



Southeast Reef Fish Survey

2018 Update of
Sampling Activities and
Relative Abundance

Walter Buble, Tracey Smart, & Marcel Reichert
SCDNR

October 2019 Habitat Ecosystem Advisory Panel meeting

Southeast Reef Fish Survey (SERFS)

R/V *Savannah*



36 days

NOAA Ship *Pisces*



30 days

MARMAP - SEAMAP-SA - SEFIS

R/V *Lady Lisa*



9 days

R/V *Palmetto*



42 days

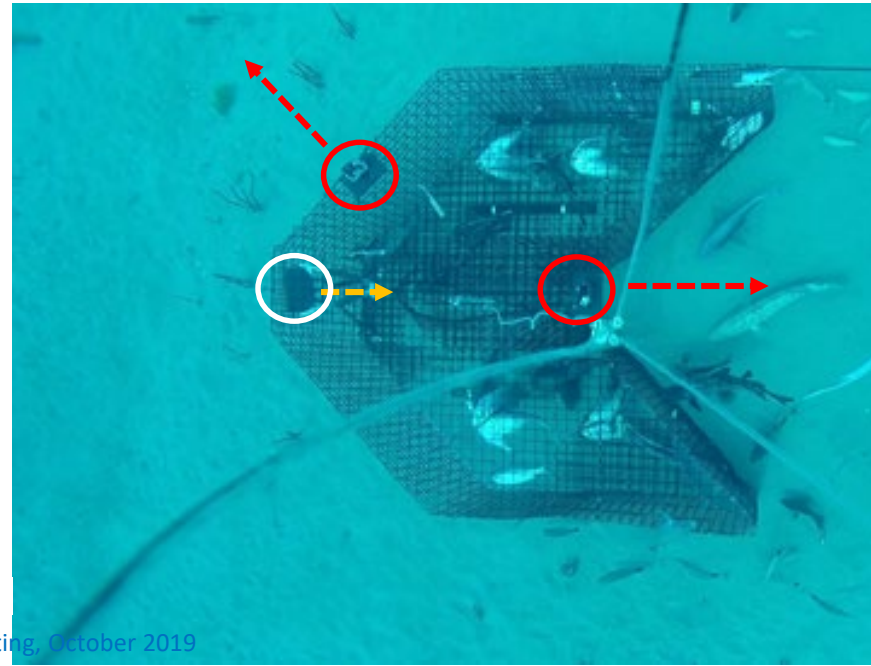
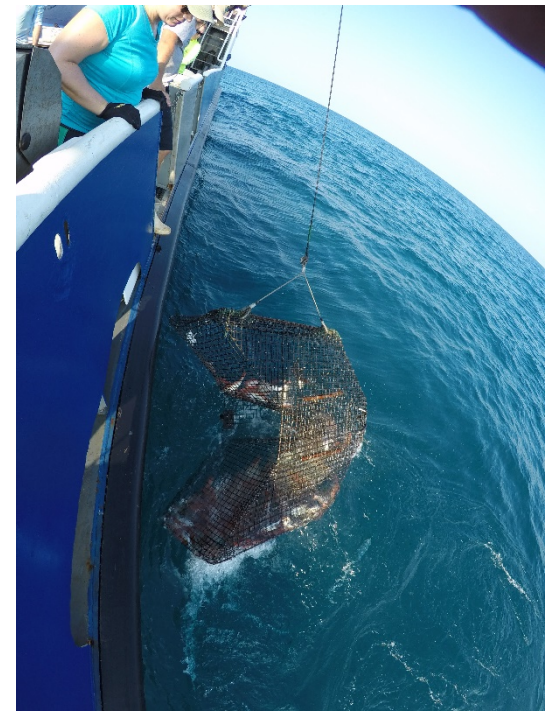
MARMAP: Marine Resources Monitoring, Assessment & Prediction Program (1972)

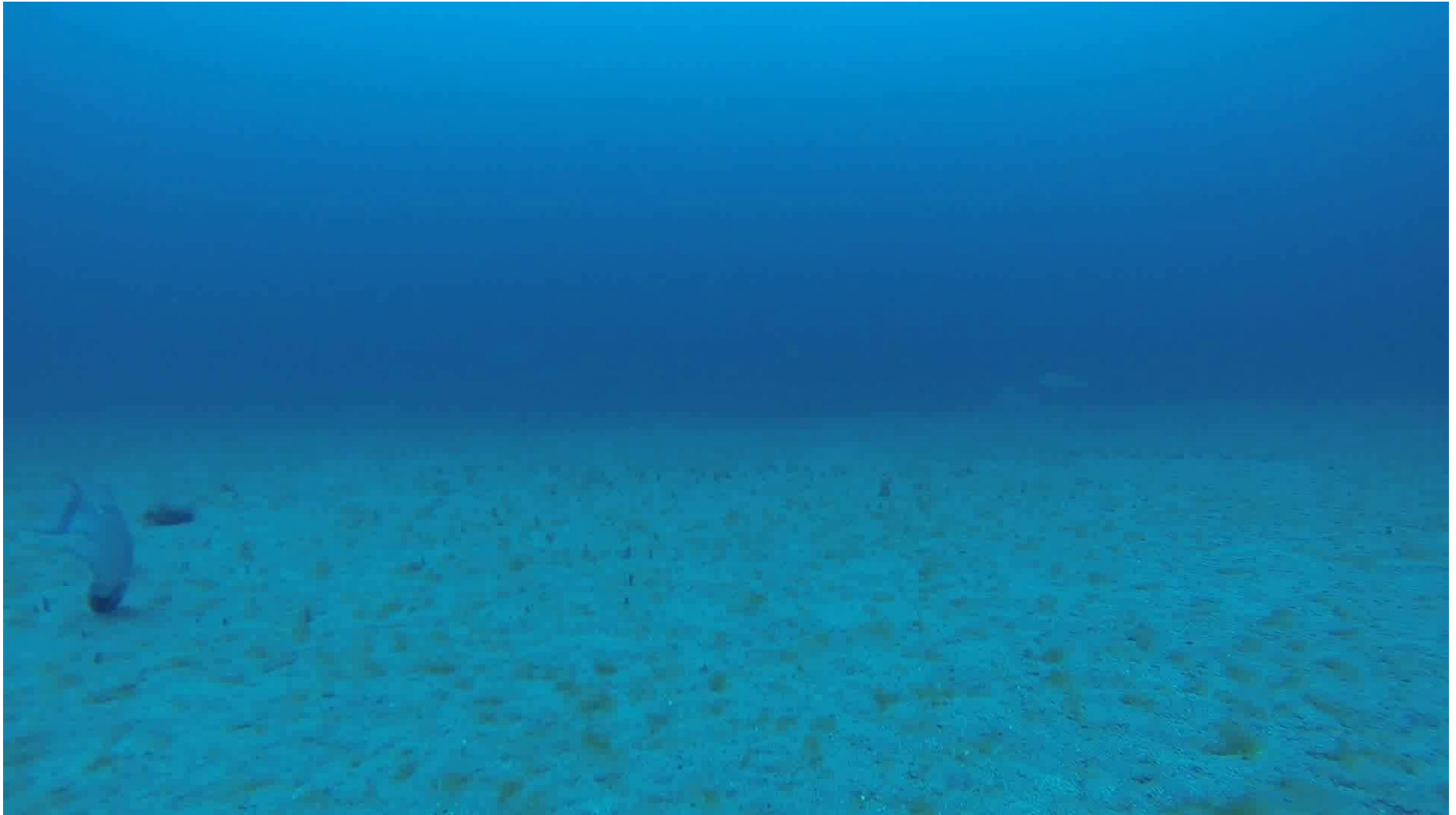
SEAMAP-SA: Southeast Area Monitoring & Assessment Program - South Atlantic (1986)

SEFIS: Southeast Fishery-Independent Survey (2009)

Chevron Video Trap

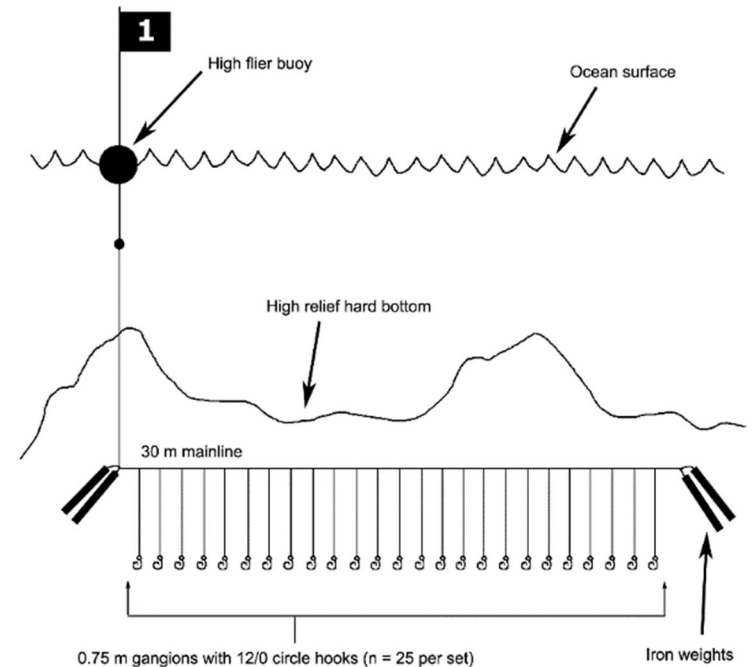
- Target habitat: low to medium relief, live-bottom
- Deployed in depths to ≈ 110 m
- Consistent and standardized use since 1990
- Soak time ≈ 90 minutes, baited with clupeids
- 2 (3) video cameras on each trap





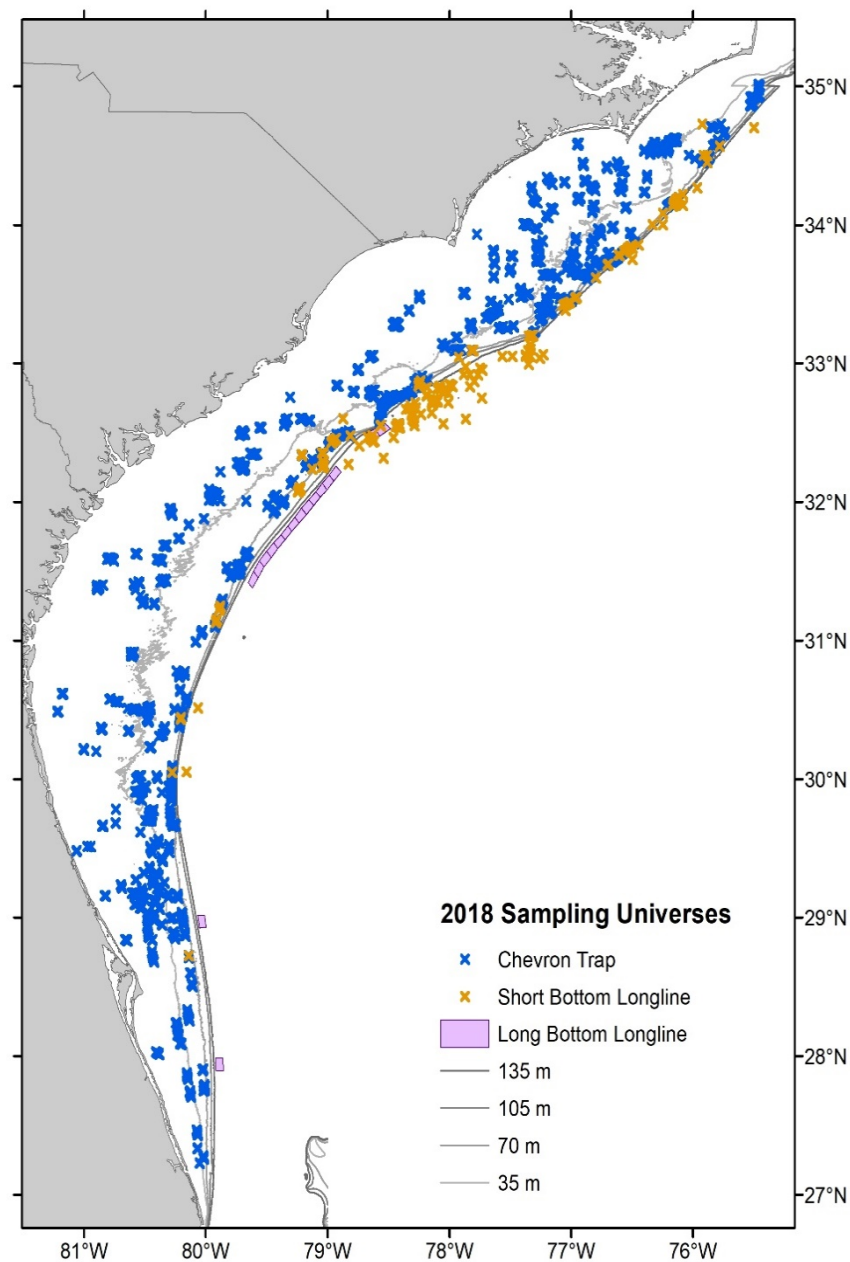
Short Bottom Longline

- Target habitat: high relief, live-bottom > 90 m depth
(Snowy Grouper, Speckled Hind, jacks, tilefishes)
- Soak time \approx 90 minutes, baited with whole squid



Sampling Stations

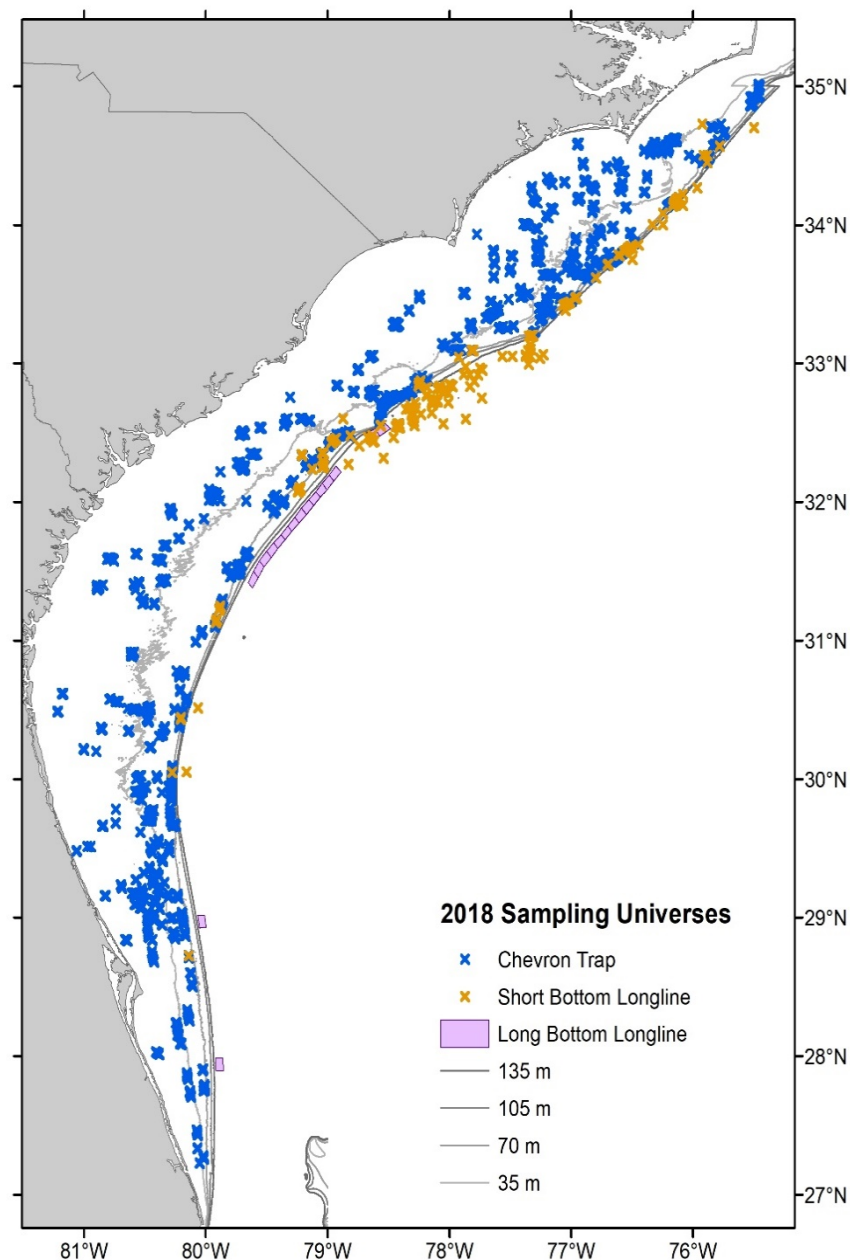
- **Chevron Video Trap**
 - $\approx 4,300$ sampling stations
 - $\approx 1,500$ randomly selected annually
- **Short Bottom Longline**
 - ≈ 300 sampling stations
 - ≈ 250 randomly selected annually



