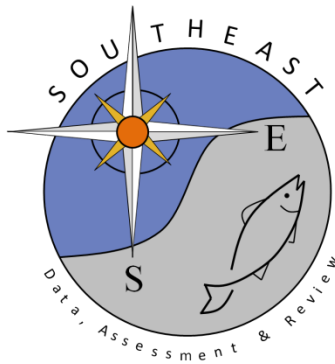


General Recreational Survey Data for Gag in the Gulf of America

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

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General recreational catch estimates for Gag are compiled from the following separate sampling programs:

1. Marine Recreational Information Program (MRIP) (SEDAR68-DW-13)
 2. Texas Parks and Wildlife Department (TPWD) Creel survey (SEDAR70-WP-03)
 3. Louisiana Creel survey program (LA Creel; 2014+)
- The Louisiana Biological sampling program (LA BIO) does not prioritize sampling of Gag. Size and age data from Louisiana (2014+) are not available for this assessment.

Parameters for data prepared for SEDAR 105 recreational catch data:

- Species: Gag
 - State-specific ratios were applied to MRIP Black Grouper catch prior to 1990 to correct for potential misidentification of Gag. These ratios are 0.974, 1.000, 1.000, and 0.993 for LA, MS, AL, and FLW, respectively (SEDAR 33, 2014).

- Unless otherwise stated, all tables and graphs with MRIP catch estimates include Gag and these proportions of misidentified Black Grouper. MRIP intercept tables (Tables 7-9) include all Gag and Black Grouper observations from those states (LA-FLW) and years (1981-1989) with misidentification concerns.
- Year Range: 1981 - 2024
- Geographic Range: Gulf of America states from Texas to western Florida, excluding the Florida Keys.
- Fishing Modes: Charter, Private, Shore, Headboat (1981-1985 from Texas to the Florida Keys)
 - Unless otherwise stated, the summaries presented in this working paper include MRIP estimates for Florida private anglers, despite their replacement with SRFS estimates in SEDAR 105, which are distinguished in some summaries as 'FLW_Priv'.
 - Unless otherwise stated, these summaries also include a substitution made in SEDAR 72 (2021) to address a high 1983 landings estimate with the geometric mean from those estimates in 1981, 1982, 1984, and 1985. This smoothing was calculated and applied to the total 1983 private landings in SEDAR 72 (2021), but only to Florida 1983 private landings in SEDAR 105.
- Weight Units: gutted weight, converted from whole weight using ratio of 1.057, as recommended by the SEDAR 105 Life History Topical Working Group (TWG)
- MRIP Calibration: Fully calibrated estimates that take into account the change in the Fishing Effort Survey (FES, which replaced CHTS in 2018), the redesigned Access Point Angler Intercept Survey (AP AIS), and the For Hire Survey (FHS) (Papacostas and Foster 2021). These calibrations allow for estimates in the entire time series to be compared to one another.
- TPWD Calibration: Applied ratio estimator developed from MRIP-FES study conducted in Texas in 2016 (SEDAR 74-RD-110) to calibrate TPWD catch and effort estimates for the private mode into MRIP-FES units (SEDAR 74-DW-10).
- LA Creel Calibration: Overlap in catch of Louisiana Gag between the MRIP and LA Creel surveys in the 2015 benchmarking year was considered inadequate to estimate a calibration factor for private estimates, which were not adjusted. Charter estimates between these two surveys are assumed equivalent and were also not adjusted (SEDAR 74-DW-04).
- MRIP Data Gaps from COVID: Missing 2020 intercepts were imputed from all AP AIS 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 7-9). For SEDAR 105 Gag, this includes any weights heavier than 84.315 pounds.

Summary of Data Imputations. Imputation Methods are discussed in the Appendix.

Estimate	Strata	Imputed	Rationale
Catch	1981 Wave1 (TX-FLW)	Yes	Negligible wave1 catch imputed for completion
Catch	1981 - 1983 (Texas)	Yes	Negligible Texas catch imputed for completion
Discards	1981+ (Texas)	Yes	Negligible discards imputed for completion
Discards	2014+ (Louisiana)	Yes	Negligible discards imputed for completion
Effort	1981 Wave1 (TX-FLW)	Yes	Effort is not species-specific, need to account for effort in Wave1 before MRIP started
Effort	1981 - 1983 (Texas)	Yes	Effort is not species-specific, need to account for Texas effort in 1981-1983 before TPWD 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 the inherent zero-boundary constraint in catch data (≥ 0) that complicates identification of low estimates. Note that the first set of investigations below (e.g., total catch estimates and associated percentages) exclude estimates for Florida private anglers, which will ultimately be substituted with SRFS estimates in SEDAR 105. A second set of investigations is provided thereafter, to evaluate estimates that include Florida private anglers to inform subsequent analyses that may require such information (e.g., MRIP:SRFS calibrations).

- 1981 discard estimate: 397,217 fish
 - Stratum: western Florida, shore, wave 5, and ocean ≤ 10 miles
 - Intercept Records: a total of 16 angler trips that resulted in a discard estimate of 195,784 fish (49.3% of the total annual estimate)
 - Three angler trips released live Gag, with reports of 7, 4, and 1 fish
 - Thirteen angler trips released live Black Grouper, >99% of which were assumed to be misidentified Gag. Reports include one trip with 6 fish, two with 5, one with 4, two with 3, six with 2, and one with 1.
 - No single intercept contributed more than 50% to the total discard estimate for this stratum, with the largest contribution being from the two intercepts that discarded 5 Black Grouper, each accounting for 10.9% of the strata-level estimate, and 5.4% of the total annual estimate). Every intercept for this stratum reported non-zero releases of Gag or Black Grouper, and all intercepts were from distinct fishing parties.

- 1985 landings estimate: 523,779 fish
 - Stratum: Alabama, private, wave 5, and ocean > 3 miles
 - Intercept Records: a total of 2 angler trips that resulted in a landings estimate of 109,027 fish (20.8% of the total annual estimate)
 - Two angler trips harvested Black Grouper, all of which were assumed to be misidentified Gag. Reports include one trip with 28 fish (seen by interviewer) and one trip with 4 fish (NOT seen by interviewer).
 - The single intercept that harvested 28 Black Grouper accounts for 87% of the strata-level estimate, and 18.2% of the total annual estimate. Both intercepts for this stratum reported non-zero harvest of Gag or Black Grouper, and were from distinct fishing parties.

- Stratum: Alabama, shore, wave 5, and ocean ≤ 3 miles
- Intercept Records: a total of 6 angler trips that resulted in a landings estimate of 61,376 fish (11.7% of the total annual estimate)
 - Six angler trips harvested Black Grouper, all of which were assumed to be misidentified Gag. Reports include two trips with 10 fish, one with all 10 seen by interviewer and the other with 4 seen but 6 NOT seen, one trip with 5 fish (seen by interviewer), and three trips with 1 fish (seen by interviewer).
- The single intercept that harvested 10 Black Grouper (all seen by interviewer) accounts for 52% of the strata-level estimate, and 6.1% of the total annual estimate. Every intercept for this stratum reported non-zero harvest of Gag or Black Grouper, and all intercepts were from distinct fishing parties.

- Stratum: western Florida, shore, wave 6, and ocean ≤ 10 miles
 - Intercept Records: a total of 5 angler trips that resulted in a landings estimate of 66,514 fish (12.7% of the total annual estimate)
 - Three angler trips harvested Black Grouper, >99% of which were assumed to be misidentified Gag. Reports include one trip with 6 fish and two trips with 1 fish, none of which were seen by interviewer.
 - The single intercept that harvested 6 Black Grouper accounts for 84% of the strata-level estimate, and 10.7% of the total annual estimate. Only three intercepts for this stratum reported non-zero harvest of Gag or Black Grouper, and all intercepts were from distinct fishing parties.
- 1986 landings estimate: 476,373 fish
 - Stratum: western Florida, charter, wave 3, ocean > 10 miles
 - Intercept Records: a total of 20 angler trips that resulted in a landings estimate of 85,382 fish (17.9% of the total annual estimate), which includes a FHS calibration ratio of 1.586 for this strata.
 - One angler trip that harvested 1 Gag and 12 Black Grouper, all of which were seen by the interviewer
 - Three angler trips harvested Gag, each of which reported 3 fish that were NOT seen by the interviewer
 - Sixteen angler trips harvested Black Grouper, >99% of which were assumed to be misidentified Gag. Reports from these trips include:

<i>Catch Observation</i>	<i>Minimum</i>	<i>Median</i>	<i>Mean</i>	<i>Maximum</i>
<i>Harvest seen by interviewer</i>	0	0	1.33	11
<i>Harvest not seen by interviewer</i>	0	2	2.38	9
<i>Released live fish</i>	0	0	0.13	1

- No single intercept contributed more than 50% to the total landings estimate for this stratum, the largest contribution being from an intercept that harvested 13 fish, 1 Gag and 12 Black Grouper (16.0% of the strata-level estimate, and 2.9% of the total annual estimate). All 13 of these fish were seen by the interviewer.
- The second largest contribution was from an intercept that harvested 13 Black Grouper (15.1% of the strata-level estimate, and 2.7% of the total annual estimate). Of these 13 fish, 11 were seen and 2 NOT seen by the interviewer. This intercept was also part of a larger fishing party, responsible for six other angler trips with reported (unobserved) harvest of Black Grouper, ranging between 1-2 fish. Excluding this one fishing party, all other intercepts from this stratum were from distinct fishing parties.
- All but one of the intercepts for this stratum (n=19) reported non-zero harvest of Gag or Black Grouper.

- Stratum: Alabama, private, wave 1, ocean > 3 miles
- Intercept Records: a total of 2 angler trips that resulted in a landings estimate of 87,337 fish (18.3% of the total annual estimate)
 - Two angler trips harvested 5 Black Grouper, all of which were assumed to be misidentified Gag and none seen by interviewer.
- Each of the intercepts with harvest of 5 Black Grouper account for 50% of the strata-level estimate, 9.2% of the total annual estimate, and are from distinct fishing parties.

- 1993 discard estimate: 841,002 fish
 - Stratum: western Florida, shore, wave 6, ocean <= 10 miles
 - Intercept Records: a total of 15 angler trips that resulted in a landings/discard estimate of 534,658 fish (63.6% of the total annual estimate)
 - One angler trip released 25 live Gag, one of 20, one of 18, one of 14, two of 10, one of 6, one of 5, two of 4, three of 2, and two of 1.
 - No single intercept contributed more than 50% to the total discard estimate for this stratum, with the largest contribution being from the intercept that discarded 25 Gag (21.1% of the strata-level estimate, and 13.4% of the total annual estimate). Every intercept for this stratum reported non-zero releases of Gag, and all intercepts were from distinct fishing parties.

- 2008 discard estimate: 1,240,844 fish
 - Stratum: western Florida, shore, wave 3, ocean <= 10 miles
 - Intercept Records: a total of 10 angler trips that resulted in a discard estimate of 159,912 fish (12.9% of the total annual estimate)
 - One angler trip released 8 live Gag
 - Three angler trips released 3 live Gag
 - Two angler trips released 2 live Gag
 - Four angler trips released 1 live Gag
 - No single intercept contributed more than 50% to the total discard estimate for this stratum, with the largest contribution being from the intercept that discarded 8 Gag (31.1% of the strata-level estimate, and 4.0% of the total annual estimate). Every intercept for this stratum reported non-zero releases of Gag, and all intercepts were from distinct fishing parties.

Discussion

The majority (~84%) of general recreational catch estimates for Gulf of America gag grouper come from Florida private anglers (Table 1-2, Figure 5-6), which will be substituted by SRFS estimates in SEDAR 105. Of those strata to be retained, those relatively high estimates investigated above tend to be from anglers that either fished in Alabama or along the shore.

Of the three strata-level estimates investigated for Alabama, all three were informed by a limited number of intercepts (i.e., two with 2 intercepts and one with 6) and were all originally reported as Black Grouper catch, 100% of which was reassigned to Gag. One of these trips had an observed harvest of 28 Black Grouper which, when combined with the associated sampling weights (i.e., *WP_CATCH*), accounted for 87% of the strata-level estimate and 18.2% of the annual estimate in 1985, but these fish were all seen by the dockside sampler suggesting the associated data was accurately recorded.

Of the four strata-level estimates investigated for (non-Alabama) shore anglers, three were informed by multiple intercepts (i.e., ~10-15 trips) wherein no single intercept constituted a majority (>50%) of the strata-level catch estimate, with the most any single intercept contributing tending to be between 10-30%. Additionally, all intercepts within these three strata reported non-zero catch for either Gag or Black Grouper. This support for high catch across multiple intercepts suggests that these catch estimates either reflect real trends in the fishery or represent the true variability in MRIP catch estimates for Gulf of America Gag. The only exception to this trend for shore-based fishing was that from western Florida in 1985, where a single intercept contributed 84% to the strata-level landings estimate but only ~13% to the total annual estimate. Of the five trips intercepted in this strata, three reported non-zero harvest of Black Grouper, none of which was verified by the interviewer. However, the highest report for catch was of 6 fish, which seems to fall within the distribution of plausible catch values for Gulf Gag.

Beyond those for shore-based fishing and Alabama anglers, there was also a single strata-level estimate for Florida charter investigated in 1986. No intercept from this strata contributed more than 50% to the strata-level estimate, the most being from a trip that harvested 1 Gag and 12 Black Grouper, all of which were verified by the interviewer.

(Additional) Exploration of Strata that include Florida-Private Anglers

- 1982 landings estimate: 2,124,430 fish
 - Stratum: western Florida, private, wave 6, ocean > 10 miles
 - Intercept Records: a total of 5 angler trips that resulted in a landings estimate of 545,570 fish (25.7% of the total annual estimate)
 - One angler trip harvested 16 Gag, all seen by interviewer
 - One angler trip harvested 6 Gag, none seen by interviewer
 - One angler trip harvested 5 Gag, all seen by interviewer
 - One angler trip harvested 1 Black Grouper, not seen by interviewer
 - The single intercept that harvested 16 Gag accounts for 57% of the strata-level estimate, and 14.7% of the total annual estimate.

 - Stratum: western Florida, private, wave 3, ocean > 10 miles
 - Intercept Records: a total of 13 angler trips that resulted in a landings estimate of 342,580 fish (16.1% of the total annual estimate)
 - One angler trip harvested 40 Gag, all seen by interviewer
 - One angler trip harvested 9 Gag, all seen by interviewer
 - One angler trip harvested 8 Gag, 2 of which were seen by interviewer
 - Three angler trips harvested 1 Gag, 2 of which were seen by interviewer
 - One angler trip harvested 4 Black Grouper, none seen by interviewer
 - One angler trip harvested 3 Black Grouper, all seen by interviewer
 - Two angler trips harvested 2 Black Grouper, all seen by interviewer
 - Three angler trips harvested 1 Black Grouper, all seen by interviewer
 - The single intercept that harvested 40 Gag accounts for 57% of the strata-level estimate, and 9.3% of the total annual estimate.

- 1983 landings estimate: 4,208,530 fish
 - Stratum: western Florida, private, wave 6, ocean > 10 miles
 - Intercept Records: a total of 1 angler trip that resulted in a landings estimate of 2,327,492 fish (55.3% of the total annual estimate)
 - One angler trip harvested 36 Black Grouper, all seen by interviewer

- 2004 discards estimate: 9,254,722 fish
 - Stratum: western Florida, private, wave 2, ocean > 10 miles
 - Intercept Records: a total of 92 angler trips that resulted in a discard estimate of 1,172,320 (12.7% of the total annual estimate)

<i>Catch Observation</i>	<i>Minimum</i>	<i>Median</i>	<i>Mean</i>	<i>Maximum</i>
<i>Harvest seen by interviewer</i>	0	0	0.45	9
<i>Harvest not seen by interviewer</i>	0	0	0.22	5
<i>Released live fish</i>	0	3	3.73	25

- No single intercept contributed more than 50% to the total discard estimate for this stratum, with the largest contribution being from an intercept that discarded 18 Gag (7.0% of the strata-level estimate, and <1% of the total annual estimate). Seventy-eight intercepts for this stratum reported non-zero releases of Gag, and all intercepts were from distinct fishing parties.

- Stratum: western Florida, private, wave 3, ocean > 10 miles
- Intercept Records: a total of 158 angler trips that resulted in a landings estimate of 1,029,702 fish (11.1% of the total annual estimate)

<i>Catch Observation</i>	<i>Minimum</i>	<i>Median</i>	<i>Mean</i>	<i>Maximum</i>
<i>Harvest seen by interviewer</i>	0	0	0.37	9
<i>Harvest not seen by interviewer</i>	0	0	0.13	4
<i>Released live fish</i>	0	2	3.42	25

- No single intercept contributed more than 50% to the total discard estimate for this stratum, with the largest contributions being from intercepts that discarded 20 Gag (5.7% of the strata-level estimate, and <1% of the total annual estimate). One-hundred forty-seven intercepts for this stratum reported non-zero releases of Gag, and all intercepts were from distinct fishing parties.

- 2008 discards estimate: 9,453,075 fish
 - Stratum: western Florida, private, wave 6, ocean > 10 miles
 - Intercept Records: a total of 97 angler trips that resulted in a discard estimate of 1,251,573 (13.2% of the total annual estimate)

<i>Catch Observation</i>	<i>Minimum</i>	<i>Median</i>	<i>Mean</i>	<i>Maximum</i>
<i>Harvest seen by interviewer</i>	0	0	0.59	7
<i>Harvest not seen by interviewer</i>	0	0	0.0	0
<i>Released live fish</i>	0	3	5.42	20

- No single intercept contributed more than 50% to the total discard estimate for this stratum, with the largest contributions being from an intercepts that discarded 20 Gag (7.0% of the strata-level estimate, and <1% of the total annual estimate). Ninety-four intercepts for this stratum reported non-zero releases of Gag, and all intercepts were from distinct fishing parties.

- Stratum: western Florida, private, wave 1, ocean > 10 miles
- Intercept Records: a total of 89 angler trips that resulted in a discard estimate of 1,181,812 (12.5% of the total annual estimate)

<i>Catch Observation</i>	<i>Minimum</i>	<i>Median</i>	<i>Mean</i>	<i>Maximum</i>
<i>Harvest seen by interviewer</i>	0	0	0.61	7
<i>Harvest not seen by interviewer</i>	0	0	0.17	5
<i>Released live fish</i>	0	3	5.26	20

- No single intercept contributed more than 50% to the total discard estimate for this stratum, with the largest contribution being from an intercept that discarded 20 Gag (9.8% of the strata-level estimate, and 1.2% of the total annual estimate). Eighty intercepts for this stratum reported non-zero releases of Gag, and all intercepts were from distinct fishing parties.

Appendices

Appendix A. Additional Details of Survey Data and SEFSC Estimation

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Table 1. Annual landings (AB1) and discards (B2) of Gag in numbers of fish by state and year from all data sources (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys. 'FLW_Priv' includes Florida private estimates and 'FLW_Other' those from charter, headboat, and shore. These estimates for Florida private anglers, which are to be replaced by SRFs estimates in SEDAR 105, also include a smoothed estimate for 1983 landings.

