

General Recreational Survey Data for Scamp and Yellowmouth Grouper in the South Atlantic

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SEDAR 68OA-WP-01

General Recreational Survey Data for Scamp and Yellowmouth Grouper in the South Atlantic

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General recreational catch estimates for Scamp and Yellowmouth Grouper are compiled from the Marine Recreational Information Program (MRIP). Details on MRIP can be found in SEDAR68-DW-13.

Parameters for data prepared for SEDAR 68 recreational catch data:

- Species: Scamp and Yellowmouth Grouper
- Year Range: 1981 - 2021
- Geographic Range: South Atlantic states from North Carolina to eastern Florida, including the Florida Keys.
- Fishing Modes: Charter, 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 8-12). For SEDAR 68 scamp, this includes any weights heavier than 32.802 pounds. All yellowmouth grouper heavier than 23.562 were also excluded.
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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.

- 2002 landings estimate: 47,968 fish
 - Strata: North Carolina, charterboat, wave 4, and ocean > 3 miles
 - Intercept Records: a total of 11 angler trips that resulted in a landings estimate of 17,634 fish

<i>Catch Observation</i>	<i>Minimum</i>	<i>Median</i>	<i>Mean</i>	<i>Maximum</i>
<i>Harvest seen by interviewer</i>	1	3.29	5.16	13
<i>Harvest not seen by interviewer</i>	0	0	1.36	5
<i>Released live fish</i>	0	0	0	0

- 2007 discard estimate: 47,935 fish
 - Strata: North Carolina, private, wave 2, and ocean > 3 miles
 - Intercept Records: a total of 2 angler trips that resulted in a discard estimate of 21,388 fish
 - One angler trip that harvested 1 Scamp (seen by interviewer) and released 10 live Scamp
 - One angler trip that harvested 2 Yellowmouth Grouper (seen by interviewer)
- 2014 landings estimate: 38,389 fish
 - Strata: eastern Florida, private, wave 4, and ocean > 3 miles

- Intercept Records: a total of 5 angler trips that resulted in a landings estimate of 35,893 fish. Note that these 5 trips all belong to the same fishing party.
 - All five records from this fishing party reported harvest of 3 Scamp (NOT seen by interviewer)

Tables

Table 1. Annual landings (AB1) and discards (B2) of Scamp and Yellowmouth Grouper in numbers of fish by state and year (MRIP).

Table 2. Annual landings (AB1) and discards (B2) of Scamp and Yellowmouth Grouper in numbers of fish by mode and year (MRIP).

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). Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by dockside 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). Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by dockside 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). Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by dockside 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). 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).

Table 7. Scamp and Yellowmouth Grouper landings in pounds whole weight (LBS) with associated coefficients of variation (CV; Approach 2 described in Nuttall and Dettloff 2022) by year and mode (MRIP).

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.

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.

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. 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 year and mode (MRIP). Average weight estimates 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.

Table 14. Resolution of landings-in-weight estimates (pounds whole weight) for South Atlantic Scamp and Yellowmouth Grouper by year and hierarchy level (MRIP), defined by species, region, year, state, mode, wave, and area. 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 species, region, year, state, mode, and wave (i.e., weight observations collapsed across areas).

Table 15. Recreational Fishing Effort (in angler trips) for South Atlantic anglers by state and year (MRIP). These effort estimates depict all (general) recreational fishing activity in the South Atlantic and are not specific to Scamp and Yellowmouth Grouper.

Table 16. Recreational Fishing Effort (in angler trips) for South Atlantic anglers by mode and year (MRIP). These effort estimates depict all (general) recreational fishing activity in the South Atlantic and are not specific to Scamp and Yellowmouth Grouper.

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 South Atlantic between 1981 and 2003 (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 South Atlantic between 1981 and 2017. Landings (AB1) and discard (B2) estimates are in thousands of fish. Estimates in this figure do not include the Florida Keys as that domain is not available from the MRIP online comparison tool (NMFS). The Headboat and shore modes are 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 South Atlantic scamp between SEDAR 68 - OA and SEDAR 68 - RT, the terminal years of which are 2021 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 2021 (MRIP).

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 2021 (MRIP).

Figure 5. Annual Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in thousands of fish, by mode from 1981 to 2021 (MRIP).

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 2021 (MRIP).

Figure 6. Estimates of annual landings for Scamp and Yellowmouth Grouper in the South Atlantic (MRIP): 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 South Atlantic Scamp and Yellowmouth Grouper in thousands of pounds whole weight by hierarchy level (MRIP), defined by **species**, **region**, **year**, **state**, **mode**, **wave**, and **area**. 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 **species**, **region**, **year**, **state**, **mode**, and **wave** (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 South Atlantic scamp and yellowmouth grouper. No 2020 data were imputed for the FES or FHS. (A) Number of positive intercepts in 2020 from the APAIS (RAW) vs. those imputed from intercepts in adjacent years (IMP). (B) Distribution of APAIS catch observations in years with no imputed catch data (in 2015-2019 and 2021), 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

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Table 1. Annual landings (AB1) and discards (B2) of Scamp and Yellowmouth Grouper in numbers of fish by state and year (MRIP).

Year	FL Keys		FLE		GA		SC		NC		Total	
	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2
1981	12,364	0	1,682	0	0	0	0	0	0	0	14,046	0
1982	0	0	8,859	0	0	0	1,591	0	0	0	10,451	0
1983	0	0	0	0	0	0	1,048	0	0	0	1,048	0
1984	1,637	0	3,343	0	0	0	2,074	0	3,599	0	10,654	0
1985	0	0	5,221	0	137	0	937	0	0	0	6,295	0
1986	0	0	0	0	0	0	2,904	0	0	0	2,904	0
1987	0	0	0	0	0	0	136	0	1,391	0	1,527	0
1988	0	0	1,513	9,538	0	0	253	0	17,285	0	19,051	9,538
1989	0	0	1,538	0	0	0	76	20	17,677	0	19,291	20
1990	0	0	0	0	0	0	504	0	25,480	4,522	25,984	4,522
1991	0	0	0	0	0	0	927	0	9,464	0	10,391	0
1992	8,157	0	926	0	0	110	714	77	4,723	2,971	14,520	3,157
1993	7,669	7,712	0	862	0	0	0	0	11,726	8,197	19,394	16,772
1994	12,394	0	0	0	4,100	0	0	0	16,278	11,460	32,772	11,460
1995	0	0	0	0	0	273	0	991	95	3,050	95	4,314
1996	0	0	6,042	2,247	0	0	0	0	1,552	1,737	7,594	3,985
1997	2,585	0	0	0	0	0	578	210	0	5,857	3,164	6,067
1998	294	47	1,328	0	0	0	1,434	444	670	830	3,725	1,321
1999	58	21	2,716	2,691	4,650	950	64	0	440	0	7,928	3,663
2000	22	0	21,788	4,933	2,801	1,961	5,144	68	0	0	29,755	6,962
2001	420	76	8,308	5,280	888	0	0	0	5,089	8,913	14,706	14,269
2002	131	18	13,378	10,975	2,533	0	0	0	31,926	9,384	47,968	20,378
2003	9,763	149	6,437	1,105	578	243	7,787	8,955	10,639	13,610	35,204	24,062
2004	700	761	6,627	14,452	1,884	1,915	1,496	1,477	17,007	7,433	27,714	26,038
2005	62	0	4,201	1,265	413	332	38	7	21,968	4,247	26,682	5,851
2006	2,698	0	11,849	1,168	621	0	1,266	579	25,546	8,269	41,980	10,016
2007	2,687	0	12,299	3,252	142	0	2,354	5,597	24,967	39,087	42,449	47,935
2008	6,688	26	4,208	10,219	1,479	232	762	0	13,691	11,079	26,827	21,556
2009	68	3,400	0	11,542	59	25	2,278	0	12,079	6,953	14,483	21,919
2010	0	144	3,495	7,855	45	0	0	0	4,323	2,929	7,863	10,929

Year	FLKeys		FLE		GA		SC		NC		Total	
	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2
2011	0	123	507	2,181	69	44	0	0	4,271	923	4,847	3,271
2012	0	21,814	794	0	2,674	0	1,402	90	2,129	452	6,998	22,356
2013	162	1,382	3,392	0	0	0	2,907	555	2,333	7	8,794	1,945
2014	128	0	37,345	0	157	0	638	0	120	7	38,389	7
2015	0	3,183	2,097	0	0	0	555	83	2,578	60	5,230	3,326
2016	0	0	5,279	366	24	0	1,396	693	110	174	6,808	1,233
2017	314	0	1,108	16	0	0	10,885	0	0	0	12,307	16
2018	538	0	1,898	3,993	0	0	173	0	336	0	2,945	3,993
2019	1,241	0	0	1,001	22	0	1,492	0	1,796	1,871	4,550	2,872
2020	905	0	321	0	10	0	893	0	1,175	562	3,304	562
2021	0	326	1,763	2,723	0	0	189	0	2,813	2,495	4,765	5,545

Table 2. Annual landings (AB1) and discards (B2) of Scamp and Yellowmouth Grouper in numbers of fish by mode and year (MRIP).

Year	Cbt		Priv		Total	
	AB1	B2	AB1	B2	AB1	B2
1981	1,682	0	12,364	0	14,046	0
1982	1,591	0	8,859	0	10,451	0
1983	1,048	0	0	0	1,048	0
1984	7,500	0	3,154	0	10,654	0
1985	1,307	0	4,988	0	6,295	0
1986	613	0	2,291	0	2,904	0
1987	543	0	983	0	1,527	0
1988	14,133	0	4,918	9,538	19,051	9,538
1989	10,571	20	8,720	0	19,291	20
1990	15,496	0	10,488	4,522	25,984	4,522
1991	4,277	0	6,115	0	10,391	0
1992	4,101	3,157	10,419	0	14,520	3,157
1993	8,998	6,043	10,396	10,728	19,394	16,772
1994	15,496	7,143	17,276	4,317	32,772	11,460
1995	95	4,314	0	0	95	4,314
1996	3,756	3,985	3,838	0	7,594	3,985
1997	578	6,067	2,585	0	3,164	6,067
1998	2,085	1,321	1,641	0	3,725	1,321
1999	6,970	1,049	957	2,613	7,928	3,663
2000	5,577	2,320	24,178	4,643	29,755	6,962
2001	5,320	10,216	9,386	4,053	14,706	14,269
2002	36,468	9,948	11,500	10,429	47,968	20,378
2003	13,682	12,453	21,522	11,609	35,204	24,062
2004	7,541	5,967	20,173	20,071	27,714	26,038
2005	23,049	4,853	3,633	998	26,682	5,851
2006	9,612	2,759	32,368	7,257	41,980	10,016
2007	15,826	2,068	26,623	45,867	42,449	47,935
2008	5,816	4,313	21,011	17,244	26,827	21,556
2009	1,034	2,148	13,449	19,771	14,483	21,919
2010	2,313	1,512	5,550	9,418	7,863	10,929
2011	1,342	1,090	3,504	2,181	4,847	3,271
2012	925	665	6,073	21,692	6,998	22,356
2013	2,489	688	6,304	1,256	8,794	1,945
2014	569	7	37,820	0	38,389	7
2015	865	143	4,366	3,183	5,230	3,326
2016	900	174	5,908	1,059	6,808	1,233
2017	12,307	16	0	0	12,307	16
2018	509	0	2,436	3,993	2,945	3,993
2019	1,604	631	2,946	2,240	4,550	2,872
2020	2,484	179	820	383	3,304	562
2021	807	486	3,958	5,059	4,765	5,545

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). Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by dockside samplers within a specified strata and, in parentheses, the number of PSUs and angler trips that intercepted Scamp and Yellowmouth Grouper.

Year	Cbt				Priv			
	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp
1981	1,682	1.00	63 (1)	583 (2)	12,364	1.00	187 (1)	1,522 (1)
1982	1,591	0.71	57 (2)	520 (3)	8,859	0.85	422 (2)	3,872 (2)
1983	1,048	0.61	169 (3)	1,886 (3)	0	0.00	258 (0)	2,269 (0)
1984	7,500	0.54	226 (9)	2,592 (16)	3,154	1.00	260 (1)	2,673 (1)
1985	1,307	0.70	161 (4)	1,625 (8)	4,988	1.00	510 (1)	4,095 (1)
1986	613	1.00	249 (1)	2,260 (1)	2,291	0.71	832 (2)	7,551 (2)
1987	543	0.56	396 (5)	3,626 (5)	983	0.68	1,184 (3)	11,293 (3)
1988	14,133	0.45	422 (18)	3,560 (23)	4,918	0.59	1,174 (4)	10,464 (4)
1989	10,571	0.46	447 (17)	4,258 (20)	8,720	0.52	1,102 (8)	10,497 (8)
1990	15,496	0.53	323 (17)	3,440 (18)	10,488	0.55	929 (7)	10,380 (8)
1991	4,277	0.47	409 (8)	4,108 (11)	6,115	0.54	890 (5)	10,502 (7)
1992	4,101	0.39	561 (17)	5,127 (21)	10,419	0.49	1,303 (7)	14,472 (7)
1993	8,998	0.48	400 (10)	4,334 (15)	10,396	0.58	1,152 (4)	13,021 (4)
1994	15,496	0.35	491 (20)	6,263 (32)	17,276	0.48	1,363 (7)	15,411 (10)
1995	95	0.86	459 (2)	5,646 (2)	0	0.00	1,345 (0)	14,585 (0)
1996	3,756	0.75	640 (10)	8,359 (13)	3,838	0.86	1,512 (3)	16,349 (3)
1997	578	0.60	806 (5)	9,062 (6)	2,585	1.00	1,516 (1)	17,058 (1)
1998	2,085	0.35	912 (12)	9,812 (12)	1,641	0.61	1,419 (3)	16,805 (3)
1999	6,970	0.44	998 (24)	9,372 (30)	957	0.71	1,559 (2)	18,267 (2)
2000	5,577	0.39	1,065 (20)	11,745 (31)	24,178	0.45	1,433 (7)	17,985 (7)
2001	5,320	0.26	950 (24)	11,686 (31)	9,386	0.46	1,618 (6)	21,475 (6)
2002	36,468	0.32	1,002 (36)	11,144 (43)	11,500	0.48	1,468 (5)	19,771 (7)
2003	13,682	0.33	883 (35)	10,036 (41)	21,522	0.59	1,407 (5)	18,297 (5)
2004	7,541	0.24	682 (32)	8,098 (34)	20,173	0.53	1,260 (6)	15,854 (6)
2005	23,049	0.77	626 (16)	7,891 (18)	3,633	0.66	1,203 (3)	15,416 (3)
2006	9,612	0.40	560 (21)	6,706 (31)	32,368	0.65	1,538 (8)	20,214 (8)
2007	15,826	0.53	582 (22)	6,600 (23)	26,623	0.39	1,374 (9)	18,473 (9)
2008	5,816	0.37	729 (23)	7,170 (23)	21,011	0.42	1,304 (8)	17,083 (8)
2009	1,034	0.49	600 (15)	5,439 (16)	13,449	0.54	1,303 (7)	15,845 (8)
2010	2,313	0.54	775 (17)	7,402 (21)	5,550	0.60	1,780 (4)	20,068 (4)
2011	1,342	0.55	741 (8)	7,067 (8)	3,504	0.66	1,672 (3)	18,062 (3)
2012	925	0.55	761 (5)	7,074 (5)	6,073	0.53	1,865 (5)	20,413 (5)
2013	2,489	0.90	418 (7)	3,310 (7)	6,304	0.44	1,508 (7)	13,826 (7)
2014	569	0.42	757 (11)	6,660 (11)	37,820	0.95	1,561 (3)	16,227 (7)
2015	865	0.70	818 (4)	6,976 (4)	4,366	0.71	1,599 (2)	16,293 (2)
2016	900	0.49	814 (9)	6,694 (9)	5,908	0.57	1,578 (4)	14,590 (6)
2017	12,307	0.84	731 (6)	6,129 (6)	0	0.00	1,619 (0)	15,873 (0)
2018	509	0.54	857 (5)	7,754 (5)	2,436	0.59	1,546 (3)	15,127 (3)
2019	1,604	0.53	814 (6)	6,371 (6)	2,946	0.61	1,538 (3)	14,155 (3)
2020	2,484	0.47	1,023 (12)	8,615 (12)	820	1.00	1,997 (1)	17,729 (2)
2021	807	0.45	1,120 (14)	9,423 (15)	3,958	0.73	2,179 (2)	19,320 (2)