Processing and Data

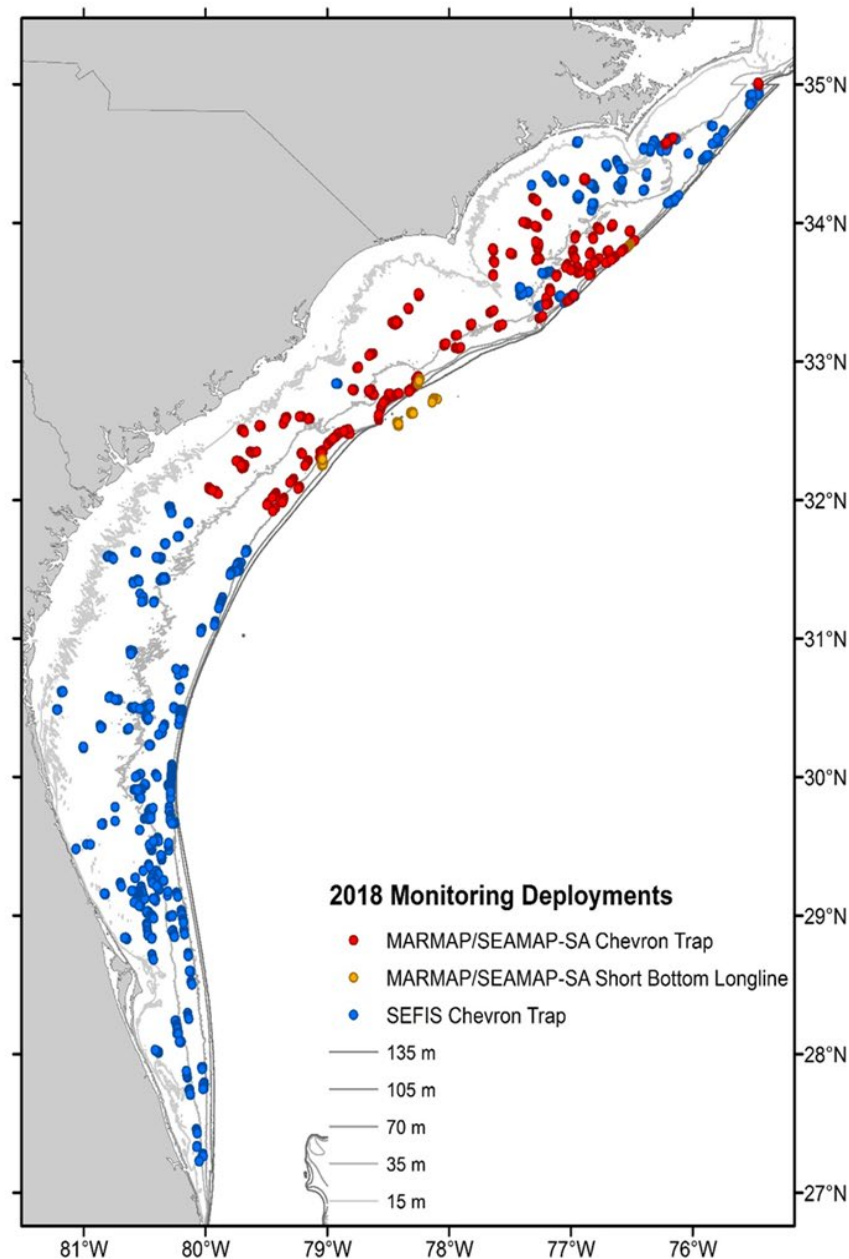
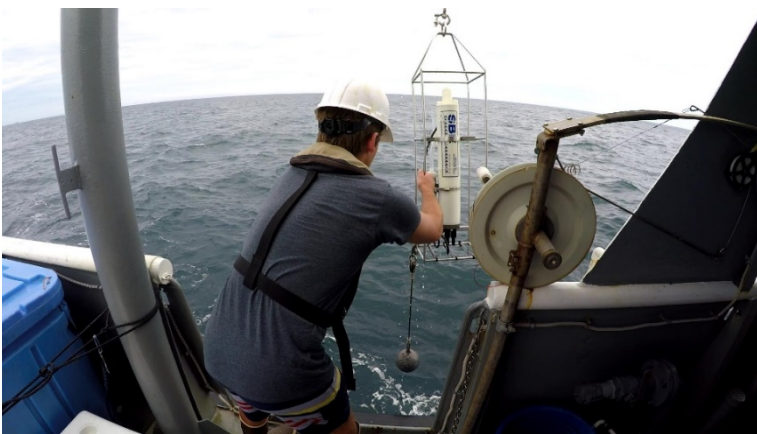
- MARMAP/SEAMAP-SA:
 - **Life history**
processing & analyses
 - **Trap and longline indices**
- SEFIS
 - **Video** processing & analyses

One combined database



2018 Summary

- 117 days at sea
- 2,280 gear deployments
 - 1,784 Chevron Video Traps
 - 77 Short Bottom Longlines
 - 324 CTD deployments
- 47,342 fish (82 species) collected
- 11,367 fish (41 species) processed for life history (age, repro., etc.)



2018 Most encountered species

Common Name	Chevron	Short BLL	Total
Tomtate	23,723		23,723
Black Sea Bass	7,657		7,657
Vermilion Snapper	3,210	1	3,211
Scup & Longspine Porgy	2,734		2,734
White Grunt	1,974		1,974
Red Snapper	1,963		1,963
Red Porgy	1,859	1	1,860
Gray Triggerfish	1,268		1,268
Bank Sea Bass	775		775
Sand Perch	593		593
Spottail Pinfish	376		376
Knobbed Porgy	100		100
Pinfish	100		100
Almaco Jack	63	10	73
Scamp	43	6	49
Snowy Grouper	23	44	67

Overview of CPUE

- **Chevron trap catches (1990-2018)**
- **Short bottom longline (1996-2018)**
- **Standardization:**
 - Zero-Inflated Negative Binomial model (ZINB)**
 - Most appropriate method, reduces uncertainty**
- **Summarized in**
 - Annual “Trends Report”**



Trends Overview

Caveats



- **Summary overview, not an update of stock status**
- **Model inputs for CPUE indices may be different from those used in (SEDAR) stock assessments**
- **Not all species have been assessed or updated (through SEDAR process) and not all trends analyses have been discussed in (SEDAR) assessment framework**

Figures

- Index graphs

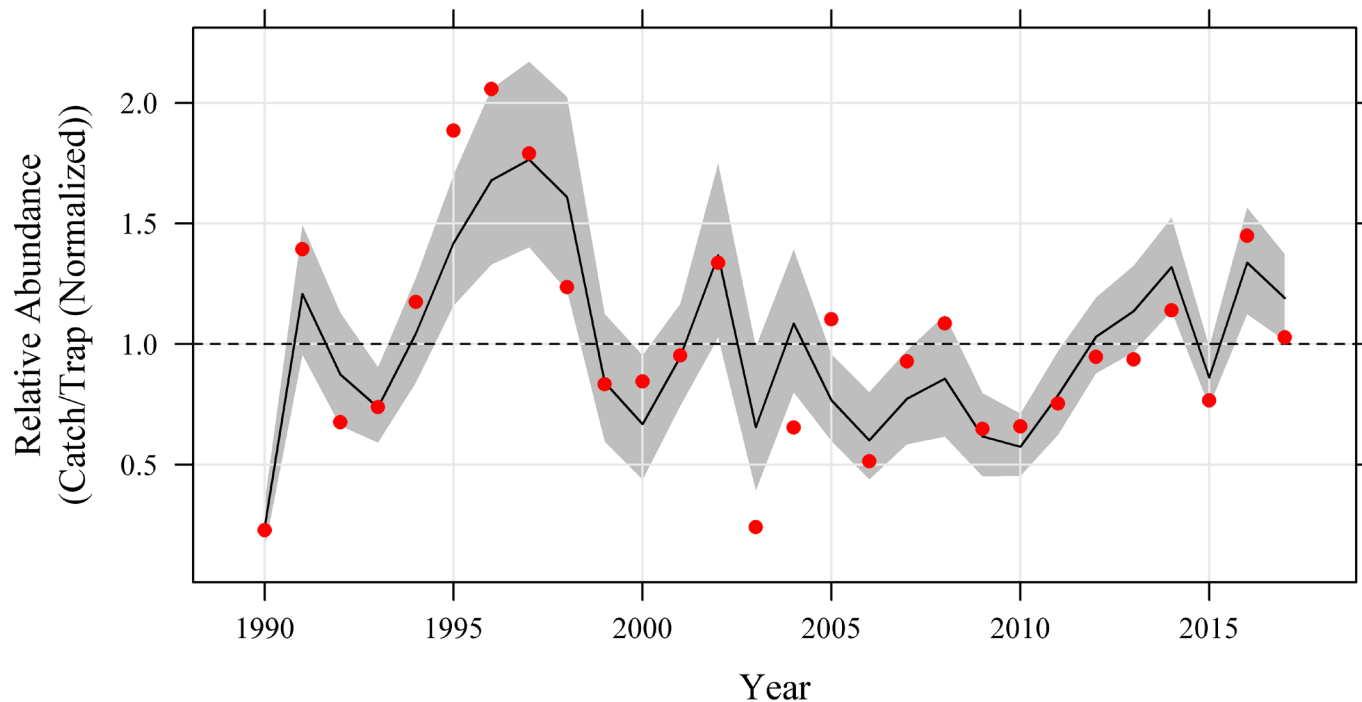
- Normalized to long term average (=1)

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

- Black line = ZINB standardized index

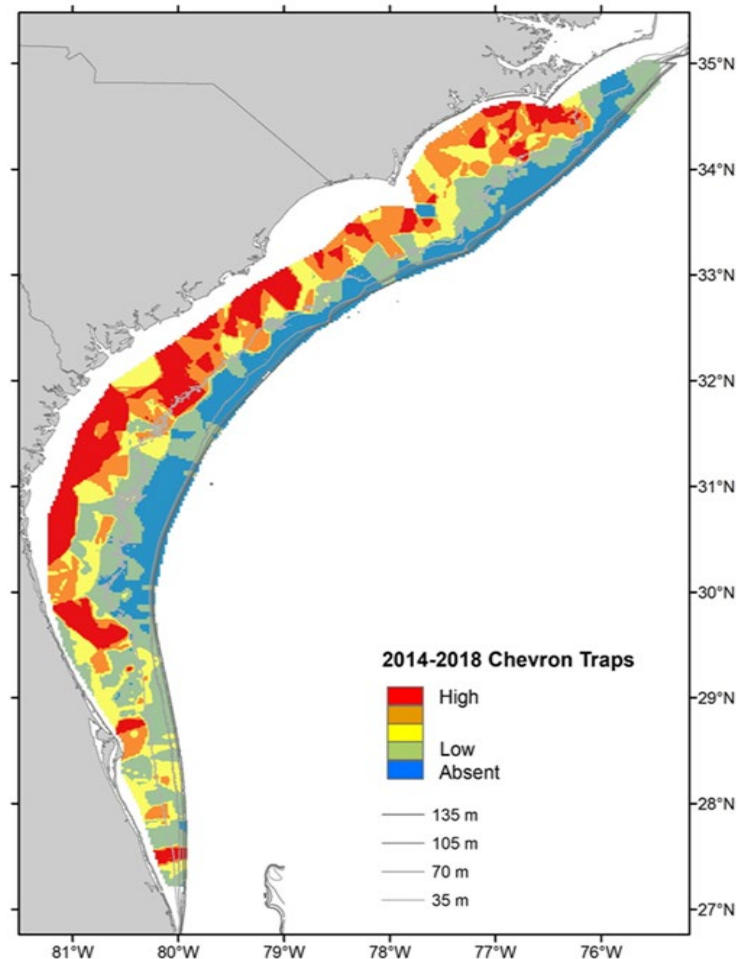
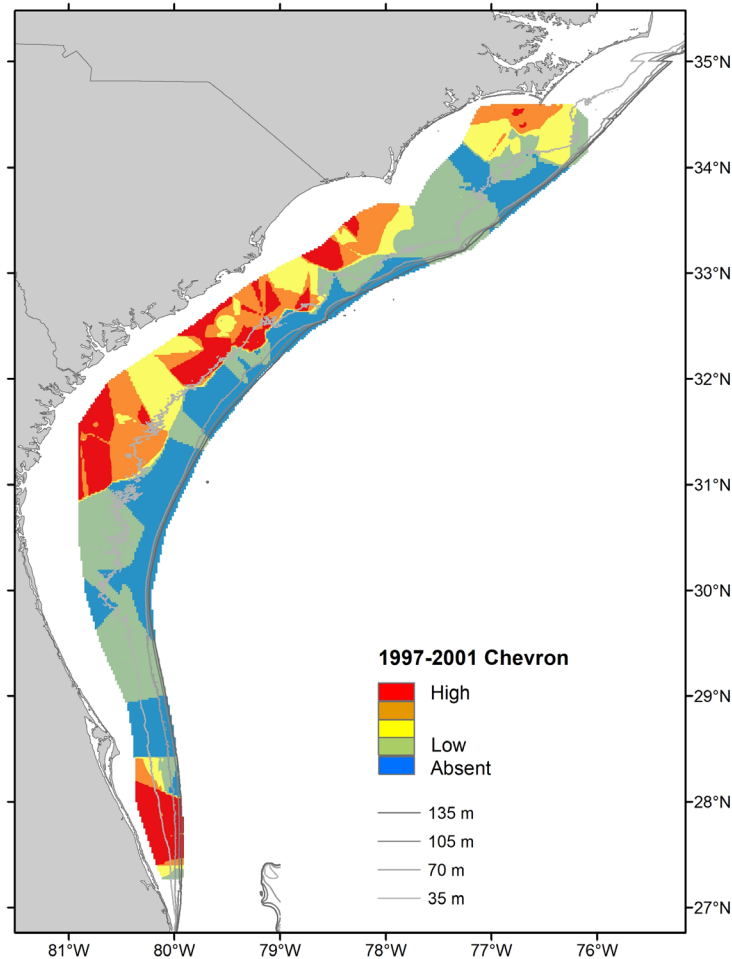
- Gray area = $\pm 95\%$ CI.

- Red dot = nominal values (not standardized)



Figures Maps

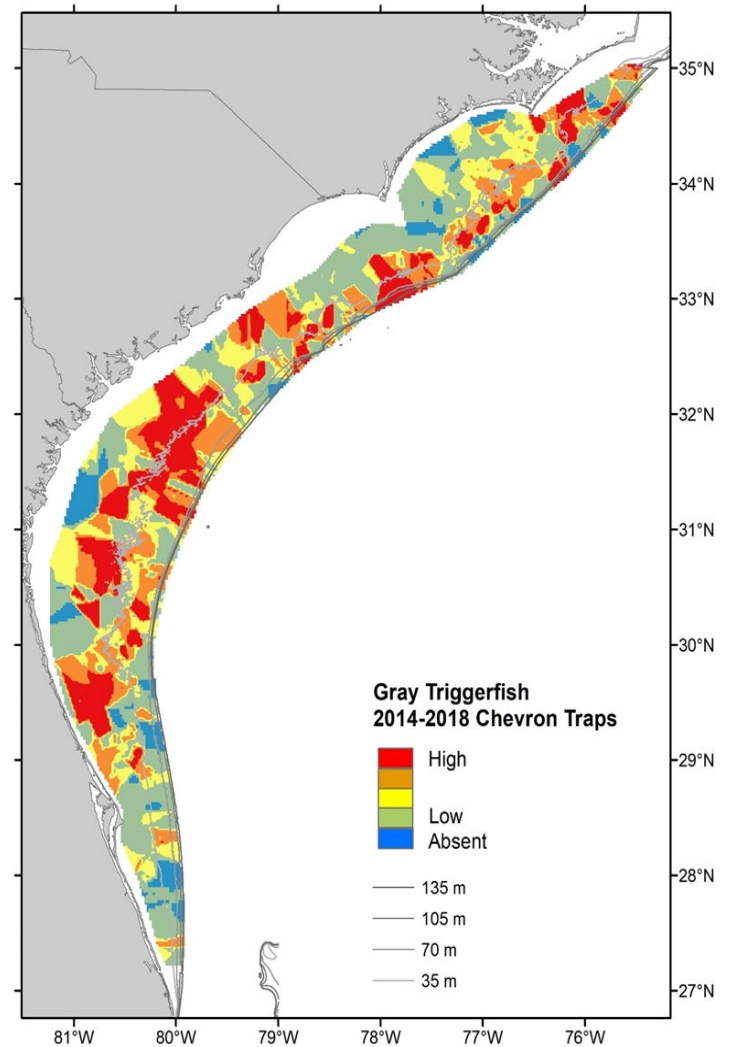
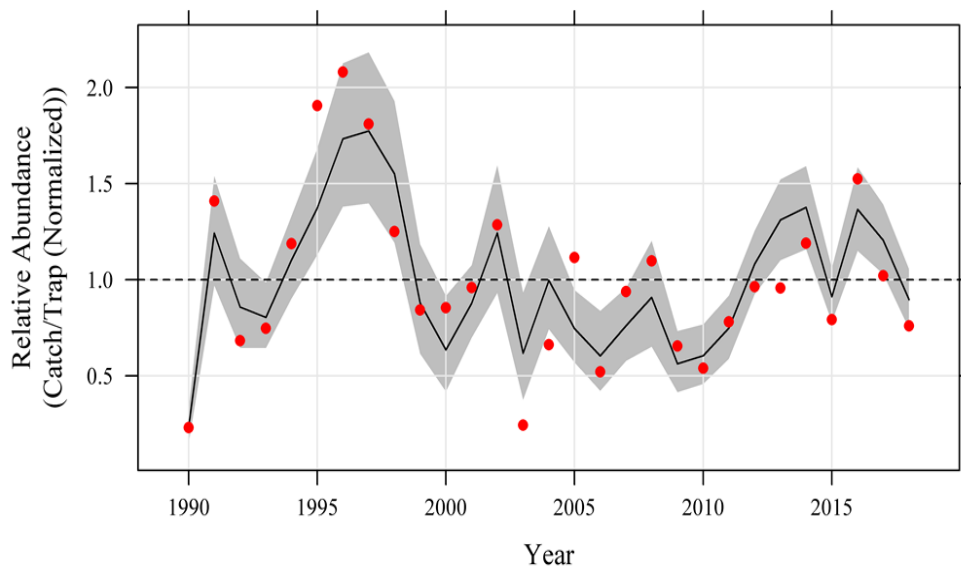
- Nominal CPUE in quartiles
- Warmer colors = higher Nom. CPUE
- Two maps: 1997-2001 and 2014-2018



