Recreational Fisheries Workgroup

SEDAR 68 – South Atlantic and Gulf of Mexico Scamp (Yellowmouth Grouper)

May 26, 2020
Data Workshop Plenary

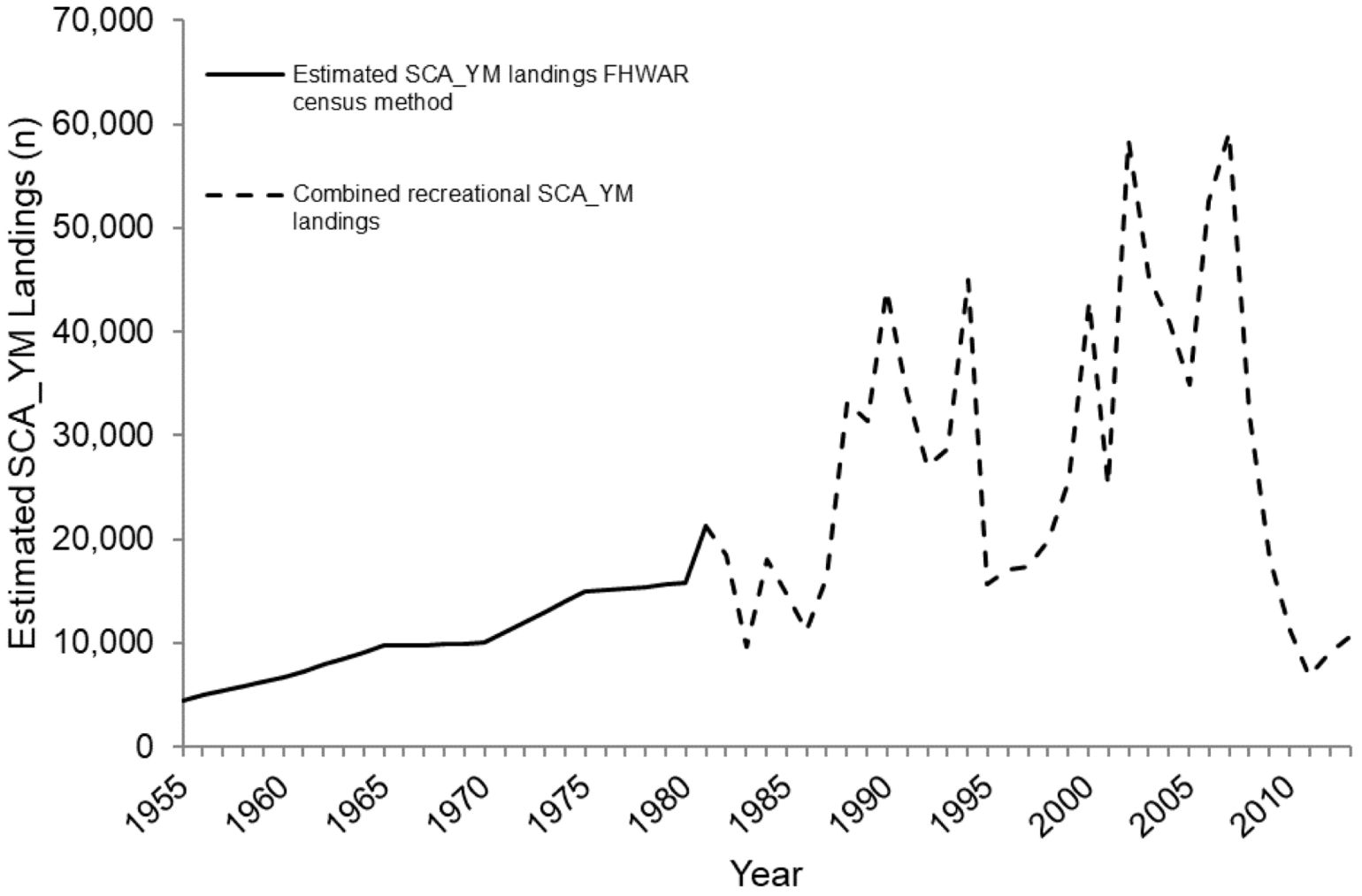
Historical Landings

Historical landings

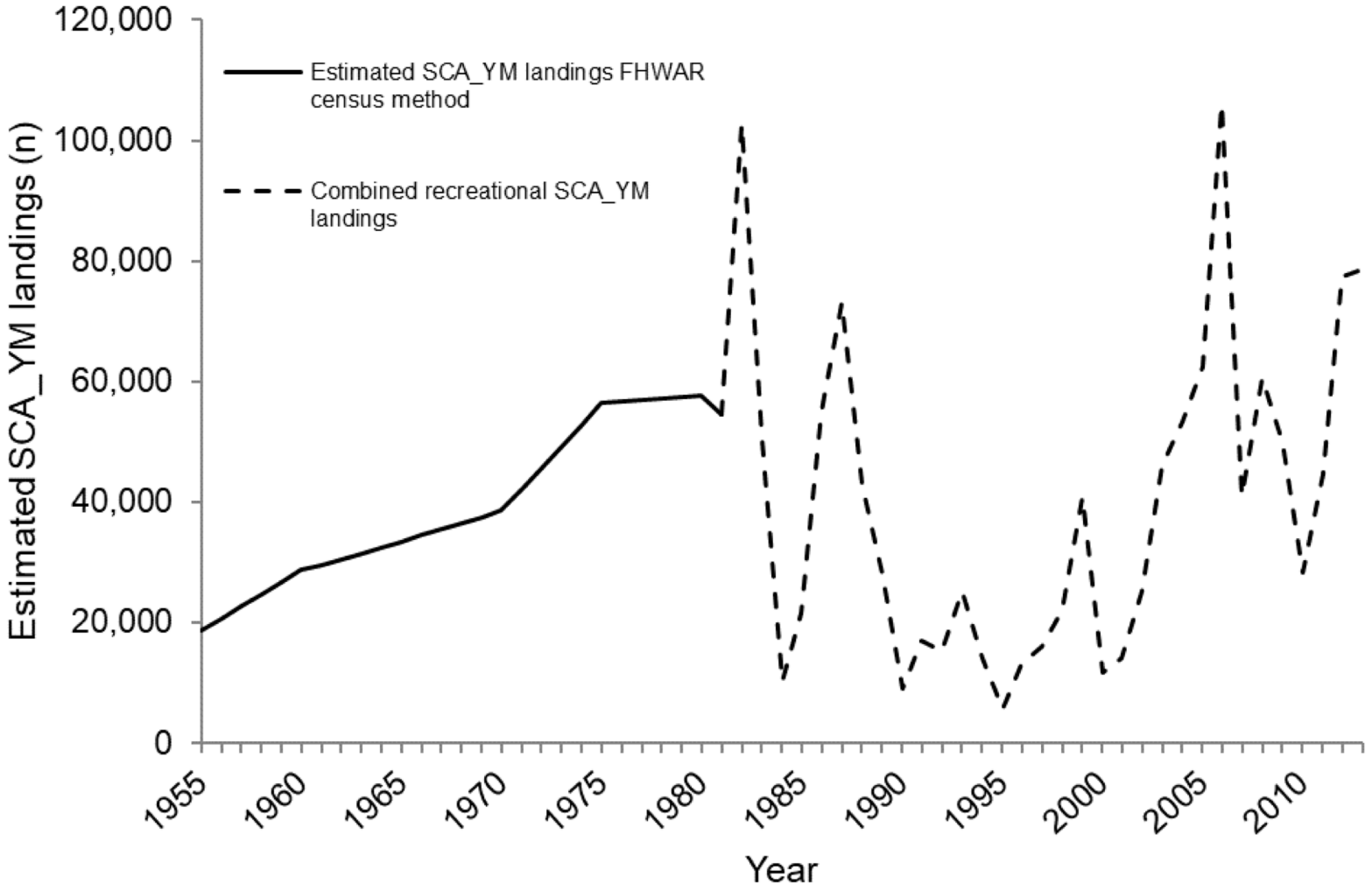
FHWAR (National Survey of Fishing, Hunting, and Wildlife-Associated Recreation Survey)

- U.S Fish and Wildlife Service - every 5 years since 1955
- U.S. anglers and U.S. saltwater anglers
- Total recreational mean CPUE 1981-1985, following Best Practices
- Used to estimate recreational landings prior to 1981 (1955-1980)

