General Recreational Survey Data for Scamp and Yellowmouth Grouper in the Gulf of Mexico

Matthew A. Nuttall

SEDAR68OA-WP-03

24 June 2022

This information is distributed solely for the purpose of pre-dissemination peer review. It does not represent and should not be construed to represent any agency determination or policy.

Please cite this document as:

Nuttall, Matthew A. 2022. General Recreational Survey Data for Scamp and Yellowmouth Grouper in the Gulf of Mexico. SEDAR68OA-WP-03. SEDAR, North Charleston, SC. 44 pp.

SEDAR 68OA-WP-03

General Recreational Survey Data for Scamp and Yellowmouth Grouper in the Gulf of Mexico

NOAA Fisheries
Southeast Fisheries Science Center
Sustainable Fisheries Division
75 Virginia Beach Drive
Miami FL 33149

Matthew A. Nuttall

06-24-2022

General recreational catch estimates for Scamp and Yellowmouth Grouper are compiled from the following separate sampling programs:
1. Marine Recreational Information Program (MRIP) (SEDAR68-DW-13)
2. Texas Parks and Wildlife Department (TPWD) (SEDAR70-WP-03)
3. Louisiana Creel survey program (LA Creel; 2014+)

Parameters for data prepared for SEDAR 68 recreational catch data:

- Species: Scamp and Yellowmouth Grouper
- Year Range: 1981 - 2020
- Geographic Range: Gulf of Mexico states from Texas to western Florida, excluding the Florida Keys.
- Fishing Modes: Charter, Headboat (1981-1985), Private
- MRIP Survey Methodology: Fully calibrated estimates that take into account the change in the Fishing Effort Survey (FES), the redesigned Access Point Angler Intercept Survey (APAIS), and the For Hire Survey (FHS)

- MRIP Data Gaps from COVID: Missing 2020 intercepts were imputed from all APAIS data collected in 2018 and 2019 from the same strata as the 2020 data gap, with original sample weights reduced by a factor of two to account for using two years of data (Cody 2021).
- SEFSC Data QAQC: Size records above an allowable (max size) threshold are excluded from average weight estimation and the summary tables included in this working paper (Tables 8-15). For SEDAR 68 scamp, this includes any weights heavier than 32.802 pounds. All yellowmouth grouper heavier than 23.562 were also excluded.
  - No size data for scamp or yellowmouth grouper have been collected from the Louisiana Biological Sampling Program (LA BIO).

Catch and Sample Size Information for Particular Domains:

Domains were selected based on strata-level catch estimates (year-state-mode-wave-area) that have a disproportionately large contribution to those total (annual) catch estimates that appear relatively large/small, as compared to adjacent years. Selected domains are more likely to be high catch estimates given the inherent zero-boundary constraint in all catch/effort data (>= 0) that complicates identification of low catch estimates.

- 1982 landings and discard estimates: 101,749 and 52,431 fish, respectively
  - Strata: Mississippi, private, wave 6, and inshore
  - Intercept Records: a total of 7 angler trips that resulted in a landings and discard estimate of 32,630 and 47,452 fish, respectively
    - One angler trip that harvested 5 scamp (seen by interviewer) and released 12 live scamp
    - One angler trip that harvested 8 scamp (seen by interviewer) and released 6 live scamp
    - One angler trip that harvested 9 scamp (seen by interviewer)
    - One angler trip that harvested 1 scamp (seen by interviewer)
    - One angler trip that released 4 live scamp
    - Two angler trips that released 3 live scamp

- 2010 landings and discard estimates: 27,407 and 232,070 fish, respectively
  - Strata: Florida (west), private, wave 5, and ocean > 10 miles
  - Intercept Records: a total of 7 angler trips that resulted in a landings and discard estimate of 14,730 and 93,486 fish, respectively

- One angler trip that released 13 live scamp
- One angler trip that harvested 6 scamp (seen by interviewer) and released 12 live scamp
- One angler trip that released 11 live scamp
- One angler trip that harvested 2 scamp (seen by interviewer) and released 5 live scamp
- Two angler trips that released 5 live scamp
- One angler trip that released 1 live scamp

Tables

Table 1. Annual landings (AB1) and discards (B2) of Scamp and Yellowmouth Grouper in numbers of fish by state and year (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys.

Table 2. Annual landings (AB1) and discards (B2) of Scamp and Yellowmouth Grouper in numbers of fish by mode and year (MRIP, LACreel 2014+, TPWD). Note that catch from the combined private-shore fishing mode in the LA Creel survey is added to the private mode.

Table 3. Scamp and Yellowmouth Grouper landings in numbers of fish (AB1) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year (**MRIP only**). **Table does not include any MRIP catch estimates imputed by the SEFSC for 1981 wave1**. Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by MRIP samplers within a specified strata and, in parentheses, the number of PSUs and angler trips that intercepted Scamp and Yellowmouth Grouper.

Table 4. Scamp and Yellowmouth Grouper discards in numbers of fish (B2) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year (**MRIP only**). **Table does not include any MRIP catch estimates imputed by the SEFSC for 1981 wave1**. Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by MRIP samplers within a specified strata and, in parentheses, the number of PSUs and angler trips that intercepted Scamp and Yellowmouth Grouper.

Table 5. Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in numbers of fish, with associated coefficients of variation (CV; Dettloff et al. 2020) by year for all modes combined (**MRIP only**). **Table does not include any MRIP catch estimates imputed by the SEFSC for 1981 wave1**. Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by MRIP samplers within a specified strata and, in parentheses, the number of PSUs and angler trips that intercepted Scamp and Yellowmouth Grouper.

Table 6. Estimated landings of Scamp and Yellowmouth Grouper in pounds whole weight by state and year (MRIP, LACreel 2014+, TPWD). Average weight estimates are calculated

by strata using the following hierarchy: species, region, year, state, mode, wave, and area (Matter and Rios 2013). The minimum number of weights used at each level of substitution is fifteen fish, except for the final species level where the minimum is one fish (Dettloff and Matter 2019b). FLW excludes the Florida Keys.

Table 7. Scamp and Yellowmouth Grouper landings in pounds whole weight (LBS) (MRIP, LACreel 2014+, TPWD) with associated coefficients of variation (CV; Approach 2 described in Nuttall and Dettloff 2022) by mode and year. CV estimates shown are calculated from MRIP data only and do not include uncertainty from imputations for 1981 wave1.

Table 8. Summary of length measurements (millimeters fork length) from MRIP-intercepted Scamp and Yellowmouth Grouper by state and year. Summaries include the number of fish measured by MRIP and, in parentheses, the number of angler trips from which those fish were measured (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish lengths. FLW excludes the Florida Keys. LA lengths are available from MRIP only until 2013.

Table 9. Summary of weight measurements (pounds whole weight) from MRIP-intercepted Scamp and Yellowmouth Grouper by state and year. Summaries include the number of fish weighed by MRIP and, in parentheses, the number of angler trips from which those fish were weighed (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish weights. FLW excludes the Florida Keys. LA weights are available from MRIP only until 2013.

Table 10. Summary of length measurements (millimeters fork length) from MRIP-intercepted Scamp and Yellowmouth Grouper by mode and year. Summaries include the number of fish measured by MRIP and, in parentheses, the number of angler trips from which those fish were measured (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish lengths.

Table 11. Summary of weight measurements (pounds whole weight) from MRIP-intercepted Scamp and Yellowmouth Grouper by mode and year. Summaries include the number of fish weighed by MRIP and, in parentheses, the number of angler trips from which those fish were weighed (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish weights.

Table 12. Summary of length (millimeters fork length) and weight measurements (pounds whole weight) from MRIP-intercepted Scamp and Yellowmouth Grouper by year. Summaries include the number of fish for which size information was collected by MRIP and, in parentheses, the number of angler trips from which those fish were sampled (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish lengths and weights.

Table 13. Summary of length measurements (millimeters total length) from TPWD-intercepted Scamp and Yellowmouth Grouper by mode and year. Summaries include the number of fish measured by TPWD and, in parentheses, the number of angler trips from which those fish were measured (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish lengths.

Table 14. Estimated average weights of landed Scamp and Yellowmouth Grouper in pounds whole weight (WGT) with associated coefficients of variation (CV; Approach 2 described in Nuttall and Dettloff 2022) by mode and year (MRIP, LACreel 2014+, TPWD). Average weights are calculated from annual estimates (by-mode) of landings-in-weight (Table 7) divided by estimates of landings-in-number (Table 2). Sample size (N) is provided as the total number of angler trips and, in parentheses, number of fish from which weight information was collected (MRIP, LABIO 2014+, TPWD).

Table 15. Resolution of landings-in-weight estimates (pounds whole weight) for Gulf of Mexico Scamp and Yellowmouth Grouper by year and hierarchy level (MRIP, LACreel 2014+, TPWD), defined by **s**pecies, **r**egion, **y**ear, **s**tate, **m**ode, **w**ave, and **a**rea. Average weight estimates are calculated at the finest strata meeting a minimum sample size threshold (Dettloff and Matter 2019b). Larger sample sizes therefore allow average weights to be calculated at finer stratifications, the finest being at the srysmwa level (Matter and Rios 2013). Annual summaries include the number of fish and angler trips from which weight information was collected (N) and the landings-in-weight estimates (AB1.lbs) by hierarchy level. As an example, (srysmw) summarizes those landings-in-weight estimates originating from cells where average weights are specific to a particular **s**pecies, **r**egion, **y**ear, **s**tate, **m**ode, and **w**ave (i.e., weight observations collapsed across areas).

Table 16. Recreational Fishing Effort (in angler trips) for Gulf of Mexico anglers by state and year (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys.

Table 17. Recreational Fishing Effort (in angler trips) for Gulf of Mexico anglers by mode and year (MRIP, LACreel 2014+, TPWD). Note that effort from the combined private-shore fishing mode in the LA Creel survey has been added to the private mode.

Figures

Figure 1. Comparison of charterboat landings (AB1) and discard (B2) estimates (with standard error intervals shown) for Scamp and Yellowmouth Grouper from the Coastal Household Telephone Survey (CHTS) and For-Hire Survey (FHS) from the Gulf of Mexico between 1981 and 1999 (MRIP). The charterboat calibration approach is discussed in Dettloff and Matter (2019a).

Figure 2. MRIP Base (BASE), APAIS Calibrated (ACAL), and Fully Calibrated APAIS and FES (FCAL) catch estimates for Scamp in the Gulf of Mexico between 1981 and 2017. Landings (AB1) and discard (B2) estimates are in thousands of fish. Estimates in this figure include the Florida Keys as that domain is not separable from those used by the MRIP online comparison tool for the Gulf of Mexico (NMFS). The Shore mode is also included as uncertainty estimates for catch across multiple modes are only available when all modes are selected.

Figure 3. Comparison of total general recreational landings (AB1) and discard estimates (B2) for Gulf of Mexico scamp between SEDAR 68 - OA and SEDAR 68 - RT, the terminal years of which are 2020 and 2018 respectively. Catch estimates are in thousands of fish.

Figure 4. Annual Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in thousands of fish, by state from 1981 to 2020 (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys.

Figure 4a. Percent of Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in numbers of fish, from each state by year (bar graph) and overall (pie chart) between 1981 and 2020 (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys.

Figure 5. Annual Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in thousands of fish, by mode from 1981 to 2020 (MRIP, LACreel 2014+, TPWD). Note that catch from the combined private-shore fishing mode in the LA Creel survey has been added to the private mode.

Figure 5a. Percent of Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in numbers of fish, from each mode by year (bar graph) and overall (pie chart) between 1981 and 2020 (MRIP, LACreel 2014+, TPWD). Note that catch from the combined private-shore fishing mode in the LA Creel survey has been added to the private mode.

Figure 6. Estimates of annual landings for Scamp and Yellowmouth Grouper in the Gulf of Mexico (MRIP, LACreel 2014+, TPWD): estimated landings in thousands of fish (top), estimated landings in thousands of pounds whole weight (middle), and average weight of landed fish (estimated lbs/estimated fish) (bottom). Average weight estimates are calculated by strata using the following hierarchy: species, region, year, state, mode, wave, and area (Matter and Rios 2013). The minimum number of weights used at each level of substitution is fifteen fish, except for the final species level where the minimum is one fish (Dettloff and Matter 2019b).

Figure 7. Annual landings estimates of Gulf of Mexico Scamp and Yellowmouth Grouper in thousands of pounds whole weight by hierarchy level (MRIP, LACreel 2014+, TPWD), defined by **s**pecies, **r**egion, **y**ear, **s**tate, **m**ode, **w**ave, and **a**rea. Landings are grouped by the strata at which average weights were estimated, the finest stratification being at the srysmwa level (Matter and Rios 2013). As an example, (srysmw) summarizes those landings-in-weight estimates originating from cells where average weights are specific to a particular **s**pecies, **r**egion, **y**ear, **s**tate, **m**ode, and **w**ave (i.e., weight observations collapsed across areas). Landings are provided (A) in absolute pounds and (B) as a percentage of total landings-in-weight, which is summarized by year (stacked bar plot) and across all years (pie chart).

Figure 8. COVID data gaps in the MRIP APAIS and associated imputations for (positive) fishing trips that intercepted Gulf of Mexico scamp and yellowmouth grouper. No 2020 data were imputed for the FES or FHS. (A) Number of positive intercepts in 2020 from the 2020 APAIS (RAW) vs. those imputed from 2018 and 2019 intercepts (IMP). (B) Distribution of (log-transformed) APAIS catch observations between 2015-2019, in raw 2020 APAIS data, and in 2020 imputations. Refer to Cody (2021) for more information on COVID data gaps in MRIP.

Appendices

Appendix A. Additional Details of Survey Data and SEFSC Estimation

References

Cody, R. 2021. MRIP 2020 Estimates: Overview of Methodology and Select Catch and Effort Estimates. Office of Science and Technology (OST) Marine Recreational Information Program (MRIP) Fisheries Statistics Division. Silver Spring, MD. Presentation given to the Mid-Atlantic Fishery Management Council at the June 8 2021 council meeting. Retrieved from: https://www.mafmc.org/briefing/june-2021

Dettloff, K and VM Matter. 2019a. SEDAR 64-RD-12. Model-estimated conversion factors for calibrating Coastal Household Telephone Survey (CHTS) charterboat catch and effort estimates with For Hire Survey (FHS) estimates in the Atlantic and Gulf of Mexico with application to red grouper and greater amberjack. National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) Fisheries Statistics Division. Miami, FL.

Dettloff, K and VM Matter. 2019b. SEDAR 67-WP-06. Sample Size Sensitivity Analysis for calculating MRIP Weight Estimates. National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) Fisheries Statistics Division. Miami, FL.

Dettloff, K, VM Matter, and MA Nuttall. 2020. SEDAR 68-DW-10. SEFSC Computation of Variance Estimates for Custom Data Aggregations from the Marine Recreational Information Program. National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) Fisheries Statistics Division. Miami, FL.

Matter, VM and A Rios. 2013. SEDAR 32-DW-02. MRFSS to MRIP Adjustment Ratios and Weight Estimation Procedures for South Atlantic and Gulf of Mexico Managed Species. National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) Fisheries Statistics Division. Miami, FL.

Matter, VM and MA Nuttall. 2020. SEDAR 68-DW-13. Marine Recreational Information Program: Metadata for the Atlantic, Gulf of Mexico, and Caribbean Regions. National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) Fisheries Statistics Division. Miami, FL.

Nuttall, MA and K Dettloff. 2022. SEDAR 74-DW-12. SEFSC Computation of Uncertainty for General Recreational Landings in Weight Estimates, with Application to SEDAR 74 Gulf of Mexico Red Snapper. National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) Sustainable Fisheries Division. Miami, FL.

Nuttall, MA and VM Matter. 2020. SEDAR 70-WP-03. Texas Parks and Wildlife Department's Marine Sport-Harvest Monitoring Program Metadata. National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) Fisheries Statistics Division. Miami, FL.

Papacostas, KJ and J Foster. 2021. The Marine Recreational Information Program: Survey Design and Statistical Methods for Estimation of Recreational Fisheries Catch and Effort. Available at: https://www.fisheries.noaa.gov/resource/document/survey-design-and-statistical-methods-estimation-recreational-fisheries-catch-and

Personal Communication from the National Marine Fisheries Service, Office of Science and Technology, Fisheries Statistics Division. March 15, 2022.