Year	TX		LA		MS		AL		FLW_Other		FLW_Priv		Total	
	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2
1981	941	0	0	0	0	0	80,737	0	236,317	397,217	608,806	428,251	926,800	825,468
1982	941	0	14,765	0	1,416	2,491	0	0	206,817	28,912	1,900,492	441,746	2,124,430	473,149
1983	621	0	2,282	0	0	0	2,638	0	235,251	29,386	837,681	818,788	1,078,473	848,174
1984	926	0	820	0	0	0	9	0	149,298	23,886	516,540	162,581	667,593	186,467
1985	1,275	0	19,188	0	0	0	174,811	0	328,504	88,457	823,884	205,632	1,347,663	294,090
1986	0	0	3,191	6,891	404	0	111,556	8,928	361,222	109,442	762,790	762,386	1,239,162	887,647
1987	110	0	8,396	0	3,792	0	8,446	0	120,744	17,620	872,083	648,759	1,013,572	666,379
1988	0	0	20,582	0	85	0	48	0	111,769	20,296	899,614	453,159	1,032,097	473,456
1989	403	0	13,750	0	1,987	14	834	0	104,961	204,907	727,597	916,787	849,531	1,121,708
1990	2,311	0	0	0	46	0	389	0	25,844	71,078	533,966	845,307	562,556	916,385
1991	2,516	0	2,654	0	0	0	3,278	445	56,981	133,996	548,806	2,153,462	614,235	2,287,903
1992	0	0	4,055	2,527	1,244	42	5,192	1,627	176,331	322,305	441,076	1,379,078	627,898	1,705,579
1993	185	905	2,587	6,017	9,119	13	6,437	9,699	184,521	824,367	648,953	2,787,465	851,802	3,628,466
1994	1,460	632	4,944	2,578	1,187	6,579	11,571	12,329	72,456	290,935	419,408	3,146,622	511,026	3,459,675
1995	0	0	496	32	8	23,529	9,171	11,937	144,910	627,341	854,066	3,981,660	1,008,651	4,644,500
1996	2,692	747	15,492	4,297	15,906	4,869	25,345	35,041	204,729	412,153	414,182	1,917,371	678,347	2,374,477
1997	0	0	1,201	4,713	16	1,585	6,398	11,421	135,743	321,026	788,173	3,427,308	931,530	3,766,053
1998	3,901	795	6,133	912	9,401	24	13,180	98,534	260,546	507,316	878,222	4,700,589	1,171,385	5,308,170
1999	3,621	2,280	34,003	23,242	2,127	17,369	38,699	140,783	149,129	383,760	1,098,285	4,010,739	1,325,864	4,578,172
2000	6,409	0	4,692	0	6,915	4,380	33,787	47,002	134,336	340,241	1,269,959	2,571,932	1,456,098	2,963,555
2001	17,033	11,087	8,962	6,023	21	2,870	15,333	18,438	81,648	422,344	998,009	4,848,993	1,121,006	5,309,755

Year	TX		LA		MS		AL		FLW_Other		FLW_Priv		Total	
	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2
2002	5,155	17,208	4,559	15,255	16,937	19,677	22,620	53,331	115,467	886,778	1,129,326	5,071,382	1,294,065	6,063,631
2003	5,217	16,676	2,992	7,012	290	62	18,411	57,268	96,282	734,470	862,380	6,263,309	985,572	7,078,797
2004	2,834	1,627	16,579	9,422	0	851	13,461	68,811	129,504	769,062	1,387,826	8,404,949	1,550,204	9,254,722
2005	1,239	1,447	5,790	5,163	0	0	51,447	264,799	158,362	800,618	1,058,617	4,875,672	1,275,455	5,947,700
2006	5,535	2,627	8,789	3,853	0	0	4,827	34,069	70,633	410,313	645,033	3,372,243	734,816	3,823,104
2007	1,823	205	8,865	1,258	0	294	8,169	90,083	39,431	967,891	507,962	4,121,561	566,250	5,181,292
2008	2,567	4,901	4,291	7,934	0	568	4,175	115,180	104,244	1,112,262	846,291	8,212,231	961,568	9,453,075
2009	3,193	5,930	3,384	1,488	28,864	12,107	5,555	106,441	44,182	803,450	382,960	5,319,745	468,138	6,249,162
2010	1,377	13	294	147	1,727	3,453	19,546	12,041	72,731	791,458	517,407	4,276,191	613,082	5,083,303
2011	427	574	5,461	8,323	0	0	85	27,080	11,936	368,556	300,773	3,223,163	318,683	3,627,696
2012	2,019	91	96	17,889	0	0	1,649	11,998	48,242	343,555	233,610	2,185,485	285,617	2,559,018
2013	3,858	0	0	709	434	15,032	210	13,289	24,729	486,762	441,048	2,121,606	470,280	2,637,398
2014	807	983	680	708	0	0	1,208	1,983	11,807	401,402	312,111	1,610,482	326,613	2,015,558
2015	263	302	148	144	0	1,583	196	1,709	12,682	319,428	263,761	961,197	277,049	1,284,362
2016	2,129	2,581	368	407	166	62	232	22,092	17,291	484,297	194,102	1,635,511	214,289	2,144,951
2017	785	957	146	155	0	0	197	6,051	25,186	402,718	253,921	2,951,475	280,235	3,361,356
2018	708	864	227	267	0	381	159	1,457	23,476	331,497	280,049	1,934,651	304,619	2,269,117
2019	316	385	469	452	0	10	3,302	2,187	30,244	744,613	219,981	1,685,994	254,313	2,433,641
2020	20	13	217	260	0	0	2,301	3,701	39,029	948,854	301,443	2,178,833	343,010	3,131,661
2021	120	146	1,573	1,899	0	0	42	147	56,428	724,203	235,255	1,511,395	293,418	2,237,790
2022	657	793	1,706	2,037	0	0	908	5,231	32,135	1,029,492	288,219	1,284,965	323,625	2,322,519
2023	240	292	15	12	0	7,986	541	4,290	25,821	815,271	80,171	2,047,055	106,787	2,874,905
2024	0	0	44	43	0	1,134	0	5,513	10,536	605,061	97,699	1,610,716	108,280	2,222,467

Table 2. Annual landings (AB1) and discards (B2) of Gag in numbers of fish by mode and year from all data sources (MRIP, LACreel 2014+, TPWD). Note catch from the combined private-shore fishing mode in the LA Creel survey is added to the private mode. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. 'Priv_FLW' includes Florida private estimates and 'Priv_Other' those from other Gulf states. These estimates for Florida private anglers, which are to be replaced by SRFS estimates in SEDAR 105, also include a smoothed estimate for 1983 landings.

Year	Shore		Hbt		Cbt		Priv_Other		Priv_FLW		Total	
	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2
1981	63,871	240,014	90,630	60,489	144,907	96,715	18,586	0	608,806	428,251	926,800	825,468
1982	36,127	5,178	65,678	9,132	106,427	14,601	15,706	2,491	1,900,492	441,746	2,124,430	473,149
1983	78,197	4,986	61,320	9,388	99,849	15,011	1,425	0	837,681	818,788	1,078,473	848,174
1984	36,820	13,784	43,348	3,887	69,957	6,215	926	0	516,540	162,581	667,593	186,467
1985	127,425	51,104	102,684	14,373	164,180	22,980	129,490	0	823,884	205,632	1,347,663	294,090
1986	9,735	25,261			367,116	91,324	99,521	8,676	762,790	762,386	1,239,162	887,647
1987	21,354	0			106,619	17,620	13,515	0	872,083	648,759	1,013,572	666,379
1988	25,036	0			86,865	20,296	20,582	0	899,614	453,159	1,032,097	473,456
1989	31,739	158,704			74,357	46,217	15,838	0	727,597	916,787	849,531	1,121,708
1990	0	0			26,279	71,078	2,311	0	533,966	845,307	562,556	916,385
1991	25,401	130,939			35,091	3,502	4,936	0	548,806	2,153,462	614,235	2,287,903
1992	21,937	236,232			156,110	86,121	8,776	4,148	441,076	1,379,078	627,898	1,705,579
1993	49,510	730,893			137,481	97,098	15,859	13,011	648,953	2,787,465	851,802	3,628,466
1994	6,013	178,295			66,607	113,478	18,998	21,280	419,408	3,146,622	511,026	3,459,675
1995	36,256	324,627			112,353	308,655	5,977	29,558	854,066	3,981,660	1,008,651	4,644,500
1996	11,111	175,417			199,056	240,704	53,999	40,984	414,182	1,917,371	678,347	2,374,477
1997	2,606	158,100			139,119	168,734	1,632	11,911	788,173	3,427,308	931,530	3,766,053
1998	66,796	162,380			199,326	351,124	27,041	94,077	878,222	4,700,589	1,171,385	5,308,170
1999	24,736	178,463			137,898	233,351	64,945	155,619	1,098,285	4,010,739	1,325,864	4,578,172
2000	22,105	208,708			127,608	134,811	36,426	48,104	1,269,959	2,571,932	1,456,098	2,963,555

Year	Shore		Hbt		Cbt		Priv_Other		Priv_FLW		Total	
	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2	AB1	B2
2001	0	223,209			84,575	202,024	38,421	35,529	998,009	4,848,993	1,121,006	5,309,755
2002	5,463	647,057			114,051	246,969	45,224	98,222	1,129,326	5,071,382	1,294,065	6,063,631
2003	6,904	442,694			92,980	296,312	23,308	76,483	862,380	6,263,309	985,572	7,078,797
2004	2,279	432,460			134,341	337,988	25,759	79,326	1,387,826	8,404,949	1,550,204	9,254,722
2005	47,178	507,153			126,872	339,620	42,789	225,255	1,058,617	4,875,672	1,275,455	5,947,700
2006	6,164	284,489			70,444	140,622	13,175	25,751	645,033	3,372,243	734,816	3,823,104
2007	7,250	861,232			33,991	113,340	17,047	85,159	507,962	4,121,561	566,250	5,181,292
2008	15,831	799,639			89,111	313,363	10,336	127,842	846,291	8,212,231	961,568	9,453,075
2009	1,596	539,612			46,692	267,022	36,890	122,782	382,960	5,319,745	468,138	6,249,162
2010	13,556	468,848			60,233	325,187	21,886	13,077	517,407	4,276,191	613,082	5,083,303
2011	1,425	178,278			10,642	190,736	5,843	35,520	300,773	3,223,163	318,683	3,627,696
2012	1,837	177,773			46,753	170,466	3,416	25,294	233,610	2,185,485	285,617	2,559,018
2013	0	252,703			24,939	234,277	4,293	28,812	441,048	2,121,606	470,280	2,637,398
2014	0	333,870			12,425	68,116	2,077	3,090	312,111	1,610,482	326,613	2,015,558
2015	0	246,805			12,977	72,689	311	3,670	263,761	961,197	277,049	1,284,362
2016	0	379,979			17,623	104,832	2,563	24,630	194,102	1,635,511	214,289	2,144,951
2017	0	257,559			25,424	145,187	890	7,136	253,921	2,951,475	280,235	3,361,356
2018	3,828	205,339			19,823	126,206	918	2,922	280,049	1,934,651	304,619	2,269,117
2019	2,151	646,234			28,537	99,320	3,643	2,093	219,981	1,685,994	254,313	2,433,641
2020	1,539	752,395			37,608	196,603	2,420	3,831	301,443	2,178,833	343,010	3,131,661
2021	2,803	441,449			53,700	282,923	1,660	2,023	235,255	1,511,395	293,418	2,237,790
2022	0	812,760			32,467	217,626	2,939	7,168	288,219	1,284,965	323,625	2,322,519
2023	8,911	613,447			17,463	202,244	243	12,158	80,171	2,047,055	106,787	2,874,905
2024	0	371,780			10,556	233,657	24	6,314	97,699	1,610,716	108,280	2,222,467

Table 3. Gag landings in numbers of fish (AB1) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year from all data sources (MRIP, LACreel 2014+, TPWD). 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 Gag. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. These private estimates are for all Gulf states, including those from Florida which are to be replaced by SRFS estimates in SEDAR 105, and include a smoothed estimate for 1983 landings.

Year	Cbt				Hbt				Priv				Shore			
	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp
1981	144,907	0.55	76 (18)	610 (53)	90,630	0.55	76 (18)	610 (53)	627,392	0.40	221 (13)	1,780 (16)	63,871	0.83	324 (3)	1,942 (4)
1982	106,427	0.72	76 (10)	597 (32)	65,678	0.73	76 (10)	597 (32)	1,916,198	0.25	467 (23)	3,773 (35)	36,127	0.38	538 (2)	3,727 (2)
1983	99,849	0.38	232 (22)	1,560 (113)	61,320	0.38	123 (22)	1,357 (113)	839,106	0.19	739 (11)	7,100 (18)	78,197	0.00	372 (0)	2,603 (0)
1984	69,957	0.29	190 (14)	1,668 (56)	43,348	0.28	116 (14)	1,518 (56)	517,467	0.26	752 (8)	5,588 (9)	36,820	0.47	377 (2)	2,906 (3)
1985	164,180	0.19	196 (18)	1,476 (153)	102,684	0.19	89 (18)	1,260 (153)	953,374	0.07	902 (8)	7,611 (14)	127,425	0.00	497 (0)	3,606 (0)
1986	367,116	0.06	426 (42)	2,672 (66)					862,311	0.03	1,754 (13)	14,258 (17)	9,735	0.00	424 (0)	2,082 (0)
1987	106,619	0.10	397 (39)	2,475 (60)					885,599	0.18	1,773 (36)	15,007 (49)	21,354	1.01	371 (1)	2,158 (1)
1988	86,865	0.07	389 (31)	2,012 (40)					920,196	0.15	1,865 (28)	15,264 (44)	25,036	0.00	601 (0)	3,609 (0)
1989	74,357	0.30	353 (28)	1,671 (43)					743,435	0.05	1,395 (21)	11,106 (23)	31,739	0.74	422 (2)	2,936 (2)
1990	26,279	0.48	251 (12)	1,219 (23)					536,277	0.38	1,167 (25)	8,598 (33)	0	0.00	383 (0)	2,498 (0)
1991	35,091	0.50	338 (17)	1,791 (20)					553,742	0.24	1,246 (40)	10,364 (54)	25,401	1.00	429 (1)	2,811 (2)
1992	156,110	0.48	523 (33)	3,283 (46)					449,852	0.18	1,906 (82)	19,736 (111)	21,937	0.73	846 (3)	5,746 (3)
1993	137,481	0.35	345 (34)	1,831 (61)					664,811	0.24	1,572 (62)	16,403 (107)	49,510	0.50	899 (7)	7,497 (7)
1994	66,607	0.37	390 (16)	1,970 (30)					438,406	0.22	1,640 (85)	19,134 (128)	6,013	0.77	895 (2)	8,948 (2)
1995	112,353	0.35	370 (40)	1,811 (59)					860,043	0.25	1,501 (79)	17,396 (137)	36,256	0.48	742 (7)	8,011 (8)
1996	199,056	0.35	445 (45)	2,012 (70)					468,181	0.16	1,808 (111)	19,576 (151)	11,111	0.61	703 (3)	5,607 (3)
1997	139,119	0.22	603 (117)	2,793 (184)					789,805	0.20	1,731 (98)	19,990 (151)	2,606	0.75	654 (2)	5,719 (2)
1998	199,326	0.13	879 (246)	4,983 (389)					905,263	0.15	1,897 (155)	22,440 (238)	66,796	0.90	757 (4)	6,598 (7)
1999	137,898	0.09	1,157 (366)	7,919 (582)					1,163,229	0.11	2,442 (234)	28,056 (345)	24,736	0.40	937 (8)	8,775 (9)

Year	Cbt				Hbt				Priv				Shore			
	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp	AB1	CV	PSU	Trp
2000	127,608	0.14	1,183 (329)	9,761 (575)					1,306,386	0.13	2,233 (167)	24,056 (268)	22,105	0.65	843 (4)	7,275 (4)
2001	84,575	0.16	1,035 (238)	8,268 (389)					1,036,430	0.14	2,093 (153)	24,695 (232)	0	0.00	798 (0)	7,364 (0)
2002	114,051	0.21	1,034 (243)	8,664 (435)					1,174,550	0.17	2,165 (169)	25,906 (268)	5,463	0.83	787 (2)	7,485 (2)
2003	92,980	0.13	1,156 (303)	9,498 (535)					885,688	0.12	2,328 (170)	25,573 (242)	6,904	1.00	920 (1)	8,029 (1)
2004	134,341	0.09	1,151 (345)	10,429 (711)					1,413,585	0.15	2,130 (149)	24,695 (244)	2,279	0.60	692 (3)	6,486 (3)
2005	126,872	0.10	958 (312)	8,372 (626)					1,101,406	0.19	1,992 (131)	22,721 (193)	47,178	0.69	657 (7)	6,422 (7)
2006	70,444	0.20	907 (189)	7,193 (323)					658,208	0.24	2,295 (103)	25,207 (132)	6,164	0.69	724 (3)	6,551 (3)
2007	33,991	0.15	934 (144)	7,302 (224)					525,009	0.15	2,245 (104)	24,782 (159)	7,250	0.81	755 (3)	6,773 (3)
2008	89,111	0.16	844 (143)	5,811 (218)					856,626	0.16	2,392 (127)	25,619 (172)	15,831	0.53	763 (7)	6,695 (7)
2009	46,692	0.17	825 (94)	5,603 (141)					419,850	0.16	2,428 (106)	26,727 (145)	1,596	0.71	813 (2)	7,343 (2)
2010	60,233	0.21	801 (109)	5,316 (173)					539,293	0.17	2,385 (109)	24,592 (147)	13,556	0.75	756 (5)	7,281 (6)
2011	10,642	0.44	970 (39)	7,101 (68)					306,616	0.24	2,530 (56)	26,143 (68)	1,425	1.00	786 (1)	7,159 (1)
2012	46,753	0.17	1,048 (101)	8,231 (202)					237,026	0.24	2,685 (49)	26,630 (65)	1,837	1.00	843 (1)	8,045 (1)
2013	24,939	0.33	689 (39)	3,725 (53)					445,341	0.24	2,357 (72)	23,384 (108)	0	0.00	637 (0)	6,432 (0)
2014	12,425	0.24	1,277 (46)	6,924 (75)					314,188	0.23	3,463 (68)	31,639 (118)	0	0.00	409 (0)	4,262 (0)
2015	12,977	0.30	1,405 (34)	7,527 (53)					264,072	0.32	3,613 (46)	31,347 (65)	0	0.00	425 (0)	4,143 (0)
2016	17,623	0.24	1,476 (55)	7,130 (78)					196,665	0.32	3,783 (58)	32,416 (66)	0	0.00	675 (0)	4,688 (0)
2017	25,424	0.41	1,416 (27)	7,266 (35)					254,811	0.26	3,447 (53)	30,176 (89)	0	0.00	548 (0)	4,237 (0)
2018	19,823	0.32	1,444 (31)	7,803 (42)					280,968	0.29	3,364 (49)	26,387 (65)	3,828	1.00	529 (1)	4,377 (1)
2019	28,537	0.38	1,524 (34)	7,652 (62)					223,624	0.32	3,377 (54)	26,983 (74)	2,151	1.00	565 (1)	4,408 (1)
2020	37,608	0.40	1,450 (34)	7,356 (44)					303,863	0.29	3,469 (45)	30,352 (66)	1,539	1.00	603 (1)	4,356 (1)
2021	53,700	0.27	1,658 (65)	9,838 (131)					236,915	0.23	3,319 (46)	23,236 (62)	2,803	0.71	703 (2)	6,124 (2)
2022	32,467	0.37	1,510 (33)	8,175 (58)					291,158	0.35	3,289 (45)	20,410 (63)	0	0.00	657 (0)	4,769 (0)
2023	17,463	0.54	1,729 (12)	11,276 (20)					80,413	0.44	3,454 (14)	22,889 (18)	8,911	1.00	756 (1)	6,102 (1)
2024	10,556	0.63	1,711 (10)	11,570 (16)					97,723	0.46	3,221 (16)	21,008 (28)	0	0.00	722 (0)	6,285 (0)

Table 4. Gag discards in numbers of fish (B2) with associated coefficients of variation (CV; Dettloff et al. 2020) by mode and year from all data sources (MRIP, LACreel 2014+, TPWD). 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 Gag. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. These private estimates are for all Gulf states, including those from Florida which are to be replaced by SRFS estimates in SEDAR 105.

