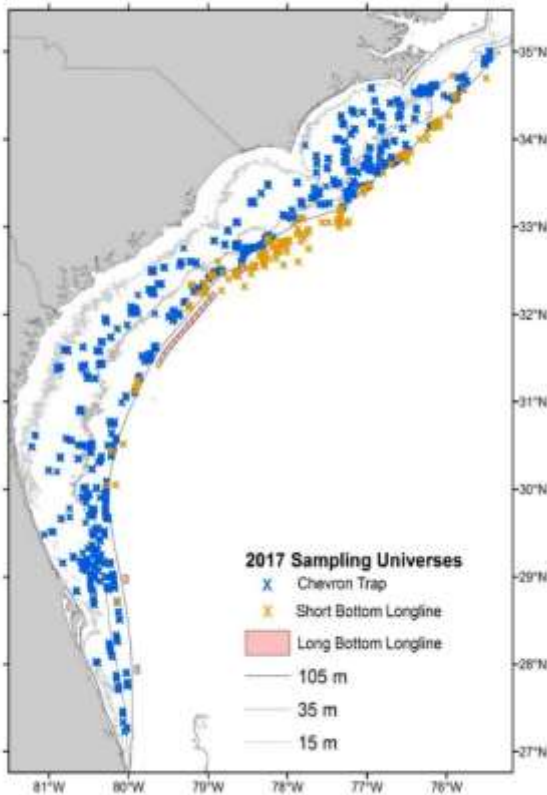
Reef Fish Chevron traps

2009

SEAMAP-SA and SEFIS (NOAA)

Doubling of sampling efforts

Introduction of trap cameras



SERFS

Marine **R**esources **M**onitoring, **A**ssessment & **P**rediction Program

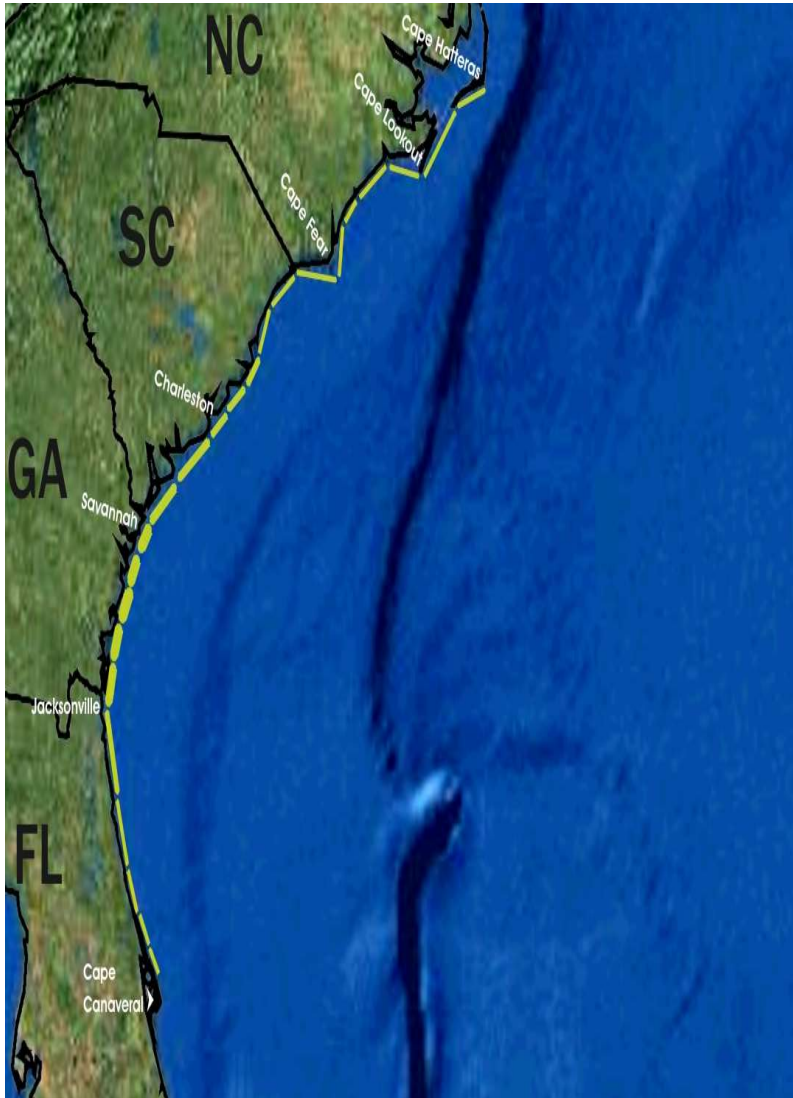
Southeast **A**rea **M**onitoring & **A**ssessment **P**rogram (**S**outh **A**tlantic)