FHWAR Method – South Atlantic



FHWAR Method – Gulf of Mexico

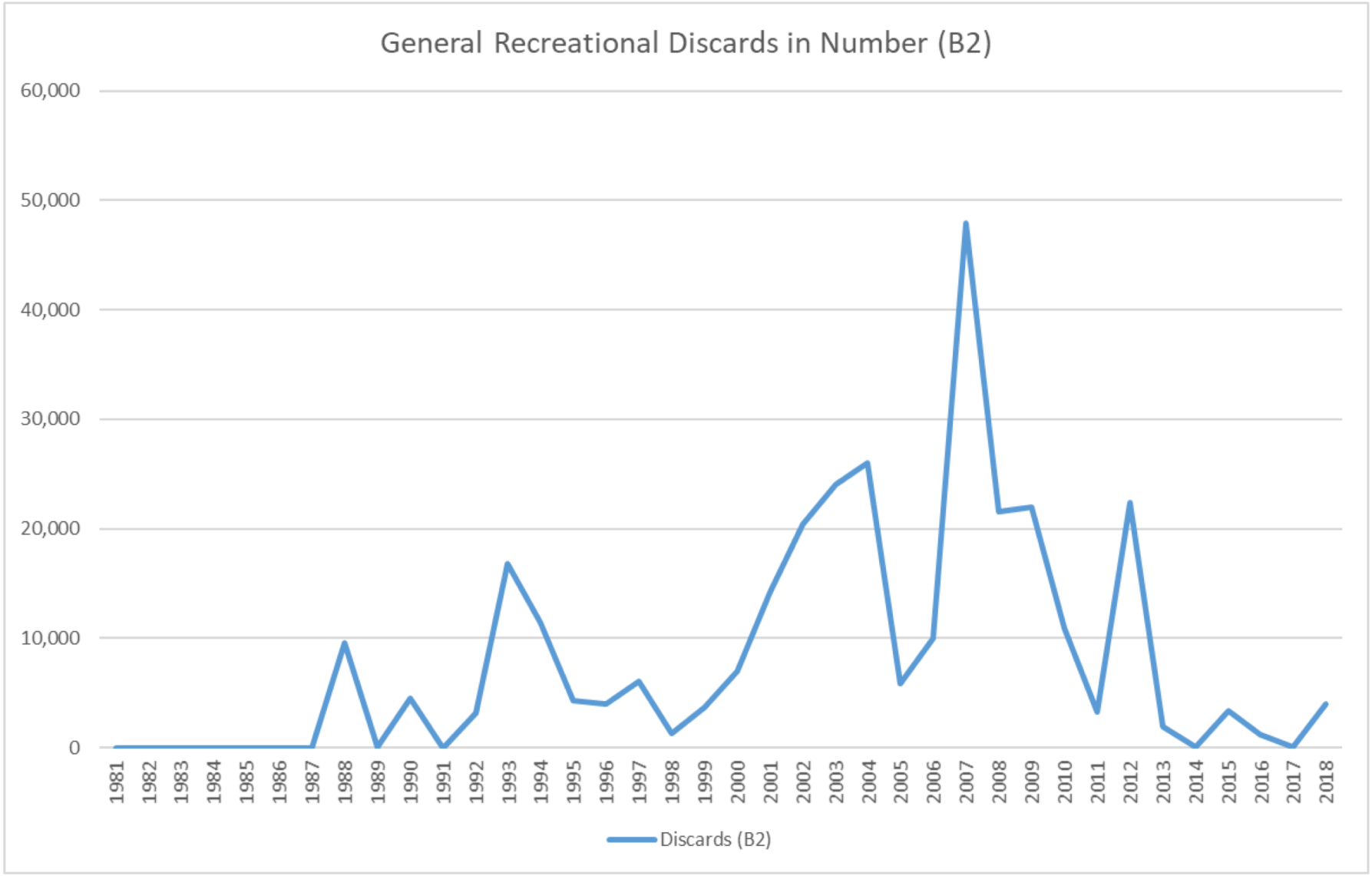


Discards

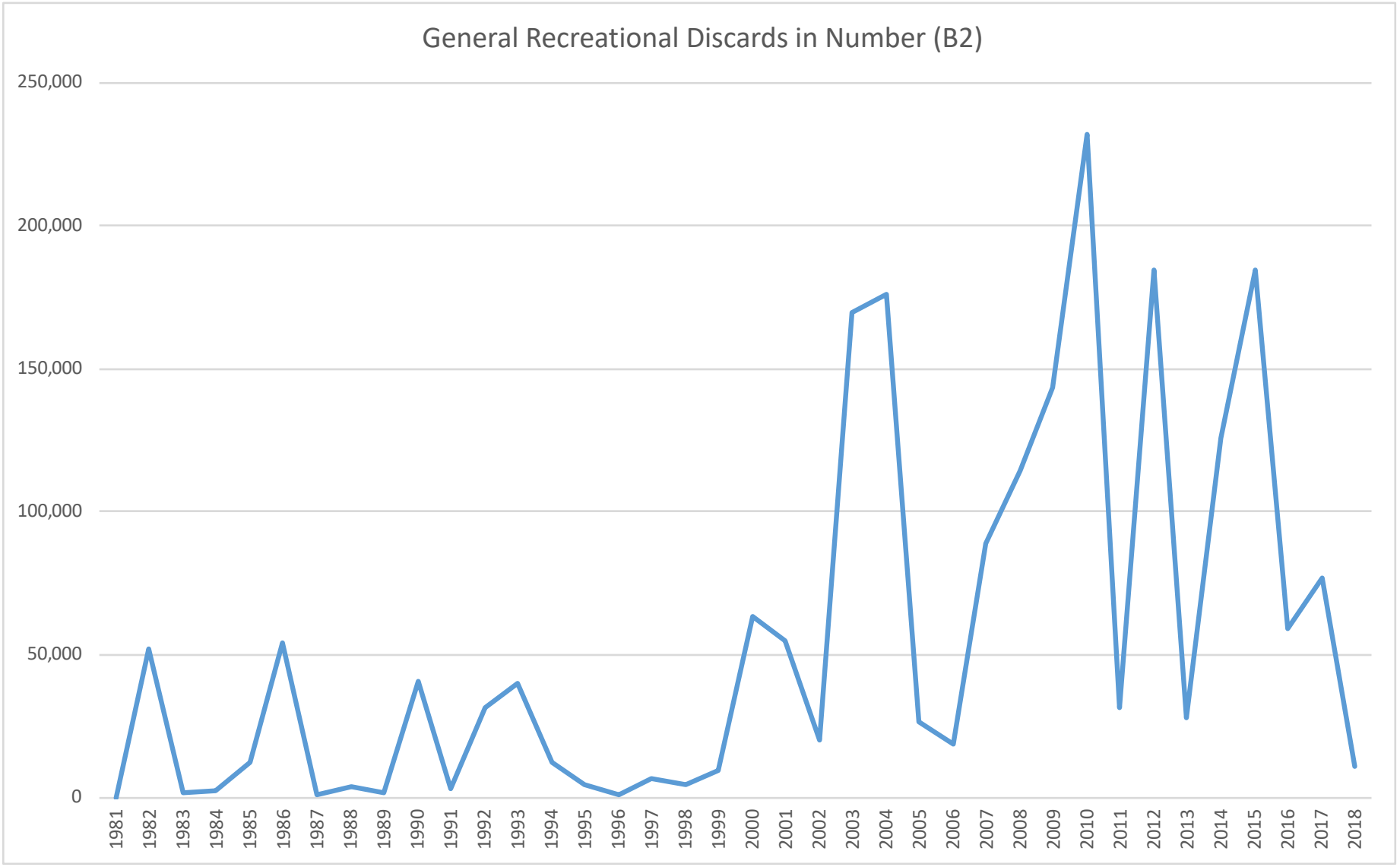
Data Sources

- MRIP – Marine Recreational Information Program
- SRHS – Southeast Region Headboat Survey (2004+)

MRIP South Atlantic Discards



MRIP Gulf of Mexico Discards



SRHS Discards

Discard proxy method options-Rejected

- MRIP PR ratio
- MRIP PR:SRHS discard ratio (04-18)
- MRIP PR:SRHS discard ratio (07-18)
- SA only-all proxy methods applied as SA wide ratio instead of state ratios
- MRIP CH ratio
- MRIP CH:SRHS discard ratio (04-18)

SRHS Discards

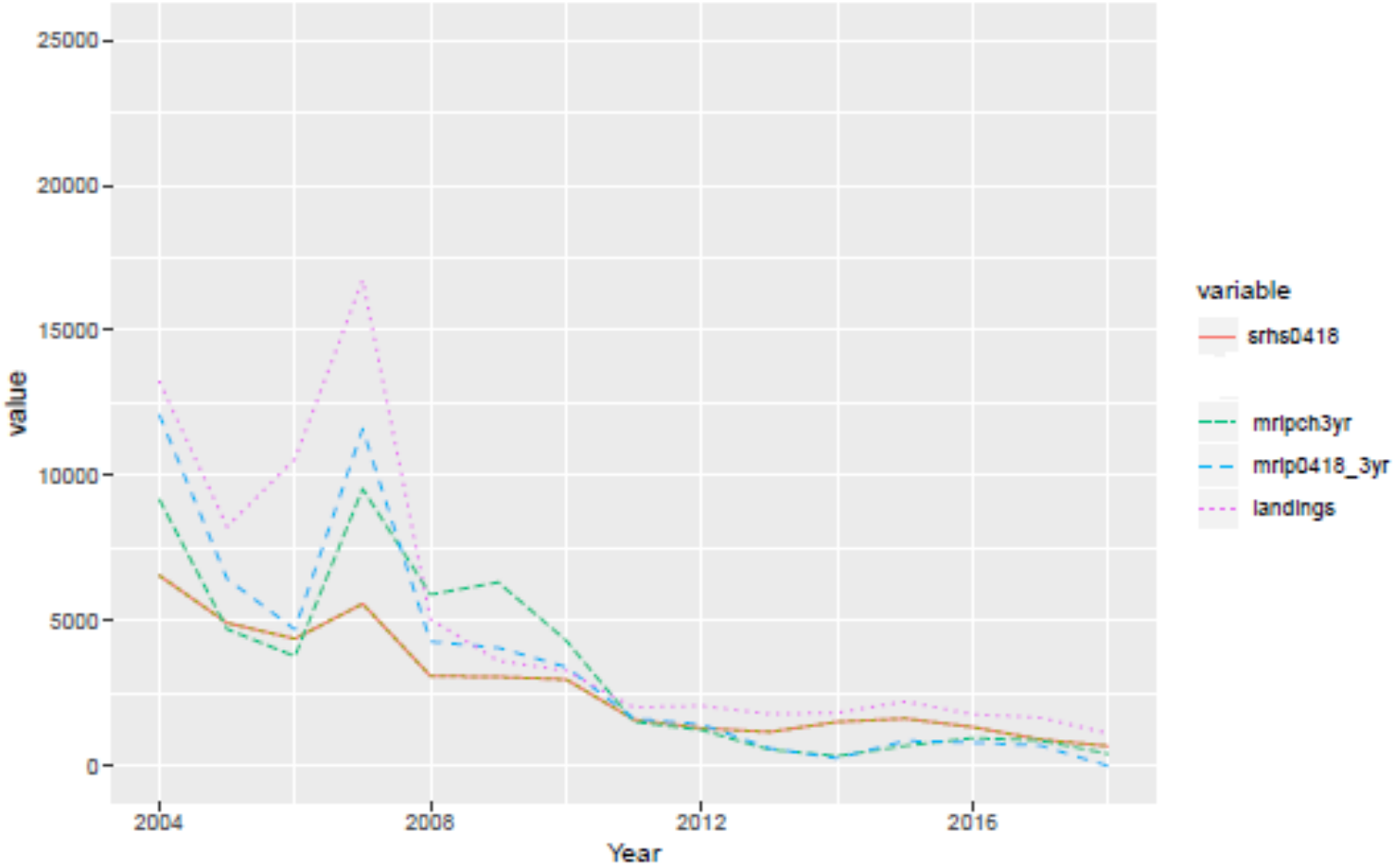
Discard proxy method options

- MRIP CH ratio rolling 3yr avg
- MRIP CH:SRHS discard ratio (04-18) rolling 3yr avg
- Mean SRHS discard ratio (04-08)
- Mean SRHS discard ratio (04-18)

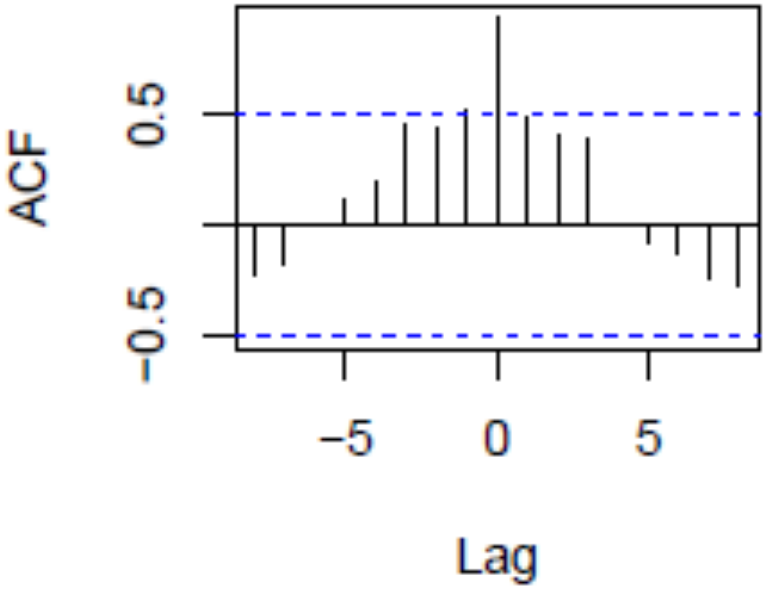
SRHS Discards

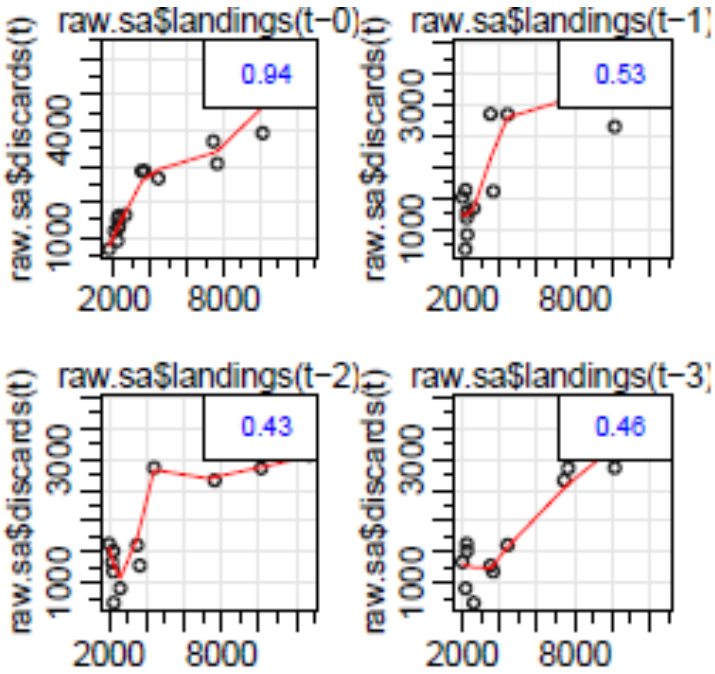
Figure 1: Scamp reported landings and discards).

