

Southeast Reef Fish Survey

MPA Monitoring

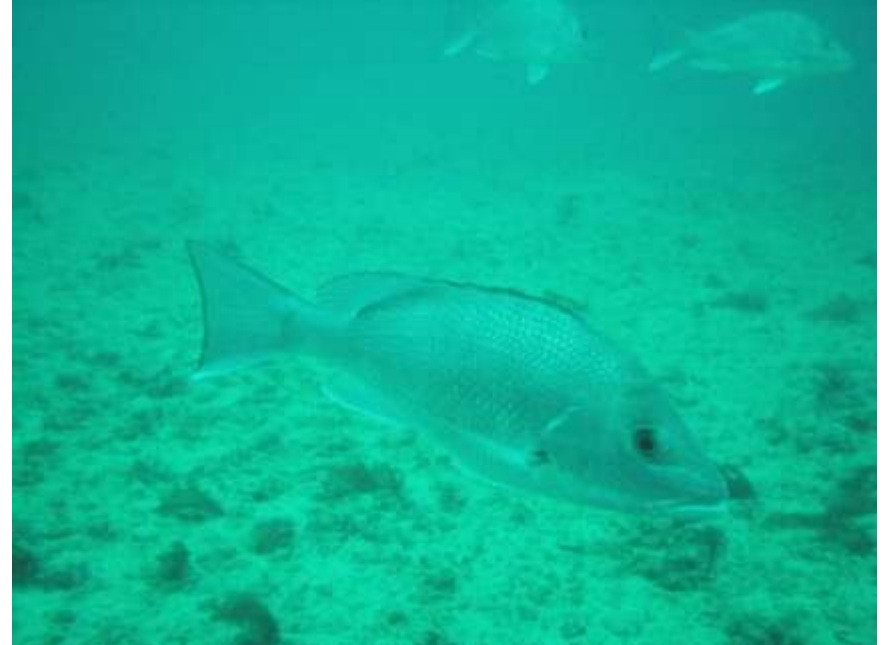
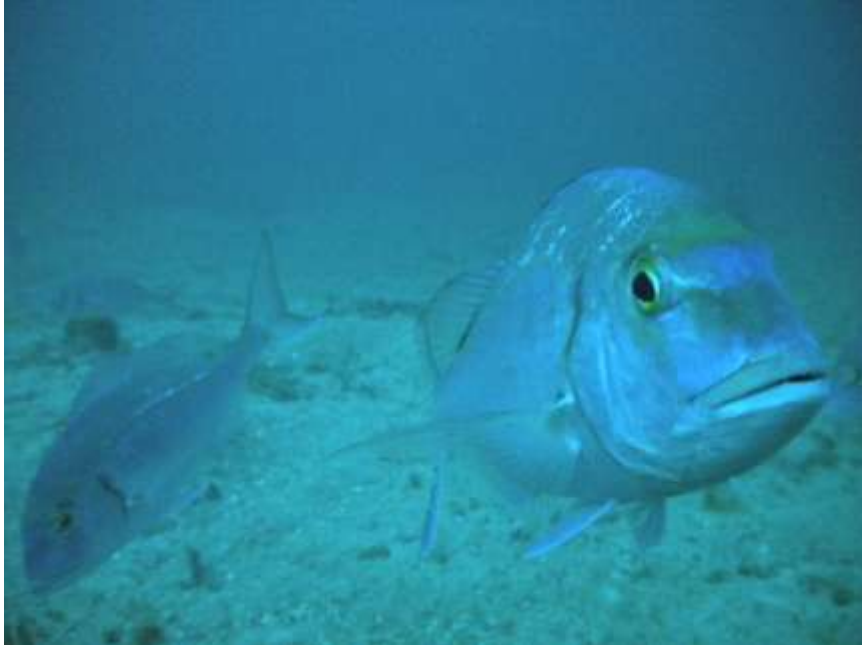
Overview of Fishery Independent Chevron Trap and Longline Sampling in Current and Proposed MPAs

Presentation to the SAFMC Council
November, 2013
Wilmington, SC
Tracey Smart and Marcel Reichert

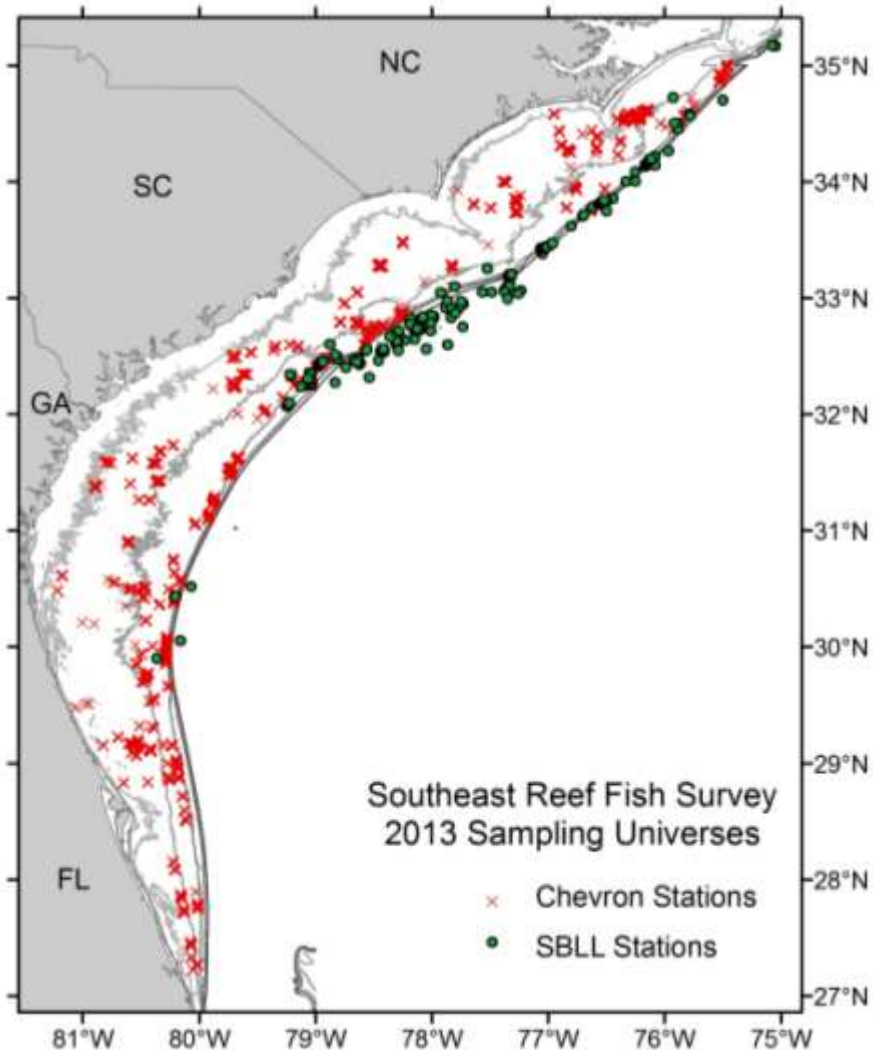
SouthEast Reef Fish Survey (SERFS)

Collaborative regional reef fish monitoring effort:

MARMAP	- SC-DNR/NOAA	1972 / 1989 (Chevron traps)
SEAMAP-SA	- SC-DNR/NOAA	Historical data (1986) 2009 (RF)
SEFIS	- SEFSC	2010 (RF)



Fishery Independent Surveys



SERFS Chevron Trap Universe

- ≈3,100 live-bottom stations
- Mostly low to moderate relief
- ≈1,300 randomly selected each year

MARMAP/SEAMAP-SA

Short-Bottom Longline (SBLL) Universe

- 334 live-bottom stations
- Moderate to high relief
- ~220 randomly selected each year
- Monitoring survey halted in 2012

Long Bottom Longline (LBLL)

- Sampled in Loran blocks
- Tilefish grounds
- Monitoring survey halted in 2012



Chevron trap

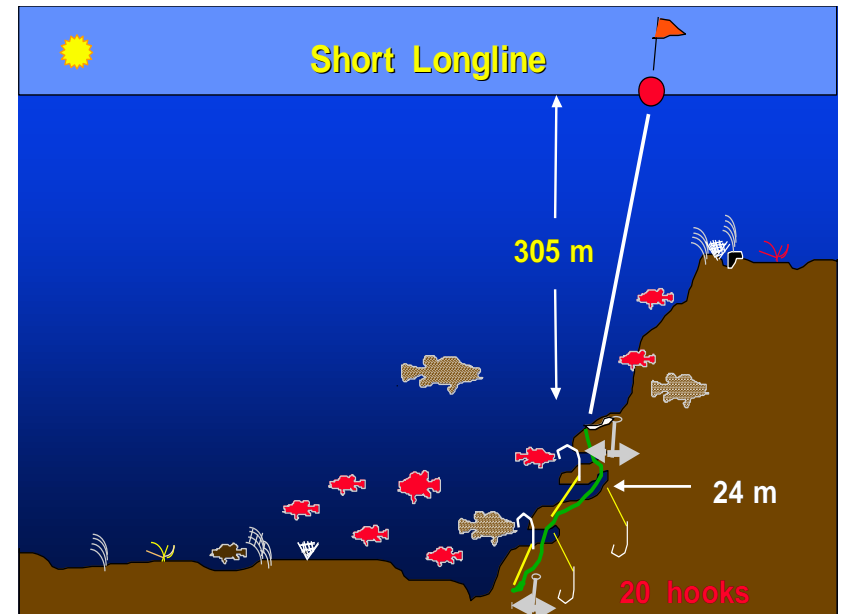
- Used since 1988 (1990)
- Deployed in depths to ≈ 90 m
- Soak time ≈ 90 minutes
- Baited (menhaden)
- Cameras since 2009 (video: 2010)



Short Bottom Longline

Used since 1978 (halted in 2012!)
Areas of high relief in depths (>90 m)
20 baited (squid) hooks
Soak time \pm 90 minutes

Species:
snowy grouper, jacks, tilefish, speckled hind, etc.



Long Bottom Longline

Used since 1982 (1996), halted in 2012!

100 baited (squid) hooks

Muddy bottom / tilefish grounds

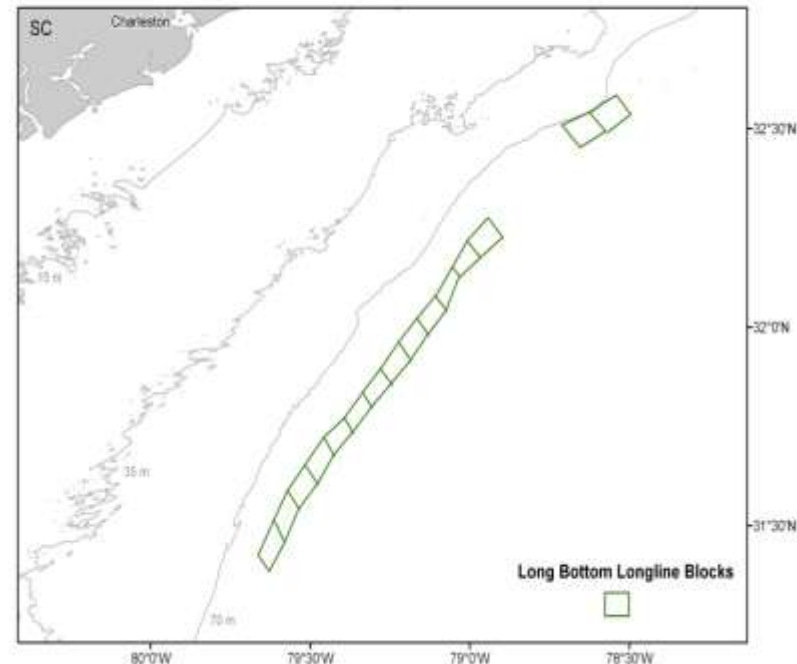
≈ 200 m (600 ft.)

Sampled based on LORAN “blocks”

15 blocks off SC and GA (and n. FL)

Goal: sample 2-4 lines per block

Species: tilefish, blackbelly rosefish, etc



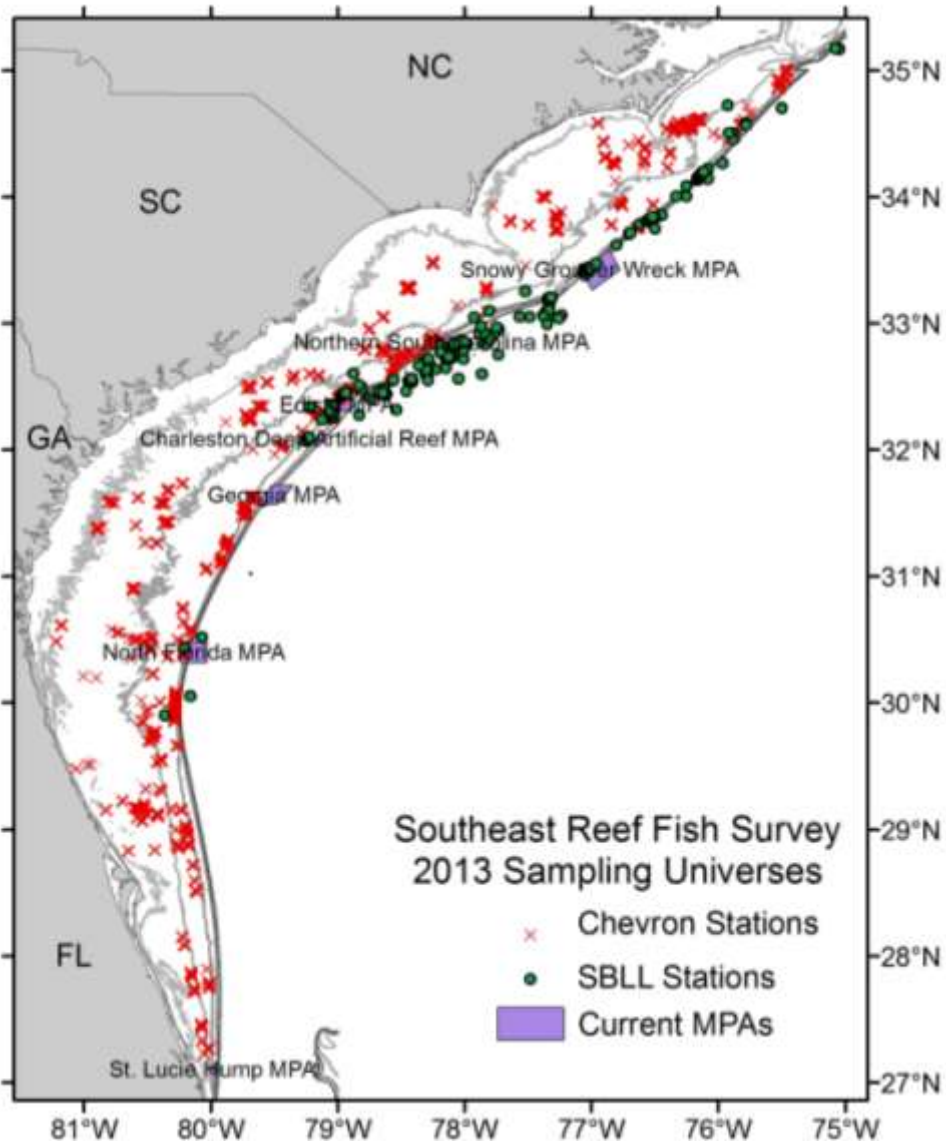
SERFS sampling in MPAs

- General caveats of sampling in MPAs
 - Ongoing sampling mortality (even with “catch and release”)
 - Increasing efforts (better data) result in increases in mortality
 - Video index possible alternative.
 - How to treat MPA data within the index development?
 - Trade-off between investigating / sampling new areas versus ongoing monitoring given current funding and effort confounds.
- Monitoring efforts in possible newly designated MPAs
 - SERFS has survey monitoring stations in a majority of proposed MPAs as location of proposed MPAs was in large part based on MARMAP stations:
 - Loss of non-MPA monitoring stations for abundance indices (historical monitoring stations becoming MPA monitoring stations)
 - Possible effect on index development
 - Loss of adjacent (non-MPA) areas for comparison with current MPAs (Edisto, North Florida)

SERFS MPA Monitoring

PART 1: CURRENT MPAS

Fish. Indep. Survey Coverage



- 3 of 8 MPAs: no sampling expected
- Georgia MPA: soft bottom TF grounds - **long bottom longline**
- 4 remaining MPAs with **chevron** and **short bottom longline** sampling or sampling within 15 NM
 - Current sampling
 - Historic (pre-MPA establishment, prior to 2009)