SEDAR. 2015. SEDAR-PW-07. SEDAR Procedural Workshop 7: Data Best Practices. SEDAR, North Charleston, SC. 151 pp. Available online at: http://sedarweb.org/pw-07

Table 1. *Annual landings (AB1) and discards (B2) of Scamp and Yellowmouth Grouper in numbers of fish by state and year (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys.*

	TX		LA		MS		AL		FLW		Total	
Year	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2
1981			0	0	0	0	4,006	0	49,666	0	53,672	0
1982			0	0	32,630	49,320	22,981	0	46,138	3,110	101,749	52,431
1983	68	0	0	0	0	0	352	0	49,096	1,771	49,516	1,771
1984	0	0	0	0	0	0	0	0	9,376	2,257	9,376	2,257
1985	293	0	0	0	0	0	0	0	20,485	12,115	20,778	12,115
1986	1,606	0	0	0	0	0	0	0	45,842	54,118	47,448	54,118
1987	83	0	6,412	0	0	0	0	0	62,021	1,428	68,516	1,428
1988	114	0	0	0	0	0	3,703	0	35,703	3,701	39,520	3,701
1989	0	0	0	0	0	0	16	0	18,594	1,858	18,611	1,858
1990	69	0	0	0	0	0	0	0	6,450	40,696	6,519	40,696
1991	0	0	471	0	0	0	22	0	14,379	3,128	14,873	3,128
1992	69	0	770	0	0	0	308	0	12,502	31,849	13,649	31,849
1993	0	0	96	0	0	0	1,289	0	22,048	40,068	23,434	40,068
1994	98	0	0	0	0	0	83	0	12,686	12,792	12,867	12,792
1995	32	0	440	0	0	0	14	0	3,842	4,780	4,328	4,780
1996	34	0	0	0	0	14	37	100	12,244	816	12,315	930
1997	49	0	1,678	0	0	0	45	0	12,947	7,025	14,719	7,025
1998	23	0	0	0	0	0	1,247	1,295	19,463	3,249	20,733	4,545
1999	0	0	2,053	0	0	0	285	0	37,391	9,645	39,730	9,645
2000	356	0	1,140	0	0	0	781	0	8,287	63,768	10,565	63,768
2001	425	0	3,036	0	0	0	369	0	9,929	54,874	13,759	54,874
2002	78	0	246	0	0	0	4,374	221	19,767	19,684	24,465	19,904
2003	118	0	0	0	0	0	2,319	2,585	42,957	167,434	45,394	170,019
2004	64	0	634	0	0	0	11,945	741	39,467	175,743	52,110	176,484
2005	108	0	2,094	428	0	0	33,531	13,258	25,550	13,247	61,283	26,932
2006	29	0	2,626	2,731	0	0	3,133	0	99,603	16,396	105,390	19,127
2007	73	0	519	702	0	0	2,485	132	37,383	88,262	40,460	89,096
2008	206	0	1,716	0	0	0	752	258	57,172	114,421	59,846	114,679
2009	90	0	187	5,842	0	0	197	2	48,771	137,499	49,246	143,342
2010	0	0	939	305	0	0	1,601	2,411	24,867	229,353	27,407	232,070

	TX		LA		MS		AL		FLW		Total	
Year	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2
2011	0	0	1,339	0	0	0	6,072	1,975	36,538	29,468	43,949	31,442
2012	0	0	4,154	394	0	0	6,900	37	65,137	183,952	76,192	184,383
2013	0	0	3,148	0	9,260	0	10,775	25	53,968	28,340	77,150	28,365
2014	0	0	1,677	0	0	0	19,997	2,073	54,662	123,821	76,336	125,895
2015	42	0	2,492	0	0	0	17,150	289	86,311	184,373	105,995	184,662
2016	62	0	1,601	0	0	0	5,822	9,438	61,066	49,649	68,552	59,087
2017	103	0	555	0	0	0	12,177	676	33,677	76,417	46,512	77,094
2018	285	0	3,401	0	1,111	0	18,088	35	31,364	10,815	54,248	10,850
2019	14	0	3,121	0	168	358	5,054	1,179	56,410	32,062	64,767	33,599
2020	39	0	1,466	0	0	0	2,612	0	60,772	30,132	64,889	30,132

Table 2. *Annual landings (AB1) and discards (B2) of Scamp and Yellowmouth Grouper in numbers of fish by mode and year (MRIP, LACreel 2014+, TPWD). Note that catch from the combined private-shore fishing mode in the LA Creel survey is added to the private mode.*

	Cbt		Hbt		Priv		Total	
Year	AB1	B2	AB1	B2	AB1	B2	AB1	B2
1981	10,137	0	6,340	0	37,194	0	53,672	0
1982	13,353	1,411	8,351	883	80,044	50,137	101,749	52,431
1983	20,432	1,089	12,779	681	16,305	0	49,516	1,771
1984	5,768	1,389	3,608	869	0	0	9,376	2,257
1985	5,714	7,453	3,563	4,662	11,501	0	20,778	12,115
1986	22,873	30,041			24,575	24,077	47,448	54,118
1987	10,150	605			58,366	823	68,516	1,428
1988	11,175	323			28,345	3,378	39,520	3,701
1989	12,590	1,858			6,021	0	18,611	1,858
1990	6,450	4,395			69	36,301	6,519	40,696
1991	5,170	0			9,703	3,128	14,873	3,128
1992	10,118	4,443			3,532	27,406	13,649	31,849
1993	14,397	2,723			9,036	37,345	23,434	40,068
1994	12,769	2,007			98	10,786	12,867	12,792
1995	4,296	1,922			32	2,859	4,328	4,780
1996	12,281	114			34	816	12,315	930
1997	10,200	3,554			4,518	3,471	14,719	7,025
1998	20,104	1,661			629	2,884	20,733	4,545
1999	26,794	661			12,935	8,983	39,730	9,645
2000	5,298	2,153			5,266	61,616	10,565	63,768
2001	10,311	3,792			3,448	51,082	13,759	54,874
2002	10,835	8,637			13,630	11,268	24,465	19,904
2003	11,725	5,886			33,669	164,133	45,394	170,019
2004	31,445	20,433			20,665	156,051	52,110	176,484
2005	17,903	6,051			43,380	20,881	61,283	26,932
2006	17,974	1,650			87,416	17,476	105,390	19,127
2007	11,912	6,408			28,548	82,688	40,460	89,096
2008	9,168	9,896			50,678	104,783	59,846	114,679
2009	12,582	5,081			36,664	138,261	49,246	143,342
2010	6,260	7,153			21,147	224,917	27,407	232,070
2011	14,872	1,698			29,077	29,744	43,949	31,442
2012	11,210	1,370			64,982	183,013	76,192	184,383
2013	14,262	3,009			62,888	25,356	77,150	28,365
2014	18,497	5,941			57,838	119,954	76,336	125,895
2015	13,668	5,988			92,327	178,674	105,995	184,662
2016	24,430	17,399			44,122	41,688	68,552	59,087
2017	14,922	5,222			31,590	71,872	46,512	77,094
2018	7,131	2,181			47,117	8,669	54,248	10,850
2019	15,013	7,097			49,754	26,502	64,767	33,599
2020	7,062	6,539			57,827	23,593	64,889	30,132

Table 3. *Scamp and Yellowmouth Grouper landings in numbers of fish (AB1) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year (**MRIP only**).* ***Table does not include any MRIP catch estimates imputed by the SEFSC for 1981 wave1****. Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by MRIP samplers within a specified strata and, in parentheses, the number of PSUs and angler trips that intercepted Scamp and Yellowmouth Grouper.*

	Cbt				Hbt				Priv			
Year	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp
1981	10,137	0.40	76 (9)	610 (18)	6,340	0.40	76 (9)	610 (18)	37,194	0.71	221 (3)	1,780 (3)
1982	13,353	0.55	76 (6)	597 (10)	8,351	0.55	76 (6)	597 (10)	80,044	0.42	467 (10)	3,773 (12)
1983	20,432	0.61	123 (12)	1,357 (21)	12,779	0.61	123 (12)	1,357 (21)	16,237	1.00	203 (1)	1,671 (1)
1984	5,768	0.46	116 (6)	1,518 (8)	3,608	0.46	116 (6)	1,518 (8)	0	0.00	209 (0)	2,178 (0)
1985	5,696	0.68	89 (7)	1,260 (9)	3,563	0.68	89 (7)	1,260 (9)	11,226	1.00	294 (1)	2,696 (2)
1986	22,873	0.36	306 (16)	2,446 (41)					22,969	0.55	1,125 (4)	9,392 (4)
1987	10,067	0.42	262 (15)	2,245 (18)					58,366	0.75	1,060 (6)	8,344 (6)
1988	11,175	0.43	258 (13)	1,727 (13)					28,231	0.35	1,155 (9)	9,084 (10)
1989	12,590	0.44	201 (10)	1,324 (11)					6,021	0.73	732 (2)	6,017 (2)
1990	6,450	0.89	135 (3)	994 (3)					0	0.00	584 (0)	5,139 (0)
1991	5,170	0.84	185 (6)	1,463 (8)					9,703	1.00	630 (1)	5,713 (1)
1992	10,118	0.46	356 (16)	2,787 (17)					3,463	0.63	1,199 (3)	13,540 (3)
1993	14,397	0.55	180 (8)	1,362 (11)					9,036	0.68	843 (3)	9,610 (3)
1994	12,769	0.58	188 (5)	1,468 (10)					0	0.00	841 (0)	11,591 (0)
1995	4,296	0.64	178 (4)	1,265 (4)					0	0.00	731 (0)	10,149 (0)
1996	12,281	0.59	213 (4)	1,390 (4)					0	0.00	1,041 (0)	12,895 (0)
1997	10,200	0.39	368 (23)	2,155 (28)					4,469	0.78	990 (2)	12,918 (2)
1998	20,104	0.22	625 (52)	4,289 (69)					606	1.00	1,159 (1)	15,387 (1)
1999	26,794	0.21	855 (73)	7,104 (89)					12,935	0.74	1,642 (5)	19,713 (5)
2000	5,197	0.25	873 (61)	8,835 (72)					5,011	0.71	1,456 (3)	16,395 (3)
2001	10,311	0.20	727 (66)	7,307 (84)					3,023	0.71	1,346 (2)	17,978 (2)
2002	10,800	0.16	741 (93)	7,838 (124)					13,587	0.49	1,464 (6)	19,604 (6)
2003	11,725	0.15	852 (102)	8,608 (130)					33,551	0.69	1,575 (7)	18,487 (7)
2004	31,434	0.32	837 (185)	9,536 (273)					20,612	0.44	1,356 (7)	17,494 (7)
2005	17,860	0.13	647 (142)	7,510 (206)					43,315	0.67	1,216 (8)	15,901 (8)
2006	17,945	0.18	550 (107)	6,158 (141)					87,416	0.93	1,503 (5)	17,788 (5)
2007	11,912	0.18	591 (89)	6,243 (119)					28,475	0.43	1,460 (10)	17,990 (11)
2008	9,157	0.23	521 (54)	4,873 (67)					50,483	0.54	1,619 (10)	18,801 (13)
2009	12,555	0.35	508 (35)	4,665 (47)					36,601	0.74	1,632 (5)	19,479 (5)
2010	6,260	0.30	479 (52)	4,325 (60)					21,147	0.60	1,616 (5)	17,904 (5)

	Cbt				Hbt				Priv			
Year	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp
2011	14,872	0.16	610 (93)	6,068 (135)					29,077	0.38	1,729 (10)	18,468 (11)
2012	11,210	0.39	686 (63)	7,193 (89)					64,982	0.39	1,859 (13)	19,601 (14)
2013	14,262	0.38	355 (22)	2,751 (28)					62,888	0.31	1,569 (21)	16,259 (22)
2014	18,142	0.45	490 (37)	4,661 (47)					56,516	0.37	1,318 (17)	14,753 (20)
2015	13,355	0.29	533 (41)	4,650 (56)					90,106	0.61	1,409 (19)	14,729 (20)
2016	23,954	0.39	583 (27)	4,531 (46)					42,935	0.47	1,472 (12)	15,141 (13)
2017	14,624	0.58	500 (16)	4,295 (23)					31,230	0.55	1,178 (10)	12,857 (10)
2018	6,375	0.50	491 (10)	4,223 (12)					44,187	0.39	1,091 (12)	10,561 (13)
2019	13,301	0.36	485 (21)	3,954 (29)					48,331	0.87	1,099 (8)	10,717 (10)
2020	6,730	0.41	531 (15)	4,154 (21)					56,654	0.58	1,235 (10)	12,151 (12)

Table 4. *Scamp and Yellowmouth Grouper discards in numbers of fish (B2) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year (**MRIP only**).* ***Table does not include any MRIP catch estimates imputed by the SEFSC for 1981 wave1****. Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by MRIP samplers within a specified strata and, in parentheses, the number of PSUs and angler trips that intercepted Scamp and Yellowmouth Grouper.*

	Cbt				Hbt				Priv			
Year	B2	CV	PSU	Trp	B2	CV	PSU	Trp	B2	CV	PSU	Trp
1981	0	0.00	76 (0)	610 (0)	0	0.00	76 (0)	610 (0)	0	0.00	221 (0)	1,780 (0)
1982	1,411	1.00	76 (1)	597 (1)	883	1.00	76 (1)	597 (1)	50,137	0.50	467 (7)	3,773 (7)
1983	1,089	0.62	123 (3)	1,357 (3)	681	0.62	123 (3)	1,357 (3)	0	0.00	203 (0)	1,671 (0)
1984	1,389	0.64	116 (5)	1,518 (5)	869	0.64	116 (5)	1,518 (5)	0	0.00	209 (0)	2,178 (0)
1985	7,453	0.66	89 (4)	1,260 (14)	4,662	0.66	89 (4)	1,260 (14)	0	0.00	294 (0)	2,696 (0)
1986	30,041	0.91	306 (5)	2,446 (9)					24,077	1.00	1,125 (1)	9,392 (2)
1987	605	1.00	262 (1)	2,245 (3)					823	1.00	1,060 (1)	8,344 (1)
1988	323	1.00	258 (1)	1,727 (1)					3,378	1.00	1,155 (1)	9,084 (1)
1989	1,858	0.68	201 (3)	1,324 (3)					0	0.00	732 (0)	6,017 (0)

	Cbt				Hbt				Priv			
Year	B2	CV	PSU	Trp	B2	CV	PSU	Trp	B2	CV	PSU	Trp
1990	4,395	0.52	135 (5)	994 (9)					36,301	0.74	584 (3)	5,139 (3)
1991	0	0.00	185 (0)	1,463 (0)					3,128	1.00	630 (1)	5,713 (1)
1992	4,443	0.55	356 (4)	2,787 (4)					27,406	0.62	1,199 (4)	13,540 (6)
1993	2,723	0.71	180 (2)	1,362 (3)					37,345	0.55	843 (4)	9,610 (10)
1994	2,007	0.74	188 (2)	1,468 (2)					10,786	0.84	841 (3)	11,591 (4)
1995	1,922	0.79	178 (2)	1,265 (4)					2,859	1.00	731 (1)	10,149 (1)
1996	114	0.89	213 (2)	1,390 (2)					816	1.00	1,041 (1)	12,895 (1)
1997	3,554	0.95	368 (3)	2,155 (5)					3,471	0.81	990 (2)	12,918 (2)
1998	1,661	0.68	625 (4)	4,289 (7)					2,884	0.71	1,159 (2)	15,387 (2)
1999	661	0.76	855 (6)	7,104 (8)					8,983	0.61	1,642 (4)	19,713 (6)
2000	2,153	0.47	873 (12)	8,835 (14)					61,616	0.90	1,456 (4)	16,395 (5)
2001	3,792	0.29	727 (23)	7,307 (48)					51,082	0.79	1,346 (2)	17,978 (7)
2002	8,637	0.44	741 (41)	7,838 (77)					11,268	0.54	1,464 (4)	19,604 (7)
2003	5,886	0.29	852 (44)	8,608 (72)					164,133	0.43	1,575 (12)	18,487 (20)
2004	20,433	0.33	837 (73)	9,536 (116)					156,051	0.38	1,356 (21)	17,494 (38)
2005	6,051	0.25	647 (45)	7,510 (88)					20,881	0.44	1,216 (8)	15,901 (11)
2006	1,650	0.28	550 (26)	6,158 (45)					17,476	0.52	1,503 (6)	17,788 (9)
2007	6,408	0.38	591 (37)	6,243 (64)					82,688	0.36	1,460 (14)	17,990 (26)
2008	9,896	0.29	521 (41)	4,873 (83)					104,783	0.41	1,619 (15)	18,801 (26)
2009	5,081	0.34	508 (27)	4,665 (43)					138,261	0.52	1,632 (12)	19,479 (21)
2010	7,153	0.25	479 (48)	4,325 (88)					224,917	0.41	1,616 (18)	17,904 (29)
2011	1,698	0.29	610 (18)	6,068 (25)					29,744	0.49	1,729 (6)	18,468 (9)
2012	1,370	0.43	686 (14)	7,193 (18)					183,013	0.69	1,859 (8)	19,601 (20)
2013	3,009	0.61	355 (7)	2,751 (9)					25,356	0.59	1,569 (7)	16,259 (9)
2014	5,941	0.39	490 (22)	4,661 (33)					119,954	0.34	1,318 (22)	14,753 (45)
2015	5,988	0.35	533 (21)	4,650 (31)					178,674	0.55	1,409 (20)	14,729 (41)
2016	17,399	0.81	583 (11)	4,531 (24)					41,688	0.38	1,472 (12)	15,141 (13)
2017	5,222	0.67	500 (7)	4,295 (12)					71,872	0.72	1,178 (11)	12,857 (13)
2018	2,181	0.54	491 (7)	4,223 (11)					8,669	0.94	1,091 (2)	10,561 (3)
2019	7,097	0.73	485 (5)	3,954 (9)					26,502	0.47	1,099 (9)	10,717 (11)
2020	6,539	0.45	531 (13)	4,154 (21)					23,593	0.45	1,235 (8)	12,151 (12)

