Discards of Greater Amberjack Calculated for Vessels with Federal Fishing Permits in the US South Atlantic

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Introduction

In August 2001, the Southeast Fisheries Science Center (SEFSC) initiated a program to collect information regarding the numbers of fish that were being discarded in Gulf of Mexico and South Atlantic commercial coastal fisheries. To collect those data, the SEFSC developed a form that supplements the existing vessel coastal logbook forms that are currently mandatory for those fisheries (Poffenberger and McCarthy, 2004). As part of the data that were provided for the Southeast Data, Assessment, and Review (SEDAR) Data Workshop for South Atlantic greater amberjack, discard data from the SEFSC coastal fisheries logbook program were used to estimate the numbers of fish that were discarded during the period January 1, 2002 through December 31, 2017. There has been no commercial observer program of sufficient temporal and spatial coverage in the South Atlantic snapper-grouper fishery that may have provided data for use in a stock assessment. For the SEDAR 59 stock assessment fisher reported discard logbook data were used to calculate commercial fishery discards of greater amberjack.

A 20% random sample of the vessels with South Atlantic snapper-grouper, king mackerel, Spanish mackerel or shark permits were selected to report the number of animals discarded by species. To assure that the sample was representative of the total universe of vessels with those Federal permits, the universe of permitted vessels was stratified and a random sample selected, weighted by the effort reported for each vessel during the previous year, from each stratum. One of the strata was the geographical region where the vessel reported fishing during the previous year. There were two categories in this stratum - the Gulf of Mexico (Florida Keys to the Texas-Mexican border) and the South Atlantic (which extends from the North Carolina - Virginia border to the Florida Keys). The second stratum was based on the type of gear used: handline, electric/hydraulic reel (bandit rig), longline, trolling, trap, gillnet diving, and other gear.

The selected fishers were instructed to complete a supplemental discard form for every fishing trip that they made. If they did not have any discards for the trip, they were instructed to complete a discard form and write “no discards” on the form. If they did not fish during a calendar month and submitted a no fishing form, then they did not have to submit a discard form.

In addition to the numbers of discards, fishers were asked to record their best estimate of the condition of the fish when they were released. Fishers were given 6 options for the condition of released fish: all animals were dead, majority of the animals were dead, all animals were alive when released, majority of animals were alive, the fish were kept but not sold, and the condition of the animals is unknown. Fishers were also asked to specify a reason why the fish were discarded: due to regulations or the fish were unmarketable or unwanted.

Methods

The objective of this analysis was to calculate the numbers of greater amberjack discarded by vessels that fish commercially for species other than shrimp or other shellfish. Data reported from surface

longline vessels that typically fish for swordfish, pelagic sharks, tunas, and other highly migratory species were not included in these analyses. The available data set for commercial discard calculation included all trips from vessels that reported discards between January 1, 2002 and December 31, 2017 in the US South Atlantic. During that period, discard forms were submitted for 113,825 trips. Of those trips, discards were reported on 32,923 trips and 80,902 trips reported no animals were discarded. Discards of greater amberjack were reported on 1,548 trips or 1.4% of the submitted discard logbooks. By way of comparison, there were 439,429 trips reported to the coastal logbook program by vessels that have been issued a Federal permit to fish in the South Atlantic during 2002-2017. Greater amberjack landings were reported for 34,737 trips or about 7.9% of all trips.

The number of trips that reported discards of greater amberjack was low, limiting the complexity of any analysis. Only vertical line (handline and electric/hydraulic reels) and trolling vessels reported greater amberjack discards on more than a few trips (Table 1a). The numbers of greater amberjack reported as discarded by year and gear type are presented in Table 1b. Vertical line trips accounted for the greatest number of trips reporting greater amberjack landings in the South Atlantic (Table 1c) and the highest landings of the species (Table 1d). Dive trips had the second largest landings of greater amberjack followed by trolling trips. Unsurprisingly, very few reports of discarded greater amberjack were received from dive trips. Greater amberjack discard calculation was limited to data reported from vertical line and trolling trips.

Analyses followed the methods of SEDAR 15 (McCarthy, 2007) with some additional data filtering as recommended during SEDARs 32 and 41 (McCarthy, 2013 and 2014). Data were filtered to exclude trips landing only mackerel because it was generally believed by the SEDAR 32 and 41 panels that for trips targeting mackerel only, the likelihood of catching species other than mackerel was extremely low. To avoid removing mixed effort trips, however, only trips with 100% mackerel landings were excluded.