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). Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by dockside samplers within a specified strata and, in parentheses, the number of PSUs and angler trips that intercepted Scamp and Yellowmouth Grouper.

Year	Cbt				Priv			
	B2	CV	PSU	Trp	B2	CV	PSU	Trp
1981	0	0.00	63 (0)	583 (0)	0	0.00	187 (0)	1,522 (0)
1982	0	0.00	57 (0)	520 (0)	0	0.00	422 (0)	3,872 (0)
1983	0	0.00	169 (0)	1,886 (0)	0	0.00	258 (0)	2,269 (0)
1984	0	0.00	226 (0)	2,592 (0)	0	0.00	260 (0)	2,673 (0)
1985	0	0.00	161 (0)	1,625 (0)	0	0.00	510 (0)	4,095 (0)
1986	0	0.00	249 (0)	2,260 (0)	0	0.00	832 (0)	7,551 (0)
1987	0	0.00	396 (0)	3,626 (0)	0	0.00	1,184 (0)	11,293 (0)
1988	0	0.00	422 (0)	3,560 (0)	9,538	1.00	1,174 (1)	10,464 (2)
1989	20	1.00	447 (1)	4,258 (2)	0	0.00	1,102 (0)	10,497 (0)
1990	0	0.00	323 (0)	3,440 (0)	4,522	1.00	929 (1)	10,380 (1)
1991	0	0.00	409 (0)	4,108 (0)	0	0.00	890 (0)	10,502 (0)
1992	3,157	0.40	561 (11)	5,127 (13)	0	0.00	1,303 (0)	14,472 (0)
1993	6,043	0.64	400 (5)	4,334 (6)	10,728	0.75	1,152 (3)	13,021 (3)
1994	7,143	0.33	491 (13)	6,263 (38)	4,317	0.53	1,363 (4)	15,411 (7)
1995	4,314	0.45	459 (9)	5,646 (23)	0	0.00	1,345 (0)	14,585 (0)
1996	3,985	0.61	640 (8)	8,359 (17)	0	0.00	1,512 (0)	16,349 (0)
1997	6,067	0.97	806 (2)	9,062 (4)	0	0.00	1,516 (0)	17,058 (0)
1998	1,321	0.65	912 (4)	9,812 (4)	0	0.00	1,419 (0)	16,805 (0)
1999	1,049	0.79	998 (5)	9,372 (5)	2,613	0.59	1,559 (3)	18,267 (3)
2000	2,320	0.74	1,065 (5)	11,745 (9)	4,643	0.62	1,433 (3)	17,985 (3)
2001	10,216	0.42	950 (11)	11,686 (13)	4,053	0.73	1,618 (2)	21,475 (2)
2002	9,948	0.38	1,002 (12)	11,144 (14)	10,429	0.45	1,468 (6)	19,771 (6)
2003	12,453	0.44	883 (17)	10,036 (28)	11,609	0.72	1,407 (3)	18,297 (4)
2004	5,967	0.34	682 (18)	8,098 (26)	20,071	0.44	1,260 (7)	15,854 (9)
2005	4,853	0.65	626 (10)	7,891 (11)	998	1.00	1,203 (1)	15,416 (1)
2006	2,759	0.42	560 (9)	6,706 (12)	7,257	0.49	1,538 (5)	20,214 (5)
2007	2,068	0.63	582 (5)	6,600 (5)	45,867	0.53	1,374 (7)	18,473 (9)
2008	4,313	0.56	729 (11)	7,170 (14)	17,244	0.49	1,304 (7)	17,083 (7)
2009	2,148	0.70	600 (9)	5,439 (9)	19,771	0.52	1,303 (5)	15,845 (5)
2010	1,512	0.59	775 (7)	7,402 (10)	9,418	0.59	1,780 (5)	20,068 (6)
2011	1,090	0.55	741 (9)	7,067 (10)	2,181	1.00	1,672 (1)	18,062 (2)
2012	665	0.56	761 (4)	7,074 (7)	21,692	1.00	1,865 (1)	20,413 (1)
2013	688	0.82	418 (5)	3,310 (5)	1,256	1.00	1,508 (1)	13,826 (1)
2014	7	1.00	757 (1)	6,660 (1)	0	0.00	1,561 (0)	16,227 (0)
2015	143	0.68	818 (3)	6,976 (3)	3,183	1.00	1,599 (1)	16,293 (1)
2016	174	0.79	814 (2)	6,694 (4)	1,059	0.74	1,578 (2)	14,590 (2)
2017	16	1.00	731 (1)	6,129 (1)	0	0.00	1,619 (0)	15,873 (0)
2018	0	0.00	857 (0)	7,754 (0)	3,993	0.72	1,546 (2)	15,127 (2)
2019	631	0.71	814 (2)	6,371 (2)	2,240	0.77	1,538 (2)	14,155 (2)
2020	179	0.71	1,023 (2)	8,615 (2)	383	1.00	1,997 (1)	17,729 (1)
2021	486	0.70	1,120 (3)	9,423 (6)	5,059	0.71	2,179 (2)	19,320 (2)

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). Sample size is provided both as the total number of primary sampling units (PSU) and angler trips (Trp) intercepted by dockside samplers within a specified strata and, in parentheses, the number of PSUs and angler trips that intercepted Scamp and Yellowmouth Grouper.

Year	AB1				B2			
	Total	CV	PSU	Trp	Total	CV	PSU	Trp
1981	14,046	0.89	250 (2)	2,105 (3)	0	0.00	250 (0)	2,105 (0)
1982	10,451	0.72	479 (4)	4,392 (5)	0	0.00	479 (0)	4,392 (0)
1983	1,048	0.61	427 (3)	4,155 (3)	0	0.00	427 (0)	4,155 (0)
1984	10,654	0.48	486 (10)	5,265 (17)	0	0.00	486 (0)	5,265 (0)
1985	6,295	0.81	671 (5)	5,720 (9)	0	0.00	671 (0)	5,720 (0)
1986	2,904	0.58	1,081 (3)	9,811 (3)	0	0.00	1,081 (0)	9,811 (0)
1987	1,527	0.48	1,580 (8)	14,919 (8)	0	0.00	1,580 (0)	14,919 (0)
1988	19,051	0.36	1,596 (22)	14,024 (27)	9,538	1.00	1,596 (1)	14,024 (2)
1989	19,291	0.34	1,549 (25)	14,755 (28)	20	1.00	1,549 (1)	14,755 (2)
1990	25,984	0.39	1,252 (24)	13,820 (26)	4,522	1.00	1,252 (1)	13,820 (1)
1991	10,391	0.37	1,299 (13)	14,610 (18)	0	0.00	1,299 (0)	14,610 (0)
1992	14,520	0.37	1,864 (24)	19,599 (28)	3,157	0.40	1,864 (11)	19,599 (13)
1993	19,394	0.36	1,552 (14)	17,355 (19)	16,772	0.53	1,552 (8)	17,355 (9)
1994	32,772	0.30	1,854 (27)	21,674 (42)	11,460	0.28	1,854 (17)	21,674 (45)
1995	95	0.86	1,804 (2)	20,231 (2)	4,314	0.44	1,804 (9)	20,231 (23)
1996	7,594	0.57	2,152 (13)	24,708 (16)	3,985	0.61	2,152 (8)	24,708 (17)
1997	3,164	0.82	2,322 (6)	26,120 (7)	6,067	0.97	2,322 (2)	26,120 (4)
1998	3,725	0.33	2,331 (15)	26,617 (15)	1,321	0.65	2,331 (4)	26,617 (4)
1999	7,928	0.37	2,557 (26)	27,639 (32)	3,663	0.48	2,557 (8)	27,639 (8)
2000	29,755	0.37	2,498 (27)	29,721 (38)	6,962	0.48	2,498 (8)	29,721 (12)
2001	14,706	0.31	2,568 (30)	33,161 (37)	14,269	0.36	2,568 (13)	33,161 (15)
2002	47,968	0.26	2,470 (41)	30,915 (50)	20,378	0.29	2,470 (18)	30,915 (20)
2003	35,204	0.38	2,290 (40)	28,333 (46)	24,062	0.41	2,290 (20)	28,333 (32)
2004	27,714	0.39	1,942 (38)	23,952 (40)	26,038	0.35	1,942 (25)	23,952 (35)
2005	26,682	0.67	1,829 (19)	23,307 (21)	5,851	0.56	1,829 (11)	23,307 (12)
2006	41,980	0.51	2,098 (29)	26,920 (39)	10,016	0.37	2,098 (14)	26,920 (17)
2007	42,449	0.31	1,956 (31)	25,073 (32)	47,935	0.50	1,956 (12)	25,073 (14)
2008	26,827	0.34	2,033 (31)	24,253 (31)	21,556	0.41	2,033 (18)	24,253 (21)
2009	14,483	0.50	1,903 (22)	21,284 (24)	21,919	0.48	1,903 (14)	21,284 (14)
2010	7,863	0.45	2,555 (21)	27,470 (25)	10,929	0.51	2,555 (12)	27,470 (16)
2011	4,847	0.50	2,413 (11)	25,129 (11)	3,271	0.69	2,413 (10)	25,129 (12)
2012	6,998	0.47	2,626 (10)	27,487 (10)	22,356	0.97	2,626 (5)	27,487 (8)
2013	8,794	0.41	1,926 (14)	17,136 (14)	1,945	0.71	1,926 (6)	17,136 (6)
2014	38,389	0.94	2,318 (14)	22,887 (18)	7	1.00	2,318 (1)	22,887 (1)
2015	5,230	0.60	2,417 (6)	23,269 (6)	3,326	0.96	2,417 (4)	23,269 (4)
2016	6,808	0.50	2,392 (13)	21,284 (15)	1,233	0.65	2,392 (4)	21,284 (6)
2017	12,307	0.84	2,350 (6)	22,002 (6)	16	1.00	2,350 (1)	22,002 (1)
2018	2,945	0.48	2,403 (8)	22,881 (8)	3,993	0.68	2,403 (2)	22,881 (2)
2019	4,550	0.43	2,352 (9)	20,526 (9)	2,872	0.62	2,352 (4)	20,526 (4)

Year	AB1				B2			
	Total	CV	PSU	Trp	Total	CV	PSU	Trp
2020	3,304	0.43	3,020 (13)	26,344 (14)	562	0.72	3,020 (3)	26,344 (3)
2021	4,765	0.61	3,299 (16)	28,743 (17)	5,545	0.65	3,299 (5)	28,743 (8)

Table 6. Estimated landings of Scamp and Yellowmouth Grouper in pounds whole weight by state and year (MRIP). 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).

Year	FLKeys	FLE	GA	SC	NC	Total
1981	23,342	11,660	0	0	0	35,002
1982	0	61,428	0	11,034	0	72,463
1983	0	0	0	7,269	0	7,269
1984	3,902	13,289	0	9,467	14,307	40,965
1985	0	35,990	951	6,496	0	43,437
1986	0	0	0	20,136	0	20,136
1987	0	0	0	944	9,642	10,586
1988	0	6,475	0	1,083	74,146	81,704
1989	0	6,196	0	305	63,712	70,213
1990	0	0	0	1,171	55,637	56,808
1991	0	0	0	4,281	32,329	36,610
1992	39,756	5,702	0	4,398	31,501	81,356
1993	37,376	0	0	0	53,308	90,685
1994	60,409	0	16,281	0	64,124	140,814
1995	0	0	0	0	659	659
1996	0	20,795	0	0	4,762	25,557
1997	17,843	0	0	4,809	0	22,653
1998	1,775	8,163	0	8,642	4,116	22,696
1999	196	33,178	66,202	784	5,377	105,736
2000	97	197,815	28,042	51,102	0	277,056
2001	1,964	58,877	6,377	0	31,516	98,733
2002	493	82,783	18,776	0	241,204	343,256
2003	33,983	57,580	8,721	71,342	64,408	236,035
2004	2,505	49,198	13,808	14,666	122,259	202,436
2005	190	20,931	1,992	183	108,991	132,287
2006	8,314	73,963	3,621	3,752	213,932	303,582
2007	7,240	88,909	990	16,366	164,440	277,944
2008	28,262	31,046	10,911	5,622	91,361	167,202
2009	287	0	440	17,089	85,271	103,087
2010	0	28,336	362	0	32,529	61,227
2011	0	4,301	583	0	36,173	41,057
2012	0	8,234	27,734	14,540	24,805	75,313
2013	558	32,210	0	27,603	23,608	83,979
2014	536	394,573	1,466	5,963	1,120	403,658
2015	0	15,908	0	4,210	19,555	39,673
2016	0	46,482	212	12,292	965	59,950
2017	1,530	7,684	0	75,470	0	84,685
2018	2,346	13,163	0	1,197	2,333	19,039
2019	7,872	0	174	11,943	12,967	32,956
2020	3,241	2,765	88	7,705	9,304	23,103
2021	0	13,948	0	1,494	25,433	40,874

Table 7. Scamp and Yellowmouth Grouper landings in pounds whole weight (LBS) with associated coefficients of variation (CV; Approach 2 described in Nuttall and Dettloff 2022) by year and mode (MRIP).