Year	Cbt				Hbt				Priv				Shore			
	B2	CV	PSU	Trp	B2	CV	PSU	Trp	B2	CV	PSU	Trp	B2	CV	PSU	Trp
1981	96,715	0.94	76 (5)	610 (28)	60,489	0.94	76 (5)	610 (28)	428,251	0.92	221 (2)	1,780 (2)	240,014	0.72	324 (3)	1,942 (7)
1982	14,601	0.88	76 (3)	597 (6)	9,132	0.88	76 (3)	597 (6)	444,237	0.34	467 (10)	3,773 (17)	5,178	0.00	538 (0)	3,727 (0)
1983	15,011	0.65	232 (7)	1,560 (22)	9,388	0.65	123 (7)	1,357 (22)	818,788	0.53	739 (7)	7,100 (14)	4,986	0.00	372 (0)	2,603 (0)
1984	6,215	0.28	190 (2)	1,668 (6)	3,887	0.28	116 (2)	1,518 (6)	162,581	0.56	752 (2)	5,588 (2)	13,784	0.65	377 (1)	2,906 (1)
1985	22,980	0.47	196 (10)	1,476 (38)	14,373	0.47	89 (10)	1,260 (38)	205,632	0.14	902 (1)	7,611 (3)	51,104	0.23	497 (2)	3,606 (2)
1986	91,324	0.15	426 (15)	2,672 (43)					771,062	0.01	1,754 (7)	14,258 (8)	25,261	0.00	424 (0)	2,082 (0)
1987	17,620	0.23	397 (10)	2,475 (22)					648,759	0.14	1,773 (15)	15,007 (25)	0	0.00	371 (0)	2,158 (0)
1988	20,296	0.09	389 (5)	2,012 (7)					453,159	0.15	1,865 (19)	15,264 (29)	0	0.00	601 (0)	3,609 (0)
1989	46,217	0.46	353 (8)	1,671 (16)					916,787	0.16	1,395 (30)	11,106 (56)	158,704	0.56	422 (4)	2,936 (6)
1990	71,078	0.58	251 (4)	1,219 (50)					845,307	0.34	1,167 (28)	8,598 (53)	0	0.00	383 (0)	2,498 (0)
1991	3,502	0.86	338 (5)	1,791 (7)					2,153,462	0.28	1,246 (53)	10,364 (124)	130,939	0.82	429 (3)	2,811 (4)
1992	86,121	0.44	523 (16)	3,283 (46)					1,383,225	0.21	1,906 (111)	19,736 (210)	236,232	0.54	846 (11)	5,746 (19)
1993	97,098	0.54	345 (10)	1,831 (41)					2,800,476	0.21	1,572 (131)	16,403 (328)	730,893	0.48	899 (26)	7,497 (47)
1994	113,478	0.40	390 (22)	1,970 (61)					3,167,902	0.14	1,640 (186)	19,134 (611)	178,295	0.23	895 (31)	8,948 (56)
1995	308,655	0.34	370 (29)	1,811 (127)					4,011,218	0.16	1,501 (167)	17,396 (482)	324,627	0.45	742 (38)	8,011 (64)
1996	240,704	0.31	445 (40)	2,012 (104)					1,958,355	0.12	1,808 (217)	19,576 (521)	175,417	0.49	703 (19)	5,607 (29)
1997	168,734	0.29	603 (46)	2,793 (118)					3,439,220	0.13	1,731 (212)	19,990 (552)	158,100	0.37	654 (21)	5,719 (31)
1998	351,124	0.17	879 (182)	4,983 (572)					4,794,666	0.13	1,897 (253)	22,440 (719)	162,380	0.26	757 (35)	6,598 (56)
1999	233,351	0.10	1,157 (334)	7,919 (1,115)					4,166,358	0.11	2,442 (361)	28,056 (894)	178,463	0.24	937 (39)	8,775 (47)
2000	134,811	0.25	1,183 (177)	9,761 (393)					2,620,036	0.10	2,233 (272)	24,056 (634)	208,708	0.36	843 (23)	7,275 (32)
2001	202,024	0.40	1,035 (138)	8,268 (464)					4,884,522	0.14	2,093 (299)	24,695 (854)	223,209	0.32	798 (27)	7,364 (37)

Year	Cbt				Hbt				Priv				Shore			
	B2	CV	PSU	Trp	B2	CV	PSU	Trp	B2	CV	PSU	Trp	B2	CV	PSU	Trp
2002	246,969	0.20	1,034 (223)	8,664 (915)					5,169,605	0.12	2,165 (340)	25,906 (978)	647,057	0.31	787 (45)	7,485 (93)
2003	296,312	0.14	1,156 (354)	9,498 (1,597)					6,339,792	0.11	2,328 (378)	25,573 (1,110)	442,694	0.23	920 (53)	8,029 (87)
2004	337,988	0.10	1,151 (349)	10,429 (1,894)					8,484,274	0.12	2,130 (339)	24,695 (1,145)	432,460	0.28	692 (36)	6,486 (52)
2005	339,620	0.10	958 (328)	8,372 (2,142)					5,100,927	0.11	1,992 (264)	22,721 (804)	507,153	0.23	657 (51)	6,422 (87)
2006	140,622	0.18	907 (186)	7,193 (583)					3,397,994	0.13	2,295 (266)	25,207 (709)	284,489	0.41	724 (29)	6,551 (49)
2007	113,340	0.21	934 (99)	7,302 (293)					4,206,719	0.11	2,245 (293)	24,782 (867)	861,232	0.45	755 (48)	6,773 (97)
2008	313,363	0.19	844 (126)	5,811 (452)					8,340,073	0.12	2,392 (355)	25,619 (1,296)	799,639	0.23	763 (57)	6,695 (119)
2009	267,022	0.27	825 (139)	5,603 (508)					5,442,528	0.11	2,428 (354)	26,727 (1,133)	539,612	0.37	813 (50)	7,343 (102)
2010	325,187	0.29	801 (143)	5,316 (574)					4,289,267	0.11	2,385 (265)	24,592 (874)	468,848	0.22	756 (58)	7,281 (105)
2011	190,736	0.17	970 (148)	7,101 (541)					3,258,683	0.17	2,530 (220)	26,143 (538)	178,278	0.33	786 (34)	7,159 (61)
2012	170,466	0.14	1,048 (165)	8,231 (624)					2,210,779	0.14	2,685 (209)	26,630 (469)	177,773	0.27	843 (29)	8,045 (39)
2013	234,277	0.35	689 (49)	3,725 (178)					2,150,418	0.15	2,357 (207)	23,384 (517)	252,703	0.45	637 (14)	6,432 (19)
2014	68,116	0.26	1,277 (97)	6,924 (253)					1,613,573	0.14	3,463 (258)	31,639 (598)	333,870	0.45	409 (19)	4,262 (24)
2015	72,689	0.32	1,405 (71)	7,527 (155)					964,867	0.14	3,613 (187)	31,347 (379)	246,805	0.41	425 (13)	4,143 (22)
2016	104,832	0.20	1,476 (119)	7,130 (304)					1,660,141	0.23	3,783 (233)	32,416 (512)	379,979	0.33	675 (26)	4,688 (35)
2017	145,187	0.31	1,416 (91)	7,266 (247)					2,958,611	0.19	3,447 (206)	30,176 (580)	257,559	0.31	548 (23)	4,237 (49)
2018	126,206	0.23	1,444 (80)	7,803 (235)					1,937,572	0.20	3,364 (152)	26,387 (398)	205,339	0.43	529 (16)	4,377 (22)
2019	99,320	0.26	1,524 (85)	7,652 (209)					1,688,087	0.19	3,377 (144)	26,983 (387)	646,234	0.39	565 (25)	4,408 (41)
2020	196,603	0.32	1,450 (87)	7,356 (241)					2,182,664	0.20	3,469 (177)	30,352 (428)	752,395	0.68	603 (24)	4,356 (36)
2021	282,923	0.27	1,658 (125)	9,838 (472)					1,513,419	0.17	3,319 (128)	23,236 (276)	441,449	0.51	703 (25)	6,124 (37)
2022	217,626	0.37	1,510 (60)	8,175 (196)					1,292,133	0.17	3,289 (103)	20,410 (183)	812,760	0.64	657 (19)	4,769 (30)
2023	202,244	0.20	1,729 (130)	11,276 (402)					2,059,213	0.20	3,454 (135)	22,889 (263)	613,447	0.32	756 (36)	6,102 (71)
2024	233,657	0.19	1,711 (150)	11,570 (599)					1,617,031	0.20	3,221 (139)	21,008 (320)	371,780	0.36	722 (31)	6,285 (50)

Table 5. Gag 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 from all data sources (MRIP, LACreel 2014+, TPWD). 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 Gag. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. These estimates are for all Gulf states, including those Florida private estimates which are to be replaced by SRFS in SEDAR 105, and include a smoothed estimate for 1983 landings.

Year	AB1				B2			
	Total	CV	PSU	Trp	Total	CV	PSU	Trp
1981	926,800	0.30	621 (34)	4,332 (73)	825,468	0.56	621 (10)	4,332 (37)
1982	2,124,430	0.23	1,081 (35)	8,097 (69)	473,149	0.32	1,081 (13)	8,097 (23)
1983	1,078,473	0.18	1,242 (33)	11,263 (131)	848,174	0.51	1,242 (14)	11,263 (36)
1984	667,593	0.20	1,253 (24)	10,162 (68)	186,467	0.49	1,253 (5)	10,162 (9)
1985	1,347,663	0.06	1,495 (26)	12,693 (167)	294,090	0.12	1,495 (13)	12,693 (43)
1986	1,239,162	0.03	2,492 (55)	19,012 (83)	887,647	0.02	2,492 (22)	19,012 (51)
1987	1,013,572	0.16	2,415 (76)	19,640 (110)	666,379	0.14	2,415 (25)	19,640 (47)
1988	1,032,097	0.14	2,728 (59)	20,885 (84)	473,456	0.15	2,728 (24)	20,885 (36)
1989	849,531	0.06	2,031 (51)	15,713 (68)	1,121,708	0.16	2,031 (42)	15,713 (78)
1990	562,556	0.35	1,696 (37)	12,315 (56)	916,385	0.32	1,696 (32)	12,315 (103)
1991	614,235	0.21	1,868 (58)	14,966 (76)	2,287,903	0.27	1,868 (61)	14,966 (135)
1992	627,898	0.18	3,115 (118)	28,765 (160)	1,705,579	0.18	3,115 (138)	28,765 (275)
1993	851,802	0.19	2,661 (103)	25,731 (175)	3,628,466	0.18	2,661 (167)	25,731 (416)
1994	511,026	0.19	2,736 (103)	30,052 (160)	3,459,675	0.12	2,736 (239)	30,052 (728)
1995	1,008,651	0.21	2,429 (126)	27,218 (204)	4,644,500	0.13	2,429 (234)	27,218 (673)
1996	678,347	0.15	2,737 (159)	27,195 (224)	2,374,477	0.10	2,737 (276)	27,195 (654)
1997	931,530	0.17	2,765 (217)	28,502 (337)	3,766,053	0.11	2,765 (279)	28,502 (701)
1998	1,171,385	0.12	3,295 (405)	34,021 (634)	5,308,170	0.12	3,295 (470)	34,021 (1,347)
1999	1,325,864	0.09	4,247 (608)	44,750 (936)	4,578,172	0.10	4,247 (734)	44,750 (2,056)
2000	1,456,098	0.11	3,968 (500)	41,085 (847)	2,963,555	0.08	3,968 (472)	41,085 (1,059)
2001	1,121,006	0.13	3,634 (391)	40,327 (621)	5,309,755	0.12	3,634 (464)	40,327 (1,355)
2002	1,294,065	0.15	3,720 (414)	42,055 (705)	6,063,631	0.10	3,720 (608)	42,055 (1,986)
2003	985,572	0.10	4,127 (474)	43,100 (778)	7,078,797	0.09	4,127 (785)	43,100 (2,794)
2004	1,550,204	0.13	3,678 (497)	41,610 (958)	9,254,722	0.10	3,678 (724)	41,610 (3,091)
2005	1,275,455	0.16	3,316 (450)	37,515 (826)	5,947,700	0.09	3,316 (643)	37,515 (3,033)
2006	734,816	0.22	3,592 (295)	38,951 (458)	3,823,104	0.11	3,592 (481)	38,951 (1,341)
2007	566,250	0.14	3,614 (251)	38,857 (386)	5,181,292	0.11	3,614 (440)	38,857 (1,257)
2008	961,568	0.14	3,690 (276)	38,125 (397)	9,453,075	0.10	3,690 (538)	38,125 (1,867)
2009	468,138	0.14	3,766 (202)	39,673 (288)	6,249,162	0.09	3,766 (543)	39,673 (1,743)

Year	AB1				B2			
	Total	CV	PSU	Trp	Total	CV	PSU	Trp
2010	613,082	0.14	3,632 (223)	37,189 (326)	5,083,303	0.09	3,632 (466)	37,189 (1,553)
2011	318,683	0.23	3,951 (96)	40,403 (137)	3,627,696	0.15	3,951 (402)	40,403 (1,140)
2012	285,617	0.20	4,231 (151)	42,906 (268)	2,559,018	0.12	4,231 (403)	42,906 (1,132)
2013	470,280	0.21	3,369 (111)	33,541 (161)	2,637,398	0.12	3,369 (270)	33,541 (714)
2014	326,613	0.21	4,450 (114)	42,825 (193)	2,015,558	0.13	4,450 (374)	42,825 (875)
2015	277,049	0.28	4,702 (80)	43,017 (118)	1,284,362	0.12	4,702 (271)	43,017 (556)
2016	214,289	0.29	5,184 (113)	44,234 (144)	2,144,951	0.18	5,184 (378)	44,234 (851)
2017	280,235	0.24	4,653 (80)	41,679 (124)	3,361,356	0.16	4,653 (320)	41,679 (876)
2018	304,619	0.26	4,541 (81)	38,567 (108)	2,269,117	0.17	4,541 (248)	38,567 (655)
2019	254,313	0.28	4,615 (88)	39,043 (137)	2,433,641	0.16	4,615 (254)	39,043 (637)
2020	343,010	0.26	4,759 (80)	42,064 (111)	3,131,661	0.21	4,759 (288)	42,064 (705)
2021	293,418	0.18	4,852 (113)	39,198 (195)	2,237,790	0.15	4,852 (278)	39,198 (785)
2022	323,625	0.32	4,669 (75)	33,354 (121)	2,322,519	0.24	4,669 (182)	33,354 (409)
2023	106,787	0.35	5,084 (27)	40,267 (39)	2,874,905	0.16	5,084 (301)	40,267 (736)
2024	108,280	0.41	4,853 (26)	38,863 (44)	2,222,467	0.15	4,853 (320)	38,863 (969)

Table 6. Gag landings in pounds gutted weight (LBS) with associated coefficients of variation (CV; Approach 2 described in Nuttall and Dettloff 2022) by year and mode from all data sources (MRIP, LACreel 2014+, TPWD). 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 Gag. Whole weight estimates for Gag were converted to gutted weight using a WWT:GWT ratio of 1.057. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. These estimates are for all Gulf states, including those Florida private estimates which are to be replaced by SRFS estimates in SEDAR 105, and include a smoothed estimate for 1983 landings.

Year	Cbt		Hbt		Priv		Shore		Total	
	LBS	CV	LBS	CV	LBS	CV	LBS	CV	LBS	CV
1981	1,003,665	0.59	580,476	0.56	1,942,784	0.45	376,781	0.97	3,903,707	0.32
1982	753,479	0.75	818,784	0.73	10,772,378	0.31	255,773	0.72	12,600,414	0.26
1983	666,943	0.75	477,535	0.39	3,649,170	0.25	522,319	0.00	5,315,967	0.20
1984	492,919	0.36	470,243	0.29	1,789,839	0.33	298,382	0.68	3,051,382	0.21
1985	1,300,343	0.19	750,629	0.19	6,046,931	0.18	1,000,706	0.00	9,098,608	0.07
1986	2,235,871	0.09			3,492,637	0.17	62,649	0.00	5,791,158	0.07
1987	960,900	0.16			4,850,685	0.20	160,580	1.01	5,972,165	0.19
1988	1,065,269	0.16			4,381,401	0.18	218,664	0.00	5,665,335	0.18
1989	837,920	0.31			4,742,065	0.13	296,880	0.76	5,876,865	0.10
1990	182,500	0.49			4,645,132	0.39	0	0.00	4,827,632	0.36
1991	293,374	0.51			4,005,289	0.25	190,470	1.00	4,489,134	0.22
1992	1,267,728	0.49			3,035,609	0.18	169,485	0.79	4,472,822	0.19
1993	950,628	0.35			4,382,873	0.24	338,018	0.55	5,671,518	0.19
1994	510,650	0.38			2,958,259	0.22	40,699	0.79	3,509,608	0.19
1995	735,960	0.35			5,788,945	0.25	151,482	0.52	6,676,387	0.21
1996	927,872	0.35			2,589,393	0.16	57,644	0.72	3,574,909	0.15
1997	1,337,131	0.22			4,660,596	0.20	24,649	0.75	6,022,376	0.17
1998	2,072,608	0.13			6,042,275	0.15	579,704	0.90	8,694,587	0.12
1999	1,154,902	0.09			7,378,538	0.11	176,816	0.42	8,710,256	0.09
2000	1,134,404	0.14			8,527,069	0.13	171,265	0.68	9,832,738	0.11
2001	822,525	0.16			8,177,490	0.14	0	0.00	9,000,015	0.13
2002	1,046,102	0.21			8,512,277	0.17	46,406	0.87	9,604,786	0.15
2003	752,218	0.13			5,734,462	0.12	53,100	1.00	6,539,781	0.10
2004	1,016,851	0.09			9,717,271	0.15	16,938	0.60	10,751,060	0.13
2005	961,851	0.10			7,375,209	0.19	352,705	0.72	8,689,765	0.16
2006	518,445	0.20			4,256,626	0.24	43,778	0.70	4,818,849	0.22
2007	285,964	0.15			4,153,495	0.16	59,298	0.81	4,498,758	0.14

Year	Cbt		Hbt		Priv		Shore		Total	
	LBS	CV	LBS	CV	LBS	CV	LBS	CV	LBS	CV
2008	724,648	0.16			5,876,535	0.16	118,686	0.53	6,719,870	0.14
2009	344,055	0.17			2,797,099	0.16	11,151	0.72	3,152,305	0.14
2010	419,147	0.21			3,434,380	0.17	89,980	0.75	3,943,507	0.14
2011	89,170	0.44			1,929,771	0.24	10,378	1.00	2,029,320	0.23
2012	356,287	0.17			1,542,181	0.24	13,850	1.00	1,912,318	0.20
2013	169,329	0.34			3,085,078	0.25	0	0.00	3,254,406	0.22
2014	93,165	0.24			2,540,915	0.23	0	0.00	2,634,080	0.21
2015	133,413	0.32			2,164,389	0.32	0	0.00	2,297,801	0.29
2016	188,831	0.25			1,724,090	0.32	0	0.00	1,912,921	0.29
2017	207,516	0.41			2,098,727	0.26	0	0.00	2,306,243	0.24
2018	181,749	0.33			2,236,100	0.29	31,824	1.00	2,449,673	0.26
2019	233,501	0.38			1,859,678	0.32	17,343	1.00	2,110,523	0.28
2020	312,299	0.41			2,521,942	0.29	12,559	1.00	2,846,800	0.26
2021	462,574	0.27			2,191,032	0.23	24,465	0.71	2,678,071	0.18
2022	305,165	0.37			2,490,320	0.35	0	0.00	2,795,485	0.32
2023	175,258	0.54			718,346	0.44	78,151	1.00	971,756	0.35
2024	101,854	0.64			904,839	0.46	0	0.00	1,006,693	0.42

Table 7. Summary of weight measurements (pounds whole weight) from MRIP-intercepted Gag 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. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. ‘Priv_FLW’ summarizes biological data collected from Florida private anglers, and ‘Priv_Other’ that from other Gulf states. This table includes Black Grouper sampled from years with misidentification concerns (1981-1989).