Table 5. *Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in numbers of fish, with associated coefficients of variation (CV; Dettloff et al. 2020) by year for all modes combined (**MRIP only**).* ***Table does not include any MRIP catch estimates imputed by the SEFSC for 1981 wave1****. Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by MRIP samplers within a specified strata and, in parentheses, the number of PSUs and angler trips that intercepted Scamp and Yellowmouth Grouper.*

	AB1				B2			
Year	Total	CV	PSU	Trp	Total	CV	PSU	Trp
1981	53,672	0.50	297 (12)	2,390 (21)	0	0.00	297 (0)	2,390 (0)
1982	101,749	0.34	543 (16)	4,370 (22)	52,431	0.43	543 (8)	4,370 (8)
1983	49,448	0.52	326 (13)	3,028 (22)	1,771	0.62	326 (3)	3,028 (3)
1984	9,376	0.46	325 (6)	3,696 (8)	2,257	0.63	325 (5)	3,696 (5)
1985	20,485	0.63	383 (8)	3,956 (11)	12,115	0.66	383 (4)	3,956 (14)
1986	45,842	0.32	1,431 (20)	11,838 (45)	54,118	0.67	1,431 (6)	11,838 (11)
1987	68,433	0.64	1,322 (21)	10,589 (24)	1,428	0.72	1,322 (2)	10,589 (4)
1988	39,406	0.28	1,413 (22)	10,811 (23)	3,701	0.92	1,413 (2)	10,811 (2)
1989	18,611	0.37	933 (12)	7,341 (13)	1,858	0.68	933 (3)	7,341 (3)
1990	6,450	0.89	719 (3)	6,133 (3)	40,696	0.66	719 (8)	6,133 (12)
1991	14,873	0.72	815 (7)	7,176 (9)	3,128	1.00	815 (1)	7,176 (1)
1992	13,580	0.37	1,555 (19)	16,327 (20)	31,849	0.54	1,555 (8)	16,327 (10)
1993	23,434	0.43	1,023 (11)	10,972 (14)	40,068	0.52	1,023 (6)	10,972 (13)
1994	12,769	0.58	1,029 (5)	13,059 (10)	12,792	0.71	1,029 (5)	13,059 (6)
1995	4,296	0.64	909 (4)	11,414 (4)	4,780	0.63	909 (3)	11,414 (5)
1996	12,281	0.59	1,254 (4)	14,285 (4)	930	0.88	1,254 (3)	14,285 (3)
1997	14,670	0.36	1,358 (25)	15,073 (30)	7,025	0.63	1,358 (5)	15,073 (7)
1998	20,710	0.21	1,784 (53)	19,676 (70)	4,545	0.51	1,784 (6)	19,676 (9)
1999	39,730	0.28	2,497 (78)	26,817 (94)	9,645	0.57	2,497 (10)	26,817 (14)
2000	10,209	0.37	2,329 (64)	25,223 (75)	63,768	0.87	2,329 (16)	25,223 (19)
2001	13,334	0.21	2,073 (68)	25,285 (86)	54,874	0.74	2,073 (25)	25,285 (55)
2002	24,387	0.28	2,205 (99)	27,442 (130)	19,904	0.36	2,205 (45)	27,442 (84)
2003	45,276	0.51	2,427 (109)	27,095 (137)	170,019	0.42	2,427 (56)	27,095 (92)
2004	52,046	0.26	2,193 (192)	27,030 (280)	176,484	0.33	2,193 (94)	27,030 (154)
2005	61,175	0.48	1,863 (150)	23,411 (214)	26,932	0.33	1,863 (53)	23,411 (99)
2006	105,361	0.77	2,053 (112)	23,946 (146)	19,127	0.48	2,053 (32)	23,946 (54)
2007	40,387	0.31	2,051 (99)	24,233 (130)	89,096	0.33	2,051 (51)	24,233 (90)
2008	59,640	0.46	2,140 (64)	23,674 (80)	114,679	0.37	2,140 (56)	23,674 (109)
2009	49,156	0.56	2,140 (40)	24,144 (52)	143,342	0.50	2,140 (39)	24,144 (64)
2010	27,407	0.47	2,095 (57)	22,229 (65)	232,070	0.40	2,095 (66)	22,229 (117)
2011	43,949	0.26	2,339 (103)	24,536 (146)	31,442	0.46	2,339 (24)	24,536 (34)
2012	76,192	0.34	2,545 (76)	26,794 (103)	184,383	0.68	2,545 (22)	26,794 (38)
2013	77,150	0.25	1,924 (43)	19,010 (50)	28,365	0.53	1,924 (14)	19,010 (18)
2014	74,659	0.29	1,808 (54)	19,414 (67)	125,895	0.32	1,808 (44)	19,414 (78)
2015	103,461	0.53	1,942 (60)	19,379 (76)	184,662	0.53	1,942 (41)	19,379 (72)
2016	66,889	0.33	2,055 (39)	19,672 (59)	59,087	0.36	2,055 (23)	19,672 (37)
2017	45,854	0.42	1,678 (26)	17,152 (33)	77,094	0.67	1,678 (18)	17,152 (25)
2018	50,562	0.34	1,582 (22)	14,784 (25)	10,850	0.76	1,582 (9)	14,784 (14)

	AB1				B2			
Year	Total	CV	PSU	Trp	Total	CV	PSU	Trp
2019	61,632	0.68	1,584 (29)	14,671 (39)	33,599	0.40	1,584 (14)	14,671 (20)
2020	63,384	0.52	1,766 (25)	16,305 (33)	30,132	0.37	1,766 (21)	16,305 (33)

Table 6. *Estimated landings of Scamp and Yellowmouth Grouper in pounds whole weight by state and year (MRIP, LACreel 2014+, TPWD). Average weight estimates are calculated by strata using the following hierarchy: species, region, year, state, mode, wave, and area (Matter and Rios 2013). The minimum number of weights used at each level of substitution is fifteen fish, except for the final species level where the minimum is one fish (Dettloff and Matter 2019b). FLW excludes the Florida Keys.*

Year	TX	LA	MS	AL	FLW	Total
1981		0	0	7,918	92,266	100,184
1982		0	43,832	45,128	136,663	225,623
1983	285	0	0	1,474	200,820	202,578
1984	0	0	0	0	30,158	30,158
1985	1,011	0	0	0	72,081	73,092
1986	6,336	0	0	0	195,019	201,355
1987	295	31,251	0	0	242,785	274,331
1988	414	0	0	13,454	130,885	144,753
1989	0	0	0	70	85,402	85,471
1990	251	0	0	0	23,432	23,683
1991	0	1,521	0	72	46,543	48,137
1992	303	3,381	0	1,354	55,046	60,084
1993	0	512	0	6,852	117,348	124,712
1994	371	0	0	316	52,380	53,067
1995	136	1,597	0	53	13,957	15,743
1996	124	0	0	136	44,482	44,742
1997	340	11,659	0	313	92,136	104,449
1998	142	0	0	7,680	127,057	134,878
1999	0	8,436	0	1,172	149,053	158,661
2000	1,530	4,900	0	3,355	33,951	43,736
2001	1,980	14,147	0	1,717	47,461	65,306
2002	292	920	0	16,385	75,157	92,754
2003	467	0	0	8,039	149,422	157,927
2004	190	2,095	0	41,735	93,389	137,409
2005	356	6,405	0	86,671	77,003	170,434
2006	96	14,858	0	7,722	301,658	324,334
2007	226	1,605	0	8,353	92,444	102,628
2008	770	6,128	0	2,686	239,111	248,695
2009	372	775	0	814	200,243	202,204
2010	0	3,128	0	5,331	80,987	89,445
2011	0	3,474	0	15,206	91,859	110,539
2012	0	21,766	0	23,113	187,379	232,259
2013	0	12,234	35,369	38,787	179,895	266,286
2014	0	5,807	0	81,509	179,543	266,858
2015	144	8,635	0	72,615	264,885	346,279
2016	265	6,854	0	22,892	219,372	249,383
2017	466	2,509	0	61,661	130,592	195,229
2018	1,222	14,588	4,765	73,996	136,783	231,354
2019	70	15,513	840	18,661	379,474	414,558
2020	186	6,936	0	10,290	370,457	387,870

Table 7. *Scamp and Yellowmouth Grouper landings in pounds whole weight (LBS) (MRIP, LACreel 2014+, TPWD) with associated coefficients of variation (CV; Approach 2 described in Nuttall and Dettloff 2022) by mode and year. CV estimates shown are calculated using MRIP data only and do not include uncertainty from imputations for 1981 wave1.*

	Cbt		Hbt		Priv		Total	
Year	LBS	CV	LBS	CV	LBS	CV	LBS	CV
1981	19,138	0.41	10,474	0.46	70,572	0.75	100,184	0.57
1982	39,553	0.72	24,738	0.58	161,333	0.53	225,623	0.54
1983	87,069	0.64	46,020	0.62	69,205	1.00	202,294	0.55
1984	18,535	0.46	11,623	0.49	0	0.00	30,158	0.49
1985	20,518	0.68	12,833	0.70	38,731	1.00	72,081	0.67
1986	104,090	0.37			90,929	0.61	195,019	0.34
1987	44,779	0.45			229,258	0.76	274,037	0.65
1988	41,772	0.46			102,567	0.37	144,339	0.33
1989	59,309	0.45			26,163	0.80	85,471	0.39
1990	23,432	0.90			0	0.00	23,432	0.90
1991	16,820	0.84			31,317	1.00	48,137	0.73
1992	44,349	0.47			15,432	0.69	59,781	0.42
1993	79,092	0.56			45,619	0.78	124,712	0.48
1994	52,696	0.59			0	0.00	52,696	0.60
1995	15,607	0.66			0	0.00	15,607	0.75
1996	44,618	0.63			0	0.00	44,618	0.63
1997	73,207	0.40			30,901	0.81	104,108	0.38
1998	131,004	0.23			3,732	1.00	134,736	0.23
1999	108,865	0.23			49,796	0.76	158,661	0.29
2000	21,625	0.27			20,581	0.75	42,206	0.39
2001	49,239	0.21			14,086	0.76	63,325	0.23
2002	42,093	0.17			50,369	0.66	92,462	0.31
2003	40,814	0.16			116,647	0.71	157,461	0.51
2004	96,890	0.32			40,329	0.46	137,220	0.26
2005	51,916	0.14			118,163	0.68	170,079	0.48
2006	55,567	0.19			268,671	0.94	324,238	0.77
2007	37,230	0.19			65,172	0.55	102,402	0.35
2008	35,079	0.24			212,847	0.55	247,926	0.46
2009	46,926	0.36			154,906	0.75	201,832	0.57
2010	19,965	0.31			69,480	0.61	89,445	0.48
2011	36,226	0.16			74,313	0.39	110,539	0.26
2012	44,242	0.39			188,017	0.40	232,259	0.34
2013	49,972	0.39			216,314	0.33	266,286	0.27
2014	70,726	0.46			190,326	0.40	261,051	0.31
2015	49,023	0.30			288,477	0.62	337,500	0.53
2016	108,041	0.39			134,223	0.48	242,264	0.34
2017	71,620	0.59			120,633	0.56	192,254	0.44
2018	27,991	0.51			187,552	0.40	215,543	0.36
2019	68,172	0.37			330,803	0.87	398,975	0.68
2020	23,600	0.42			357,147	0.59	380,747	0.54

Table 8. *Summary of length measurements (millimeters fork length) from MRIP-intercepted Scamp and Yellowmouth Grouper by state and year. Summaries include the number of fish measured by MRIP and, in parentheses, the number of angler trips from which those fish were measured (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish lengths. FLW excludes the Florida Keys. LA lengths are available from MRIP only until 2013.*

	LA					MS					AL					FLW				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	0 (0)	0	0	0	0	0 (0)	0	0	0	0	1 (1)	500	500	0	500	48 (20)	280	367	78	680
1982	0 (0)	0	0	0	0	25 (4)	280	309	28	380	5 (2)	247	369	128	572	18 (16)	275	408	109	610
1983	0 (0)	0	0	0	0	0 (0)	0	0	0	0	1 (1)	510	510	0	510	28 (21)	280	478	120	680
1984	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	16 (8)	325	430	84	610
1985	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	11 (11)	305	511	135	660
1986	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	78 (45)	270	466	82	613
1987	2 (1)	270	298	39	325	0 (0)	0	0	0	0	0 (0)	0	0	0	0	35 (23)	260	431	111	655
1988	0 (0)	0	0	0	0	0 (0)	0	0	0	0	6 (3)	375	498	93	648	36 (20)	270	416	83	655
1989	0 (0)	0	0	0	0	0 (0)	0	0	0	0	2 (2)	352	375	33	398	23 (11)	268	427	77	521
1990	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	4 (3)	320	397	62	466
1991	5 (2)	298	331	34	387	0 (0)	0	0	0	0	1 (1)	538	538	0	538	11 (6)	320	446	93	658
1992	5 (4)	315	415	67	475	0 (0)	0	0	0	0	12 (6)	358	461	61	540	21 (10)	374	455	86	692
1993	1 (1)	400	400	0	400	0 (0)	0	0	0	0	3 (2)	485	548	68	620	46 (11)	334	435	59	634
1994	0 (0)	0	0	0	0	0 (0)	0	0	0	0	1 (1)	373	373	0	373	21 (9)	328	453	85	665
1995	1 (1)	445	445	0	445	0 (0)	0	0	0	0	1 (1)	453	453	0	453	2 (2)	328	376	68	424
1996	0 (0)	0	0	0	0	0 (0)	0	0	0	0	1 (1)	380	380	0	380	5 (3)	453	540	70	643
1997	3 (2)	570	603	30	630	0 (0)	0	0	0	0	1 (1)	408	408	0	408	76 (27)	334	468	71	622
1998	0 (0)	0	0	0	0	0 (0)	0	0	0	0	7 (5)	245	428	145	630	159 (65)	350	497	91	745
1999	6 (5)	387	554	180	850	0 (0)	0	0	0	0	6 (3)	343	531	147	685	299 (86)	295	460	89	760
2000	4 (3)	400	698	232	890	0 (0)	0	0	0	0	4 (4)	320	370	56	450	125 (68)	223	458	88	728
2001	3 (3)	381	600	252	875	0 (0)	0	0	0	0	9 (6)	325	419	86	559	269 (77)	328	498	102	835
2002	9 (6)	371	518	120	702	0 (0)	0	0	0	0	14 (10)	340	425	97	692	310 (114)	225	462	87	816
2003	0 (0)	0	0	0	0	0 (0)	0	0	0	0	13 (12)	315	388	39	455	379 (125)	225	452	94	822
2004	4 (3)	379	416	41	474	0 (0)	0	0	0	0	69 (22)	337	462	98	786	645 (255)	325	440	81	817
2005	13 (5)	406	485	74	660	0 (0)	0	0	0	0	47 (27)	302	422	82	832	460 (182)	290	448	89	840
2006	33 (12)	349	521	99	737	0 (0)	0	0	0	0	40 (15)	336	436	61	625	299 (119)	335	446	82	892
2007	3 (3)	367	380	12	391	0 (0)	0	0	0	0	28 (13)	355	459	78	568	241 (114)	361	442	72	810
2008	7 (3)	361	474	56	524	0 (0)	0	0	0	0	11 (5)	375	444	79	584	165 (72)	345	476	82	712
2009	1 (1)	500	500	0	500	0 (0)	0	0	0	0	1 (1)	390	390	0	390	127 (50)	366	496	99	760
2010	7 (2)	405	536	132	772	0 (0)	0	0	0	0	7 (7)	352	408	67	505	101 (56)	349	451	97	748
2011	9 (1)	404	429	26	476	0 (0)	0	0	0	0	27 (14)	377	423	38	507	373 (131)	338	428	50	642

