General Recreational Survey Data for Tilefish in the South Atlantic

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SEDAR89-WP-02

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NOAA Fisheries
Southeast Fisheries Science Center
Sustainable Fisheries Division
Data Analysis and Assessment Support Branch

Samantha Binion-Rock

April 16, 2024

General recreational catch estimates for Tilefish 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 89 recreational catch data:

- Species: Tilefish
- Year Range: 1981 - 2023 (2023 contains preliminary data through wave 5)
- Geographic Range: South Atlantic states from North Carolina to eastern Florida, including the Florida Keys.
- Fishing Modes: Charter and Private
- MRIP Calibration: 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). These calibrations allow for estimates in the entire time series to be compared to one another.

- 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). For Tilefish there were no COVID imputations used to impute catch.
- 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 89 tilefish, this includes any weights heavier than 69.405 pounds.

Summary of Data Imputations

Estimate	Strata	Imputed	Rationale
Catch	1981 Wave 1 FLE and FL Keys	No	There was no Wave 1 catch in 1982-1984, so the assumed catch for Wave 1 1981 is 0.
Effort	1981 Wave 1 FLE and FL Keys	Yes	Effort is not species-specific, need to account for effort in Wave 1 before MRIP started.

Catch and Sample Size Information for Particular Domains:

Annual estimates that appear relatively large/small compared to the adjacent years were further investigated by identifying and summarizing which strata were disproportionately contributing to the estimate. Estimates investigated are more likely to be high given zero catch estimates that make it difficult to identify relatively small estimates.

- 1981 landings: 226,989 fish
  - Strata: FL Keys, Private, Wave 4, Ocean > 10mi
    - Tilefish landings from this strata account for the entire 1981 estimate and are from a single private boat record from Monroe County, FL that consisted of 13 observed fish.

Appendices

Appendix A. Additional Details of Survey Data and SEFSC Estimation

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Table 1. Annual landings (AB1) and discards (B2) of tilefish in numbers of fish by mode and year (MRIP).

	Cbt		Priv		Total	
Year	AB1	B2	AB1	B2	AB1	B2
1981	0	0	226,989	0	226,989	0
1982	0	0	0	0	0	0
1983	392	0	0	0	392	0
1984	0	0	7,726	0	7,726	0
1985	376	0	39,902	0	40,278	0
1986	60	0	0	0	60	0
1987	2,045	0	0	0	2,045	0
1988	0	0	483	0	483	0
1990	437	0	0	0	437	0
1991	137	0	0	0	137	0
1992	144	0	2,486	0	2,630	0
1993	0	0	0	1,226	0	1,226
1994	2,004	0	0	0	2,004	0
1995	0	0	0	0	0	0
1996	27	0	1,318	0	1,345	0
1997	172	0	10,950	0	11,122	0
1998	351	0	0	0	351	0
1999	1,169	0	0	0	1,169	0
2000	1,162	36	2,118	743	3,280	779
2001	3,181	0	819	0	4,000	0
2002	2,002	0	0	0	2,002	0
2003	7,889	0	0	3,752	7,889	3,752
2004	12,338	0	1,339	0	13,677	0
2005	28,390	26	7,282	4,185	35,672	4,211
2006	5,448	404	2,096	0	7,544	404
2007	1,059	0	605	0	1,664	0
2008	39	0	0	0	39	0
2009	1,544	0	23,853	0	25,397	0
2010	860	0	5,365	0	6,224	0
2011	85	0	10,536	0	10,621	0
2012	859	162	4,801	0	5,660	162
2013	2,951	0	1,848	945	4,799	945
2014	276	0	3,944	0	4,220	0
2015	3,590	0	4,722	0	8,312	0

	Cbt		Priv		Total	
Year	AB1	B2	AB1	B2	AB1	B2
2016	5,800	0	9,606	0	15,405	0
2017	1,369	0	2,335	0	3,703	0
2018	1,022	0	8,509	0	9,531	0
2019	1,755	0	41,268	0	43,023	0
2020	1,577	0	4,665	0	6,241	0
2021	917	0	7,012	0	7,929	0
2022	528	0	9,941	0	10,469	0
2023	774	0	39,347	3,038	40,121	3,038

Table 2. Tilefish 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 and, in parentheses, the number of PSUs and TRPs that intercepted Tilefish.

	Cbt				Priv			
Year	AB1	CV	PSU	TRP	AB1	CV	PSU	TRP
1981	0	0.00	63 (0)	583 (0)	226,989	1.00	187 (1)	1,522 (1)
1982	0	0.00	57 (0)	520 (0)	0	0.00	422 (0)	3,872 (0)
1983	392	1.00	169 (1)	1,886 (1)	0	0.00	258 (0)	2,269 (0)
1984	0	0.00	226 (0)	2,592 (0)	7,726	1.00	260 (1)	2,673 (1)
1985	376	1.00	161 (1)	1,625 (1)	39,902	1.00	510 (1)	4,095 (3)
1986	60	1.00	249 (1)	2,260 (1)	0	0.00	832 (0)	7,551 (0)
1987	2,045	0.98	396 (2)	3,626 (2)	0	0.00	1,184 (0)	11,293 (0)
1988	0	0.00	422 (0)	3,560 (0)	483	1.00	1,174 (1)	10,464 (1)
1989	0	0.00	447 (0)	4,258 (0)	0	0.00	1,102 (0)	10,497 (0)
1990	437	1.00	323 (1)	3,440 (1)	0	0.00	929 (0)	10,380 (0)
1991	137	1.00	409 (1)	4,108 (1)	0	0.00	890 (0)	10,502 (0)
1992	144	1.00	561 (1)	5,127 (2)	2,486	0.73	1,303 (2)	14,472 (2)
1993	0	0.00	400 (0)	4,334 (0)	0	0.00	1,152 (0)	13,021 (0)
1994	2,004	0.94	491 (2)	6,263 (2)	0	0.00	1,363 (0)	15,411 (0)
1995	0	0.00	459 (0)	5,646 (0)	0	0.00	1,345 (0)	14,585 (0)
1996	27	1.00	640 (1)	8,359 (1)	1,318	1.00	1,512 (1)	16,349 (1)
1997	172	0.82	806 (2)	9,062 (2)	10,950	0.71	1,516 (2)	17,058 (2)
1998	351	1.00	912 (1)	9,812 (1)	0	0.00	1,419 (0)	16,805 (0)
1999	1,169	0.94	998 (3)	9,372 (3)	0	0.00	1,559 (0)	18,267 (0)
2000	1,162	0.54	1,065 (6)	11,745 (6)	2,118	1.00	1,433 (1)	17,985 (1)
2001	3,181	0.56	950 (7)	11,686 (9)	819	0.72	1,618 (2)	21,475 (2)
2002	2,002	0.70	1,002 (5)	11,144 (7)	0	0.00	1,468 (0)	19,771 (0)
2003	7,889	0.57	883 (7)	10,036 (13)	0	0.00	1,407 (0)	18,297 (0)
2004	12,338	0.81	682 (4)	8,098 (12)	1,339	1.00	1,260 (1)	15,854 (1)

	Cbt				Priv			
Year	AB1	CV	PSU	TRP	AB1	CV	PSU	TRP
2005	28,390	0.67	626 (10)	7,891 (13)	7,282	1.00	1,203 (1)	15,416 (1)
2006	5,448	0.67	560 (6)	6,706 (6)	2,096	1.00	1,538 (1)	20,214 (1)
2007	1,059	0.92	582 (2)	6,600 (2)	605	1.00	1,374 (1)	18,473 (1)
2008	39	1.00	729 (1)	7,170 (1)	0	0.00	1,304 (0)	17,083 (0)
2009	1,544	1.00	600 (1)	5,439 (1)	23,853	0.88	1,303 (4)	15,845 (4)
2010	860	0.58	775 (5)	7,402 (5)	5,365	0.68	1,780 (3)	20,068 (3)
2011	85	0.86	741 (2)	7,067 (2)	10,536	0.74	1,672 (2)	18,062 (2)
2012	859	0.65	761 (5)	7,074 (5)	4,801	0.58	1,865 (3)	20,413 (4)
2013	2,951	0.73	418 (2)	3,310 (6)	1,848	0.72	1,508 (2)	13,826 (3)
2014	276	0.74	757 (2)	6,660 (2)	3,944	0.60	1,561 (4)	16,227 (4)
2015	3,590	0.84	818 (8)	6,976 (13)	4,722	0.62	1,599 (5)	16,293 (7)
2016	5,800	0.72	814 (7)	6,694 (9)	9,606	0.49	1,578 (5)	14,590 (5)
2017	1,369	0.90	731 (2)	6,129 (2)	2,335	0.74	1,619 (2)	15,873 (3)
2018	1,022	0.46	857 (6)	7,754 (12)	8,509	0.72	1,546 (3)	15,127 (3)
2019	1,755	0.87	814 (3)	6,371 (6)	41,268	0.81	1,538 (3)	14,155 (3)
2020	1,577	0.70	1,023 (3)	8,615 (3)	4,665	0.92	1,997 (2)	17,729 (2)
2021	917	0.81	1,120 (3)	9,423 (4)	7,012	0.67	2,179 (3)	19,320 (3)
2022	528	0.55	972 (4)	7,466 (5)	9,941	0.38	1,961 (9)	15,053 (10)
2023	774	0.57	923 (5)	7,048 (5)	39,347	0.46	1,704 (9)	14,463 (10)

Table 3. Tilefish 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 and, in parentheses, the number of PSUs and TRPs that intercepted Tilefish.