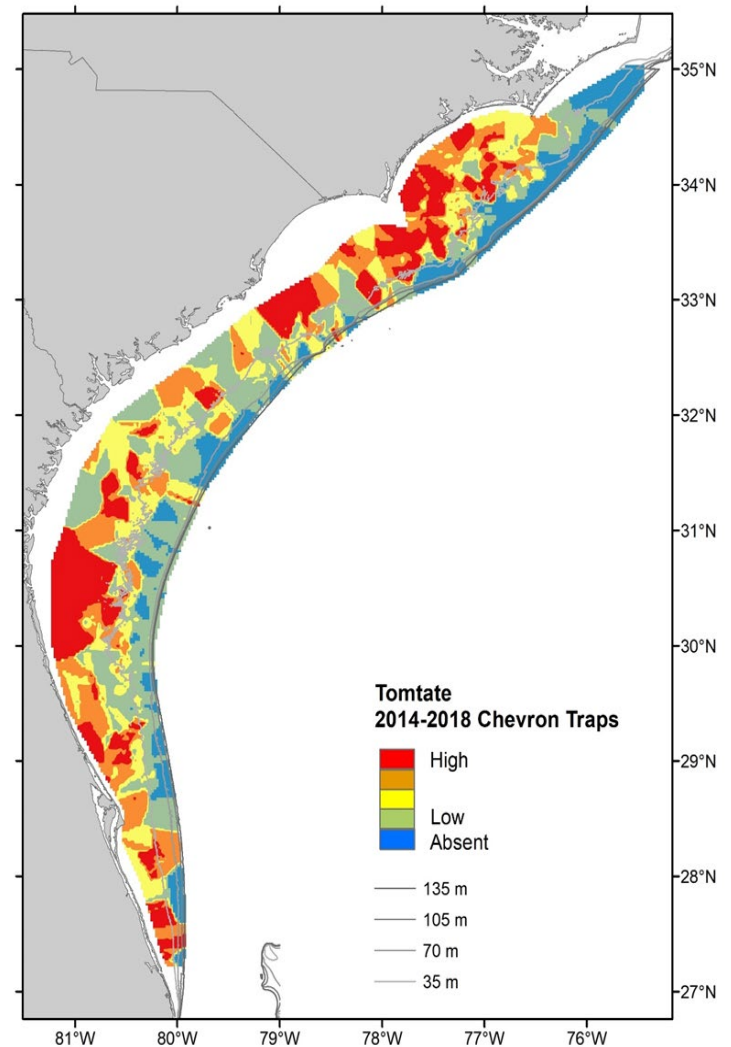
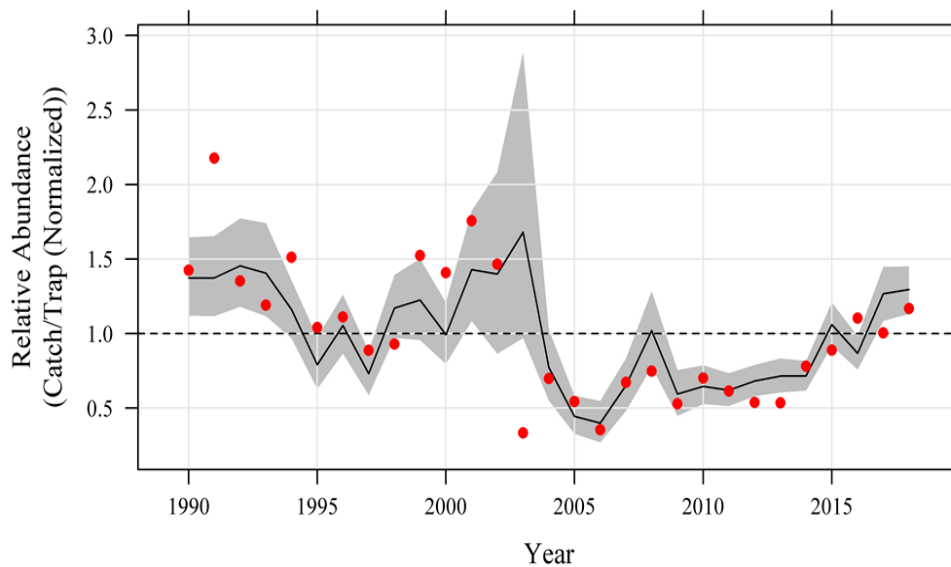
Fishery-Independent Abundance Trends 2018



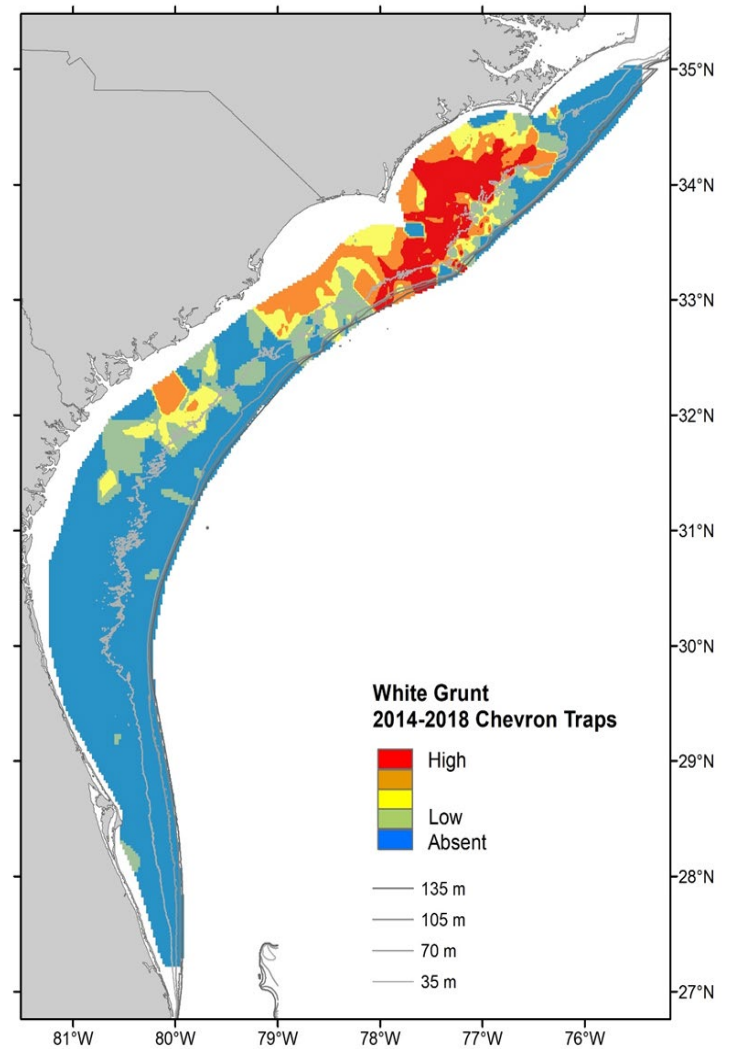
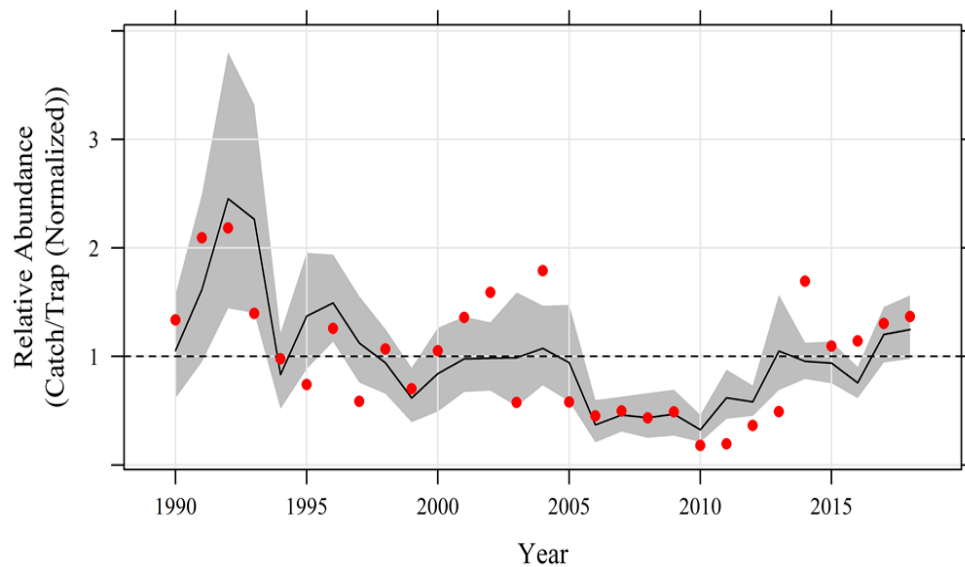
Gray Triggerfish – Chevron Trap



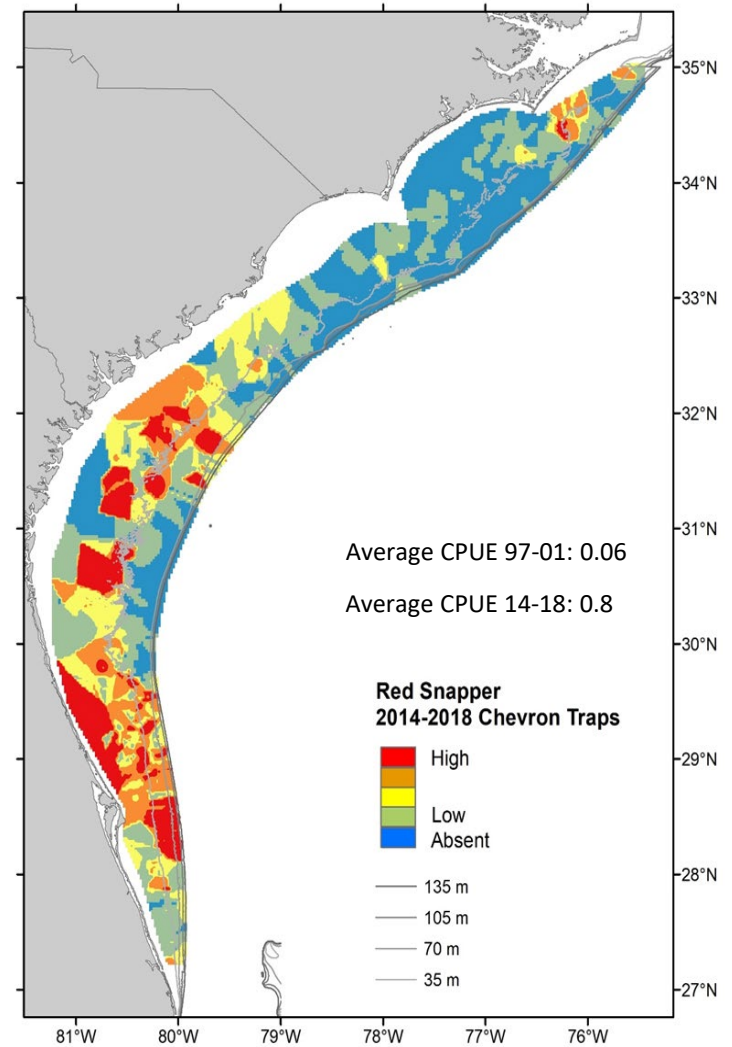
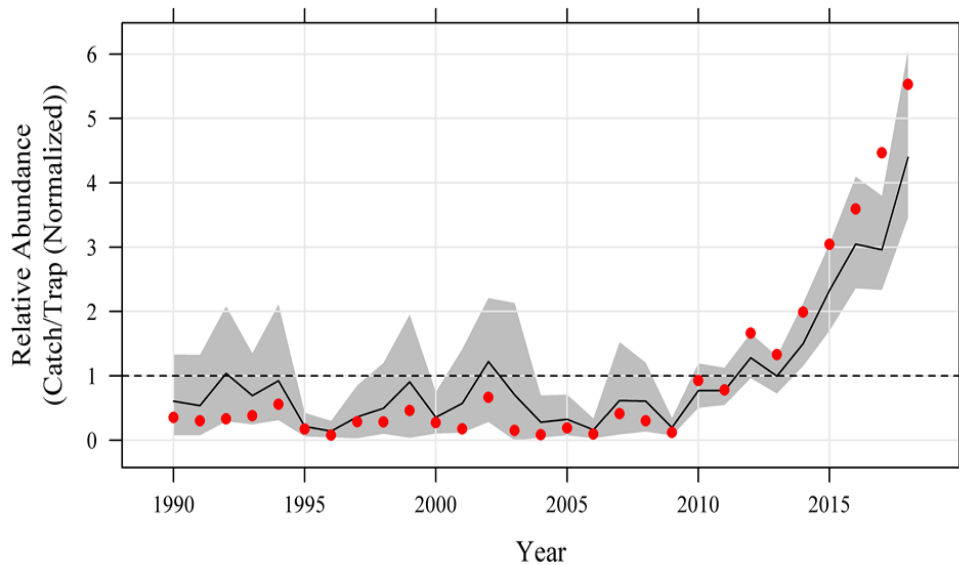
Tomtate – Chevron Trap



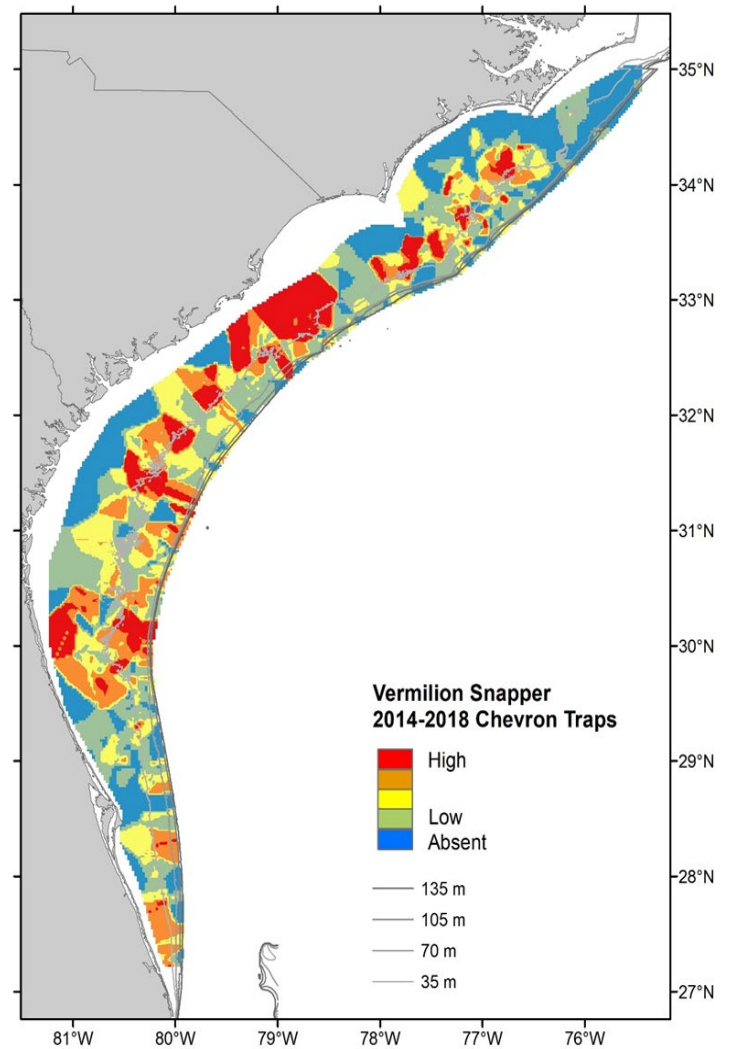
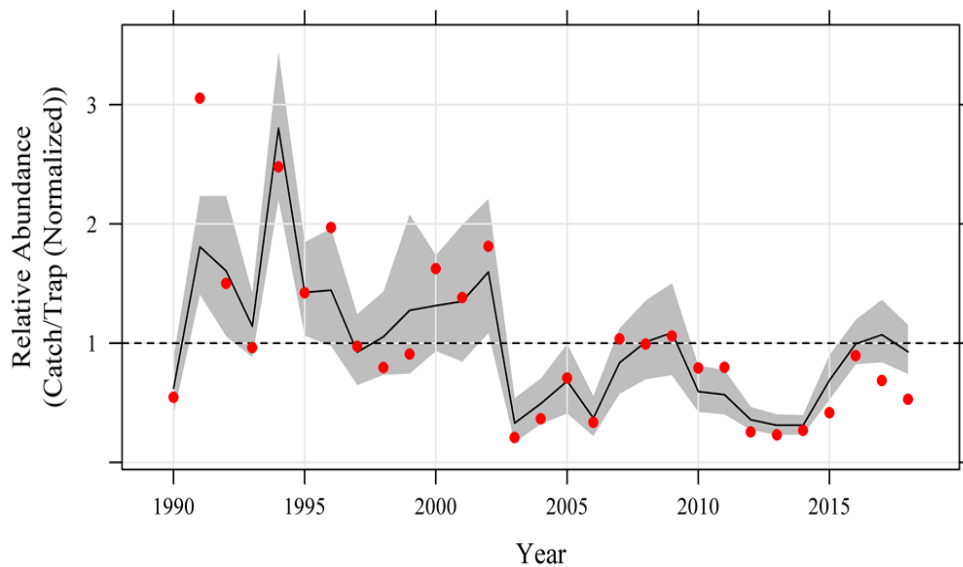
White Grunt – Chevron Trap