Year	Cbt					Hbt					Priv_Other					Priv_FLW					Shore				
	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	42 (16)	1.5	7.2	7.5	31.3	83 (53)	1.1	6.9	6.2	24.5	5 (3)	0.7	1.5	1.4	4.0	85 (36)	0.7	3.3	2.9	14.5	12 (6)	0.4	2.5	5.7	20.5
1982	16 (4)	1.4	5.5	3.5	12.1	54 (35)	1.3	11.6	10.4	36.8	3 (2)	6.0	8.9	4.2	13.7	211 (70)	0.4	7.2	8.0	35.1	6 (2)	0.7	2.2	1.4	4.4
1983	20 (6)	0.7	6.4	6.6	25.0	178 (116)	0.9	7.8	6.8	35.8	1 (1)	1.3	1.3	0.0	1.3	99 (25)	0.5	4.7	3.3	15.4	10 (3)	0.4	1.9	1.2	3.2
1984	24 (4)	2.1	6.7	5.2	28.4	147 (82)	0.9	7.7	6.3	27.1	0 (0)	0.0	0.0	0.0	0.0	52 (19)	0.5	2.6	2.0	9.7	7 (4)	0.6	4.5	4.0	12.1
1985	91 (28)	1.8	6.2	3.4	13.2	399 (178)	1.3	7.5	5.9	39.0	16 (3)	2.0	3.1	1.2	5.2	64 (28)	1.3	4.8	3.0	13.1	32 (9)	0.4	3.0	1.5	6.6
1986	775 (296)	0.7	8.8	5.6	33.3						21 (11)	1.1	4.2	2.4	9.9	207 (88)	0.4	6.3	7.0	25.4	2 (2)	3.5	4.1	0.8	4.6
1987	276 (99)	0.3	8.9	7.8	72.3						8 (4)	0.5	1.9	1.6	4.7	239 (97)	0.4	6.7	6.0	54.3	1 (1)	0.9	0.9	0.0	0.9
1988	94 (27)	0.6	12.5	8.7	39.1						3 (1)	0.5	0.8	0.4	1.2	101 (46)	1.1	4.4	2.4	10.2	0 (0)	0.0	0.0	0.0	0.0
1989	134 (43)	0.8	10.8	6.3	31.8						4 (3)	0.7	1.1	0.5	1.5	145 (64)	0.9	5.0	2.9	14.0	2 (2)	0.9	1.2	0.5	1.5
1990	88 (23)	0.7	8.1	5.1	25.3						0 (0)	0.0	0.0	0.0	0.0	70 (30)	0.7	8.7	3.9	18.3	0 (0)	0.0	0.0	0.0	0.0
1991	41 (18)	1.7	11.3	7.6	32.5						2 (2)	3.1	4.3	1.7	5.5	125 (50)	0.4	7.6	3.8	21.9	4 (2)	6.6	7.5	1.1	8.5
1992	186 (42)	1.9	10.0	9.7	82.4						6 (4)	1.1	6.1	4.4	10.0	206 (99)	1.5	7.0	3.1	20.8	6 (3)	0.7	5.5	2.7	8.4
1993	192 (61)	0.5	8.0	5.0	33.8						8 (5)	2.6	8.4	2.9	12.2	240 (101)	1.8	6.8	2.5	17.2	11 (7)	0.9	5.8	3.4	14.4
1994	117 (30)	2.3	7.8	4.3	27.3						16 (8)	0.7	1.6	0.7	3.1	238 (118)	3.0	6.8	2.9	16.1	2 (2)	5.3	7.3	2.9	9.4
1995	150 (59)	0.6	6.5	3.1	16.5						4 (3)	3.9	8.9	5.7	16.4	315 (134)	1.5	6.8	2.9	15.7	13 (8)	0.6	4.6	3.6	9.3
1996	199 (69)	2.9	5.7	2.5	20.3						35 (17)	1.8	6.2	3.0	17.8	266 (129)	0.6	5.7	2.8	17.1	3 (3)	0.4	0.8	0.7	1.7
1997	565 (183)	2.1	12.5	9.9	82.7						2 (2)	3.0	6.7	5.2	10.4	347 (149)	0.7	6.4	2.7	19.6	2 (2)	5.6	5.9	0.4	6.2
1998	1,395 (388)	2.7	10.3	7.9	82.9						27 (12)	0.4	5.2	3.4	12.5	491 (218)	1.3	6.7	3.2	18.9	11 (7)	3.3	4.9	1.0	6.6
1999	2,139 (579)	0.7	8.4	5.8	53.6						72 (39)	0.5	7.9	3.9	22.9	732 (300)	2.0	6.7	3.2	23.6	11 (9)	1.3	4.8	2.1	6.8

Year	Cbt					Hbt					Priv_Other					Priv_FLW					Shore				
	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
2000	1,902 (573)	1.9	9.5	5.2	56.7						34 (23)	1.9	8.7	4.0	18.4	632 (236)	3.0	6.8	3.0	21.0	6 (4)	3.7	7.7	4.3	15.0
2001	1,281 (388)	0.7	10.2	5.6	55.0						17 (12)	2.1	10.3	4.7	21.6	489 (210)	0.9	8.1	3.3	27.3	0 (0)	0.0	0.0	0.0	0.0
2002	1,465 (435)	1.5	9.9	6.4	72.8						34 (21)	1.9	9.0	5.3	23.4	552 (239)	0.8	7.4	3.4	27.0	2 (2)	4.0	7.3	4.5	10.5
2003	2,002 (534)	1.3	8.5	5.7	75.3						20 (15)	2.2	9.1	4.4	15.8	507 (219)	2.4	6.7	2.5	17.1	1 (1)	12.5	12.5	0.0	12.5
2004	3,191 (711)	0.9	8.0	4.5	55.0						23 (14)	3.1	7.9	4.6	24.6	548 (223)	3.0	7.0	2.7	18.6	3 (3)	6.1	6.7	1.0	7.8
2005	2,319 (625)	1.5	8.0	4.9	51.4						30 (22)	2.6	7.6	4.7	24.7	378 (169)	3.2	7.2	2.8	20.4	7 (7)	0.3	4.7	3.3	9.1
2006	980 (322)	1.3	7.7	4.4	46.6						9 (6)	1.2	7.0	4.3	16.4	232 (115)	1.4	6.8	2.4	17.2	3 (3)	4.8	6.8	2.2	9.1
2007	562 (223)	3.2	9.0	4.9	40.3						12 (9)	3.9	8.4	3.2	13.3	292 (145)	0.7	8.2	5.8	53.0	3 (3)	3.6	4.1	0.5	4.5
2008	699 (217)	1.2	8.4	4.8	54.4						6 (5)	3.9	7.3	2.1	9.5	370 (161)	0.7	7.1	2.7	19.7	10 (7)	3.6	4.6	0.5	5.4
2009	430 (141)	1.2	7.9	4.6	41.6						7 (6)	3.7	5.1	1.2	6.8	224 (130)	0.8	6.8	2.4	15.9	2 (2)	4.1	4.7	0.9	5.4
2010	559 (172)	3.7	7.2	3.0	21.3						11 (7)	3.7	5.0	1.3	7.6	244 (137)	3.6	6.7	2.2	14.9	9 (6)	4.1	6.3	1.3	8.0
2011	166 (67)	3.5	8.6	5.0	40.8						2 (2)	6.8	6.9	0.2	7.0	127 (64)	3.7	6.6	2.1	13.9	1 (1)	6.1	6.1	0.0	6.1
2012	695 (200)	3.7	8.2	4.5	59.1						1 (1)	5.7	5.7	0.0	5.7	141 (60)	4.1	7.1	2.3	13.7	1 (1)	4.7	4.7	0.0	4.7
2013	139 (53)	3.6	7.7	5.1	54.0						2 (1)	3.6	3.6	0.0	3.6	213 (105)	3.7	7.3	2.5	17.3	0 (0)	0.0	0.0	0.0	0.0
2014	230 (73)	4.0	8.2	3.0	19.8						1 (1)	6.4	6.4	0.0	6.4	228 (110)	3.7	8.4	3.1	19.0	0 (0)	0.0	0.0	0.0	0.0
2015	127 (49)	1.9	10.2	7.9	64.3						0 (0)	0.0	0.0	0.0	0.0	125 (63)	0.7	7.9	3.5	18.7	0 (0)	0.0	0.0	0.0	0.0
2016	143 (71)	5.0	11.4	7.1	55.3						1 (1)	9.5	9.5	0.0	9.5	111 (60)	5.1	9.2	2.9	19.0	0 (0)	0.0	0.0	0.0	0.0
2017	82 (34)	4.8	8.8	2.8	16.9						0 (0)	0.0	0.0	0.0	0.0	124 (82)	2.1	8.7	2.8	18.2	0 (0)	0.0	0.0	0.0	0.0
2018	110 (39)	5.4	9.0	4.7	36.5						0 (0)	0.0	0.0	0.0	0.0	92 (55)	5.7	8.5	2.0	13.5	1 (1)	12.8	12.8	0.0	12.8
2019	101 (49)	2.2	8.6	4.1	38.2						3 (3)	5.3	7.1	1.6	8.4	134 (63)	4.9	8.4	2.4	16.7	1 (1)	7.6	7.6	0.0	7.6
2020	73 (42)	4.9	9.4	5.1	43.0						6 (2)	6.3	9.5	2.3	12.8	108 (59)	3.3	8.6	2.5	14.9	1 (1)	6.8	6.8	0.0	6.8
2021	490 (122)	4.5	9.1	3.5	24.3						0 (0)	0.0	0.0	0.0	0.0	125 (52)	5.2	9.6	2.7	16.2	2 (2)	6.3	6.5	0.4	6.8
2022	147 (51)	4.2	9.9	4.4	28.0						2 (2)	6.0	9.0	4.4	12.1	94 (48)	5.4	9.0	2.9	22.2	0 (0)	0.0	0.0	0.0	0.0
2023	72 (18)	5.1	9.3	4.0	19.8						0 (0)	0.0	0.0	0.0	0.0	38 (16)	3.5	9.2	2.7	15.1	1 (1)	6.6	6.6	0.0	6.6
2024	46 (14)	5.7	10.0	7.8	47.2						0 (0)	0.0	0.0	0.0	0.0	52 (27)	3.6	9.3	4.4	31.1	0 (0)	0.0	0.0	0.0	0.0

Table 8. Summary of weight measurements (pounds whole weight) from MRIP-intercepted Gag 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 weights. This table includes samples collected from Florida private anglers, and Black Grouper sampled from years with misidentification concerns (1981-1989).

Year	Weight				
	N	Min	Avg	SD	Max
1981	227 (114)	0.4	5.3	5.7	31.3
1982	290 (113)	0.4	7.8	8.4	36.8
1983	308 (151)	0.4	6.5	6.0	35.8
1984	230 (109)	0.5	6.4	5.8	28.4
1985	602 (246)	0.4	6.7	5.2	39.0
1986	1,005 (397)	0.4	8.2	5.9	33.3
1987	524 (201)	0.3	7.8	7.1	72.3
1988	198 (74)	0.5	8.2	7.4	39.1
1989	285 (112)	0.7	7.6	5.7	31.8
1990	158 (53)	0.7	8.3	4.6	25.3
1991	172 (72)	0.4	8.4	5.2	32.5
1992	404 (148)	0.7	8.3	7.1	82.4
1993	451 (174)	0.5	7.3	3.9	33.8
1994	373 (158)	0.7	6.9	3.5	27.3
1995	482 (204)	0.6	6.6	3.1	16.5
1996	503 (218)	0.4	5.7	2.7	20.3
1997	916 (336)	0.7	10.1	8.5	82.7
1998	1,924 (625)	0.4	9.3	7.1	82.9
1999	2,954 (927)	0.5	7.9	5.3	53.6
2000	2,574 (836)	1.9	8.8	4.9	56.7
2001	1,787 (610)	0.7	9.6	5.1	55.0
2002	2,053 (697)	0.8	9.2	5.9	72.8
2003	2,530 (769)	1.3	8.2	5.3	75.3
2004	3,765 (951)	0.9	7.8	4.3	55.0
2005	2,734 (823)	0.3	7.9	4.7	51.4
2006	1,224 (446)	1.2	7.6	4.1	46.6
2007	869 (380)	0.7	8.7	5.2	53.0
2008	1,085 (390)	0.7	7.9	4.2	54.4
2009	663 (279)	0.8	7.5	4.0	41.6

Year	Weight				
	N	Min	Avg	SD	Max
2010	823 (322)	3.6	7.0	2.8	21.3
2011	296 (134)	3.5	7.7	4.1	40.8
2012	838 (262)	3.7	8.0	4.2	59.1
2013	354 (159)	3.6	7.4	3.7	54.0
2014	459 (184)	3.7	8.3	3.0	19.8
2015	252 (112)	0.7	9.0	6.2	64.3
2016	255 (132)	5.0	10.4	5.8	55.3
2017	206 (116)	2.1	8.7	2.8	18.2
2018	203 (95)	5.4	8.8	3.7	36.5
2019	239 (116)	2.2	8.5	3.2	38.2
2020	188 (104)	3.3	8.9	3.7	43.0
2021	617 (176)	4.5	9.2	3.3	24.3
2022	243 (101)	4.2	9.6	3.9	28.0
2023	111 (35)	3.5	9.2	3.6	19.8
2024	98 (41)	3.6	9.6	6.2	47.2

Table 9. Estimated average weights of landed Gag in pounds gutted weight (WGT) with associated coefficients of variation (CV; Approach 2 described in Nuttall and Dettloff 2022) by year and mode from all data sources (MRIP, LACreel 2014+, TPWD). Average weight estimates are calculated from annual estimates (by-mode) of landings-in-weight (gutted, Table 7) divided by estimates of landings-in-number (Table 2). Sample size (N) is provided as the total number of angler trips and, in parentheses, number of fish from which weight information was collected. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. These summaries include samples collected from Florida private anglers, and Black Grouper sampled from years with misidentification concerns (1981-1989).

Year	Shore			Hbt			Cbt			Priv			Total		
	WGT	CV	N	WGT	CV	N	WGT	CV	N	WGT	CV	N	WGT	CV	N
1981	5.90	0.91	4 (4)	6.40	0.12	42 (67)	6.93	0.26	11 (26)	3.10	0.22	16 (29)	4.21	0.11	73 (126)
1982	7.08	0.67	2 (3)	12.47	0.14	29 (45)	7.08	0.30	3 (13)	5.62	0.20	35 (114)	5.93	0.12	69 (175)
1983				7.79	0.08	111 (173)	6.68	0.70	2 (7)	4.76	0.17	17 (50)	4.89	0.08	130 (230)
1984	8.10	0.56	3 (5)	10.85	0.06	54 (80)	7.05	0.23	2 (18)	3.46	0.21	7 (22)	4.57	0.07	66 (125)
1985				7.31	0.05	153 (316)				6.34	0.16	12 (21)	6.75	0.05	165 (337)
1986							6.09	0.07	65 (220)	4.05	0.16	17 (34)	4.67	0.06	82 (254)
1987	7.52	0.00	1 (1)				9.01	0.13	59 (158)	5.48	0.08	49 (103)	5.89	0.10	109 (262)
1988							12.26	0.15	8 (31)	4.76	0.10	14 (35)	5.49	0.12	22 (66)
1989	9.35	0.27	2 (2)				11.27	0.08	42 (130)	6.38	0.12	22 (35)	6.92	0.08	66 (167)
1990							6.94	0.12	23 (88)	8.66	0.08	30 (70)	8.58	0.07	53 (158)
1991	7.50	0.00	2 (4)				8.36	0.13	18 (41)	7.23	0.06	52 (127)	7.31	0.07	72 (172)
1992	7.73	0.44	3 (6)				8.12	0.11	42 (186)	6.75	0.04	103 (212)	7.12	0.06	148 (404)
1993	6.83	0.28	7 (11)				6.91	0.06	61 (192)	6.59	0.03	106 (248)	6.66	0.03	174 (451)
1994	6.77	0.28	2 (2)				7.67	0.09	30 (117)	6.75	0.04	126 (254)	6.87	0.03	158 (373)
1995	4.18	0.24	8 (13)				6.55	0.05	59 (150)	6.73	0.03	137 (319)	6.62	0.03	204 (482)
1996	5.19	0.48	3 (3)				4.66	0.05	69 (199)	5.53	0.04	146 (301)	5.27	0.03	218 (503)
1997	9.46	0.05	2 (2)				9.61	0.04	183 (565)	5.90	0.03	151 (349)	6.47	0.04	336 (916)
1998	8.68	0.07	7 (11)				10.40	0.03	388 (1,395)	6.67	0.03	230 (518)	7.42	0.02	625 (1,924)
1999	7.15	0.13	9 (11)				8.38	0.02	579 (2,139)	6.34	0.02	339 (804)	6.57	0.02	927 (2,954)
2000	7.75	0.25	4 (6)				8.89	0.02	573 (1,902)	6.53	0.03	259 (666)	6.75	0.02	836 (2,574)
2001							9.73	0.02	388 (1,281)	7.89	0.02	222 (506)	8.03	0.02	610 (1,787)
2002	8.49	0.44	2 (2)				9.17	0.03	435 (1,465)	7.25	0.02	260 (586)	7.42	0.02	697 (2,053)
2003	7.69	0.00	1 (1)				8.09	0.02	534 (2,002)	6.47	0.02	234 (527)	6.64	0.02	769 (2,530)
2004	7.43	0.08	3 (3)				7.57	0.02	711 (3,191)	6.87	0.02	237 (571)	6.94	0.02	951 (3,765)
2005	7.48	0.26	7 (7)				7.58	0.02	625 (2,319)	6.70	0.03	191 (408)	6.81	0.02	823 (2,734)
2006	7.10	0.19	3 (3)				7.36	0.02	322 (980)	6.47	0.03	121 (241)	6.56	0.02	446 (1,224)
2007	8.18	0.06	3 (3)				8.41	0.03	223 (562)	7.91	0.04	154 (304)	7.94	0.03	380 (869)

Year	Shore			Hbt			Cbt			Priv			Total		
	WGT	CV	N	WGT	CV	N	WGT	CV	N	WGT	CV	N	WGT	CV	N
2008	7.50	0.01	7 (10)				8.13	0.04	217 (699)	6.86	0.03	166 (376)	6.99	0.03	390 (1,085)
2009	6.99	0.13	2 (2)				7.37	0.04	141 (430)	6.66	0.03	136 (231)	6.73	0.03	279 (663)
2010	6.64	0.06	6 (9)				6.96	0.03	172 (559)	6.37	0.02	144 (255)	6.43	0.02	322 (823)
2011	7.28	0.00	1 (1)				8.38	0.05	67 (166)	6.29	0.04	66 (129)	6.37	0.03	134 (296)
2012	7.54	0.00	1 (1)				7.62	0.02	200 (695)	6.51	0.03	61 (142)	6.70	0.02	262 (838)
2013							6.79	0.08	53 (139)	6.93	0.03	106 (215)	6.92	0.04	159 (354)
2014							7.50	0.04	73 (230)	8.09	0.03	111 (229)	8.06	0.02	184 (459)
2015							10.28	0.11	49 (127)	8.20	0.05	63 (125)	8.29	0.07	112 (252)
2016							10.71	0.09	71 (143)	8.77	0.03	61 (112)	8.93	0.05	132 (255)
2017							8.16	0.05	34 (82)	8.24	0.04	82 (124)	8.23	0.03	116 (206)
2018	8.31	0.00	1 (1)				9.17	0.07	39 (110)	7.96	0.03	55 (92)	8.04	0.03	95 (203)
2019	8.06	0.00	1 (1)				8.18	0.08	49 (101)	8.32	0.03	66 (137)	8.30	0.04	116 (239)
2020	8.16	0.00	1 (1)				8.30	0.10	42 (73)	8.30	0.03	61 (114)	8.30	0.05	104 (188)
2021	8.73	0.04	2 (2)				8.61	0.03	122 (490)	9.25	0.04	52 (125)	9.13	0.03	176 (617)
2022							9.40	0.05	51 (147)	8.55	0.04	50 (96)	8.64	0.03	101 (243)
2023	8.77	0.00	1 (1)				10.04	0.09	18 (72)	8.93	0.08	16 (38)	9.10	0.06	35 (111)
2024							9.65	0.16	14 (46)	9.26	0.06	27 (52)	9.30	0.07	41 (98)

Table 10. Recreational Fishing Effort (in angler trips) for Gulf of America anglers by mode and year from all data sources (MRIP, LACreel 2014+, TPWD). These effort estimates depict all (general) recreational fishing activity in the Gulf of America and are not specific to Gag. Effort from the combined private-shore fishing mode in the LA Creel survey has been added to the private mode. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. 'Priv_FLW' includes Florida private estimates and 'Priv_Other' those from other Gulf states. These estimates for Florida private anglers are to be replaced by SRFS estimates in SEDAR 105, and do not include any smoothing for 1983.