	Cbt				Priv			
Year	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)	0	0.00	1,174 (0)	10,464 (0)
1989	0	0.00	447 (0)	4,258 (0)	0	0.00	1,102 (0)	10,497 (0)
1990	0	0.00	323 (0)	3,440 (0)	0	0.00	929 (0)	10,380 (0)
1991	0	0.00	409 (0)	4,108 (0)	0	0.00	890 (0)	10,502 (0)
1992	0	0.00	561 (0)	5,127 (0)	0	0.00	1,303 (0)	14,472 (0)
1993	0	0.00	400 (0)	4,334 (0)	1,226	1.00	1,152 (1)	13,021 (1)
1994	0	0.00	491 (0)	6,263 (0)	0	0.00	1,363 (0)	15,411 (0)
1995	0	0.00	459 (0)	5,646 (0)	0	0.00	1,345 (0)	14,585 (0)
1996	0	0.00	640 (0)	8,359 (0)	0	0.00	1,512 (0)	16,349 (0)
1997	0	0.00	806 (0)	9,062 (0)	0	0.00	1,516 (0)	17,058 (0)
1998	0	0.00	912 (0)	9,812 (0)	0	0.00	1,419 (0)	16,805 (0)
1999	0	0.00	998 (0)	9,372 (0)	0	0.00	1,559 (0)	18,267 (0)
2000	36	1.00	1,065 (1)	11,745 (1)	743	1.00	1,433 (1)	17,985 (1)
2001	0	0.00	950 (0)	11,686 (0)	0	0.00	1,618 (0)	21,475 (0)
2002	0	0.00	1,002 (0)	11,144 (0)	0	0.00	1,468 (0)	19,771 (0)
2003	0	0.00	883 (0)	10,036 (0)	3,752	1.00	1,407 (1)	18,297 (2)
2004	0	0.00	682 (0)	8,098 (0)	0	0.00	1,260 (0)	15,854 (0)

	Cbt				Priv			
Year	B2	CV	PSU	TRP	B2	CV	PSU	TRP
2005	26	1.00	626 (1)	7,891 (1)	4,185	1.00	1,203 (1)	15,416 (1)
2006	404	1.00	560 (1)	6,706 (1)	0	0.00	1,538 (0)	20,214 (0)
2007	0	0.00	582 (0)	6,600 (0)	0	0.00	1,374 (0)	18,473 (0)
2008	0	0.00	729 (0)	7,170 (0)	0	0.00	1,304 (0)	17,083 (0)
2009	0	0.00	600 (0)	5,439 (0)	0	0.00	1,303 (0)	15,845 (0)
2010	0	0.00	775 (0)	7,402 (0)	0	0.00	1,780 (0)	20,068 (0)
2011	0	0.00	741 (0)	7,067 (0)	0	0.00	1,672 (0)	18,062 (0)
2012	162	1.00	761 (1)	7,074 (2)	0	0.00	1,865 (0)	20,413 (0)
2013	0	0.00	418 (0)	3,310 (0)	945	1.00	1,508 (1)	13,826 (1)
2014	0	0.00	757 (0)	6,660 (0)	0	0.00	1,561 (0)	16,227 (0)
2015	0	0.00	818 (0)	6,976 (0)	0	0.00	1,599 (0)	16,293 (0)
2016	0	0.00	814 (0)	6,694 (0)	0	0.00	1,578 (0)	14,590 (0)
2017	0	0.00	731 (0)	6,129 (0)	0	0.00	1,619 (0)	15,873 (0)
2018	0	0.00	857 (0)	7,754 (0)	0	0.00	1,546 (0)	15,127 (0)
2019	0	0.00	814 (0)	6,371 (0)	0	0.00	1,538 (0)	14,155 (0)
2020	0	0.00	1,023 (0)	8,615 (0)	0	0.00	1,997 (0)	17,729 (0)
2021	0	0.00	1,120 (0)	9,423 (0)	0	0.00	2,179 (0)	19,320 (0)
2022	0	0.00	972 (0)	7,466 (0)	0	0.00	1,961 (0)	15,053 (0)
2023	0	0.00	923 (0)	7,048 (0)	3,038	1.00	1,704 (1)	14,463 (3)

Table 4. Tilefish 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 and, in parentheses, the number of PSUs and TRPs that intercepted Tilefish.

	AB1				B2			
Year	Total	CV	PSU	TRP	Total	CV	PSU	TRP
1981	226,989	1.00	250 (1)	2,105 (1)	0	0.00	250 (0)	2,105 (0)
1982	0	0.00	479 (0)	4,392 (0)	0	0.00	479 (0)	4,392 (0)
1983	392	1.00	427 (1)	4,155 (1)	0	0.00	427 (0)	4,155 (0)
1984	7,726	1.00	486 (1)	5,265 (1)	0	0.00	486 (0)	5,265 (0)
1985	40,278	0.99	671 (2)	5,720 (4)	0	0.00	671 (0)	5,720 (0)
1986	60	1.00	1,081 (1)	9,811 (1)	0	0.00	1,081 (0)	9,811 (0)
1987	2,045	0.98	1,580 (2)	14,919 (2)	0	0.00	1,580 (0)	14,919 (0)
1988	483	1.00	1,596 (1)	14,024 (1)	0	0.00	1,596 (0)	14,024 (0)
1989	0	0.00	1,549 (0)	14,755 (0)	0	0.00	1,549 (0)	14,755 (0)
1990	437	1.00	1,252 (1)	13,820 (1)	0	0.00	1,252 (0)	13,820 (0)
1991	137	1.00	1,299 (1)	14,610 (1)	0	0.00	1,299 (0)	14,610 (0)
1992	2,630	0.69	1,864 (3)	19,599 (4)	0	0.00	1,864 (0)	19,599 (0)
1993	0	0.00	1,552 (0)	17,355 (0)	1,226	1.00	1,552 (1)	17,355 (1)
1994	2,004	0.94	1,854 (2)	21,674 (2)	0	0.00	1,854 (0)	21,674 (0)
1995	0	0.00	1,804 (0)	20,231 (0)	0	0.00	1,804 (0)	20,231 (0)
1996	1,345	0.98	2,152 (2)	24,708 (2)	0	0.00	2,152 (0)	24,708 (0)
1997	11,122	0.70	2,322 (4)	26,120 (4)	0	0.00	2,322 (0)	26,120 (0)
1998	351	1.00	2,331 (1)	26,617 (1)	0	0.00	2,331 (0)	26,617 (0)
1999	1,169	0.94	2,557 (3)	27,639 (3)	0	0.00	2,557 (0)	27,639 (0)
2000	3,280	0.67	2,498 (7)	29,721 (7)	779	0.95	2,498 (2)	29,721 (2)
2001	4,000	0.47	2,568 (9)	33,161 (11)	0	0.00	2,568 (0)	33,161 (0)
2002	2,002	0.70	2,470 (5)	30,915 (7)	0	0.00	2,470 (0)	30,915 (0)
2003	7,889	0.55	2,290 (7)	28,333 (13)	3,752	1.00	2,290 (1)	28,333 (2)
2004	13,677	0.72	1,942 (5)	23,952 (13)	0	0.00	1,942 (0)	23,952 (0)
2005	35,672	0.57	1,829 (11)	23,307 (14)	4,211	0.99	1,829 (2)	23,307 (2)
2006	7,544	0.56	2,098 (7)	26,920 (7)	404	1.00	2,098 (1)	26,920 (1)
2007	1,664	0.69	1,956 (3)	25,073 (3)	0	0.00	1,956 (0)	25,073 (0)
2008	39	1.00	2,033 (1)	24,253 (1)	0	0.00	2,033 (0)	24,253 (0)
2009	25,397	0.83	1,903 (5)	21,284 (5)	0	0.00	1,903 (0)	21,284 (0)
2010	6,224	0.59	2,555 (8)	27,470 (8)	0	0.00	2,555 (0)	27,470 (0)
2011	10,621	0.73	2,413 (4)	25,129 (4)	0	0.00	2,413 (0)	25,129 (0)

	AB1				B2			
Year	**Total**	**CV**	**PSU**	**TRP**	**Total**	**CV**	**PSU**	**TRP**
2012	5,660	0.50	2,626 (8)	27,487 (9)	162	1.00	2,626 (1)	27,487 (2)
2013	4,799	0.53	1,926 (4)	17,136 (9)	945	1.00	1,926 (1)	17,136 (1)
2014	4,220	0.56	2,318 (6)	22,887 (6)	0	0.00	2,318 (0)	22,887 (0)
2015	8,312	0.51	2,417 (13)	23,269 (20)	0	0.00	2,417 (0)	23,269 (0)
2016	15,405	0.40	2,392 (12)	21,284 (14)	0	0.00	2,392 (0)	21,284 (0)
2017	3,703	0.57	2,350 (4)	22,002 (5)	0	0.00	2,350 (0)	22,002 (0)
2018	9,531	0.65	2,403 (9)	22,881 (15)	0	0.00	2,403 (0)	22,881 (0)
2019	43,023	0.77	2,352 (6)	20,526 (9)	0	0.00	2,352 (0)	20,526 (0)
2020	6,241	0.71	3,020 (5)	26,344 (5)	0	0.00	3,020 (0)	26,344 (0)
2021	7,929	0.60	3,299 (6)	28,743 (7)	0	0.00	3,299 (0)	28,743 (0)
2022	10,469	0.36	2,933 (13)	22,519 (15)	0	0.00	2,933 (0)	22,519 (0)
2023	40,121	0.45	2,627 (14)	21,511 (15)	3,038	1.00	2,627 (1)	21,511 (3)

Table 5. Estimated landings of Tilefish in pounds whole weight by state and year (MRIP). See Appendix A for description of average weight calculation.