	LA					MS					AL					FLW				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
2012	25 (7)	423	541	88	763	0 (0)	0	0	0	0	5 (5)	423	470	35	515	185 (91)	361	458	53	717
2013	9 (4)	420	582	139	834	5 (1)	549	632	83	769	28 (14)	365	484	77	640	87 (31)	364	475	70	705
2014						0 (0)	0	0	0	0	25 (13)	348	483	111	758	122 (53)	343	458	74	694
2015						0 (0)	0	0	0	0	36 (15)	363	500	78	685	128 (61)	360	457	76	723
2016						0 (0)	0	0	0	0	20 (7)	345	500	68	620	145 (52)	360	513	85	751
2017						0 (0)	0	0	0	0	24 (10)	373	525	96	658	41 (23)	338	493	104	694
2018						1 (1)	444	444	0	444	43 (10)	337	488	72	620	27 (14)	338	499	105	694
2019						1 (1)	540	540	0	540	22 (12)	375	488	76	629	62 (23)	355	549	108	738
2020						0 (0)	0	0	0	0	37 (14)	335	442	92	735	44 (16)	378	514	107	738

Table 9. *Summary of weight measurements (pounds whole weight) from MRIP-intercepted Scamp and Yellowmouth Grouper by state and year. Summaries include the number of fish weighed by MRIP and, in parentheses, the number of angler trips from which those fish were weighed (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish weights. FLW excludes the Florida Keys. LA weights are available from MRIP only until 2013.*

	LA					MS					AL					FLW				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	1 (1)	6.6	6.6	0.0	6.6	48 (20)	0.9	1.9	2.0	11.5
1982	0 (0)	0.0	0.0	0.0	0.0	25 (4)	1.0	1.3	0.2	2.2	5 (2)	0.9	2.1	2.0	5.5	18 (16)	0.7	3.0	2.7	10.4
1983	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	1 (1)	4.9	4.9	0.0	4.9	28 (21)	0.9	4.3	3.0	10.9
1984	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	16 (8)	1.1	2.8	1.4	6.3
1985	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	11 (11)	0.9	4.9	3.2	8.9
1986	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	78 (45)	0.5	3.9	2.1	8.1
1987	2 (1)	0.4	0.8	0.5	1.1	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	35 (23)	0.7	3.7	3.2	11.5
1988	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	15 (8)	0.6	2.5	1.4	5.4
1989	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	1 (1)	2.0	2.0	0.0	2.0	23 (11)	0.7	4.3	2.2	8.2

	LA					MS					AL					FLW				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1990	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	4 (3)	1.3	3.4	2.2	5.9
1991	5 (2)	1.6	2.2	0.6	2.9	0 (0)	0.0	0.0	0.0	0.0	1 (1)	7.6	7.6	0.0	7.6	11 (6)	1.3	3.3	1.9	7.9
1992	4 (3)	2.4	3.1	0.5	3.4	0 (0)	0.0	0.0	0.0	0.0	12 (6)	2.1	5.0	2.1	9.2	21 (10)	1.9	4.6	2.7	11.4
1993	1 (1)	2.8	2.8	0.0	2.8	0 (0)	0.0	0.0	0.0	0.0	3 (2)	3.7	5.7	2.2	8.0	46 (11)	1.2	4.9	2.8	17.1
1994	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	1 (1)	2.3	2.3	0.0	2.3	21 (9)	1.1	4.1	2.3	10.3
1995	1 (1)	4.4	4.4	0.0	4.4	0 (0)	0.0	0.0	0.0	0.0	1 (1)	4.3	4.3	0.0	4.3	2 (2)	1.2	2.5	1.9	3.9
1996	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	1 (1)	2.2	2.2	0.0	2.2	5 (3)	3.7	5.7	2.0	9.0
1997	3 (2)	9.5	10.7	1.9	12.9	0 (0)	0.0	0.0	0.0	0.0	1 (1)	8.3	8.3	0.0	8.3	76 (27)	2.0	6.9	3.7	16.6
1998	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	7 (5)	0.7	5.5	4.8	12.1	159 (65)	1.1	6.1	3.7	17.1
1999	6 (5)	2.3	7.0	5.4	16.0	0 (0)	0.0	0.0	0.0	0.0	6 (3)	3.6	16.0	11.0	28.5	299 (86)	0.8	3.8	2.7	15.5
2000	4 (3)	1.6	14.7	12.6	28.6	0 (0)	0.0	0.0	0.0	0.0	4 (4)	1.4	2.7	2.0	5.7	125 (68)	0.6	4.0	2.6	16.2
2001	3 (3)	1.7	8.8	9.1	19.1	0 (0)	0.0	0.0	0.0	0.0	9 (6)	1.4	4.3	3.4	10.0	269 (77)	1.1	4.6	3.3	18.1
2002	9 (6)	2.5	5.8	3.3	10.5	0 (0)	0.0	0.0	0.0	0.0	14 (10)	0.9	4.1	4.8	18.7	310 (114)	0.8	3.7	2.3	15.3
2003	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	13 (12)	1.4	3.1	0.9	4.7	379 (125)	0.8	3.5	2.7	17.4
2004	4 (3)	1.8	2.3	0.7	3.3	0 (0)	0.0	0.0	0.0	0.0	69 (22)	1.0	3.5	2.7	16.6	645 (255)	1.0	2.9	2.3	18.5
2005	13 (5)	1.9	3.9	2.3	10.1	0 (0)	0.0	0.0	0.0	0.0	47 (27)	1.3	2.5	2.4	16.9	460 (182)	1.0	3.0	2.5	18.6
2006	33 (12)	1.2	5.6	3.6	17.1	0 (0)	0.0	0.0	0.0	0.0	40 (15)	1.1	2.6	1.3	7.7	299 (119)	1.2	3.0	2.4	19.5
2007	3 (3)	1.7	1.8	0.3	2.1	0 (0)	0.0	0.0	0.0	0.0	28 (13)	1.2	3.2	1.5	5.5	241 (114)	1.4	3.0	2.0	16.3
2008	7 (3)	1.8	3.3	0.8	4.2	0 (0)	0.0	0.0	0.0	0.0	11 (5)	1.4	2.9	1.7	6.0	165 (72)	1.3	3.6	2.2	11.7
2009	1 (1)	3.6	3.6	0.0	3.6	0 (0)	0.0	0.0	0.0	0.0	1 (1)	1.7	1.7	0.0	1.7	127 (50)	1.5	4.2	2.9	13.4
2010	7 (2)	1.8	5.2	4.1	12.9	0 (0)	0.0	0.0	0.0	0.0	7 (7)	1.3	2.2	1.2	4.5	101 (56)	1.2	3.3	2.5	13.5
2011	9 (1)	3.5	4.0	0.6	5.1	0 (0)	0.0	0.0	0.0	0.0	27 (14)	1.7	2.5	0.8	4.4	373 (131)	1.2	2.6	1.1	9.5
2012	25 (7)	2.5	5.3	2.5	11.7	0 (0)	0.0	0.0	0.0	0.0	5 (5)	2.0	3.2	1.1	4.9	185 (91)	1.4	3.1	1.4	12.0
2013	9 (4)	2.3	6.7	4.7	16.5	5 (1)	5.2	8.3	3.5	14.4	28 (14)	1.6	3.6	1.8	8.3	87 (31)	1.4	3.4	1.8	10.2
2014						0 (0)	0.0	0.0	0.0	0.0	25 (13)	1.4	4.1	3.3	14.0	122 (53)	1.1	3.2	1.8	10.7
2015						0 (0)	0.0	0.0	0.0	0.0	36 (15)	1.4	4.2	2.3	11.0	128 (61)	1.5	3.2	1.9	12.5
2016						0 (0)	0.0	0.0	0.0	0.0	20 (7)	0.9	4.0	1.6	7.2	145 (52)	1.3	4.3	2.3	12.3
2017						0 (0)	0.0	0.0	0.0	0.0	24 (10)	1.8	5.0	2.4	8.8	41 (23)	1.5	4.2	2.7	10.8
2018						1 (1)	3.1	3.1	0.0	3.1	43 (10)	2.2	4.2	1.6	8.3	27 (14)	1.5	4.4	2.9	10.8
2019						1 (1)	5.5	5.5	0.0	5.5	22 (12)	1.3	3.9	1.8	8.3	62 (23)	1.3	5.4	3.1	12.8
2020						0 (0)	0.0	0.0	0.0	0.0	37 (14)	1.3	3.3	2.4	13.2	44 (16)	1.5	4.7	3.3	12.8

Table 10. *Summary of length measurements (millimeters fork length) from MRIP-intercepted Scamp and Yellowmouth Grouper by mode and year. Summaries include the number of fish measured by MRIP and, in parentheses, the number of angler trips from which those fish were measured (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish lengths.*

	Cbt					Hbt					Priv				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	11 (3)	320	363	32	416	31 (15)	280	359	76	670	7 (3)	335	433	122	680
1982	2 (2)	410	510	141	610	9 (8)	320	412	100	580	37 (12)	247	329	72	600
1983	6 (2)	510	599	69	680	21 (19)	315	461	104	623	2 (1)	280	310	42	340
1984	1 (1)	350	350	0	350	15 (7)	325	435	84	610	0 (0)	0	0	0	0
1985	0 (0)	0	0	0	0	9 (9)	305	512	131	660	2 (2)	360	507	208	654
1986	72 (41)	270	471	78	613						6 (4)	330	406	115	600
1987	29 (18)	285	451	111	655						8 (6)	260	326	43	390
1988	32 (13)	270	430	94	655						10 (10)	367	420	70	521
1989	23 (11)	320	431	71	521						2 (2)	268	324	80	381
1990	4 (3)	320	397	62	466						0 (0)	0	0	0	0
1991	16 (8)	298	420	100	658						1 (1)	379	379	0	379
1992	34 (17)	315	444	68	658						4 (3)	400	510	126	692
1993	42 (11)	378	448	55	634						8 (3)	334	403	97	620
1994	22 (10)	328	449	85	665						0 (0)	0	0	0	0
1995	4 (4)	328	412	58	453						0 (0)	0	0	0	0
1996	6 (4)	380	513	90	643						0 (0)	0	0	0	0
1997	77 (28)	334	470	75	630						3 (2)	500	526	38	570
1998	164 (69)	350	498	91	745						2 (1)	245	249	6	253
1999	301 (89)	315	466	93	850						10 (5)	295	381	60	480
2000	130 (72)	223	464	103	890						3 (3)	355	406	54	462
2001	279 (84)	325	496	105	875						2 (2)	381	463	116	545
2002	323 (124)	315	464	87	816						10 (6)	225	402	126	692
2003	377 (130)	284	452	94	822						15 (7)	225	381	73	455
2004	702 (273)	333	443	83	817						16 (7)	325	394	36	449
2005	506 (206)	290	446	87	840						14 (8)	357	467	124	832
2006	362 (141)	335	452	85	892						10 (5)	357	447	82	625
2007	253 (119)	355	445	75	810						19 (11)	382	420	34	505
2008	160 (67)	345	471	80	705						23 (13)	361	493	84	712
2009	116 (47)	377	494	99	760						13 (5)	366	507	98	712
2010	105 (60)	349	454	103	772						10 (5)	369	447	64	544
2011	394 (135)	338	428	50	642						15 (11)	369	434	40	533

	Cbt					Hbt					Priv				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
2012	184 (89)	361	471	67	763						31 (14)	401	452	41	535
2013	89 (28)	365	482	80	834						40 (22)	364	510	99	769
2014	102 (46)	343	460	86	758						45 (20)	376	465	72	751
2015	111 (56)	360	468	89	723						53 (20)	392	464	48	614
2016	140 (46)	345	519	82	751						25 (13)	360	471	78	593
2017	47 (23)	338	507	111	694						18 (10)	404	499	73	584
2018	37 (12)	338	502	88	694						34 (13)	337	481	81	650
2019	59 (28)	355	522	93	680						26 (8)	378	558	120	738
2020	55 (20)	335	445	80	642						26 (10)	378	558	115	738

Table 11. *Summary of weight measurements (pounds whole weight) from MRIP-intercepted Scamp and Yellowmouth Grouper by mode and year. Summaries include the number of fish weighed by MRIP and, in parentheses, the number of angler trips from which those fish were weighed (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish weights.*

	Cbt					Hbt					Priv				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	11 (3)	1.0	1.6	0.5	2.5	31 (15)	0.9	1.7	1.6	9.3	7 (3)	1.1	3.9	3.8	11.5
1982	2 (2)	2.5	5.6	4.4	8.7	9 (8)	0.9	2.5	1.6	5.5	37 (12)	0.7	1.7	1.7	10.4
1983	6 (2)	4.9	7.7	2.6	10.9	21 (19)	0.9	3.6	2.4	8.5	2 (1)	1.1	1.3	0.2	1.4
1984	1 (1)	2.1	2.1	0.0	2.1	15 (7)	1.1	2.8	1.4	6.3	0 (0)	0.0	0.0	0.0	0.0
1985	0 (0)	0.0	0.0	0.0	0.0	9 (9)	0.9	4.9	3.0	8.9	2 (2)	1.1	5.0	5.5	8.8
1986	72 (41)	0.5	4.0	2.1	8.1						6 (4)	1.1	2.6	2.2	6.9
1987	29 (18)	1.1	4.2	3.3	11.5						8 (6)	0.4	1.2	0.5	2.0
1988	13 (6)	0.6	2.6	1.5	5.4						2 (2)	1.8	2.1	0.5	2.4
1989	22 (10)	1.8	4.5	2.1	8.2						2 (2)	0.7	1.3	0.9	2.0

	Cbt					Hbt					Priv				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1990	4 (3)	1.3	3.4	2.2	5.9						0 (0)	0.0	0.0	0.0	0.0
1991	16 (8)	1.3	3.3	2.0	7.9						1 (1)	2.0	2.0	0.0	2.0
1992	33 (16)	1.9	4.5	2.2	11.4						4 (3)	2.2	4.9	3.9	10.7
1993	42 (11)	2.6	5.4	2.6	17.1						8 (3)	1.2	2.5	2.3	8.0
1994	22 (10)	1.1	4.0	2.3	10.3						0 (0)	0.0	0.0	0.0	0.0
1995	4 (4)	1.2	3.4	1.5	4.4						0 (0)	0.0	0.0	0.0	0.0
1996	6 (4)	2.2	5.1	2.3	9.0						0 (0)	0.0	0.0	0.0	0.0
1997	77 (28)	2.0	7.1	3.7	16.6						3 (2)	3.9	5.8	3.2	9.5
1998	164 (69)	1.1	6.2	3.7	17.1						2 (1)	0.7	0.7	0.0	0.7
1999	301 (89)	0.9	4.2	3.5	28.5						10 (5)	0.8	2.2	1.2	4.9
2000	130 (72)	0.6	4.4	3.7	28.6						3 (3)	1.4	2.1	1.1	3.4
2001	279 (84)	1.1	4.7	3.4	19.1						2 (2)	1.7	3.6	2.7	5.5
2002	323 (124)	0.9	3.7	2.3	15.3						10 (6)	0.8	3.7	5.3	18.7
2003	377 (130)	1.0	3.5	2.7	17.4						15 (7)	0.8	2.2	1.0	4.7
2004	702 (273)	1.0	3.0	2.3	18.5						16 (7)	1.2	2.0	0.5	2.8
2005	506 (206)	1.0	3.0	2.4	18.6						14 (8)	1.4	3.8	4.0	16.9
2006	362 (141)	1.1	3.2	2.6	19.5						10 (5)	1.4	3.1	1.9	7.7
2007	253 (119)	1.2	3.0	2.0	16.3						19 (11)	1.6	2.3	0.5	3.1
2008	160 (67)	1.3	3.5	2.1	11.7						23 (13)	1.8	3.8	2.0	10.9
2009	116 (47)	1.6	4.2	2.9	13.4						13 (5)	1.5	4.2	2.4	10.9
2010	105 (60)	1.2	3.3	2.7	13.5						10 (5)	1.8	3.2	1.2	4.6
2011	394 (135)	1.2	2.6	1.1	9.5						15 (11)	1.8	2.8	1.0	5.4
2012	184 (89)	1.4	3.4	1.8	12.0						31 (14)	1.9	2.9	1.0	5.4
2013	89 (28)	1.6	3.6	2.3	16.5						40 (22)	1.4	4.5	2.8	14.4
2014	102 (46)	1.1	3.4	2.2	14.0						45 (20)	1.7	3.4	1.9	13.4
2015	111 (56)	1.4	3.6	2.4	12.5						53 (20)	1.9	3.2	1.1	8.4
2016	140 (46)	0.9	4.5	2.3	12.3						25 (13)	1.3	3.3	1.7	6.4
2017	47 (23)	1.5	4.7	2.9	10.8						18 (10)	1.9	3.9	1.6	6.4
2018	37 (12)	1.5	4.4	2.3	10.8						34 (13)	1.5	4.2	1.9	9.0
2019	59 (28)	1.3	4.5	2.2	8.8						26 (8)	1.3	6.1	3.9	12.8
2020	55 (20)	1.3	3.0	1.8	7.9						26 (10)	1.5	6.1	3.8	13.2