Year	Cbt		Priv		Total	
	LBS	CV	LBS	CV	LBS	CV
1981	11,660	1.00	23,342	1.00	35,002	0.89
1982	11,034	0.71	61,428	0.93	72,463	0.87
1983	7,269	0.68	0	0.00	7,269	0.68
1984	28,428	0.54	12,537	1.00	40,965	0.65
1985	8,853	0.83	34,584	1.00	43,437	0.86
1986	4,250	1.00	15,886	0.83	20,136	0.73
1987	3,767	0.59	6,819	0.74	10,586	0.51
1988	60,660	0.57	21,044	0.59	81,704	0.51
1989	48,772	0.51	21,441	0.55	70,213	0.40
1990	33,733	0.54	23,075	0.55	56,808	0.39
1991	14,020	0.51	22,590	0.54	36,610	0.40
1992	27,500	0.40	53,856	0.54	81,356	0.38
1993	41,433	0.50	49,252	0.65	90,685	0.38
1994	61,656	0.36	79,158	0.51	140,814	0.31
1995	659	0.90	0	0.00	659	0.90
1996	12,557	0.75	13,000	0.87	25,557	0.58
1997	4,809	0.62	17,843	1.00	22,653	0.82
1998	12,698	0.39	9,998	0.85	22,696	0.39
1999	94,433	0.45	11,302	0.72	105,736	0.38
2000	52,871	0.40	224,185	0.48	277,056	0.38
2001	33,626	0.27	65,108	0.48	98,733	0.32
2002	268,193	0.33	75,063	0.51	343,256	0.27
2003	94,302	0.34	141,732	0.66	236,035	0.39
2004	53,670	0.26	148,766	0.55	202,436	0.40
2005	114,095	0.77	18,192	0.72	132,287	0.67
2006	55,684	0.40	247,898	0.66	303,582	0.51
2007	116,886	0.54	161,059	0.42	277,944	0.32
2008	35,988	0.38	131,214	0.44	167,202	0.35
2009	6,784	0.50	96,303	0.56	103,087	0.51
2010	18,258	0.55	42,969	0.61	61,227	0.46
2011	10,733	0.57	30,324	0.68	41,057	0.52
2012	10,728	0.57	64,585	0.54	75,313	0.48
2013	22,724	0.90	61,255	0.46	83,979	0.42
2014	4,596	0.46	399,062	0.95	403,658	0.94
2015	6,558	0.72	33,115	0.74	39,673	0.61
2016	7,924	0.51	52,026	0.59	59,950	0.51
2017	84,685	0.85	0	0.00	84,685	0.85
2018	3,530	0.56	15,509	0.65	19,039	0.50
2019	11,881	0.54	21,075	0.62	32,956	0.44
2020	16,027	0.48	7,075	1.00	23,103	0.45
2021	6,779	0.48	34,095	0.76	40,874	0.62

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.

Year	FLKeys					FLE					GA					SC					NC				
	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	2 (1)	410	428	25	445	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
1982	0 (0)	0	0	0	0	2 (2)	330	462	187	595	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0
1983	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	11 (2)	470	676	123	840	0 (0)	0	0	0	0
1984	0 (0)	0	0	0	0	1 (1)	315	315	0	315	0 (0)	0	0	0	0	0 (0)	0	0	0	0	2 (1)	408	408	1	409
1985	0 (0)	0	0	0	0	2 (2)	505	513	12	521	1 (1)	760	760	0	760	0 (0)	0	0	0	0	0 (0)	0	0	0	0
1986	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	8 (3)	331	636	151	780	0 (0)	0	0	0	0
1987	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	3 (3)	416	601	182	780	9 (5)	435	598	169	920
1988	0 (0)	0	0	0	0	1 (1)	515	515	0	515	0 (0)	0	0	0	0	14 (5)	386	620	149	780	56 (21)	308	505	126	820
1989	0 (0)	0	0	0	0	1 (1)	386	386	0	386	0 (0)	0	0	0	0	4 (4)	331	582	196	755	65 (23)	270	442	126	910
1990	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	14 (3)	270	401	71	525	73 (23)	260	389	96	952
1991	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	9 (3)	543	568	36	643	37 (15)	305	460	59	595
1992	3 (3)	359	487	111	559	1 (1)	510	510	0	510	0 (0)	0	0	0	0	12 (2)	543	557	25	610	54 (22)	340	538	116	850
1993	3 (3)	610	703	81	753	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	49 (16)	359	554	82	800
1994	6 (4)	567	661	89	753	0 (0)	0	0	0	0	5 (1)	472	525	53	610	0 (0)	0	0	0	0	103 (37)	240	514	57	714
1995	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	0 (0)	0	0	0	0	2 (2)	510	601	129	692
1996	0 (0)	0	0	0	0	6 (4)	441	520	58	575	0 (0)	0	0	0	0	0 (0)	0	0	0	0	19 (12)	245	467	82	535
1997	1 (1)	565	565	0	565	0 (0)	0	0	0	0	0 (0)	0	0	0	0	17 (6)	453	577	100	767	0 (0)	0	0	0	0
1998	4 (4)	400	524	123	684	2 (2)	485	588	145	690	0 (0)	0	0	0	0	27 (7)	178	534	116	778	3 (2)	440	485	58	550
1999	4 (4)	383	466	67	521	23 (11)	456	621	88	762	23 (8)	575	723	91	800	2 (2)	518	559	58	600	5 (4)	440	475	23	505
2000	1 (1)	482	482	0	482	40 (18)	364	610	104	790	9 (2)	470	643	110	800	29 (16)	478	613	125	855	0 (0)	0	0	0	0
2001	9 (5)	426	515	53	575	29 (14)	445	572	75	845	7 (5)	470	580	99	710	0 (0)	0	0	0	0	24 (13)	450	560	86	770
2002	5 (4)	510	570	38	601	31 (21)	410	564	99	845	7 (5)	470	717	134	922	0 (0)	0	0	0	0	106 (20)	450	569	90	840
2003	3 (3)	449	511	61	571	51 (19)	416	621	116	927	19 (11)	470	692	116	875	3 (1)	450	495	69	575	32 (11)	491	559	54	710
2004	7 (5)	354	494	159	800	16 (11)	464	528	63	727	17 (10)	459	587	137	845	17 (5)	485	658	108	772	37 (9)	480	608	94	819
2005	2 (2)	390	444	76	497	9 (6)	471	525	75	671	10 (5)	459	537	70	640	1 (1)	344	344	0	344	22 (7)	473	534	69	694
2006	3 (3)	400	474	69	536	30 (16)	474	558	64	680	13 (5)	483	563	83	825	17 (5)	342	434	101	580	50 (10)	458	570	95	813
2007	15 (7)	372	516	95	677	38 (10)	378	600	92	749	4 (3)	483	593	157	825	5 (2)	342	539	167	750	36 (10)	461	569	101	797
2008	9 (6)	402	558	84	712	2 (2)	507	666	225	825	7 (5)	470	620	133	844	4 (2)	476	621	106	728	33 (16)	463	581	99	826
2009	1 (1)	471	471	0	471	0 (0)	0	0	0	0	5 (4)	464	648	197	910	9 (5)	430	607	135	835	39 (14)	463	593	90	811
2010	0 (0)	0	0	0	0	4 (2)	648	688	59	775	13 (4)	523	699	100	915	0 (0)	0	0	0	0	50 (19)	478	612	95	860

Year	FLKeys					FLE					GA					SC					NC				
	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
2011	0 (0)	0	0	0	0	2 (1)	513	538	35	563	2 (2)	523	686	231	850	0 (0)	0	0	0	0	26 (8)	473	645	114	850
2012	0 (0)	0	0	0	0	1 (1)	595	595	0	595	7 (2)	470	615	70	677	1 (1)	590	590	0	590	20 (6)	539	710	110	900
2013	1 (1)	460	460	0	460	3 (3)	511	672	139	752	0 (0)	0	0	0	0	9 (2)	511	614	92	765	18 (8)	571	673	85	910
2014	6 (2)	476	535	43	585	23 (11)	513	624	95	812	1 (1)	511	511	0	511	2 (1)	545	568	32	590	9 (3)	575	686	91	812
2015	0 (0)	0	0	0	0	1 (1)	721	721	0	721	0 (0)	0	0	0	0	8 (1)	511	596	77	773	9 (4)	473	617	104	760
2016	0 (0)	0	0	0	0	9 (7)	498	634	87	755	1 (1)	820	820	0	820	4 (4)	511	608	126	779	4 (3)	491	627	145	779
2017	1 (1)	825	825	0	825	5 (3)	474	664	129	807	0 (0)	0	0	0	0	8 (2)	561	636	62	709	0 (0)	0	0	0	0
2018	1 (1)	470	470	0	470	2 (2)	487	577	127	667	0 (0)	0	0	0	0	2 (1)	607	658	72	709	8 (4)	536	689	164	940
2019	1 (1)	470	470	0	470	0 (0)	0	0	0	0	2 (1)	697	751	76	805	5 (3)	498	655	120	815	18 (2)	500	627	112	847
2020	1 (1)	625	625	0	625	1 (1)	870	870	0	870	1 (1)	604	604	0	604	4 (2)	522	660	121	801	21 (7)	485	643	110	847
2021	0 (0)	0	0	0	0	5 (4)	319	529	130	664	0 (0)	0	0	0	0	1 (1)	443	443	0	443	17 (11)	319	581	147	847

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.

Year	FLKeys					FLE					GA					SC					NC				
	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	2 (1)	1.8	2.2	0.5	2.5	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	0 (0)	0.0	0.0	0.0	0.0
1982	0 (0)	0.0	0.0	0.0	0.0	2 (2)	0.7	2.4	2.4	4.1	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
1983	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 (2)	3.4	10.2	5.2	18.2	0 (0)	0.0	0.0	0.0	0.0
1984	0 (0)	0.0	0.0	0.0	0.0	1 (1)	1.1	1.1	0.0	1.1	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	2 (1)	3.3	3.3	0.0	3.3
1985	0 (0)	0.0	0.0	0.0	0.0	2 (2)	4.0	4.2	0.3	4.4	1 (1)	16.5	16.5	0.0	16.5	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0
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	8 (3)	1.1	9.3	5.0	15.0	0 (0)	0.0	0.0	0.0	0.0
1987	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	3 (3)	2.3	7.1	4.9	12.1	9 (5)	3.6	8.3	5.8	19.6
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	4 (2)	2.2	8.9	4.6	12.8	13 (4)	0.9	2.9	1.3	5.8
1989	0 (0)	0.0	0.0	0.0	0.0	1 (1)	1.8	1.8	0.0	1.8	0 (0)	0.0	0.0	0.0	0.0	4 (4)	1.1	9.0	7.4	16.5	65 (23)	0.5	3.7	4.9	25.0
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	5 (1)	0.9	2.4	1.2	4.0	73 (23)	0.6	2.3	0.9	5.4