Year	FLKeys	FLE	SC	NC	Total
1981	862,302	0	0	0	862,302
1982	0	0	0	0	0
1983	0	0	1,981	0	1,981
1984	0	39,083	0	0	39,083
1985	0	201,858	0	1,901	203,759
1986	0	0	302	0	302
1987	13,471	0	0	218	13,690
1988	0	0	0	2,443	2,443
1990	0	0	0	2,209	2,209
1991	0	0	0	692	692
1992	10,612	5,330	0	0	15,942
1993	0	0	0	0	0
1994	0	10,138	0	0	10,138
1995	0	0	0	0	0
1996	0	6,667	0	137	6,804
1997	0	744	0	59,985	60,728
1998	0	1,776	0	0	1,776
1999	0	363	0	5,550	5,913
2000	337	9,533	0	4,562	14,433
2001	509	6,971	0	12,062	19,541
2002	0	0	0	12,883	12,883
2003	0	448	0	32,684	33,132
2004	0	2,761	0	24,396	27,157
2005	566	0	0	125,267	125,833
2006	0	8,352	0	20,081	28,433
2007	0	3,062	0	5,358	8,419
2008	260	0	0	0	260
2009	0	128,477	0	0	128,477
2010	1,081	57,940	0	2,473	61,494
2011	0	53,729	0	0	53,729
2012	1,087	27,667	0	149	28,903
2013	0	16,027	0	3,113	19,140
2014	13,228	8,707	0	0	21,935
2015	51,398	15,586	0	903	67,887
2016	5,109	68,942	0	881	74,932

Year	FLKeys	FLE	SC	NC	Total
2017	5,536	14,573	0	0	20,110
2018	3,411	50,281	0	0	53,692
2019	0	357,406	0	7,567	364,974
2020	0	31,302	0	272	31,574
2021	0	39,493	0	619	40,112
2022	0	68,262	0	0	68,262
2023	17,949	319,554	0	8,626	346,129

Table 6. Tilefish 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).

	Cbt		Priv		Total	
Year	LBS	CV	LBS	CV	LBS	CV
1981	0	0.00	862,302	1.00	862,302	1.00
1982	0	0.00	0	0.00	0	0.00
1983	1,981	1.00	0	0.00	1,981	1.00
1984	0	0.00	39,083	1.00	39,083	1.00
1985	1,901	1.00	201,858	1.00	203,759	0.99
1986	302	1.00	0	0.00	302	1.00
1987	13,690	0.98	0	0.00	13,690	0.98
1988	0	0.00	2,443	1.00	2,443	1.00
1989	0	0.00	0	0.00	0	0.00
1990	2,209	1.00	0	0.00	2,209	1.00
1991	692	1.00	0	0.00	692	1.00
1992	728	1.00	15,214	0.73	15,942	0.69
1993	0	0.00	0	0.00	0	0.00
1994	10,138	0.95	0	0.00	10,138	0.95
1995	0	0.00	0	0.00	0	0.00
1996	137	1.00	6,667	1.00	6,804	0.98
1997	938	0.82	59,790	0.71	60,728	0.70
1998	1,776	1.00	0	0.00	1,776	1.00
1999	5,913	0.94	0	0.00	5,913	0.94
2000	5,190	0.55	9,243	1.00	14,433	0.67
2001	15,165	0.57	4,377	0.73	19,541	0.49
2002	12,883	0.70	0	0.00	12,883	0.70
2003	33,132	0.57	0	0.00	33,132	0.55
2004	24,396	0.81	2,761	1.00	27,157	0.72
2005	104,625	0.67	21,208	1.00	125,833	0.57
2006	20,217	0.67	8,216	1.00	28,433	0.56
2007	5,358	0.92	3,062	1.00	8,419	0.70
2008	260	1.00	0	0.00	260	1.00
2009	7,811	1.00	120,666	0.89	128,477	0.84
2010	8,045	0.59	53,449	0.68	61,494	0.60
2011	428	0.88	53,301	0.74	53,729	0.74
2012	4,614	0.70	24,289	0.59	28,903	0.54
2013	11,719	0.73	7,421	0.78	19,140	0.54

	Cbt		Priv		Total	
Year	LBS	CV	LBS	CV	LBS	CV
2014	1,397	0.76	20,538	0.68	21,935	0.65
2015	15,594	0.84	52,294	0.67	67,887	0.53
2016	29,425	0.73	45,508	0.50	74,932	0.43
2017	6,924	0.90	13,186	0.74	20,110	0.58
2018	5,632	0.49	48,060	0.77	53,692	0.66
2019	14,885	0.87	350,089	0.82	364,974	0.78
2020	7,977	0.72	23,597	0.92	31,574	0.72
2021	4,638	0.83	35,474	0.69	40,112	0.63
2022	3,442	0.56	64,820	0.43	68,262	0.39
2023	6,440	0.58	339,689	0.48	346,129	0.46

Table 7. Summary of weight measurements (pounds whole weight) from MRIP-intercepted tilefish 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. Summaries include observed and imputed weights

	Cbt					Priv					Total				
Year	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	13 (1)	2.1	4.1	1.5	7.4	13(1)	2.1	4.1	1.5	7.4
1982	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
1984	0 (0)	0.0	0.0	0.0	0.0	1 (1)	0.5	0.5	0.0	0.5	1 (1)	0.5	0.5	0.0	0.5
1985	1 (1)	0.4	0.4	0.0	0.4	8 (3)	0.4	1.5	0.9	2.2	9 (4)	0.4	1.4	0.9	2.2
1986	1 (1)	5.9	5.9	0.0	5.9	0 (0)	0.0	0.0	0.0	0.0	1 (1)	5.9	5.9	0.0	5.9
1987	6 (2)	1.5	8.3	5.7	16.7	0 (0)	0.0	0.0	0.0	0.0	6 (2)	1.5	8.3	5.7	16.7
1988	0 (0)	0.0	0.0	0.0	0.0	1 (1)	4.4	4.4	0.0	4.4	1 (1)	4.4	4.4	0.0	4.4
1989	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
1990	1 (1)	3.1	3.1	0.0	3.1	0 (0)	0.0	0.0	0.0	0.0	1 (1)	3.1	3.1	0.0	3.1
1991	2 (1)	2.6	3.0	0.5	3.3	0 (0)	0.0	0.0	0.0	0.0	2 (1)	2.6	3.0	0.5	3.3
1992	6 (2)	2.5	2.9	0.4	3.2	1 (1)	3.1	3.1	0.0	3.1	7 (3)	2.5	2.9	0.4	3.2
1993	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
1994	3 (2)	2.4	6.2	5.0	11.9	0 (0)	0.0	0.0	0.0	0.0	3 (2)	2.4	6.2	5.0	11.9
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
1996	1 (1)	4.8	4.8	0.0	4.8	2 (1)	1.3	2.9	2.2	4.5	3 (2)	1.3	3.5	1.9	4.8
1997	6 (2)	3.3	5.4	1.6	7.4	17 (2)	3.1	5.5	1.8	7.8	23 (4)	3.1	5.4	1.7	7.8
1998	3 (1)	5.7	8.2	2.9	11.3	0 (0)	0.0	0.0	0.0	0.0	3 (1)	5.7	8.2	2.9	11.3
1999	10 (3)	2.4	5.3	1.7	8.7	0 (0)	0.0	0.0	0.0	0.0	10 (3)	2.4	5.3	1.7	8.7
2000	19 (6)	2.3	4.5	2.2	12.2	3 (1)	3.4	3.9	0.8	4.9	22 (7)	2.3	4.4	2.1	12.2
2001	35 (9)	1.6	5.8	5.0	22.7	2 (2)	2.8	3.3	0.8	3.9	37 (11)	1.6	5.6	4.9	22.7