Year	Cbt	Hbt	Priv_Other	Priv_FLW	Shore	Total
1981	418,390	199,301	4,599,478	6,966,946	14,973,399	27,157,514
1982	523,703	260,912	4,652,650	6,886,986	16,031,708	28,355,959
1983	576,935	256,493	10,642,362	8,868,725	19,082,184	39,426,699
1984	538,563	242,211	11,172,586	8,766,959	19,033,336	39,753,655
1985	590,410	277,516	12,343,135	9,670,438	20,512,717	43,394,216
1986	566,657		11,980,242	9,301,834	17,564,400	39,413,133
1987	583,981		14,019,072	9,195,733	15,581,648	39,380,434
1988	513,682		13,455,006	11,771,311	19,708,841	45,448,840
1989	595,914		12,655,738	11,058,294	20,797,624	45,107,570
1990	582,368		12,932,156	11,830,757	18,977,872	44,323,153
1991	537,518		13,050,081	11,204,380	21,376,993	46,168,972
1992	562,458		14,524,861	11,398,541	19,122,372	45,608,232
1993	631,551		14,820,985	11,571,193	22,525,138	49,548,867
1994	673,526		15,634,491	11,958,134	22,752,231	51,018,382
1995	767,210		15,868,576	12,487,078	19,235,538	48,358,402
1996	726,006		16,429,456	12,146,722	17,892,546	47,194,730
1997	769,710		15,078,522	13,311,899	18,923,384	48,083,515
1998	765,060		15,622,606	14,689,619	20,982,599	52,059,884
1999	779,206		18,123,185	16,117,103	25,166,742	60,186,236
2000	760,488		18,190,608	15,144,762	29,061,230	63,157,088
2001	763,788		17,062,628	17,569,529	28,722,278	64,118,223
2002	742,415		16,393,948	17,206,983	26,490,849	60,834,195
2003	699,720		17,491,870	17,668,782	28,852,654	64,713,026
2004	780,766		17,237,982	21,147,941	31,220,797	70,387,486
2005	685,755		16,159,578	20,819,100	26,952,605	64,617,038
2006	817,416		16,768,642	18,437,130	25,733,034	61,756,222
2007	861,722		16,487,364	18,310,416	27,845,117	63,504,619
2008	810,000		16,995,751	19,749,880	25,979,743	63,535,374
2009	774,246		18,200,230	18,410,231	25,777,146	63,161,853
2010	595,284		18,300,769	19,162,557	28,969,138	67,027,748

Year	Cbt	Hbt	Priv_Other	Priv_FLW	Shore	Total
2011	756,691		18,691,065	19,672,171	29,318,268	68,438,195
2012	939,221		18,299,110	21,320,642	31,553,451	72,112,424
2013	874,771		18,318,616	19,491,205	34,921,964	73,606,556
2014	861,546		14,532,850	16,719,191	25,039,160	57,152,747
2015	991,258		14,328,310	15,277,311	24,259,475	54,856,354
2016	1,054,084		15,761,674	16,595,142	27,212,850	60,623,750
2017	1,086,377		15,383,694	17,090,823	30,723,796	64,284,690
2018	1,221,177		13,928,990	16,306,922	29,097,279	60,554,368
2019	1,293,471		14,380,562	14,051,663	26,237,079	55,962,775
2020	1,181,632		16,335,433	15,906,965	29,528,408	62,952,438
2021	1,348,910		13,645,386	15,363,607	26,742,195	57,100,098
2022	1,406,930		14,146,713	16,846,510	27,762,647	60,162,800
2023	1,643,394		16,262,683	16,267,661	32,659,751	66,833,489
2024	1,166,333		14,400,505	16,900,301	27,263,034	59,730,173

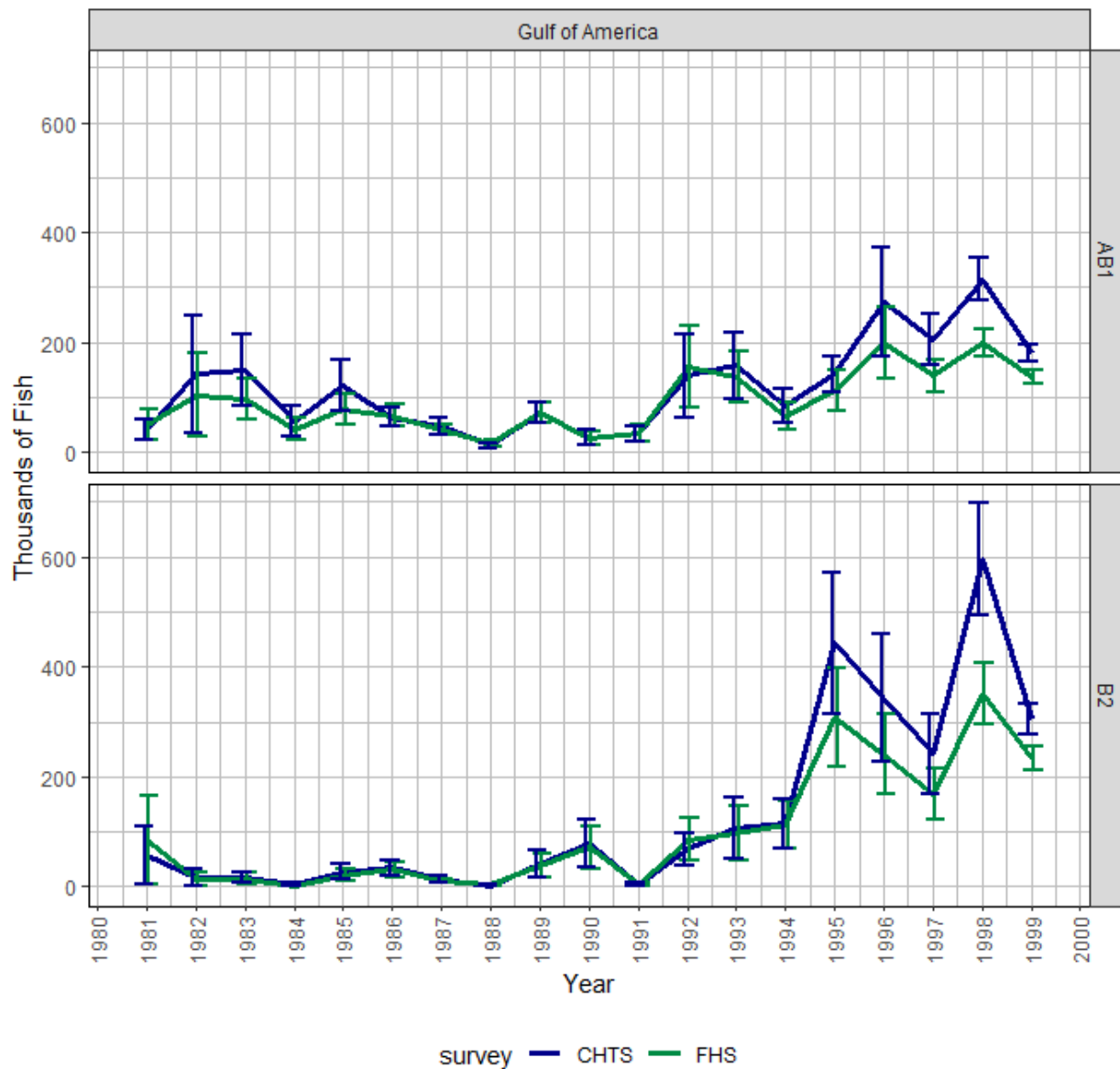


Figure 1. Comparison of MRIP charterboat landings (AB1) and discard (B2) estimates (with standard error intervals shown) for Gag from the Coastal Household Telephone Survey (CHTS) and For-Hire Survey (FHS) from the Gulf of America between 1981 and 1999 (MRIP). The Charterboat calibration approach is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

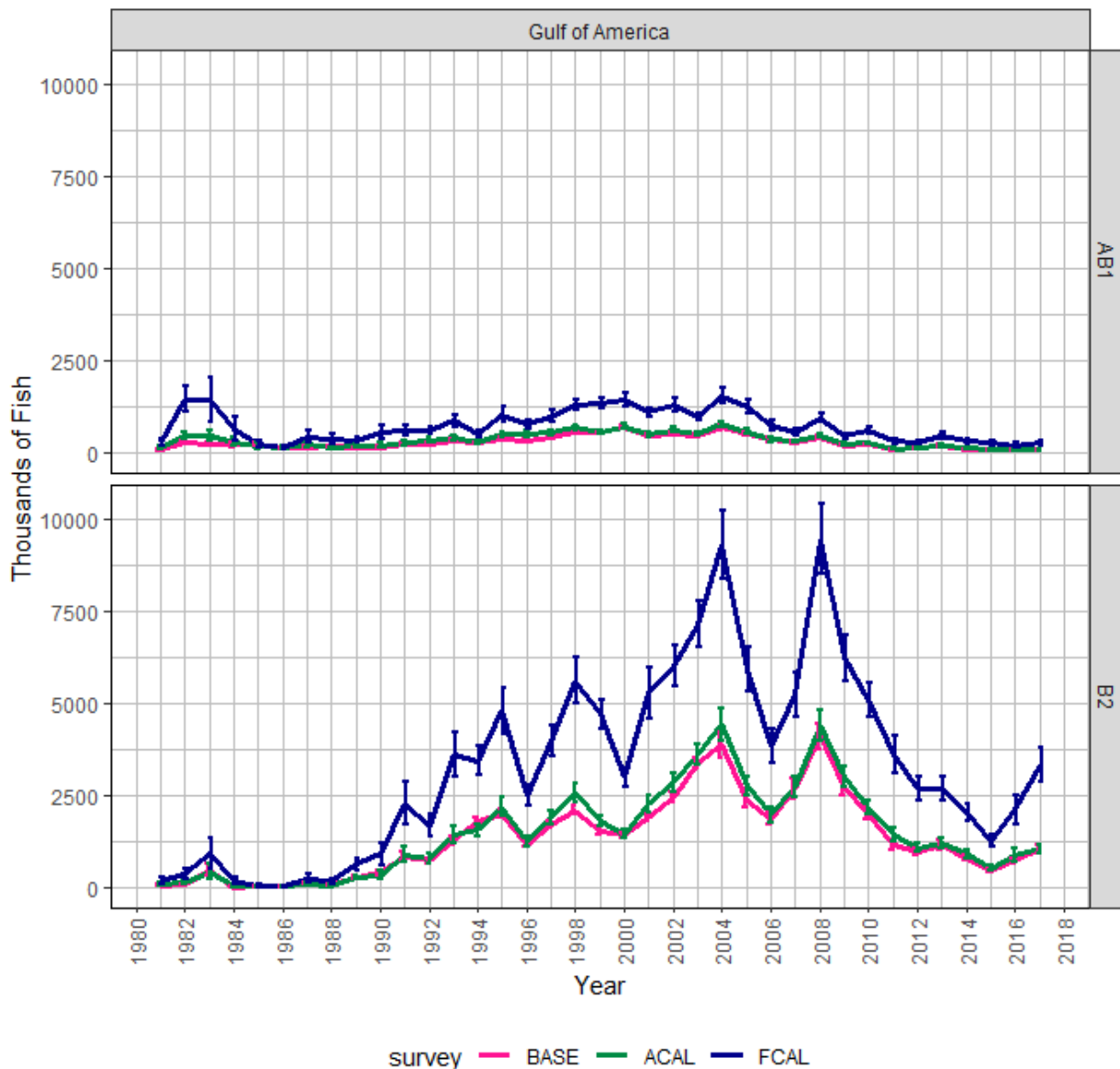


Figure 2. MRIP Base (BASE), APAIS Calibrated (ACAL), and Fully Calibrated APAIS and FES (FCAL) estimates for Gag in the Gulf of America between 1981 and 2017. Estimates in this figure include the Florida Keys as that domain is not separable from those used by the MRIP online comparison tool for the Gulf of America (NMFS pers comm). Those estimates from Florida private anglers, which are to be replaced by SRFS estimates in SEDAR 105, are also included in this figure. This figure does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

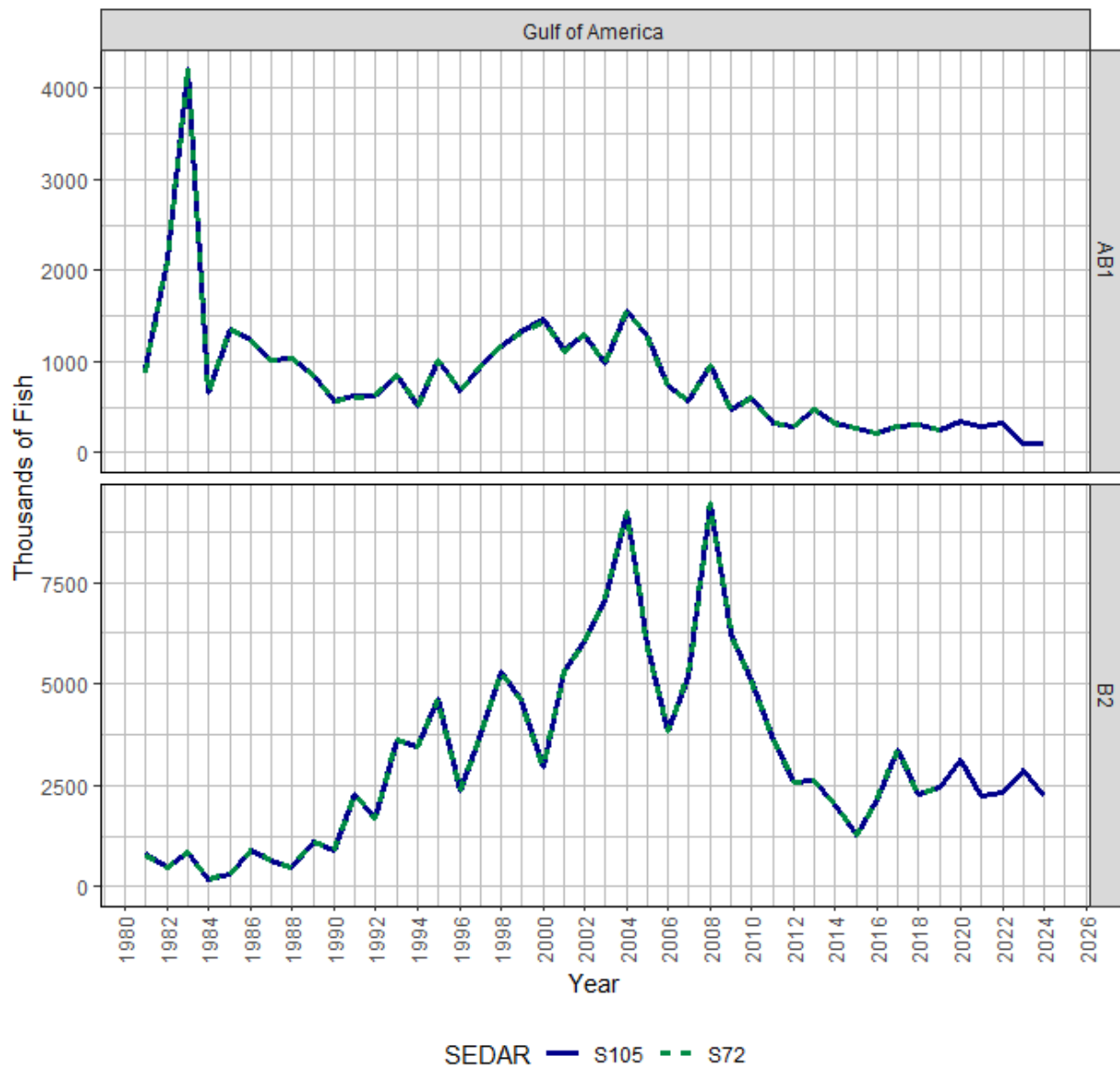


Figure 3. Comparison of total general recreational landings (AB1) and discard estimates (B2) for Gulf of America Gag between SEDAR 105 and SEDAR 72, the terminal years of which are 2024 and 2019 respectively. This figure includes estimates for Florida private anglers, but does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

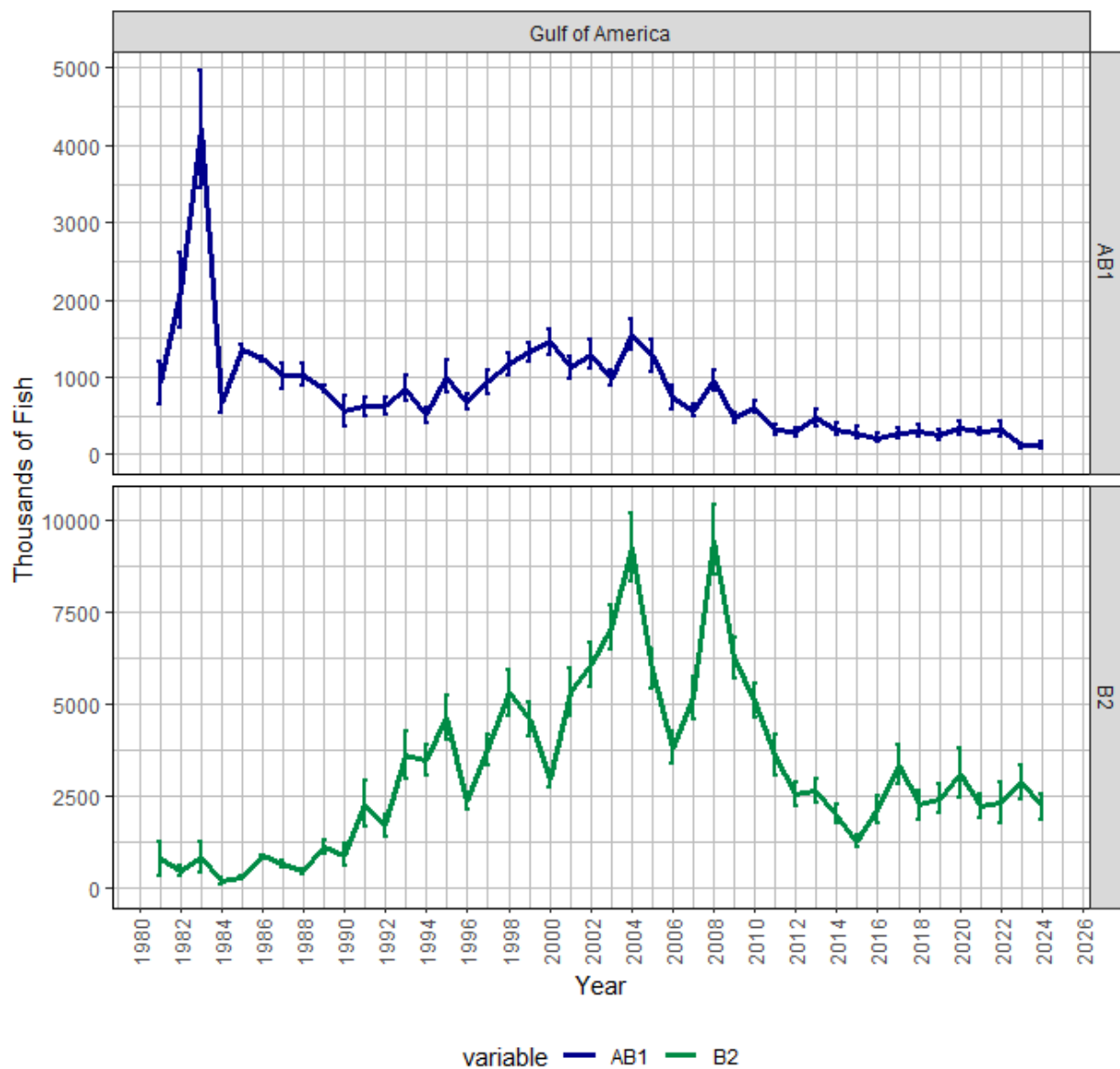


Figure 4a. Annual landings (AB1) and discard (B2) estimates with standard error intervals, in thousands of fish, for Gulf of America Gag between 1981 to 2024. This figure includes estimates for Florida private anglers, but does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

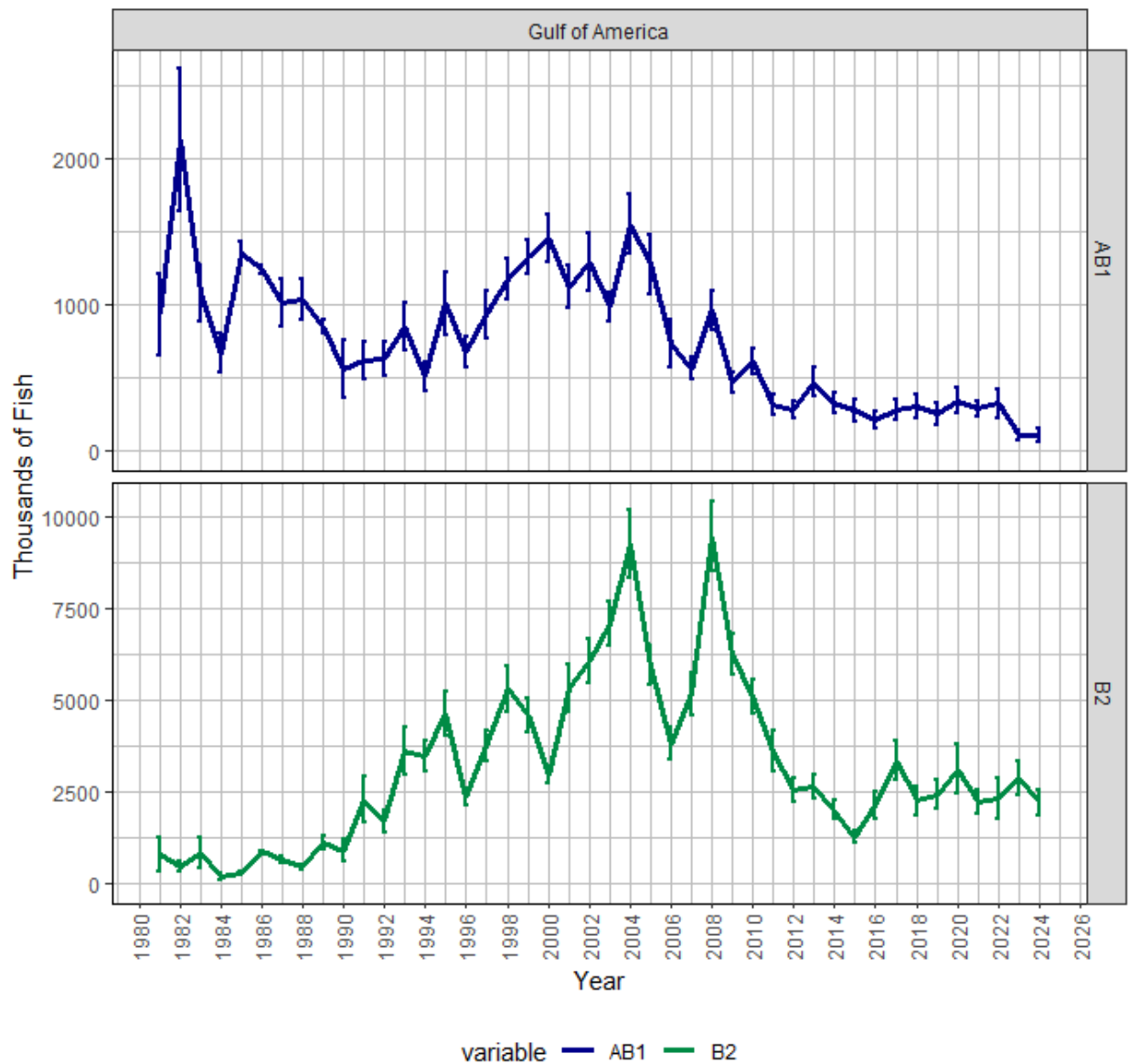


Figure 4b. Annual landings (AB1) and discard (B2) estimates with standard error intervals, in thousands of fish, for Gulf of America Gag between 1981 to 2024. This figure includes both estimates for Florida private anglers and the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85..