A final data filter designed to address possible underreporting of commercial discards was included in this analysis following the recommendation of SEDARs 32 and 41. Fishers remain in reporting compliance by returning discard logbooks with reports of "no discards". The percentage of discard reports returned with "no discards" from vertical line and trolling trips has increased from 52 to 78 percent in the US South Atlantic over the period 2002-2017. During the SEDAR32 data workshop the issue of possible underreporting of commercial discards was discussed at length. The working group recommended that data be filtered to remove records from vessels that never reported discards of any species during a year. The SEDAR32 working group acknowledged that some South Atlantic commercial fishing trips may not have had discards of any species and discussed the likely maximum number of trips by a vessel without a report of discards. Following the SEDAR 32 and 41 commercial working groups recommendations, data were excluded from vertical line vessels that reported more than 21 trips without reporting discards of any species (the mean number of trips prior to the first trip with reported discards plus two standard deviations above that mean) or more than 26 trips (mean plus two standard deviations) without a report of discards in the trolling fishery.

For SEDAR 15, data were stratified by region. This was defined for greater amberjack vertical line vessels as:

Region 1 = 2400 latitude to <3100 latitude
Region 2 = 3100 latitude to <3300 latitude
Region 3 = 3300 latitude to <3700 latitude

Discard rates of vertical line vessels were calculated as the mean rate (discards per hook hour fished) within each region over all years for the SEDAR 15 assessment. Data for greater amberjack discards reported from trolling vessels were not stratified by region due to small sample size. A single mean discard rate across all years was calculated for trolling vessels during SEDAR 15. For the current

vertical line analyses, however, yearly discard rates by region were calculated. Yearly mean discard rates were calculated for trolling vessels for the entire US South Atlantic.

Yearly total effort (hook hours) of all trips by vertical line vessels within each region was multiplied by the yearly mean discard rate from the appropriate region to calculate total discards of greater amberjack by vertical line vessels.

*Calculated discards per region= yearly mean amberjack discard rate per region*total effort per region*[1]

[1]total effort does not include effort from trips that landed only mackerel

For years prior to 2002 (the first year of discard data), the mean discard rate, by region, for the years 2002-2006 was used to calculate discards for the years 1992-2001 when only effort data were available.

Discards from trolling vessels were similarly calculated without the regional stratification. The yearly mean discard rate of greater amberjack was calculated for all trolling vessels reporting to the discard logbook program fishing in the South Atlantic during the years 2002-2017. Yearly total effort in hook hours of all trolling vessels was multiplied by the corresponding yearly mean discard rate of trolling vessels to calculate the yearly total greater amberjack discards. For the years prior to 2002, the mean discard rate for the years 2002-2006 was applied to yearly total effort for the years 1992-2001 to estimate discards for those years.

Results and Discussion

The number of trips, pounds landed, and number of discards reported from South Atlantic vertical line vessels for the years 2002-2017 are provided in Table 2. The number of trips, pounds landed, and number of fish discarded from vertical line vessels reporting amberjack landings or discards are also provided. Trolling vessel data were not stratified by region. The number of trips, pounds landed, number of discards of both greater amberjack and all other reported species are provided in Tables 1a – 1d (see totals row).

Calculated total discards for each year and region are provided in Table 3a for greater amberjack discarded from vertical line vessels. Prior to 1993, only 20% of Florida vessels were selected to report to the logbook program. The calculated discards for the region off Florida for 1992 were, therefore, expanded by a factor of five. This was done in all calculations of discards for 1992. Calculated discards for each region were summed by year to provide yearly total greater amberjack vertical line vessel discards in Table 3b. Calculated discards of greater amberjack from trolling vessels are provided in Table 4.

Less than 5% of greater amberjack were reported as dead or the majority of discarded fish were dead when released (Table 5). This total includes fish kept but not sold. Fishers reported that more than 90% of discarded greater amberjack were alive or that most of the released fish were alive for both gears. The reason reported for discarding greater amberjack was due to regulatory (not legal size, out of season, other regulations) restrictions in nearly all reports. In all regions, market conditions were reported as the reason for discarding greater amberjack for fewer than six percent of discards.

The number of trips reporting greater amberjack in the US South Atlantic was very low and the number of individuals of those species reported as discarded was also low. Stratification of the available data was limited because of the small sample sizes and, therefore, likely does not capture much of the variation in numbers of discards within the greater amberjack fisheries. How that may affect the number of calculated discards (over or under estimate) is unknown. This is particularly true of the greater amberjack trolling fishery. Discards from the dive fisheries for greater amberjack

could not be calculated due to lack of discard reports from those fisheries. The methods used in prosecuting the dive fisheries, however, may limit the number of discards due to greater selectivity available to the dive fisher.