	Cbt					Priv					Total				
Year	**N**	**Min**	**Avg**	**SD**	**Max**	**N**	**Min**	**Avg**	**SD**	**Max**	**N**	**Min**	**Avg**	**SD**	**Max**
2002	31 (7)	2.1	6.3	3.0	13.7	0 (0)	0.0	0.0	0.0	0.0	31 (7)	2.1	6.3	3.0	13.7
2003	98 (13)	2.5	4.2	1.3	10.6	0 (0)	0.0	0.0	0.0	0.0	98 (13)	2.5	4.2	1.3	10.6
2004	64 (12)	0.9	2.0	1.3	6.0	1 (1)	3.3	3.3	0.0	3.3	65 (13)	0.9	2.1	1.3	6.0
2005	156 (13)	1.9	3.5	1.0	8.8	19 (1)	2.0	2.9	0.5	3.7	175 (14)	1.9	3.4	1.0	8.8
2006	39 (6)	1.3	3.6	1.4	9.4	4 (1)	1.3	6.6	6.5	15.9	43 (7)	1.3	3.9	2.3	15.9
2007	10 (2)	2.8	4.6	1.9	9.4	1 (1)	5.1	5.1	0.0	5.1	11 (3)	2.8	4.6	1.8	9.4
2008	1 (1)	1.3	1.3	0.0	1.3	0 (0)	0.0	0.0	0.0	0.0	1 (1)	1.3	1.3	0.0	1.3
2009	4 (1)	4.3	7.3	3.3	10.2	8 (4)	2.0	7.2	4.9	17.9	12 (5)	2.0	7.2	4.2	17.9
2010	11 (4)	4.3	11.4	5.0	18.1	7 (3)	4.3	7.6	2.1	9.9	18 (7)	4.3	10.0	4.5	18.1
2011	3 (2)	3.8	6.6	4.3	11.6	9 (2)	6.7	11.3	4.1	16.4	12 (4)	3.8	10.1	4.5	16.4
2012	9 (5)	1.8	9.0	9.2	32.0	6 (4)	4.8	6.0	2.0	10.1	15 (9)	1.8	7.8	7.2	32.0
2013	16 (6)	1.5	4.0	1.9	8.3	4 (3)	1.5	4.8	4.0	10.1	20 (9)	1.5	4.1	2.3	10.1
2014	3 (2)	1.5	2.6	1.1	3.7	5 (4)	2.7	11.0	9.9	28.3	8 (6)	1.5	7.9	8.7	28.3
2015	32 (13)	1.7	7.1	6.6	26.5	8 (7)	3.0	12.9	11.2	32.2	40 (20)	1.7	8.2	7.9	32.2
2016	21 (9)	2.8	10.7	9.5	34.2	7 (5)	2.2	4.6	1.5	6.4	28 (14)	2.2	9.2	8.7	34.2
2017	4 (2)	2.7	4.2	1.5	5.9	4 (3)	3.4	4.1	0.9	5.3	8 (5)	2.7	4.2	1.1	5.9
2018	20 (12)	1.7	6.5	5.2	22.7	5 (3)	3.0	9.7	8.5	24.2	25 (15)	1.7	7.2	5.9	24.2
2019	7 (6)	1.9	4.2	2.0	7.5	8 (3)	4.7	12.2	6.2	24.2	15 (9)	1.9	8.5	6.2	24.2
2020	7 (3)	1.8	3.8	2.2	7.5	2 (2)	5.6	6.6	1.3	7.5	9 (5)	1.8	4.4	2.3	7.5
2021	7 (4)	1.5	6.5	5.3	14.3	5 (3)	1.5	4.0	2.1	5.9	12 (7)	1.5	5.5	4.3	14.3
2022	13 (5)	2.2	4.3	2.3	10.1	12 (10)	2.5	8.9	6.5	25.6	25 (15)	2.2	6.5	5.3	25.6
2023	12 (5)	4.6	12.6	6.1	20.5	18 (10)	0.8	7.9	5.2	20.5	30 (15)	0.8	9.8	6.0	20.5

Table 8. Estimated average weights of landed Tilefish in pounds whole weight (WGT) with associated coefficients of variation (CV; Approach 2 described in Nuttall and Dettloff 2022) by year and mode (MRIP). Sample size (N) is provided as the total number of angler trips and, in parentheses, number of fish from which weight information was collected.

	Cbt			Priv			Total		
Year	WGT	CV	N	WGT	CV	N	WGT	CV	N
1981	0.00	0.00	0 (0)	3.80	0.10	1 (13)	3.80	0.10	1 (13)
1982	0.00	0.00	0 (0)	0.00	0.00	0 (0)	0.00	0.00	0 (0)
1983	5.06	0.00	0 (0)	0.00	0.00	0 (0)	5.06	0.00	0 (0)
1984	0.00	0.00	0 (0)	5.06	0.00	1 (1)	5.06	0.00	1 (1)
1985	5.06	0.00	1 (1)	5.06	0.21	3 (8)	5.06	0.22	4 (9)
1986	5.06	0.00	1 (1)	0.00	0.00	0 (0)	5.06	0.00	1 (1)
1987	6.70	0.28	2 (6)	0.00	0.00	0 (0)	6.70	0.28	2 (6)
1988	0.00	0.00	0 (0)	5.06	0.00	1 (1)	5.06	0.00	1 (1)
1989	0.00	0.00	0 (0)	0.00	0.00	0 (0)	0.00	0.00	0 (0)
1990	5.06	0.00	1 (1)	0.00	0.00	0 (0)	5.06	0.00	1 (1)
1991	5.06	0.12	1 (2)	0.00	0.00	0 (0)	5.06	0.12	1 (2)
1992	5.06	0.05	2 (6)	6.12	0.00	1 (1)	6.06	0.05	3 (7)
1993	0.00	0.00	0 (0)	0.00	0.00	0 (0)	0.00	0.00	0 (0)
1994	5.06	0.46	2 (3)	0.00	0.00	0 (0)	5.06	0.46	2 (3)
1995	0.00	0.00	0 (0)	0.00	0.00	0 (0)	0.00	0.00	0 (0)
1996	5.06	0.00	1 (1)	5.06	0.54	1 (2)	5.06	0.31	2 (3)
1997	5.46	0.12	2 (6)	5.46	0.08	2 (17)	5.46	0.07	4 (23)
1998	5.06	0.20	1 (3)	0.00	0.00	0 (0)	5.06	0.20	1 (3)
1999	5.06	0.10	3 (10)	0.00	0.00	0 (0)	5.06	0.10	3 (10)
2000	4.47	0.11	6 (19)	4.36	0.12	1 (3)	4.40	0.10	7 (22)
2001	4.77	0.15	9 (35)	5.34	0.17	2 (2)	4.89	0.14	11 (37)
2002	6.43	0.09	7 (31)	0.00	0.00	0 (0)	6.43	0.09	7 (31)
2003	4.20	0.03	13 (98)	0.00	0.00	0 (0)	4.20	0.03	13 (98)
2004	1.98	0.08	12 (64)	2.06	0.00	1 (1)	1.99	0.08	13 (65)
2005	3.69	0.02	13 (156)	2.91	0.04	1 (19)	3.53	0.02	14 (175)
2006	3.71	0.06	6 (39)	3.92	0.49	1 (4)	3.77	0.09	7 (43)
2007	5.06	0.13	2 (10)	5.06	0.00	1 (1)	5.06	0.12	3 (11)
2008	6.73	0.00	1 (1)	0.00	0.00	0 (0)	6.73	0.00	1 (1)
2009	5.06	0.23	1 (4)	5.06	0.24	4 (8)	5.06	0.17	5 (12)
2010	9.36	0.13	4 (11)	9.96	0.10	3 (7)	9.88	0.11	7 (18)
2011	5.06	0.38	2 (3)	5.06	0.12	2 (9)	5.06	0.13	4 (12)
2012	5.37	0.34	5 (9)	5.06	0.14	4 (6)	5.11	0.24	9 (15)

	Cbt			Priv			Total		
Year	WGT	CV	N	WGT	CV	N	WGT	CV	N
2013	3.97	0.12	6 (16)	4.02	0.42	3 (4)	3.99	0.13	9 (20)
2014	5.06	0.26	2 (3)	5.21	0.40	4 (5)	5.20	0.39	6 (8)
2015	4.34	0.16	13 (32)	11.07	0.31	7 (8)	8.17	0.15	20 (40)
2016	5.07	0.20	9 (21)	4.74	0.13	5 (7)	4.86	0.18	14 (28)
2017	5.06	0.17	2 (4)	5.65	0.11	3 (4)	5.43	0.09	5 (8)
2018	5.51	0.18	12 (20)	5.65	0.39	3 (5)	5.63	0.16	15 (25)
2019	8.48	0.18	6 (7)	8.48	0.18	3 (8)	8.48	0.19	9 (15)
2020	5.06	0.22	3 (7)	5.06	0.14	2 (2)	5.06	0.17	5 (9)
2021	5.06	0.31	4 (7)	5.06	0.23	3 (5)	5.06	0.23	7 (12)
2022	6.52	0.15	5 (13)	6.52	0.21	10 (12)	6.52	0.16	15 (25)
2023	8.32	0.14	5 (12)	8.63	0.16	10 (18)	8.63	0.11	15 (30)