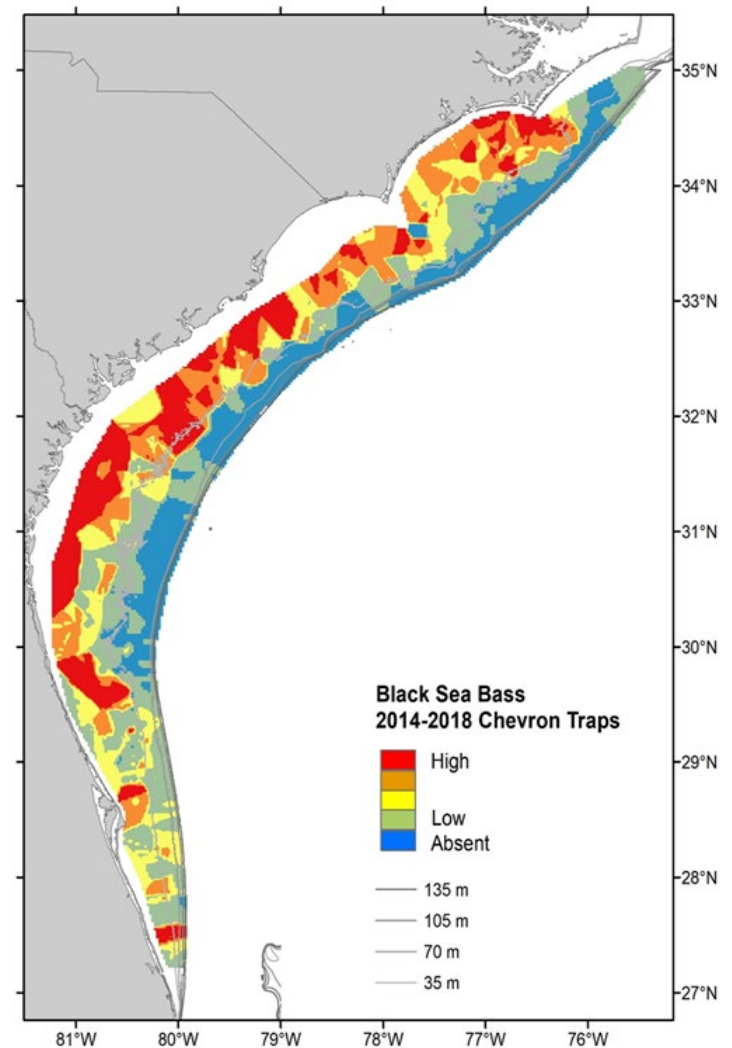
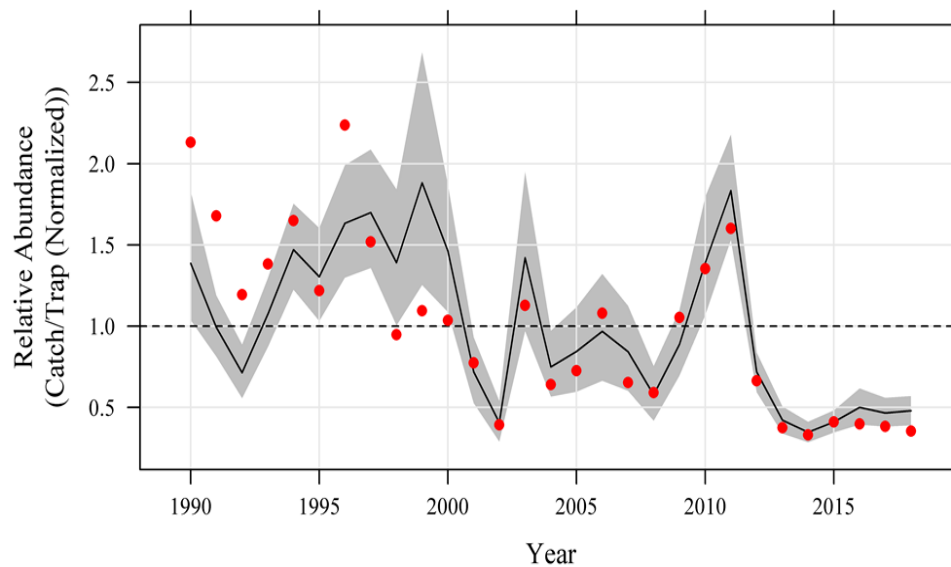
Red Snapper – Chevron Trap



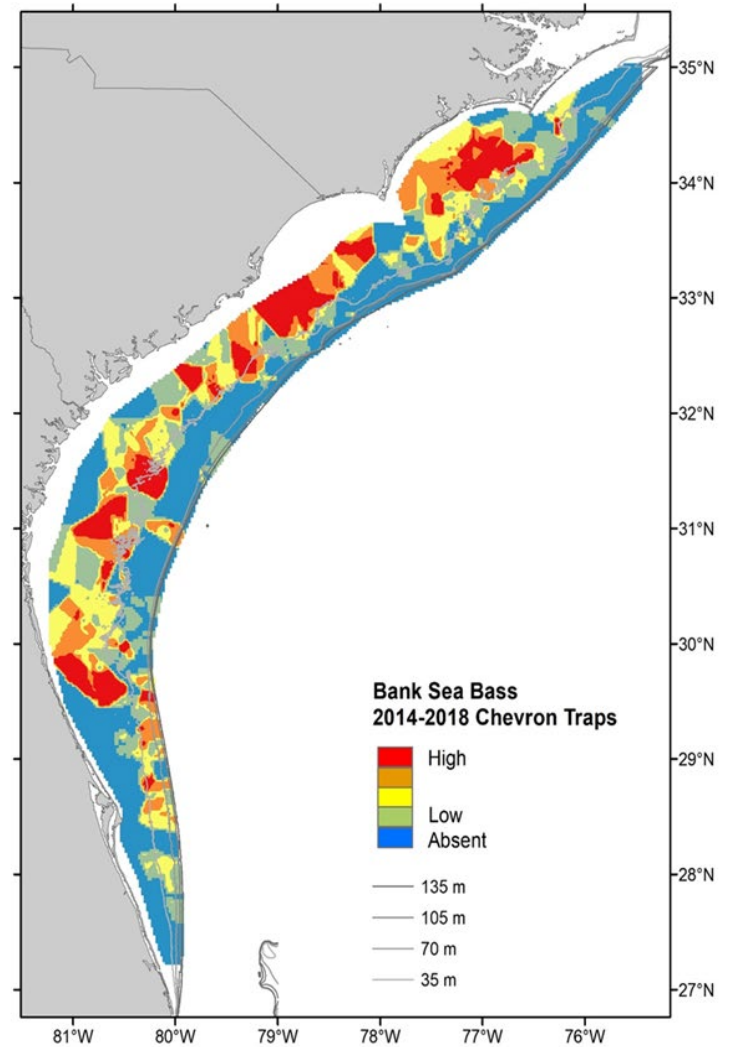
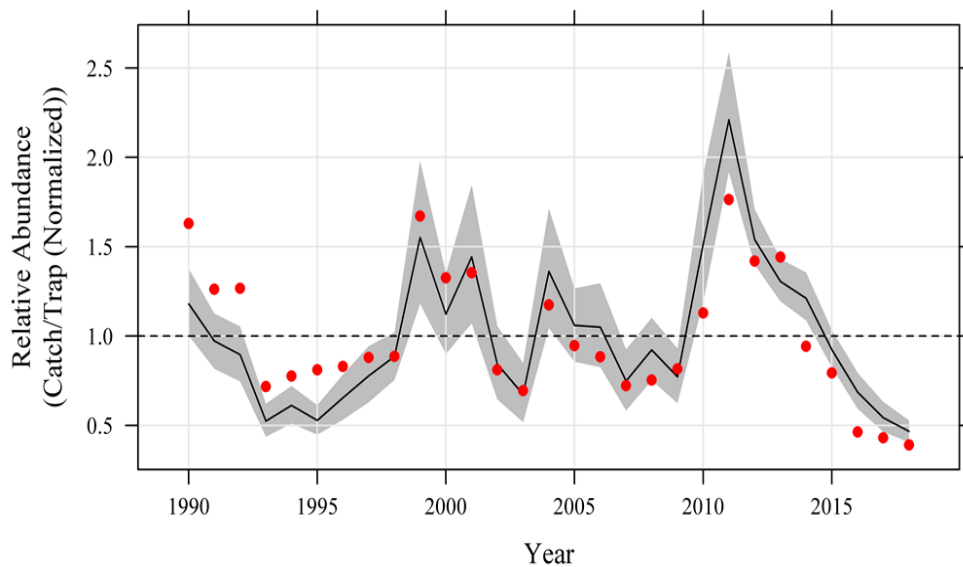
Vermilion Snapper – Chevron Trap



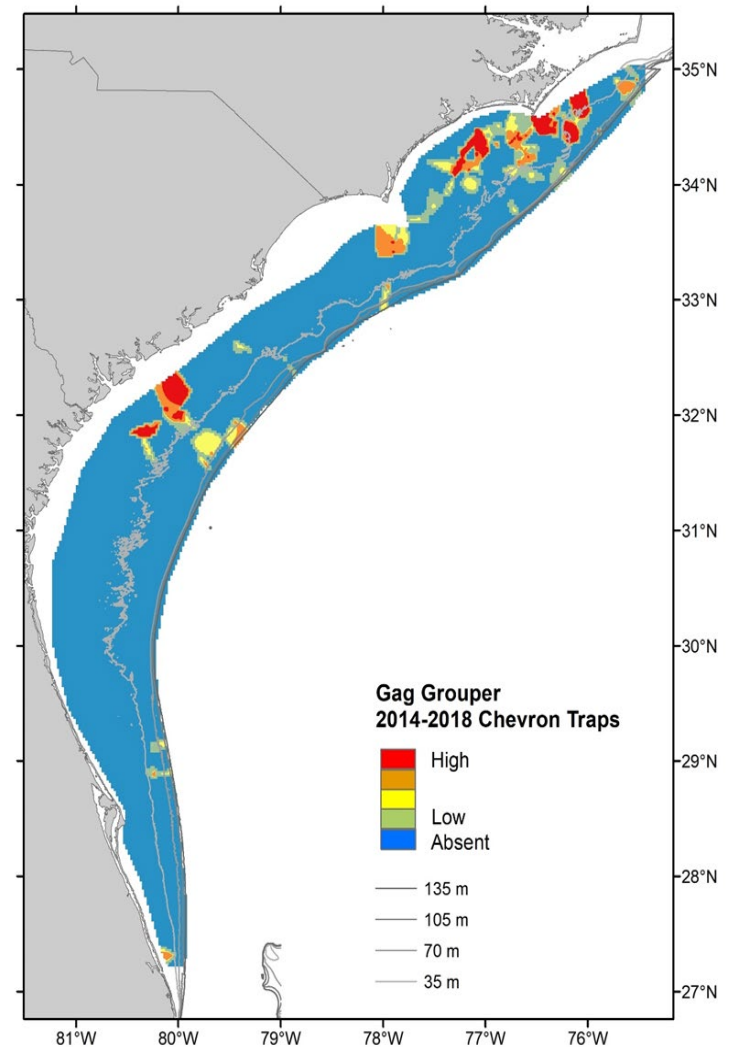
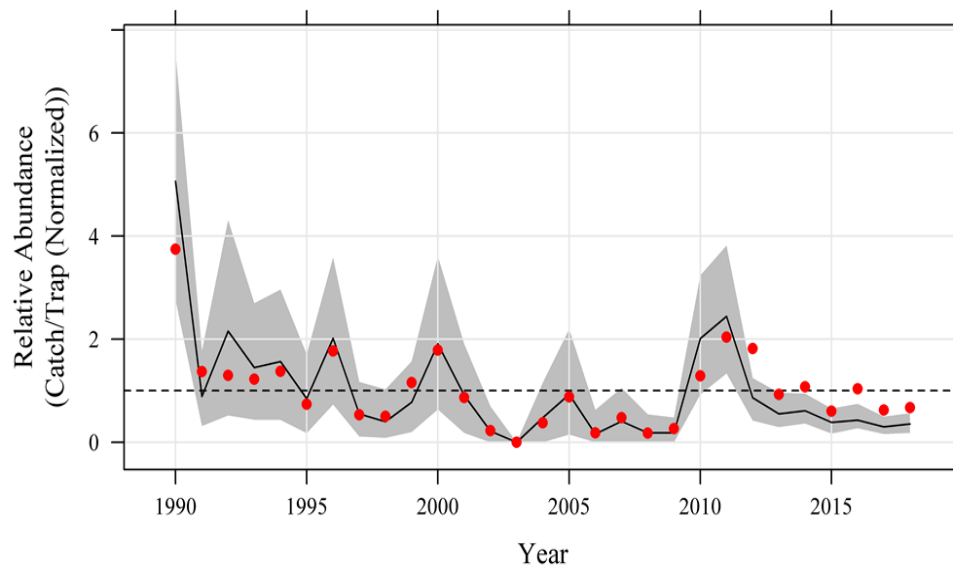
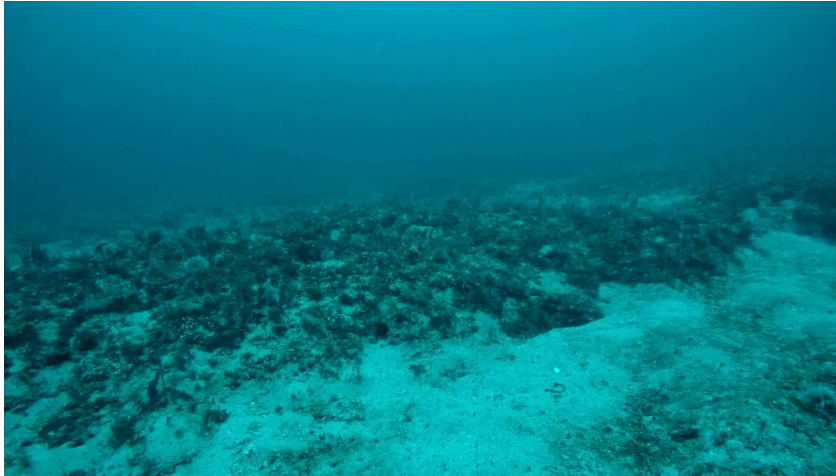
Black Sea Bass – Chevron Trap



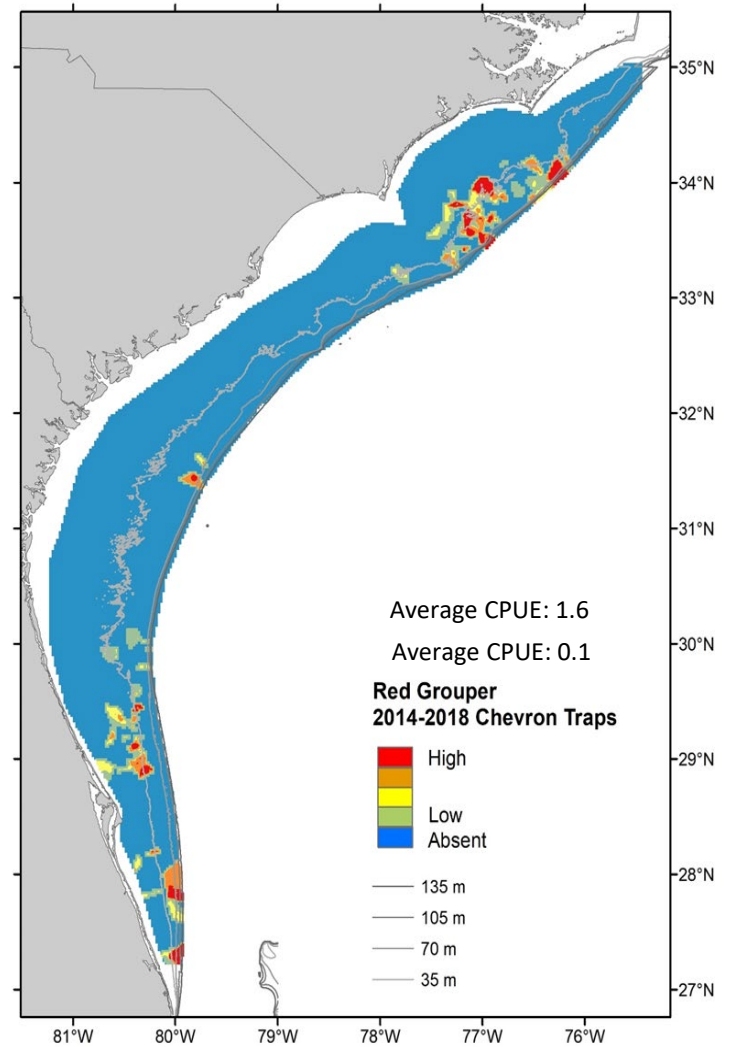
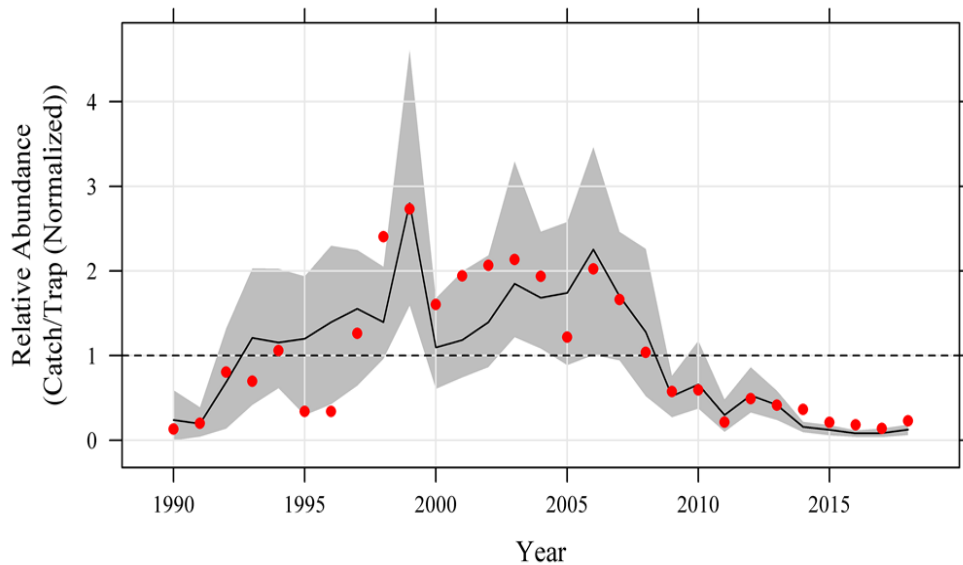
Bank Sea Bass – Chevron Trap