Literature Cited

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Table 1a. Number of South Atlantic trips reporting discards by year and gear fished.

Year	Diving		Gillnet		Vertical line		Longline		Other Gear		Trap		Trolling	
	aj	other	aj	other	aj	other	aj	other	aj	other	aj	other	aj	other
2002		16		410	102	2,613	Confidential	36		47		124	Confidential	961
2003	Confidential	56		341	70	3,002		13		141		168	16	1,179
2004		96		319	16	2,515		18		88		54	Confidential	819
2005		56		314	38	3,023	Confidential	57		87		31	Confidential	533
2006		55		Confidential	19	2,107		84		48		30	Confidential	616
2007		130		109	60	4,414		97		140		111	5	1,914
2008		201		487	151	8,295		264		87		483	11	3,218
2009		123		337	66	3,886		69		61		429	Confidential	2,010
2010	Confidential	291		582	116	7,241		486		221		517	9	3,711
2011		290		785	65	7,513		468		210		156	Confidential	3,174
2012		314		697	92	7,181		288		191		285	7	2,897
2013		353		747	85	8,006		295	Confidential	129		426	20	2,057
2014	Confidential	345		822	150	8,375	Confidential	474	Confidential	75		274	16	2,555
2015		396		486	130	7,765	Confidential	487		49		201	11	2,552
2016	Confidential	343		509	139	8,205	Confidential	344		153		130	10	2,989
2017		346		634	116	7,113		447		212	Confidential	214	5	3,464
Total	Confidential	**3,411**		**7,579**	**1,415**	**91,254**	Confidential	**3,927**	Confidential	**1,939**	Confidential	**3,633**	**110**	**34,649**

Confidential = fewer than three vessels reporting within a cell.

Table 1b. Number of South Atlantic discards (number of fish) reported by year and gear fished.

Year	Diving		Gillnet		Vertical line		Longline		Other Gear		Trap		Trolling	
	aj	other	aj	other	aj	other	aj	other	aj	other	aj	other	aj	other
2002		48		4,495	780	59,316	Confidential	226		0		34,840	Confidential	1,136
2003	Confidential	195		9,637	612	34,416		10		185		25,246	30	1,239
2004		152		4,471	60	24,359		30		87		2,289	Confidential	1,168
2005		23		12,099	247	39,403	Confidential	1,649		123		1,593	Confidential	537
2006		1		Confidential	101	28,980		1,129		1		1,783	Confidential	689
2007		13		1,788	535	60,455		204		6		3,688	9	2,273
2008		492		5,063	1,518	169,032		2,190		70		31,449	39	10,322
2009		113		3,184	1,687	42,603		3,278		0		38,876	Confidential	2,855
2010	Confidential	517		10,383	1,061	114,617		5,106		10		22,977	23	2,508
2011		244		7,425	230	89,136		2,175		0		6,610	Confidential	2,760
2012		1,248		5,149	682	87,826		1,572		5		39,031	28	2,006
2013		903		5,348	741	108,232		1,786	Confidential	195		43,375	99	1,385
2014	Confidential	2,604		34,677	1,343	119,290	Confidential	7,869	Confidential	188		35,474	82	2,260
2015		1,388		11,472	1,304	92,976	Confidential	2,707		15		20,738	37	3,280
2016	Confidential	1,088		11,275	963	67,376	Confidential	1,182		31		7,026	41	3,875
2017		709		10,384	853	50,120		1,455		149	Confidential	19,759	39	2,760
Total	Confidential	**9,738**		**136,850**	**12,717**	**1,188,137**	Confidential	**32,568**	Confidential	**1,065**	Confidential	**334,754**	**427**	**41,053**

Confidential = fewer than three vessels reporting within a cell.