Table 12. *Summary of length (millimeters fork length) and weight measurements (pounds whole weight) from MRIP-intercepted Scamp and Yellowmouth Grouper by year. Summaries include the number of fish for which size information was collected by MRIP and, in parentheses, the number of angler trips from which those fish were sampled (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish lengths and weights.*

	Length					Weight				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	49 (21)	280	370	80	680	49 (21)	0.9	2.0	2.1	11.5
1982	48 (22)	247	352	91	610	48 (22)	0.7	2.0	1.9	10.4
1983	29 (22)	280	479	118	680	29 (22)	0.9	4.3	3.0	10.9
1984	16 (8)	325	430	84	610	16 (8)	1.1	2.8	1.4	6.3
1985	11 (11)	305	511	135	660	11 (11)	0.9	4.9	3.2	8.9
1986	78 (45)	270	466	82	613	78 (45)	0.5	3.9	2.1	8.1
1987	37 (24)	260	424	113	655	37 (24)	0.4	3.6	3.2	11.5
1988	42 (23)	270	428	88	655	15 (8)	0.6	2.5	1.4	5.4
1989	25 (13)	268	423	76	521	24 (12)	0.7	4.2	2.2	8.2
1990	4 (3)	320	397	62	466	4 (3)	1.3	3.4	2.2	5.9
1991	17 (9)	298	417	98	658	17 (9)	1.3	3.3	2.0	7.9
1992	38 (20)	315	451	76	692	37 (19)	1.9	4.5	2.4	11.4
1993	50 (14)	334	441	64	634	50 (14)	1.2	4.9	2.7	17.1
1994	22 (10)	328	449	85	665	22 (10)	1.1	4.0	2.3	10.3
1995	4 (4)	328	412	58	453	4 (4)	1.2	3.4	1.5	4.4
1996	6 (4)	380	513	90	643	6 (4)	2.2	5.1	2.3	9.0
1997	80 (30)	334	472	75	630	80 (30)	2.0	7.0	3.7	16.6
1998	166 (70)	245	495	95	745	166 (70)	0.7	6.1	3.8	17.1
1999	311 (94)	295	463	93	850	311 (94)	0.8	4.1	3.5	28.5
2000	133 (75)	223	463	103	890	133 (75)	0.6	4.3	3.7	28.6
2001	281 (86)	325	496	105	875	281 (86)	1.1	4.7	3.4	19.1
2002	333 (130)	225	462	89	816	333 (130)	0.8	3.7	2.5	18.7
2003	392 (137)	225	450	94	822	392 (137)	0.8	3.5	2.7	17.4
2004	718 (280)	325	442	83	817	718 (280)	1.0	3.0	2.3	18.5
2005	520 (214)	290	446	88	840	520 (214)	1.0	3.0	2.5	18.6
2006	372 (146)	335	452	85	892	372 (146)	1.1	3.2	2.5	19.5
2007	272 (130)	355	443	73	810	272 (130)	1.2	3.0	1.9	16.3
2008	183 (80)	345	474	81	712	183 (80)	1.3	3.5	2.1	11.7
2009	129 (52)	366	495	99	760	129 (52)	1.5	4.2	2.9	13.4
2010	115 (65)	349	454	100	772	115 (65)	1.2	3.3	2.6	13.5
2011	409 (146)	338	428	49	642	409 (146)	1.2	2.6	1.1	9.5
2012	215 (103)	361	468	64	763	215 (103)	1.4	3.4	1.7	12.0
2013	129 (50)	364	490	87	834	129 (50)	1.4	3.9	2.5	16.5
2014	147 (66)	343	462	82	758	147 (66)	1.1	3.4	2.1	14.0
2015	164 (76)	360	466	78	723	164 (76)	1.4	3.5	2.1	12.5
2016	165 (59)	345	511	83	751	165 (59)	0.9	4.3	2.2	12.3
2017	65 (33)	338	505	102	694	65 (33)	1.5	4.5	2.6	10.8
2018	71 (25)	337	492	85	694	71 (25)	1.5	4.3	2.1	10.8
2019	85 (36)	355	533	103	738	85 (36)	1.3	5.0	2.9	12.8

	Length					Weight				
Year	**N**	**Min**	**Avg**	**SD**	**Max**	**N**	**Min**	**Avg**	**SD**	**Max**
2020	81 (30)	335	481	106	738	81 (30)	1.3	4.0	3.0	13.2

Table 13. *Summary of length measurements (millimeters total length) from TPWD-intercepted Scamp and Yellowmouth Grouper by mode and year. Summaries include the number of fish measured by TPWD and, in parentheses, the number of angler trips from which those fish were measured (N), and the minimum (Min), arithmetic mean (Avg), standard deviation (SD), and maximum (Max) size of fish lengths.*

	Cbt					Priv					Total				
Year	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1983	0 (0)	0	0	0	0	1 (1)	380	380	0	380	1 (1)	380	380	0	380
1984	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
1985	1 (1)	545	545	0	545	6 (3)	310	359	30	395	7 (4)	310	386	75	545
1986	0 (0)	0	0	0	0	4 (2)	278	488	180	718	4 (2)	278	488	180	718
1987	3 (1)	298	319	19	333	0 (0)	0	0	0	0	3 (1)	298	319	19	333
1988	0 (0)	0	0	0	0	1 (1)	400	400	0	400	1 (1)	400	400	0	400
1989	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
1990	0 (0)	0	0	0	0	1 (1)	377	377	0	377	1 (1)	377	377	0	377
1991	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
1992	0 (0)	0	0	0	0	1 (1)	598	598	0	598	1 (1)	598	598	0	598
1993	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
1994	0 (0)	0	0	0	0	2 (2)	322	326	6	330	2 (2)	322	326	6	330
1995	0 (0)	0	0	0	0	2 (2)	297	471	246	645	2 (2)	297	471	246	645
1996	0 (0)	0	0	0	0	1 (1)	486	486	0	486	1 (1)	486	486	0	486
1997	0 (0)	0	0	0	0	2 (2)	409	456	66	502	2 (2)	409	456	66	502
1998	0 (0)	0	0	0	0	1 (1)	585	585	0	585	1 (1)	585	585	0	585
1999	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
2000	3 (3)	426	624	317	989	5 (4)	260	346	132	577	8 (7)	260	450	244	989
2001	0 (0)	0	0	0	0	2 (2)	332	381	69	430	2 (2)	332	381	69	430
2002	1 (1)	444	444	0	444	2 (2)	372	392	28	412	3 (3)	372	409	36	444
2003	0 (0)	0	0	0	0	3 (3)	357	461	168	655	3 (3)	357	461	168	655
2004	1 (1)	735	735	0	735	2 (2)	489	534	64	579	3 (3)	489	601	124	735
2005	2 (1)	809	950	200	1,092	2 (2)	385	406	30	427	4 (3)	385	678	335	1,092
2006	3 (3)	678	799	172	996	0 (0)	0	0	0	0	3 (3)	678	799	172	996
2007	0 (0)	0	0	0	0	4 (4)	320	541	302	985	4 (4)	320	541	302	985
2008	1 (1)	404	404	0	404	7 (5)	382	463	82	587	8 (6)	382	456	79	587
2009	1 (1)	352	352	0	352	2 (2)	294	312	26	331	3 (3)	294	326	29	352
2010	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
2011	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
2012	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
2013	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
2014	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
2015	0 (0)	0	0	0	0	1 (1)	309	309	0	309	1 (1)	309	309	0	309
2016	0 (0)	0	0	0	0	3 (1)	435	495	53	535	3 (1)	435	495	53	535
2017	0 (0)	0	0	0	0	1 (1)	656	656	0	656	1 (1)	656	656	0	656
2018	4 (1)	477	546	84	654	6 (4)	454	559	108	717	10 (5)	454	554	94	717
2019	0 (0)	0	0	0	0	1 (1)	591	591	0	591	1 (1)	591	591	0	591
2020	0 (0)	0	0	0	0	3 (3)	504	687	189	882	3 (3)	504	687	189	882

Table 14. *Estimated average weights of landed Scamp and Yellowmouth Grouper in pounds whole weight (WGT) with associated coefficients of variation (CV; Approach 2 described in Nuttall and Dettloff 2022) by mode and year (MRIP, LACreel 2014+, TPWD). Average weights are calculated from annual estimates (by-mode) of landings-in-weight (Table 7) divided by estimates of landings-in-number (Table2). Sample size (N) is provided as the total number of angler trips and, in parentheses, number of fish from which weight information was collected (MRIP, LABIO 2014+, TPWD).*

	Cbt			Hbt			Priv			Total		
Year	WGT	CV	N	WGT	CV	N	WGT	CV	N	WGT	CV	N
1981	1.89	0.08	3 (11)	1.65	0.25	15 (31)	1.90	0.34	3 (7)	1.87	0.32	21 (49)
1982	2.96	0.55	2 (2)	2.96	0.23	8 (9)	2.02	0.36	12 (37)	2.22	0.45	22 (48)
1983	4.26	0.26	2 (6)	3.60	0.15	19 (21)	4.26	0.05	2 (3)	4.09	0.20	23 (30)
1984	3.21	0.00	1 (1)	3.22	0.18	7 (15)	0.00	0.00	0	3.22	0.18	8 (16)
1985	3.60	0.00	1 (1)	3.60	0.20	9 (9)	3.45	0.57	5 (8)	3.52	0.29	15 (18)
1986	4.55	0.07	41 (72)				3.96	0.33	6 (10)	4.24	0.11	47 (82)
1987	4.44	0.17	19 (32)				3.93	0.16	6 (8)	4.00	0.18	25 (40)
1988	3.74	0.18	6 (13)				3.63	0.13	3 (3)	3.66	0.17	9 (16)
1989	4.71	0.11	10 (22)				4.35	0.49	2 (2)	4.59	0.14	12 (24)
1990	3.63	0.32	3 (4)				3.63	0.00	1 (1)	3.63	0.33	4 (5)
1991	3.25	0.16	8 (16)				3.23	0.00	1 (1)	3.24	0.16	9 (17)
1992	4.38	0.12	16 (33)				4.46	0.35	4 (5)	4.40	0.22	20 (38)
1993	5.49	0.14	11 (42)				5.05	0.51	3 (8)	5.32	0.23	14 (50)
1994	4.13	0.16	10 (22)				3.78	0.04	2 (2)	4.12	0.17	12 (24)
1995	3.63	0.22	4 (4)				4.25	0.78	2 (2)	3.64	0.50	6 (6)
1996	3.63	0.29	4 (6)				3.63	0.00	1 (1)	3.63	0.28	5 (7)
1997	7.18	0.08	28 (77)				6.91	0.37	4 (5)	7.10	0.12	32 (82)
1998	6.52	0.06	69 (164)				6.16	0.74	2 (3)	6.51	0.09	71 (167)
1999	4.06	0.09	89 (301)				3.85	0.24	5 (10)	3.99	0.09	94 (311)
2000	4.16	0.11	75 (133)				4.12	0.32	7 (8)	4.14	0.12	82 (141)
2001	4.78	0.08	84 (279)				4.66	0.40	4 (4)	4.75	0.09	88 (283)
2002	3.90	0.05	125 (324)				3.71	0.50	8 (12)	3.79	0.15	133 (336)
2003	3.48	0.05	130 (377)				3.48	0.23	10 (18)	3.48	0.07	140 (395)
2004	3.08	0.04	274 (703)				1.96	0.14	9 (18)	2.64	0.04	283 (721)
2005	2.91	0.06	207 (508)				2.73	0.18	10 (16)	2.78	0.07	217 (524)
2006	3.10	0.07	144 (365)				3.07	0.28	5 (10)	3.08	0.09	149 (375)
2007	3.13	0.06	119 (253)				2.29	0.38	15 (23)	2.54	0.16	134 (276)
2008	3.83	0.07	68 (161)				4.21	0.10	18 (30)	4.16	0.08	86 (191)
2009	3.74	0.09	48 (117)				4.23	0.22	7 (15)	4.11	0.11	55 (132)
2010	3.19	0.09	60 (105)				3.29	0.15	5 (10)	3.26	0.10	65 (115)
2011	2.44	0.03	135 (394)				2.56	0.08	11 (15)	2.52	0.04	146 (409)
2012	3.95	0.05	89 (184)				2.89	0.10	14 (31)	3.05	0.06	103 (215)
2013	3.50	0.09	28 (89)				3.44	0.11	22 (40)	3.45	0.10	50 (129)
2014	3.89	0.10	46 (102)				3.37	0.16	20 (45)	3.50	0.12	66 (147)
2015	3.67	0.07	56 (111)				3.21	0.11	21 (54)	3.27	0.08	77 (165)
2016	4.51	0.07	46 (140)				3.16	0.11	14 (28)	3.64	0.08	60 (168)
2017	4.89	0.13	23 (47)				3.87	0.12	11 (19)	4.20	0.13	34 (66)
2018	4.38	0.13	13 (41)				4.25	0.11	17 (40)	4.26	0.12	30 (81)
2019	5.11	0.09	29 (59)				6.79	0.09	11 (27)	6.40	0.09	40 (86)
2020	3.57	0.08	21 (55)				6.27	0.16	15 (29)	5.98	0.15	36 (84)

Table 15. *Resolution of landings-in-weight estimates (pounds whole weight) for Gulf of Mexico Scamp and Yellowmouth Grouper by year and hierarchy level (MRIP, LACreel 2014+, TPWD), defined by **s**pecies, **r**egion, **y**ear, **s**tate, **m**ode, **w**ave, and **a**rea. Average weight estimates are calculated at the finest strata meeting a minimum sample size threshold (Dettloff and Matter 2019b). Larger sample sizes therefore allow average weights to be calculated at finer stratifications, the finest being at the srysmwa level (Matter and Rios 2013). Annual summaries include the number of fish and angler trips from which weight information was collected (N) and the landings-in-weight estimates (AB1.lbs) by hierarchy level. As an example, (srysmw) summarizes those landings-in-weight estimates originating from cells where average weights are specific to a particular **s**pecies, **r**egion, **y**ear, **s**tate, **m**ode, and **w**ave (i.e., weight observations collapsed across areas).*

		AB1.lbs					
Year	N	sr	sry	srys	srysm	srysmw	srysmwa
1981	49 (21)	0	7,918	81,792	8,749	1,725	0
1982	48 (22)	0	45,128	136,663	0	0	43,832
1983	30 (23)	0	1,759	155,367	45,453	0	0
1984	16 (8)	15,231	0	9,165	5,762	0	0
1985	18 (15)	4,818	68,275	0	0	0	0
1986	82 (47)	8,784	6,336	90,929	53,611	7,182	34,512
1987	40 (25)	35,152	295	198,006	40,879	0	0
1988	16 (9)	144,753	0	0	0	0	0
1989	24 (12)	3,314	70	26,163	16,939	38,986	0
1990	5 (4)	23,683	0	0	0	0	0
1991	17 (9)	390	47,746	0	0	0	0
1992	38 (20)	4,478	5,038	7,966	42,603	0	0
1993	50 (14)	27,432	7,363	12,330	44,231	1,106	32,250
1994	24 (12)	0	687	0	52,380	0	0
1995	6 (6)	15,743	0	0	0	0	0
1996	7 (5)	44,742	0	0	0	0	0
1997	82 (32)	0	12,312	22,619	37,300	2,028	30,190
1998	167 (71)	993	7,821	0	24,427	8,633	93,003
1999	311 (94)	511	9,608	43,450	0	2,821	102,272
2000	141 (82)	1,272	9,785	13,502	1,149	592	17,436
2001	283 (88)	0	17,845	0	979	569	45,914
2002	336 (133)	0	17,597	34,559	0	1,934	38,664
2003	395 (140)	200	8,306	110,751	0	3,864	34,807
2004	721 (283)	798	1,737	0	81,936	2,723	50,216
2005	524 (217)	1,346	6,692	118,163	6,849	370	37,014
2006	375 (149)	0	96	268,671	16,887	1,447	37,233
2007	276 (134)	0	1,831	2,080	64,398	1,604	32,715
2008	191 (86)	382	9,457	0	214,311	1,709	22,835
2009	132 (55)	0	1,961	154,131	4,906	8,087	33,119
2010	115 (65)	0	8,458	64,795	1,526	7,452	7,213
2011	409 (146)	0	3,474	74,313	2,574	5,274	24,903
2012	215 (103)	165	23,113	0	137,127	546	71,308
2013	129 (50)	972	46,632	36,167	140,839	0	41,677
2014	147 (66)	1,044	5,807	68,009	22,834	33,037	136,127
2015	165 (77)	268	8,511	60,805	57,179	11,494	208,023
2016	168 (60)	0	7,119	5,006	45,917	2,429	188,911
2017	66 (34)	0	2,975	14,778	109,808	1,935	65,732