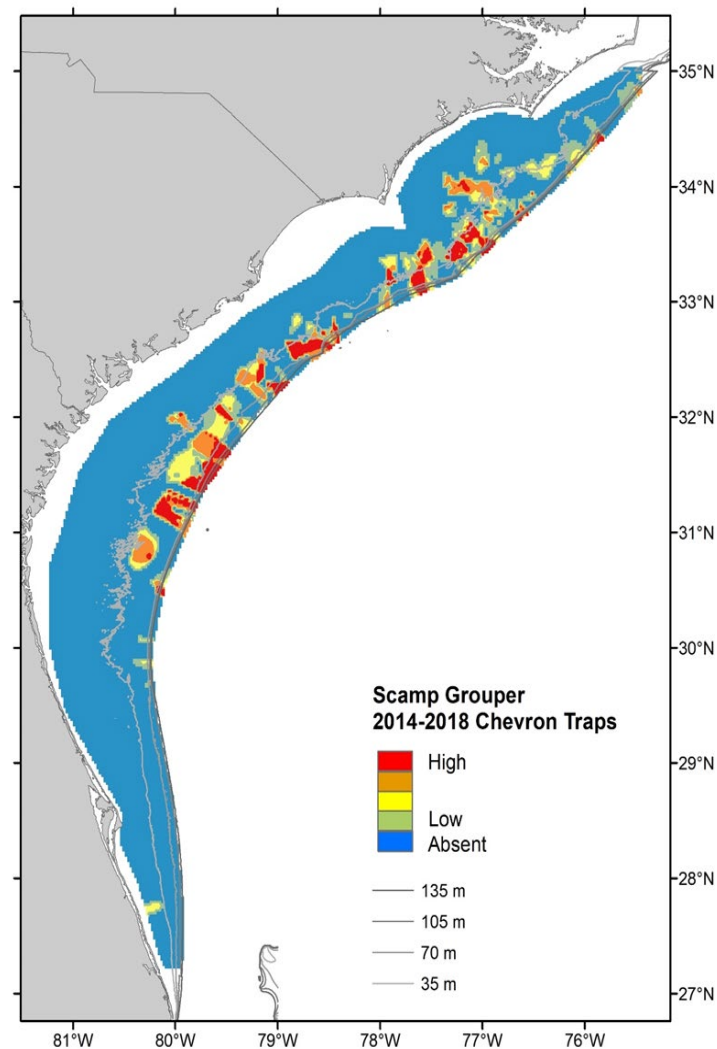
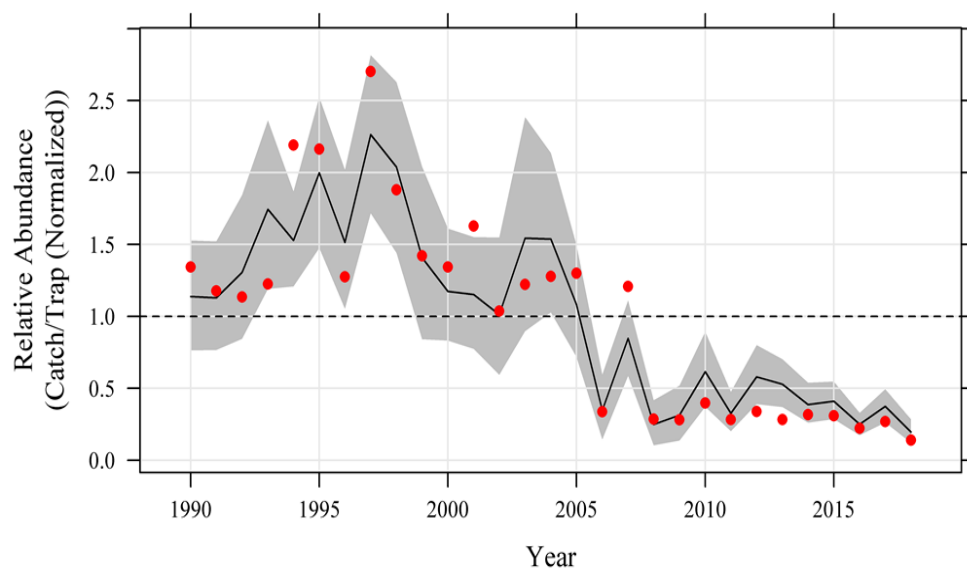
Gag – Chevron Trap



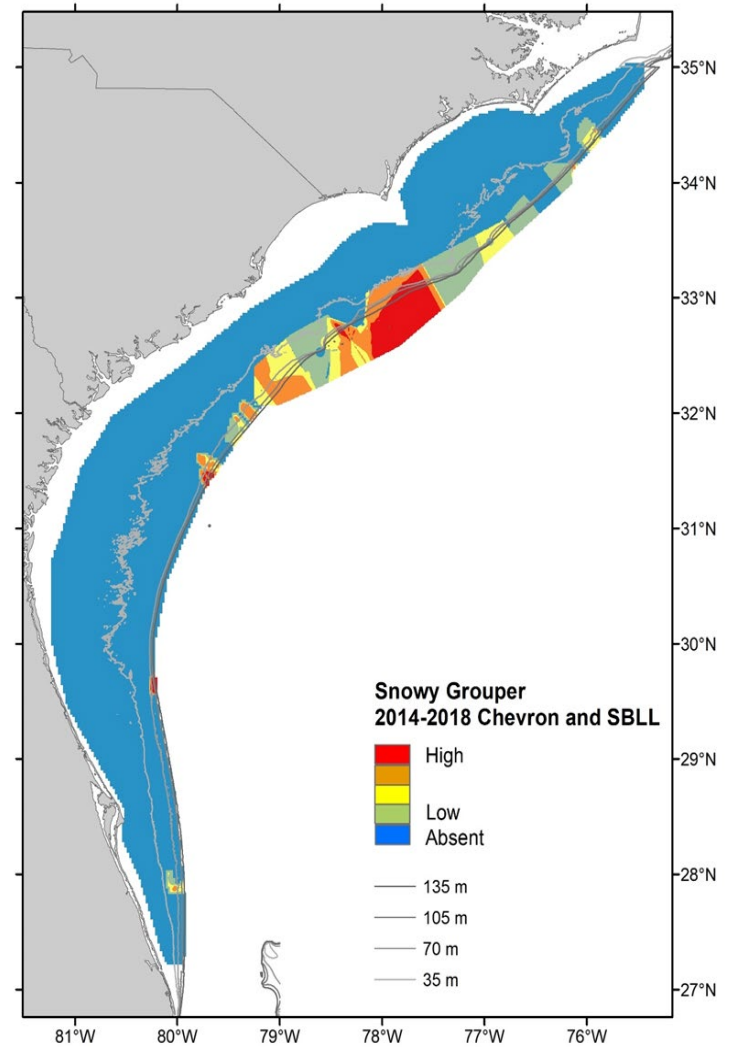
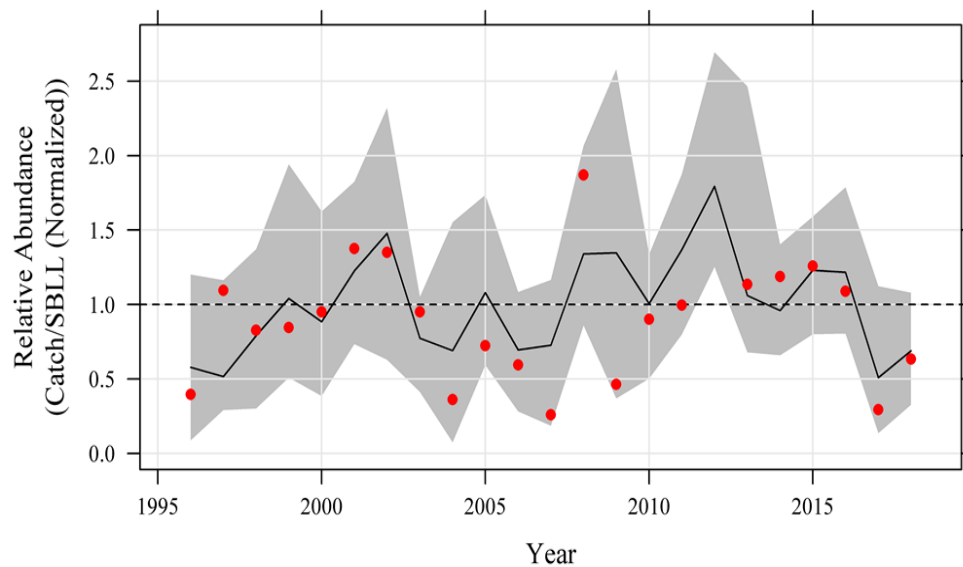
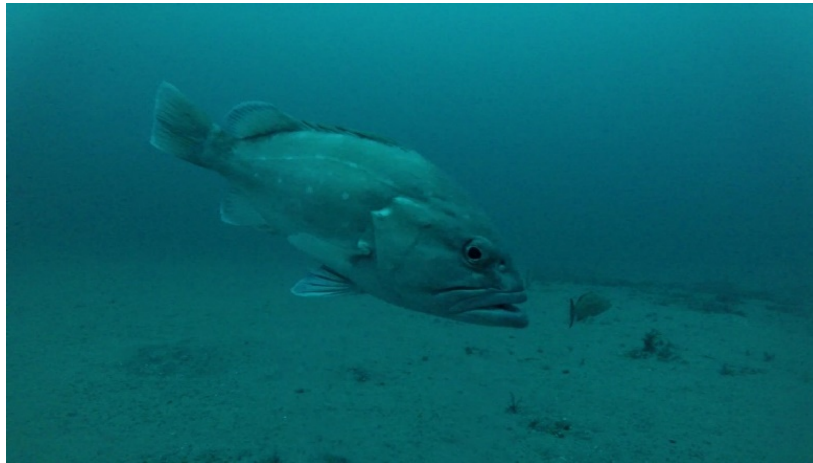
Red Grouper – Chevron Trap



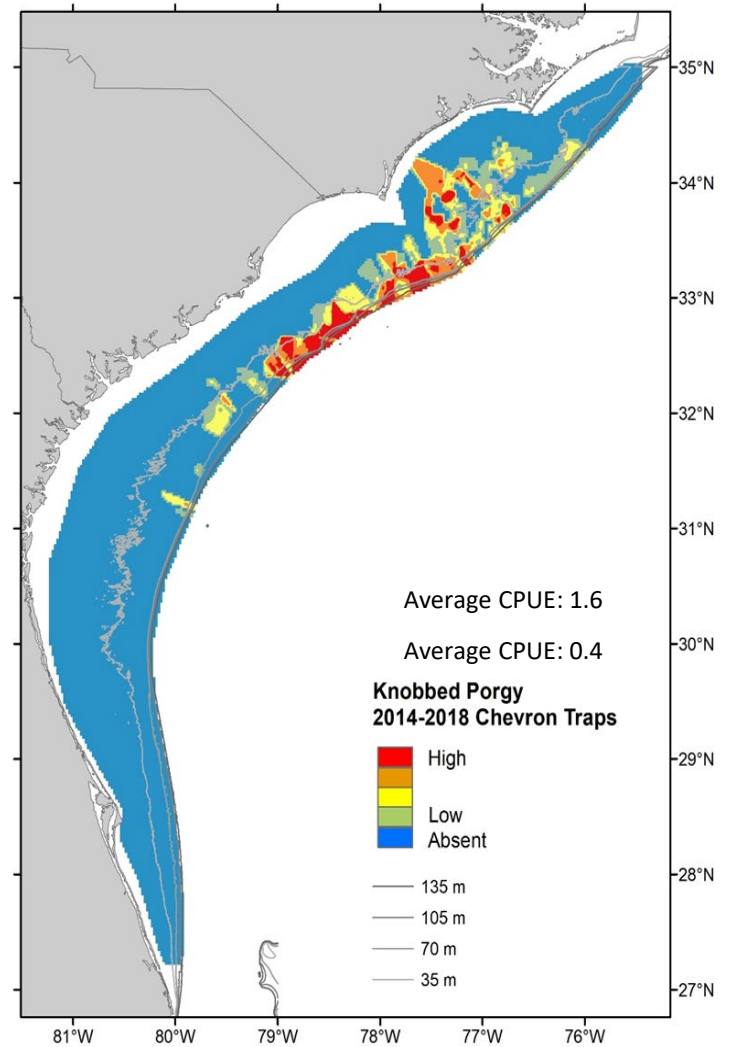
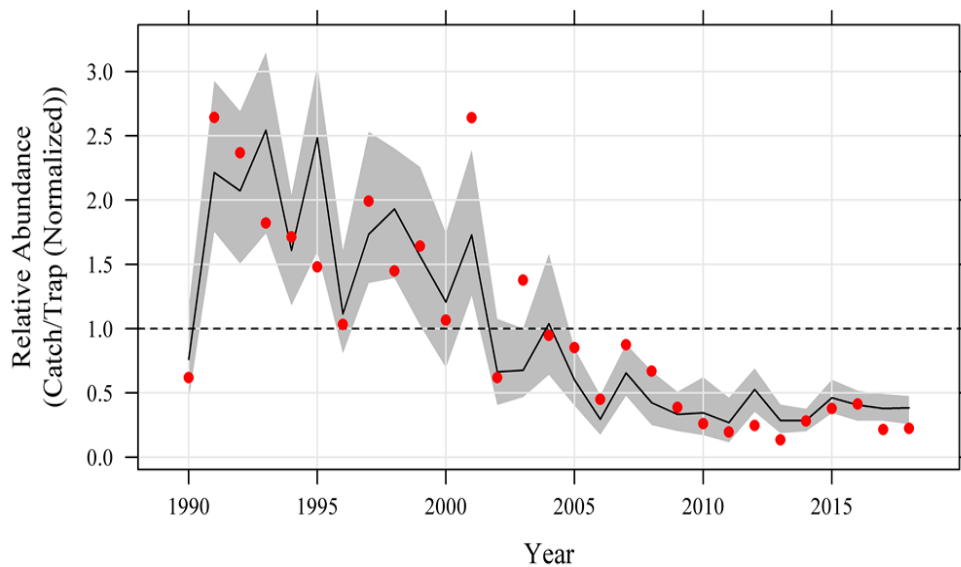
Scamp – Chevron Trap



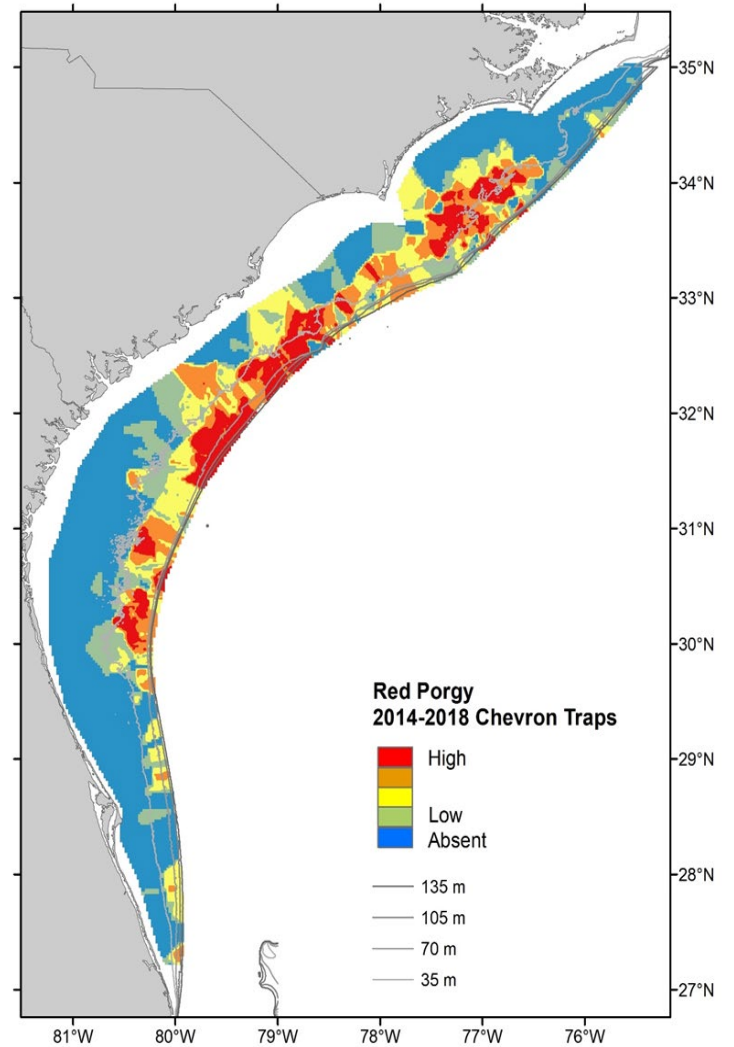
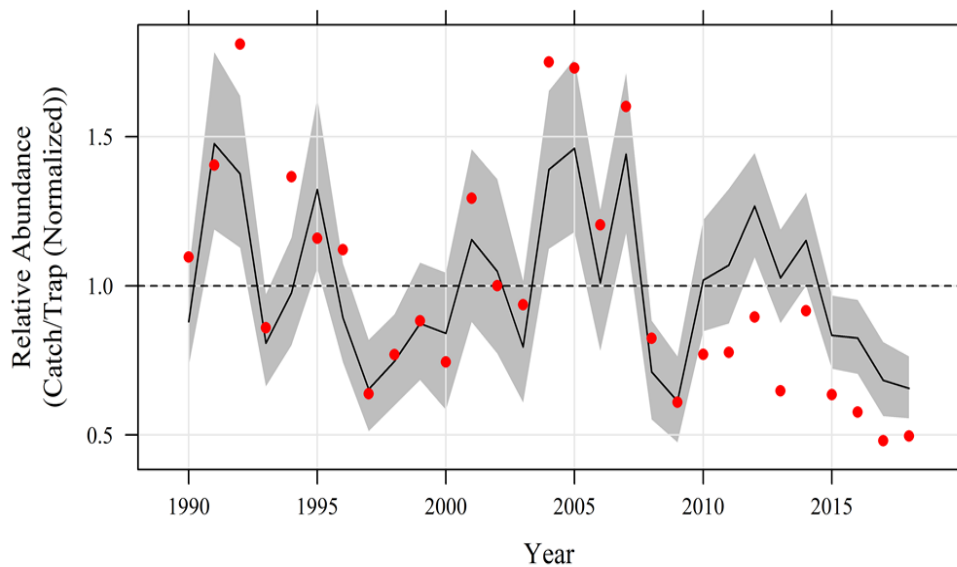
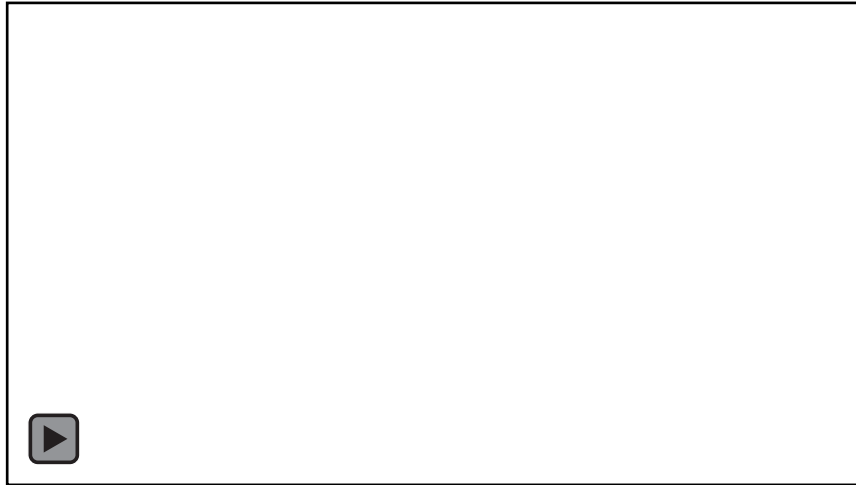
Snowy Grouper - Short Bottom Longline