SRHS Discards-South Atlantic

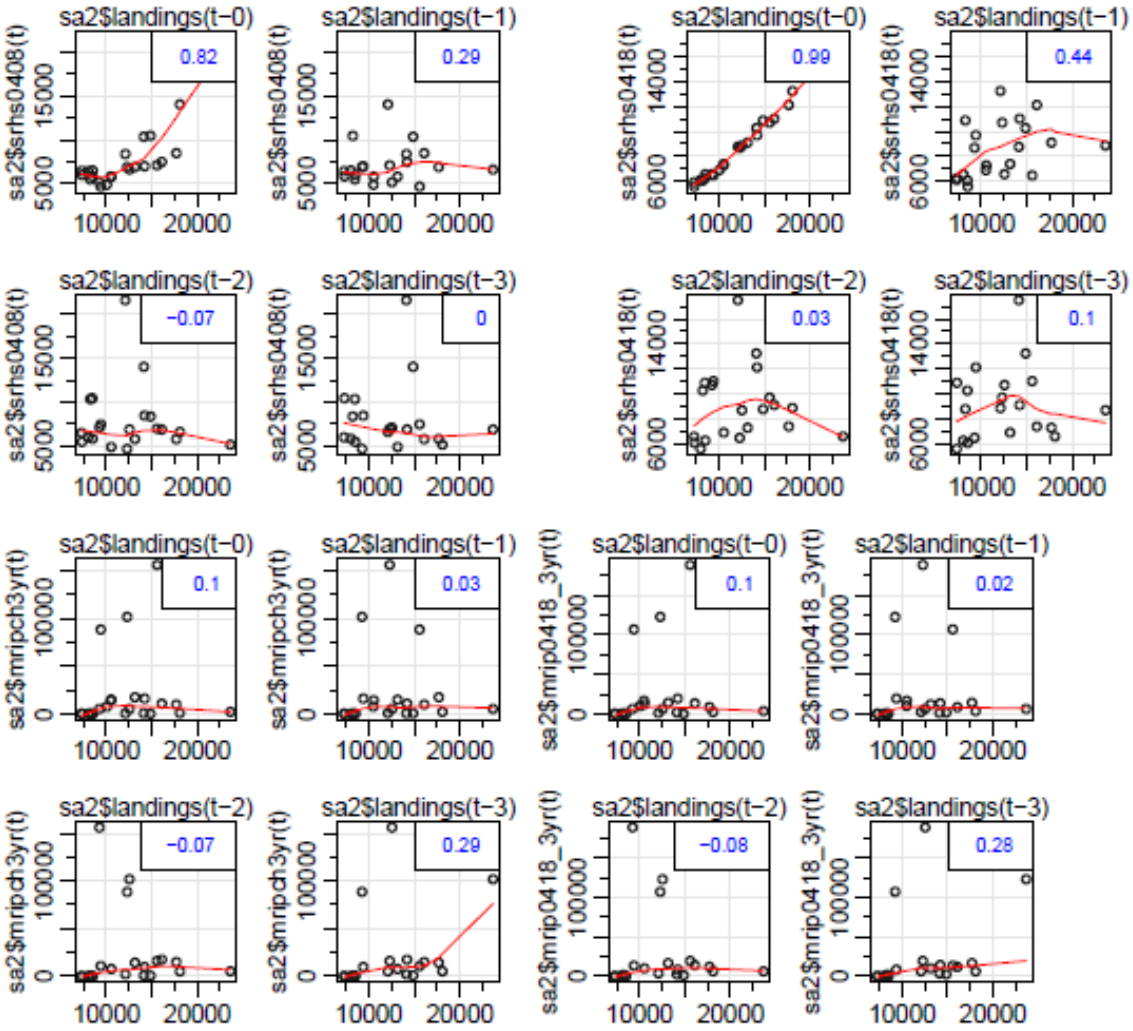


SRHS Discards-South Atlantic

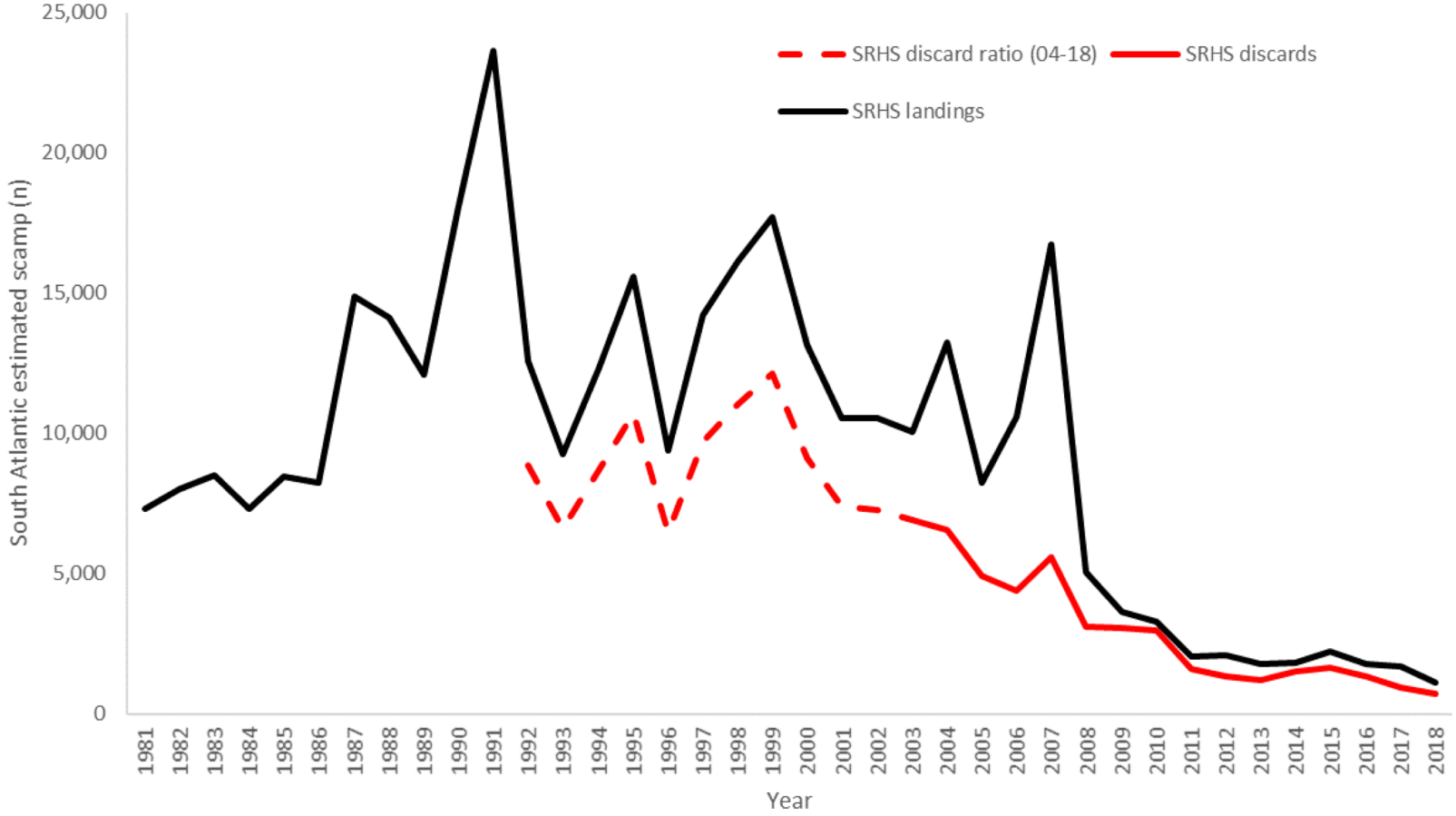




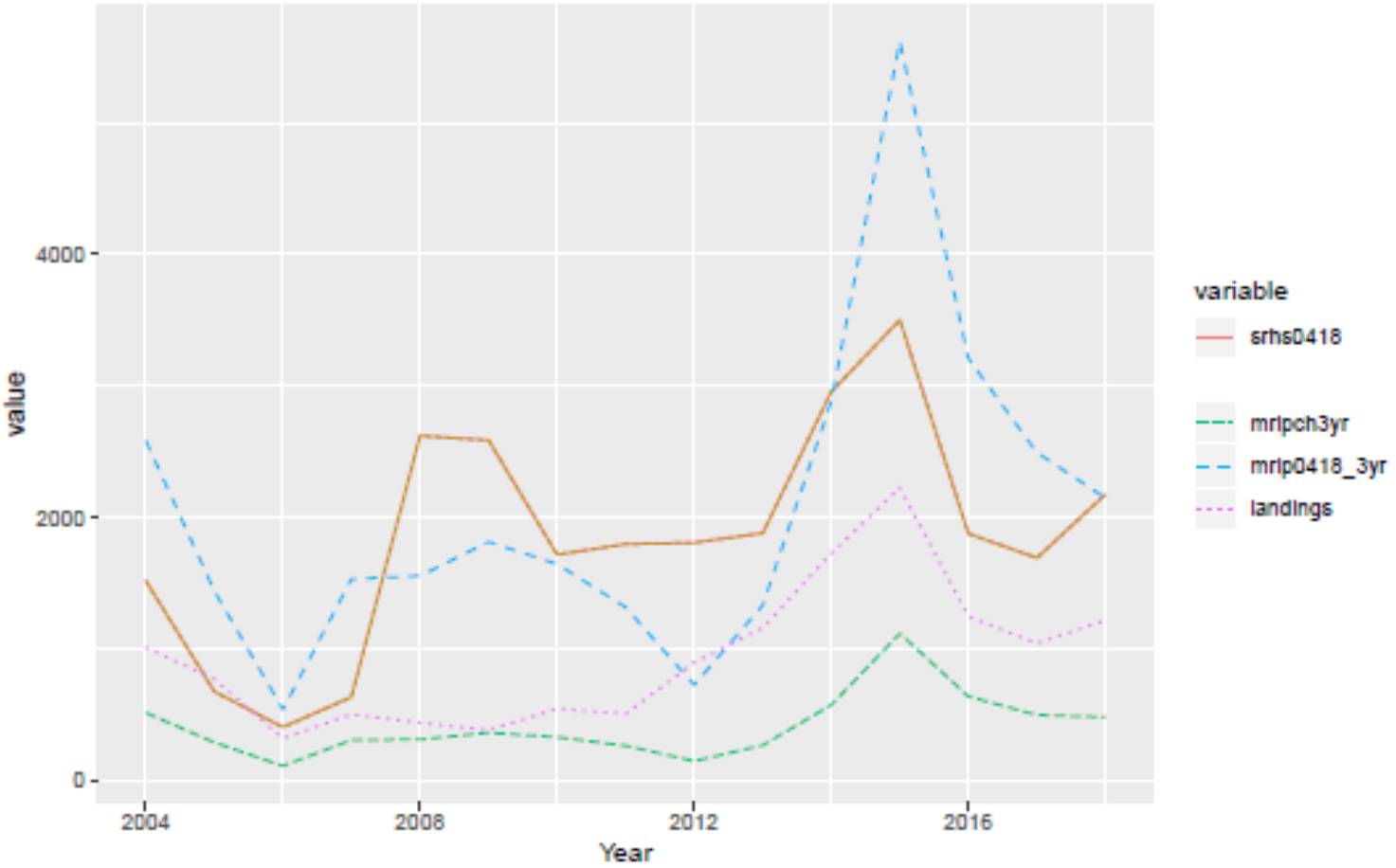
SRHS Discards-South Atlantic



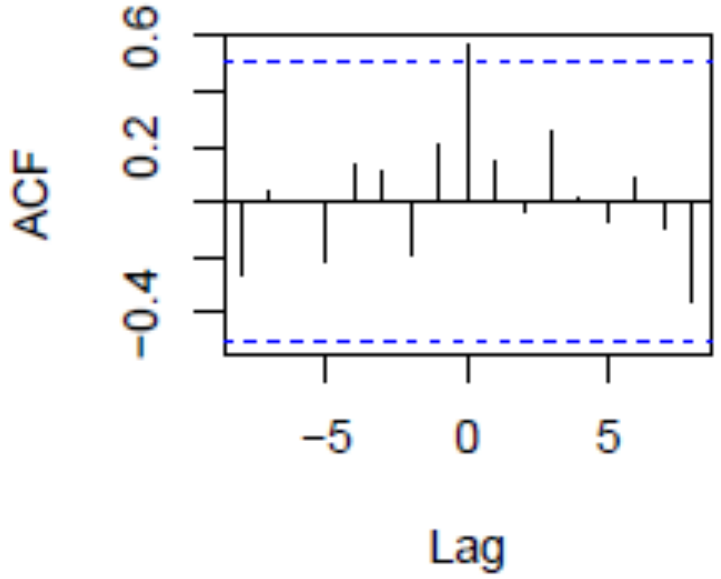
SRHS Discards-South Atlantic

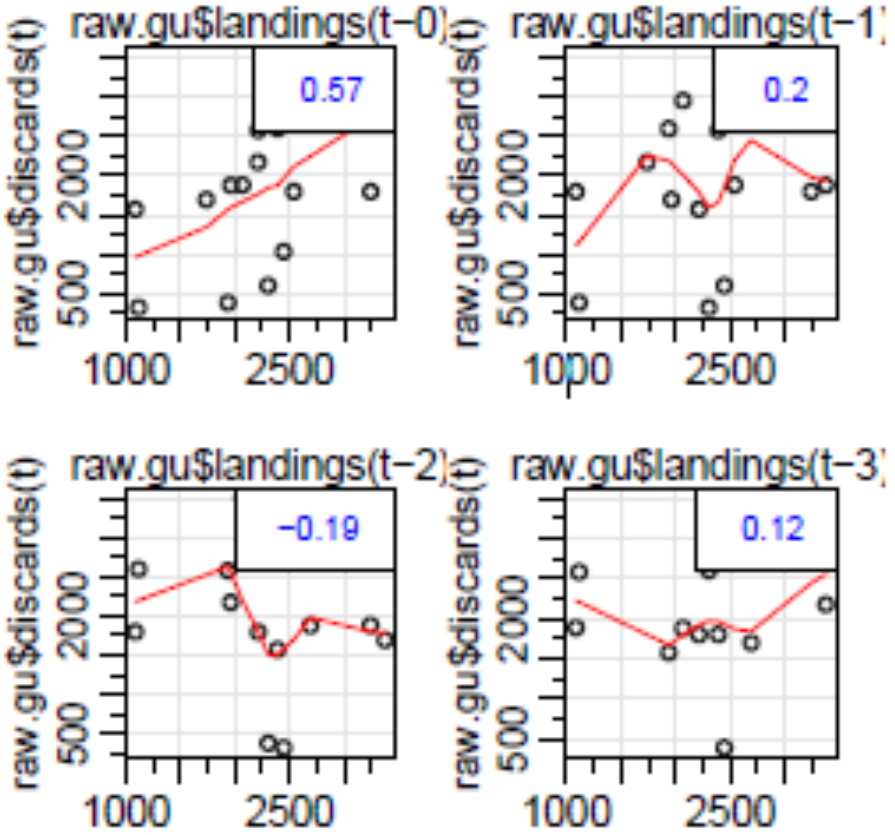


SRHS Discards-Gulf of Mexico

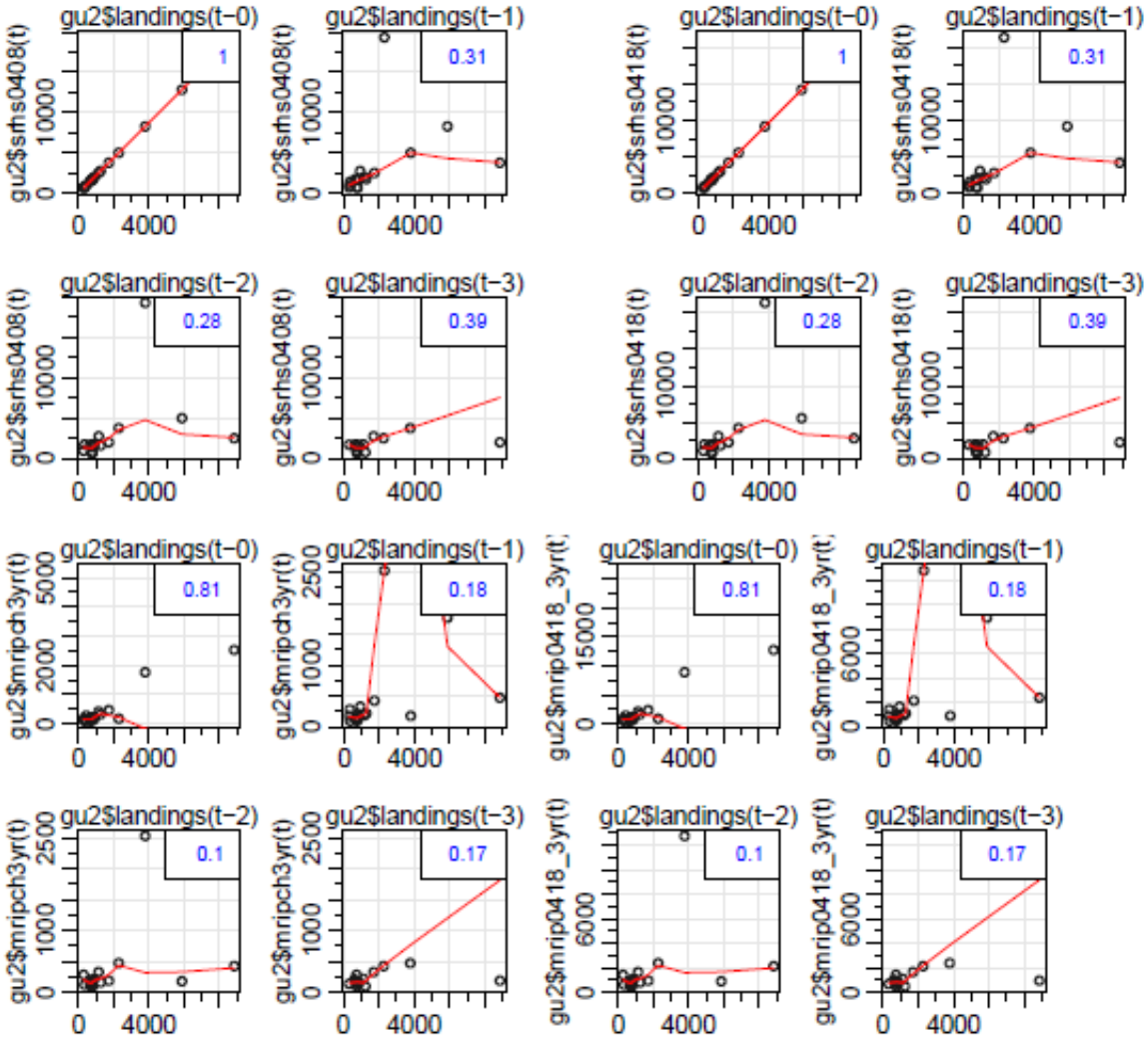


SRHS Discards-Gulf of Mexico

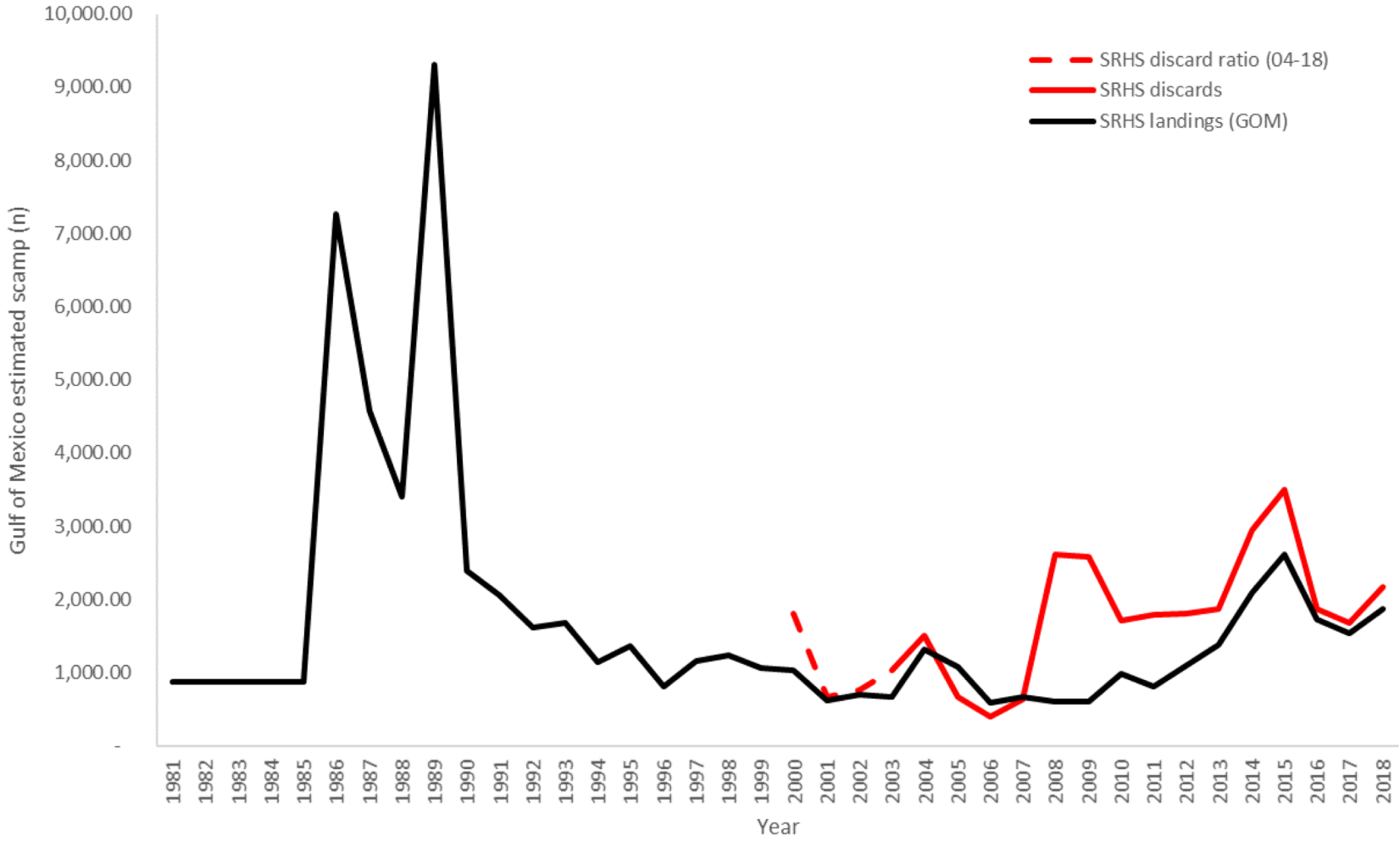




SRHS Discards-Gulf of Mexico



SRHS Discards-Gulf of Mexico



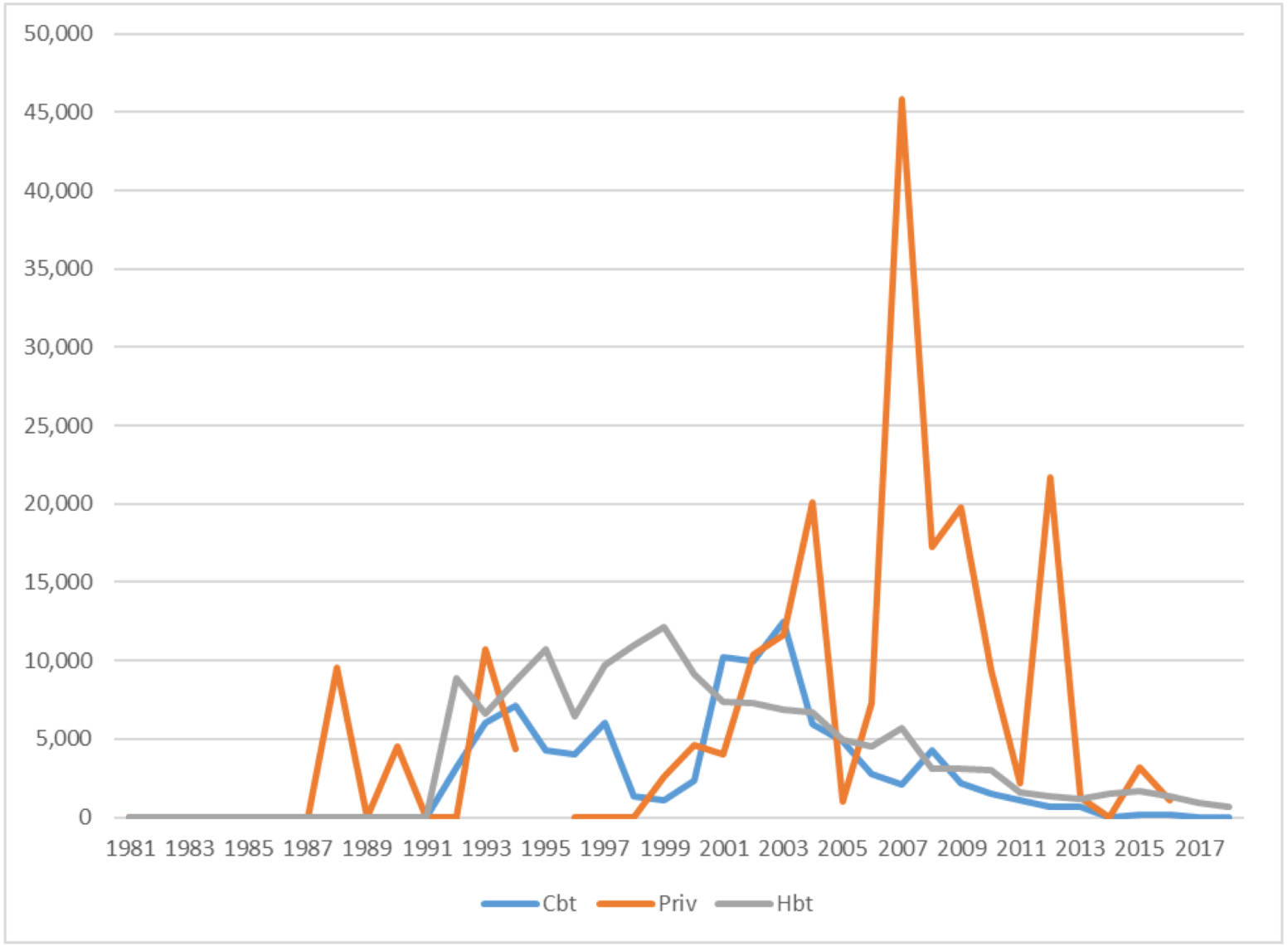
SRHS Discards

Recommendations