Southeast **F**ishery-**I**ndependent **S**urvey

Southeast **R**ef **F**ish **S**urvey

MARMAP and SEAMAP-SA

Long-term Regional Fishery Independent Monitoring Programs



SEAMAP-SA

1986

Costal Trawl Survey

2009

Reef Fish Survey,
Red Drum & Coastal Shark
Longline Survey (NC, SC, GA),
Pamlico Sound Survey (NC),
SE Reg Tax. Center,
Data management.

SEAMAP-SA Coastal Trawl Survey



Built in 1980
Past expected life



- Only long-term regional trawl survey in SE
- Information >850,000 fish and crustaceans each year
- Seasonal cruises (Spring, Summer, Fall)
- 102-112 stations targeted each season
- Trawls shallow coastal waters (15-30 ft)
- 20 minute tows
- No TED (data on turtles)

SEAMAP-SA Coastal Survey

Sampled # stations:

Summer 2017	102 (target 112)
Fall 2017	95 (target 112)
Spring 2018	59 (target 102)
Summer 2018	102 (target 102)
Fall 2018	ongoing (target 102)



Croaker



Coastal Trawl Survey Overview 2017

S. Kingfish



- >900,000 individuals in trawls, representing 185 taxa. Incl. Mackerels, Menhaden, Spot Croaker, bluefish, Weakfish, Coastal Sharks, Sea Turtles, Horseshoe Crabs, Blue Crabs, Shrimp, and variety of prey species.
- Age and reproductive data: Atlantic Croaker, Southern Kingfish, Bluefish, Weakfish, and Spanish and King Mackerel.
- Over-all CPUE was relatively high, including King Mackerel & White Shrimp, Southern Kingfish, and Southern Flounder.
- BigFin + FEED data acquisition system fully implemented.
- Data available in SEAMAP-SA data base.

Weakfish



Spanish Mackerel



King Mackerel



Bluefish



Data Use in Assessments and Management

- Stock assessments: Atlantic croaker, Spot, Menhaden, Bluefish, King and Spanish Mackerel, etc.
- Annual Compliance Reports, “Traffic Light Analysis” for possible management triggers, CPUE for bycatch rates in shrimp fishery.
- Shrimp abundance and black gill.
- EBM modeling efforts.



Coastal Trawl Survey Challenges and Future

- Age of R/V *Lady Lisa*: replacement of vessel is needed.
- Weather (incl. hurricanes): Lost sea days and sampling efficiency (extensive gear damage and debris).
- Funding: 60 sea days needed for 3 field seasons.

Current funding: 48 sea days.

In 2010: Elimination of 1 rotating season each year.



Southeast Reef Fish Survey (SERFS)

