

**Sector Separation for Four Reef Fish Species:
Red Grouper, Gag, Greater Amberjack, and
Gray Triggerfish**



August 2021

I. Introduction

During its September 2020 meeting, the Gulf of Mexico Fishery Management Council (Council) approved a motion “to direct staff to develop a white paper that would develop separate sector allocations between the private and for-hire components of the recreational sector for the following four reef fish species: red and gag groupers, greater amberjack, and gray triggerfish.” This document was prepared in response to the Council motion to support the Council’s discussion during the January 2021 meeting.

With the approval of Amendment 40 to the Reef Fish FMP (GMFMC 2014), the Council formally established separate private angling and federal for-hire components of the recreational sector to better manage the red snapper recreational quota in the Gulf of Mexico, i.e., sector separation. The federal for-hire component includes all operators with a valid or renewable federal reef fish for-hire permit. The private angling component includes all other for-hire operators (e.g., state-licensed) and recreational anglers fishing from privately owned or rented vessels. If the Council decides to develop a regulatory action to address sector separation for the remaining major reef fish species with an existing recreational and commercial allocation (red grouper, gag, greater amberjack, and gray triggerfish), Amendment 40 could provide a template.

For each of the species under consideration, this document provides recreational landings and effort data by mode (i.e., private angling and for-hire), and potential management measures that could be included in a future sector separation amendment. The paper concludes by providing relevant management considerations, including the status of the stocks, as well as recent and current amendments and framework actions.

II. Recreational Landings and Effort

This section discusses average landings and effort for red grouper, gag, greater amberjack, and gray triggerfish for various time intervals. The dataset used in this document covers the 1992-2019 time period. Averages provided include an average for the full time series (1992-2019) and the full time series broken down in approximately 10-year averages (1992-2001, 2002-2011, and 2012-2019). In addition to summary tables with average landings and effort, tables providing annual landings and effort by mode are included for reference at the end of this document. Landings for the private angling component are provided in both MRIP-CHTS and MRIP-FES. Landings for the for-hire component are provided in MRIP-FES. Effort estimates for both components are all provided in MRIP-FES units. Because future management actions are expected to rely on landings in MRIP-FES units, landings in MRIP-CHTS units are included for comparison purposes only.

Red grouper

Private angling and federal for-hire (headboat and charter) average landings for red grouper are provided in Table 1. As a percentage, average red grouper landings by the private angling component expressed in MRIP-FES units ranged from 82.8% (2012-2019 average) to 85.5% (1992-2001 average) of the total recreational red grouper landings. For the entire time series available (1992-2019), private anglers accounted for an average of 84.9% of the recreational red

grouper landings. Percentages landed by the for-hire component would correspond to the complement of the values presented for private angling landings, e.g., the 84.9% historical average landed by private anglers means that the for-hire component accounted for 15.1% of the landings during the same time interval (100% - 84.9%).

Table 1. Private angling and for-hire average landings for **red grouper**.

Year	Private Angling MRIP CHTS		Private Angling MRIP FES		For-Hire MRIP FES
	Pounds	Percent	Pounds	Percent	Pounds
Average (1992-2001)	1,354,181.95	75.6%	2,708,275.69	85.5%	401,936.48
Average (2002-2011)	1,011,394.29	71.0%	2,440,951.03	86.0%	341,881.95
Average (2012-2019)	998,685.49	62.5%	2,755,945.86	82.8%	531,334.46
Average (1992-2019)	1,130,187.37	70.2%	2,626,422.65	84.9%	417,459.29

Source: Averages computed from data Compiled by A. Gray (SERO).
 MRIPACLSpec_rec81_20wv3_14Sep20wLACreel_2014_2019.xlsx;
 MRIP_FES_rec81_20wv3_16Sep20wLACreel2014to2019.xlsx;
 MRIP Survey Data (https://www.st.nmfs.noaa.gov/st1/recreational/MRIP_Survey_Data/)

Private angling and federal charter boats' average effort for red grouper measured in trips are provided in Table 2. Headboat effort is not included, because it is typically measured in angler days rather than trips. All effort estimates presented are expressed in MRIP-FES units. The number of trips shown are catch trips (trips during which red grouper were caught) plus target trips (trips during which red grouper were the primary or secondary target). As a percentage, average private angling effort for red grouper ranged from 90.1% (2012-2019 average) to 92.2% (1992-2001 average). For the entire time series (1992-2019), private anglers accounted for an average of 91.59% of the recreational effort for red grouper.

Table 2. Private angling and charter average effort for **red grouper**.

Year	Private Angling		Charter	
	Trips	Percent	Trips	Percent
Average (1992-2001)	1,040,685	92.2%	87,862	7.8%
Average (2002-2011)	1,293,646	92.0%	112,292	8.0%
Average (2012-2019)	1,160,029	90.1%	123,185	9.9%
Average (1992-2019)	1,160,366	91.5%	106,472	8.5%

Source: Averages computed from data compiled by A. Gray (SERO) from SEFSC MRIP FES Recreational Survey. Effort includes trips where red grouper was either caught or was the first or secondary target.

Gag

Private angling and federal for-hire (headboat and charter) average landings for gag are provided in Table 3. As a percentage, average private angling landings for gag expressed in MRIP-FES

units ranged from 80.0% (1992-2001 average) to 89.9% (2012-2019 average) of the total recreational gag landings. For the entire time series available (1992-2019), private anglers accounted for an average of 86.0% of the recreational gag landings. Percentages landed by the for-hire component would correspond to the complement of the values presented for private angling landings, e.g., the 86.0% historical average landed by private anglers means that the for-hire component accounted for 14.0% of the landings during the same time interval (100% - 86.0%).