Snowy Grouper Wreck
Northern South Carolina
Edisto
North Florida

- Data in overview:
 - Through 2012
 - Selected species
 - Simple nominal CPUE

Survey Coverage: Current MPAs

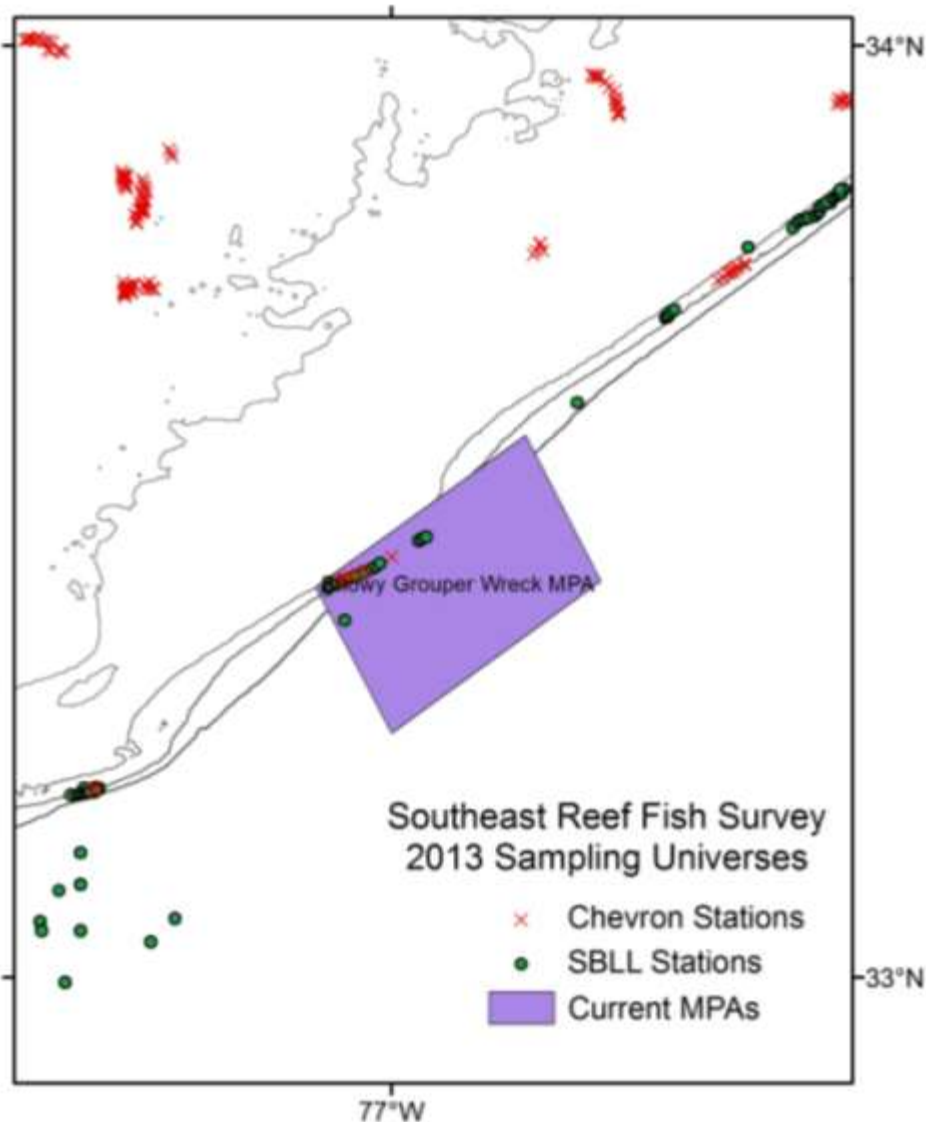
Area	State	Chevron		# 2013 Stations	SBLL		# 2013 Stations
		Historic	Current		Historic	Current	
Snowy Wreck	NC		√	7	√	√	14
Northern SC	SC	√	√	86	√	√	8
Charleston Deep Artificial	SC			0			0
Edisto	SC	√	√	89	√	√	6
Georgia	GA			0			0
North Florida	FL	√	√	36	√	√	1
St. Lucie Hump	FL			0			0
East Hump	FL			0			0

North Carolina

Current MPA

North Carolina Current MPAs

Snowy Grouper Wreck



Chevron Trap

- No historical data inside MPA
- Added: 6 stations in 2012, 1 in 2013
- Recent catches generally low
- (1 or 2 red pogy per trap)

Short Bottom Longline

- One historical station
- 14 current stations
- Halted in 2012

Data will be available in future years

Closest outside MPA cluster
for comparison:

Chevron ~15 NM

SBLL ~11 NM

South Carolina

Current MPA

Note: Deepwater MPA - no known live-bottom habitat

South Carolina Current MPAs

Northern SC

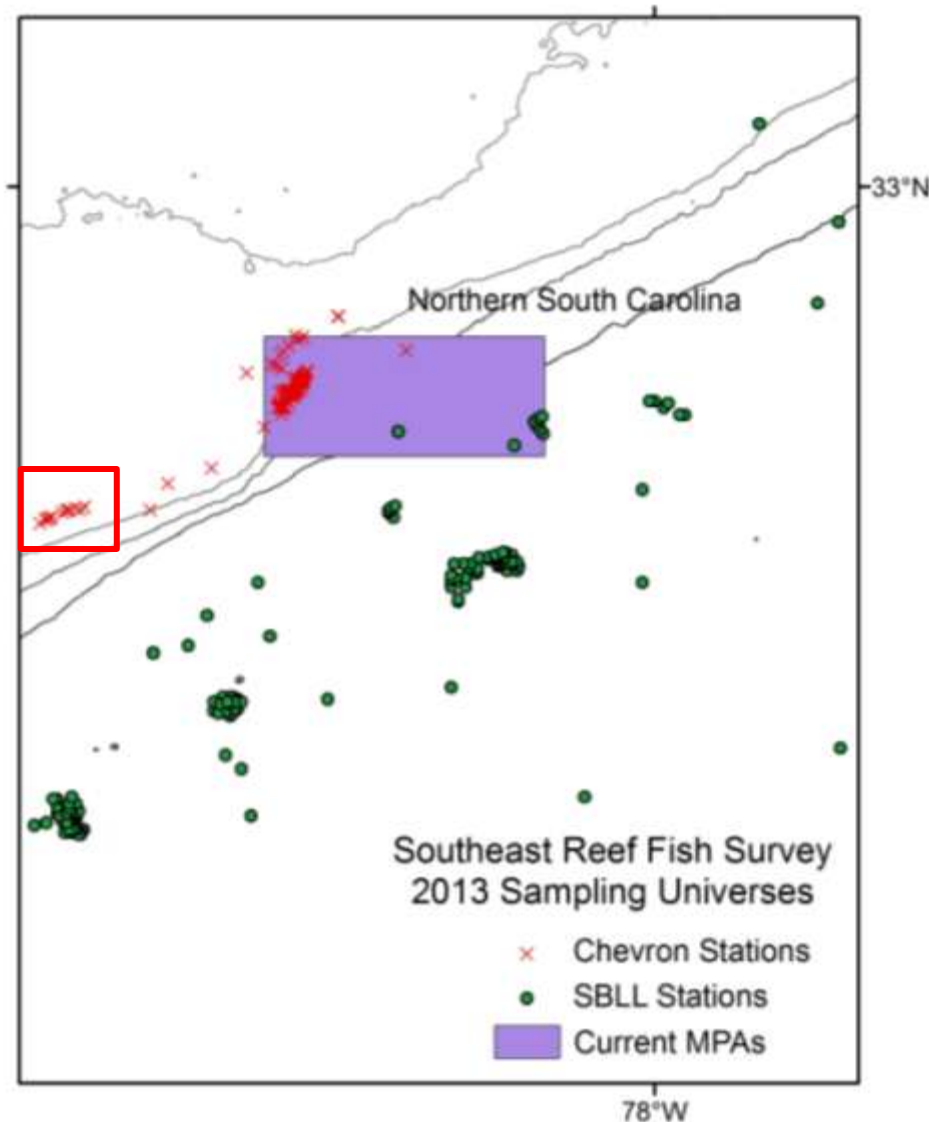
- Historical and current stations available for comparison (CHV and SBLL)
- Northern SC has adjacent stations for comparison
- Edisto has adjacent sampling areas for comparison

Typical catches for deep continental shelf and shelf-edge

Chevron stations along same depth contours used for comparison

Closest outside MPA cluster for comparison:

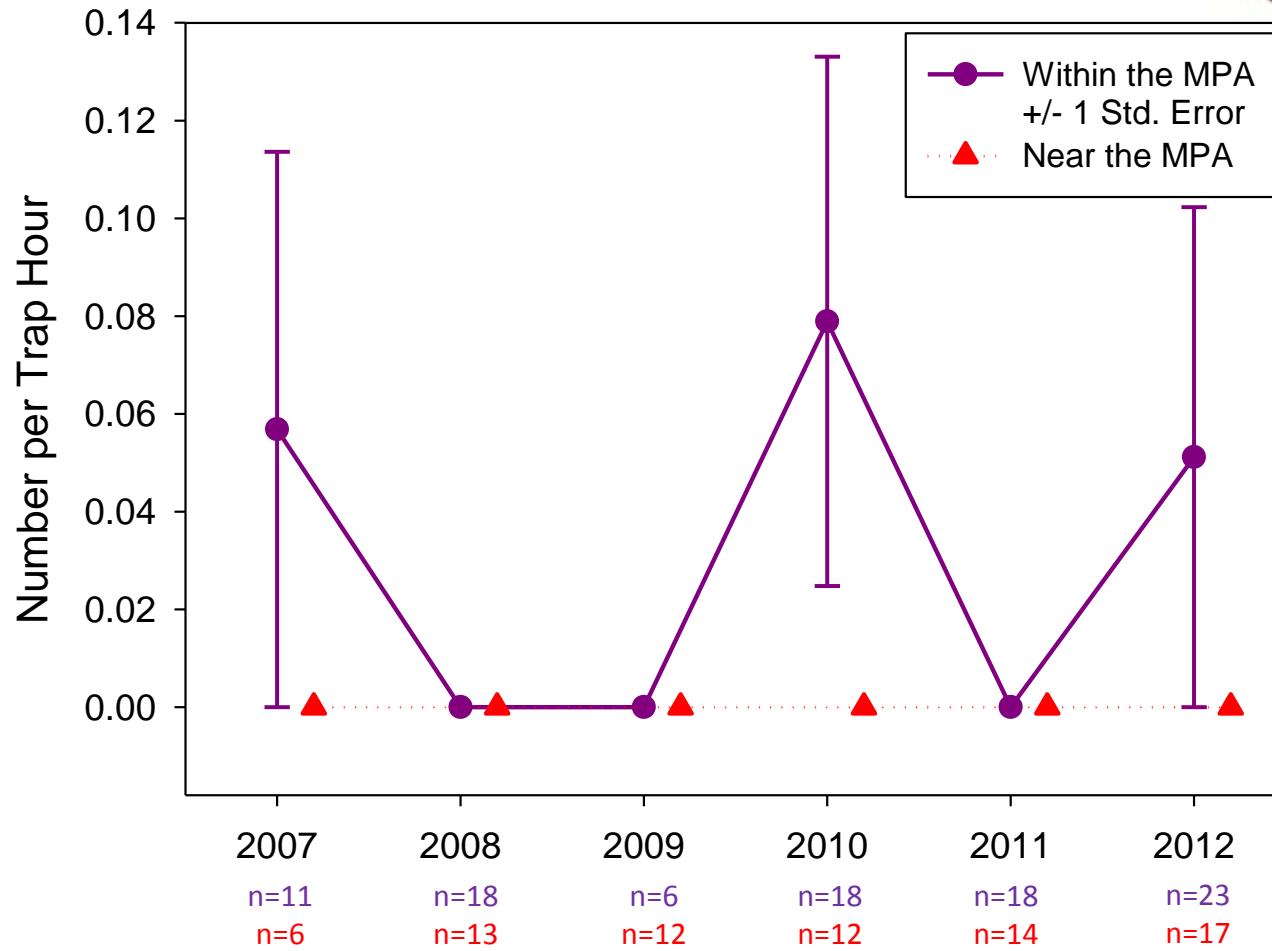
Chevron ~13 NM
SBLL ~5 NM



South Carolina Current MPAs

Northern SC

Red Grouper
SERFS Chevron Trap Survey



n = # traps deployed each year



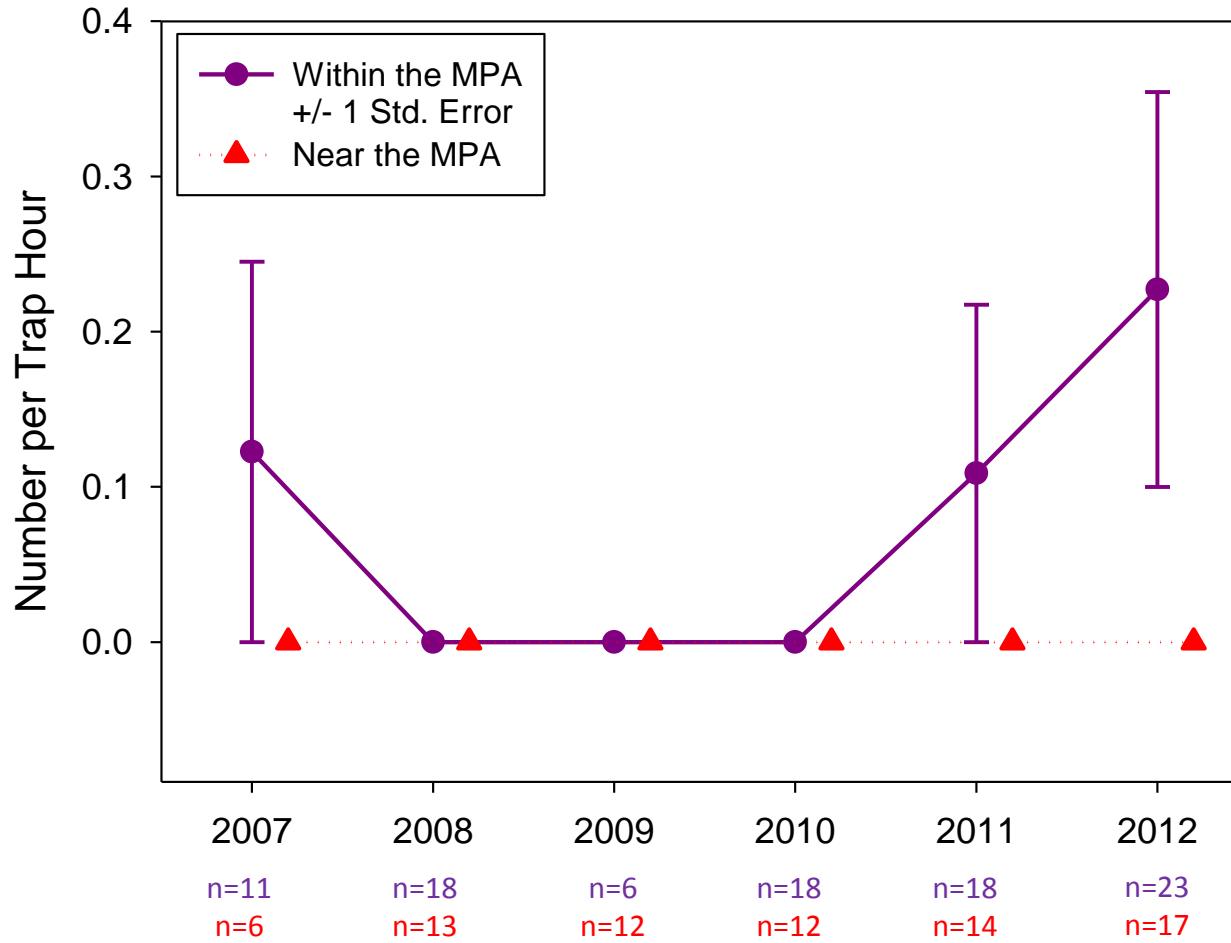
MPA Established

South Carolina Current MPAs

Northern SC



Snowy Grouper SERFS Chevron Trap Survey



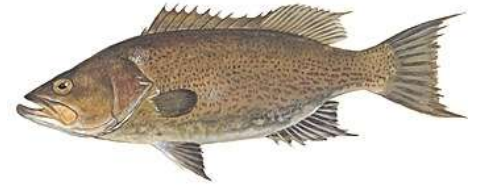
n = # traps deployed each year



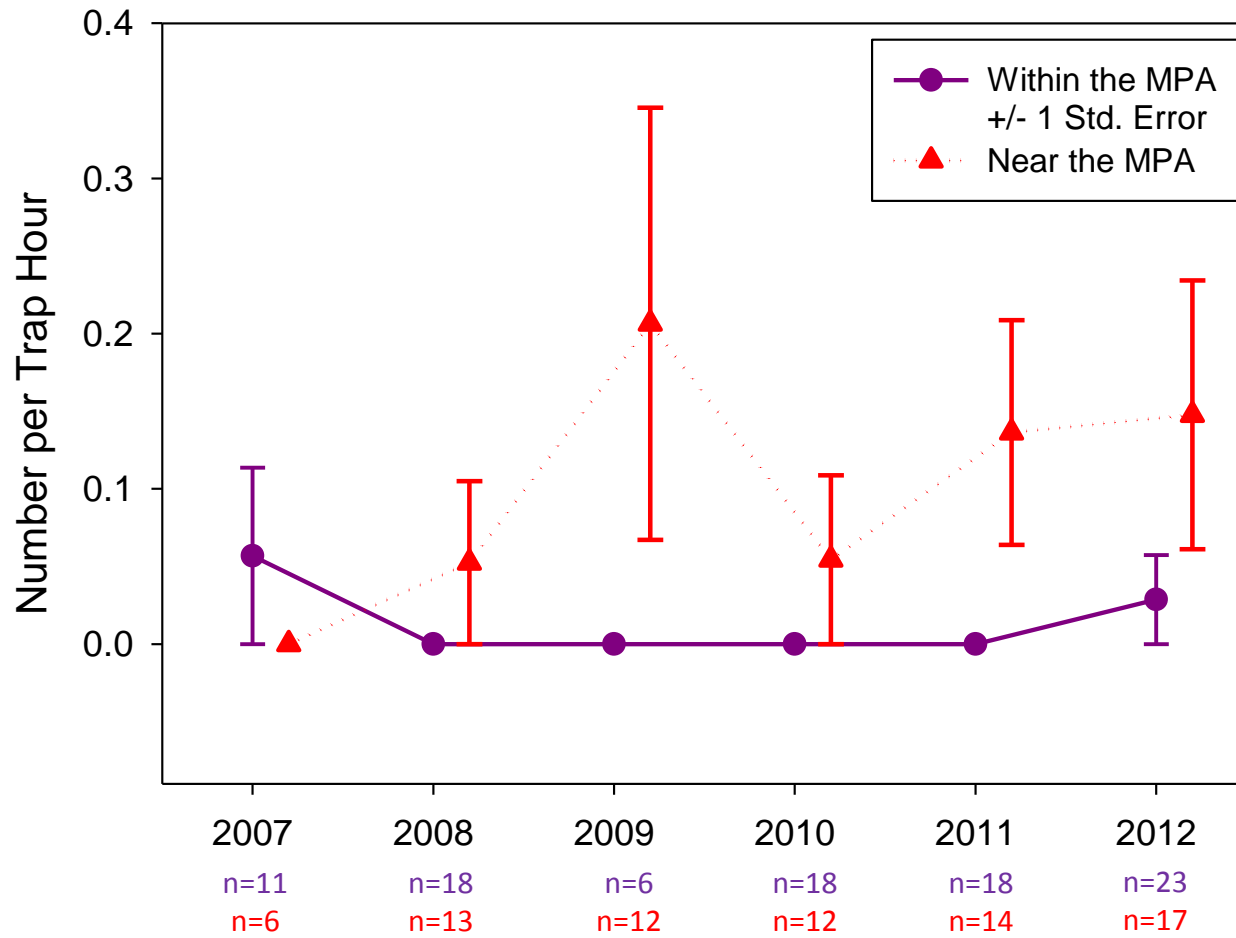
MPA Established

South Carolina Current MPAs

Northern SC



Scamp
SERFS Chevron Trap Survey



n = # traps deployed each year

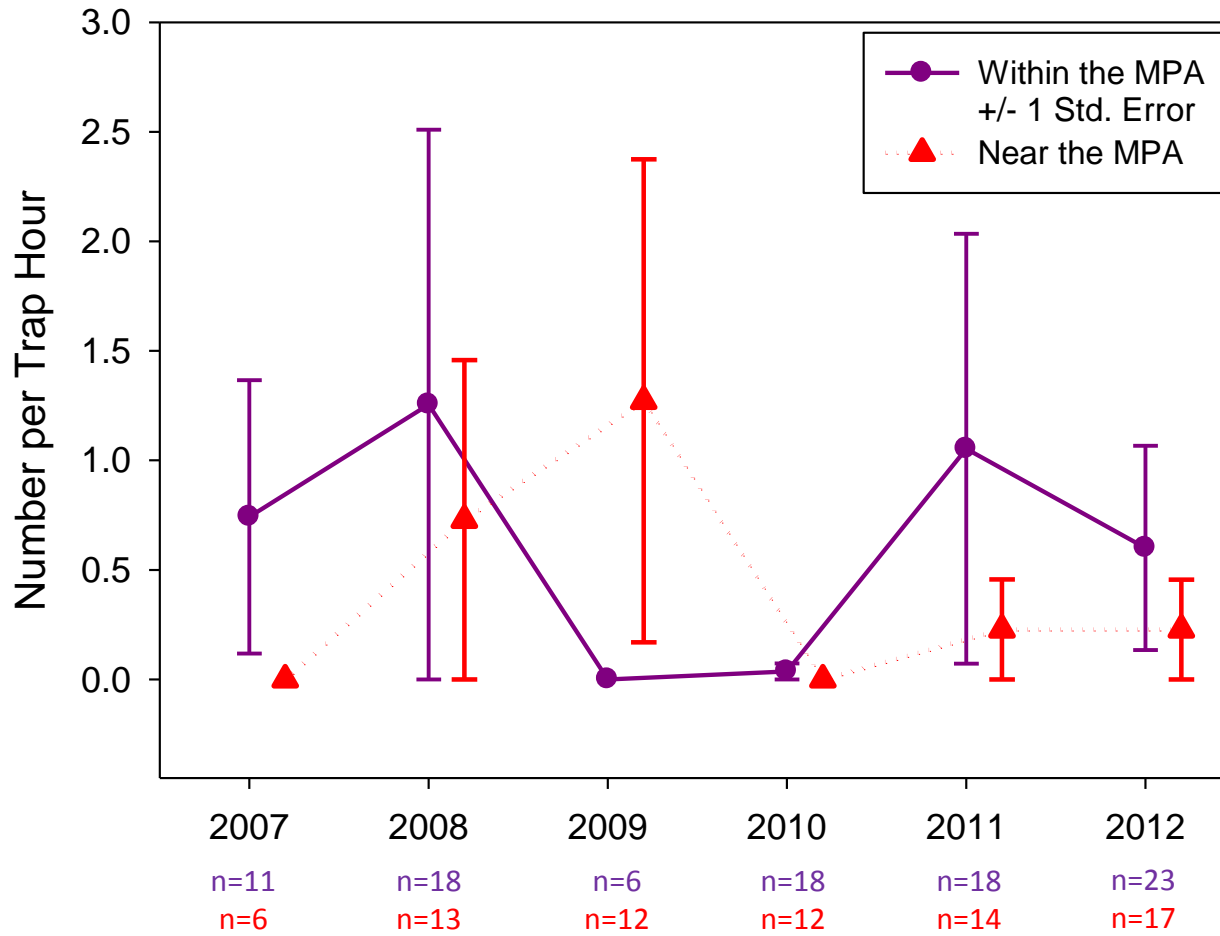


MPA Established

South Carolina Current MPAs

Northern SC

Vermilion Snapper
SERFS Chevron Trap Survey



n = # traps deployed each year



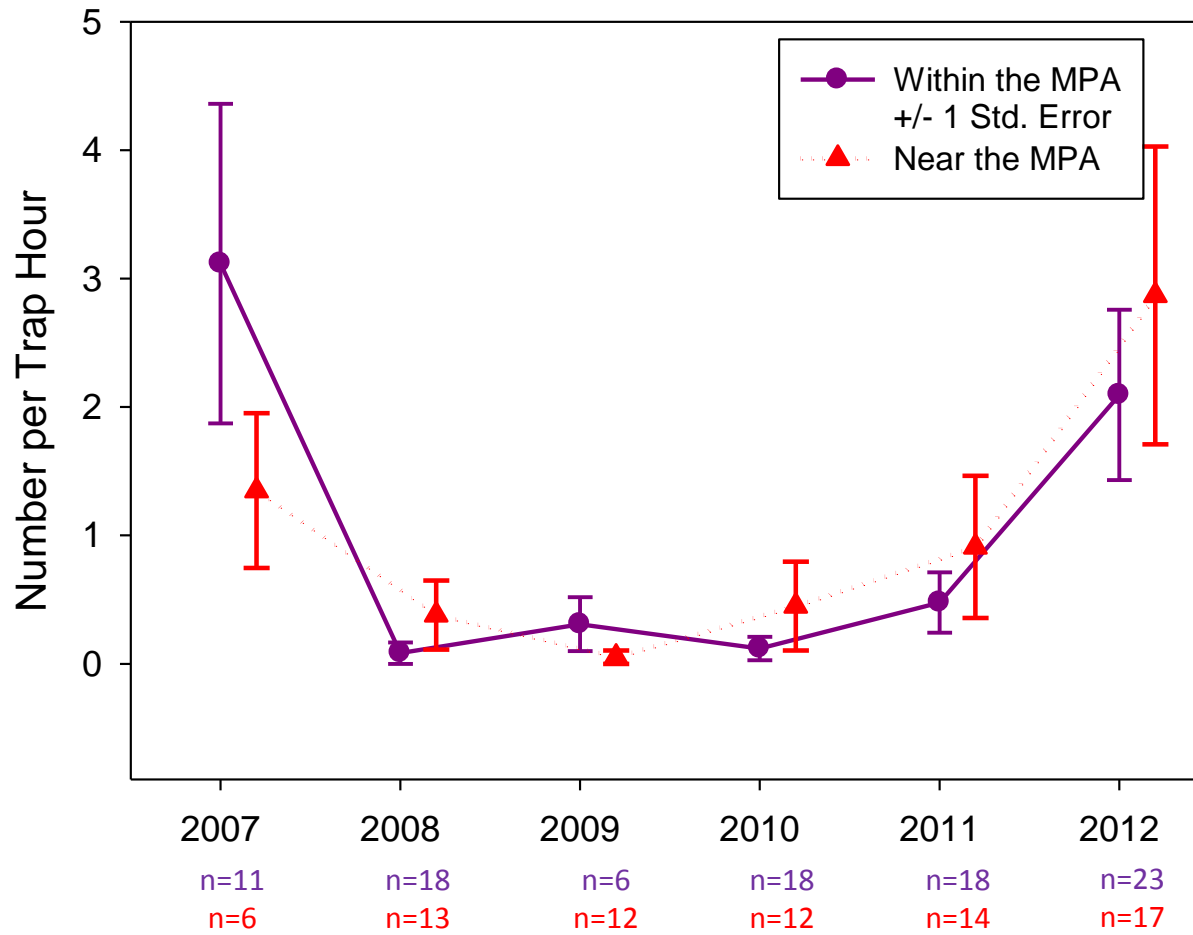
MPA Established

South Carolina Current MPAs

Northern SC



Red Porgy
SERFS Chevron Trap Survey



n = # traps deployed each year



MPA Established

South Carolina Current MPAs

Northern SC



Short-Bottom Longline



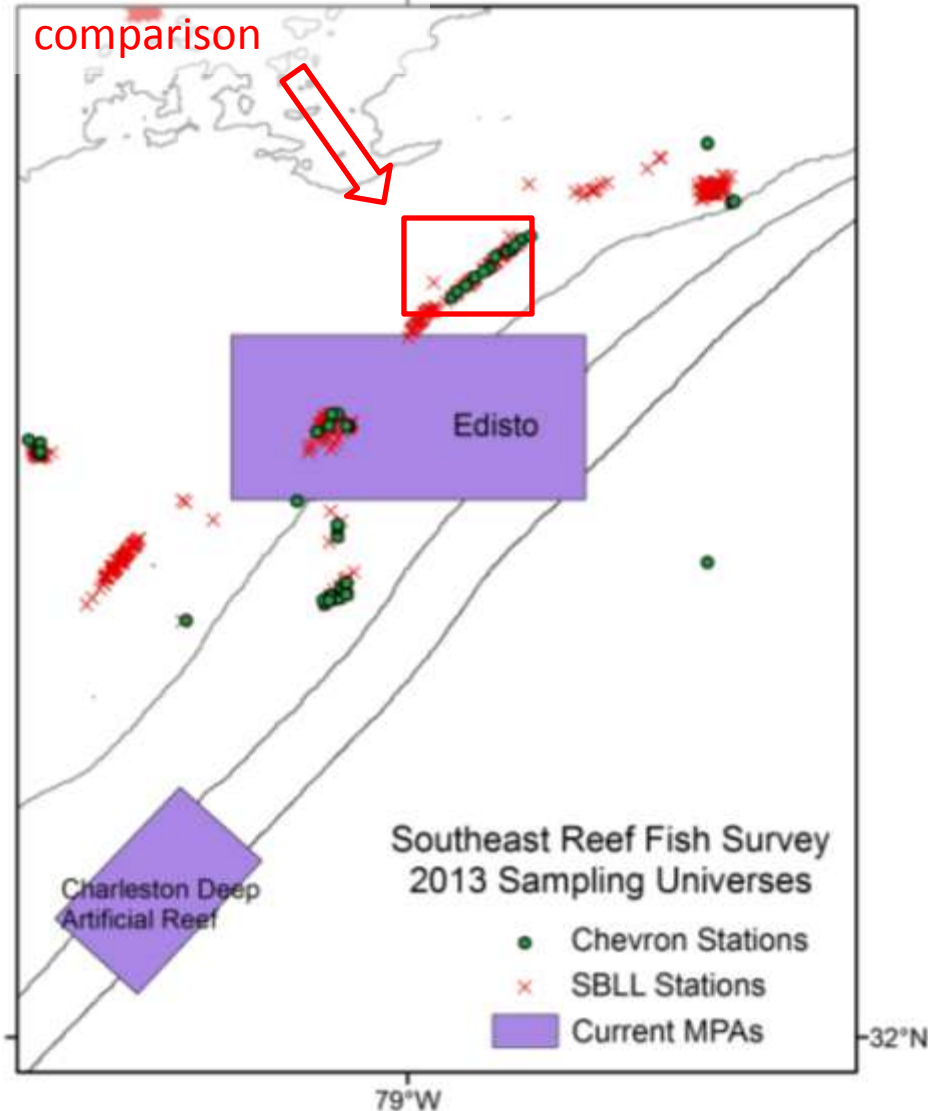
MPA Established

n = # longlines deployed each year

South Carolina Current MPAs

Edisto

Chevron stations
along same depth
contours used for
comparison



Historical and current stations available
for comparison (CHV and SBLL)
Adjacent sampling areas available for
comparison

SBLL samples in 2008 (n=6)

- No catches of snapper-grouper in 2008
- Low catches of snapper-grouper in earlier years
- No sampling from 2009-2012