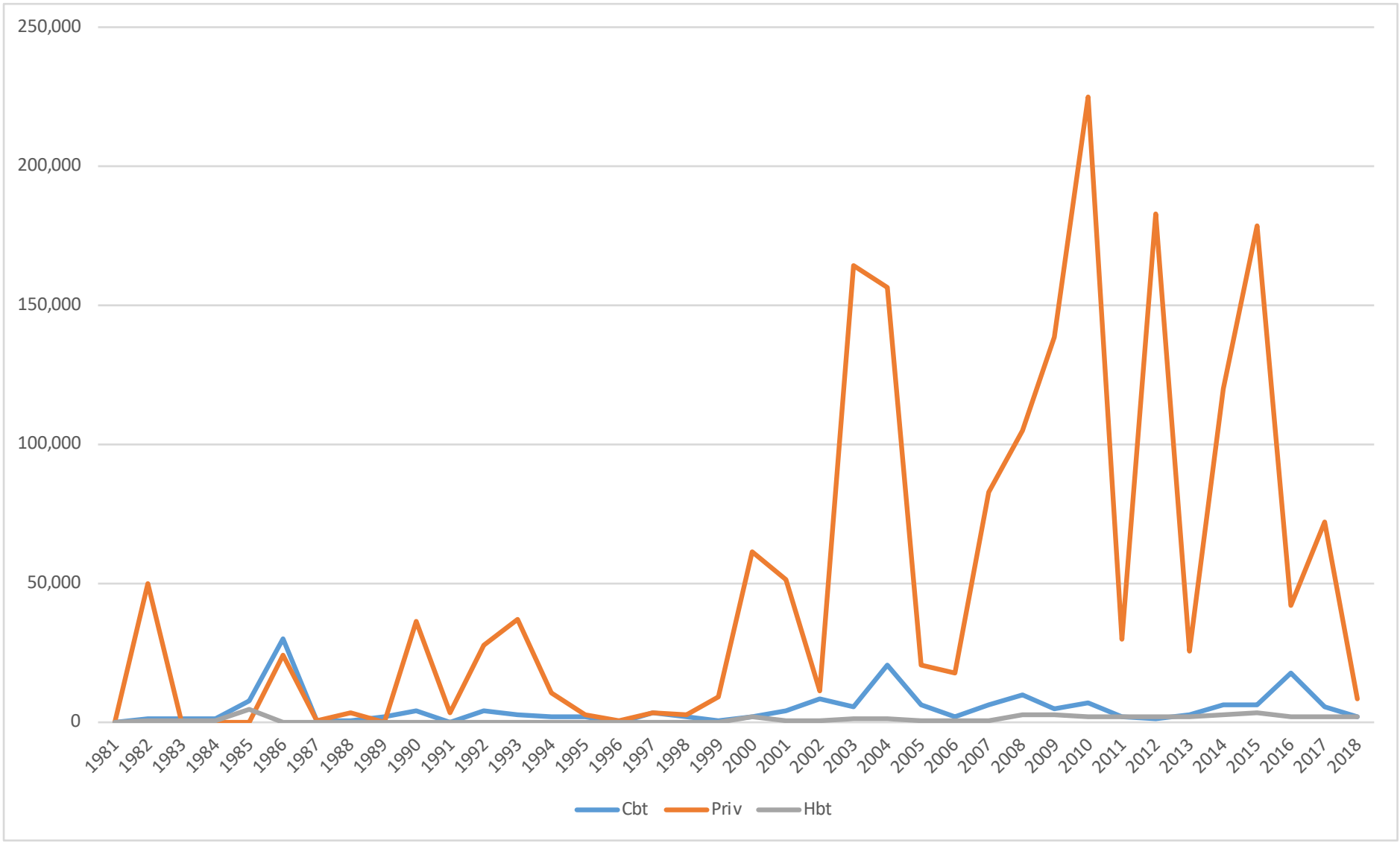
- Use SRHS discard estimates where available (04-18)
- South Atlantic-use SRHS (04-18) mean discard ratio proxy method
  - Assume negligible discards prior to 1992 (size limit)
- Gulf of Mexico-use SRHS (04-18) mean discard ratio proxy method FLW/AL only
  - Assume negligible discards prior to 2000 (size limit)
  - Assume discards are negligible west of FLW/AL

Total Recreational Discards

Total Recreational Discards- South Atlantic



Total Recreational Discards- Gulf of Mexico



Density Plots

At-Sea Observer Sampling

Regions	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