Table 1c. South Atlantic trips reported to the coastal logbook program

Year	Diving		Gillnet		Vertical line		Longline		Other Gear		Trap		Trolling	
	aj	other	aj	other	aj	other	aj	other	aj	other	aj	other	aj	other
2002	226	976	Confidential	1,874	2,100	16,420	28	876		649	Confidential	834	153	9,254
2003	187	930	Confidential	1,558	1,925	16,725	31	775		884		800	229	9,592
2004	131	791	Confidential	1,547	1,924	15,362	11	603		846		849	148	7,444
2005	107	696		1,812	1,733	13,886	8	522		896		620	84	6,699
2006	83	669		2,124	1,428	15,086	Confidential	650		901		805	75	7,250
2007	111	880	Confidential	2,190	1,745	15,964	Confidential	533	Confidential	918		628	137	8,613
2008	176	761		1,837	1,870	16,388	6	617		475		564	141	8,957
2009	179	767		2,114	2,159	18,403	3	1,002	Confidential	491		777	173	9,809
2010	194	766		1,628	2,057	15,846	Confidential	939	Confidential	866		407	106	7,924
2011	192	916		1,866	2,042	15,843	4	716	Confidential	786		237	106	6,710
2012	174	922		2,011	1,765	14,661	6	834	14	679		328	103	6,187
2013	178	1,011		1,772	1,827	14,248	6	734	16	474		374	57	5,239
2014	222	1,049		1,922	2,141	16,713	Confidential	681	11	497		302	97	6,098
2015	205	1,031	Confidential	1,496	2,026	15,236	4	532	Confidential	423	Confidential	232	104	6,143
2016	131	817		1,500	1,781	15,876	Confidential	666		509	Confidential	181	58	6,717
2017	140	834		1,207	1,567	15,512	Confidential	631		581		297	53	7,305
Total	**2,636**	**13,816**	Confidential	**28,458**	**30,090**	**252,169**	**107**	**11,311**	**41**	**10,875**	Confidential	**8,235**	**1,824**	**119,941**

Confidential = fewer than three vessels reporting within a cell.

Table 1d. South Atlantic landings (pounds) reported to the coastal logbook program

Year	Diving		Gillnet		Vertical line		Longline		Other Gear		Trap		Trolling	
	aj	other	aj	other	aj	other	aj	other	aj	other	aj	other	aj	other
2002	61,292	285,360	Confidential	2,333,301	625,282	6,240,277	5,726	2,328,313		491,731	Confidential	510,485	23,970	2,061,704
2003	52,314	267,175	Confidential	2,191,832	573,501	6,113,084	2,180	2,136,591		820,556		568,755	18,993	2,360,993
2004	46,940	226,781	Confidential	1,918,969	749,288	6,285,173	2,066	1,698,303		775,072		669,044	15,846	2,017,188
2005	37,241	212,168		2,392,692	765,009	6,123,604	343	1,514,825		715,318		432,240	13,851	2,029,349
2006	35,866	209,893		2,813,428	529,667	6,546,986	Confidential	2,011,771		753,752		543,873	5,224	2,267,713
2007	37,188	278,361	Confidential	2,634,500	578,578	7,118,283	Confidential	974,276	Confidential	646,384		421,869	19,216	2,620,909
2008	82,813	251,087		2,048,620	621,258	7,425,582	292	1,128,245		371,816		436,161	16,664	2,757,947
2009	65,358	264,247		2,274,792	770,866	7,993,131	226	2,092,455	Confidential	360,758		631,624	17,607	2,904,124
2010	65,464	297,046		2,067,830	899,921	7,349,787	Confidential	1,769,201	Confidential	988,130		433,637	13,287	2,469,946
2011	58,669	317,805		2,124,502	877,531	7,108,792	209	1,410,664	Confidential	718,194		317,884	18,895	2,046,892
2012	76,800	288,821		2,136,344	850,106	6,320,206	4,335	1,332,305	5,699	548,342		267,550	25,899	1,704,557
2013	82,751	260,472		1,820,618	767,011	5,958,166	263	1,421,804	3,506	284,925		284,178	11,194	1,376,481
2014	91,569	276,742		2,072,811	832,885	6,618,070	Confidential	1,576,536	6,920	371,099		186,591	35,799	1,654,524
2015	71,605	253,372	Confidential	1,669,657	755,116	6,242,032	149	1,368,380	Confidential	219,743	Confidential	176,889	12,750	1,537,255
2016	42,311	246,670		1,861,466	737,691	6,626,934	Confidential	1,145,980		325,755	Confidential	129,732	9,533	1,725,969
2017	47,141	278,777		1,338,250	743,481	6,681,206	Confidential	1,087,461		388,819		224,057	6,528	2,029,744
Total	**955,321**	**4,214,778**	Confidential	**33,699,613**	**11,677,191**	**106,751,312**	**15,789**	**24,997,107**	**16,125**	**8,780,393**	Confidential	**6,234,568**	**265,255**	**33,565,294**

Confidential = fewer than three vessels reporting within a cell.