Year	FLKeys					FLE					GA					SC					NC				
	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1991	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	9 (3)	8.2	10.1	2.6	15.5	37 (15)	1.0	3.2	1.2	6.9
1992	3 (3)	1.4	5.4	3.5	7.4	1 (1)	3.1	3.1	0.0	3.1	0 (0)	0.0	0.0	0.0	0.0	12 (2)	4.8	5.6	1.3	8.7	54 (22)	1.6	6.4	4.5	21.9
1993	3 (3)	6.3	11.8	4.9	15.7	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	49 (16)	2.0	4.4	2.0	11.0
1994	6 (4)	5.3	10.1	5.0	15.3	0 (0)	0.0	0.0	0.0	0.0	5 (1)	3.1	4.3	0.9	5.2	0 (0)	0.0	0.0	0.0	0.0	103 (37)	0.5	4.0	1.3	8.2
1995	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	0 (0)	0.0	0.0	0.0	0.0	2 (2)	3.1	6.6	5.0	10.2
1996	0 (0)	0.0	0.0	0.0	0.0	6 (4)	2.6	4.6	1.9	6.8	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	19 (12)	0.4	3.1	1.2	4.9
1997	1 (1)	9.3	9.3	0.0	9.3	0 (0)	0.0	0.0	0.0	0.0	0 (0)	0.0	0.0	0.0	0.0	17 (6)	3.3	8.3	4.1	16.4	0 (0)	0.0	0.0	0.0	0.0
1998	4 (4)	3.5	8.2	5.7	16.2	2 (2)	4.5	13.8	13.1	23.1	0 (0)	0.0	0.0	0.0	0.0	27 (7)	0.4	5.9	3.3	14.9	3 (2)	3.3	3.6	0.2	3.8
1999	4 (4)	2.3	4.0	1.6	5.6	23 (11)	4.1	11.8	5.5	22.6	23 (8)	6.6	15.1	5.5	21.6	2 (2)	4.6	6.0	2.0	7.4	5 (4)	2.4	3.4	0.5	3.8
2000	1 (1)	3.5	3.5	0.0	3.5	40 (18)	1.7	9.0	4.6	19.3	9 (2)	5.2	15.3	9.8	26.5	29 (16)	4.0	9.8	6.4	23.6	0 (0)	0.0	0.0	0.0	0.0
2001	9 (5)	2.7	4.6	1.3	6.3	29 (14)	3.0	7.1	2.7	15.5	7 (5)	6.1	9.8	3.6	14.2	0 (0)	0.0	0.0	0.0	0.0	24 (13)	3.6	6.5	2.9	14.4
2002	5 (4)	4.2	6.0	1.2	7.0	31 (21)	2.1	6.4	3.4	15.7	7 (5)	3.5	12.3	5.9	22.5	0 (0)	0.0	0.0	0.0	0.0	106 (20)	3.2	7.4	4.0	21.8
2003	3 (3)	2.9	4.4	1.4	5.8	51 (19)	3.6	9.1	4.6	23.0	19 (11)	4.1	15.1	7.5	32.1	3 (1)	2.6	3.9	2.0	6.2	32 (11)	3.4	6.1	2.2	12.9
2004	7 (5)	1.4	5.0	5.7	17.4	16 (11)	3.0	4.9	2.1	11.9	17 (10)	2.9	7.3	5.1	17.4	17 (5)	3.3	9.8	4.3	14.8	37 (9)	3.4	7.4	2.9	13.9
2005	2 (2)	1.7	3.2	2.0	4.6	9 (6)	2.9	4.6	2.4	9.1	10 (5)	2.9	5.0	2.1	8.8	1 (1)	1.5	1.5	0.0	1.5	22 (7)	3.0	4.9	2.3	11.1
2006	3 (3)	2.1	3.5	1.3	4.6	30 (16)	3.4	6.0	2.0	9.9	13 (5)	2.9	6.3	3.3	16.1	17 (5)	1.5	3.0	1.8	6.4	50 (10)	3.0	6.6	3.8	17.5
2007	15 (7)	1.5	4.4	2.3	9.3	38 (10)	1.6	7.2	3.2	12.4	4 (3)	2.9	8.1	5.8	16.1	5 (2)	1.5	6.2	4.8	12.8	36 (10)	3.3	6.7	3.9	15.4
2008	9 (6)	2.1	6.0	2.6	10.9	2 (2)	4.1	10.1	8.5	16.1	7 (5)	3.3	7.9	4.5	16.5	4 (2)	3.2	8.3	4.5	14.1	33 (16)	3.2	7.0	3.8	15.4
2009	1 (1)	3.1	3.1	0.0	3.1	0 (0)	0.0	0.0	0.0	0.0	5 (4)	4.0	9.5	5.8	15.9	9 (5)	2.6	8.1	5.1	17.6	39 (14)	3.2	7.1	3.4	17.6
2010	0 (0)	0.0	0.0	0.0	0.0	4 (2)	8.0	10.1	2.6	13.9	13 (4)	5.1	10.4	4.8	19.8	0 (0)	0.0	0.0	0.0	0.0	50 (19)	3.2	7.3	3.5	19.0
2011	0 (0)	0.0	0.0	0.0	0.0	2 (1)	4.9	5.7	1.1	6.5	2 (2)	5.1	9.1	5.8	13.2	0 (0)	0.0	0.0	0.0	0.0	26 (8)	3.3	8.7	4.3	19.3
2012	0 (0)	0.0	0.0	0.0	0.0	1 (1)	7.9	7.9	0.0	7.9	7 (2)	3.2	7.6	2.3	9.7	1 (1)	6.4	6.4	0.0	6.4	20 (6)	4.9	11.7	5.8	22.0
2013	1 (1)	2.8	2.8	0.0	2.8	3 (3)	4.3	10.5	5.4	13.6	0 (0)	0.0	0.0	0.0	0.0	9 (2)	4.0	7.9	4.2	15.2	18 (8)	5.4	10.1	4.6	23.1
2014	6 (2)	3.9	5.6	2.2	8.4	23 (11)	4.4	9.0	4.8	22.7	1 (1)	4.0	4.0	0.0	4.0	2 (1)	4.9	5.6	1.1	6.4	9 (3)	6.3	11.7	5.5	22.7
2015	0 (0)	0.0	0.0	0.0	0.0	1 (1)	9.9	9.9	0.0	9.9	0 (0)	0.0	0.0	0.0	0.0	8 (1)	4.0	6.6	2.9	13.4	9 (4)	3.5	8.2	3.9	13.9
2016	0 (0)	0.0	0.0	0.0	0.0	9 (7)	3.8	8.5	3.6	15.2	1 (1)	17.4	17.4	0.0	17.4	4 (4)	4.0	7.9	5.1	14.8	4 (3)	3.5	8.1	5.3	14.8
2017	1 (1)	17.2	17.2	0.0	17.2	5 (3)	3.2	10.8	6.2	18.7	0 (0)	0.0	0.0	0.0	0.0	8 (2)	5.7	8.8	3.0	12.3	0 (0)	0.0	0.0	0.0	0.0
2018	1 (1)	4.0	4.0	0.0	4.0	2 (2)	3.8	6.7	4.1	9.6	0 (0)	0.0	0.0	0.0	0.0	2 (1)	7.3	9.8	3.6	12.3	8 (4)	5.3	11.6	7.5	23.1
2019	1 (1)	4.0	4.0	0.0	4.0	0 (0)	0.0	0.0	0.0	0.0	2 (1)	10.6	12.6	2.8	14.6	5 (3)	3.8	9.2	5.3	17.9	18 (2)	3.3	7.2	3.7	15.4
2020	1 (1)	7.3	7.3	0.0	7.3	1 (1)	19.2	19.2	0.0	19.2	1 (1)	6.2	6.2	0.0	6.2	4 (2)	4.3	10.3	5.7	17.2	21 (7)	3.7	7.9	3.8	16.5
2021	0 (0)	0.0	0.0	0.0	0.0	5 (4)	1.4	5.4	2.6	7.8	0 (0)	0.0	0.0	0.0	0.0	1 (1)	2.8	2.8	0.0	2.8	17 (11)	1.4	6.9	4.2	15.2

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.

Year	Cbt					Priv				
	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	0 (0)	0	0	0	0	2 (1)	410	428	25	445
1982	0 (0)	0	0	0	0	2 (2)	330	462	187	595
1983	11 (2)	470	676	123	840	0 (0)	0	0	0	0
1984	2 (1)	408	408	1	409	1 (1)	315	315	0	315
1985	2 (2)	505	632	180	760	1 (1)	521	521	0	521
1986	6 (1)	602	704	76	780	2 (2)	331	433	144	535
1987	7 (5)	416	635	184	920	5 (3)	460	547	131	775
1988	62 (23)	310	537	143	820	9 (4)	308	465	62	515
1989	46 (20)	270	475	150	910	24 (8)	290	399	67	498
1990	68 (18)	260	405	97	952	19 (8)	270	343	49	475
1991	26 (11)	305	486	85	643	20 (7)	397	474	46	595
1992	61 (21)	450	554	100	850	9 (7)	340	436	83	559
1993	44 (15)	479	567	84	800	8 (4)	359	537	109	747
1994	100 (32)	240	517	63	753	14 (10)	502	559	80	740
1995	2 (2)	510	601	129	692	0 (0)	0	0	0	0
1996	22 (13)	245	476	82	575	3 (3)	469	505	61	575
1997	17 (6)	453	577	100	767	1 (1)	565	565	0	565
1998	33 (12)	400	539	94	778	3 (3)	178	451	258	690
1999	55 (27)	383	641	119	800	2 (2)	456	511	78	566
2000	60 (31)	364	606	114	855	19 (6)	491	636	105	790
2001	56 (31)	426	548	68	770	13 (6)	483	619	104	845
2002	139 (43)	410	571	92	922	10 (7)	482	639	143	845
2003	101 (40)	416	613	107	927	7 (5)	449	553	144	845
2004	77 (34)	354	584	113	845	17 (6)	492	624	120	819
2005	40 (18)	344	523	75	694	4 (3)	471	537	92	671
2006	90 (31)	342	529	96	825	23 (8)	474	598	87	720
2007	70 (23)	372	586	107	825	28 (9)	342	537	93	750
2008	42 (23)	402	572	100	826	13 (8)	507	641	107	844
2009	37 (16)	463	594	116	910	17 (8)	430	607	97	835
2010	58 (21)	478	642	103	915	9 (4)	483	573	57	659
2011	20 (8)	473	617	112	850	10 (3)	525	688	122	800
2012	15 (5)	470	699	126	900	14 (5)	590	658	84	845
2013	20 (7)	460	647	109	910	11 (7)	511	653	79	758
2014	23 (11)	476	601	98	812	18 (7)	517	641	94	812
2015	16 (4)	473	610	92	773	2 (2)	559	640	115	721
2016	11 (9)	491	645	121	820	7 (6)	498	623	101	779
2017	14 (6)	474	659	98	825	0 (0)	0	0	0	0
2018	10 (5)	536	683	147	940	3 (3)	470	541	109	667
2019	22 (4)	500	647	115	847	4 (3)	470	575	115	722
2020	26 (10)	485	650	109	870	2 (2)	522	662	197	801
2021	21 (14)	319	561	146	847	2 (2)	522	593	100	664

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.

Year	Cbt					Priv				
	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	0 (0)	0.0	0.0	0.0	0.0	2 (1)	1.8	2.2	0.5	2.5
1982	0 (0)	0.0	0.0	0.0	0.0	2 (2)	0.7	2.4	2.4	4.1
1983	11 (2)	3.4	10.2	5.2	18.2	0 (0)	0.0	0.0	0.0	0.0
1984	2 (1)	3.3	3.3	0.0	3.3	1 (1)	1.1	1.1	0.0	1.1
1985	2 (2)	4.0	10.2	8.8	16.5	1 (1)	4.4	4.4	0.0	4.4
1986	6 (1)	7.2	11.4	3.3	15.0	2 (2)	1.1	2.8	2.3	4.4
1987	7 (5)	2.3	9.4	6.0	19.6	5 (3)	3.6	5.9	4.1	13.3
1988	17 (6)	0.9	4.3	3.5	12.8	0 (0)	0.0	0.0	0.0	0.0
1989	46 (20)	0.5	5.0	6.0	25.0	24 (8)	0.7	2.1	1.1	5.0
1990	59 (16)	0.6	2.4	1.0	5.4	19 (8)	2.0	2.2	0.2	3.1
1991	26 (11)	1.0	5.4	3.9	15.5	20 (7)	2.2	3.5	1.3	6.9
1992	61 (21)	3.3	6.6	4.0	21.9	9 (7)	1.4	3.3	2.4	7.4
1993	44 (15)	2.5	4.8	2.7	15.7	8 (4)	2.0	4.8	3.6	13.3
1994	100 (32)	0.5	4.1	1.7	14.8	14 (10)	3.1	5.7	3.9	15.3
1995	2 (2)	3.1	6.6	5.0	10.2	0 (0)	0.0	0.0	0.0	0.0
1996	22 (13)	0.4	3.4	1.5	6.8	3 (3)	2.4	3.9	2.0	6.2
1997	17 (6)	3.3	8.3	4.1	16.4	1 (1)	9.3	9.3	0.0	9.3
1998	33 (12)	2.4	6.1	3.5	16.2	3 (3)	0.4	9.4	12.1	23.1
1999	55 (27)	2.3	11.9	6.3	22.6	2 (2)	4.1	5.2	1.5	6.2
2000	60 (31)	1.7	10.1	6.7	26.5	19 (6)	3.5	9.3	4.5	17.3
2001	56 (31)	2.7	6.6	2.8	14.4	13 (6)	3.7	8.1	3.6	15.5
2002	139 (43)	2.1	7.2	4.0	22.5	10 (7)	3.6	9.3	5.2	16.3
2003	101 (40)	3.4	9.2	5.6	32.1	7 (5)	2.6	5.9	4.7	15.7
2004	77 (34)	1.4	7.0	4.1	17.4	17 (6)	4.5	8.2	3.5	13.9
2005	40 (18)	1.5	4.7	2.2	11.1	4 (3)	2.9	4.8	2.9	9.1
2006	90 (31)	1.5	5.3	3.0	17.5	23 (8)	3.4	7.7	3.7	15.4
2007	70 (23)	1.5	7.0	3.8	16.1	28 (9)	1.5	5.7	3.1	15.4
2008	42 (23)	2.1	6.4	3.4	16.1	13 (8)	4.1	9.6	4.6	16.5
2009	37 (16)	3.1	7.4	4.1	17.6	17 (8)	2.6	7.4	3.8	17.6
2010	58 (21)	3.2	8.4	4.1	19.8	9 (4)	3.6	6.0	1.8	9.2
2011	20 (8)	3.3	7.6	4.0	19.3	10 (3)	4.7	10.3	4.2	15.4
2012	15 (5)	3.2	11.2	6.1	22.0	14 (5)	6.2	9.5	4.2	19.2
2013	20 (7)	2.8	9.3	5.0	23.1	11 (7)	4.3	9.2	3.9	15.4
2014	23 (11)	3.9	8.0	4.8	22.7	18 (7)	4.6	9.8	5.0	22.7
2015	16 (4)	3.5	7.6	3.5	13.9	2 (2)	5.5	7.7	3.1	9.9
2016	11 (9)	3.5	9.2	5.0	17.4	7 (6)	3.8	8.2	3.8	14.8
2017	14 (6)	3.2	10.1	4.7	18.7	0 (0)	0.0	0.0	0.0	0.0
2018	10 (5)	5.3	11.2	6.8	23.1	3 (3)	3.8	5.8	3.3	9.6
2019	22 (4)	3.3	8.2	4.3	17.9	4 (3)	3.8	5.9	2.9	9.9
2020	26 (10)	3.7	8.4	4.1	19.2	2 (2)	4.3	10.7	9.1	17.2
2021	21 (14)	1.4	6.4	4.1	15.2	2 (2)	4.3	6.0	2.4	7.8

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.