Table 9. Resolution of landings-in-weight estimates (pounds whole weight) for South Atlantic Tilefish by year and hierarchy level (MRIP), defined by **s**pecies, **r**egion, **y**ear, **s**tate, **m**ode, **w**ave, and **a**rea. See Appendix for average weight calculation methods. 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	13 (1)	0	0	862,302	0	0	0
1983	0 (0)	1,981	0	0	0	0	0
1984	1 (1)	39,083	0	0	0	0	0
1985	9 (4)	203,759	0	0	0	0	0
1986	1 (1)	302	0	0	0	0	0
1987	6 (2)	13,690	0	0	0	0	0
1988	1 (1)	2,443	0	0	0	0	0
1990	1 (1)	2,209	0	0	0	0	0
1991	2 (1)	692	0	0	0	0	0
1992	7 (3)	15,942	0	0	0	0	0
1994	3 (2)	10,138	0	0	0	0	0
1996	3 (2)	6,804	0	0	0	0	0
1997	23 (4)	0	744	195	59,790	0	0
1998	3 (1)	1,776	0	0	0	0	0
1999	10 (3)	5,913	0	0	0	0	0
2000	22 (7)	337	14,095	0	0	0	0
2001	37 (11)	509	6,971	1,466	0	0	10,595
2002	31 (7)	0	0	0	3,507	0	9,376
2003	98 (13)	0	448	0	665	0	32,019
2004	65 (13)	0	2,761	0	493	0	23,903
2005	175 (14)	566	0	0	0	0	125,267
2006	43 (7)	0	8,352	0	15,257	0	4,824
2007	11 (3)	8,419	0	0	0	0	0
2008	1 (1)	260	0	0	0	0	0
2009	12 (5)	128,477	0	0	0	0	0
2010	18 (7)	1,081	60,413	0	0	0	0
2011	12 (4)	53,729	0	0	0	0	0
2012	15 (9)	28,903	0	0	0	0	0
2013	20 (9)	0	3,113	4,308	0	11,719	0

		AB1.lbs					
Year	**N**	**sr**	**sry**	**srys**	**srysm**	**srysmw**	**srysmwa**
2014	8 (6)	8,707	0	0	13,228	0	0
2015	40 (20)	0	52,301	1,999	13,587	0	0
2016	28 (14)	5,109	881	68,942	0	0	0
2017	8 (5)	20,110	0	0	0	0	0
2018	25 (15)	3,411	0	48,060	2,221	0	0
2019	15 (9)	0	364,974	0	0	0	0
2020	9 (5)	31,574	0	0	0	0	0
2021	12 (7)	40,112	0	0	0	0	0
2022	25 (15)	0	0	68,262	0	0	0
2023	30 (15)	17,949	8,626	319,554	0	0	0

Table 10. 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 Tilefish.

Year	Cbt	Priv	Total
1981	487,582	12,817,288	13,304,870
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

Year	Cbt	Priv	Total
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
2022	811,294	24,102,607	24,913,901
2023	768,244	20,934,728	21,702,972

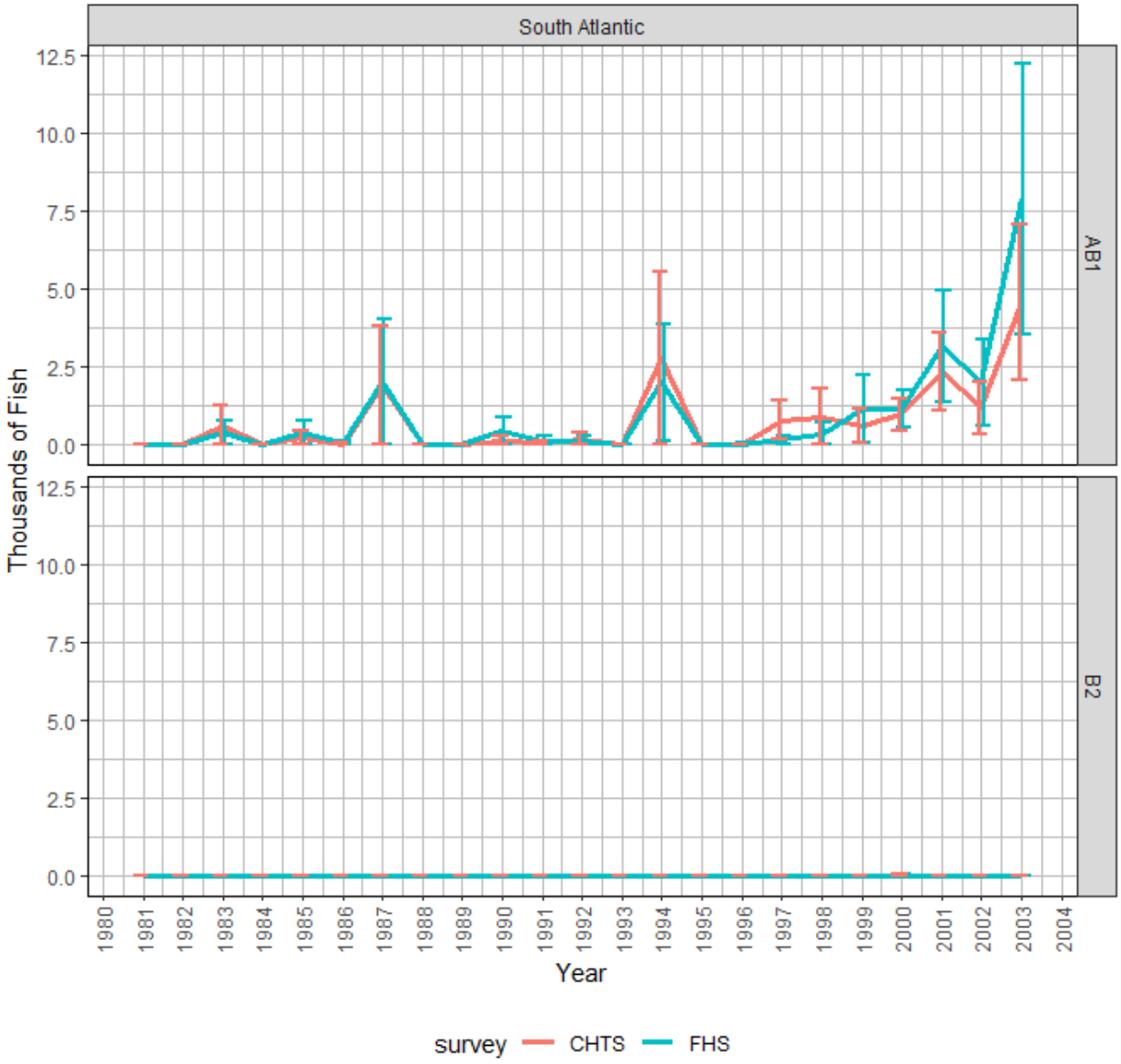

Figure 1. *Comparison of Charterboat landings (AB1) and discard (B2) estimates (with standard error intervals shown) for Tilefish from the Coastal Household Telephone Survey (CHTS) and For-Hire Survey (FHS) from the South Atlantic between 1981 and 2003 (MRIP). The Charterboat calibration approach is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