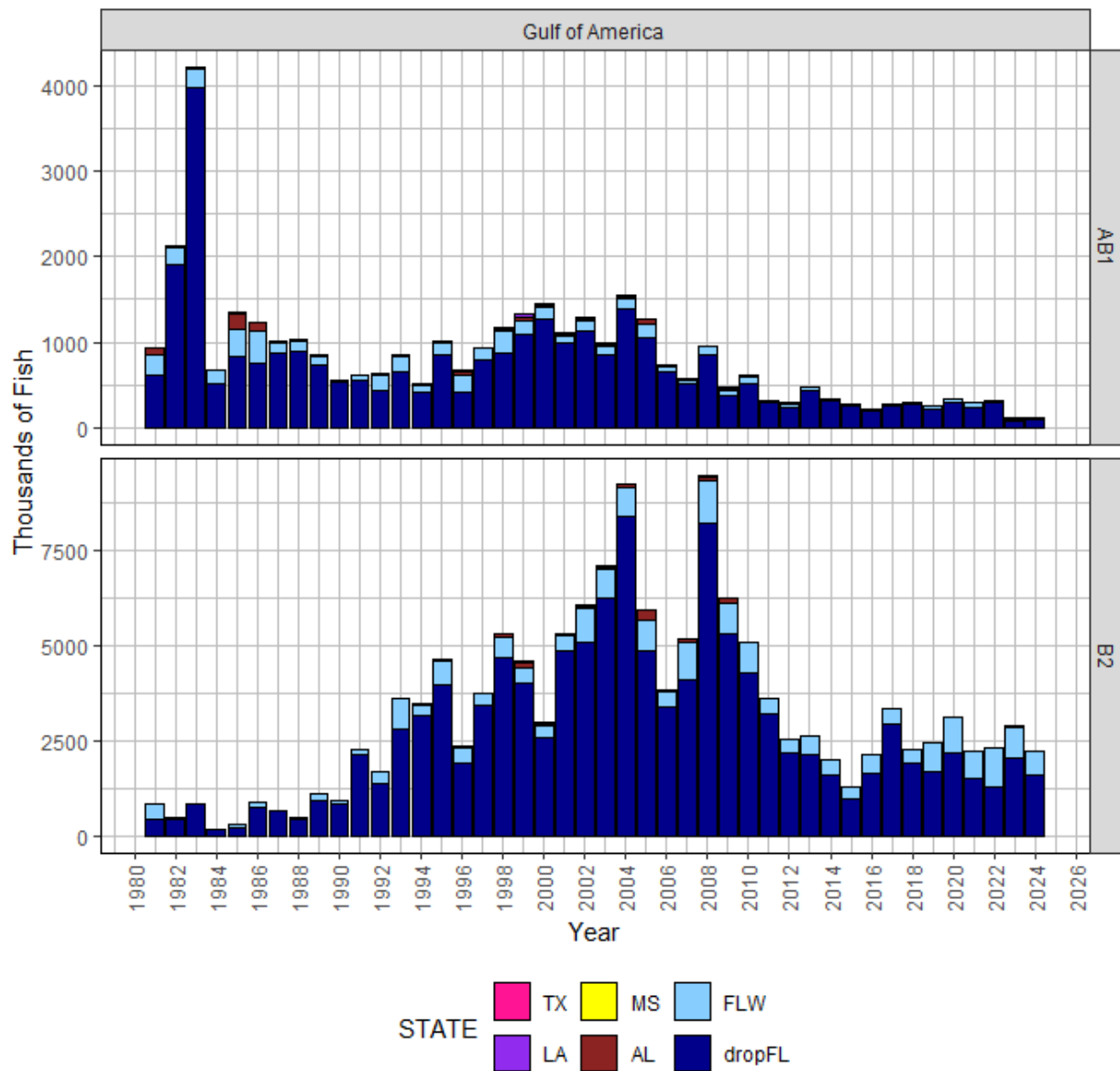


Figure 5a. Annual Gag landings (AB1) and discards (B2), in thousands of fish, by state from 1981 to 2024 from all data sources (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys. Estimates for Florida private anglers that are to be replaced by SRFS estimates in SEDAR 105 are identified as 'dropFL'. This figure does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

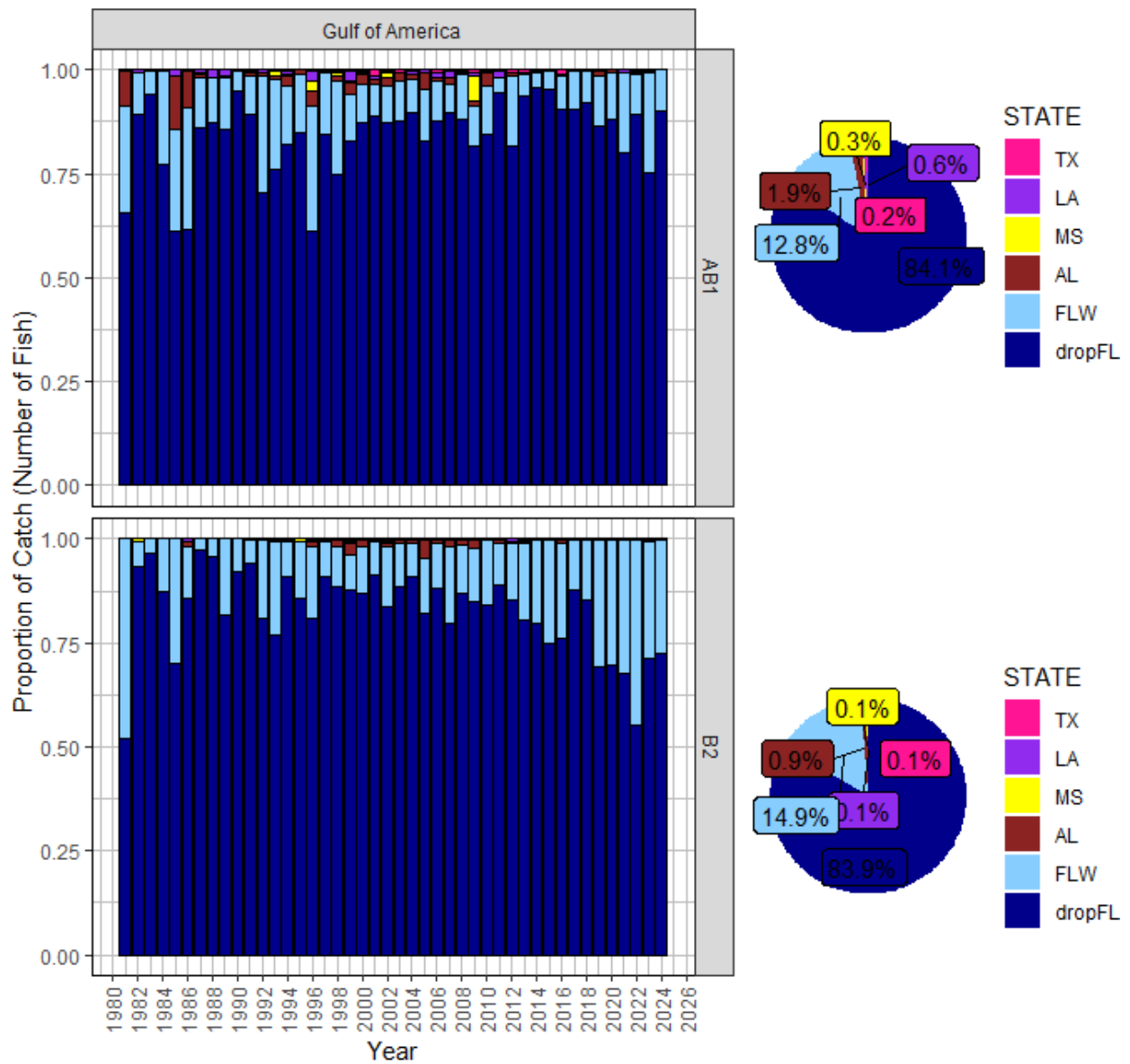


Figure 5b. Proportion of Gag landings (AB1) and discards (B2), in numbers of fish, from each state by year (bar graph) and overall (pie chart) between 1981 and 2024 from all data sources (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys. Estimates for Florida private anglers that are to be replaced by SRFS estimates in SEDAR 105 are identified as 'dropFL'. This figure does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

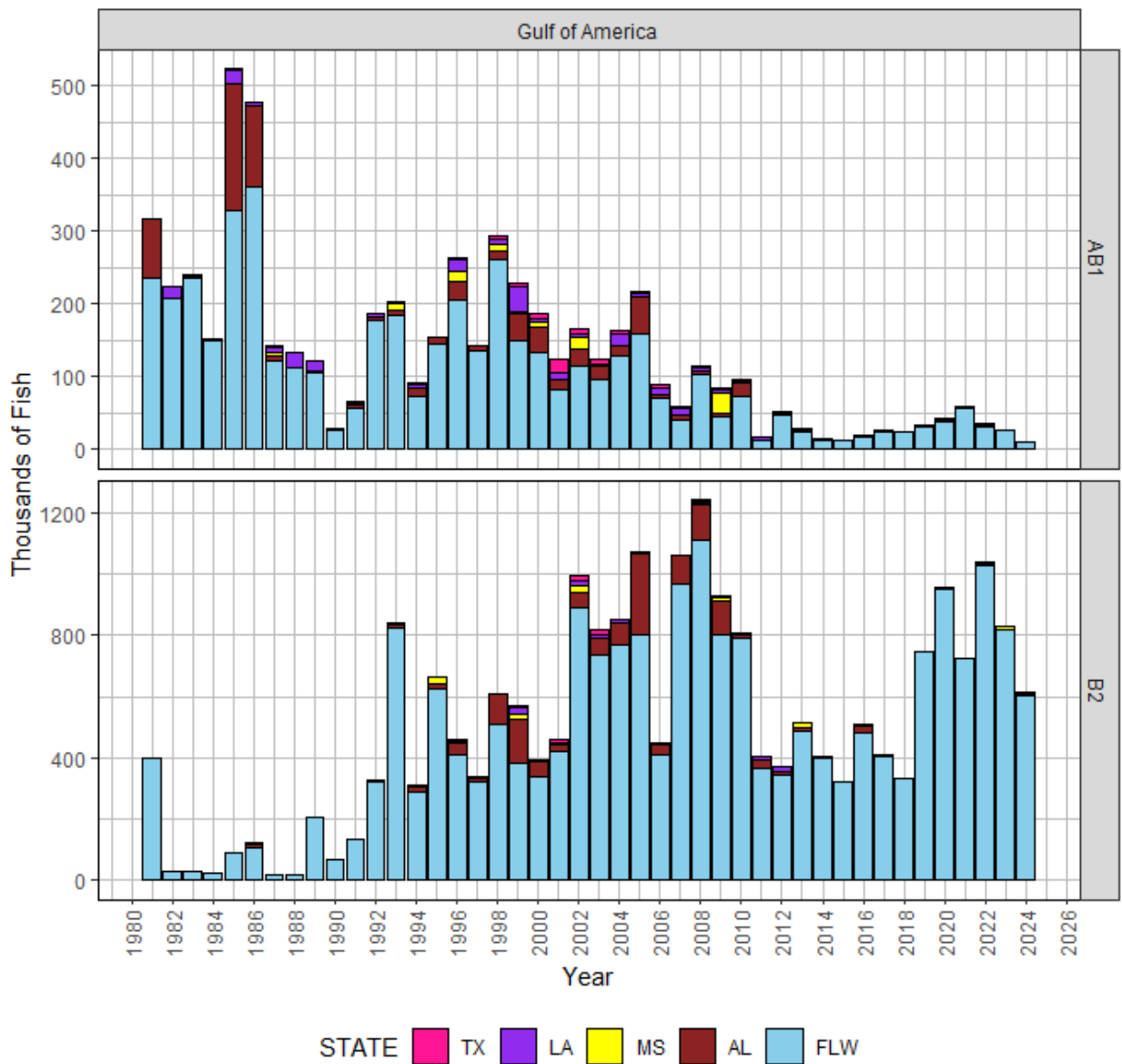


Figure 5c. Annual Gag landings (AB1) and discards (B2), in thousands of fish, by state from 1981 to 2024 from all data sources (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys. All estimates for Florida private anglers are excluded from this summary to better reflect those estimates being considered as direct inputs into the SEDAR 105 assessment model.

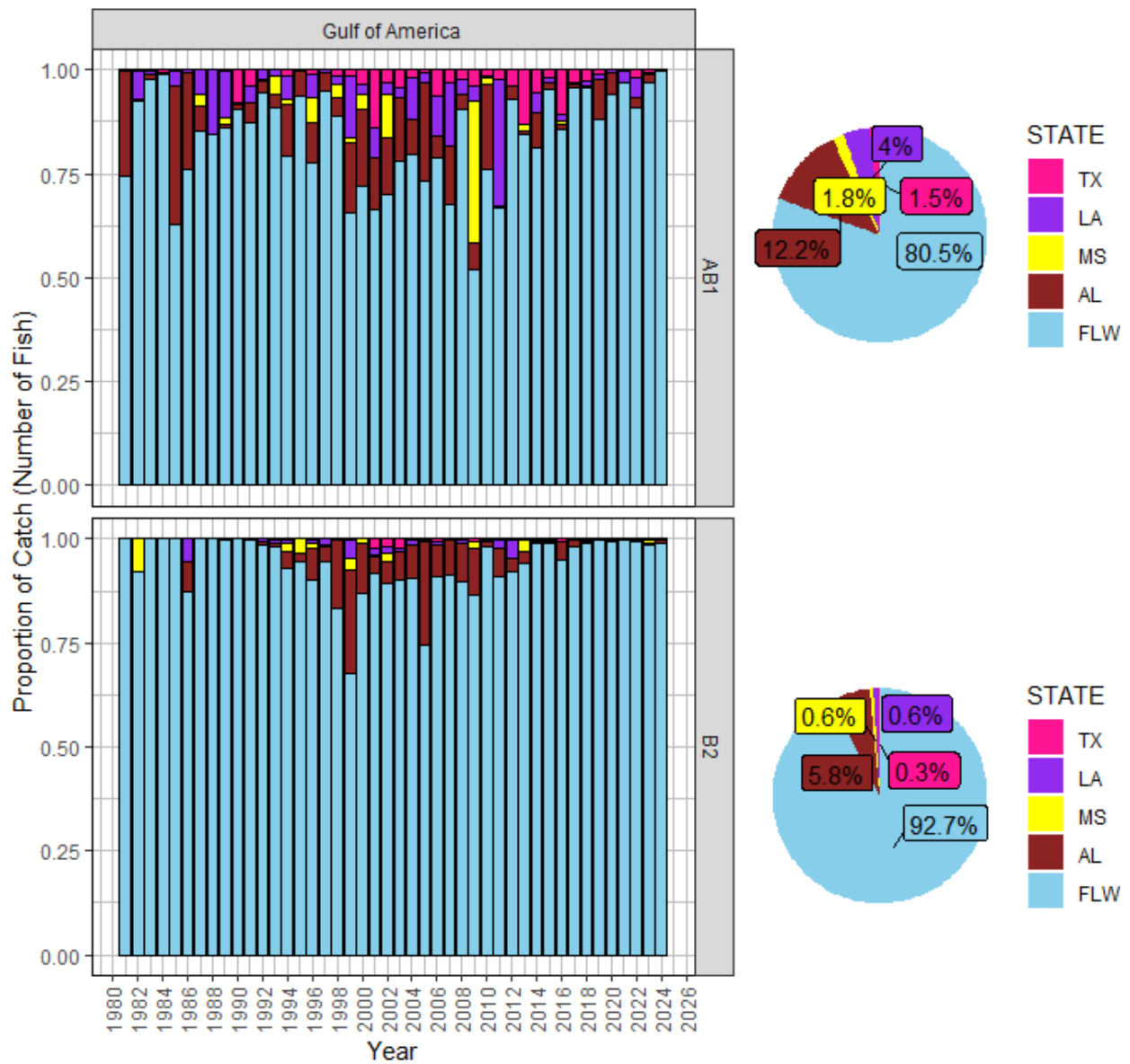


Figure 5d. Proportion of Gag landings (AB1) and discards (B2), in numbers of fish, from each state by year (bar graph) and overall (pie chart) between 1981 and 2024 from all data sources (MRIP, LACreel 2014+, TPWD). FLW excludes the Florida Keys. All estimates for Florida private anglers are excluded from this summary to better reflect those estimates being considered as direct inputs into the SEDAR 105 assessment model.

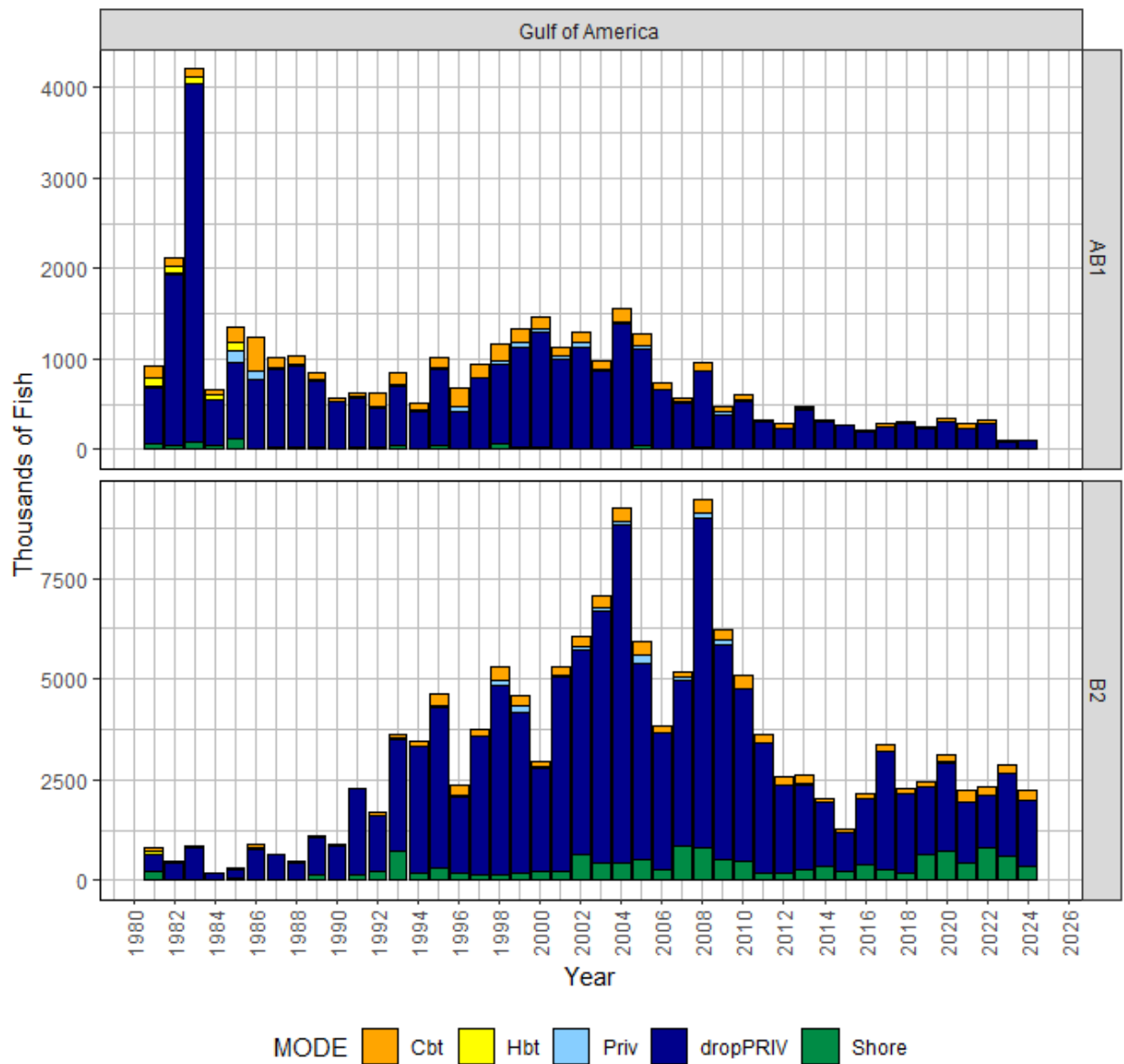


Figure 6a. Annual Gag landings (AB1) and discards (B2), in thousands of fish, by mode from 1981 to 2024 from all data sources (MRIP, LACreel 2014+, TPWD). Note that catch from the combined Private-Shore fishing mode in the LA Creel survey has been added to the Private mode. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. Estimates for Florida private anglers that are to be replaced by SRFS estimates in SEDAR 105 are identified as 'dropPRIV'. This figure does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