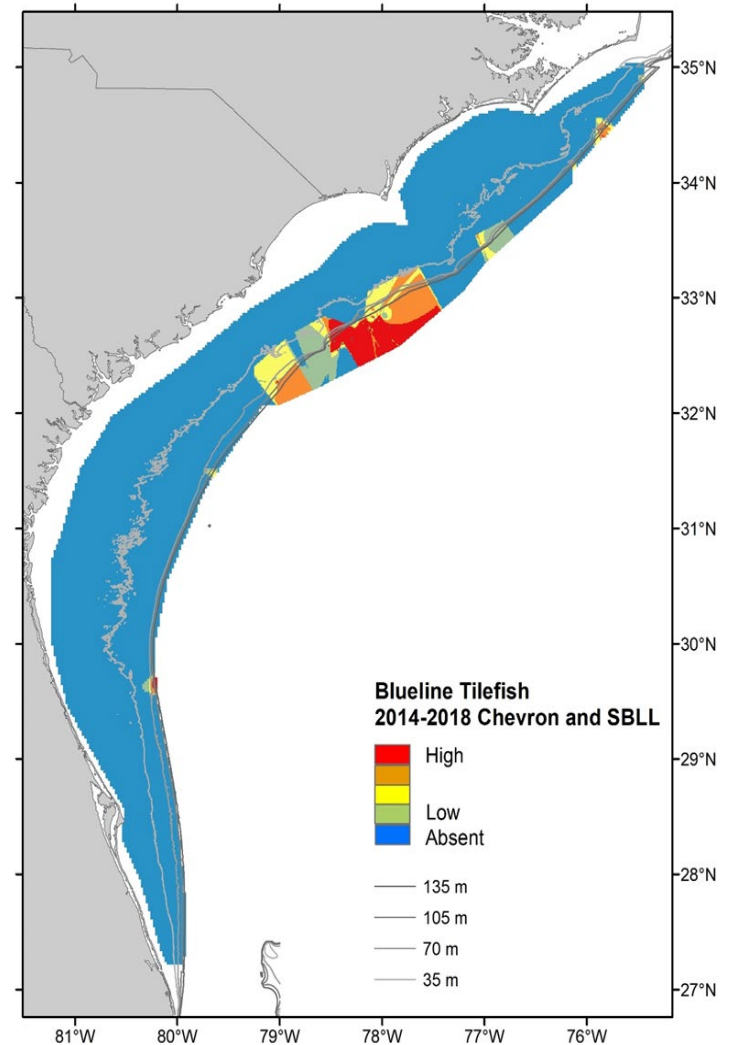
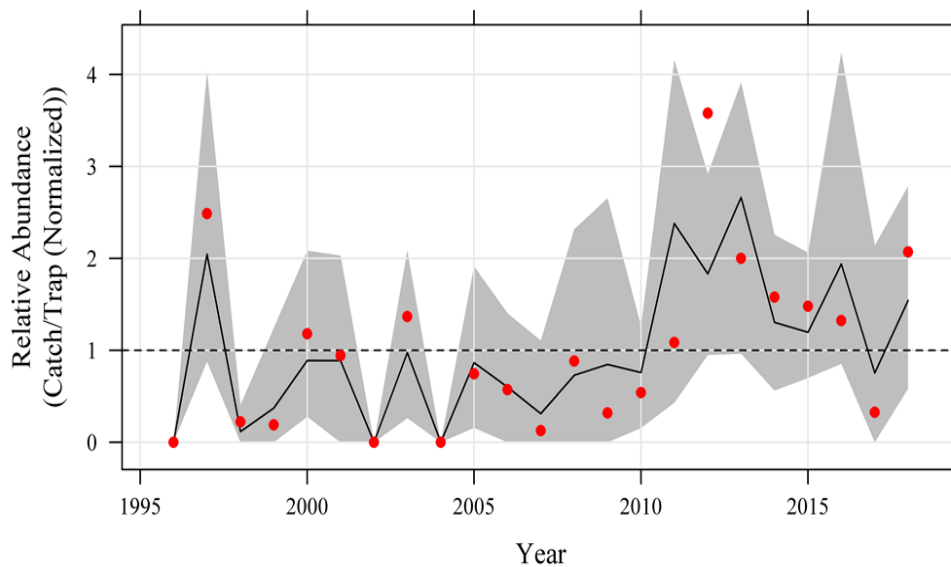
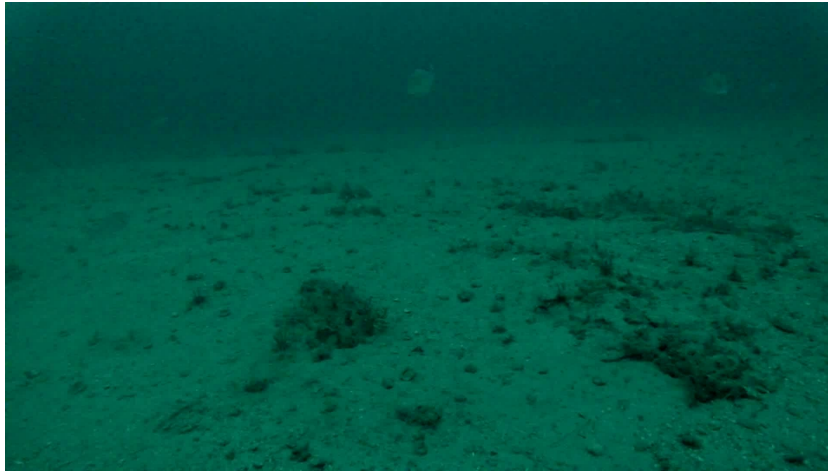
Knobbed Porgy – Chevron Trap



Red Porgy – Chevron Trap



Blueline Tilefish – Short Bottom Longline





2019 SERFS update



Sampling Season:

April 29th – October 19th

Planned: 11-14 cruises ≈ 100 days at sea

Completed: 3 cruises ≈ 22 days at sea

R/Vs Palmetto and Savannah at sea





Acknowledgements:

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

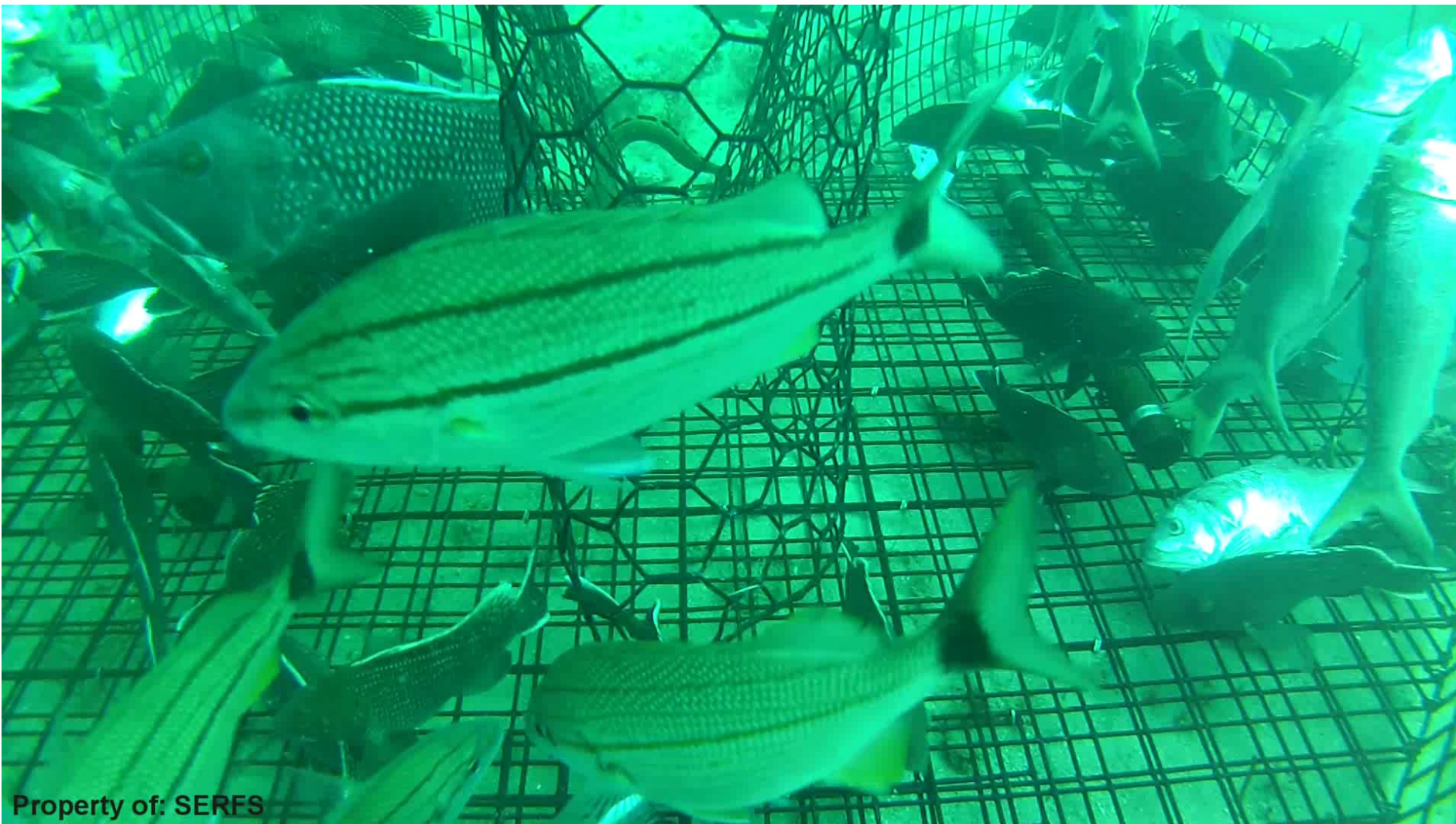
Past and Present



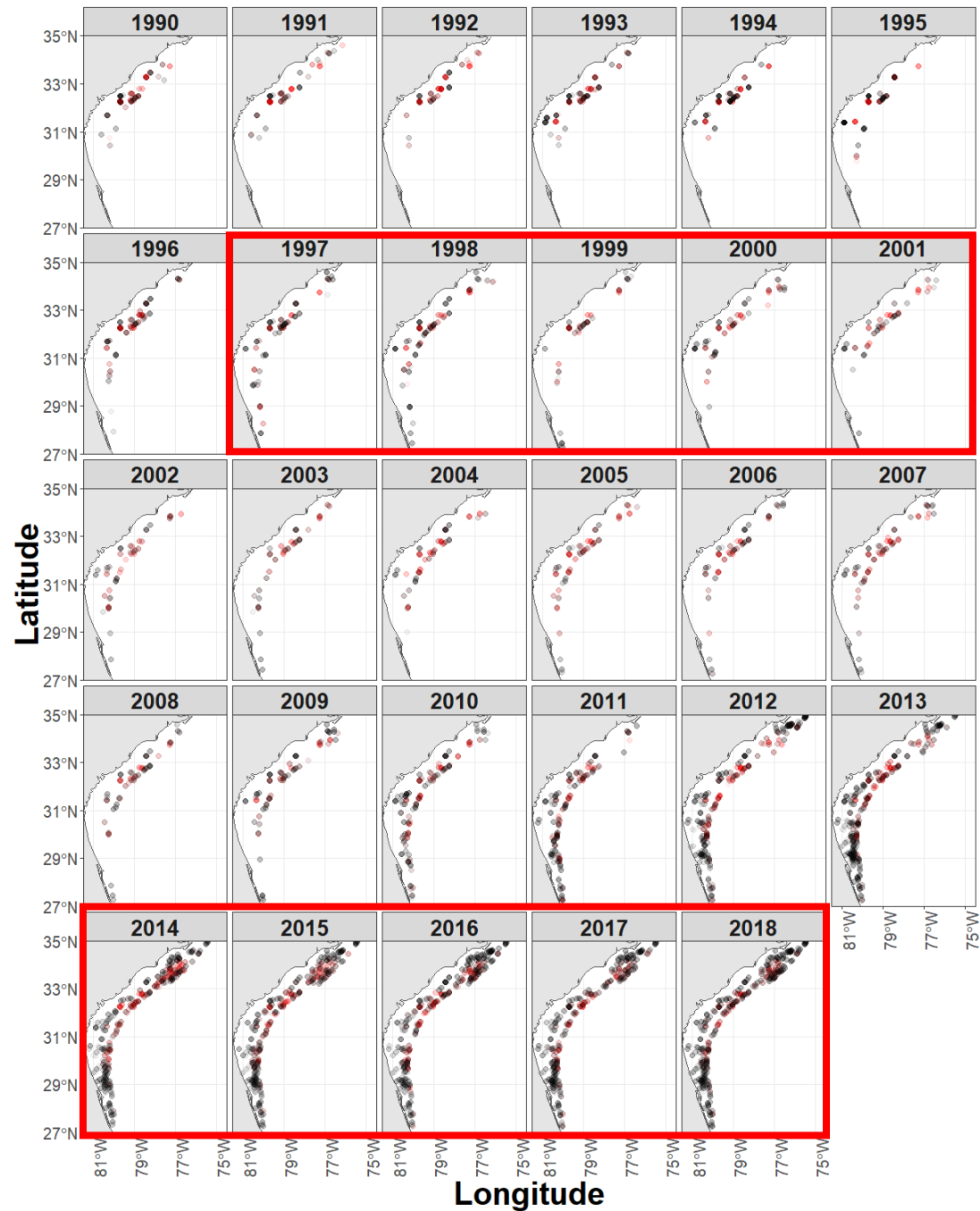


Questions





Large Red Snapper in trap

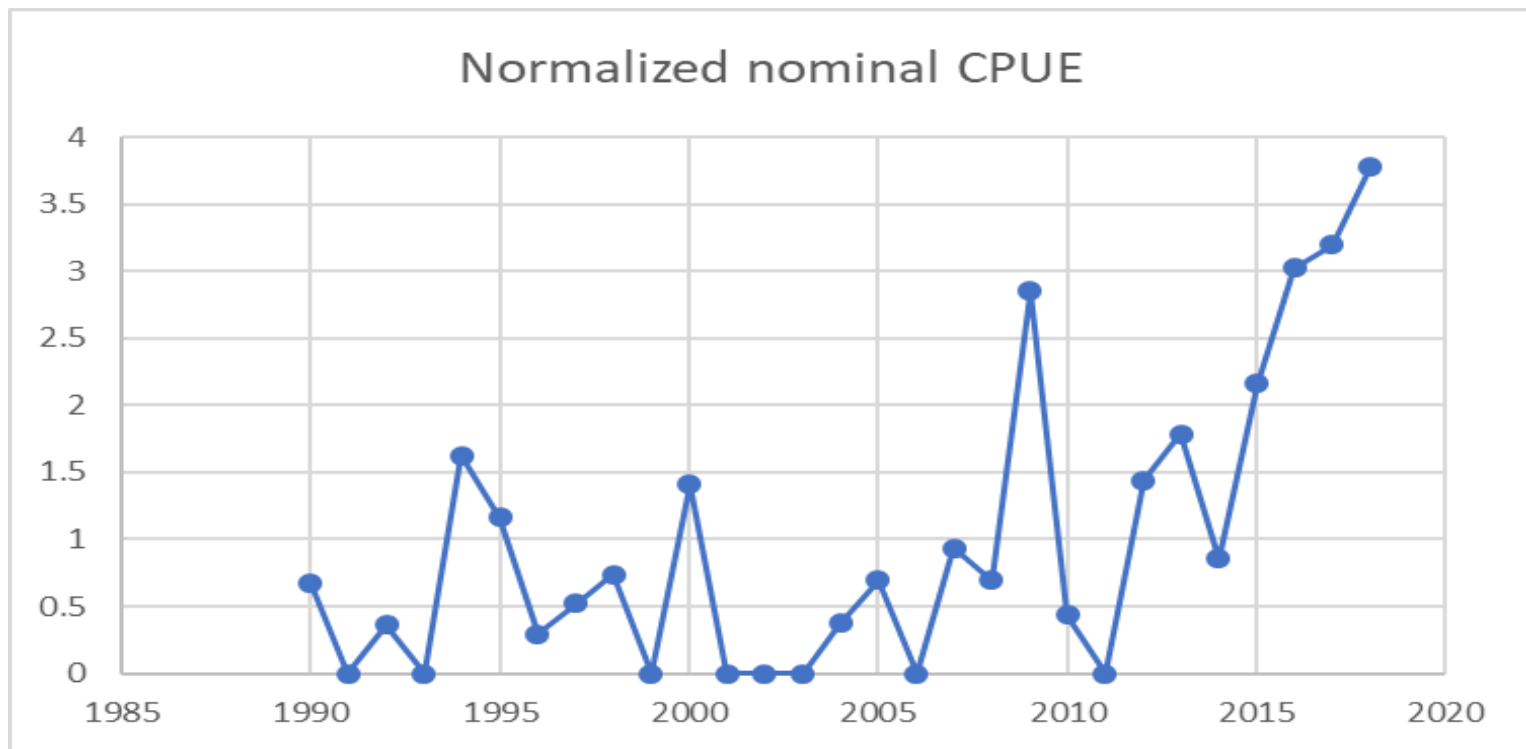


	SERFS total		
Year	Chevron Trap	SBLL	LBLL
1990	354	0	0
1991	305	0	0
1992	324	0	0
1993	390	0	0
1994	391	0	0
1995	312	0	0
1996	515	20	17
1997	496	34	21
1998	464	33	10
1999	266	44	30
2000	347	40	11
2001	281	36	14
2002	289	22	20
2003	286	54	16
2004	308	48	5
2005	327	58	16
2006	313	96	7
2007	350	74	25
2008	354	58	0
2009	452	71	38
2010	1025	135	40
2011	992	142	30
2012	1381	28	0
2013	1542	42	0
2014	1506	60	0
2015	1521	103	45
2016	1537	78	30
2017	1574	54	0
2018	1784	77	0
# Species Encountered	143	63	40