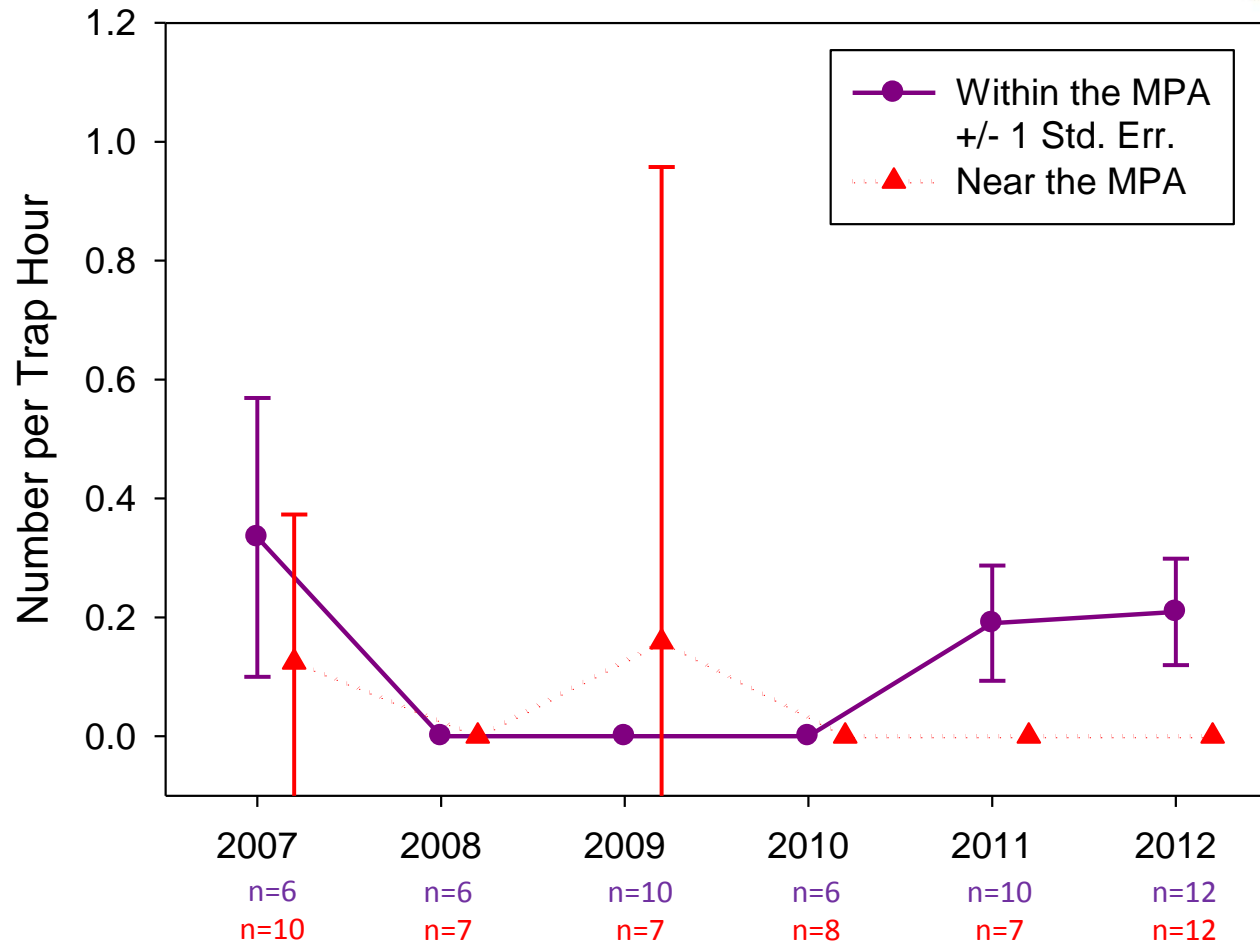
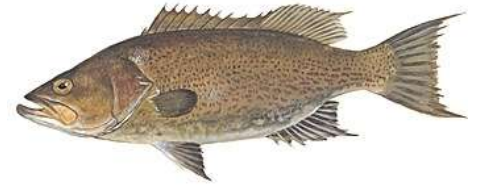
Closest outside MPA cluster
for comparison:

Chevron < 1 NM
SBLL ~1 NM

South Carolina Current MPAs

Edisto

Scamp
SERFS Chevron Trap Survey



n = # traps deployed each year

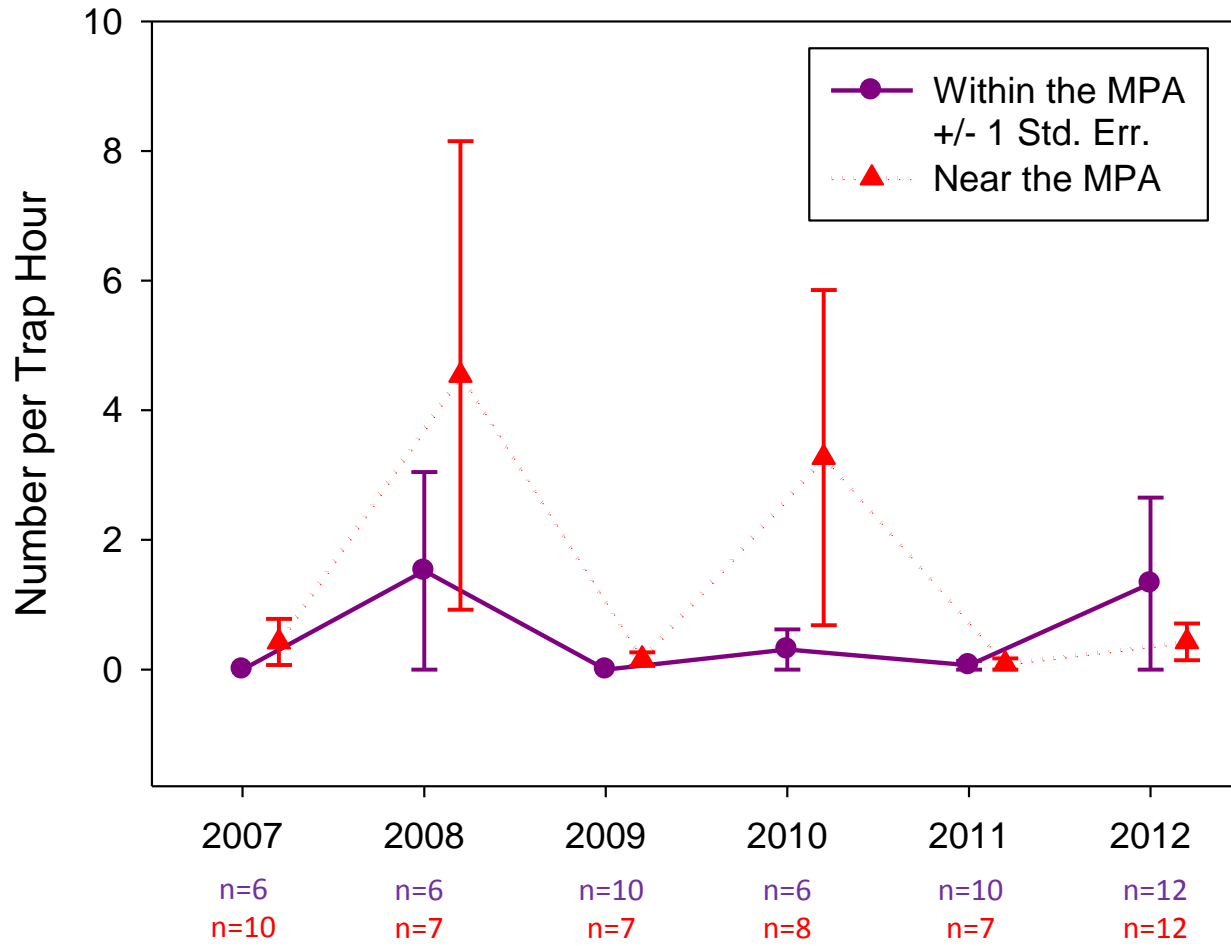


MPA Established

South Carolina Current MPAs

Edisto

Vermilion Snapper
SERFS Chevron Trap Survey



n = # traps deployed each year



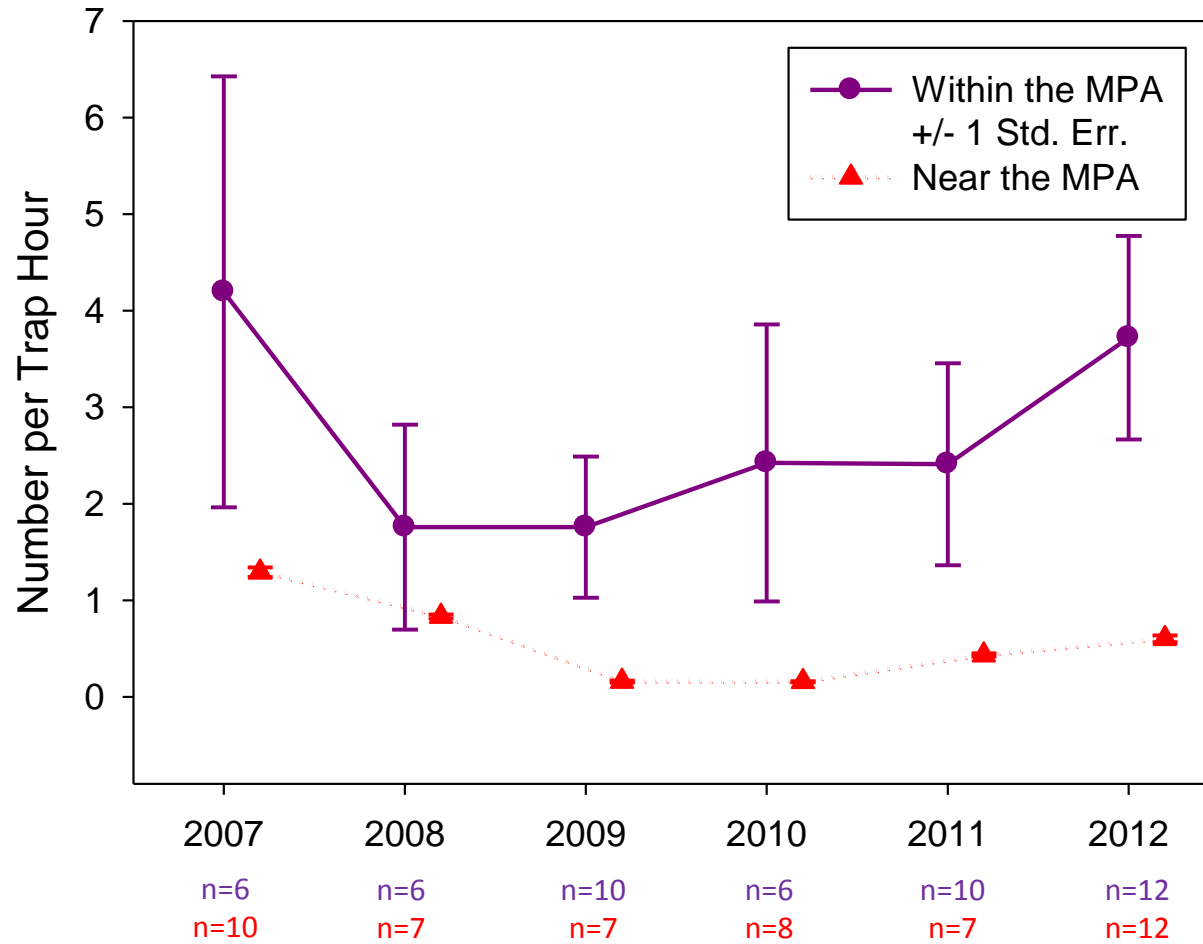
MPA Established

South Carolina Current MPAs

Edisto



Red Porgy
SERFS Chevron Trap Survey



n = # traps deployed each year

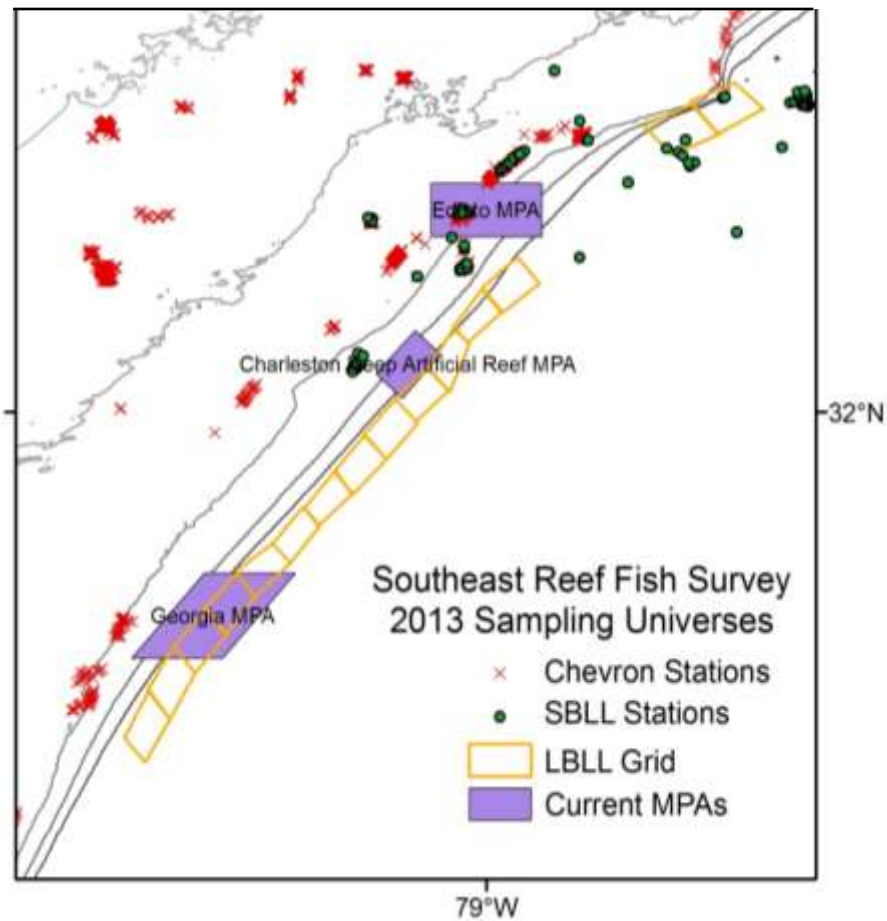


MPA Established

Georgia

Current MPA

“Golden Tilefish MPA”; no chevron or SBLL sampling.
Some Long Bottom Longline: soft-bottom sampling