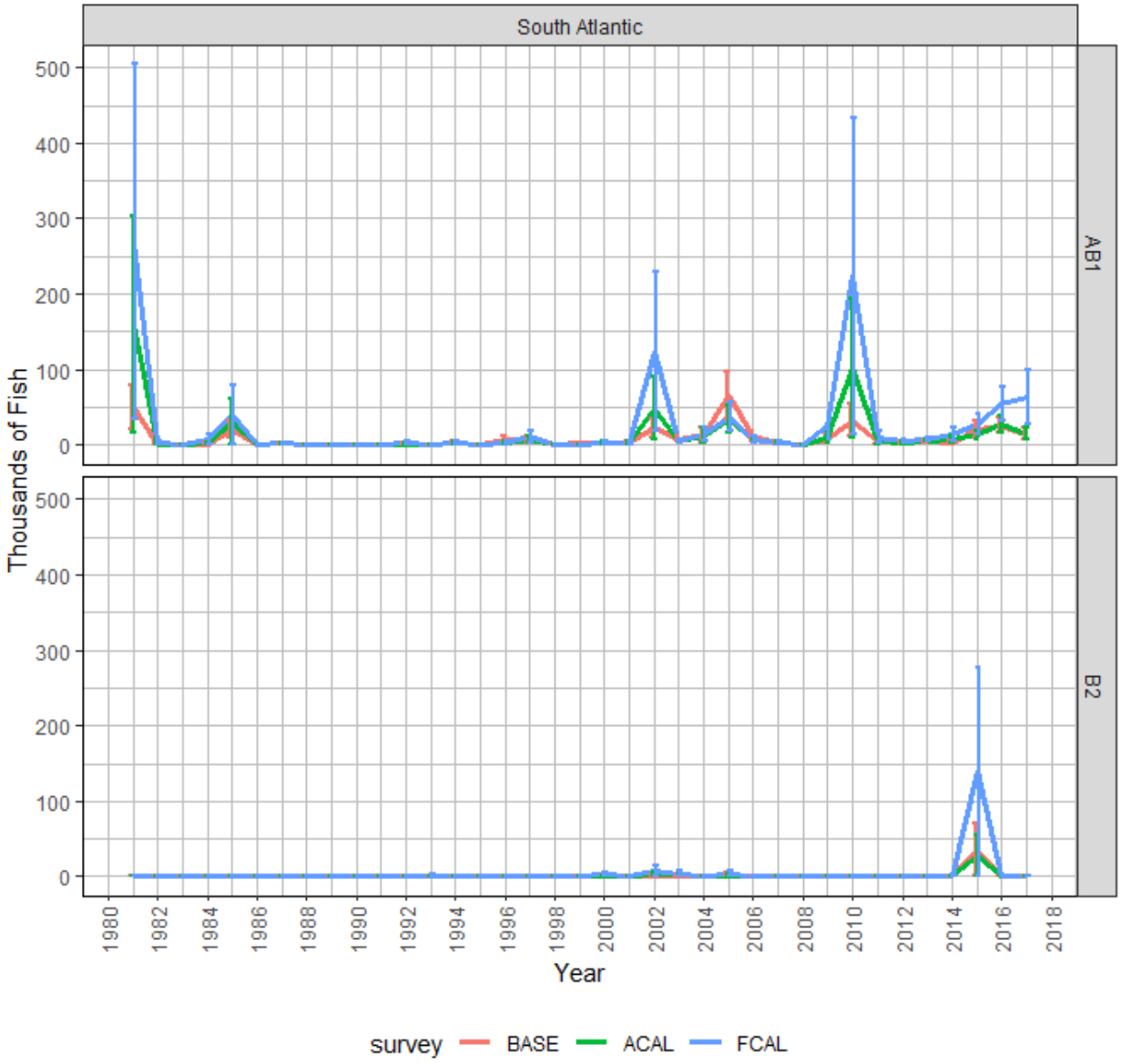

Figure 2. *MRIP Base (BASE), APAIS Calibrated (ACAL), and Fully Calibrated APAIS and FES (FCAL) landings (AB1) and discard (B2) estimates for Tilefish in the South Atlantic between 1981 and 2017. Estimates in this figure do not include the Florida Keys as that domain is not available from the MRIP online comparison tool (NMFS pers comm). Headboat and shore modes are also included as uncertainty estimates for catch are only available for either all modes or individual modes.*

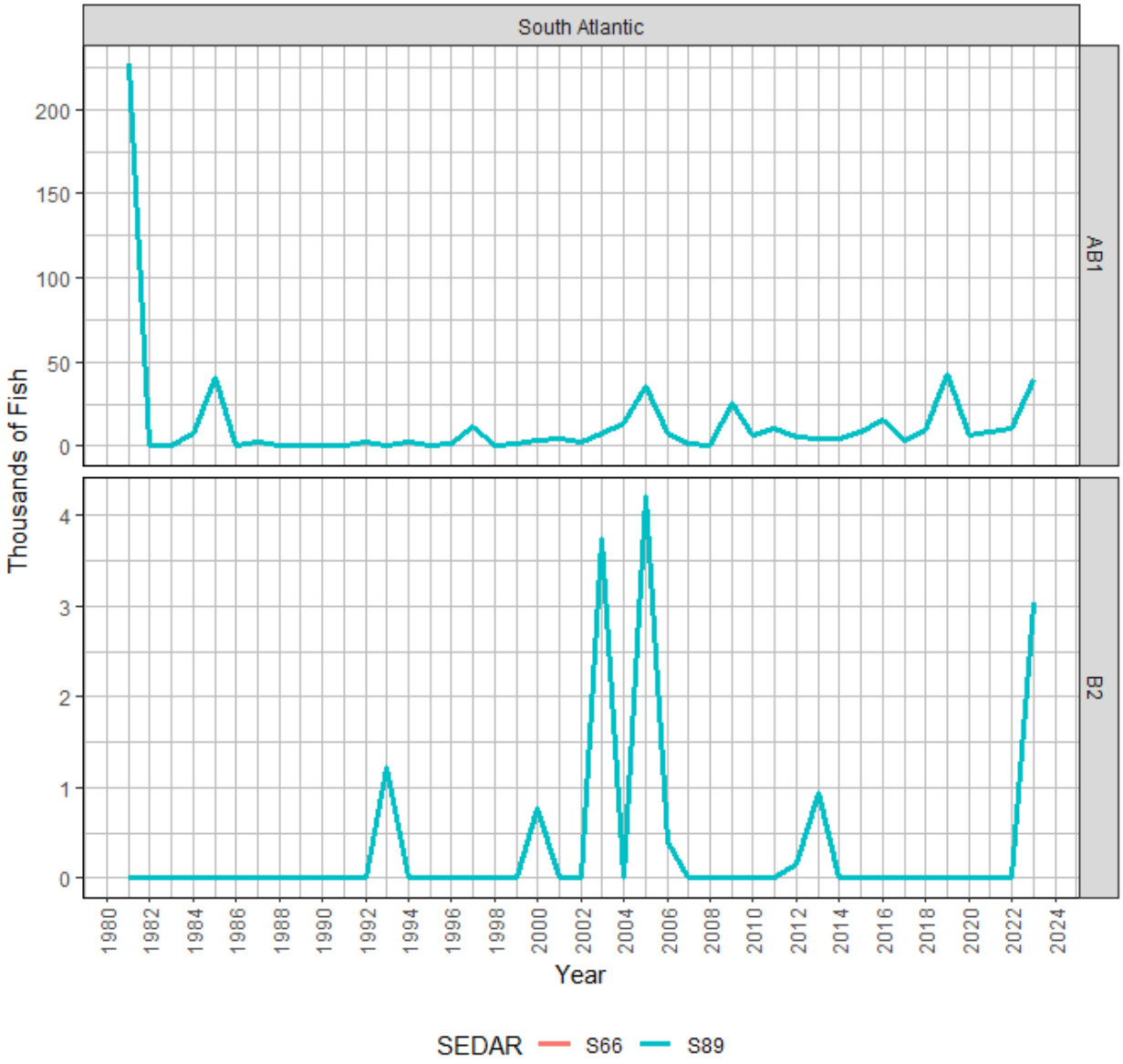

Figure 3. *Comparison of total general recreational landings (AB1) and discard estimates (B2) for South Atlantic tilefish between SEDAR 89 and SEDAR 66, the terminal years of which are 2023 and 2019 respectively. Note differences in the y-axis scales.*

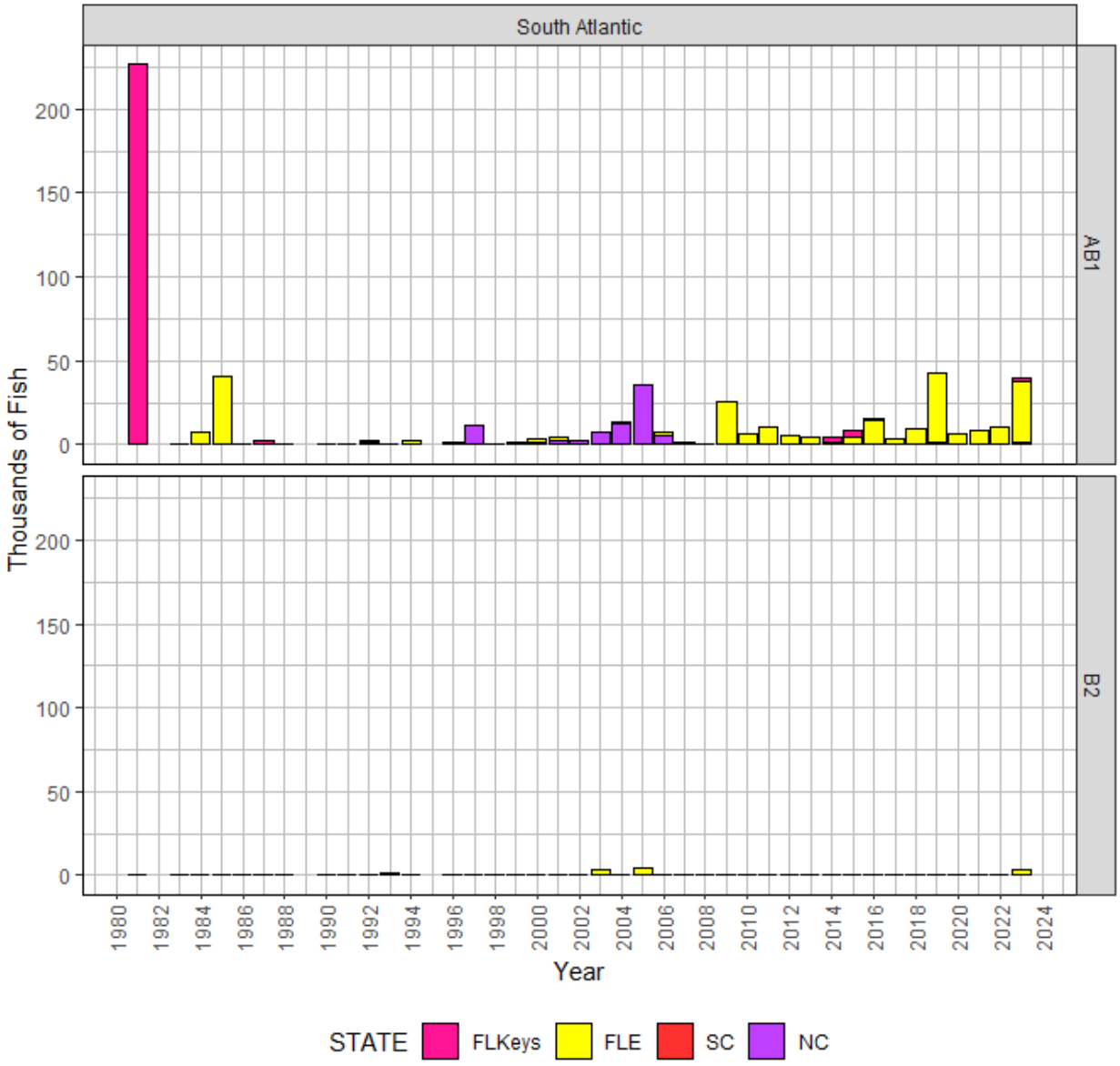

Figure 4. *Annual Tilefish landings (AB1) and discards (B2), by state from 1981 to 2023 (MRIP).*