MARMAP

SEAMAP-SA

SEFIS

R/V Savannah



R/V Palmetto



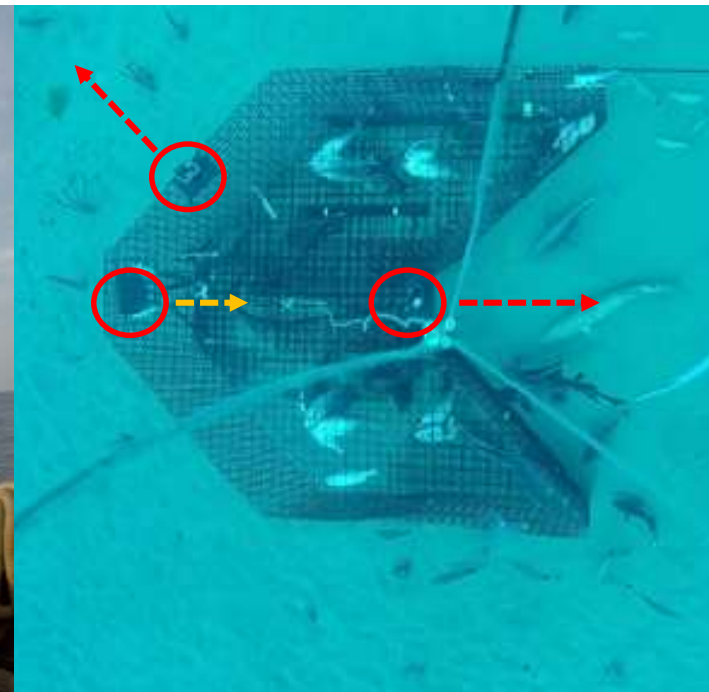
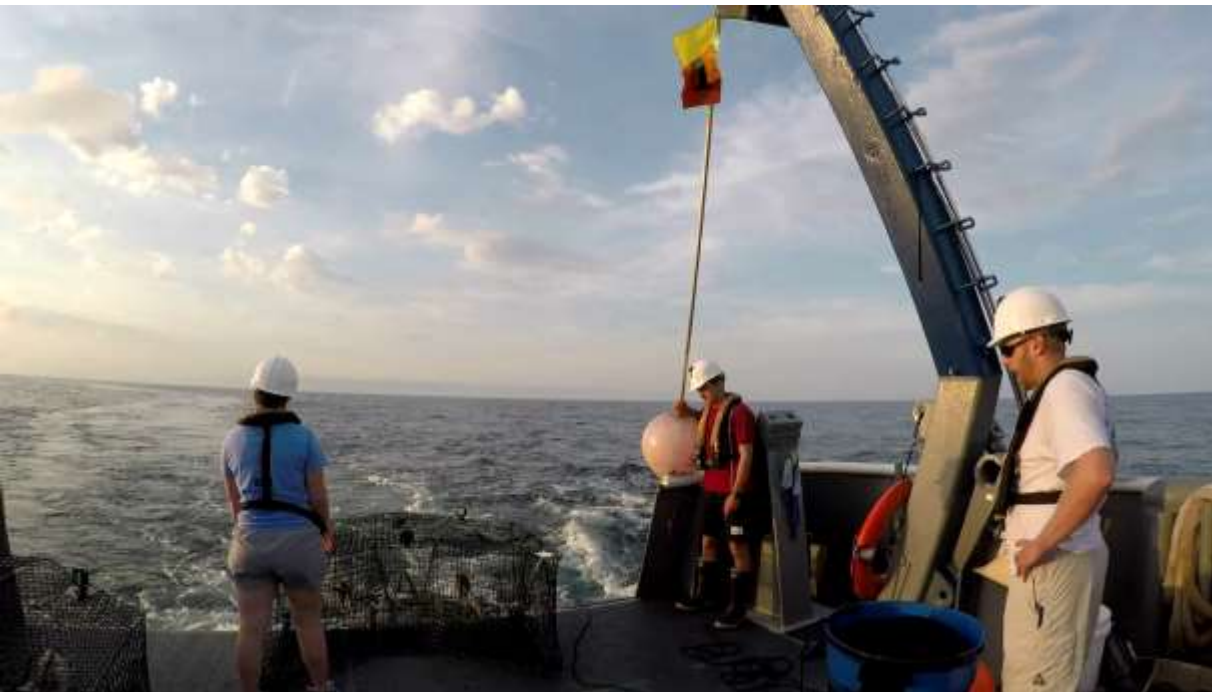
May – September
Cape Hatteras to Port St. Lucie
Variety of gears



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

Primary gear: Chevron Trap

- Target habitat: low to medium relief, live-bottom.
- Deployed in depths to ≈ 110 m.
- Consistent and standardized use since 1990.
- Soak time ≈ 90 minutes, baited with clupeids.
- 2-3 video cameras on each trap.