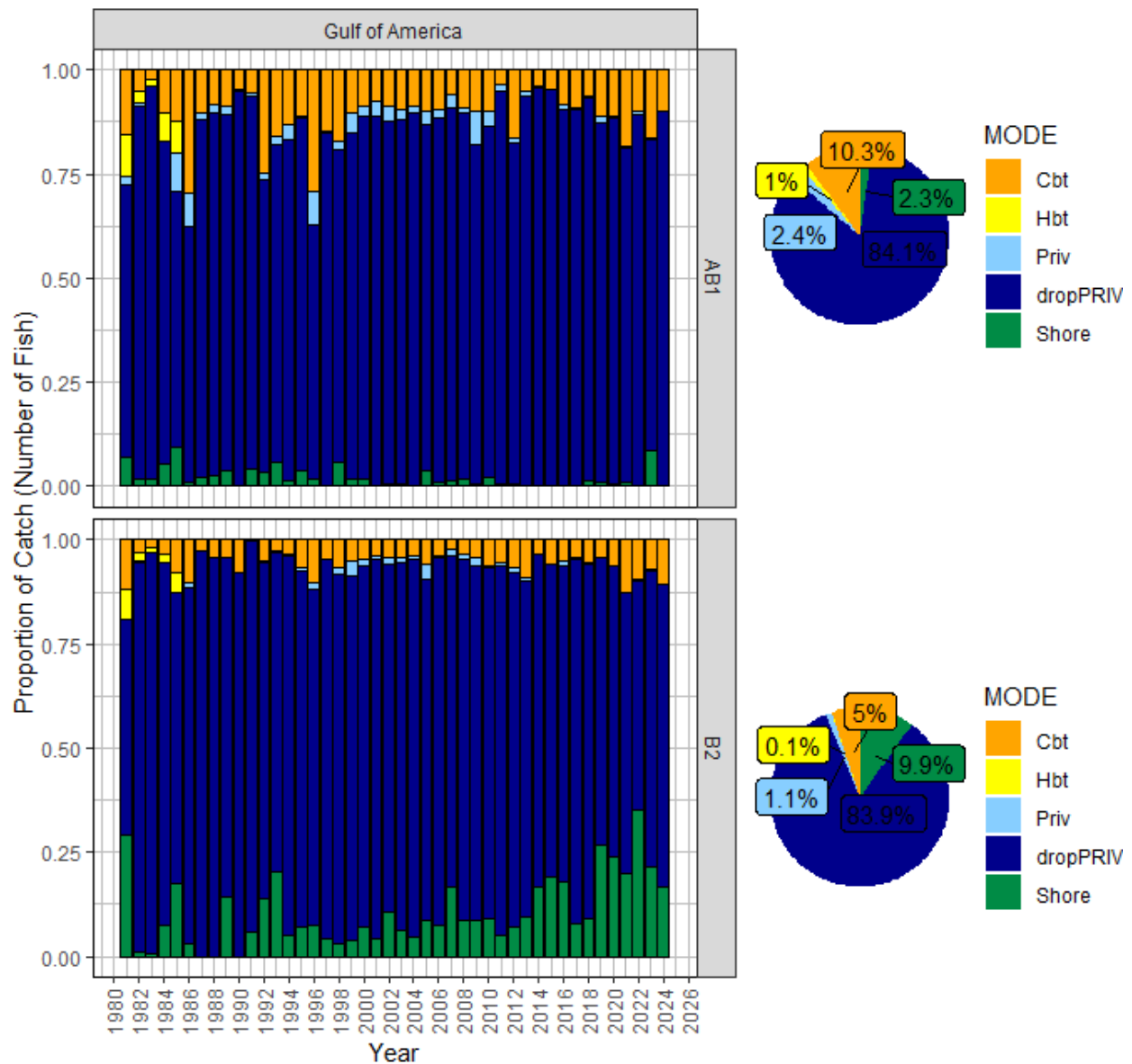


Figure 6b. Proportion of Gag landings (AB1) and discards (B2), in numbers of fish, from each mode by year (bar graph) and overall (pie chart) between 1981 and 2024 from all data sources (MRIP, LACreel 2014+, TPWD). Note that catch from the combined Private-Shore fishing mode in the LA Creel survey has been added to the Private mode. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. Estimates for Florida private anglers that are to be replaced by SRFS estimates in SEDAR 105 are identified as 'dropPRIV'. This figure does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

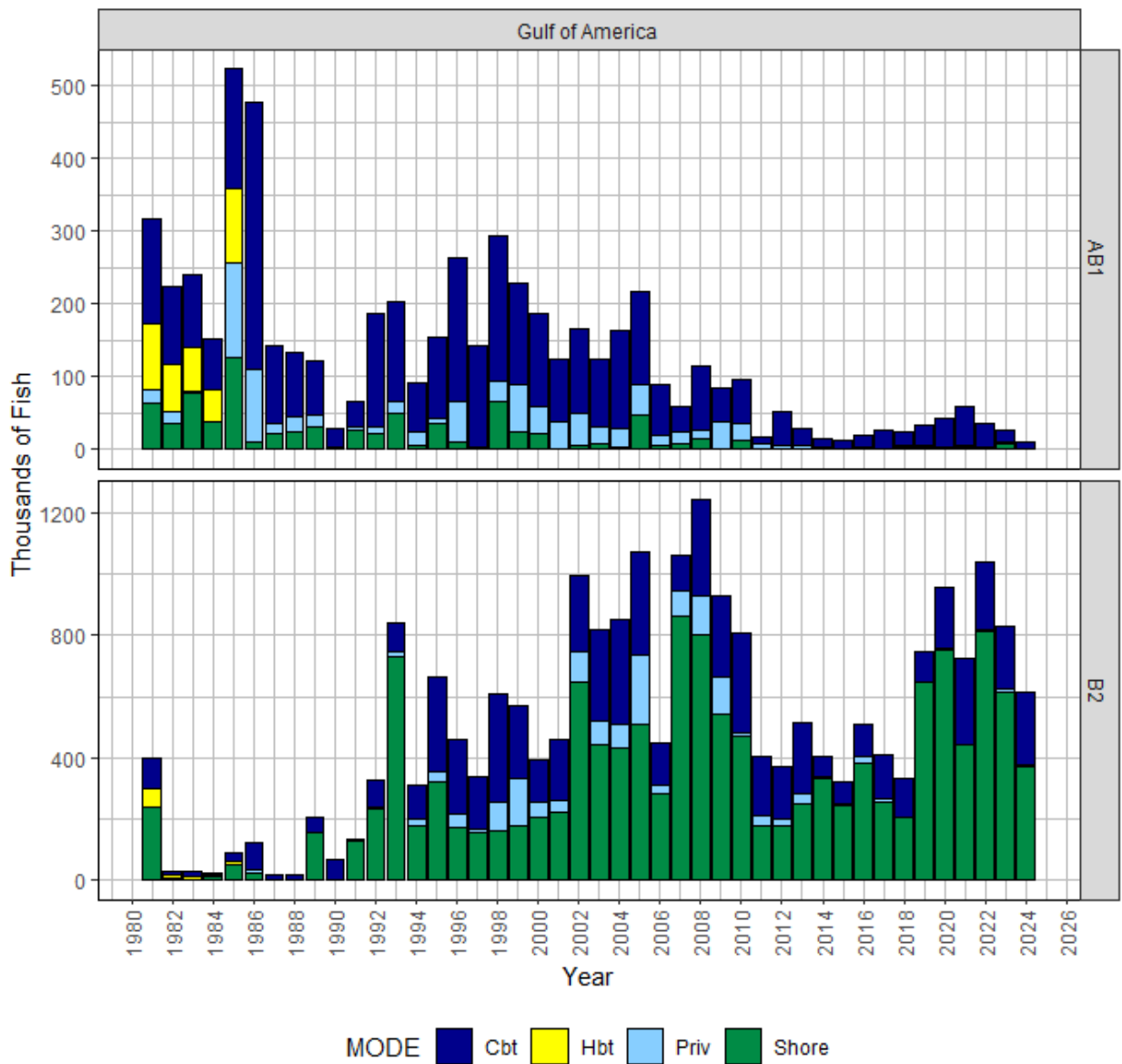


Figure 6c. Annual Gag landings (AB1) and discards (B2), in thousands of fish, by mode from 1981 to 2024 from all data sources (MRIP, LACreel 2014+, TPWD). Note that catch from the combined Private-Shore fishing mode in the LA Creel survey has been added to the Private mode. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. All estimates for Florida private anglers are excluded from this summary to better reflect those estimates being considered as direct inputs into the SEDAR 105 assessment model.

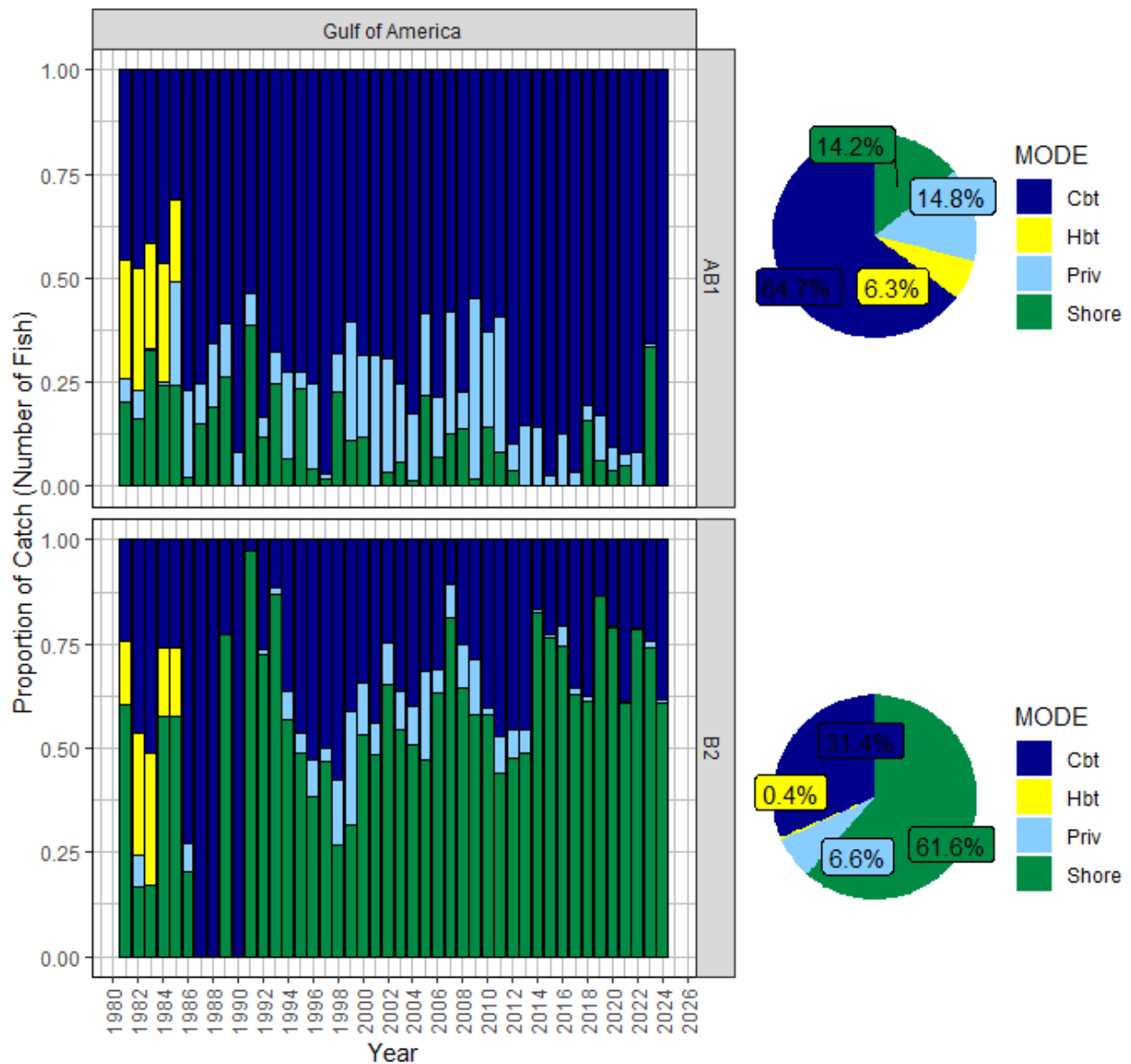


Figure 6d. Proportion of Gag landings (AB1) and discards (B2), in numbers of fish, from each mode by year (bar graph) and overall (pie chart) between 1981 and 2024 from all data sources (MRIP, LACreel 2014+, TPWD). Note that catch from the combined Private-Shore fishing mode in the LA Creel survey has been added to the Private mode. MRIP Headboat estimates (1981-1985) are included from Texas to the Florida Keys. All estimates for Florida private anglers are excluded from this summary to better reflect those estimates being considered as direct inputs into the SEDAR 105 assessment model.

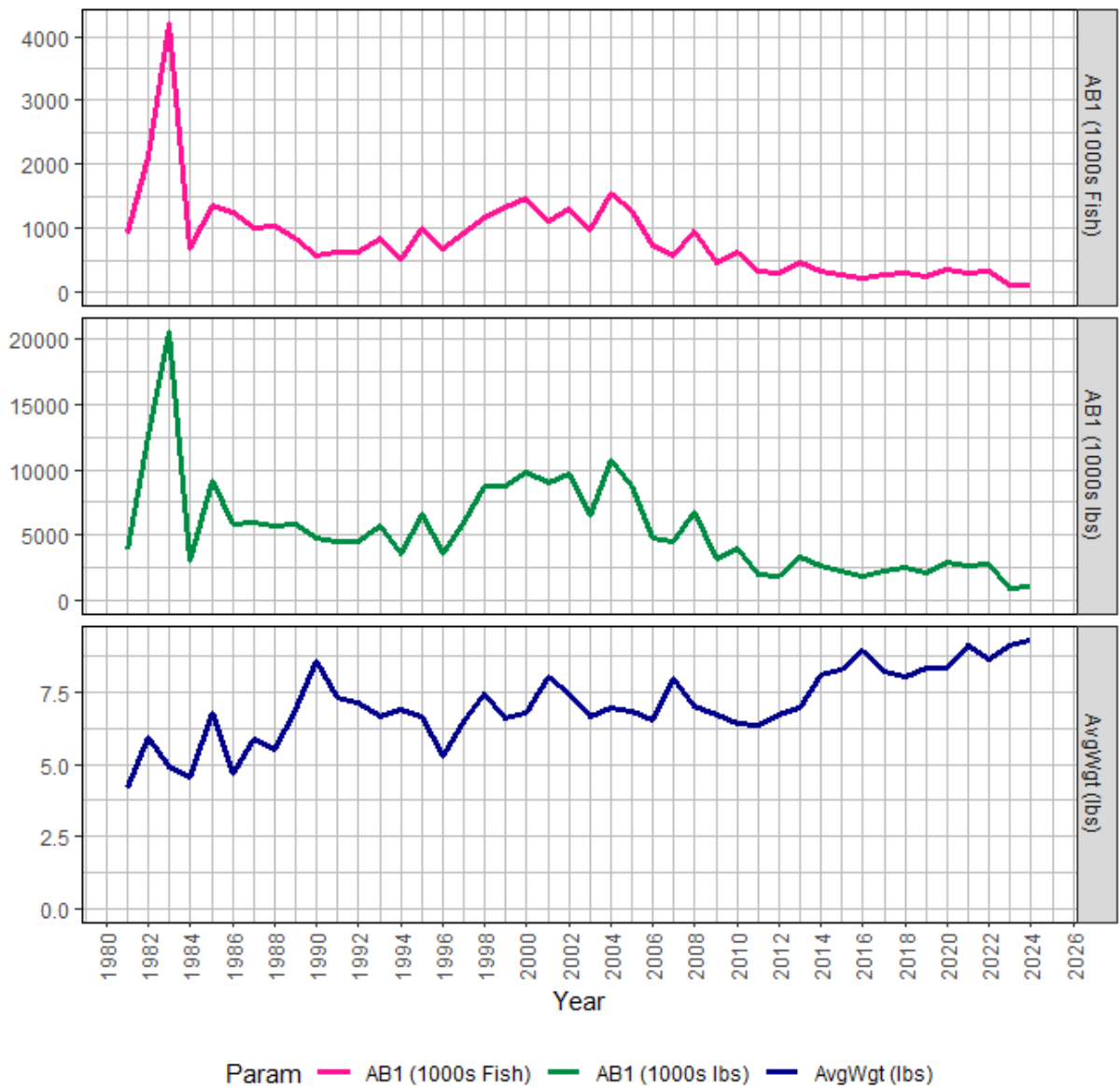


Figure 7a. Estimates of annual landings for Gag in the Gulf of America from all data sources (MRIP, LACreel 2014+, TPWD): estimated landings in thousands of fish (top), estimated landings in thousands of pounds gutted weight (middle), and average weight of landed fish (estimated lbs/estimated fish) (bottom). See Appendix for average weight calculation methods. Whole weight estimates for Gag were converted to gutted weight using a WWT:GWT ratio of 1.057. This figure includes estimates from Florida private anglers, but does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

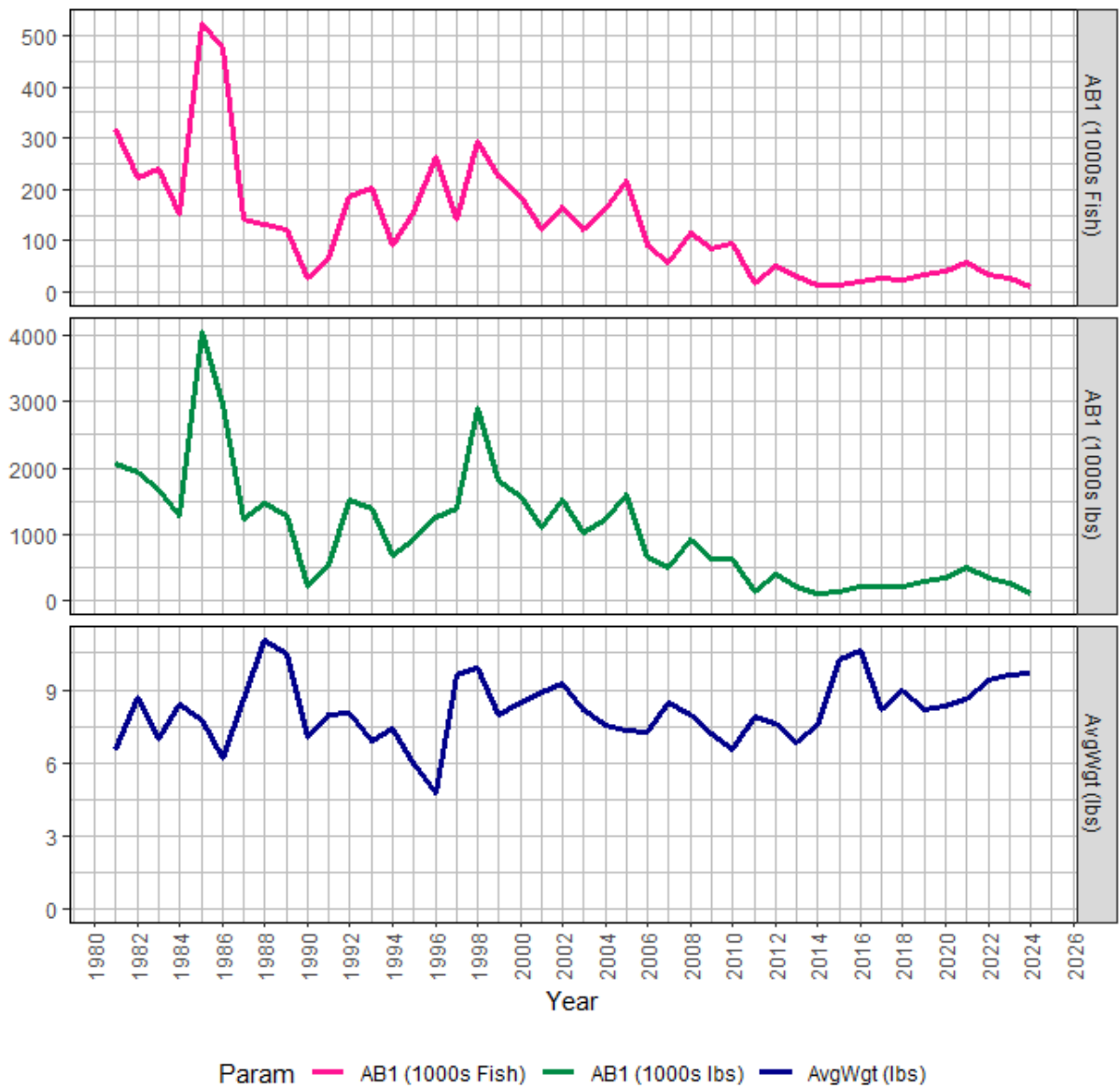


Figure 7b. Estimates of annual landings for Gag in the Gulf of America from all data sources (MRIP, LACreel 2014+, TPWD): estimated landings in thousands of fish (top), estimated landings in thousands of pounds gutted weight (middle), and average weight of landed fish (estimated lbs/estimated fish) (bottom). See Appendix for average weight calculation methods. Whole weight estimates for Gag were converted to gutted weight using a WWT:GWT ratio of 1.057. All estimates for Florida private anglers are excluded from this summary to better reflect those estimates being considered as direct inputs into the SEDAR 105 assessment model.