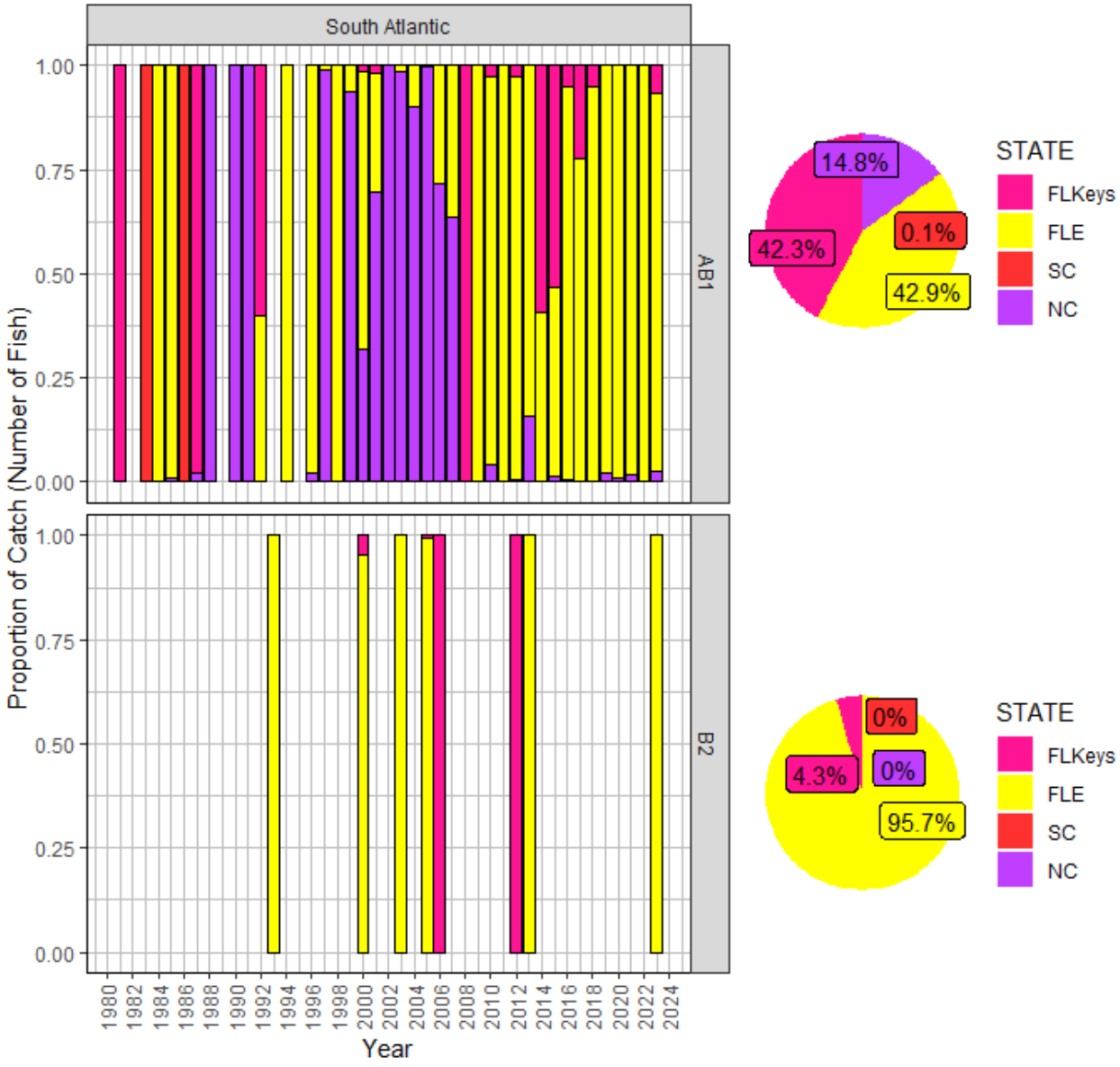

Figure 4a. *Proportion of Tilefish landings (AB1) and discards (B2), in numbers of fish, from each state by year (bar graph) and overall (pie chart) between 1981 and 2023 (MRIP).*

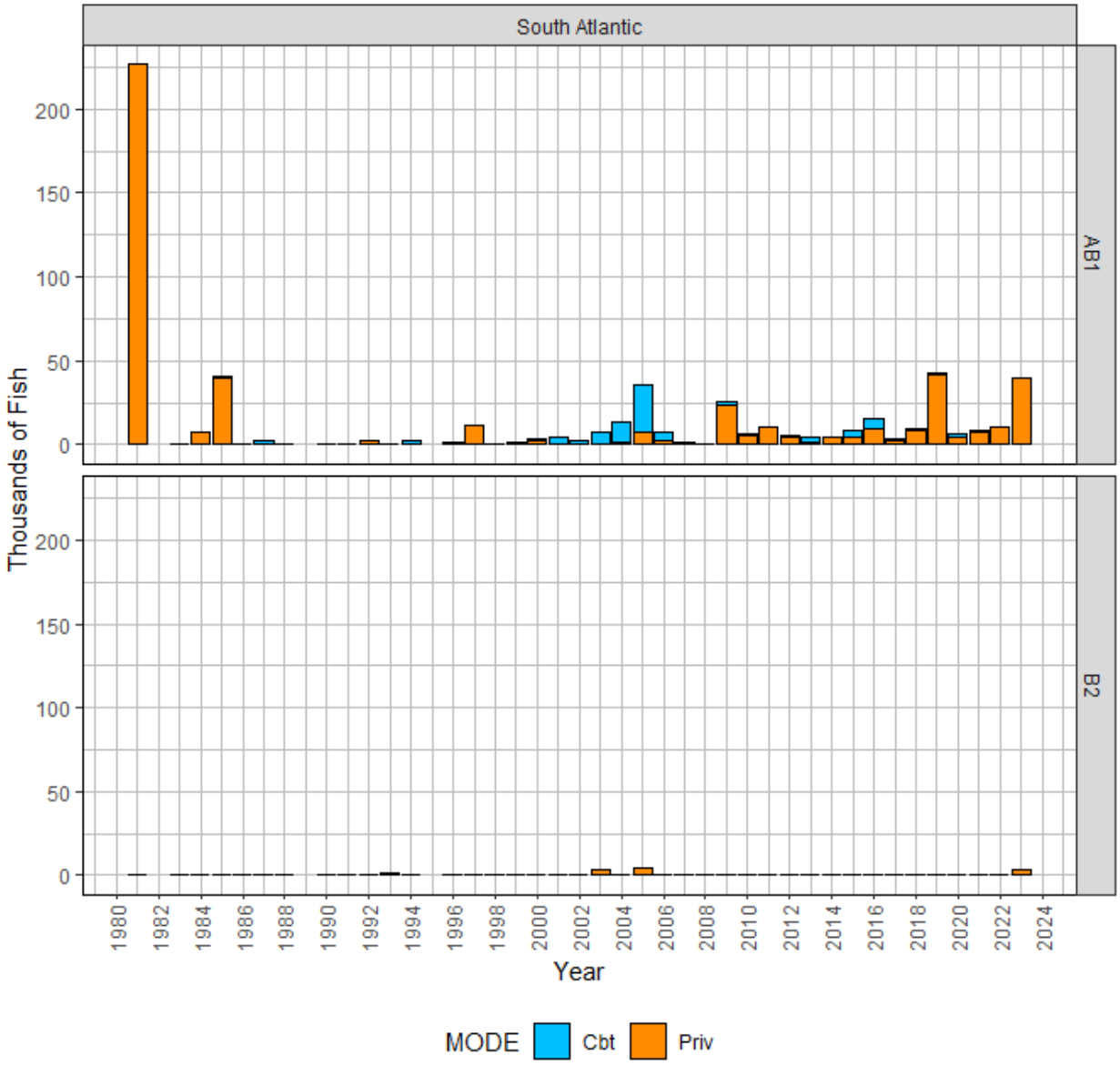

Figure 5. *Annual Tilefish landings (AB1) and discards (B2), by mode from 1981 to 2023 (MRIP).*