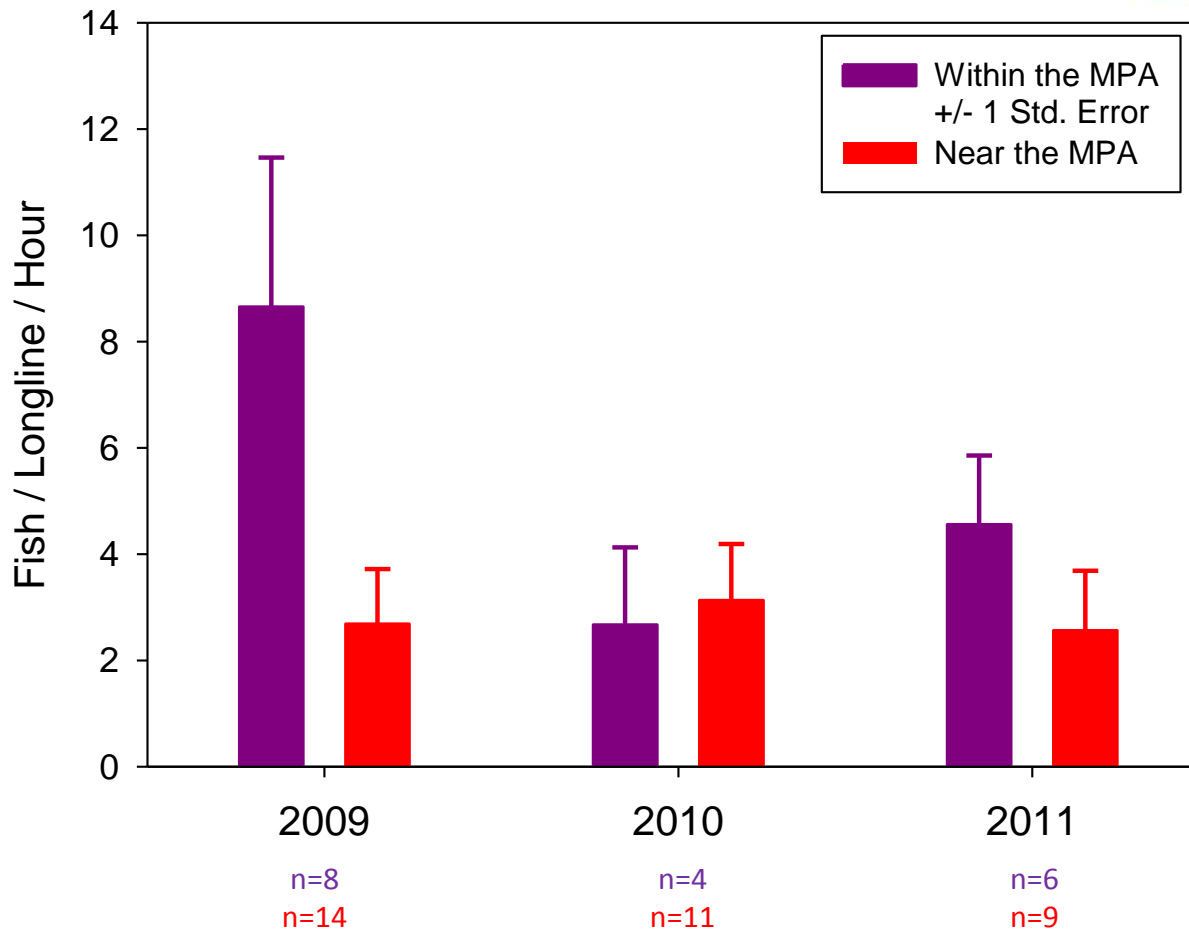


Georgia

Current MPA

Long Bottom Longline

Golden Tilefish



n = # LB longlines per year



MPA Established

Florida

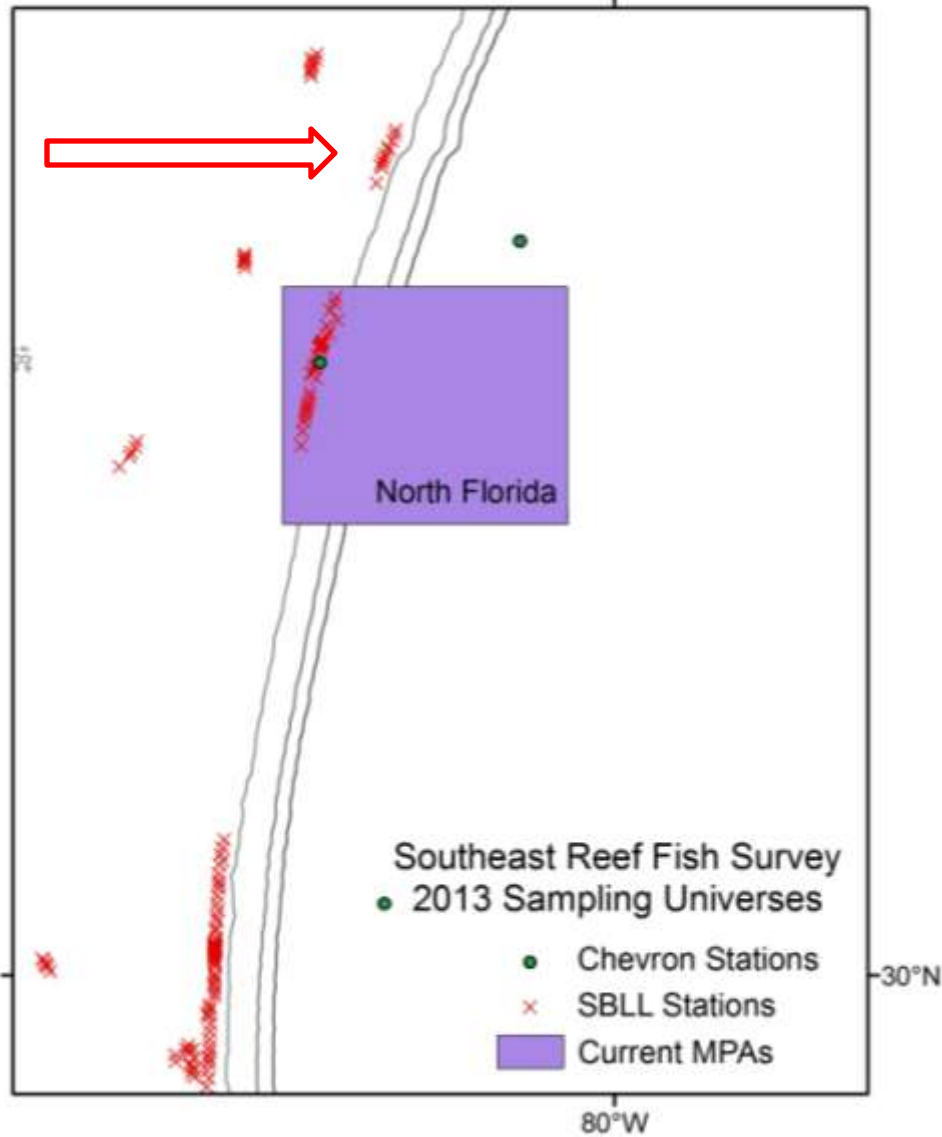
Current MPAs

Information for North Florida MPA
Remaining MPAs south of SERFS sampling coverage

Florida Current MPAs

North Florida

Chevron stations
along similar depth
contours used for
comparison



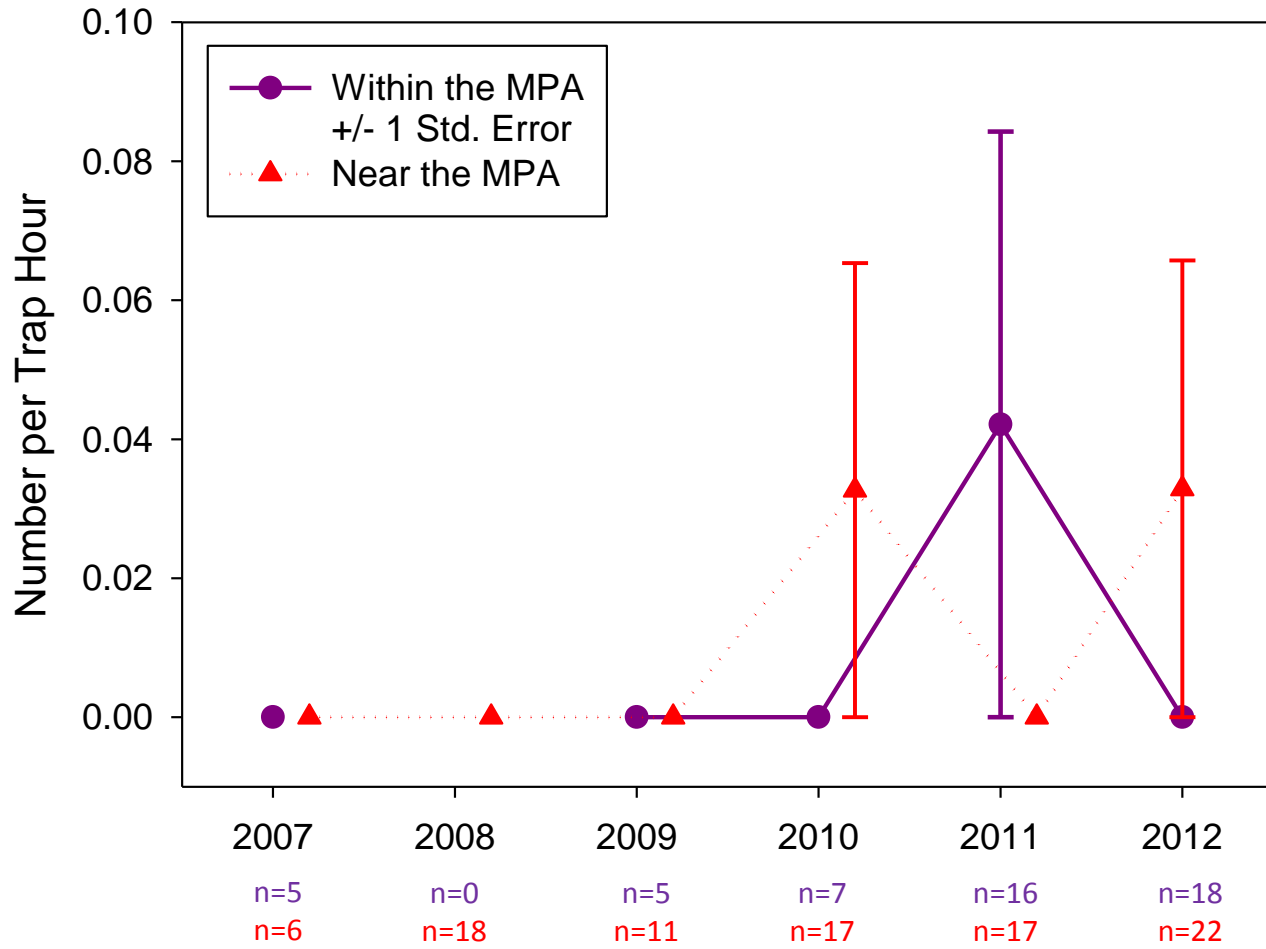
Closest outside MPA cluster
for comparison:
Chevron ~8 NM
SBLI > 80 NM