North Carolina	H	H	H	H	H	H	H	H	H	H	H	H	H
South Carolina	H	H	H	H	H	H	H	H	H	H	H	H	H
Georgia	H	H	H	H	H	H	H	H	H	H	H	H	H
East Florida	H	H	H	H	H	H	H	H	H,C	H,C	H,C	H	H
Florida Keys	H	H	H			H,C	H,C	H,C	H,C	C	C	H,C	H,C
West Florida	H	H	H		H,C	H,C	H,C	H,C	H,C		H,C	H,C	H,C

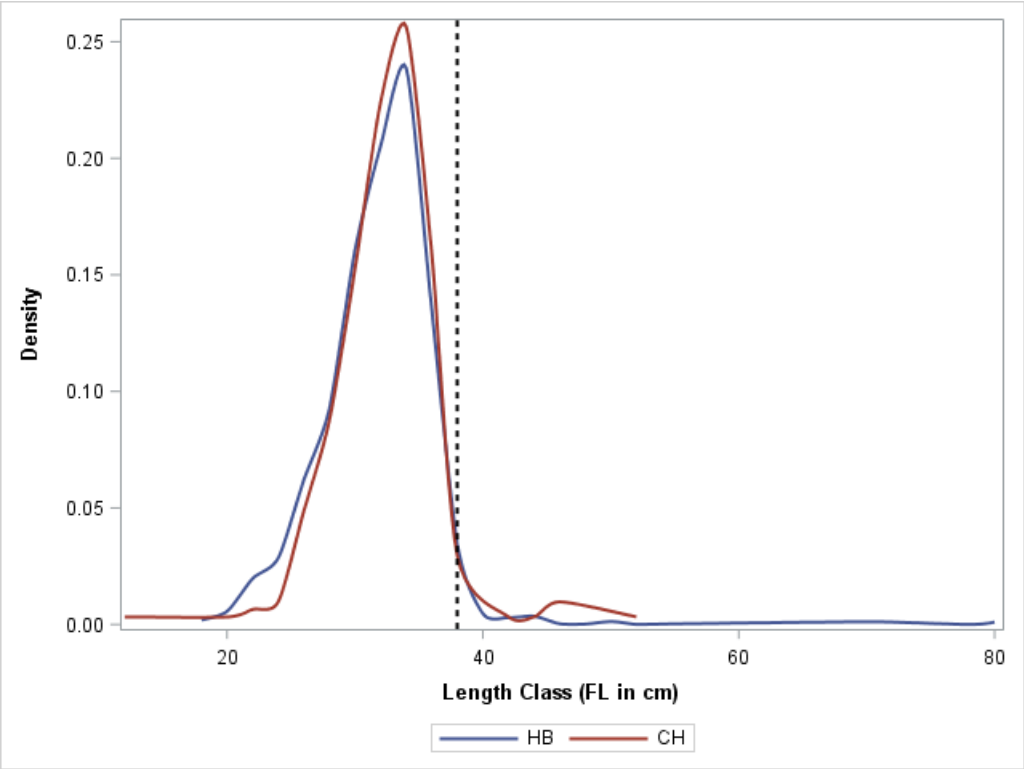
- State biologists collect detailed trip and fish level data from the harvested and discarded fish on headboats
- Coverage
  - Continuous coverage from North Carolina through Georgia
  - Sampling stoppage in Florida
    - 2008 through May of 2009
  - Additional coverage of charter vessels in Florida, since 2009