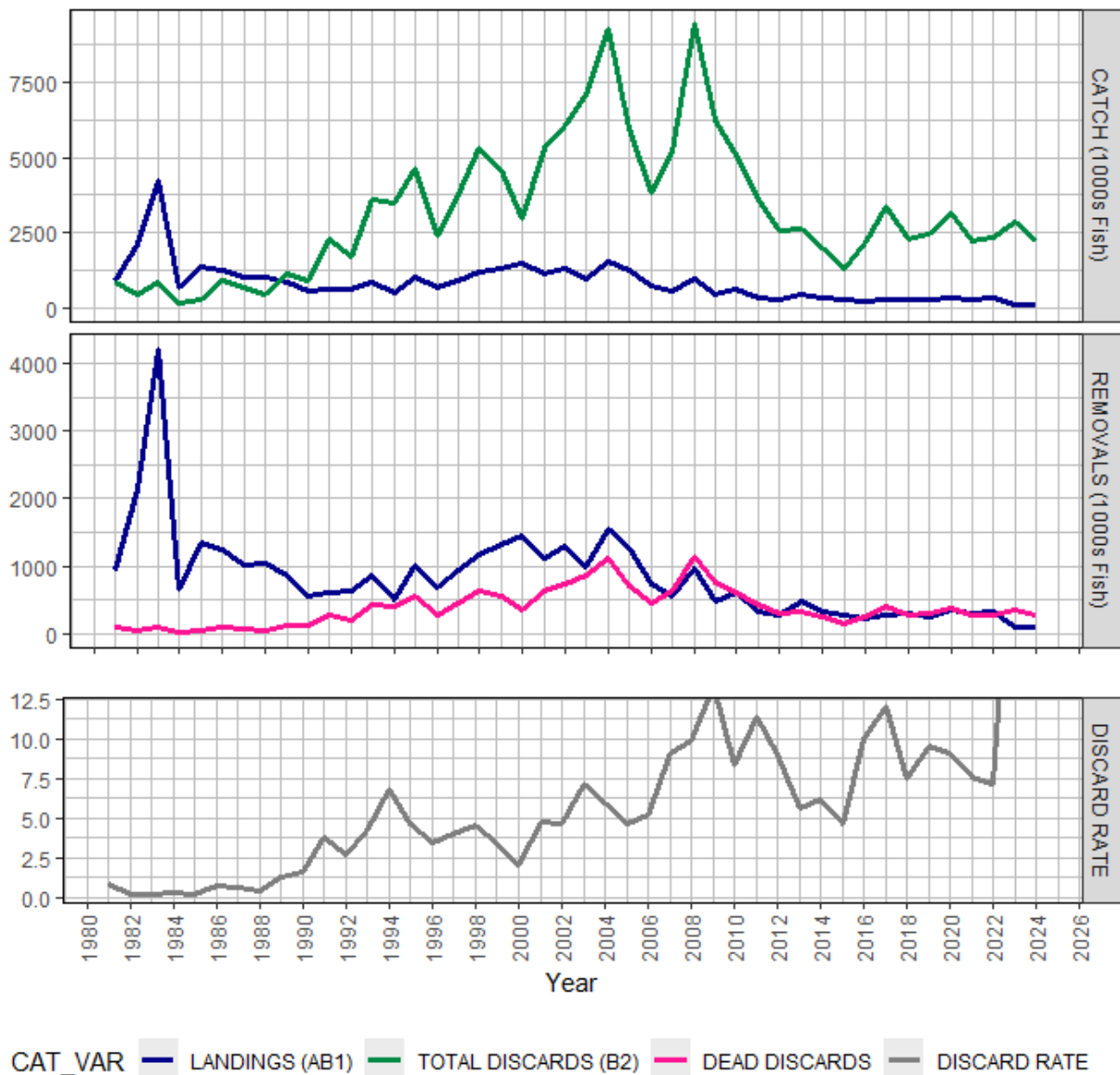


Figure 8a. Time series of general recreational landings (AB1) and discards (B2), in thousands of fish (top panel), and the associated discard rate (B2:AB1) (bottom panel) for Gulf of America Gag from all data sources (MRIP, LACreel 2014+, TPWD). Dead discards (middle panel) were calculated by applying an assumed discard mortality rate of 12% from the previous assessment (SEDAR 2021). This figure includes estimates from Florida private anglers, but does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

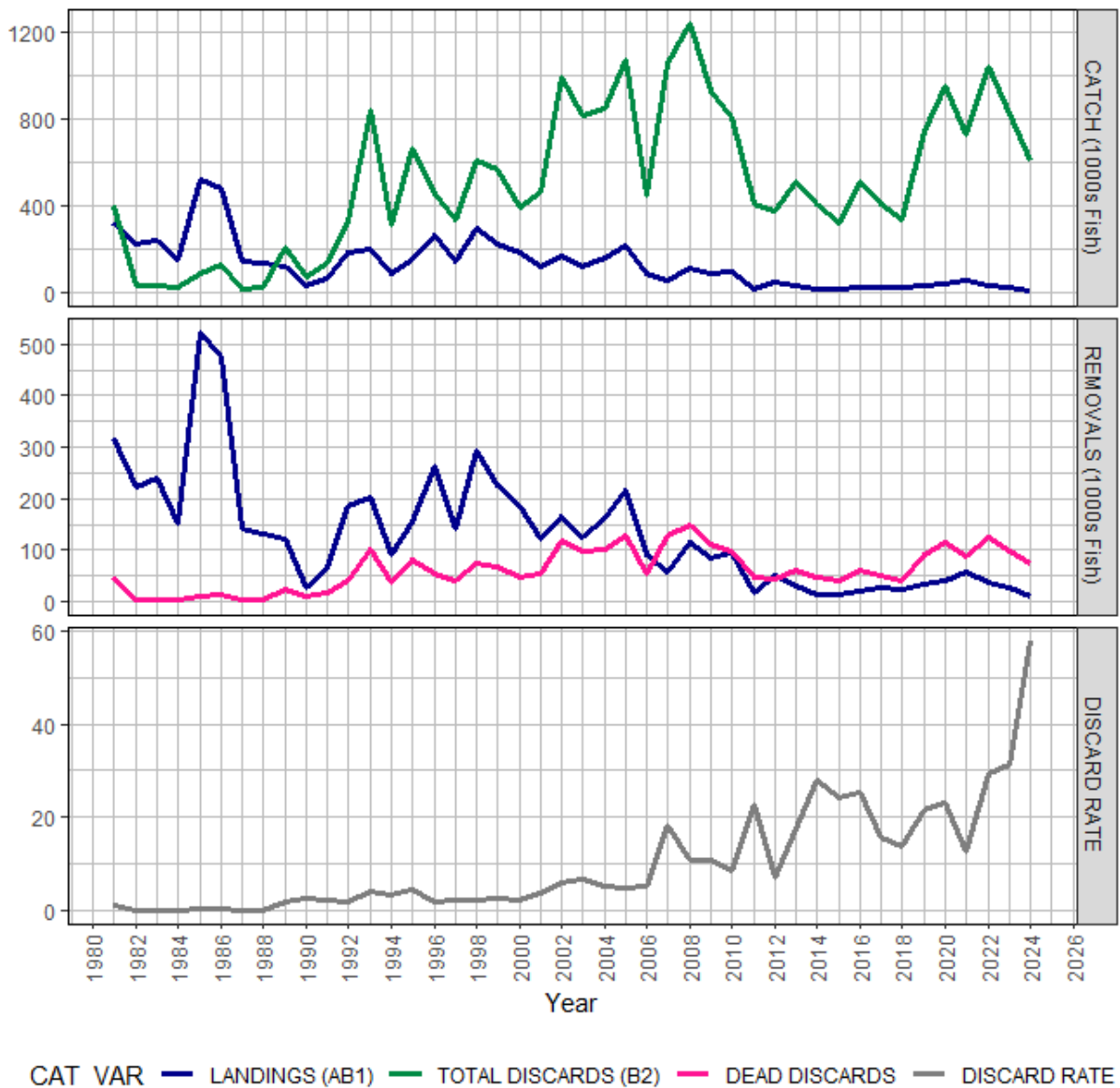


Figure 8b. Time series of general recreational landings (AB1) and discards (B2), in thousands of fish (top panel), and the associated discard rate (B2:AB1) (bottom panel) for Gulf of America Gag from all data sources (MRIP, LACreel 2014+, TPWD). Dead discards (middle panel) were calculated by applying an assumed discard mortality rate of 12% from the previous assessment (SEDAR 2021). All estimates for Florida private anglers are excluded from this summary to better reflect those estimates being considered as direct inputs into the SEDAR 105 assessment model.

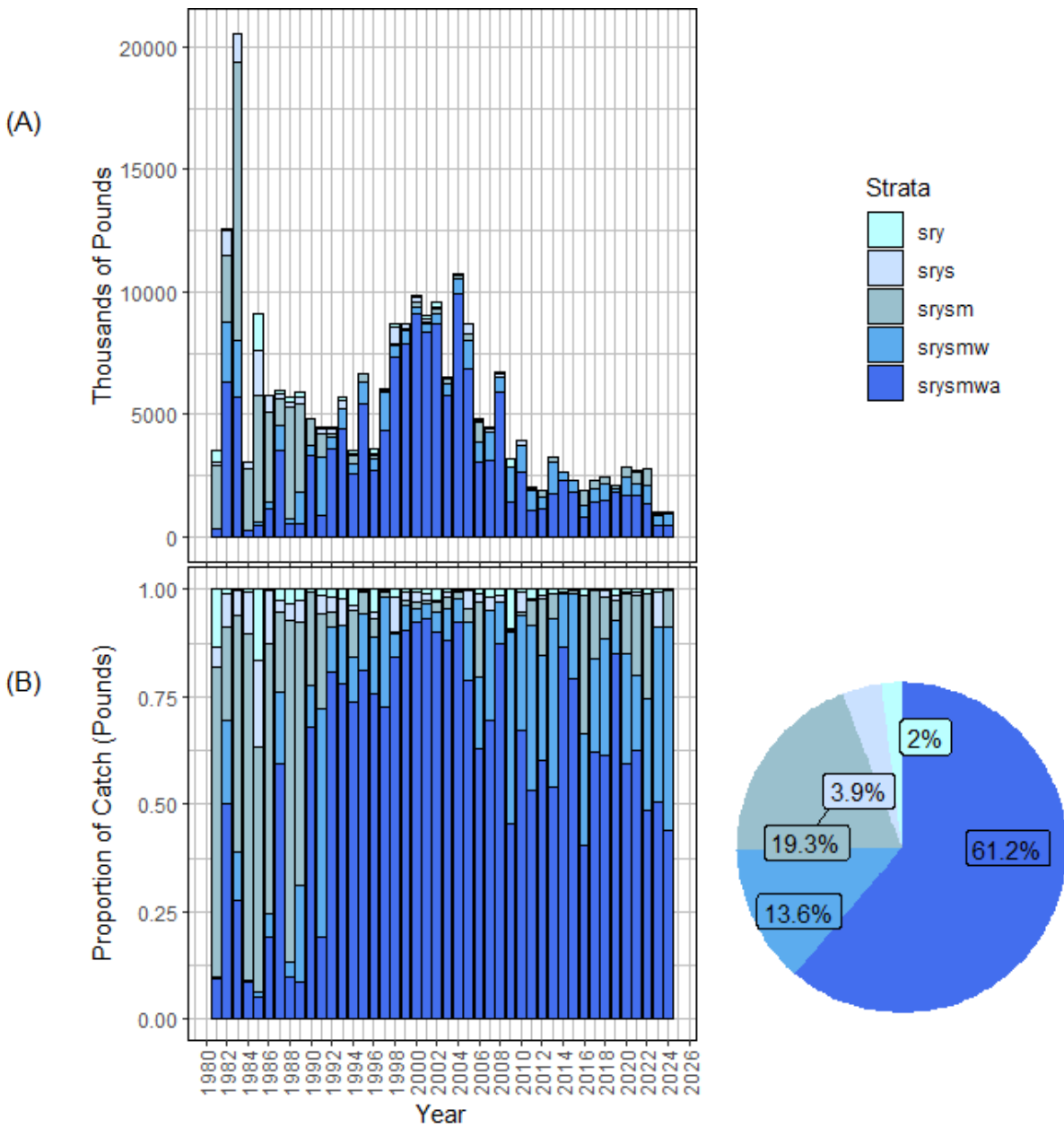


Figure 9. Annual landings estimates of Gulf of America Gag in thousands of pounds gutted weight from all data sources (MRIP, LACreel 2014+, TPWD) by hierarchy level, defined by *species*, *region*, *year*, *state*, *mode*, *wave*, and *area*. Landings are grouped by the strata at which average weights were estimated. 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). Whole weight estimates for Gag were converted to gutted weight using a WWT:GWT ratio of 1.057. 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). This figure includes estimates from Florida private anglers, but does not include the substitution of 1983 Florida-private landings with the associated landings from 1981, 82, 84, and 85.

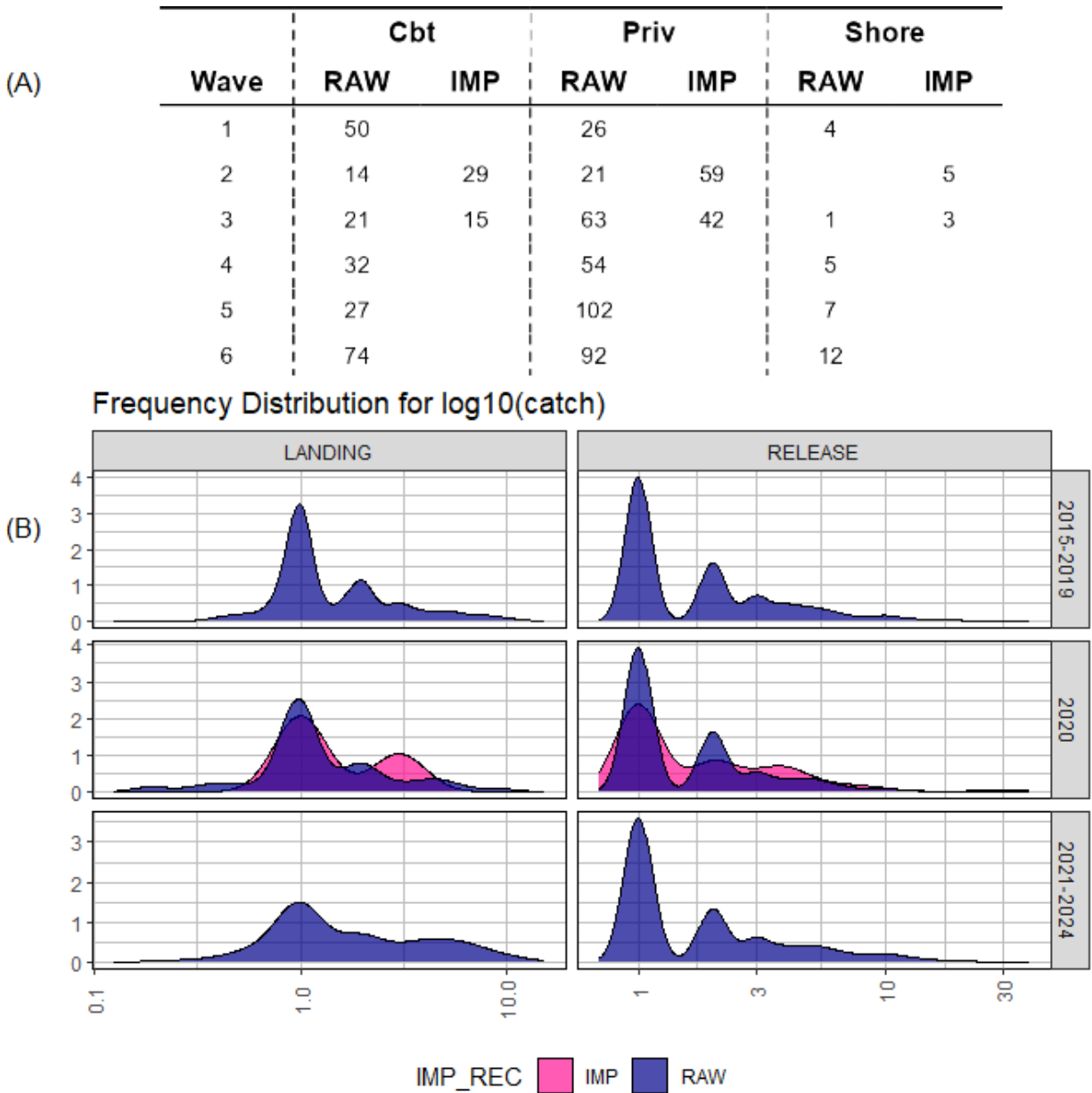


Figure 10. COVID data gaps in the MRIP APAIS and associated imputations for (positive) fishing trips that intercepted Gulf of America Gag. No 2020 data were imputed for the FES or FHS. (A) Number of positive intercepts in 2020 from the APAIS (RAW) vs. those imputed from intercepts in adjacent years (IMP). (B) Distribution of APAIS catch observations in years with no imputed catch data (in 2015-2019 and 2021-2024), 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 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 America states).
 - Papacostas and Foster (2021) provide descriptions of the approaches used by the Office of Science and Technology to calibrate MRIP (1) effort estimates derived from the legacy Coastal Household Telephone Survey (CHTS) into FES units for the private and shore modes and (2) catch rate estimates between the original and redesigned APAIS for all modes.
 - SEFSC calibrations of catch and effort estimates between CHTS and FHS units are calculated for 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 in whole weight 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). For SEDAR 105, whole weight estimates for Gag were converted to gutted weight using a WWT:GWT ratio of 1.057. Size records above an allowable (max size) threshold are excluded from weight estimation and the summary tables included in this working paper (Tables 7-9). For SEDAR 105 Gag, this includes any weights heavier than 84.315 pounds.
- SEFSC Estimates derived using SEDAR best practices (SEDAR-PW-07):
 - The MRFSS survey began in wave2 of 1981. The preferred method was applied to fill-in this (1981 wave1) MRIP data gap, by which the proportion of the wave1 estimate to that from other waves (2-6) in years 1982-1984 (by fishing mode and area) was multiplied by the total estimate from waves 2-6 in 1981. This approach was used to impute both the catch and effort estimates for this strata.
 - Estimates from the TPWD survey are available starting in May (wave3) 1983. The average estimate (by mode and wave) from waves 1-2 in 1984-1985 and from waves 3-6 in years 1983-1985 were used to fill-in these (1981-1983) data gaps in Texas recreational estimates. This approach was used to impute both the catch and effort estimates for these strata.
 - The TPWD survey does not estimate discards. As a proxy for recreational discards from Texas private and charterboat anglers, discard:landings ratios (B2:AB1) are calculated (by year and mode) from Louisiana catch estimates and multiplied by TPWD landings estimates.

- To ensure sampling can support MRIP estimates at finer stratifications than for which the survey was designed, (sub-state) domain estimates are only generated for established geographic domains. For Florida, this includes the sub-state domains of Florida in the FHS (1 = Florida panhandle, Escambia to Dixie; 2 = western Florida, Levy to Collier).
- Between 1981 and 1985 in the Gulf of America, MRIP charter and headboat modes were combined into a single (for-hire) mode for estimation purposes. Since the NMFS Southeast Region Headboat Survey (SRHS) began in 1986 in the Gulf, the MRIP combined for-hire mode must be split to provide estimates of headboat landings in these early years. Estimates for the MRIP for-hire mode (1981-1985) were split using a ratio of SRHS headboat angler trip estimates to MRIP charterboat angler trip estimates for 1986-1990, calculated by state (or state equivalent to match SRHS areas to MRIP states).
- The LA Creel survey replaced MRIP sampling of Louisiana anglers in Jan 2014, but this survey does not collect discard information for Gag. As a proxy for LA discards from 2014+, the mean ratio of discards:landings from MRIP estimates in Louisiana (by mode) were multiplied by the corresponding LA Creel landings estimate.