Other gears

Short bottom longline

- High relief bottom >90 m depth
- Species: snowy grouper, blueline tilefish, speckled hind

Long bottom longline

- \approx 200 m depth - mud bottom habitat
- Species: golden tilefish
- Halted in 2012 due to funding



Rod and reel

- Supplemental sampling
- Life history



CTD

- Oceanographic data





Chevron Trap Camera use:

Additional indices of
relative abundance

Habitat characterization



Observations of
non target species





Camera use:
Fish behavior
inside and outside
the trap

Courtship
Predations



SERFS

camera-trap survey effort between North Carolina and Florida



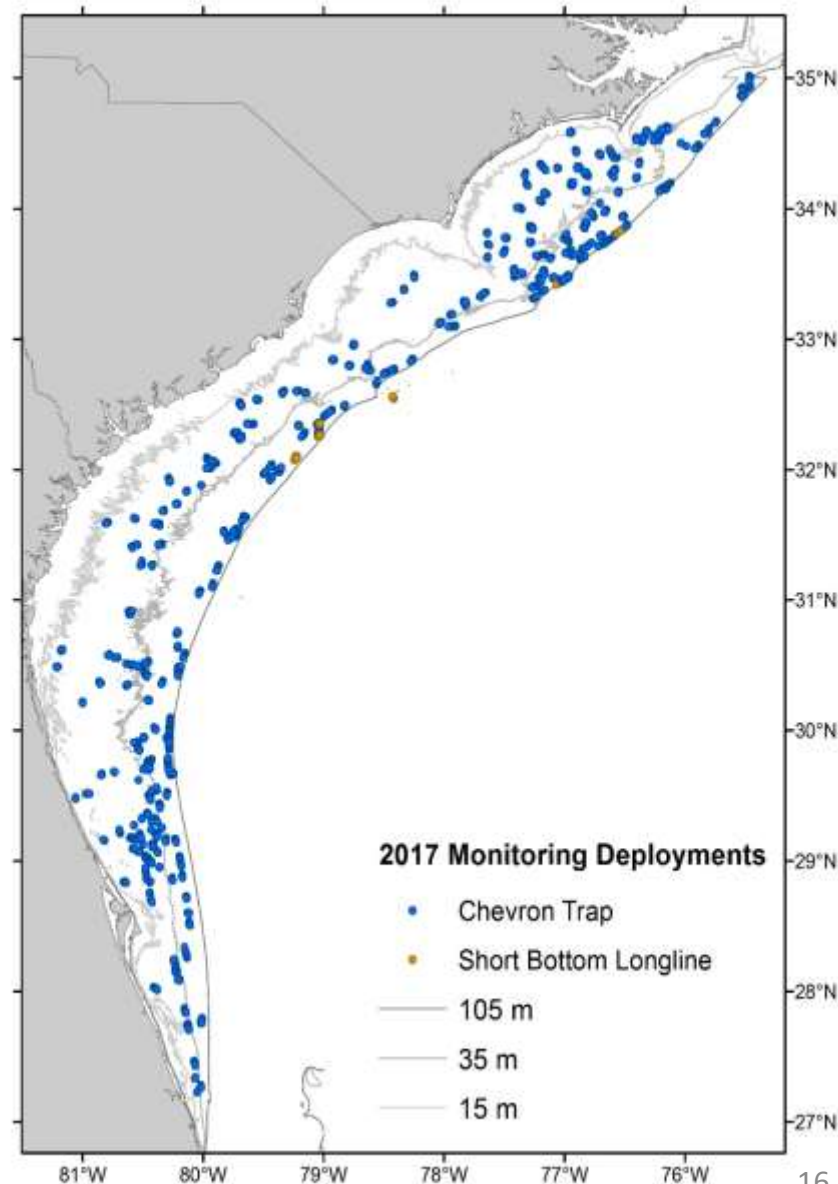
Year	Cruises	Days at sea	Trap-video samples	Months	Mapping
2010	22	122	1238*	May-Oct	350
2011	21	116	1156	May-Oct	150
2012	16	118	1393	Apr-Oct	385
2013	19	133	1560	Apr-Oct	259
2014	21	127	1508	Apr-Oct	250
2015	19	122	1521	Apr-Oct	0
2016	20	120	1537	May-Oct	465
2017	13	102	1574	Apr-Oct	302
2018	16	103	1726	Apr-Oct	131