Weighting of Headboat Discards

- Trip Durations:
  - Half Day: <6 hours
  - ¾ Day: 6-8 hours
  - Full Day: 9-24 hours
  - Multi-Day: >24 hours
- Weight: Ratio of logbook trips to observer trips
  - N_t/N is the number of trips of type t divided by the total trips reported on logbook
  - n_t/n is the number of trips of type t divided by the total trips observed during At-Sea observer trips

$$W_t = \frac{N_t/N}{n_t/n}$$

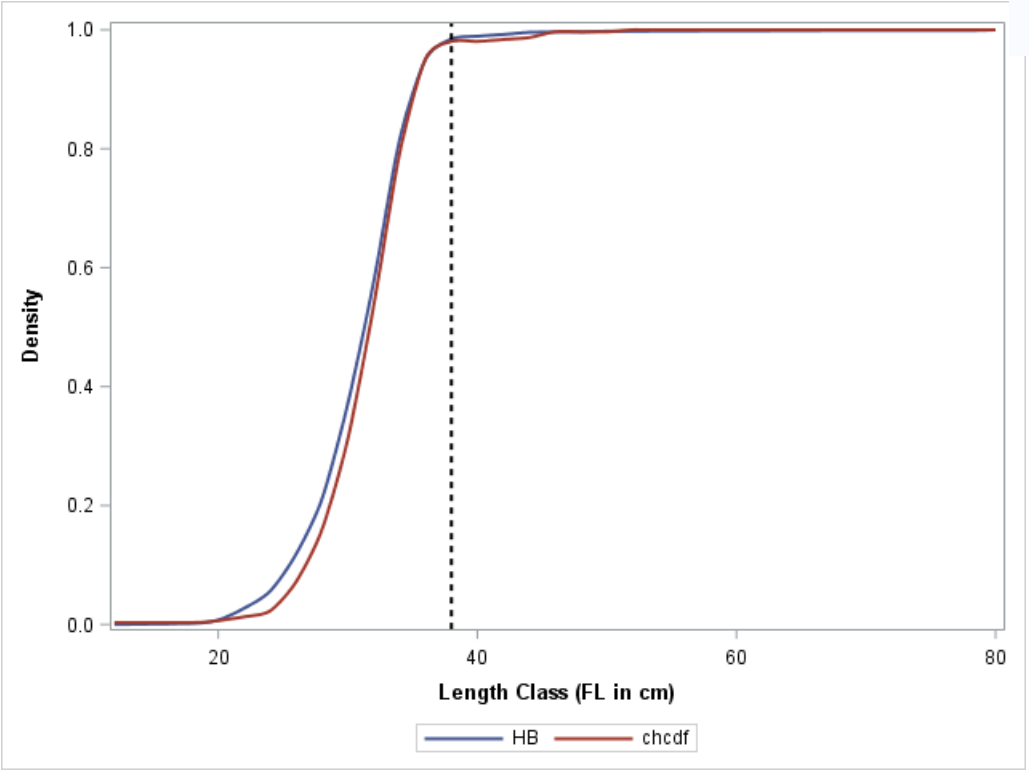
Gulf of Mexico – Recreational Discard Length Frequencies



Fishing Mode	Mean	Variance	N
Charter	33.34	15.05	332
Headboat	33.67	23.12	1252

- Length measurements from West Florida
  - Including Florida Keys North of US 1
- Coverage from 2005-2017
  - Sampling stoppages in 2008, first half of 2009, and 2014
- Weighting :
  - Only headboat comps are weighted
- Low sample sizes, particularly charter fleet

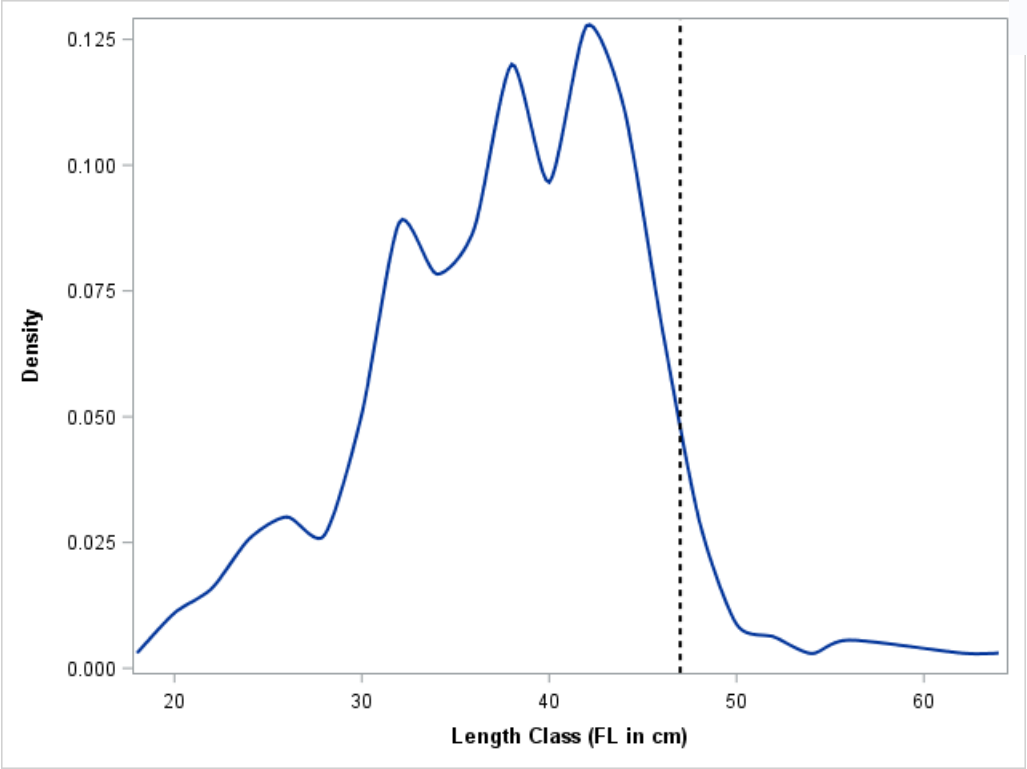
Gulf of Mexico – Recreational Discard Length Frequencies



Fishing Mode	Mean	Variance	N
Charter	33.34	15.05	332
Headboat	33.67	23.12	1252

- Summary
  - Appear to be regulatory discards
  - Similar distributions between the Headboat and Charter fleets
- Recommendations:
  - Use weighted length comp, when available to represent discard length frequencies
    - Headboat – Weighted
    - Charter – Unweighted

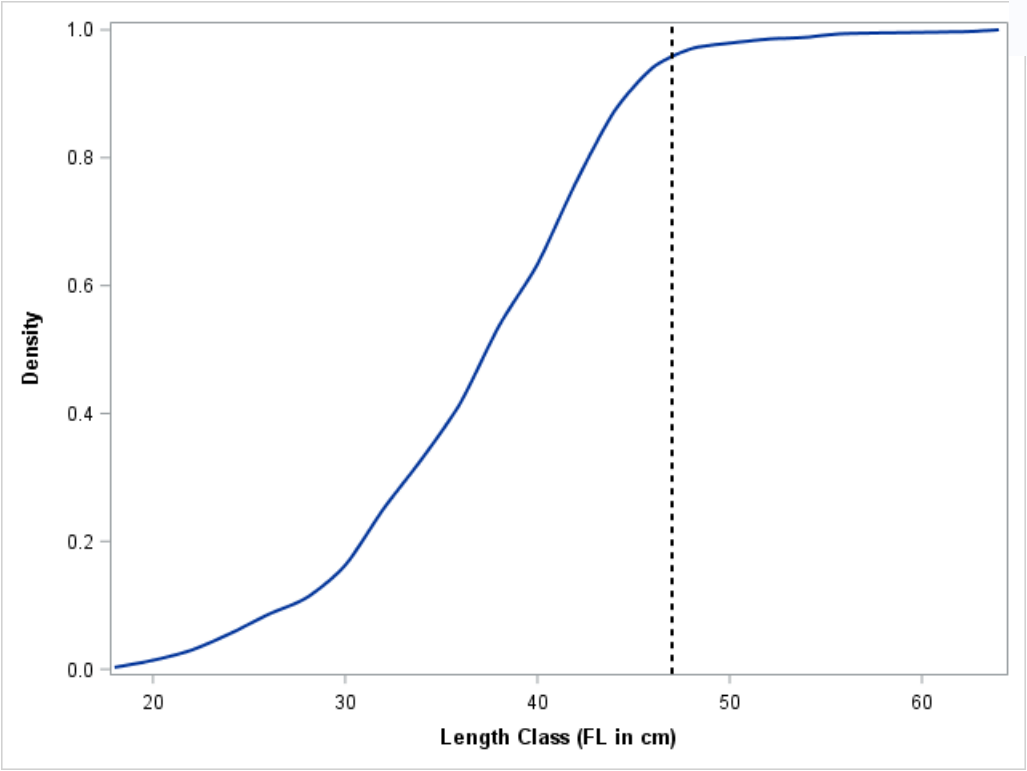
South Atlantic – Recreational Discard Length Frequencies



Fishing Mode	Mean	Variance	N
Charter	34.72	87.57	5
Headboat	39.44	51.73	230

- Length measurements from North Carolina through East Florida
  - Florida Keys samples come from South of US1
- Coverage
  - Headboat: 2005-2017
  - Charter: 2013-2015
    - Florida Only
- Weighting :
  - Headboat comps are weighted
- Extremely low sample sizes, particularly charter fleet

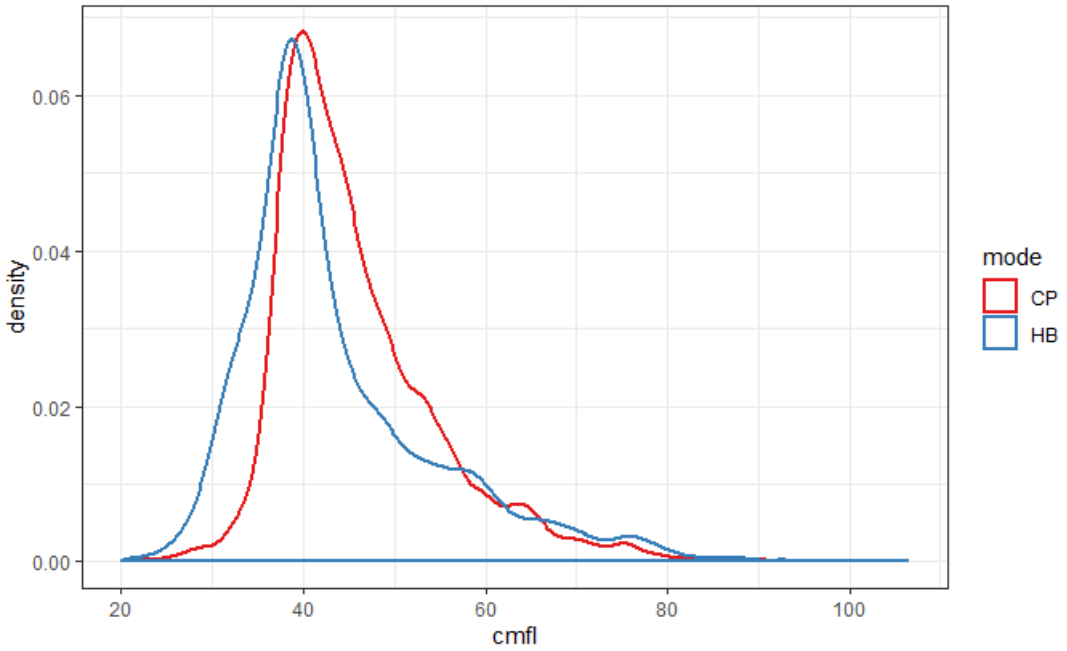
South Atlantic – Recreational Discard Length Frequencies