Year	Length					Weight				
	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
1981	2 (1)	410	428	25	445	2 (1)	1.8	2.2	0.5	2.5
1982	2 (2)	330	462	187	595	2 (2)	0.7	2.4	2.4	4.1
1983	11 (2)	470	676	123	840	11 (2)	3.4	10.2	5.2	18.2
1984	3 (2)	315	377	54	409	3 (2)	1.1	2.6	1.3	3.3
1985	3 (3)	505	595	143	760	3 (3)	4.0	8.3	7.1	16.5
1986	8 (3)	331	636	151	780	8 (3)	1.1	9.3	5.0	15.0
1987	12 (8)	416	598	163	920	12 (8)	2.3	8.0	5.4	19.6
1988	71 (27)	308	528	137	820	17 (6)	0.9	4.3	3.5	12.8
1989	70 (28)	270	449	132	910	70 (28)	0.5	4.0	5.1	25.0
1990	87 (26)	260	391	92	952	78 (24)	0.6	2.3	0.9	5.4
1991	46 (18)	305	481	70	643	46 (18)	1.0	4.6	3.2	15.5
1992	70 (28)	340	539	105	850	70 (28)	1.4	6.2	4.0	21.9
1993	52 (19)	359	563	88	800	52 (19)	2.0	4.8	2.8	15.7
1994	114 (42)	240	522	67	753	114 (42)	0.5	4.3	2.2	15.3
1995	2 (2)	510	601	129	692	2 (2)	3.1	6.6	5.0	10.2
1996	25 (16)	245	479	79	575	25 (16)	0.4	3.4	1.5	6.8
1997	18 (7)	453	576	97	767	18 (7)	3.3	8.4	4.0	16.4
1998	36 (15)	178	532	112	778	36 (15)	0.4	6.4	4.5	23.1
1999	57 (29)	383	636	120	800	57 (29)	2.3	11.6	6.3	22.6
2000	79 (37)	364	613	112	855	79 (37)	1.7	9.9	6.3	26.5
2001	69 (37)	426	561	80	845	69 (37)	2.7	6.8	3.0	15.5
2002	149 (50)	410	575	97	922	149 (50)	2.1	7.4	4.1	22.5
2003	108 (45)	416	609	110	927	108 (45)	2.6	9.0	5.6	32.1
2004	94 (40)	354	591	115	845	94 (40)	1.4	7.2	4.0	17.4
2005	44 (21)	344	524	75	694	44 (21)	1.5	4.7	2.3	11.1
2006	113 (39)	342	543	98	825	113 (39)	1.5	5.8	3.3	17.5
2007	98 (32)	342	572	105	825	98 (32)	1.5	6.6	3.6	16.1
2008	55 (31)	402	588	105	844	55 (31)	2.1	7.2	3.9	16.5
2009	54 (24)	430	598	110	910	54 (24)	2.6	7.4	4.0	17.6
2010	67 (25)	478	633	101	915	67 (25)	3.2	8.1	3.9	19.8
2011	30 (11)	473	641	119	850	30 (11)	3.3	8.5	4.2	19.3
2012	29 (10)	470	679	108	900	29 (10)	3.2	10.4	5.3	22.0
2013	31 (14)	460	649	98	910	31 (14)	2.8	9.3	4.6	23.1
2014	41 (18)	476	619	97	812	41 (18)	3.9	8.8	4.9	22.7
2015	18 (6)	473	613	92	773	18 (6)	3.5	7.6	3.4	13.9
2016	18 (15)	491	637	111	820	18 (15)	3.5	8.8	4.5	17.4
2017	14 (6)	474	659	98	825	14 (6)	3.2	10.1	4.7	18.7
2018	13 (8)	470	650	148	940	13 (8)	3.8	10.0	6.5	23.1
2019	26 (7)	470	636	116	847	26 (7)	3.3	7.8	4.1	17.9

Year	Length					Weight				
	N	Min	Avg	SD	Max	N	Min	Avg	SD	Max
2020	28 (12)	485	651	112	870	28 (12)	3.7	8.6	4.4	19.2
2021	23 (16)	319	564	142	847	23 (16)	1.4	6.4	3.9	15.2

Table 13. 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 year and mode (MRIP). Average weight estimates 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.

Year	Cbt			Priv			Total		
	WGT	CV	N	WGT	CV	N	WGT	CV	N
1981	6.93	0.00	0	1.89	0.00	1 (2)	2.49	0.00	1 (2)
1982	6.93	0.00	0	6.93	0.71	2 (2)	6.93	0.71	2 (2)
1983	6.93	0.39	2 (11)	0.00	0.00	0	6.93	0.39	2 (11)
1984	3.79	0.00	1 (2)	3.98	0.00	1 (1)	3.85	0.50	2 (3)
1985	6.77	0.61	2 (2)	6.93	0.00	1 (1)	6.90	0.49	3 (3)
1986	6.93	0.00	1 (6)	6.93	0.60	2 (2)	6.93	0.54	3 (8)
1987	6.93	0.22	5 (7)	6.93	0.41	3 (5)	6.93	0.19	8 (12)
1988	4.29	0.39	6 (17)	4.28	0.00	0	4.29	0.39	6 (17)
1989	4.61	0.24	20 (46)	2.46	0.21	8 (24)	3.64	0.22	28 (70)
1990	2.18	0.09	16 (59)	2.20	0.02	8 (19)	2.19	0.07	24 (78)
1991	3.28	0.22	11 (26)	3.69	0.07	7 (20)	3.52	0.15	18 (46)
1992	6.71	0.09	21 (61)	5.17	0.27	7 (9)	5.60	0.10	28 (70)
1993	4.60	0.14	15 (44)	4.74	0.37	4 (8)	4.68	0.13	19 (52)
1994	3.98	0.07	32 (100)	4.58	0.20	10 (14)	4.30	0.07	42 (114)
1995	6.93	0.53	2 (2)	0.00	0.00	0	6.93	0.53	2 (2)
1996	3.34	0.11	13 (22)	3.39	0.29	3 (3)	3.37	0.10	16 (25)
1997	8.31	0.18	6 (17)	6.90	0.00	1 (1)	7.16	0.15	7 (18)
1998	6.09	0.18	12 (33)	6.09	0.74	3 (3)	6.09	0.22	15 (36)
1999	13.55	0.11	27 (55)	11.81	0.20	2 (2)	13.34	0.11	29 (57)
2000	9.48	0.11	31 (60)	9.27	0.18	6 (19)	9.31	0.09	37 (79)
2001	6.32	0.07	31 (56)	6.94	0.16	6 (13)	6.71	0.07	37 (69)
2002	7.35	0.08	43 (139)	6.53	0.19	7 (10)	7.16	0.08	50 (149)
2003	6.89	0.08	40 (101)	6.59	0.35	5 (7)	6.70	0.08	45 (108)
2004	7.12	0.10	34 (77)	7.37	0.16	6 (17)	7.30	0.09	40 (94)
2005	4.95	0.11	18 (40)	5.01	0.37	3 (4)	4.96	0.11	21 (44)
2006	5.79	0.06	31 (90)	7.66	0.12	8 (23)	7.23	0.06	39 (113)
2007	7.39	0.11	23 (70)	6.05	0.18	9 (28)	6.55	0.09	32 (98)
2008	6.19	0.10	23 (42)	6.25	0.15	8 (13)	6.23	0.09	31 (55)
2009	6.56	0.12	16 (37)	7.16	0.17	8 (17)	7.12	0.10	24 (54)
2010	7.89	0.09	21 (58)	7.74	0.15	4 (9)	7.79	0.08	25 (67)
2011	8.00	0.19	8 (20)	8.65	0.21	3 (10)	8.47	0.15	11 (30)
2012	11.59	0.18	5 (15)	10.64	0.12	5 (14)	10.76	0.10	10 (29)
2013	9.13	0.16	7 (20)	9.72	0.14	7 (11)	9.55	0.10	14 (31)
2014	8.07	0.21	11 (23)	10.55	0.13	7 (18)	10.51	0.13	18 (41)
2015	7.59	0.22	4 (16)	7.59	0.29	2 (2)	7.59	0.16	6 (18)
2016	8.81	0.18	9 (11)	8.81	0.17	6 (7)	8.81	0.13	15 (18)
2017	6.88	0.22	6 (14)	0.00	0.00	0	6.88	0.22	6 (14)
2018	6.93	0.17	5 (10)	6.37	0.33	3 (3)	6.46	0.17	8 (13)
2019	7.41	0.12	6 (22)	7.15	0.15	3 (4)	7.24	0.12	9 (26)
2020	6.45	0.13	12 (26)	8.62	0.60	2 (2)	6.99	0.13	14 (28)
2021	8.40	0.18	14 (21)	8.61	0.29	2 (2)	8.58	0.16	16 (23)

Table 14. Resolution of landings-in-weight estimates (pounds whole weight) for South Atlantic Scamp and Yellowmouth Grouper by year and hierarchy level (MRIP), defined by species, region, year, state, mode, wave, and area. 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 species, region, year, state, mode, and wave (i.e., weight observations collapsed across areas).

Year	N	AB1.lbs					
		sr	sry	srys	srysm	srysmw	srysmwa
1981	2 (1)	11,660	0	23,342	0	0	0
1982	2 (2)	72,463	0	0	0	0	0
1983	11 (2)	7,269	0	0	0	0	0
1984	3 (2)	0	27,596	13,369	0	0	0
1985	3 (3)	43,437	0	0	0	0	0
1986	8 (3)	20,136	0	0	0	0	0
1987	12 (8)	10,586	0	0	0	0	0
1988	17 (6)	654	81,050	0	0	0	0
1989	70 (28)	2,150	6,501	0	31,936	0	29,626
1990	78 (24)	0	1,171	0	27,424	12,674	15,539
1991	46 (18)	2,237	4,281	0	30,092	0	0
1992	70 (28)	42,769	10,100	6,950	5,867	0	15,671
1993	52 (19)	37,376	0	12,234	2,070	4,686	34,318
1994	114 (42)	60,409	16,281	21,689	2,403	0	40,032
1995	2 (2)	659	0	0	0	0	0
1996	25 (16)	0	20,795	1,734	831	0	2,196
1997	18 (7)	0	0	17,843	4,809	0	0
1998	36 (15)	176	12,279	1,835	8,406	0	0
1999	57 (29)	1,017	6,161	11,302	27,711	0	59,545
2000	79 (37)	7,708	28,042	44,280	47,253	0	149,772
2001	69 (37)	0	6,377	65,108	22,123	0	5,127
2002	149 (50)	0	18,776	62,937	19,845	43,338	198,359
2003	108 (45)	1,675	71,342	70,390	47,053	38,715	6,860
2004	94 (40)	5,757	48,530	108,780	38,500	0	868
2005	44 (21)	3,395	19,711	0	97	0	109,084
2006	113 (39)	0	3,621	41,945	223,552	0	34,464
2007	98 (32)	32,847	17,356	42,537	182,598	2,318	288
2008	55 (31)	490	47,579	64,298	54,796	0	38
2009	54 (24)	0	17,529	80,486	750	0	4,322
2010	67 (25)	48	28,698	19,291	948	1,138	11,105
2011	30 (11)	0	4,884	30,324	5,849	0	0
2012	29 (10)	0	50,508	24,805	0	0	0
2013	31 (14)	0	59,813	23,608	558	0	0
2014	41 (18)	0	8,549	1,474	0	13,221	380,413
2015	18 (6)	0	39,673	0	0	0	0
2016	18 (15)	0	59,950	0	0	0	0
2017	14 (6)	84,685	0	0	0	0	0

		AB1.lbs					
Year	N	sr	sry	srys	srysm	srysmw	srysmwa
2018	13 (8)	16,693	0	2,346	0	0	0
2019	26 (7)	0	12,118	3,834	7,872	0	9,132
2020	28 (12)	0	10,558	0	9,304	0	3,241
2021	23 (16)	0	15,441	22,524	2,909	0	0

Table 15. Recreational Fishing Effort (in angler trips) for South Atlantic anglers by state and year (MRIP). These effort estimates depict all (general) recreational fishing activity in the South Atlantic and are not specific to Scamp and Yellowmouth Grouper.

Year	FLKeys	FLE	GA	SC	NC	Total
1981	2,425,657	6,277,154	334,352	958,178	1,509,705	11,505,046
1982	2,524,527	8,362,364	452,867	1,029,421	1,860,255	14,229,434
1983	1,844,876	7,863,121	467,737	1,072,004	1,926,892	13,174,630
1984	4,057,309	8,776,686	493,904	1,157,296	2,026,886	16,512,081
1985	1,402,537	9,237,607	607,066	1,251,245	1,983,178	14,481,633
1986	1,309,605	10,414,189	645,387	1,229,688	2,255,934	15,854,803
1987	2,415,992	10,426,294	652,719	1,260,245	2,046,250	16,801,500
1988	1,290,108	8,740,959	640,280	1,270,568	2,170,959	14,112,874
1989	2,561,528	9,278,269	696,901	1,298,394	2,313,067	16,148,159
1990	2,106,507	8,601,245	660,117	1,357,469	2,342,212	15,067,550
1991	3,768,438	9,068,498	675,055	1,409,231	2,411,796	17,333,018
1992	2,893,069	9,681,272	693,196	1,385,280	2,464,364	17,117,181
1993	3,656,860	10,202,708	707,259	1,404,830	2,423,200	18,394,857
1994	3,048,533	10,492,040	718,023	1,386,978	2,423,380	18,068,954
1995	3,207,537	9,284,055	727,609	1,362,563	2,419,498	17,001,262
1996	3,355,332	9,810,992	738,294	1,390,116	2,666,916	17,961,650
1997	3,240,826	9,918,568	751,325	1,479,293	2,938,210	18,328,222
1998	2,310,705	10,135,070	770,506	1,464,931	3,002,959	17,684,171
1999	2,097,265	10,397,584	816,972	1,531,984	3,340,567	18,184,372
2000	2,170,443	12,935,144	881,153	1,649,601	3,583,602	21,219,943
2001	1,825,661	12,077,972	904,282	1,697,486	3,559,426	20,064,827
2002	1,362,340	13,380,043	916,566	1,704,911	3,731,089	21,094,949
2003	1,802,625	14,242,195	982,375	1,826,542	3,941,640	22,795,377
2004	2,326,106	12,514,239	1,026,636	2,010,314	4,459,434	22,336,729
2005	1,124,620	14,171,121	1,079,925	1,997,328	4,574,402	22,947,396
2006	1,725,987	15,712,135	1,115,094	2,055,379	4,744,000	25,352,595
2007	2,132,560	16,130,127	1,182,980	2,228,070	4,857,474	26,531,211
2008	2,728,743	13,637,658	1,217,909	2,332,665	4,770,328	24,687,303
2009	1,571,082	15,539,525	1,167,841	2,277,639	4,951,707	25,507,794
2010	1,556,387	17,134,743	1,171,479	2,337,303	5,121,309	27,321,221
2011	1,165,386	14,911,916	1,252,030	2,244,802	5,342,048	24,916,182
2012	2,160,528	12,484,575	1,203,499	2,246,289	5,213,798	23,308,689
2013	2,236,887	12,392,125	1,248,779	2,235,958	4,959,320	23,073,069
2014	2,345,159	13,951,616	1,293,328	2,370,957	4,992,389	24,953,449
2015	1,717,622	13,257,830	1,394,376	2,467,917	5,106,963	23,944,708
2016	1,503,709	12,649,234	1,400,927	2,701,373	5,000,966	23,256,209
2017	1,097,282	12,005,535	1,596,787	3,223,680	5,194,169	23,117,453
2018	1,219,536	14,943,936	1,632,333	2,410,254	4,427,392	24,633,451
2019	1,635,233	11,965,016	1,481,619	3,078,192	4,807,211	22,967,271
2020	1,421,214	13,304,870	1,755,623	2,726,529	5,628,476	24,836,712
2021	1,916,329	12,859,751	1,657,425	3,422,541	4,641,383	24,497,429

Table 16. Recreational Fishing Effort (in angler trips) for South Atlantic anglers by mode and year (MRIP). These effort estimates depict all (general) recreational fishing activity in the South Atlantic and are not specific to Scamp and Yellowmouth Grouper.