Table 2. South Atlantic vertical line trips and landings from amberjack regions reported to the coastal logbook program during the years 2002-2017. Discards are reported in number of fish.

Region	All Vertical line Trips				Vertical line Trips with Amberjack			
	Logbook		Discards		Logbook		Discards	
	Trips	Pounds	Trips	N fish	Trips	Pounds	Trips	N fish
1	211,535	74,671,648	52,449	404,715	18,702	9,132,051	485	4,355
2	9,468	15,186,411	3,543	451,316	4,553	1,288,321	384	4,832
3	36,674	28,570,444	8,444	344,823	6,835	1,256,819	525	3,530

Table 3a. Calculated yearly total discards of greater amberjack by vertical line vessels for each region (regions: 1=2400 latitude to <3100 latitude; Region 2 = 3100 latitude to <3300 latitude; Region 3 = 3300 latitude to <3700 latitude). Discards are reported in number of fish.

Year	Region	Mean Discards per Hook Hour	Discard Standard Deviation	Total Effort (Hook Hours)	Calculated Discards
1992*	1	0.00197	0.03457	696,368	1,372
1992	2	0.00786	0.03465	155,166	1,220
1992	3	0.00780	0.05749	237,637	1,854
1993	1	0.00197	0.03457	473,927	934
1993	2	0.00786	0.03465	347,930	2,736
1993	3	0.00780	0.05749	423,846	3,306
1994	1	0.00197	0.03457	640,283	1,261
1994	2	0.00786	0.03465	325,214	2,557
1994	3	0.00780	0.05749	574,464	4,481
1995	1	0.00197	0.03457	732,690	1,443
1995	2	0.00786	0.03465	360,260	2,833
1995	3	0.00780	0.05749	515,266	4,019
1996	1	0.00197	0.03457	687,883	1,355
1996	2	0.00786	0.03465	389,057	3,059
1996	3	0.00780	0.05749	515,776	4,023
1997	1	0.00197	0.03457	761,667	1,500
1997	2	0.00786	0.03465	346,721	2,726
1997	3	0.00780	0.05749	527,482	4,114
1998	1	0.00197	0.03457	524,704	1,034
1998	2	0.00786	0.03465	266,512	2,096
1998	3	0.00780	0.05749	458,534	3,576
1999	1	0.00197	0.03457	473,252	932
1999	2	0.00786	0.03465	203,656	1,601
1999	3	0.00780	0.05749	385,276	3,005
2000	1	0.00197	0.03457	468,411	923
2000	2	0.00786	0.03465	215,047	1,691
2000	3	0.00780	0.05749	380,816	2,970
2001	1	0.00197	0.03457	423,141	833
2001	2	0.00786	0.03465	334,466	2,630
2001	3	0.00780	0.05749	393,312	3,068
2002	1	0.00244	0.04219	427,177	1,042
2002	2	0.01196	0.04691	294,786	3,525
2002	3	0.01570	0.08910	396,898	6,232
2003	1	0.00371	0.04612	398,387	1,480
2003	2	0.01182	0.02938	239,265	2,827
2003	3	0.00517	0.05208	331,020	1,711
2004	1	0.00039	0.00893	369,836	144
2004	2	0.00000	0.00000	174,453	0
2004	3	0.00556	0.03658	328,343	1,824
2005	1	0.00173	0.03577	303,359	525
2005	2	0.00091	0.00445	211,234	193
2005	3	0.00768	0.04496	285,369	2,192
2006	1	0.00043	0.00631	295,178	126
2006	2	0.00430	0.02431	226,917	975
2006	3	0.00068	0.00395	323,608	221
2007	1	0.00539	0.05760	354,172	1,909
2007	2	0.00000	0.00000	227,780	0
2007	3	0.00382	0.02378	327,864	1,251

Table 3a. Continued.