Fishing Mode	Mean	Variance	N
Charter	34.72	87.57	5
Headboat	39.44	51.73	230

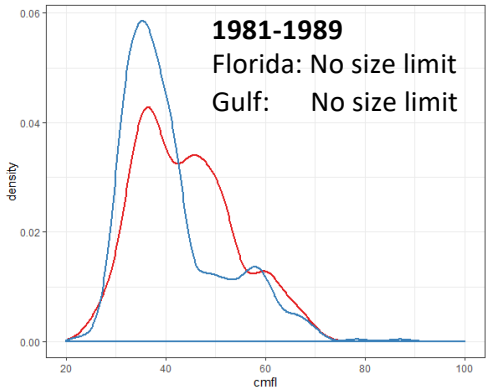
- Summary
  - Charter data only available for Florida, during a limited time period
    - Only headboat distribution shown
  - Appear to be regulatory discards
    - Supported by anecdotal fishermen reports from SAFMC Scamp Release App
    - Aggregate Grouper Bag limit changed in 2009 from 5 to 3
  - Recommendations
    - Use weighted length comp, when available to represent discard length frequencies
      - Headboat – Weighted
    - Exclude Charter length comps that only represents Florida and has minimal samples

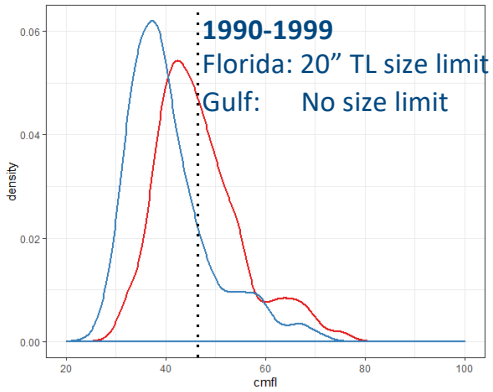
Gulf of Mexico
1981-2018 Recreational Length Compositions

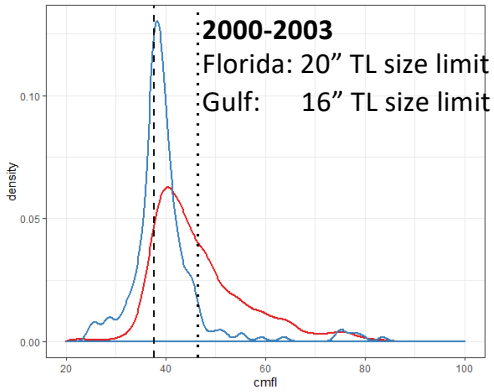


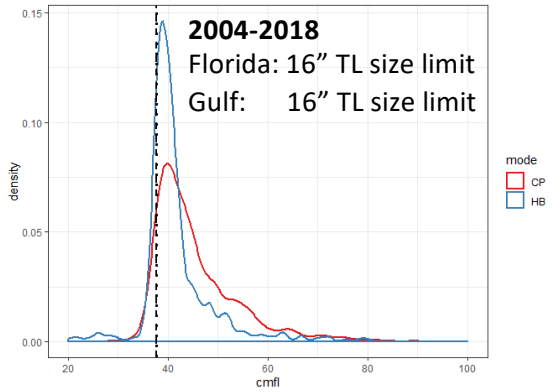
Fishing Mode	Mean	Variance	n
Charter/Private	45.83	81.13	5845
Headboat	43.71	120.46	2449

Florida, Gulf of Mexico
Recreational Length Compositions

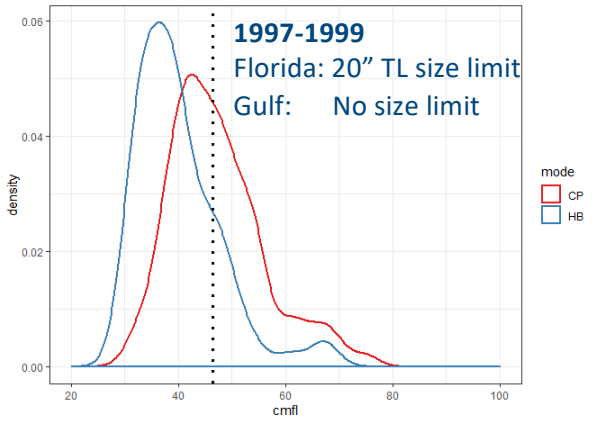








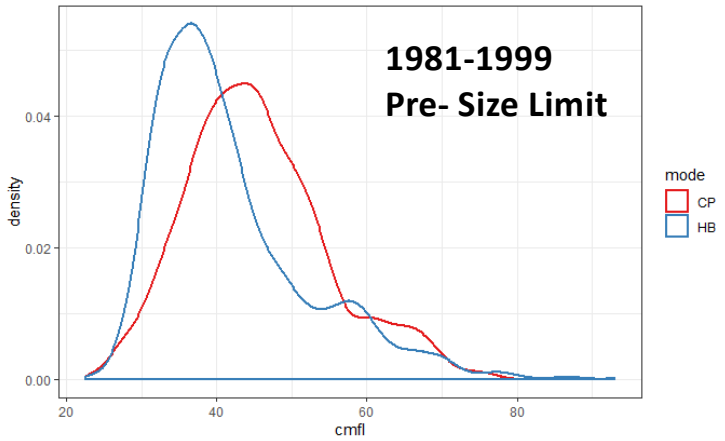
Fishing Mode	Mean	Variance	n
Charter/Private	46.76	76.12	644
Headboat	40.66	72.85	410



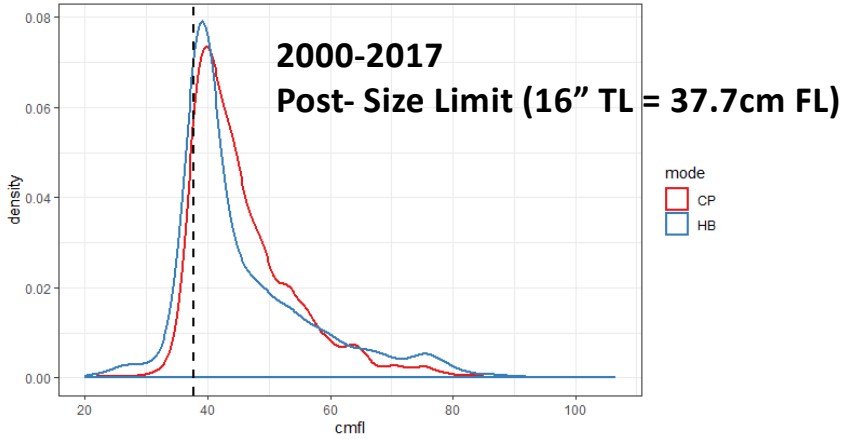
Fishing Mode	Mean	Variance	n
Charter/Private	47.22	78.53	534
Headboat	40.06	62.84	70

1990-1996, most of the samples are from headboat
By 1997, MRIP sampling has increased
Length composition unchanged 1997-1999

Gulf of Mexico Recreational Length Compositions

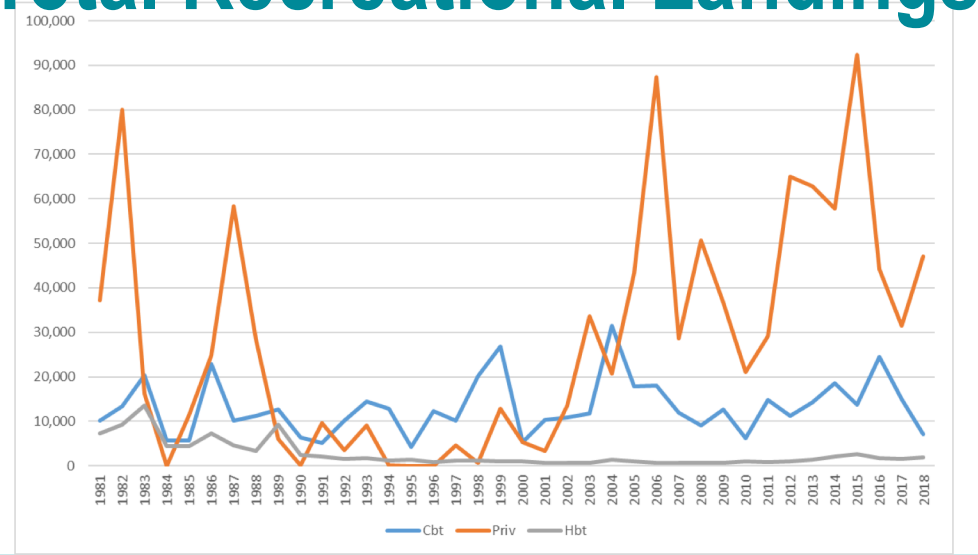


Fishing Mode	Mean	Variance	n
Charter/Private	45.48	91.73	974
Headboat	41.88	108.17	1285