Year	Cbt	Priv	Total
1981	443,445	11,061,600	11,505,045
1982	543,344	13,686,090	14,229,434
1983	549,886	12,624,744	13,174,630
1984	631,740	15,880,341	16,512,081
1985	647,288	13,834,345	14,481,633
1986	734,582	15,120,221	15,854,803
1987	684,175	16,117,325	16,801,500
1988	574,659	13,538,214	14,112,873
1989	703,403	15,444,757	16,148,160
1990	594,310	14,473,240	15,067,550
1991	615,933	16,717,086	17,333,019
1992	574,093	16,543,089	17,117,182
1993	617,079	17,777,777	18,394,856
1994	632,200	17,436,754	18,068,954
1995	647,404	16,353,858	17,001,262
1996	632,194	17,329,456	17,961,650
1997	574,241	17,753,982	18,328,223
1998	618,206	17,065,966	17,684,172
1999	555,961	17,628,410	18,184,371
2000	514,365	20,705,579	21,219,944
2001	600,971	19,463,855	20,064,826
2002	693,754	20,401,196	21,094,950
2003	658,098	22,137,279	22,795,377
2004	663,047	21,673,683	22,336,730
2005	614,999	22,332,397	22,947,396
2006	588,260	24,764,335	25,352,595
2007	630,150	25,901,061	26,531,211
2008	545,399	24,141,904	24,687,303
2009	558,034	24,949,760	25,507,794
2010	483,966	26,837,256	27,321,222
2011	509,413	24,406,769	24,916,182
2012	537,932	22,770,757	23,308,689
2013	518,665	22,554,404	23,073,069
2014	619,611	24,333,837	24,953,448
2015	693,462	23,251,246	23,944,708
2016	716,062	22,540,147	23,256,209
2017	677,522	22,439,930	23,117,452
2018	723,594	23,909,857	24,633,451
2019	971,881	21,995,390	22,967,271
2020	791,319	24,045,393	24,836,712
2021	963,976	23,533,453	24,497,429

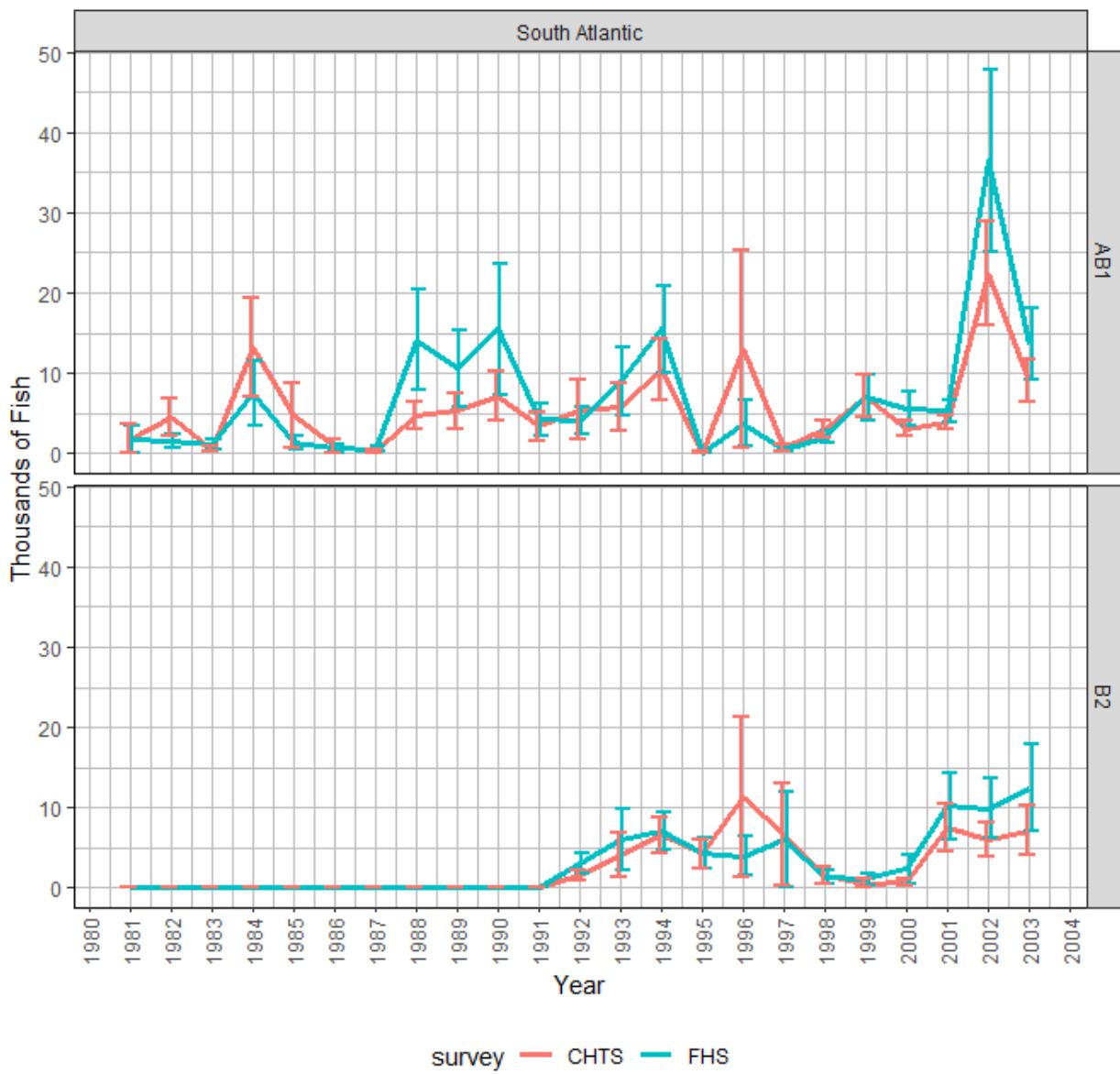


Figure 1. Comparison of charterboat landings (AB1) and discard (B2) estimates (with standard error intervals shown) for Scamp and Yellowmouth Grouper from the Coastal Household Telephone Survey (CHTS) and For-Hire Survey (FHS) from the South Atlantic between 1981 and 2003 (MRIP). The charterboat calibration approach is discussed in Dettloff and Matter (2019a).

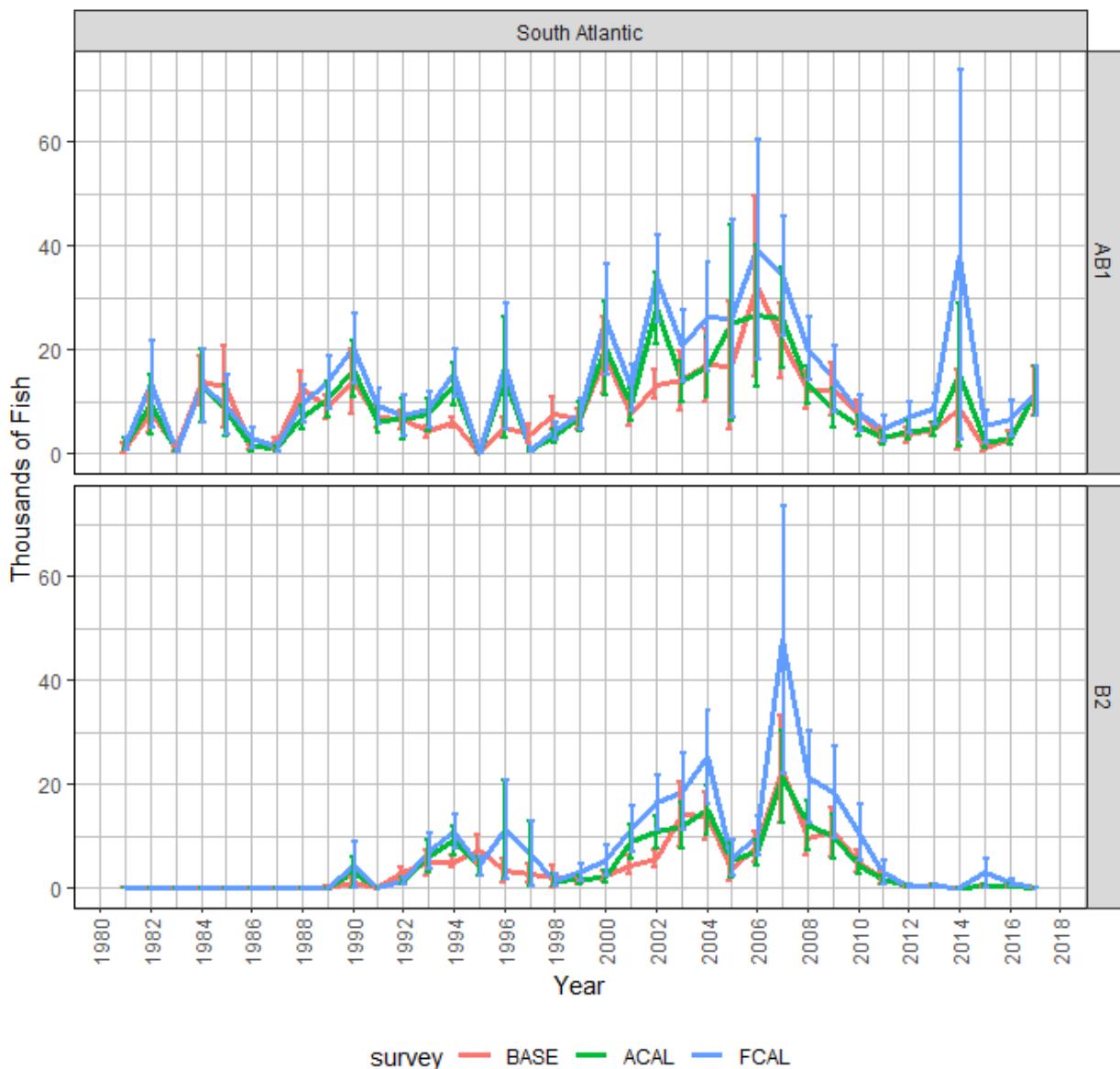


Figure 2. MRIP Base (BASE), APAIS Calibrated (ACAL), and Fully Calibrated APAIS and FES (FCAL) catch estimates for Scamp in the South Atlantic between 1981 and 2017. Landings (AB1) and discard (B2) estimates are in thousands of fish. Estimates in this figure do not include the Florida Keys as that domain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

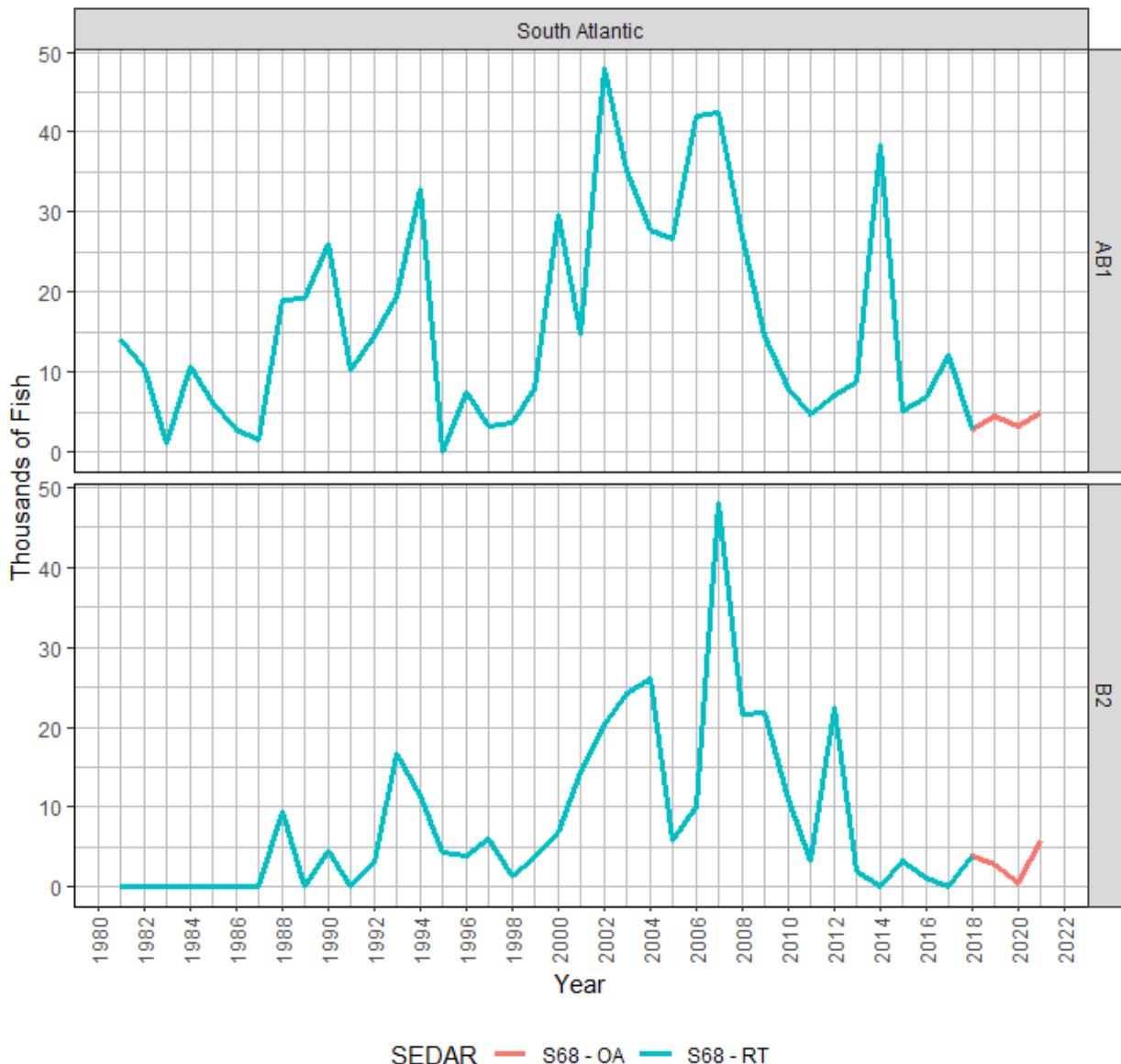


Figure 3. Comparison of total general recreational landings (AB1) and discard estimates (B2) for South Atlantic scamp between SEDAR 68 - OA and SEDAR 68 - RT, the terminal years of which are 2021 and 2018 respectively. Catch estimates are in thousands of fish.