Florida Current MPAs

North Florida



Speckled Hind
SERFS Chevron Trap Survey



n = # traps deployed each year

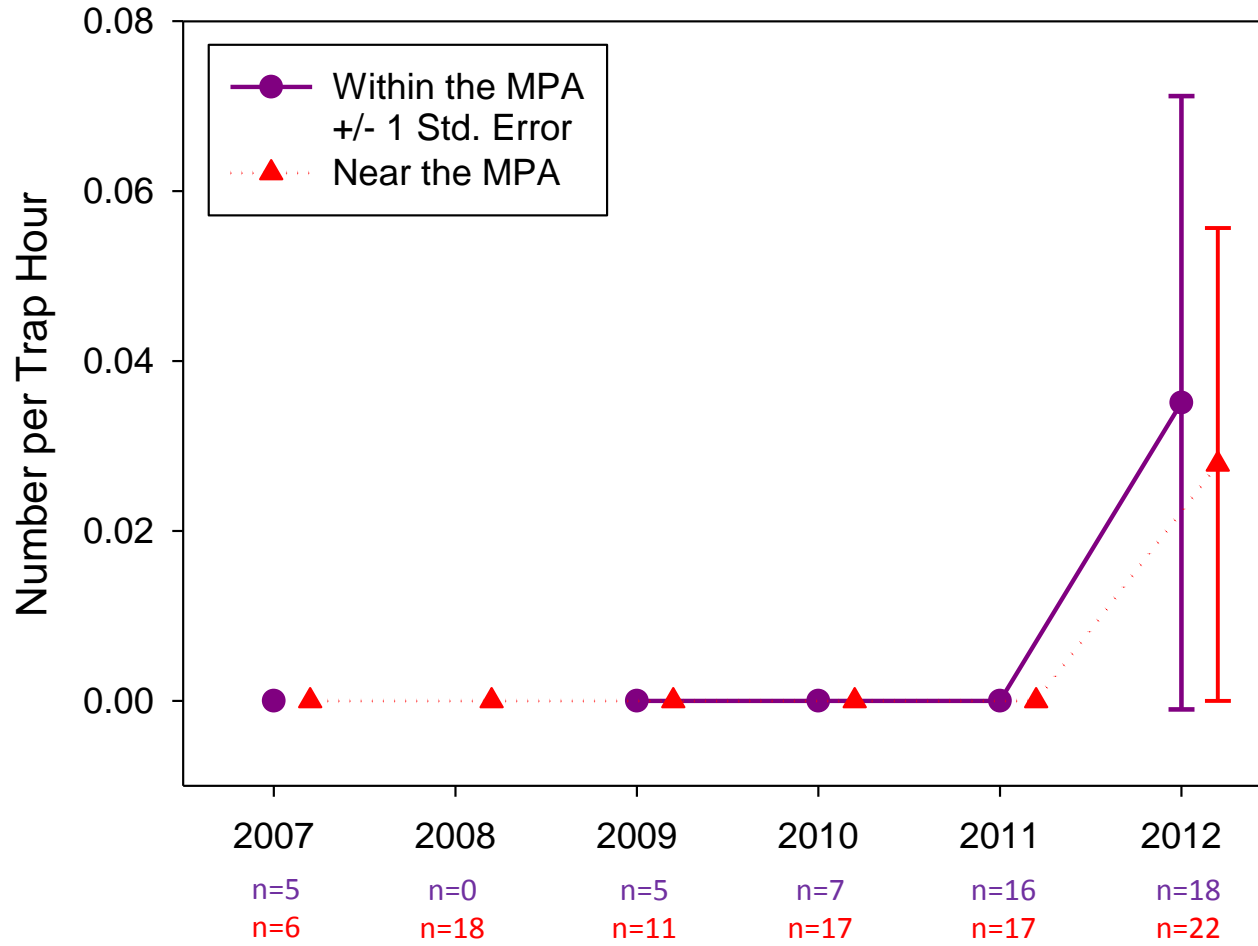


MPA Established

Florida Current MPAs

North Florida

Snowy Grouper
SERFS Chevron Trap Survey



n = # traps deployed each year



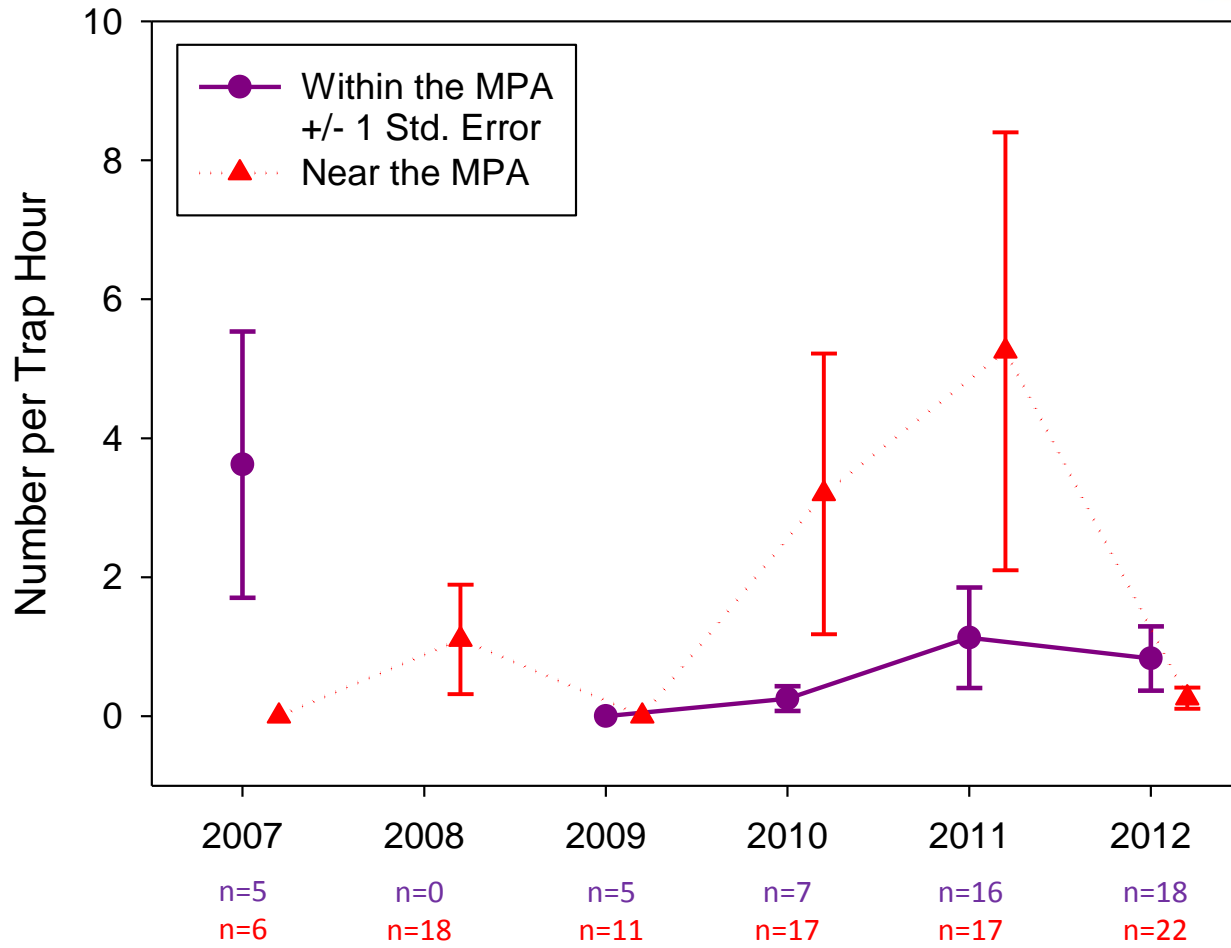
MPA Established

Florida Current MPAs

North Florida



Vermilion Snapper
SERFS Chevron Trap Survey



n = # traps deployed each year



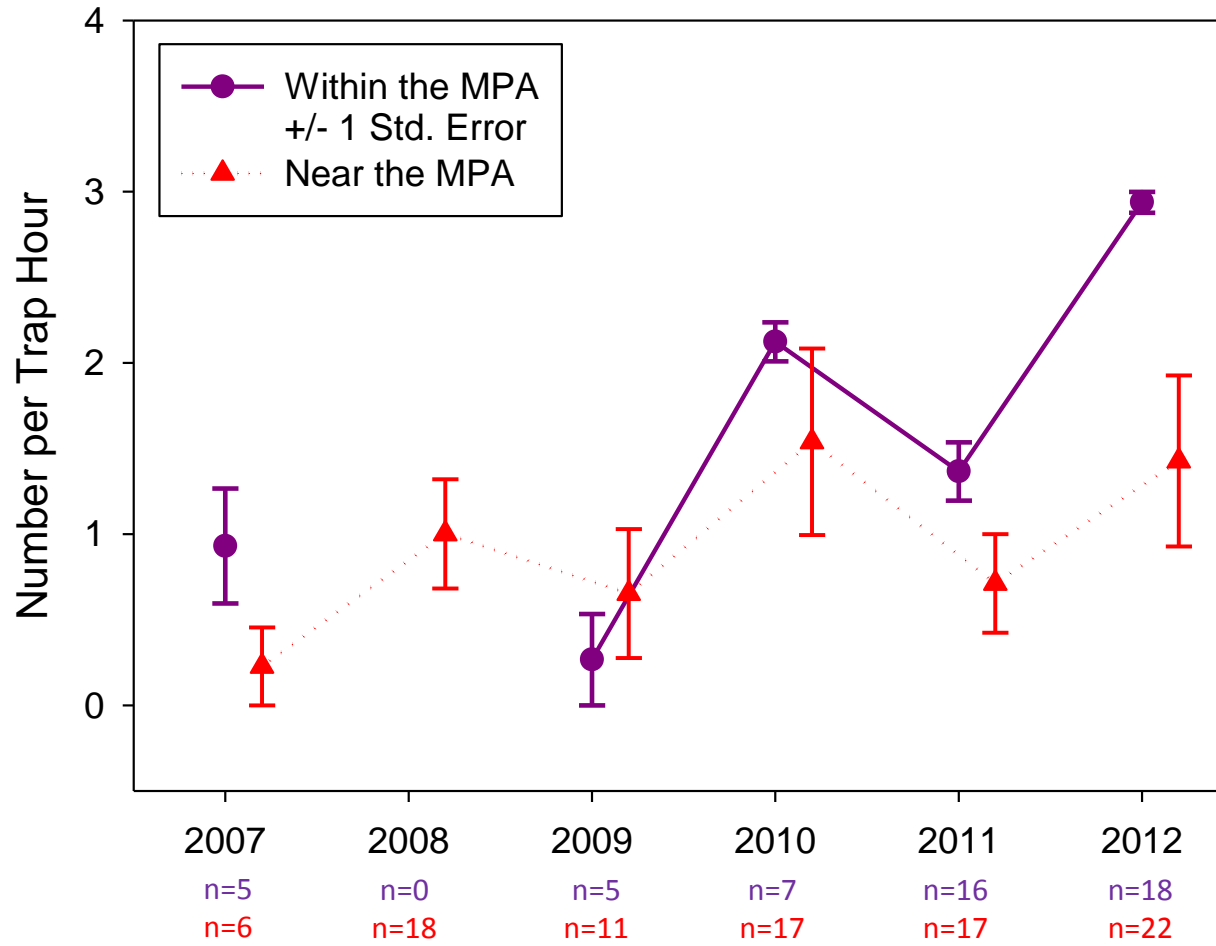
MPA Established

Florida Current MPAs

North Florida



Red Porgy
SERFS Chevron Trap Survey



n = # traps deployed each year



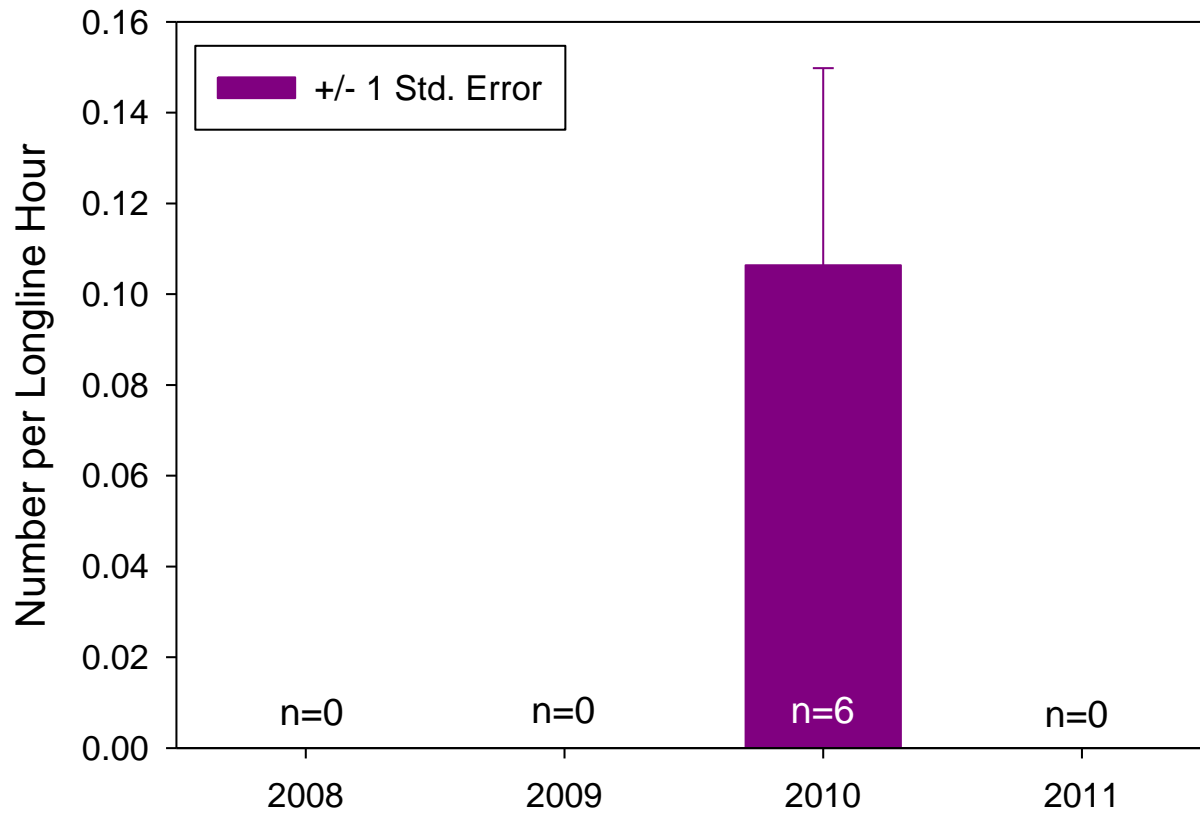
MPA Established

Florida Current MPAs

North Florida



Red Porgy
MARMAP Short-bottom Longline Survey



MPA Established

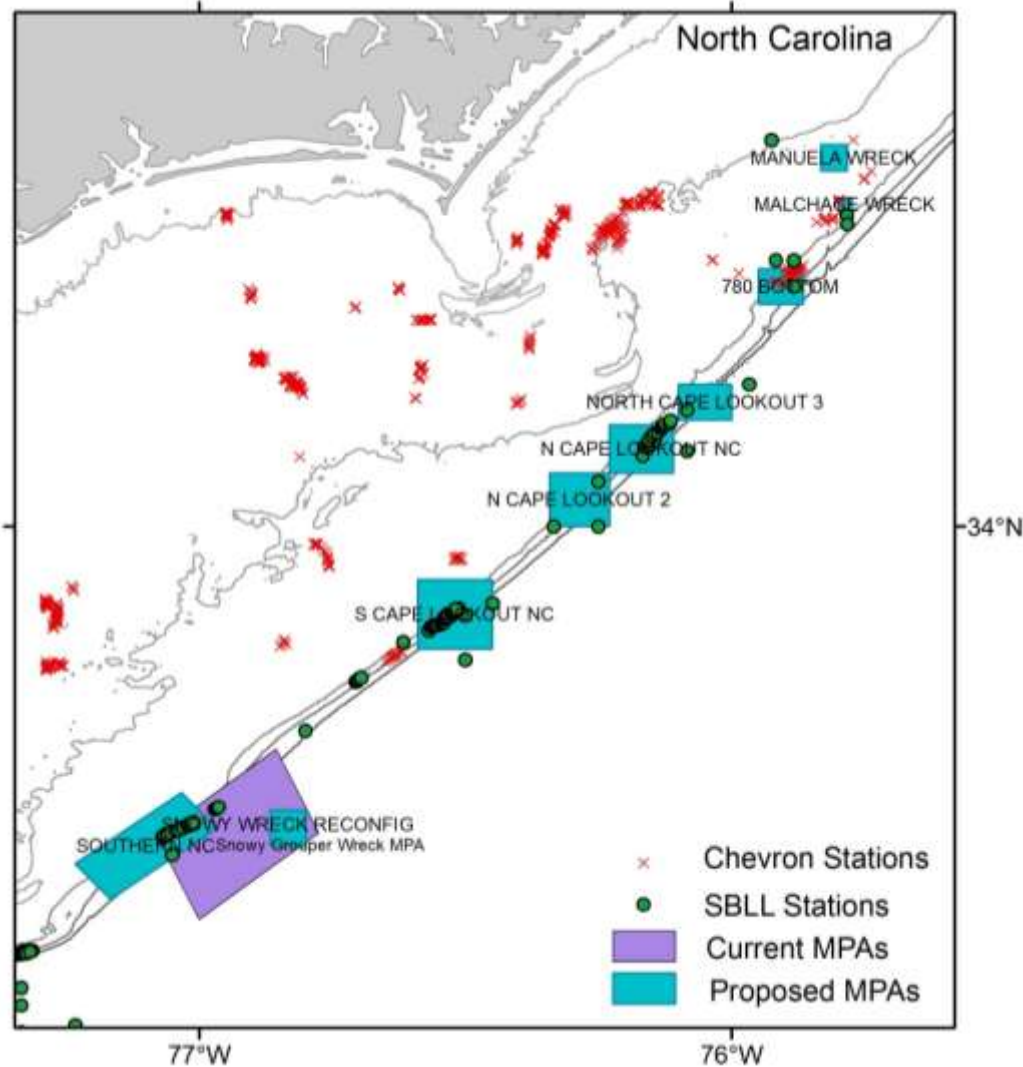
n = # longlines deployed each year

SERFS MPA Monitoring

PART 2: PROPOSED MPAS

SERFS Survey Coverage

Proposed MPAs NC

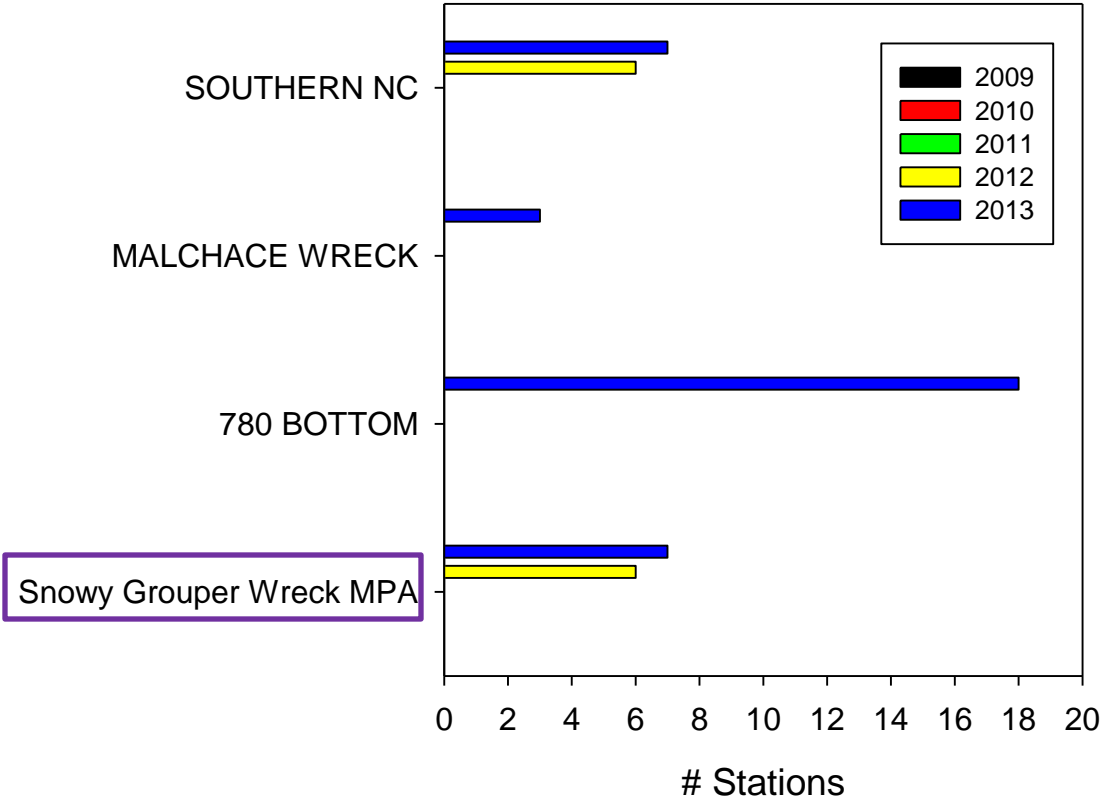


SERFS Survey Coverage: Proposed NC MPAs

Area	State	Chevron		# 2013 Stations	SBLL		# 2013 Stations
		Historic	Current		Historic	Current	
Manuela Wreck	NC			0			0
Malchace Wreck	NC		√	3			0
780 Bottom	NC		√	18	√	√	1
N. Cape Lookout 3	NC			0	√	√	1
N. Cape Lookout	NC			0	√	√	13
N. Cape Lookout 2	NC			0	√	√	3
S. Cape Lookout	NC			0	√	√	19
Snowy Wreck Reconfig	NC			0			0
Southern NC	NC		√	7	√	√	11