Year	Region	Mean Discards per Hook Hour	Discard Standard Deviation	Total Effort (Hook Hours)	Calculated Discards
2008	1	0.00309	0.03286	334,400	1,034
2008	2	0.00367	0.03310	191,132	702
2008	3	0.00488	0.06291	374,420	1,827
2009	1	0.00212	0.03021	396,791	841
2009	2	0.02015	0.09327	256,824	5,176
2009	3	0.00105	0.01005	336,108	353
2010	1	0.00596	0.10432	305,142	1,820
2010	2	0.00696	0.04127	242,972	1,692
2010	3	0.00398	0.04340	269,598	1,074
2011	1	0.00275	0.05913	355,119	975
2011	2	0.00122	0.00586	209,049	256
2011	3	0.00181	0.02299	221,897	401
2012	1	0.00158	0.02119	318,210	504
2012	2	0.00153	0.00803	166,241	254
2012	3	0.01761	0.10365	219,749	3,869
2013	1	0.00046	0.00795	326,026	149
2013	2	0.00340	0.02110	158,496	540
2013	3	0.00557	0.03038	262,236	1,461
2014	1	0.00130	0.01443	398,606	520
2014	2	0.00393	0.01218	184,456	724
2014	3	0.00550	0.02830	221,837	1,219
2015	1	0.00541	0.04772	418,069	2,260
2015	2	0.00482	0.03525	162,195	783
2015	3	0.00384	0.02983	199,491	766
2016	1	0.00484	0.05011	379,363	1,837
2016	2	0.00999	0.11590	126,311	1,261
2016	3	0.01128	0.07050	241,483	2,725
2017	1	0.00007	0.00108	336,840	25
2017	2	0.00112	0.00600	120,427	135
2017	3	0.02233	0.13131	222,708	4,972

*in 1992 only 20% of vessels in Florida were required to report to the logbook program, the calculated discards for areas off Florida (region 1) was expanded by a factor of five.

Table 3b. Calculated yearly South Atlantic vertical line vessel greater amberjack discards. Discards are reported in number of fish.

Year	Calculated Discards
1992*	4,445
1993	6,975
1994	8,299
1995	8,295
1996	8,437
1997	8,341
1998	6,706
1999	5,539
2000	5,584
2001	6,531
2002	10,800
2003	6,018
2004	1,968
2005	2,910
2006	1,323
2007	3,159
2008	3,563
2009	6,371
2010	4,586
2011	1,631
2012	4,627
2013	2,150
2014	2,464
2015	3,809
2016	5,823
2017	5,132

*in 1992 only 20% of vessels in Florida were required to report to the logbook program, the calculated discards for areas off Florida (region 1) was expanded by a factor of five.

Table 4. Yearly greater amberjack trolling vessel calculated discards. Discards are reported in number of fish.

Year	Mean Discards per Hook Hour	Discard Standard Deviation	Total Effort (hook hours)	Calculated Discards
1992*	0.00079	0.01196	68,998	55
1993	0.00079	0.01196	102,764	81
1994	0.00079	0.01196	125,521	99
1995	0.00079	0.01196	116,041	92
1996	0.00079	0.01196	104,678	83
1997	0.00079	0.01196	131,997	104
1998	0.00079	0.01196	481,796	381
1999	0.00079	0.01196	460,953	364
2000	0.00079	0.01196	486,702	385
2001	0.00079	0.01196	405,897	321
2002	0.00026	0.00311	327,961	86
2003	0.00097	0.00869	300,964	291
2004	0.00137	0.02382	245,054	335
2005	0.00065	0.00598	217,637	141
2006	0.00078	0.00945	232,432	181
2007	0.00030	0.00651	292,820	89
2008	0.00034	0.00640	278,766	96
2009	0.00037	0.01284	305,111	111
2010	0.00057	0.01240	243,083	138
2011	0.00007	0.00190	199,777	14
2012	0.00030	0.00495	195,272	58
2013	0.00254	0.03158	163,984	416
2014	0.00097	0.01434	193,223	187
2015	0.00047	0.00837	188,391	88
2016	0.00060	0.00990	216,317	129
2017	0.00006	0.00184	223,196	13

*in 1992 only 20% of vessels in Florida were required to report to the logbook program, the calculated discards for areas off Florida (region 1) was expanded by a factor of five.

Table 5. Estimated condition at release of greater amberjack discards. Numbers of fish and percent of total, in parentheses) are reported by gear and region.

Species	Region	All Dead	Majority Dead	All Alive	Majority Alive	Kept	Unknown	Unreported
Greater Amberjack (vertical line)	1	9 (0.21%)		2,420 (55.58%)	1,905 (43.75%)	20 (0.46%)		Confidential
	2	56 (1.17%)	Confidential	4,225 (88.26%)	429 (8.96%)	77 (1.61%)		Confidential
	3	9 (0.26%)	Confidential	2,978 (84.46%)	444 (12.59%)	34 (0.96%)	61 (1.73%)	
Greater Amberjack (trolling)	1	Confidential	Confidential	404 (83.82%)	78 (16.18%)	Confidential		

Confidential = fewer than three vessels reporting within a cell.