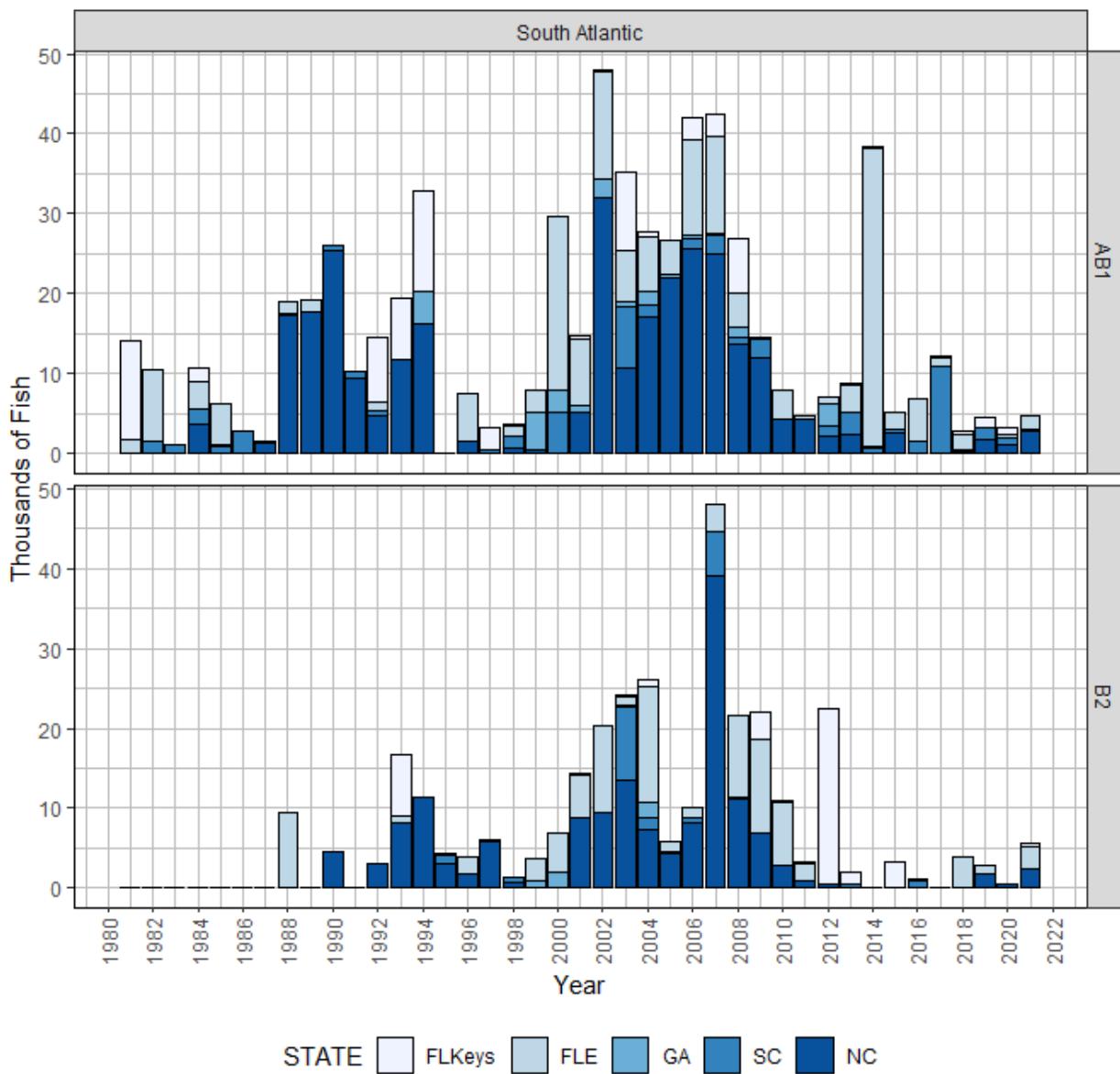


Figure 4. Annual Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in thousands of fish, by state from 1981 to 2021 (MRIP).

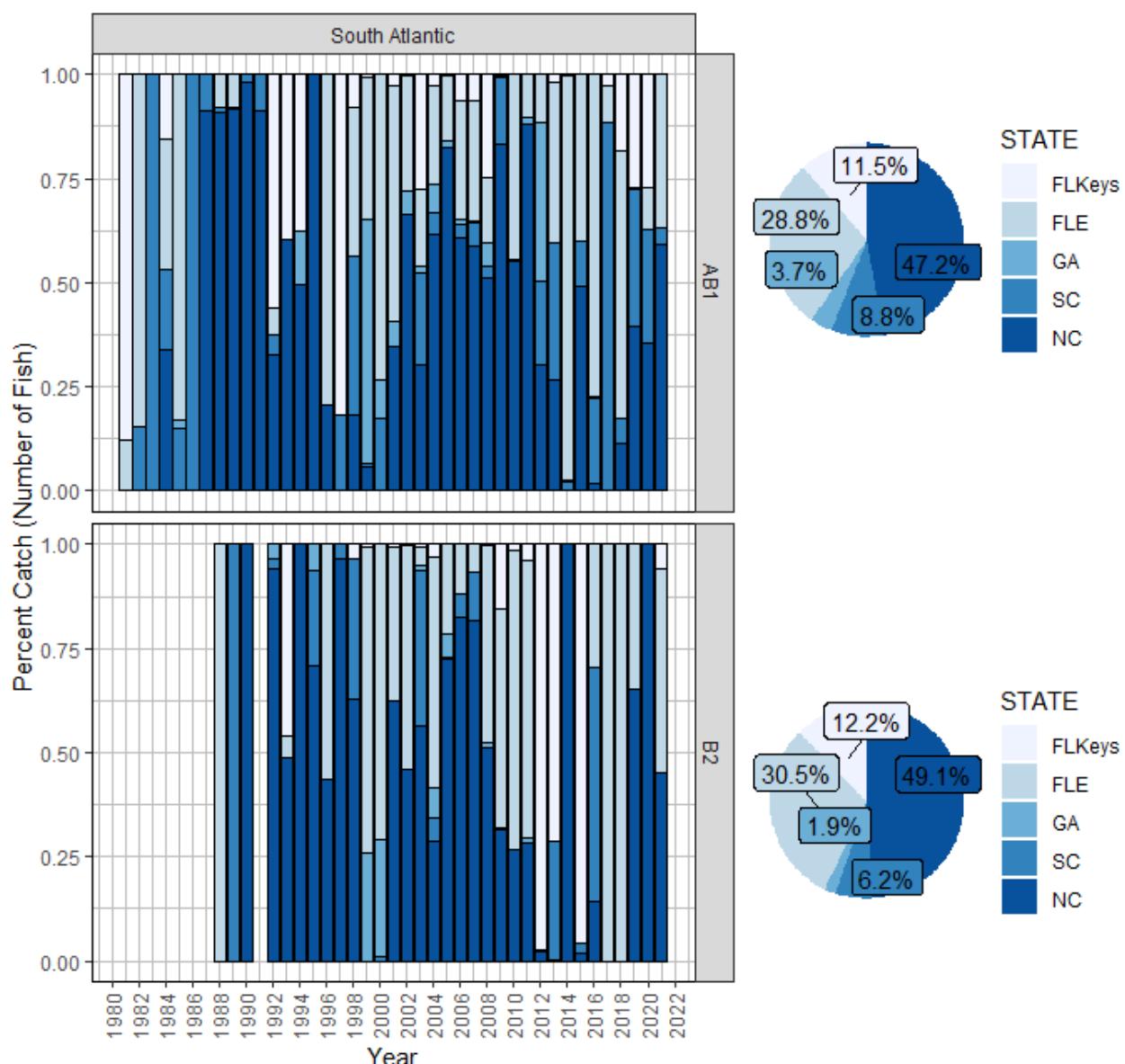


Figure 4a. Percent of Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in numbers of fish, from each state by year (bar graph) and overall (pie chart) between 1981 and 2021 (MRIP).

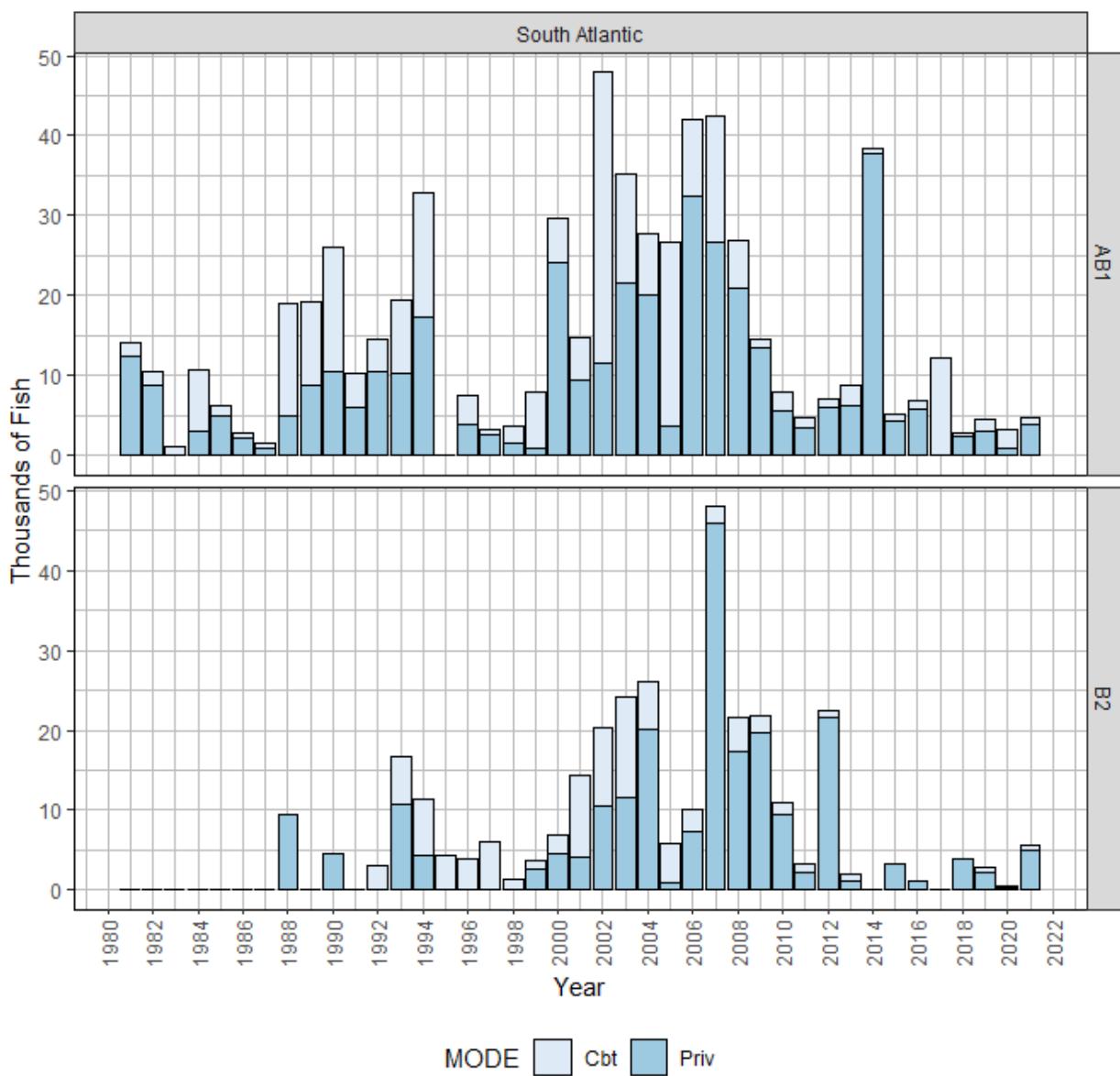


Figure 5. Annual Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in thousands of fish, by mode from 1981 to 2021 (MRIP).

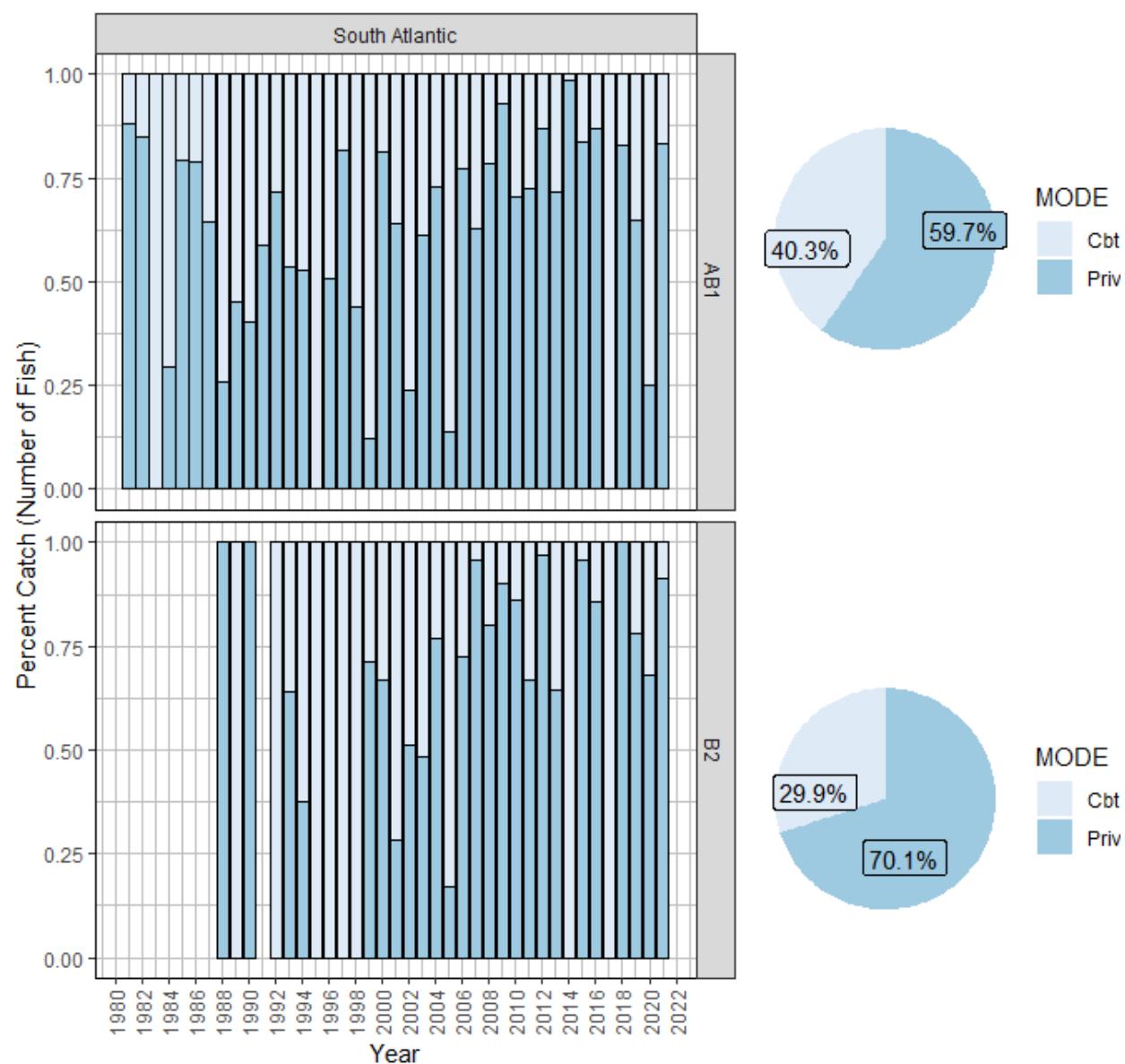


Figure 5a. Percent of Scamp and Yellowmouth Grouper landings (AB1) and discards (B2), in numbers of fish, from each mode by year (bar graph) and overall (pie chart) between 1981 and 2021 (MRIP).