North Carolina SERFS Chevron Trap Survey

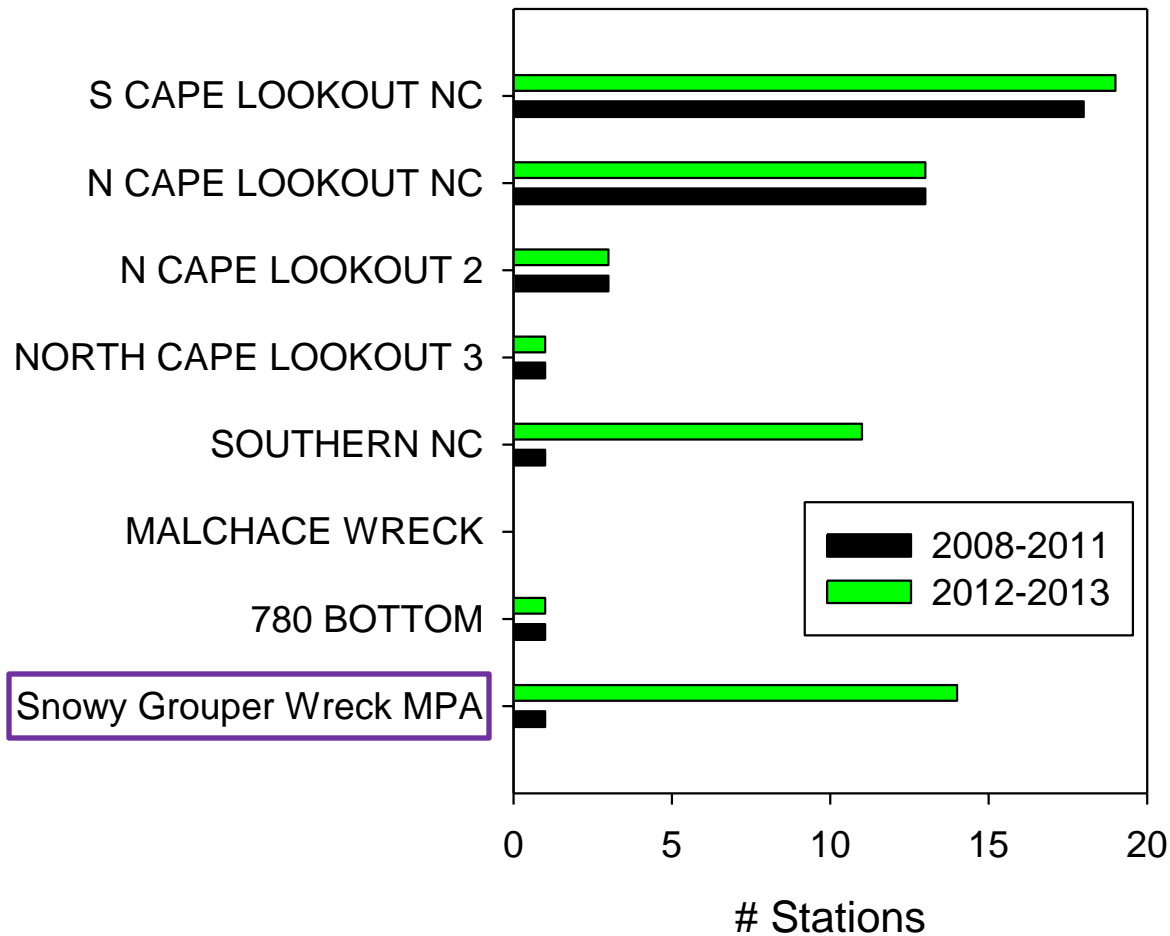
Available Live-Bottom Sampling Stations



North Carolina

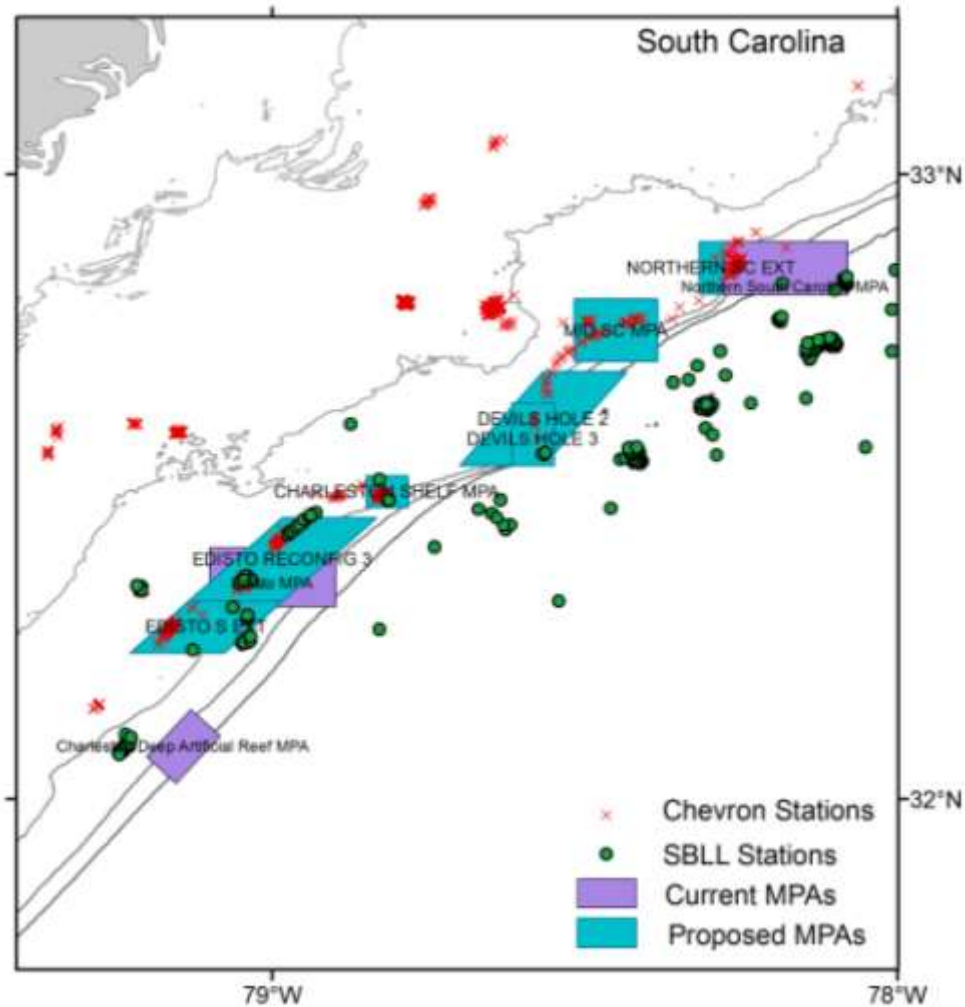
MARMAP Short Bottom Longline Survey

Available Live-Bottom Sampling Stations



SERFS Survey Coverage

Proposed MPAs SC



SERFS Survey Coverage: Proposed SC MPAs

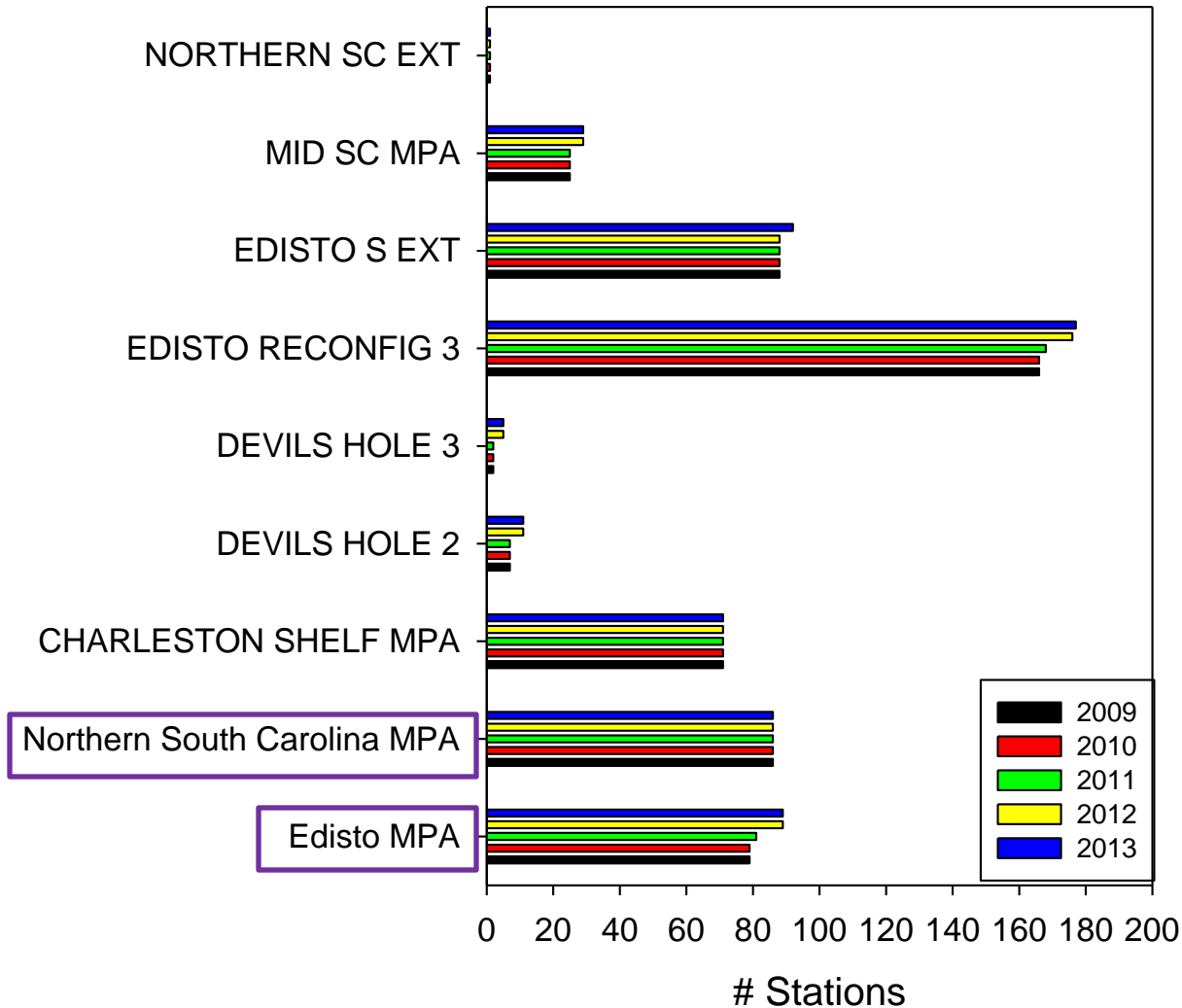
Area	State	Chevron		# 2013 Stations	SBLL		# 2013 Stations
		Historic	Current		Historic	Current	
Northern SC Ext*	SC	√	√	1			0
Mid SC*	SC	√	√	29			0
Devil's Hole 2	SC	√	√	11		√	3
Devil's Hole 3	SC	√	√	5		√	3
Charleston Shelf*	SC	√	√	71	√	√	3
Edisto Reconfig 3*	SC	√	√	177	√	√	14
Edisto S Ext*	SC	√	√	92	√	√	5

*Indicates an area that can be used to compare effectiveness of current MPAs

South Carolina

SERFS Chevron Trap Survey

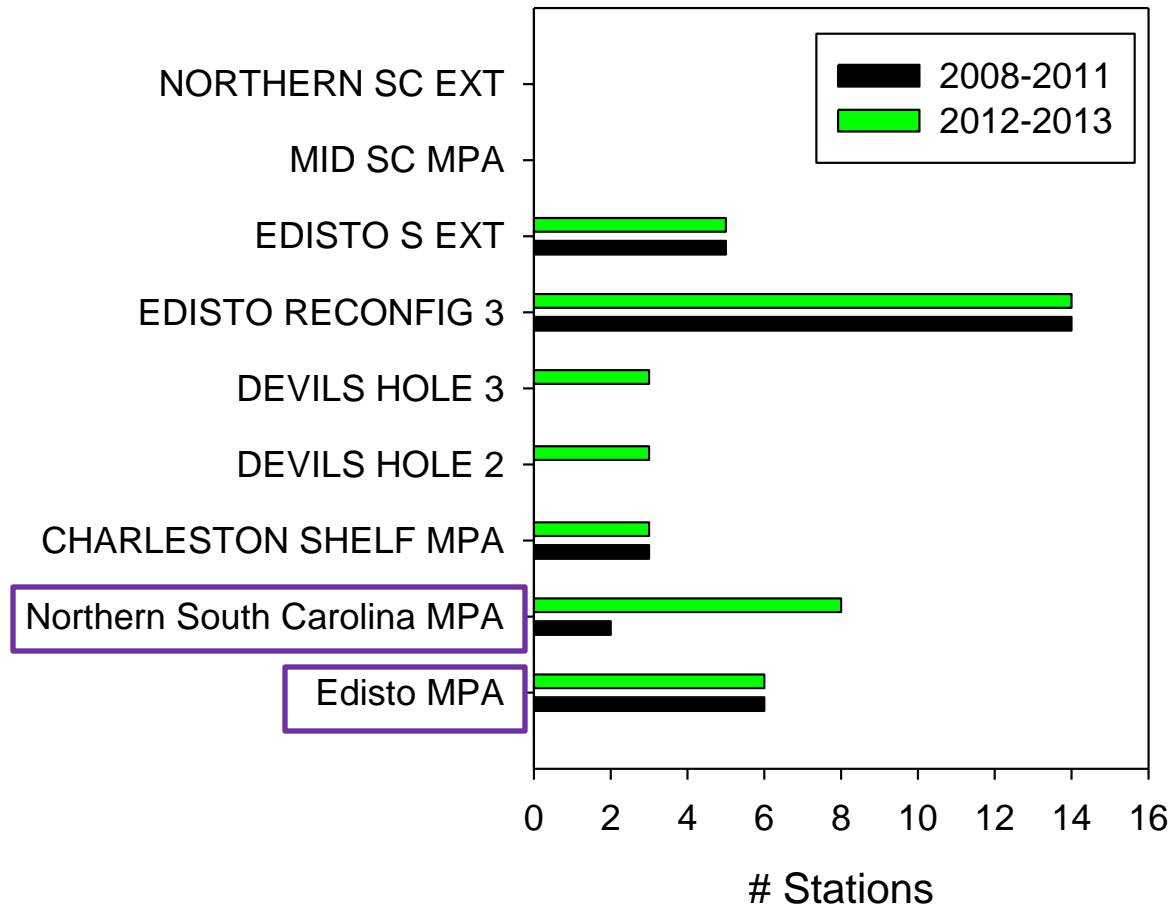
Available Live-Bottom Sampling Stations



South Carolina

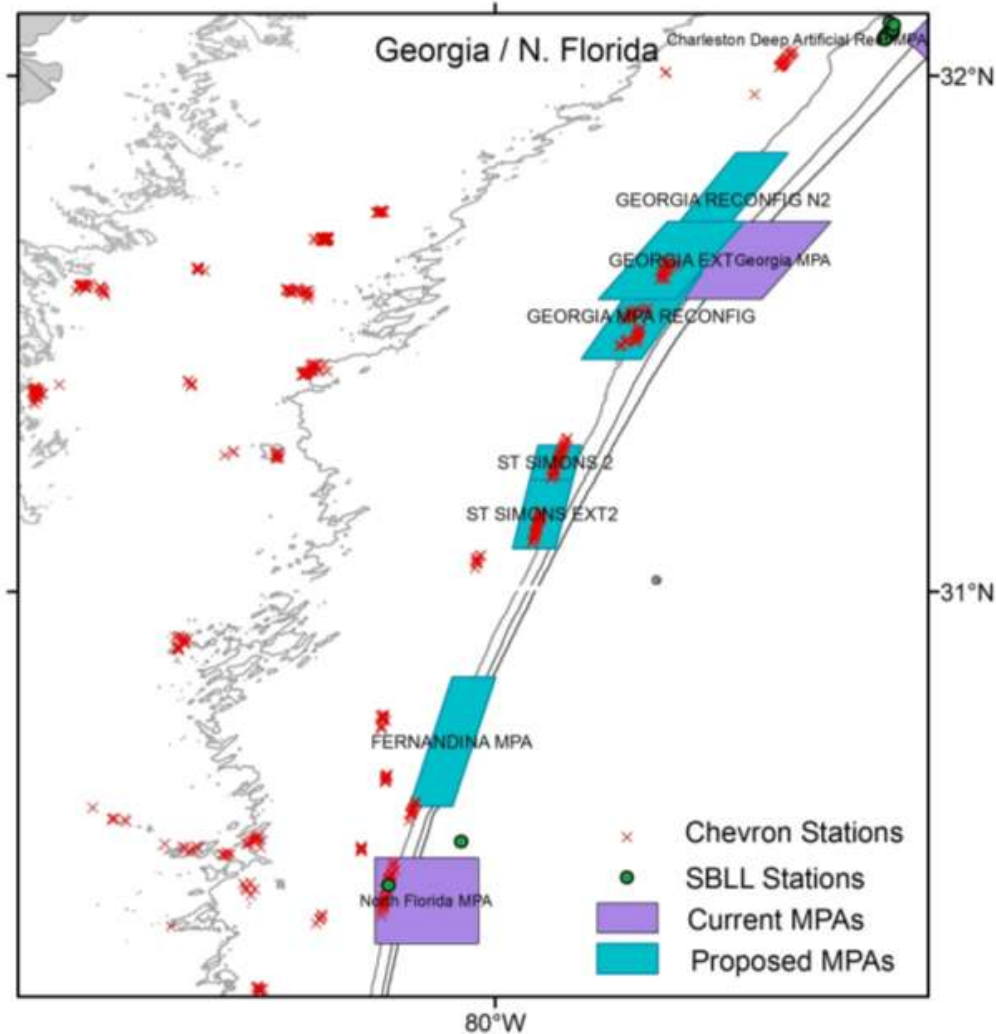
MARMAP Short Bottom Longline Survey

Available Live-Bottom Sampling Stations



SERFS Survey Coverage

Proposed MPAs GA



SERFS Survey Coverage: Proposed GA MPAs

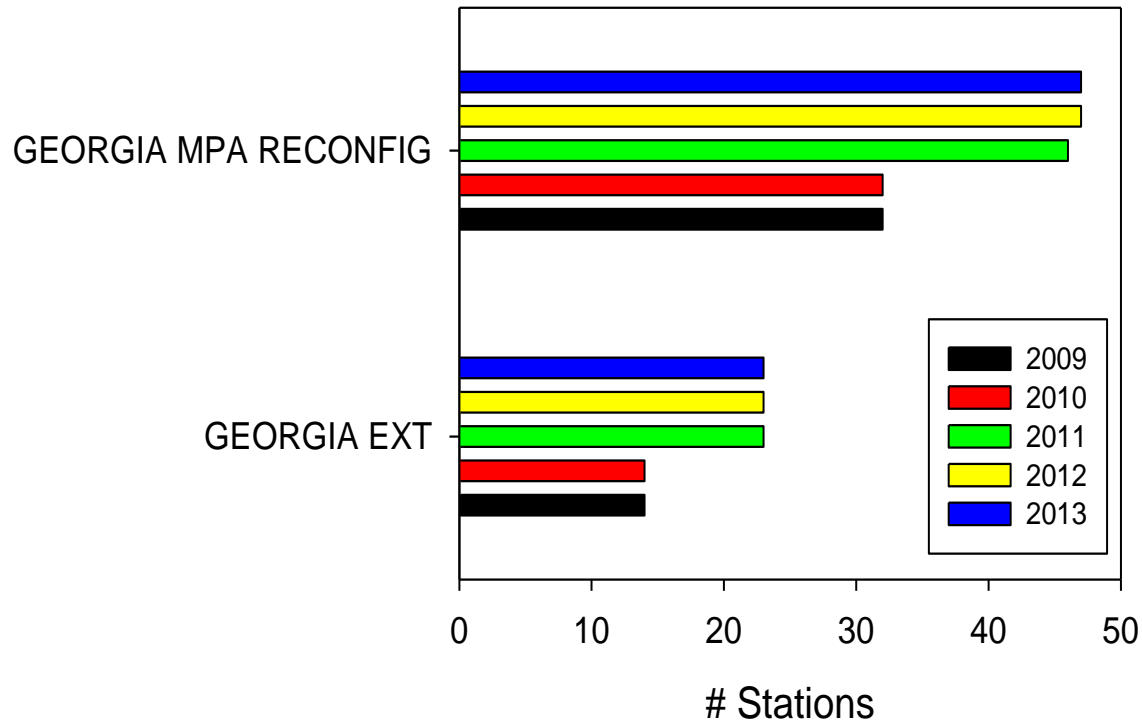
Area	State	Chevron		# 2013 Stations	SBLL		# 2013 Stations
		Historic	Current		Historic	Current	
Georgia Reconfig N2	GA			0			0
Georgia Ext	GA	✓	✓	23			0
Georgia Reconfig	GA	✓	✓	47			0