* Not all traps had video cameras in 2010

2017 – 2018* Summary

- 1,574 - **1,728** Chevron Traps.
- 54 - **48** Short Bottom LL.
- 284 - **324** CTD
- 39,932 – **47,341** Fish (65 spp.) caught
- 10,513 – **11,362** Fish (43 spp.) kept for life history

New integrated data acquisition system
fully implemented



2017

Common Name	Chevron	Short Bottom Longline	Total
Tomtate	17,108		17,108
Black Sea Bass	7,634		7,634
Vermilion Snapper	3,618	2	3,620
Scup & Longspine Porgy	2,655		2,655
White Grunt	1,670		1,670
Red Porgy	1,607	5	1,612
Gray Triggerfish	1,560		1,560
Red Snapper	1,499		1,501
Bank Sea Bass	706		706
Sand Perch	476		476
Spottail Pinfish	393		393
Pinfish	117		117
Scamp	72	10	98
Almaco Jack	75	2	78
Knobbed Porgy	72	2	74
Snowy Grouper	46	13	66

Reef Fish Survey Data

- Species diversity, abundance, size, age, reproduction, diet, DNA, etc.
- Habitat structure, oceanographic info.
- One combined data set housed at SCDNR.
- SCDNR: life history work up.
- SEFIS: video examination and analysis.
- Data available at www.seamap.org

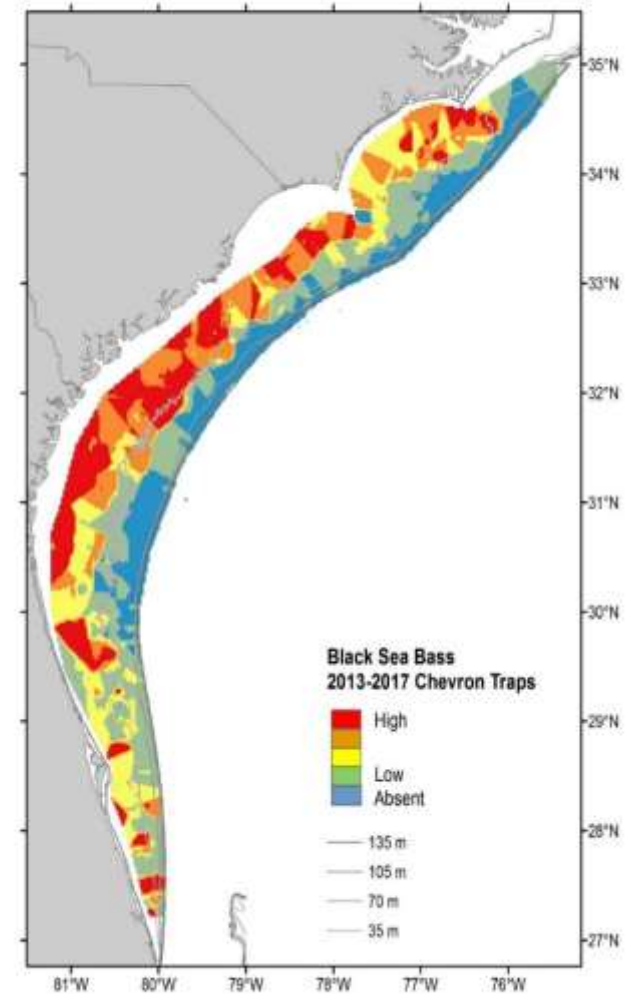
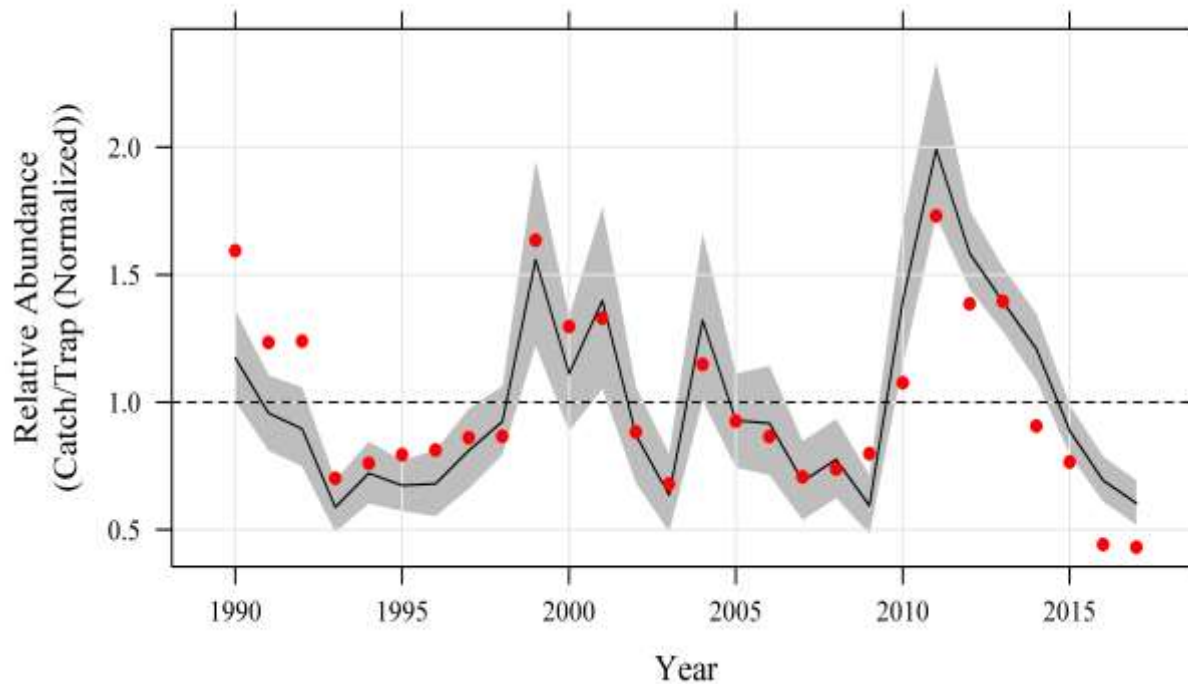