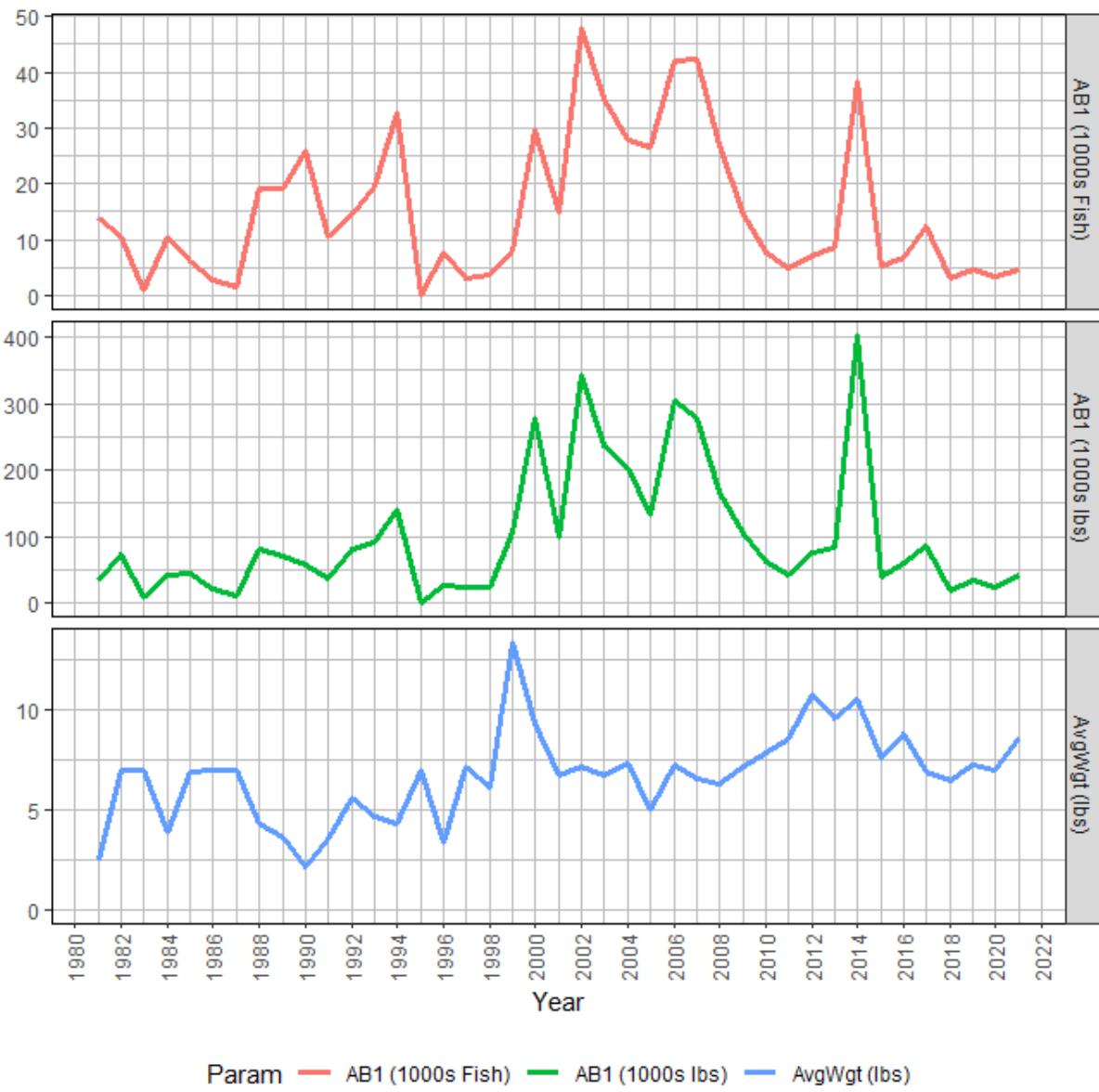


Figure 6. Estimates of annual landings for Scamp and Yellowmouth Grouper in the South Atlantic (MRIP): estimated landings in thousands of fish (top), estimated landings in thousands of pounds whole weight (middle), and average weight of landed fish (estimated lbs/estimated fish) (bottom). Average weight 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).

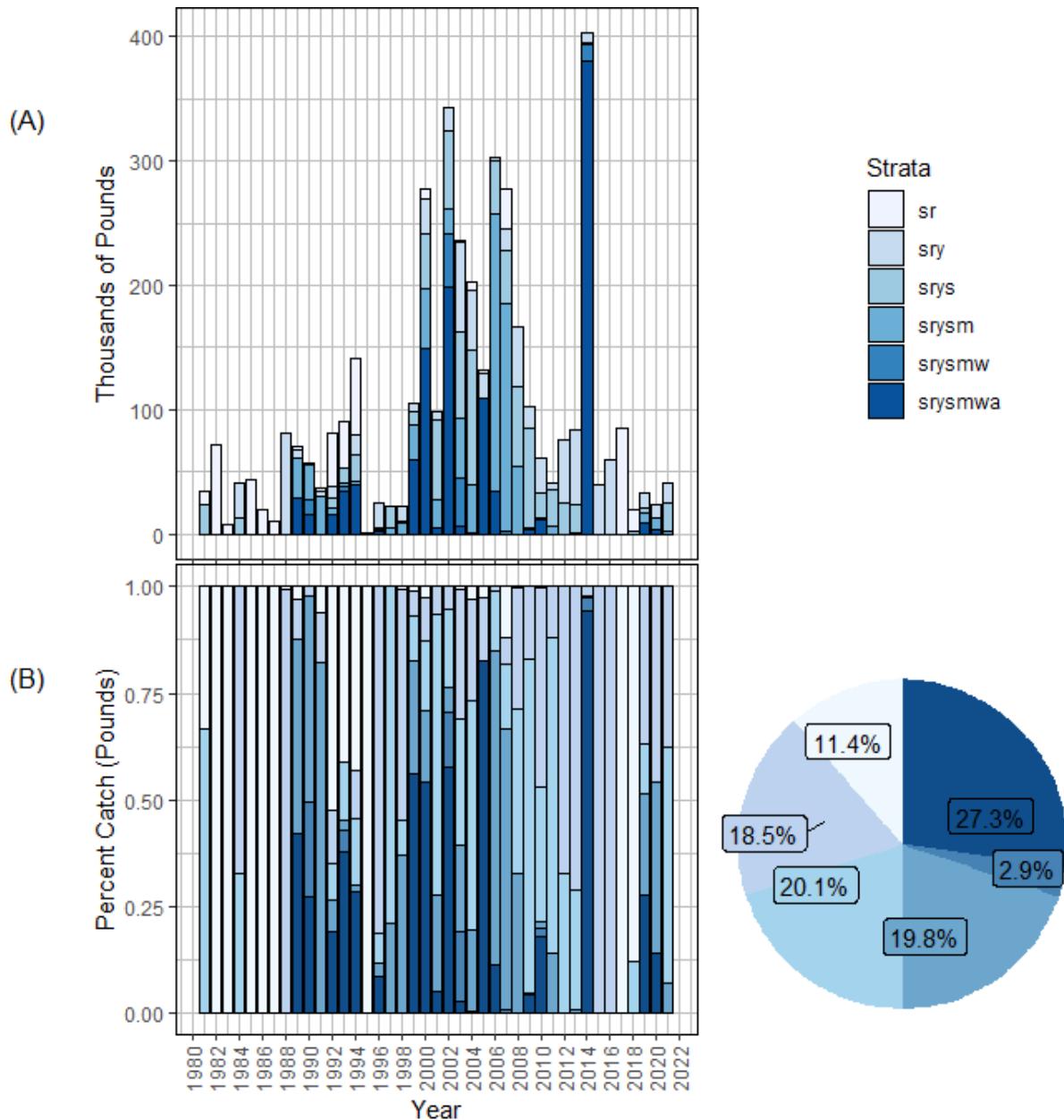


Figure 7. Annual landings estimates of South Atlantic Scamp and Yellowmouth Grouper in thousands of pounds whole weight by hierarchy level (MRIP), defined by **species**, **region**, **year**, **state**, **mode**, **wave**, and **area**. Landings are grouped by the strata at which average weights were 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 **species**, **region**, **year**, **state**, **mode**, and **wave** (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).

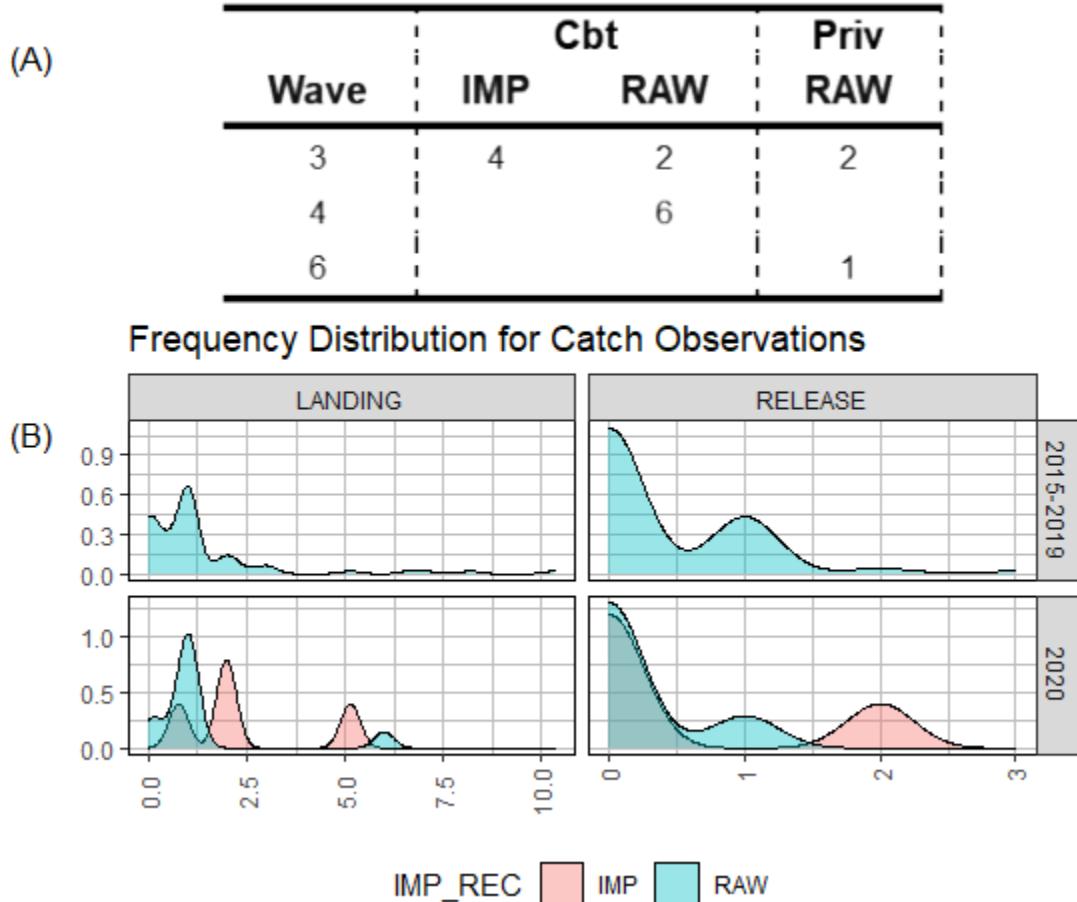


Figure 8. COVID data gaps in the MRIP APAIS and associated imputations for (positive) fishing trips that intercepted South Atlantic scamp and yellowmouth grouper. No 2020 data were imputed for the FES or FHS. (A) Number of positive intercepts in 2020 from the APAIS (RAW) vs. those imputed from intercepts in adjacent years (IMP). (B) Distribution of APAIS catch observations in years with no imputed catch data (in 2015-2019 and 2020), 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 and eastern Florida and 2004 for all Atlantic states north of Florida).
 - 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 8-12). 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 (3 = Florida Keys, Monroe; 4 = southeastern Florida, Miami-Dade to Indian River; 5 = northeastern Florida, Brevard to Nassau). For North Carolina, this includes domains north and south of Cape Hatteras.
 - Between 1981 and 1985 in the Gulf of Mexico and South Atlantic, 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 and 1981 in the South Atlantic, the MRIP combined for-hire mode must be split in these early years (1981-1985) to provide headboat landings estimates in the Gulf and to avoid double counting

of headboat landings in the South Atlantic. 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).