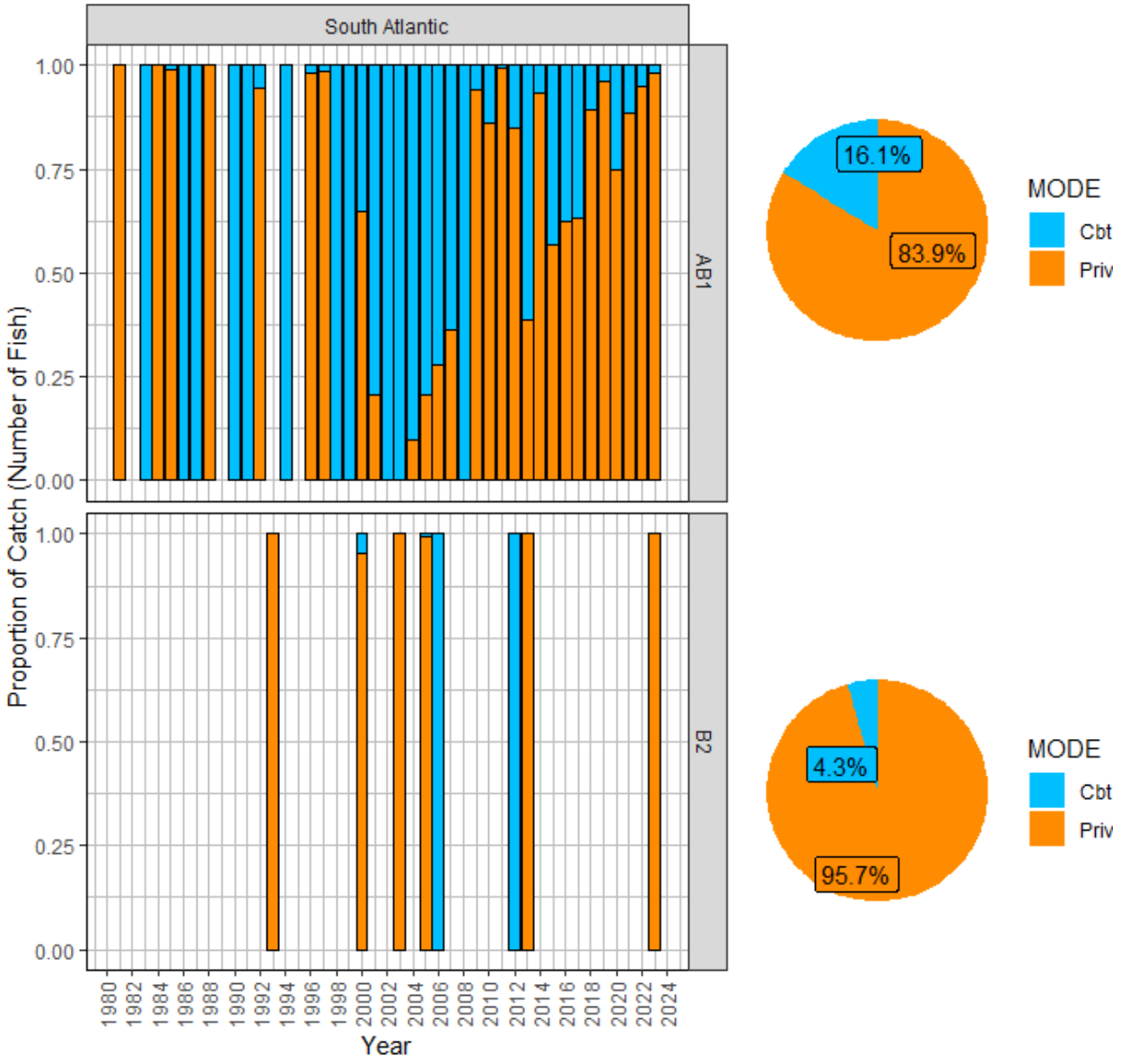

Figure 5a. *Proportion of Tilefish landings (AB1) and discards (B2), in numbers of fish, from each mode by year (bar graph) and overall (pie chart) between 1981 and 2023 (MRIP).*

Figure 6. *Estimates of annual landings for Tilefish 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). See Appendix for average weight calculation methods.*

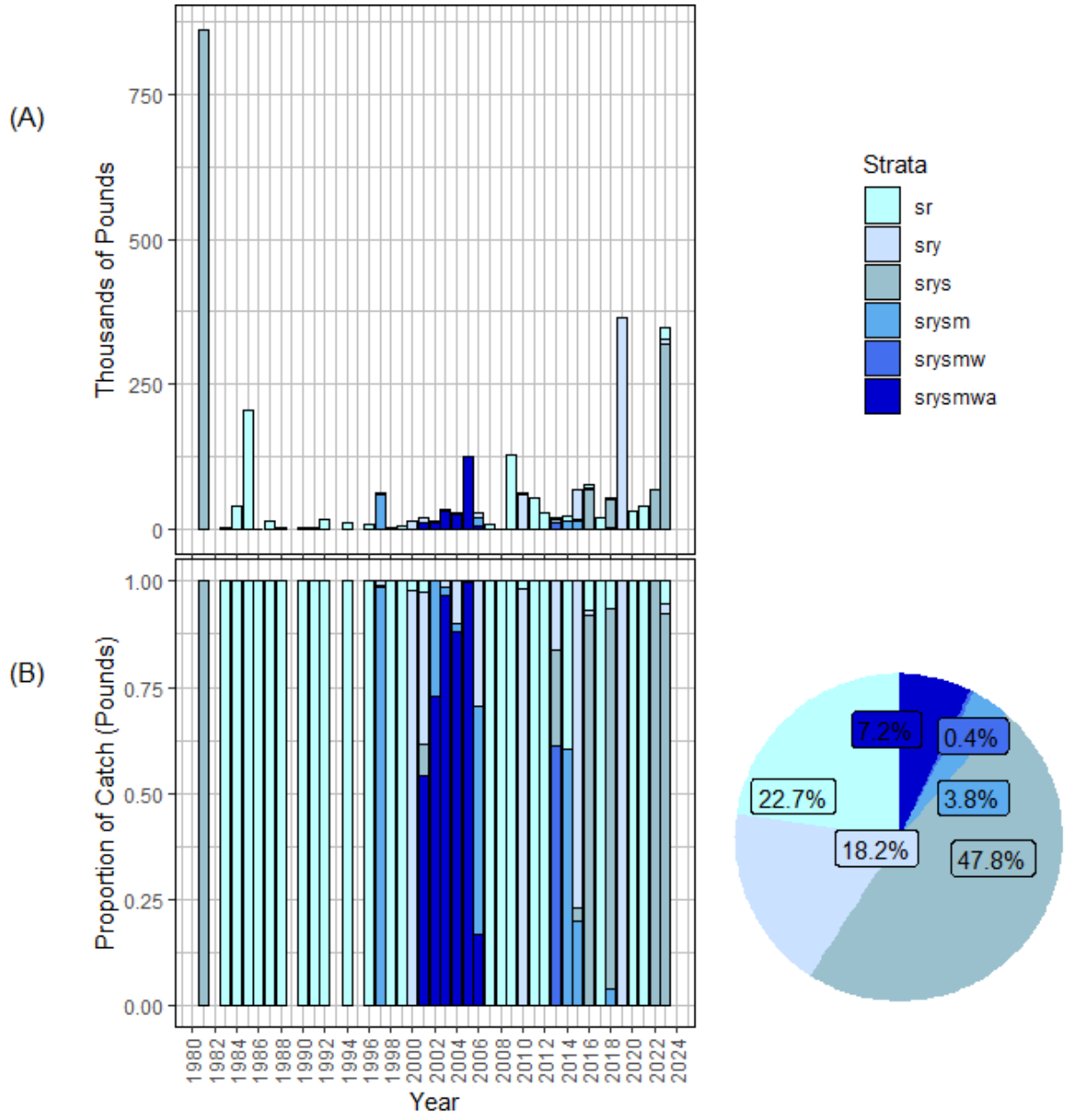

Figure 7. *Annual landings estimates of South Atlantic tilefish in thousands of pounds whole weight by hierarchy level (MRIP), defined by* ***s****pecies,* ***r****egion,* ***y****ear,* ***s****tate,* ***m****ode,* ***w****ave, and* ***a****rea. Landings are grouped by the strata at which average weights were estimated. Landings are provided (A) in absolute pounds and (B) as a percentage of total landings-in-weight, which is summarized by year (stacked bar graph) and across all years (pie chart).*

Appendix A

Additional Details of Survey Data and SEFSC Estimation

- MRIP Calibrations: 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 the For-Hire mode 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.
- 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 89 Tilefish, this includes any weights heavier than 69.405 pounds.

- The MRIP time series starts in wave 2 of 1981. To impute 1981 wave 1 effort (Florida), the proportion of the wave 1 effort to that from other waves (2-6) in years 1982-1984 (by fishing mode and area) was multiplied by the total effort from waves 2-6 in 1981.

- 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).