		AB1.lbs					
Year	**N**	**sr**	**sry**	**srys**	**srysm**	**srysmw**	**srysmwa**
2018	81 (30)	0	20,575	136,783	73,996	0	0
2019	86 (37)	2,588	13,834	6,125	42,325	302,715	46,971
2020	84 (33)	0	7,122	4,722	240,239	130,260	5,526

Table 16. *Recreational Fishing Effort (in angler trips) for Gulf of Mexico anglers by state and year (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys.*

Year	TX	LA	MS	AL	FLW	Total
1981		2,885,044	628,653	696,745	6,156,542	10,366,984
1982		3,534,377	730,214	555,508	7,504,151	12,324,250
1983	555,681	3,736,954	808,628	606,726	9,441,341	15,149,330
1984	643,796	3,483,682	735,160	604,616	9,320,227	14,787,481
1985	710,725	3,520,757	767,682	634,054	10,294,207	15,927,425
1986	704,809	3,368,108	720,668	656,533	9,705,765	15,155,883
1987	889,371	3,269,586	721,063	653,407	9,599,319	15,132,746
1988	857,643	3,187,868	696,849	645,931	12,128,499	17,516,790
1989	791,653	3,390,644	736,722	730,111	11,434,313	17,083,443
1990	760,711	3,622,354	784,910	714,855	12,212,237	18,095,067
1991	775,674	3,706,470	896,466	860,194	11,516,436	17,755,240
1992	865,301	3,920,391	890,818	914,374	11,745,347	18,336,231
1993	897,527	4,043,377	967,238	974,714	11,972,511	18,855,367
1994	997,059	3,988,582	990,253	1,013,123	12,362,726	19,351,743
1995	982,649	4,061,447	986,586	1,056,462	12,994,187	20,081,331
1996	979,300	4,259,790	1,041,652	1,123,082	12,608,881	20,012,705
1997	894,328	4,446,907	1,104,872	1,232,439	13,799,844	21,478,390
1998	924,659	4,529,530	1,126,139	1,210,971	15,166,244	22,957,543
1999	1,098,251	4,967,340	1,211,087	1,346,698	16,596,262	25,219,638
2000	1,119,611	5,418,948	1,280,132	1,410,357	15,572,709	24,801,757
2001	943,350	5,573,822	1,268,914	1,530,890	17,979,930	27,296,906
2002	935,055	5,196,030	1,256,962	1,542,848	17,625,384	26,556,279
2003	968,522	5,267,732	1,346,056	1,703,554	18,024,562	27,310,426
2004	988,042	4,969,316	1,338,192	1,836,510	21,579,600	30,711,660
2005	898,897	4,449,391	1,158,014	1,900,417	21,210,541	29,617,260
2006	1,005,097	4,557,397	1,398,518	1,883,001	18,841,262	27,685,275
2007	887,696	4,899,419	1,471,619	2,075,677	18,786,963	28,121,374
2008	873,237	5,388,373	1,588,234	2,316,742	20,194,355	30,360,941
2009	925,446	5,898,978	1,639,894	2,338,504	18,832,249	29,635,071
2010	870,541	6,174,336	1,569,529	2,349,701	19,522,031	30,486,138
2011	989,955	6,040,909	1,611,693	2,364,899	20,082,811	31,090,267
2012	1,000,270	5,838,749	1,654,760	2,173,049	21,860,398	32,527,226
2013	997,827	5,598,489	1,610,624	2,244,858	20,000,245	30,452,043
2014	963,087	2,226,868	1,503,011	2,124,707	17,207,074	24,024,747
2015	920,172	2,425,434	1,609,574	2,176,532	15,826,740	22,958,452
2016	1,071,428	2,241,734	1,757,923	2,113,993	17,183,903	24,368,981
2017	1,002,941	2,308,352	1,622,101	2,633,932	17,700,064	25,267,390
2018	1,120,640	2,275,932	1,546,008	1,928,020	16,931,674	23,802,274
2019	1,144,710	2,108,454	1,401,909	1,877,771	14,642,399	21,175,243
2020	1,117,929	2,501,305	1,458,973	2,092,932	16,633,102	23,804,241

Table 17. *Recreational Fishing Effort (in angler trips) for Gulf of Mexico anglers by mode and year (MRIP, LACreel 2014+, TPWD). Note that effort from the combined private-shore fishing mode in the LA Creel survey has been added to the private mode.*

Year	Cbt	Hbt	Priv	Total
1981	393,653	184,590	9,788,741	10,366,984
1982	523,703	260,912	11,539,636	12,324,251
1983	577,382	256,493	14,315,455	15,149,330
1984	539,709	242,211	14,005,561	14,787,481
1985	589,536	277,516	15,060,373	15,927,425
1986	566,126		14,589,758	15,155,884
1987	584,005		14,548,740	15,132,745
1988	513,470		17,003,320	17,516,790
1989	597,073		16,486,371	17,083,444
1990	581,476		17,513,591	18,095,067
1991	539,918		17,215,321	17,755,239
1992	561,596		17,774,636	18,336,232
1993	631,413		18,223,955	18,855,368
1994	674,001		18,677,743	19,351,744
1995	767,259		19,314,072	20,081,331
1996	725,623		19,287,082	20,012,705
1997	770,873		20,707,517	21,478,390
1998	766,158		22,191,384	22,957,542
1999	782,576		24,437,062	25,219,638
2000	754,661		24,047,097	24,801,758
2001	763,000		26,533,907	27,296,907
2002	743,135		25,813,144	26,556,279
2003	700,701		26,609,724	27,310,425
2004	785,146		29,926,514	30,711,660
2005	681,138		28,936,121	29,617,259
2006	817,885		26,867,390	27,685,275
2007	862,142		27,259,232	28,121,374
2008	809,409		29,551,533	30,360,942
2009	776,074		28,858,997	29,635,071
2010	598,969		29,887,168	30,486,137
2011	753,744		30,336,523	31,090,267
2012	935,927		31,591,299	32,527,226
2013	878,278		29,573,764	30,452,042
2014	862,087		23,162,660	24,024,747
2015	991,274		21,967,177	22,958,451
2016	1,053,950		23,315,031	24,368,981
2017	1,085,727		24,181,665	25,267,392
2018	1,227,218		22,575,056	23,802,274
2019	1,282,291		19,892,952	21,175,243
2020	1,169,805		22,634,436	23,804,241

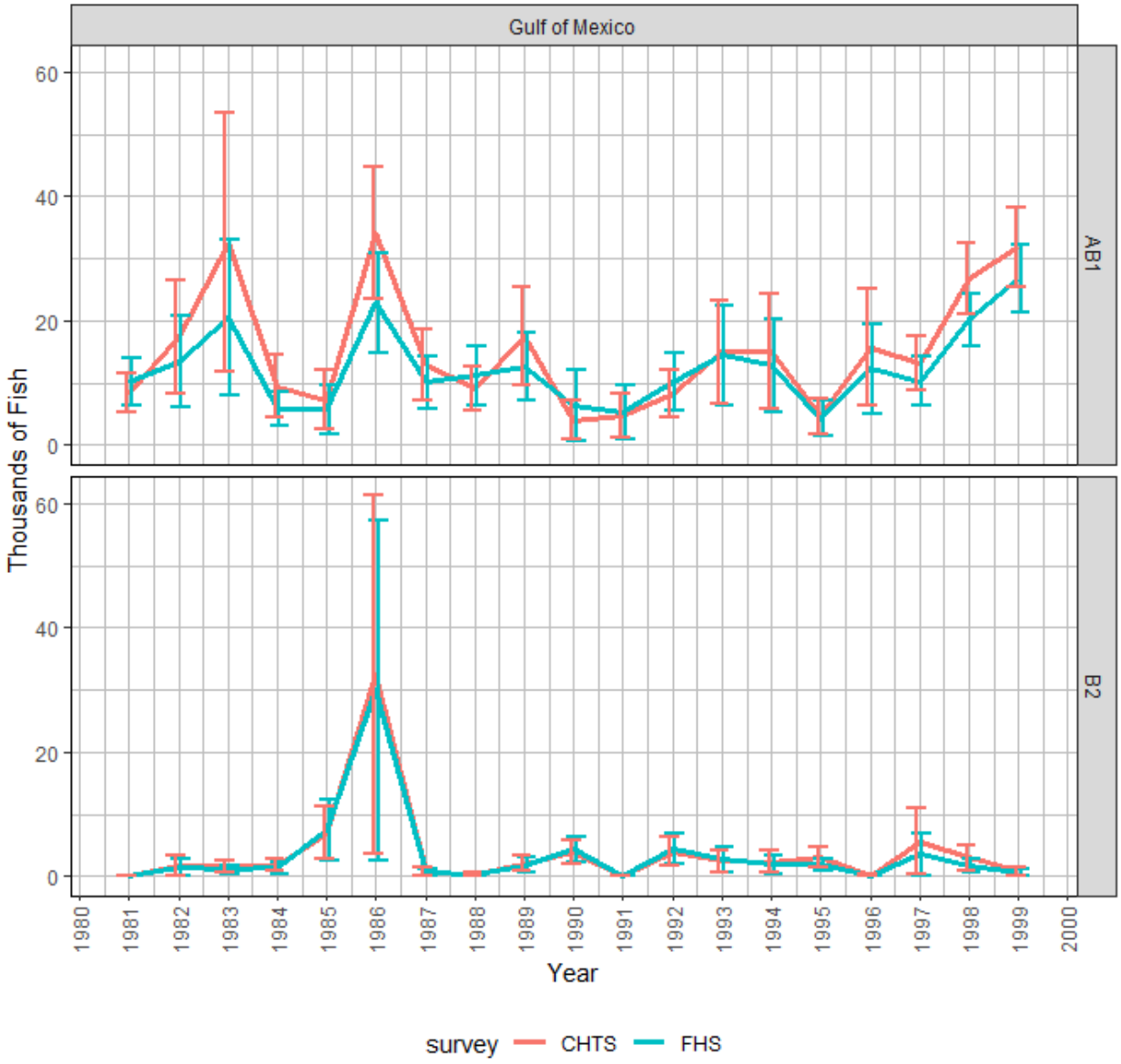

Figure 1. *Comparison of charterboat landings (AB1) and discard (B2) estimates (with standard error intervals shown) for Scamp and Yellowmouth Grouper from the Coastal Household Telephone Survey (CHTS) and For-Hire Survey (FHS) from the Gulf of Mexico between 1981 and 1999 (MRIP). The charterboat calibration approach is discussed in Dettloff and Matter (2019a).*

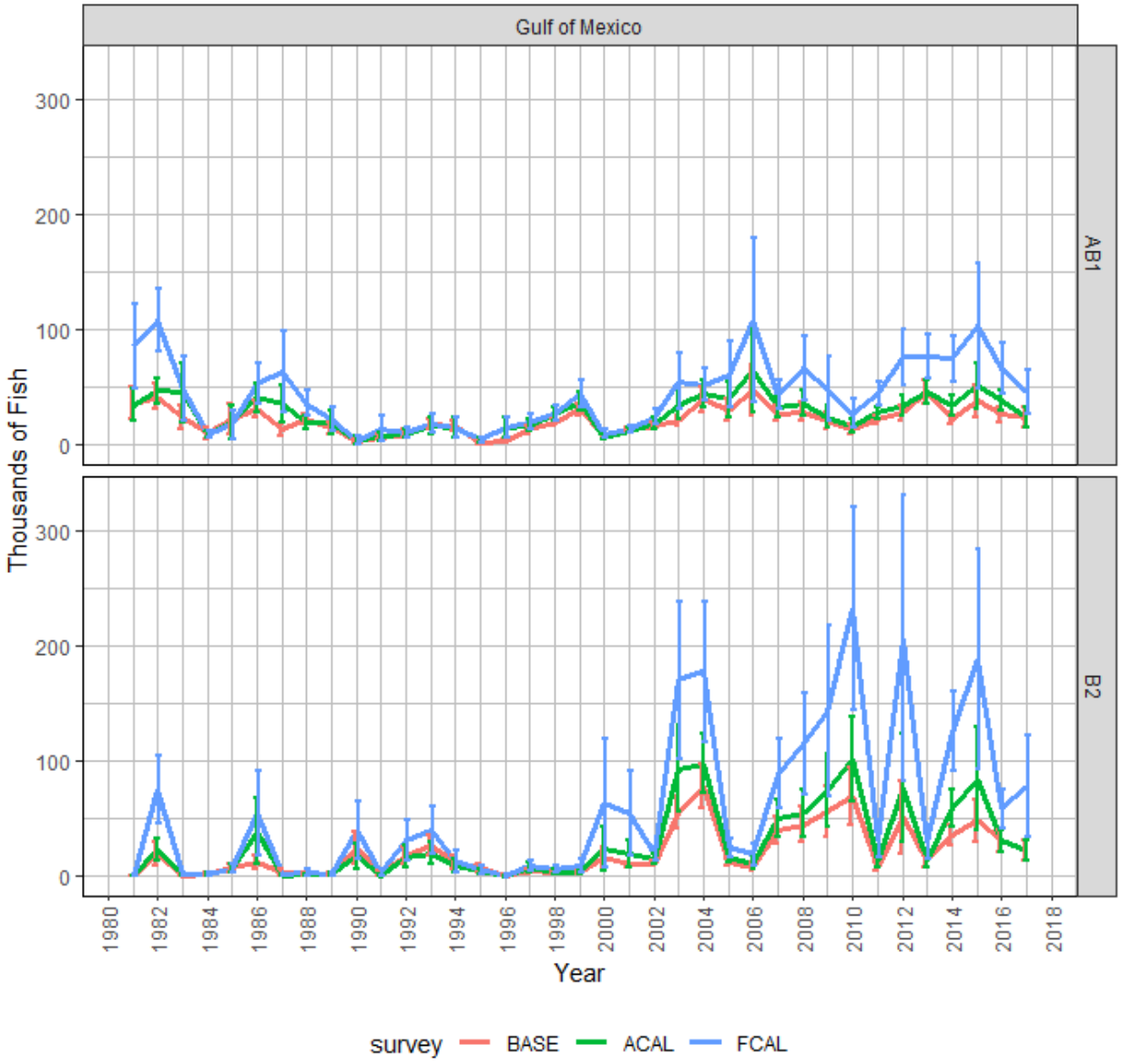

Figure 2. *MRIP Base (BASE), APAIS Calibrated (ACAL), and Fully Calibrated APAIS and FES (FCAL) catch estimates for Scamp in the Gulf of Mexico between 1981 and 2017. Landings (AB1) and discard (B2) estimates are in thousands of fish. Estimates in this figure include the Florida Keys as that domain is not separable from those used by the MRIP online comparison tool for the Gulf of Mexico (NMFS). The Shore mode is also included as uncertainty estimates for catch across multiple modes are only available when all modes are selected.*