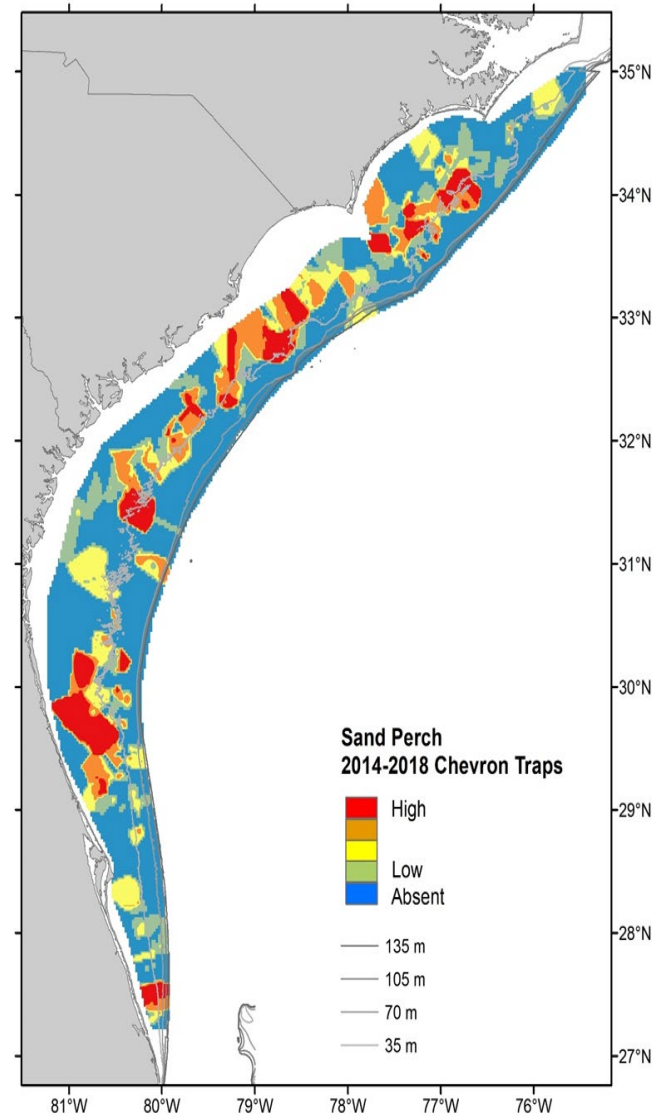
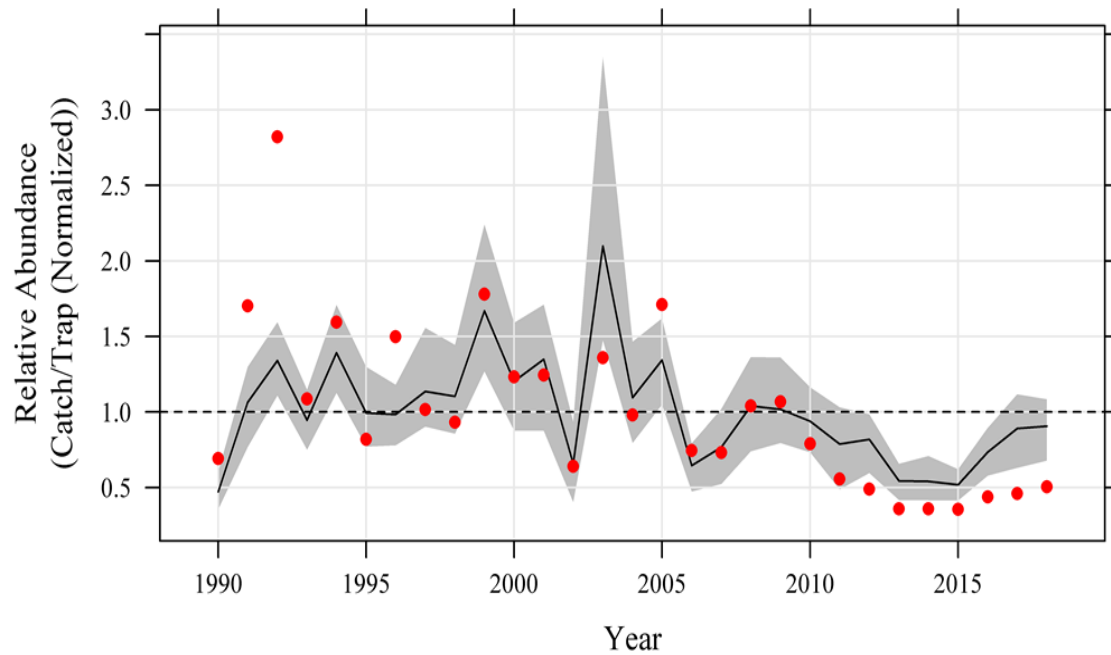
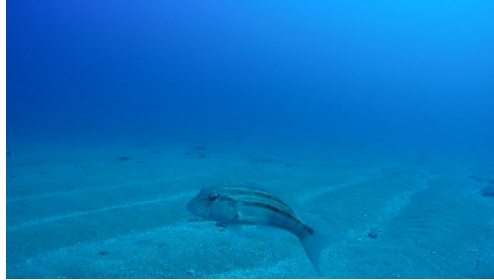
SERFS sea days

	Palmetto	Lady Lisa	Savannah	Pisces	total	-LL
2011	54.5	9	50	12	126	117
2012	39.5	0	50	29	119	119
2013	50	0	50	32	132	132
2014	49	0	45	27	121	121
2015	49	16	45	23	133	117
2016	48.5	12	45	29	135	123
2017*	29.5	1.5	40	32	103	102
2018	42	4.5	36	28	111	106

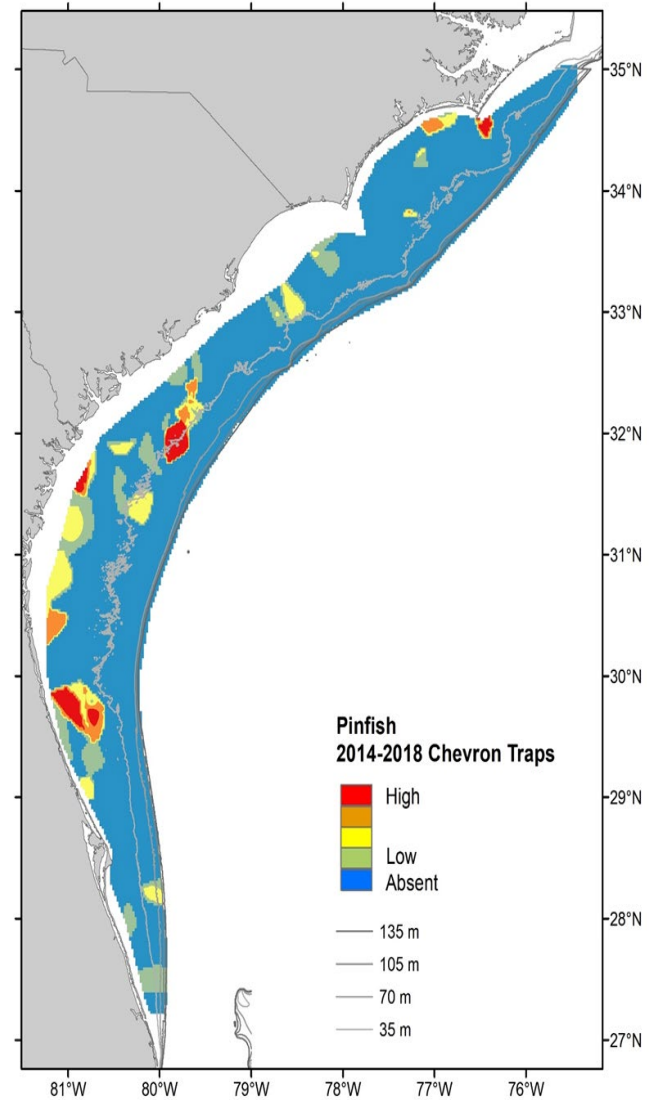
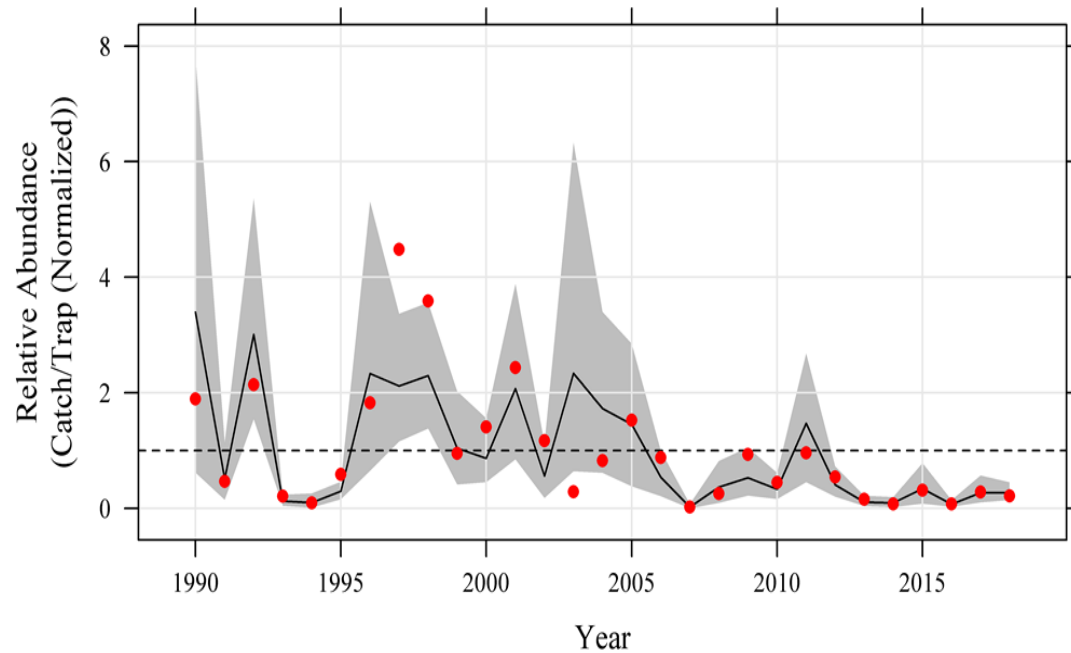
Almaco Jack Chevron Trap



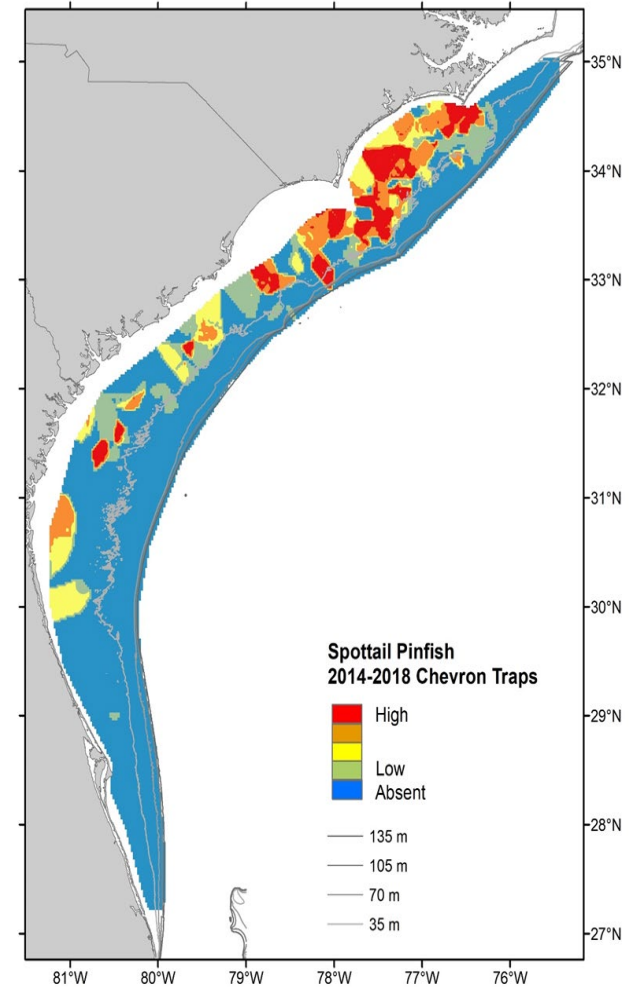
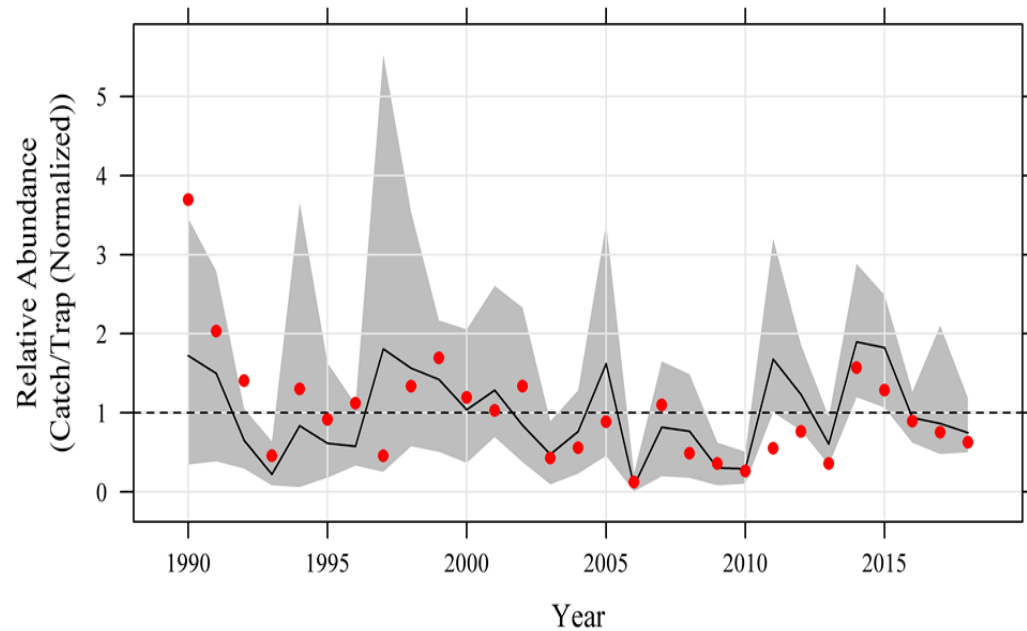
Sand Perch – Chevron Trap



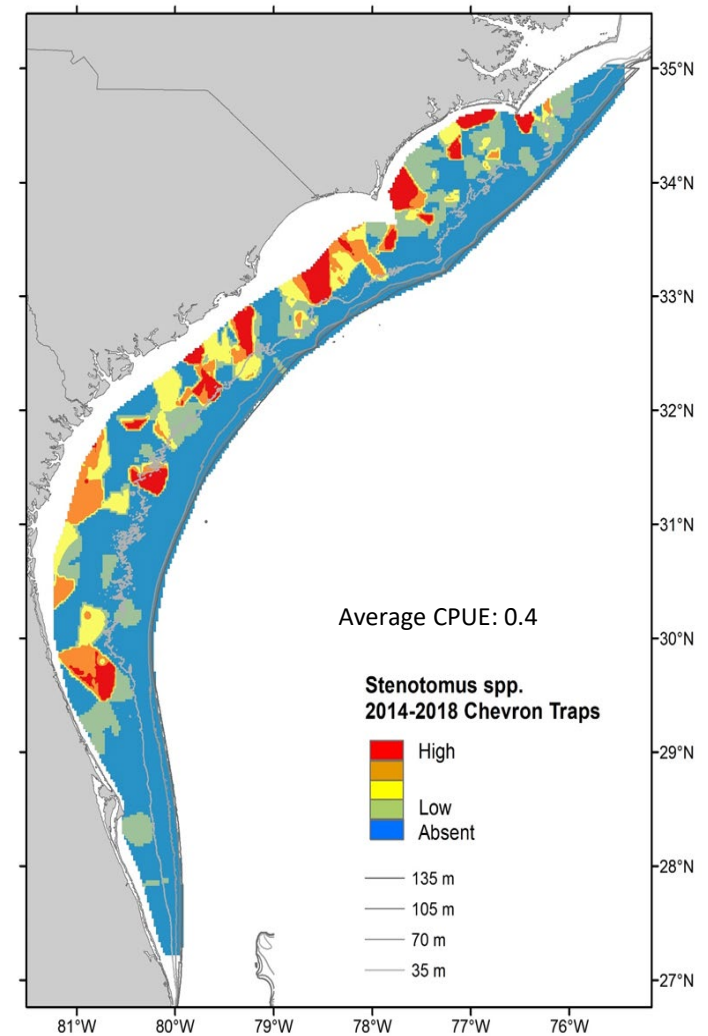
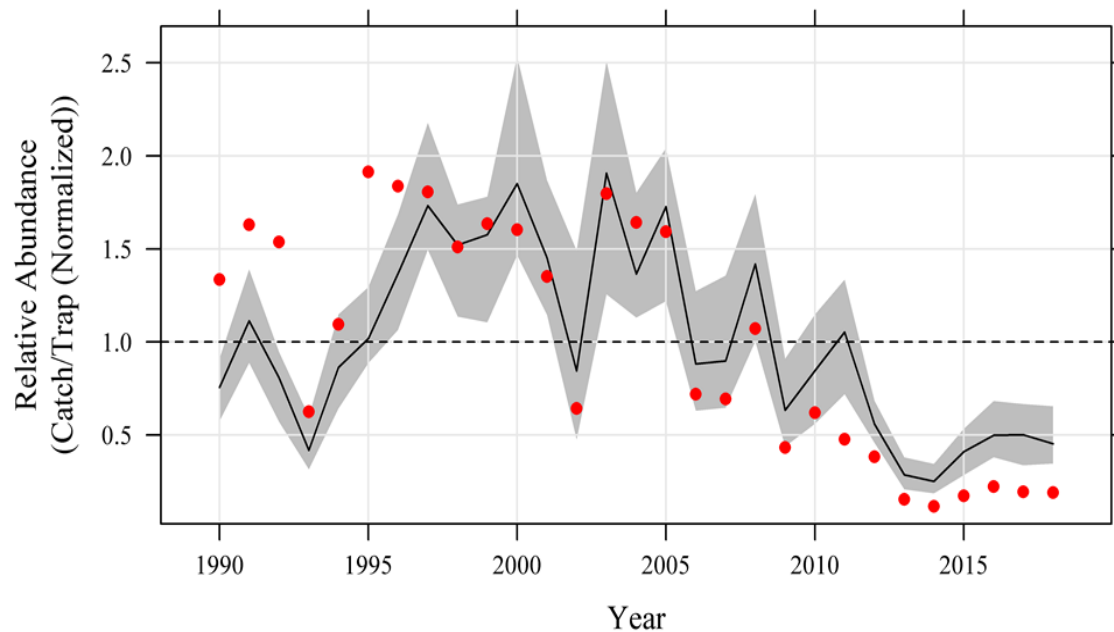
Pinfish – Chevron Trap