Reef Fish Survey Data Use

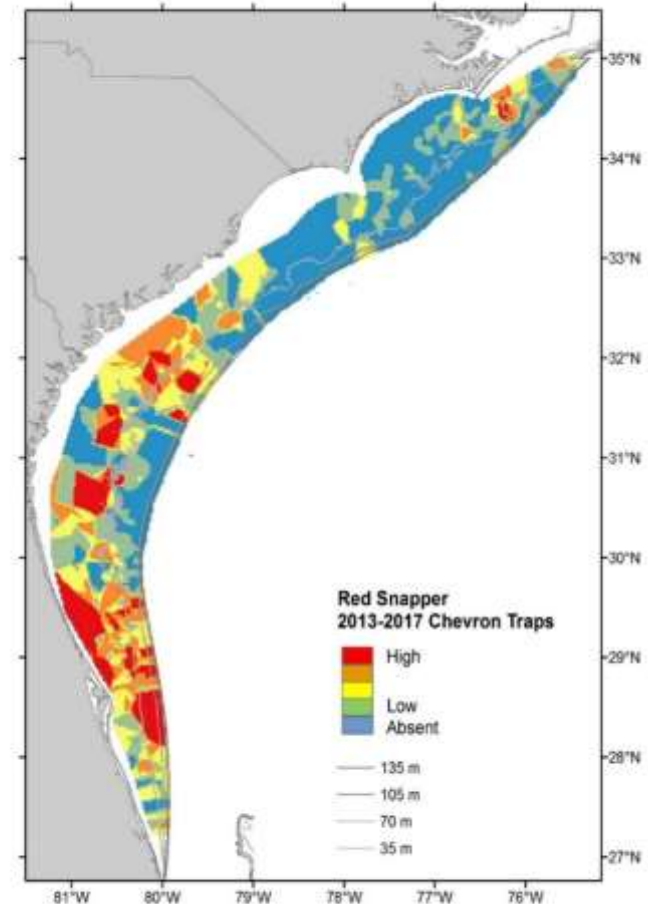
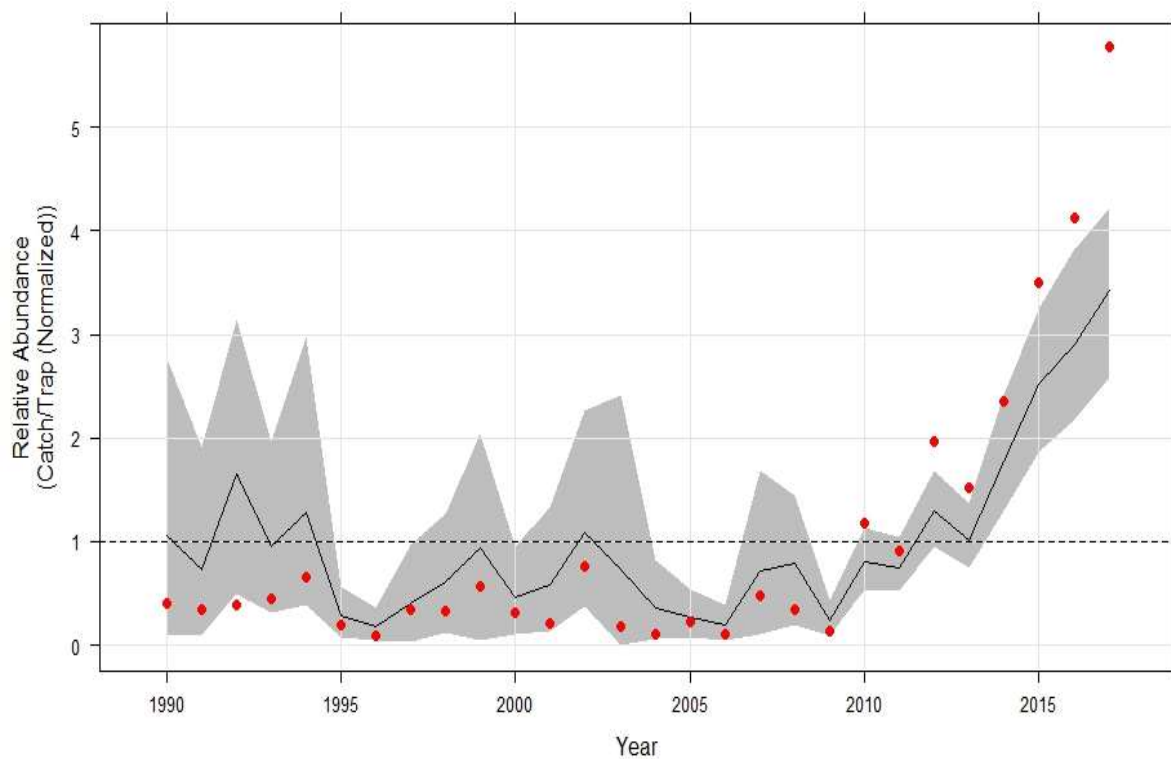
- CPUE, habitat, CTD, age, reproduction, etc. for assessments and management.
- 2017/18: Red Grouper, Blueline and Golden Tilefish, Black Sea Bass, Vermilion Snapper, Red Porgy, Red Snapper, and Greater Amberjack.
- Diet & oceanographic info:
SAFMC Fishery Ecosystem Plan.
Ecosystem modeling efforts in SA.
- Training, samples, and data for 3rd parties.



Black Sea Bass – Chevron Trap



Red Snapper – Chevron Trap





Acknowledgements

Staff, Students
&
Research Vessel Crews

Past and Present



Questions

An underwater photograph showing a sandy ocean floor under clear blue water. The lighting is somewhat dim, suggesting depth. The sand is light-colored and has a fine texture. There are some small, dark spots scattered across the seabed, possibly rocks or debris.

Where did our trap label go?