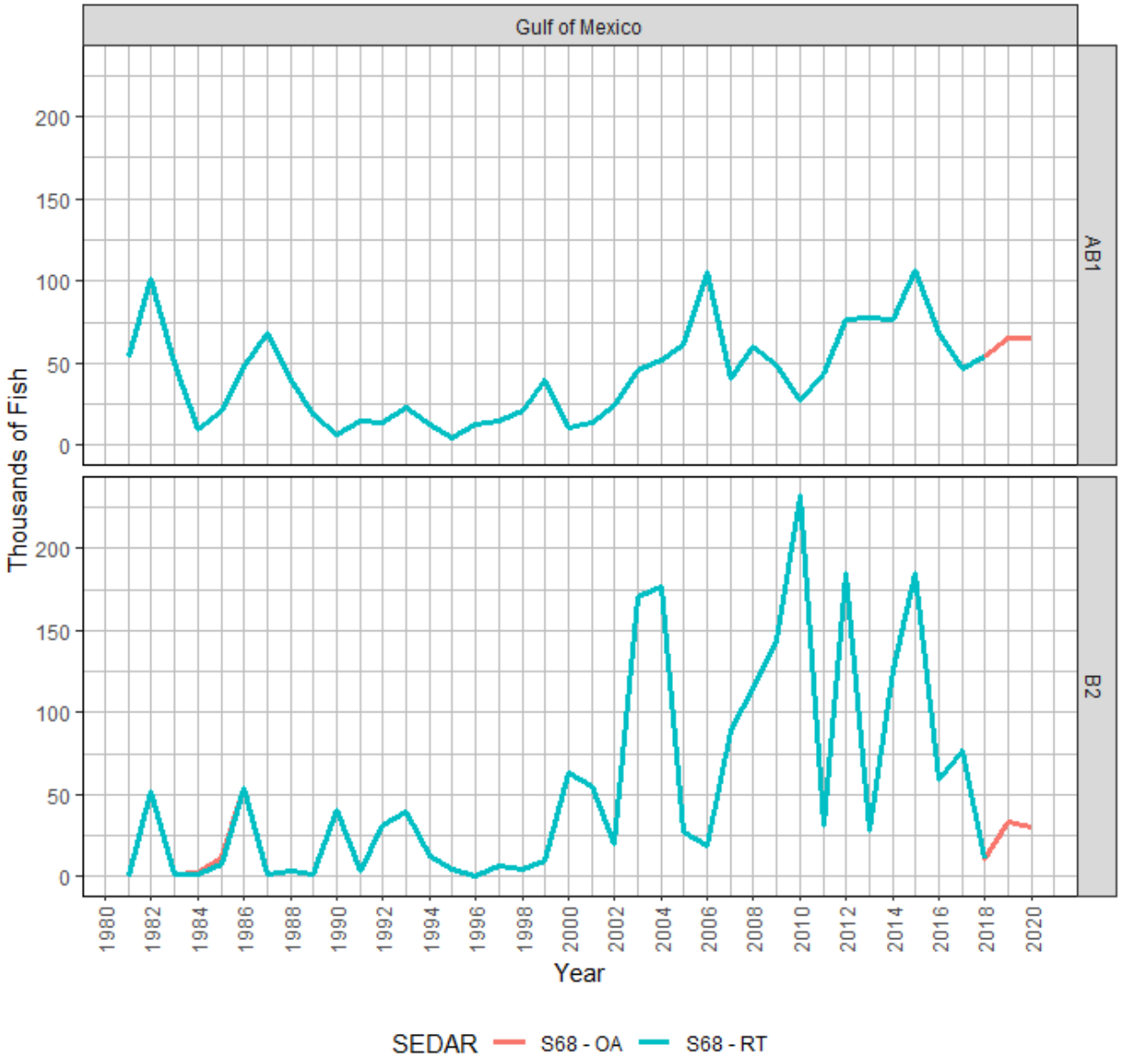

Figure 3. *Comparison of total general recreational landings (AB1) and discard estimates (B2) for Gulf of Mexico scamp between SEDAR 68 - OA and SEDAR 68 - RT, the terminal years of which are 2020 and 2018 respectively. Catch estimates are in thousands of fish.*

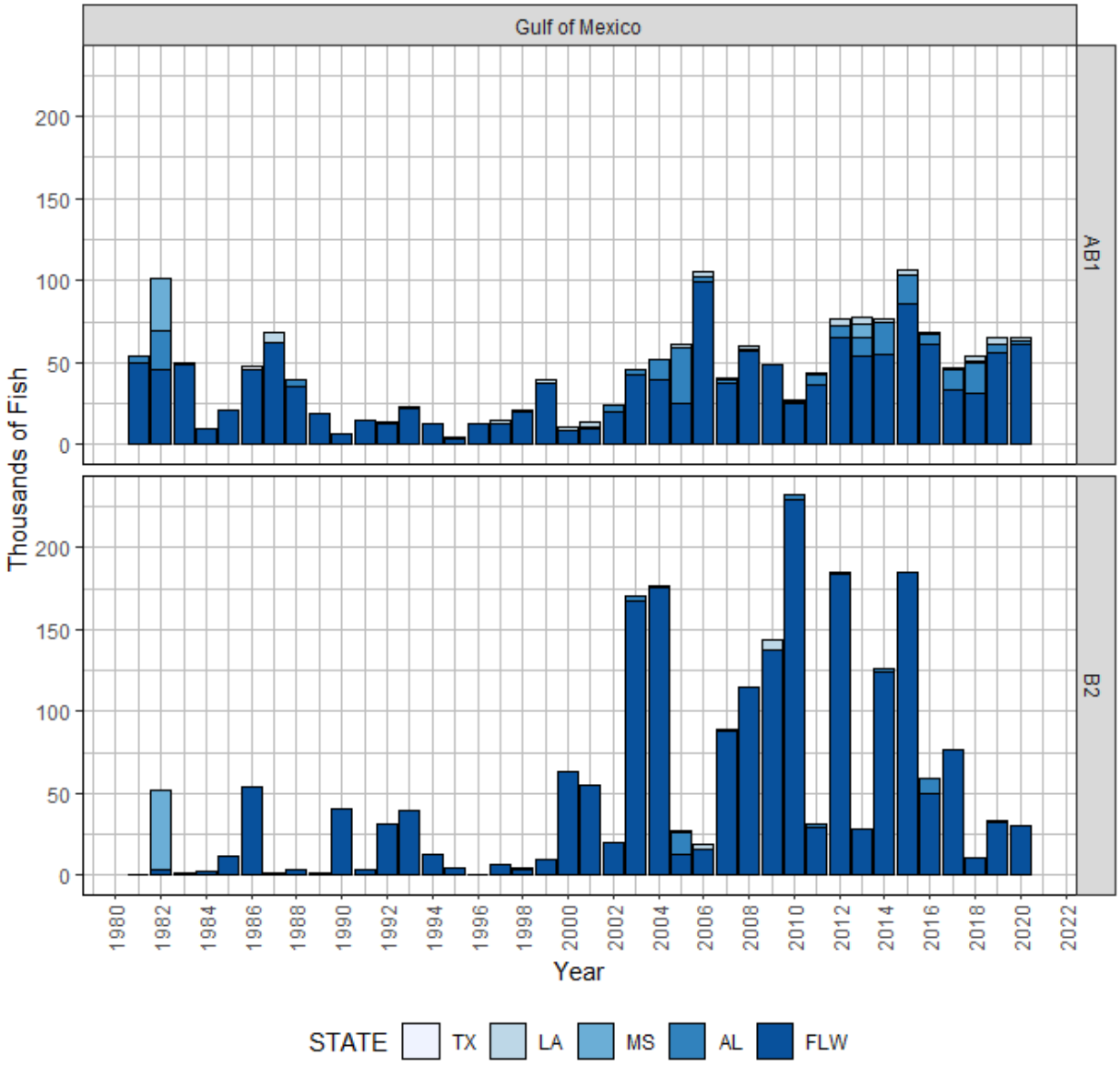

Figure 4. *Annual Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in thousands of fish, by state from 1981 to 2020 (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys.*

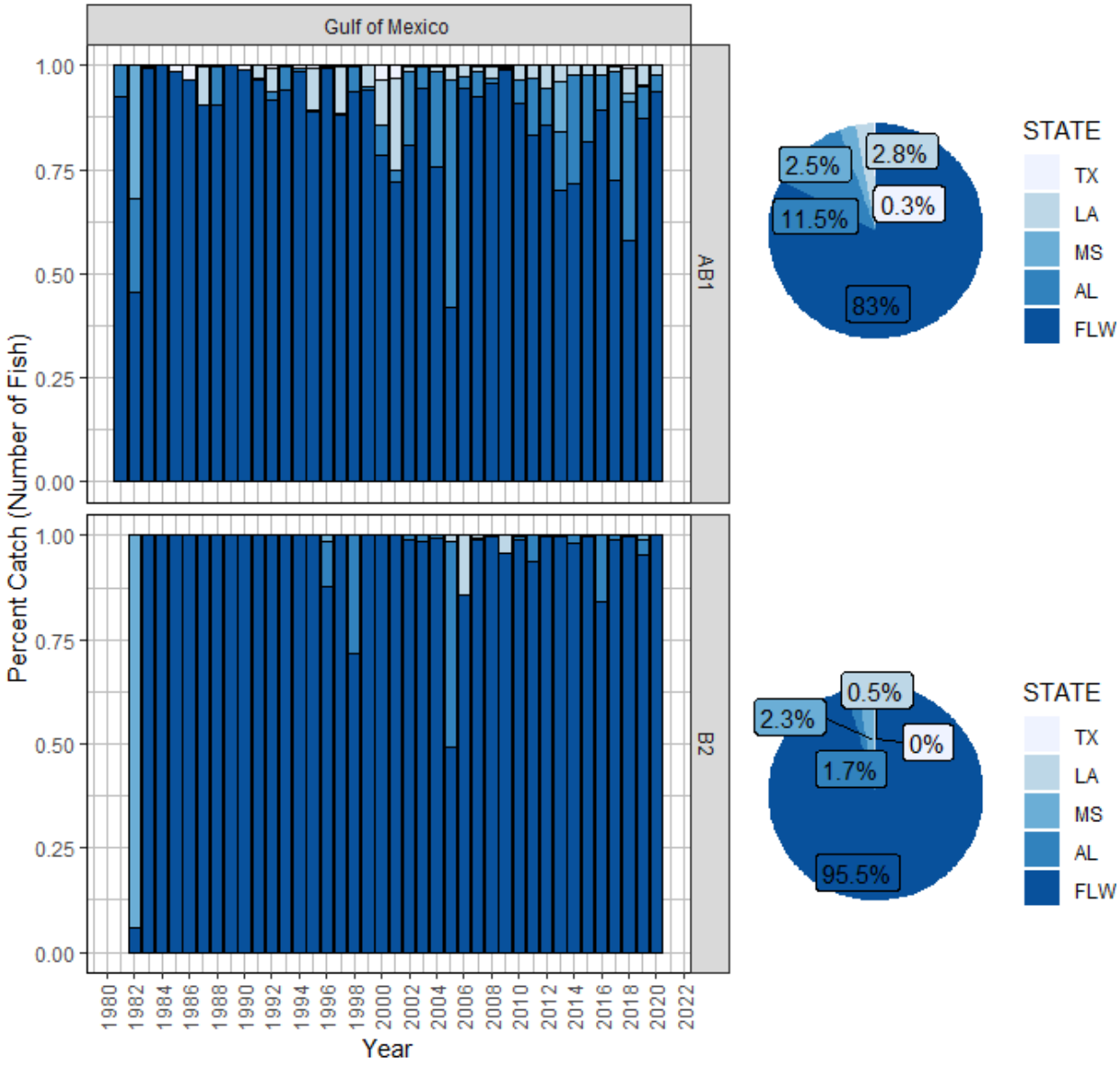

Figure 4a. *Percent of Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in numbers of fish, from each state by year (bar graph) and overall (pie chart) between 1981 and 2020 (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys.*

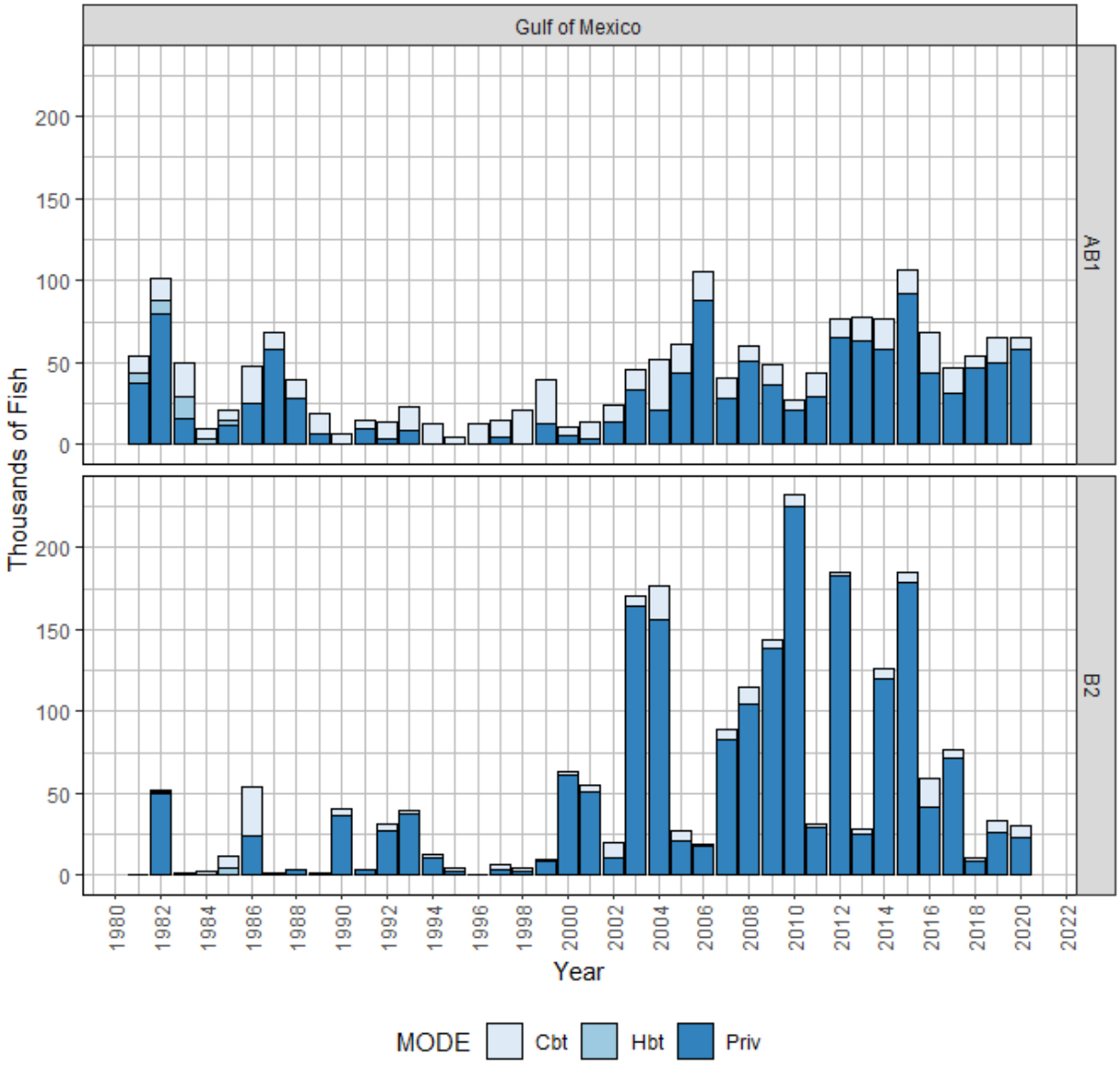

Figure 5. *Annual Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in thousands of fish, by mode from 1981 to 2020 (MRIP, LACreel 2014+, TPWD). Note that catch from the combined private-shore fishing mode in the LA Creel survey has been added to the private mode.*

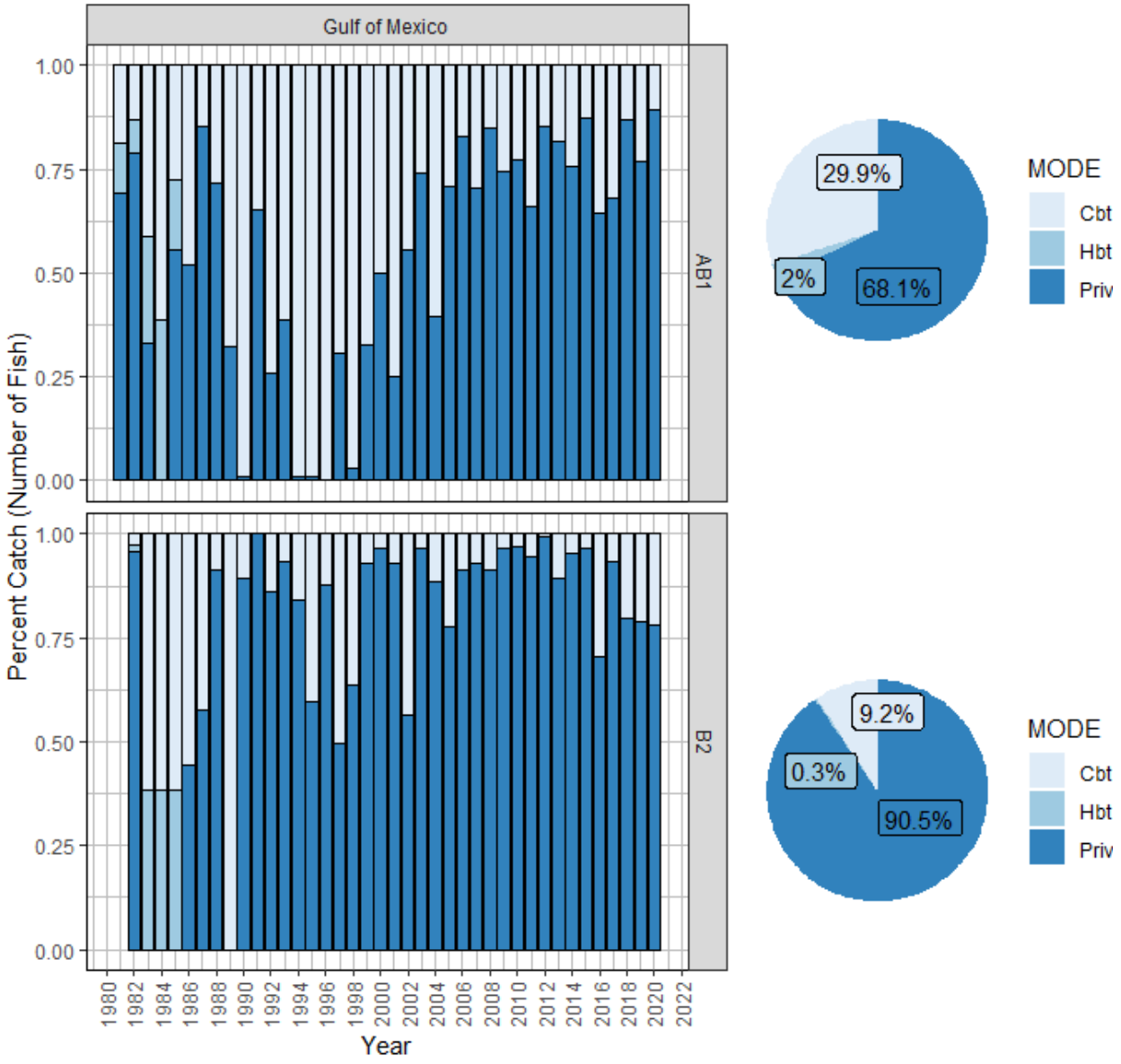

Figure 5a. *Percent of Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in numbers of fish, from each mode by year (bar graph) and overall (pie chart) between 1981 and 2020 (MRIP, LACreel 2014+, TPWD). Note that catch from the combined private-shore fishing mode in the LA Creel survey has been added to the private mode.*