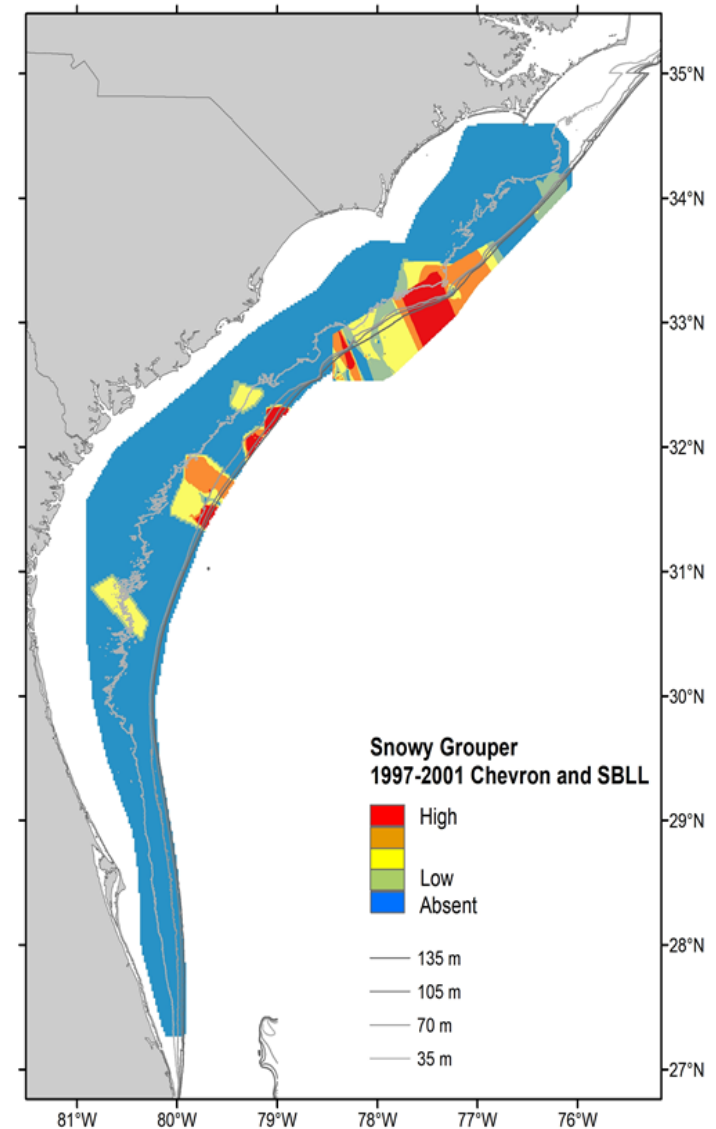
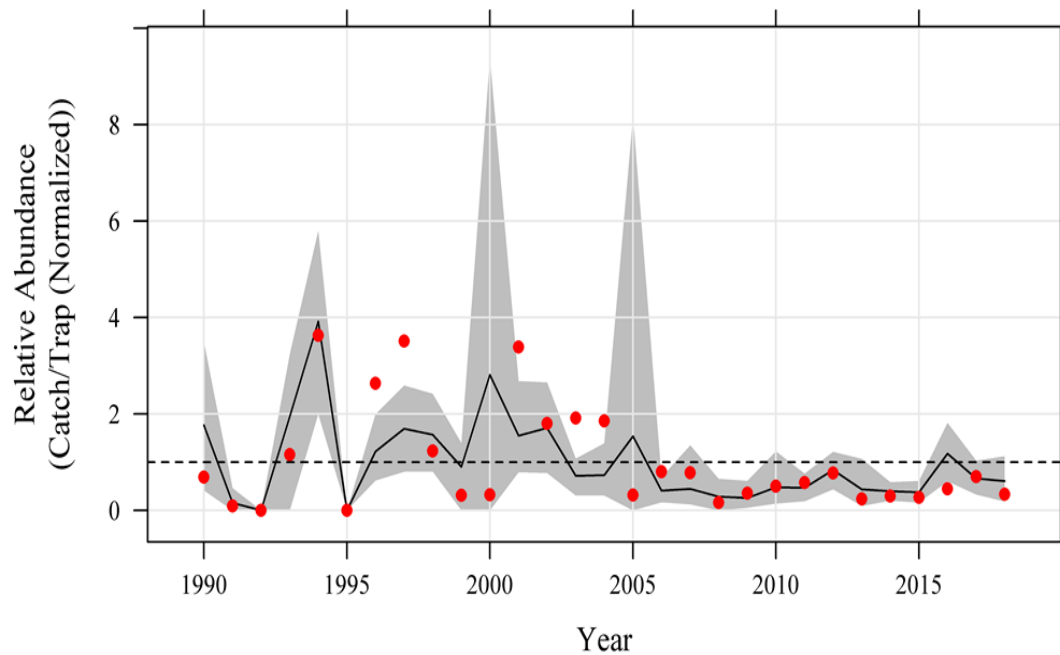
Spottail Pinfish – Chevron Trap



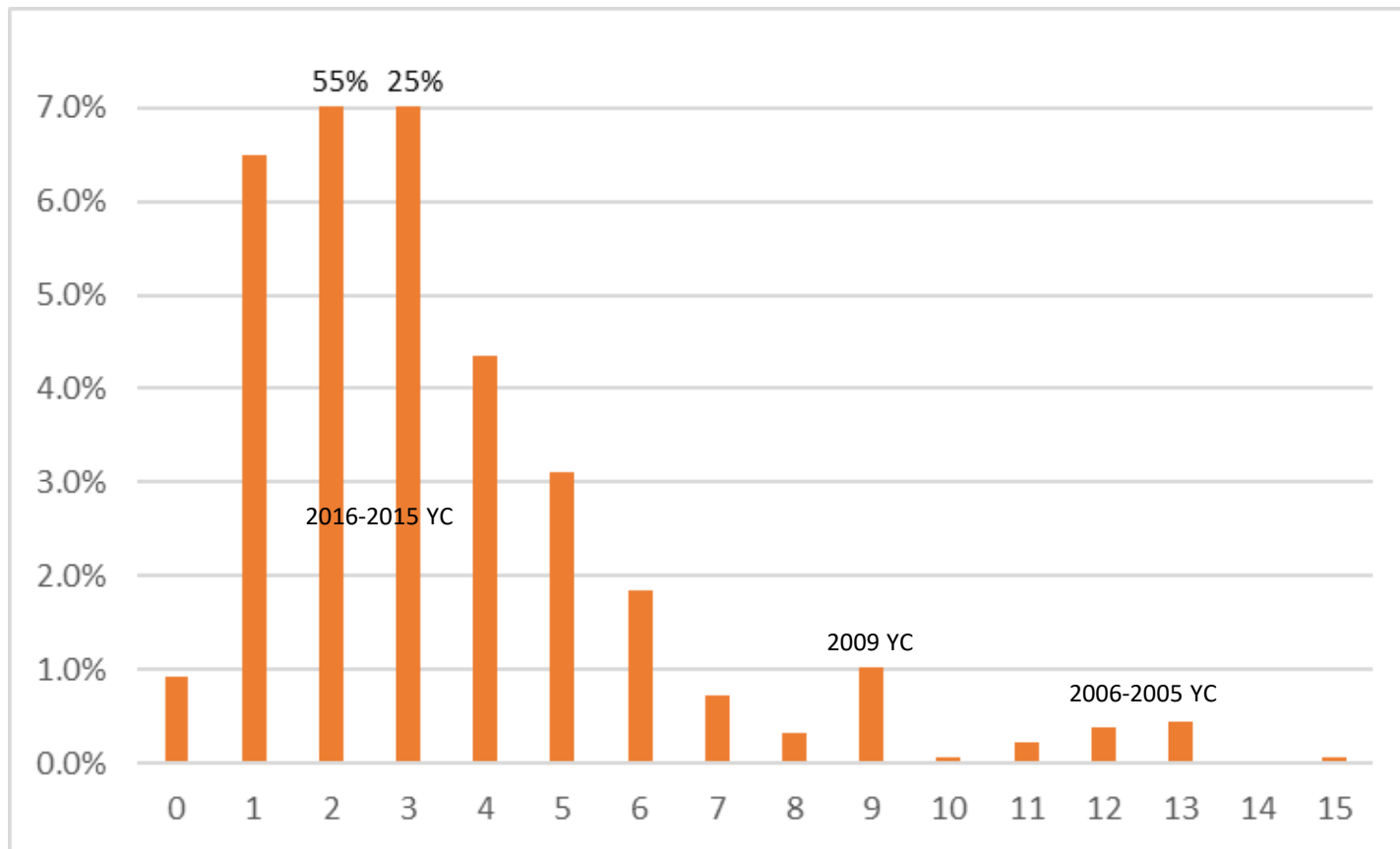
Stenotomus spec. – Chevron Trap



Snowy Grouper – Chevron Trap

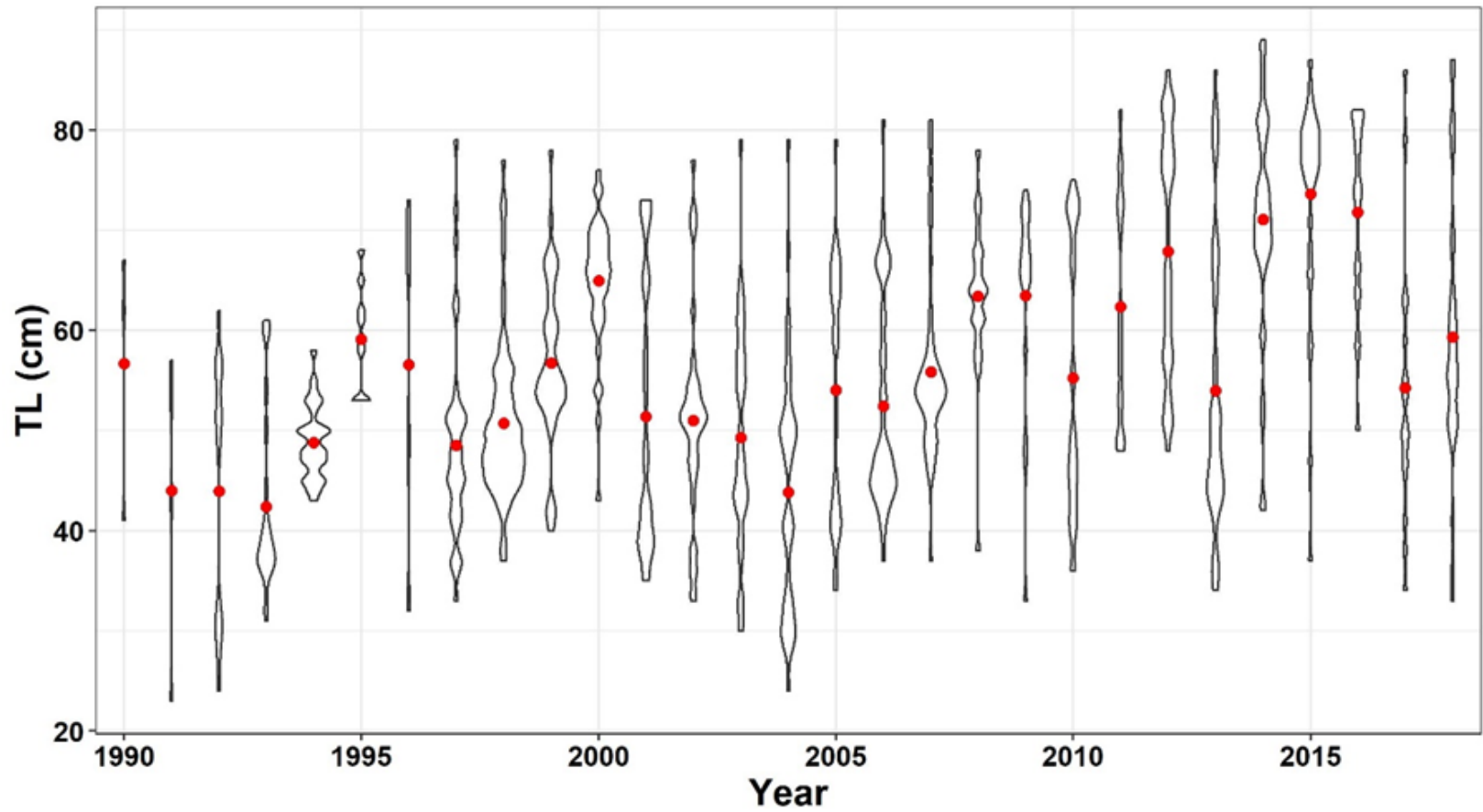


Age composition 2018 Red Snapper samples

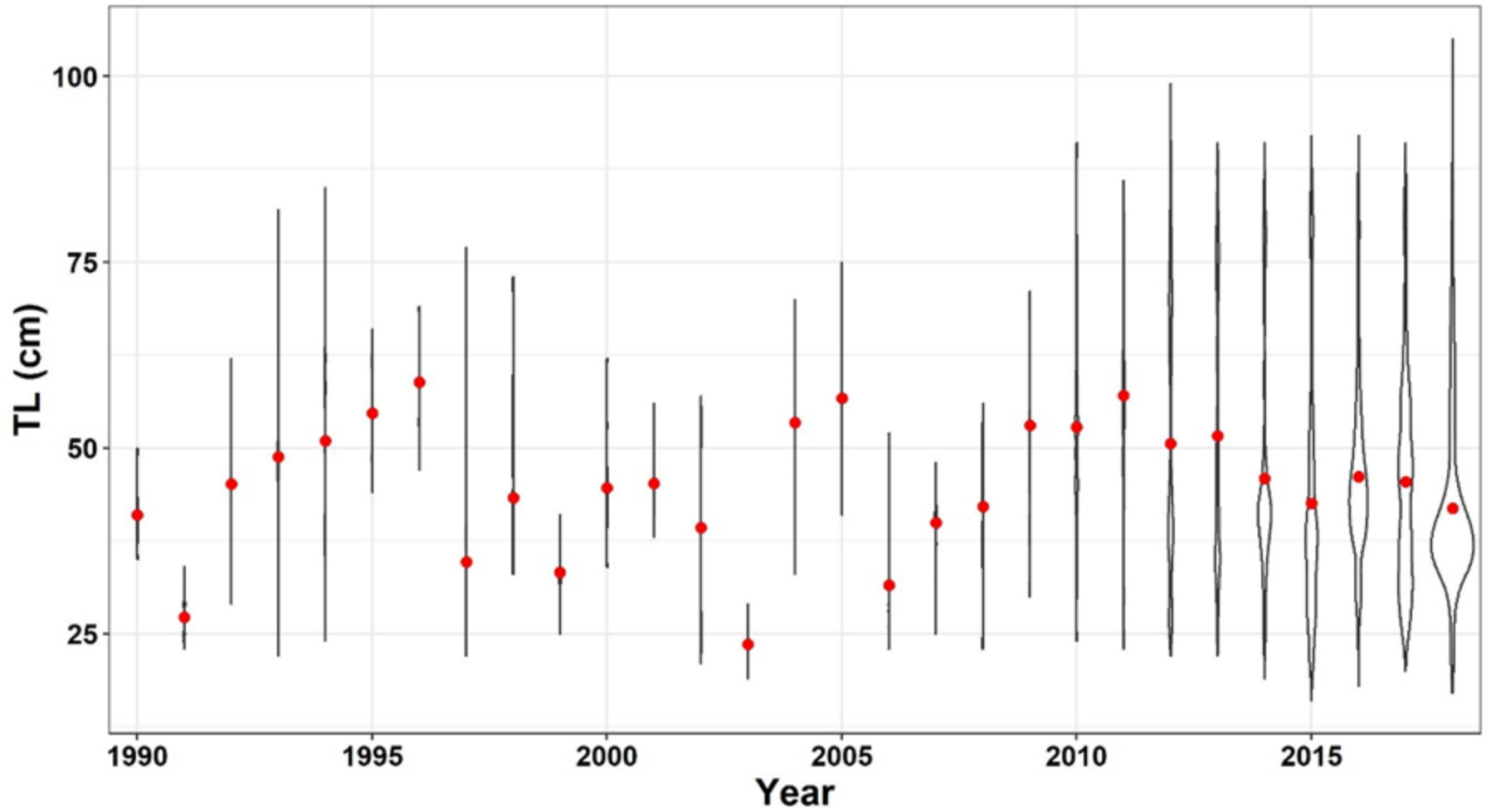


Increment count

Red grouper lengths



Red Snapper lengths



Scamp lengths