Georgia

SERFS Chevron Trap Survey

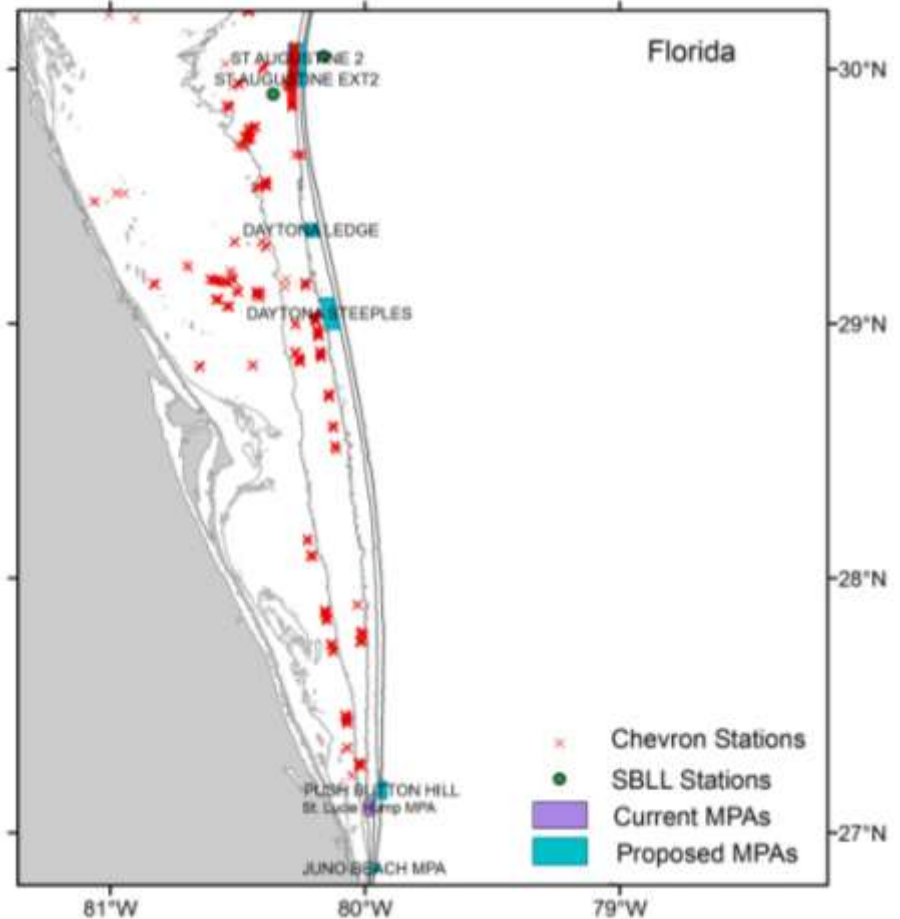
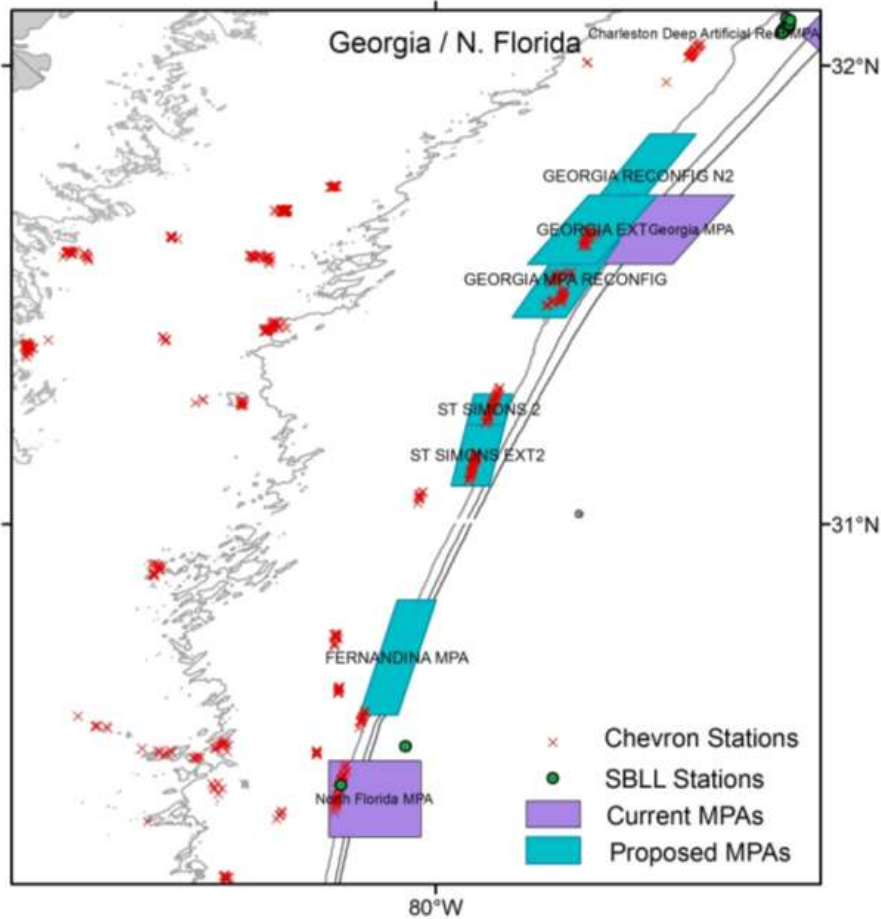
Available Live-Bottom Sampling Stations



*No SBLL stations in GA proposed MPAs

SERFS Survey Coverage

Proposed MPAs FL



SERFS Survey Coverage: Proposed FL MPAs

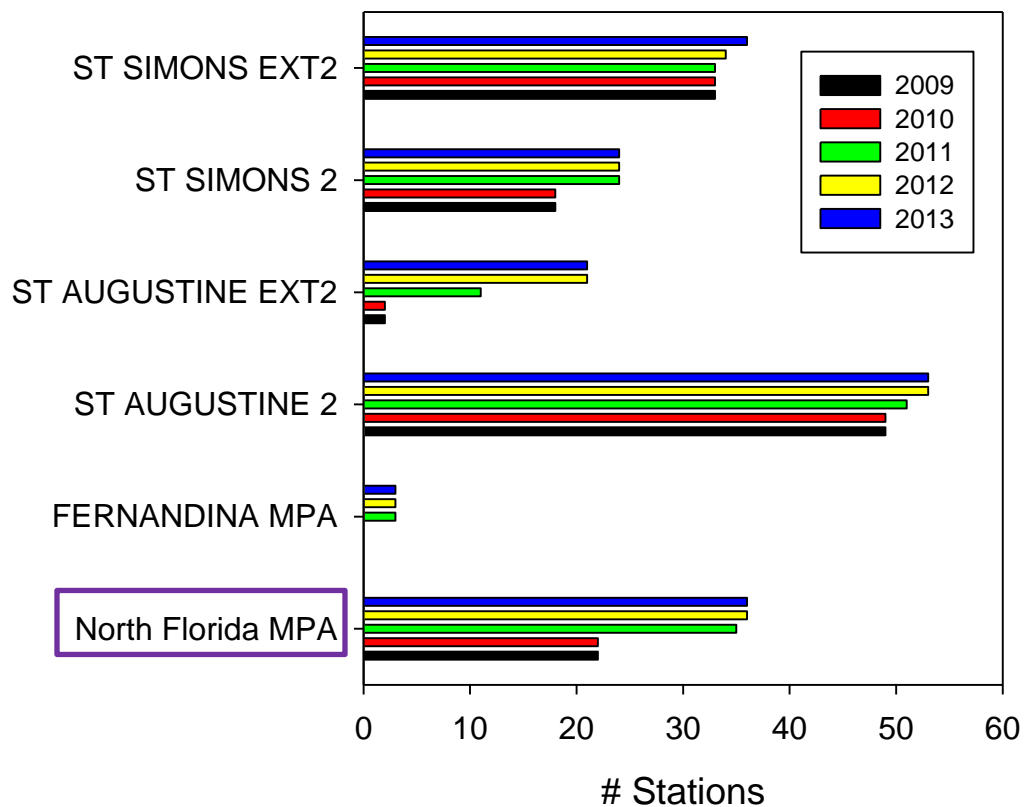
Area	State	Chevron		# 2013 Stations	SBLL		# 2013 Stations
		Historic	Current		Historic	Current	
St. Simons 2	FL	√	√	24			0
St. Simons Ext 2	FL	√	√	36			0
Fernandina *	FL	√	√	3			0
St. Augustine 2	FL	√	√	53			0
St. Augustine Ext 2	FL	√	√	21			0
Daytona Ledge	FL			0			0
Daytona Steeples	FL			0			0
Push Button Hill	FL			0			0
Juno Beach	FL			0			0
Warsaw Hole 4	FL			0			0

*: Indicates an area that can be used to compare effectiveness of current MPA

Florida

SERFS Chevron Trap Survey

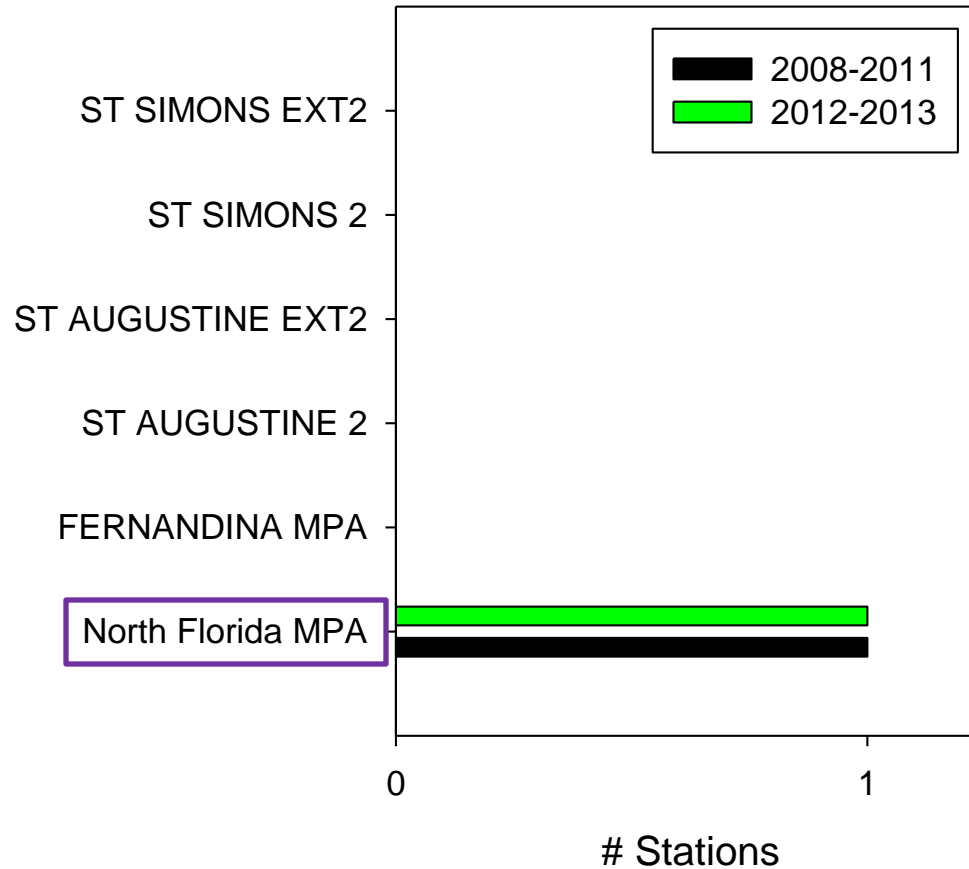
Available Live-Bottom Sampling Stations



Florida

MARMAP Short Bottom Longline Survey

Available Live-Bottom Sampling Stations



THANK YOU

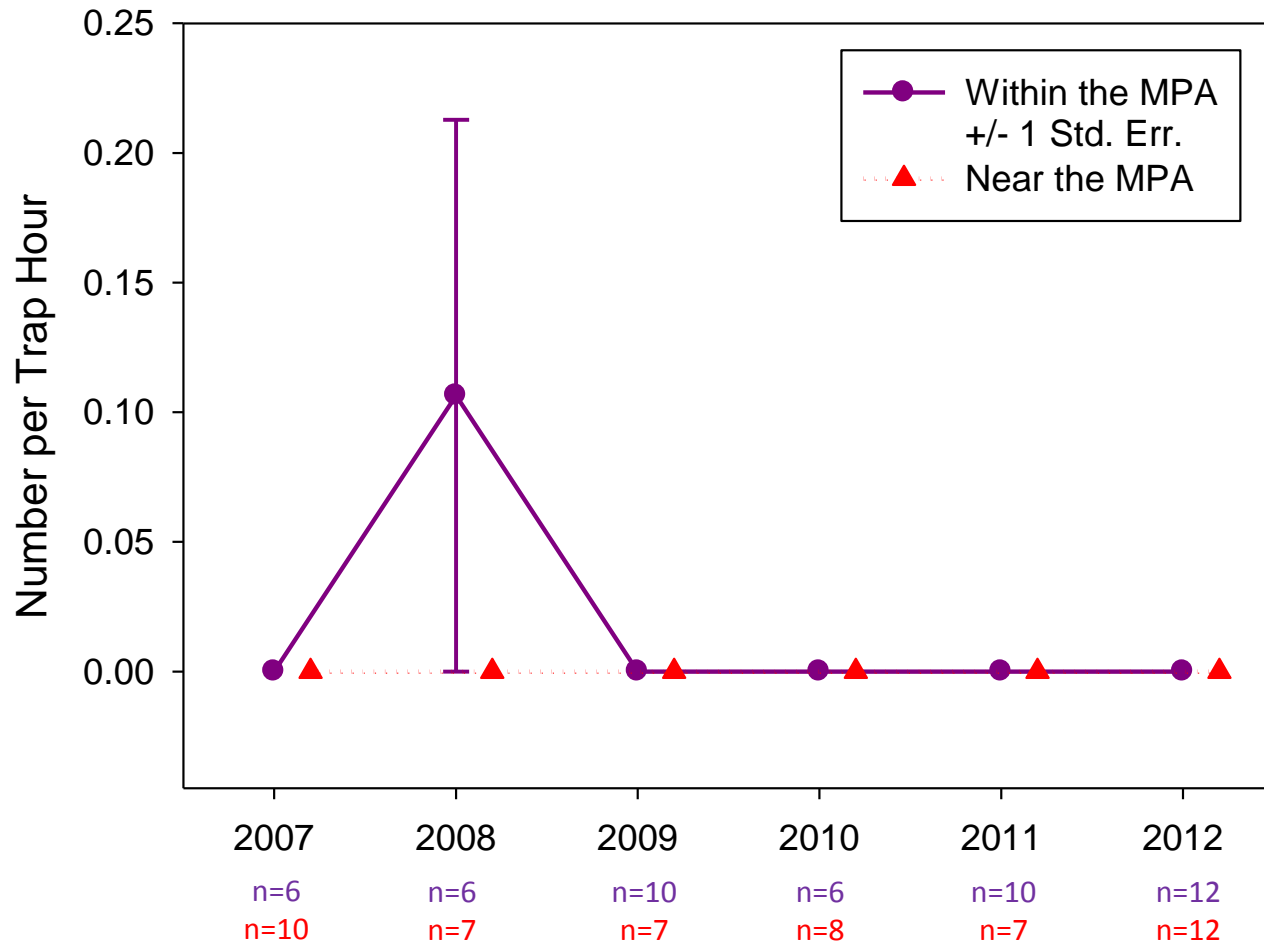


South Carolina Current MPAs:

Edisto



Speckled Hind SERFS Chevron Trap Survey



n = # traps deployed each year



MPA Established