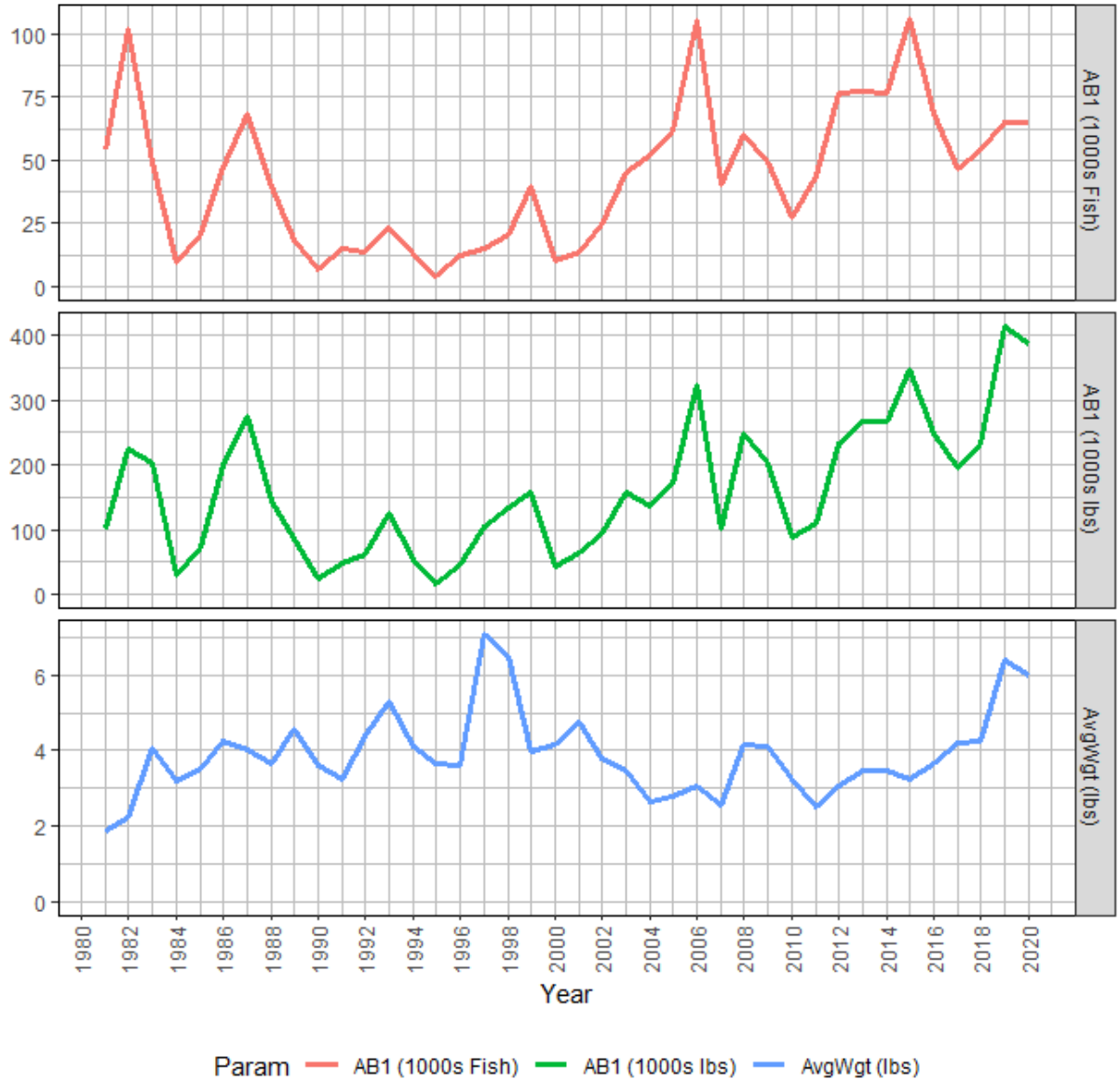

Figure 6. *Estimates of annual landings for Scamp and Yellowmouth Grouper in the Gulf of Mexico (MRIP, LACreel 2014+, TPWD): estimated landings in thousands of fish (top), estimated landings in thousands of pounds whole weight (middle), and average weight of landed fish (estimated lbs/estimated fish) (bottom). Average weight estimates are calculated by strata using the following hierarchy: species, region, year, state, mode, wave, and area (Matter and Rios 2013). The minimum number of weights used at each level of substitution is fifteen fish, except for the final species level where the minimum is one fish (Dettloff and Matter 2019b).*

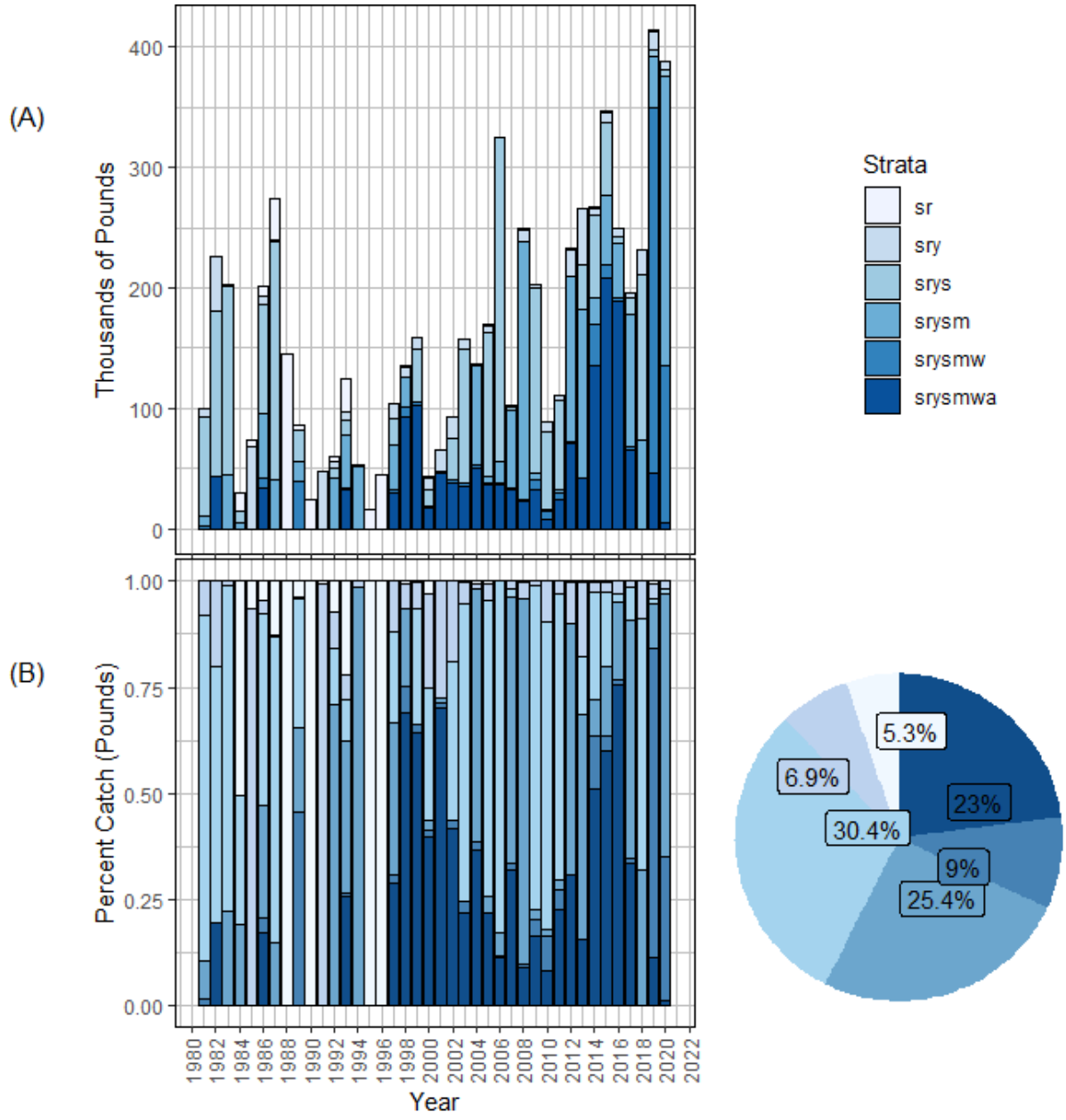

Figure 7. *Annual landings estimates of Gulf of Mexico Scamp and Yellowmouth Grouper in thousands of pounds whole weight by hierarchy level (MRIP, LACreel 2014+, TPWD), defined by* ***s****pecies,* ***r****egion,* ***y****ear,* ***s****tate,* ***m****ode,* ***w****ave, and* ***a****rea. Landings are grouped by the strata at which average weights were estimated, the finest stratification being at the srysmwa level (Matter and Rios 2013). As an example, (srysmw) summarizes those landings-in-weight estimates originating from cells where average weights are specific to a particular* ***s****pecies,* ***r****egion,* ***y****ear,* ***s****tate,* ***m****ode, and* ***w****ave (i.e., weight observations collapsed across areas). Landings are provided (A) in absolute pounds and (B) as a percentage of total landings-in-weight, which is summarized by year (stacked bar plot) and across all years (pie chart).*

(A)

Wave	Cbt		Priv	
	RAW	IMP	RAW	IMP
1	4		2	
2	1	3	2	7
3	8	4	7	1
4	7		2	
5	8		2	
6	6		1	

(B)

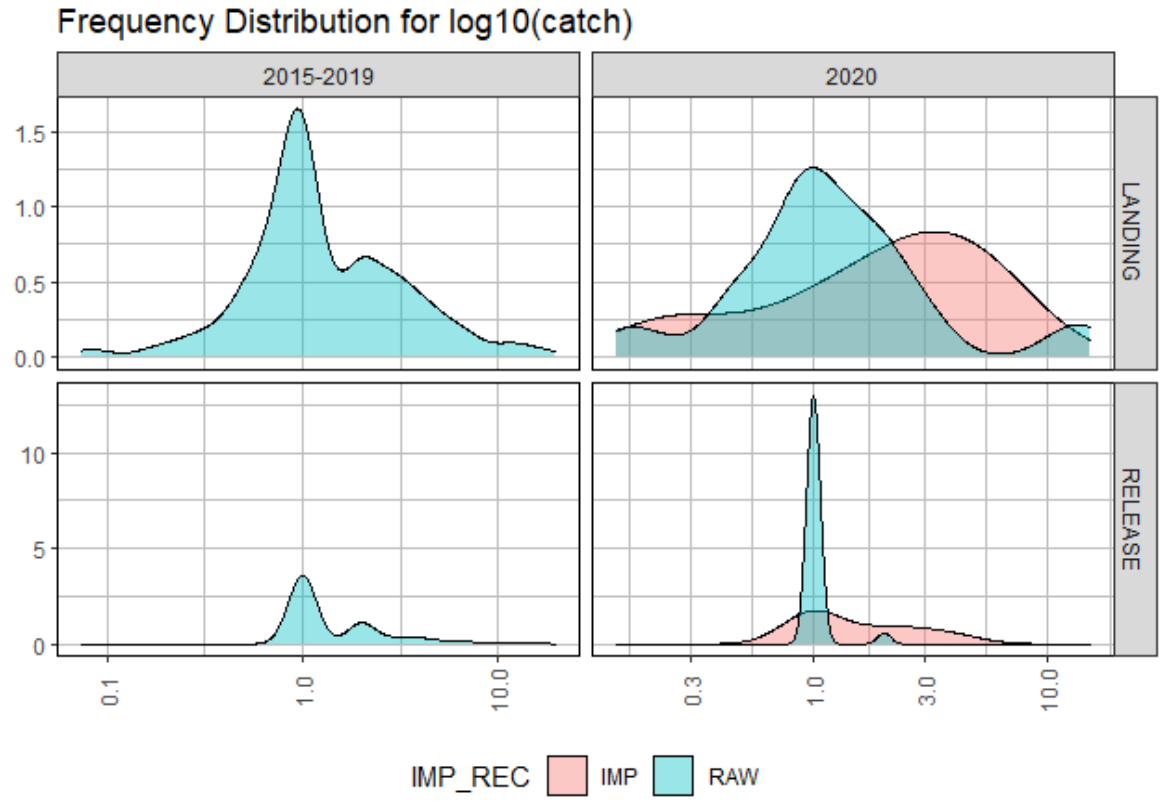

Figure 8. *COVID data gaps in the MRIP APAIS and associated imputations for (positive) fishing trips that intercepted Gulf of Mexico scamp and yellowmouth grouper. No 2020 data were imputed for the FES or FHS. (A) Number of positive intercepts in 2020 from the 2020 APAIS (RAW) vs. those imputed from 2018 and 2019 intercepts (IMP). (B) Distribution of (log-transformed) APAIS catch observations between 2015-2019, in raw 2020 APAIS data, and in 2020 imputations. Refer to Cody (2021) for more information on COVID data gaps in MRIP.*

Appendix A

Additional Details of Survey Data and SEFSC Estimation

- MRIP Survey Methodology: Fully calibrated estimates that take into account the change in the Fishing Effort Survey (FES; 2018), the redesigned Access Point Angler Intercept Survey (APAIS; 2013), and the For Hire Survey (FHS; 2000 for all Gulf of Mexico states).
    - Papacostas and Foster (2021) provide descriptions of the approaches used by the Office of Science and Technology to calibrate MRIP (1) effort estimates derived from the legacy Coastal Household Telephone Survey (CHTS) into FES units for the private and shore modes and (2) catch rate estimates between the original and redesigned APAIS for all modes.
    - SEFSC calibrations of catch and effort estimates between CHTS and FHS units are calculated for for-hire by year, region, state, wave, and area fished according to Dettloff and Matter (2019a). Figure 1 summarizes the resultant scaling of CHTS catch estimates under the FHS calibration ratios.
- MRIP Data Gap from COVID: Missing 2020 intercepts were imputed from all APAIS data collected in 2018 and 2019 from the same strata as the 2020 data gap, with original sample weights reduced by a factor of two to account for using two years of data (Cody 2021).
- SEFSC Weight Estimation: Average (fish) weight estimates are calculated by strata using the following hierarchy: species, region, year, state, mode, wave, and area (Matter and Rios 2013). The minimum number of weights used at each level of substitution is fifteen fish, except for the final species level where the minimum is one fish (Dettloff and Matter 2019b). Size records above an allowable (max size) threshold are excluded from weight estimation and the summary tables included in this working paper (Tables 8-15). For SEDAR 68 scamp, this includes any weights heavier than 32.802 pounds. All yellowmouth grouper heavier than 23.562 were also excluded.
- SEFSC Estimates derived using SEDAR best practices (SEDAR-PW-07):
    - To ensure sampling can support MRIP estimates at finer stratifications than for which the survey was designed, (sub-state) domain estimates are only generated for established geographic domains. For Florida, this includes the sub-state domains of Florida in the FHS (1 = Florida panhandle, Escambia to Dixie; 2 = western Florida).
    - Between 1981 and 1985 in the Gulf of Mexico, MRIP charter and headboat modes were combined into a single (for-hire) mode for estimation purposes. Since the NMFS Southeast Region Headboat Survey (SRHS) began in 1986 in the Gulf, the MRIP combined for-hire mode must be split to provide estimates of headboat landings in these early years. Estimates for the MRIP for-hire mode (1981-1985) were split using a ratio of SRHS headboat angler trip estimates to MRIP charterboat angler trip estimates for 1986-1990, calculated by state (or state equivalent to match SRHS areas to MRIP states).