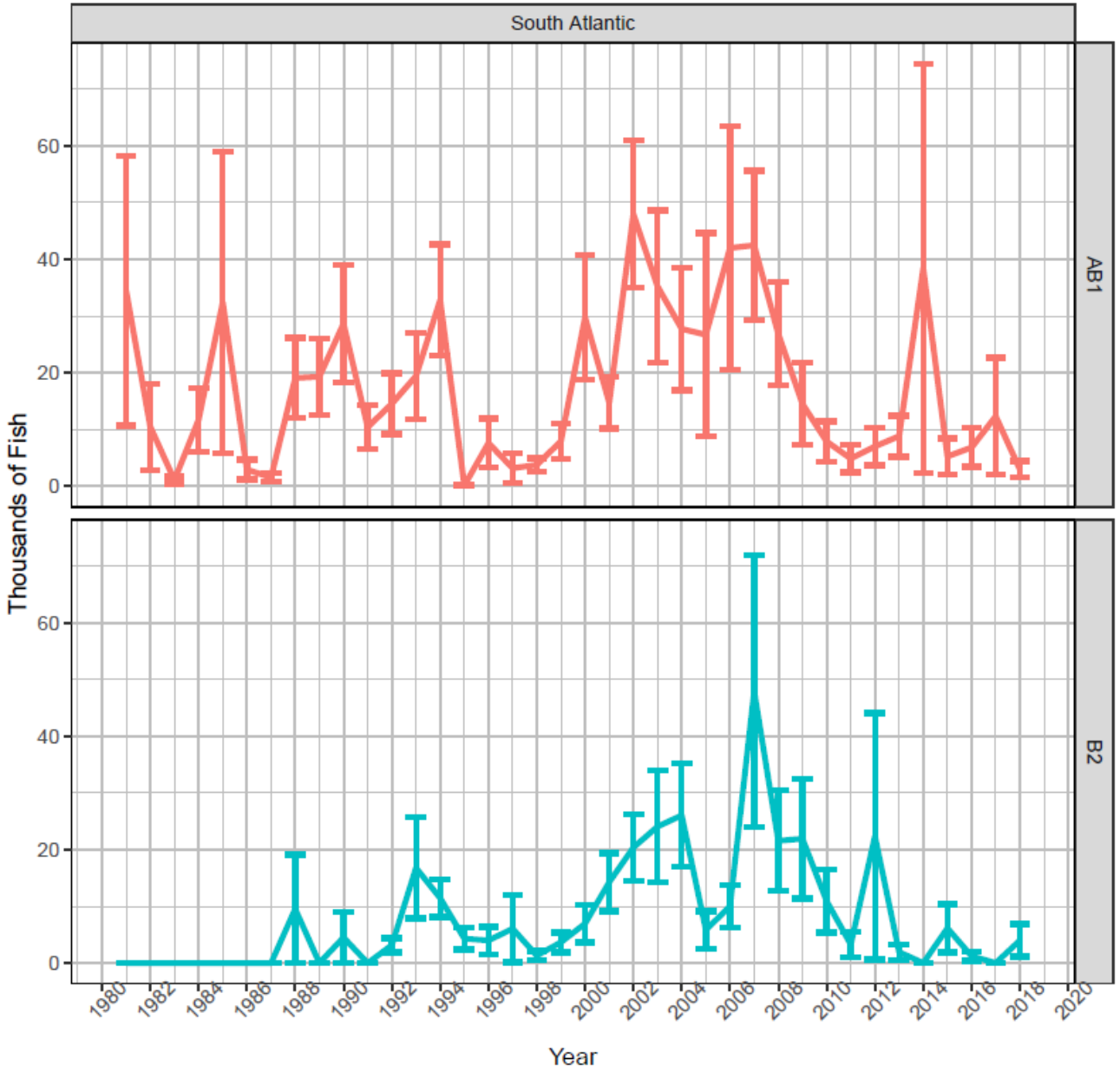
Fishing Mode	Mean	Variance	n
Charter/Private	45.90	79.00	4871
Headboat	45.73	126.36	1164

Total Recreational Landings

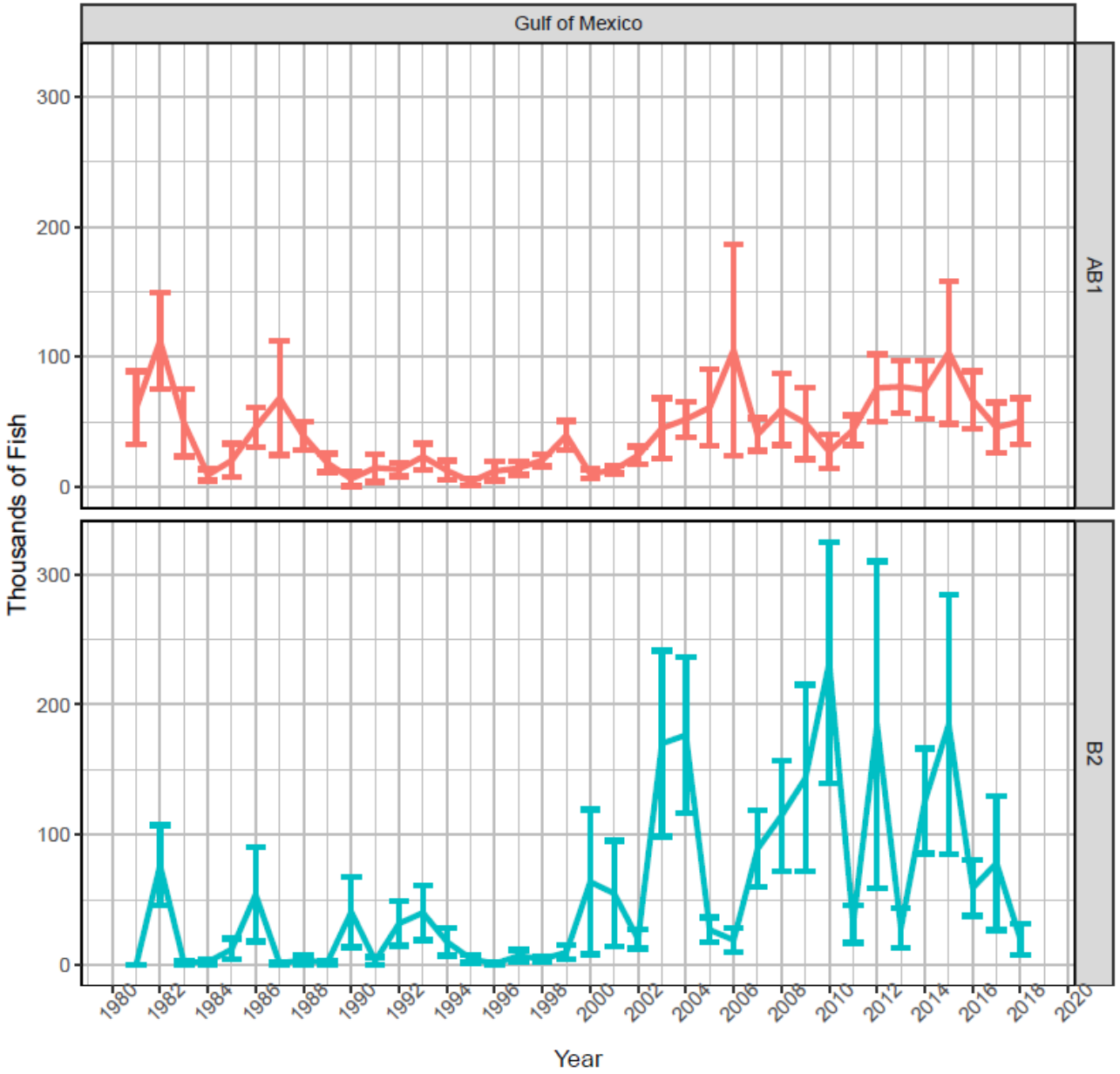


Uncertainty

MRIP SCA/YMG South Atlantic CVs



MRIP SCA/YMG Gulf of Mexico CVs



SRHS SCA/YMG Uncertainty

- Potential sources for estimate of uncertainty in SRHS
  - Form changes over time
  - Trends in compliance over time and area (possibly due to regulations)
  - Correction factors (k-factors): SRHS adjustment for non-reporting based on observed effort vs reported effort
    - Calculated at the vessel level for each month from Headboat Activity Reports (HAR)
    - K-factor * reported landings= total landings for each vessel and month

SRHS SCA/YMG Uncertainty

- First steps toward estimating uncertainty in SRHS estimates:
  - Investigate average K-factors by year and SRHS area
  - Develop a scale using average K-factors to estimate relative uncertainty in the SRHS landings
- In the future, dockside estimation validation survey will provide variances that could be used to inform uncertainty in SRHS landings.

Total recreational SCA/YMG Uncertainty

- Propagation of Uncertainty (Errors)
- Total Landings: $T = X_1 + X_2$
  - X_1 = MRIP landings
  - X_2 = SRHS landings
- Uncertainty:

$$\sigma_T = \sqrt{(\sigma_1)^2 + (\sigma_2)^2 + 2(r_{12}\sigma_1\sigma_2)}$$

- Assumptions:
  - All σ_i uncertainties are random
  - MRIP and SRHS landings are correlated

Remaining Tasks for the RecWG

- Investigate uncertainty of SRHS and total recreational landings
- Maps of total landings, discards, and effort
- Data Workshop Report

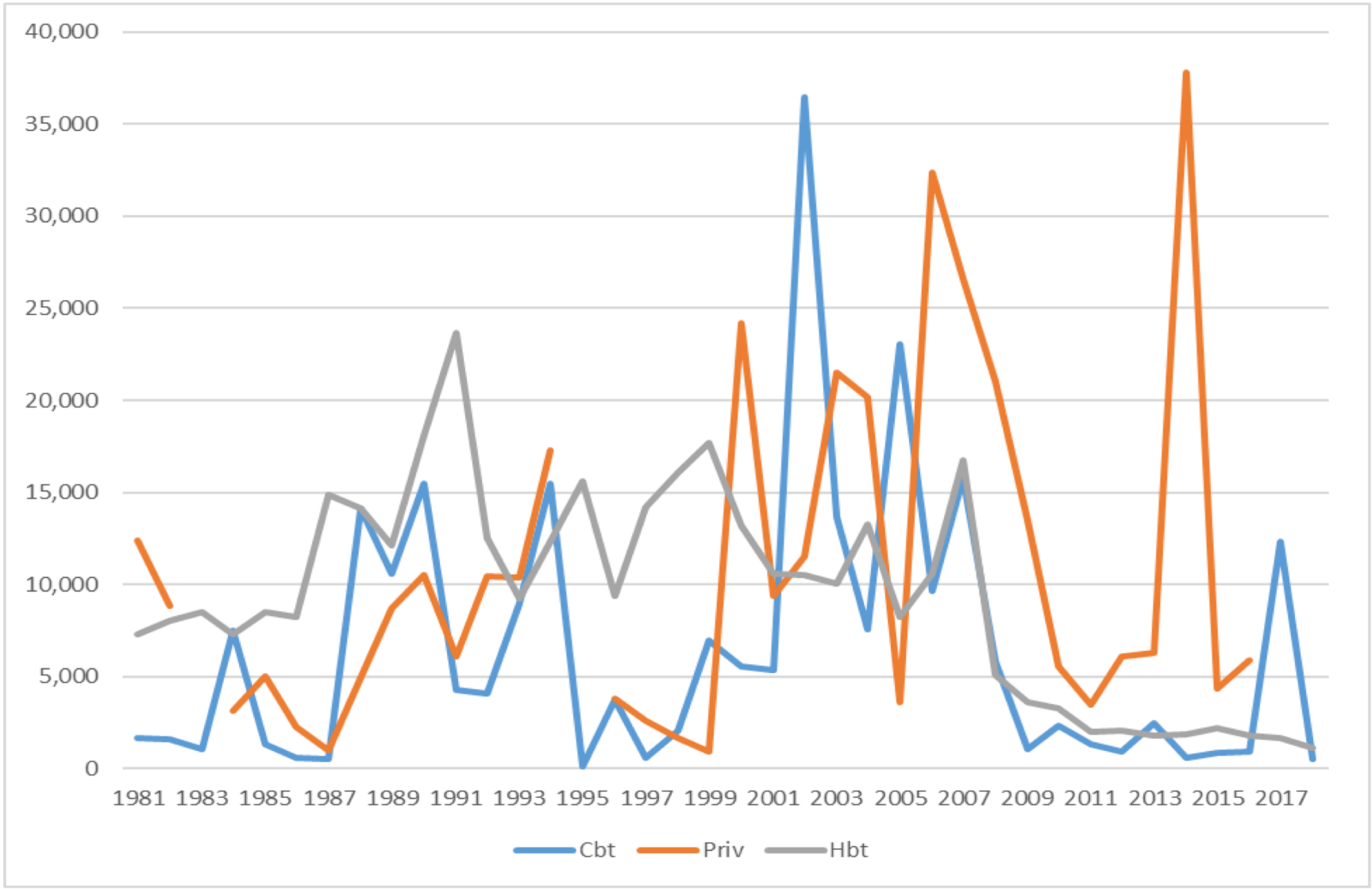
(Gulf of Mexico and South Atlantic fleet structures will be determined at the assessment stage.)

NOAA FISHERIES

Questions?

Total Recreational Landings

Total Recreational Landings- South Atlantic



Total Recreational Landings- Gulf of Mexico