Table 3. Private angling and for-hire landings for **gag** (1992-2019).

Year	Private Angling MRIP CHTS		Private Angling MRIP FES		For-Hire MRIP FES
	Pounds	Percent	Pounds	Percent	Pounds
Average (1992-2001)	2,167,393.53	62.7%	5,488,334.20	80.0%	1,256,978.83
Average (2002-2011)	2,164,087.33	75.4%	5,505,846.23	88.8%	716,378.01
Average (2012-2019)	800,017.96	76.1%	2,205,138.55	89.9%	232,193.88
Average (1992-2019)	1,775,534.01	71.1%	4,556,532.59	86.0%	771,111.41

Source: Averages computed from data Compiled by A. Gray (SERO).

MRIPACLSpec_rec81_20wv3_14Sep20wLACreel_2014_2019.xlsx;

MRIP_FES_rec81_20wv3_16Sep20wLACreel2014to2019.xlsx;

MRIP Survey Data (https://www.st.nmfs.noaa.gov/st1/recreational/MRIP_Survey_Data/)

Private angling and federal charter boats' average effort for gag measured in trips are provided in Table 4. Headboat gag effort is not included because it is typically measured in angler days rather than trips. All effort estimates presented are expressed in MRIP-FES units. The number of trips shown are catch trips (trips during which gag were caught) plus target trips (trips during which gag were the primary or secondary target). As a percentage, average private angling effort for gag ranged from 88.4% (1992-2001 average) to 94.4% (2002-2011 average). For the entire time series (1992-2019), private anglers accounted for an average of 91.9% of the recreational effort for gag.

Table 4. Private angling and charter effort for **gag** (1992-2019).

Year	Private Angling		Charter	
	Trips	Percent	Trips	Percent
Average (1992-2001)	1,523,374	88.4%	202,365	11.6%
Average (2002-2011)	2,320,518	94.4%	139,330	5.6%
Average (2012-2019)	1,299,309	93.8%	85,002	6.2%
Average (1992-2019)	1,744,734	91.9%	148,994	8.1%

Source: Averages computed from data compiled by A. Gray (SERO) from SEFSC MRIP FES Recreational Survey. Effort includes trips where gag was either caught or was the first or secondary target.

Greater Amberjack

Private angling and federal for-hire (headboat and charter) greater amberjack average landings are provided in Table 5. As a percentage, private angling average landings for greater amberjack expressed in MRIP-FES units ranged from 50.3% (1992-2001 average) to 73.6% (2012-2019 average) of the total recreational greater amberjack landings. For the entire time series (1992-2019), private anglers accounted for an average of 64.6% of the recreational landings of greater amberjack. Percentages landed by the for-hire component correspond to the complement of the percentages provided for private angling landings, e.g., the 64.6% historical average landed by private anglers means that the for-hire component accounted for 35.4% of the greater amberjack landings during the same time interval (100% - 64.6%).

Table 5. Private angling and for-hire landings for **greater amberjack** (1992-2019).

Year	Private Angling MRIP CHTS		Private Angling MRIP FES		For-Hire MRIP FES
	Pounds	Percent	Pounds	Percent	Pounds
Average (1992-2001)	573,684.60	33.1%	1,246,877.09	50.3%	1,982,635.16
Average (2002-2011)	933,590.37	48.7%	2,607,467.74	71.7%	910,259.63
Average (2012-2019)	708,222.97	56.4%	1,608,823.92	73.6%	573,431.83
Average (1992-2019)	740,661.91	45.3%	1,836,215.70	64.6%	1,197,014.37

Source: Averages computed from data compiled by A. Gray (SERO)
MRIPACLSpec_rec81_20wv3_14Sep20wLACreel_2014_2019.xlsx;
MRIP_FES_rec81_20wv3_16Sep20wLACreel2014to2019.xlsx;
MRIP Survey Data (https://www.st.nmfs.noaa.gov/st1/recreational/MRIP_Survey_Data/)

Private angling and federal charter boats' average effort for greater amberjack measured in trips are provided in Table 6. Headboat greater amberjack effort is not included because it is typically measured in angler days rather than trips. All effort estimates presented are expressed in MRIP-FES units. The number of trips shown are catch trips (trips during which greater amberjack were caught) plus target trips (trips during which greater amberjack were the primary or secondary target). As a percentage, private angling average effort for greater amberjack ranged from 62.8% (1992-2001 average) to 86.0% (2012-2019 average). For the entire time series (1992-2019), private anglers accounted for an average of 77.1% of the recreational greater amberjack effort.

Table 6. Private angling and charter effort for **greater amberjack** (1992-2019).

Year	Private Angling		Charter	
	Trips	Percent	Trips	Percent
Average (1992-2001)	167,578	62.8%	80,443	37.2%
Average (2002-2011)	353,838	85.0%	58,338	15.0%
Average (2012-2019)	284,795	86.0%	45,376	14.0%
Average (1992-2019)	264,396	77.1%	62,684	22.9%

Source: Averages computed from data compiled by A. Gray (SERO) from SEFSC MRIP FES Recreational Survey. Effort includes trips where greater amberjack was either caught or was the first or secondary target.

Gray Triggerfish

Private angling and federal for-hire (headboat and charter) average landings for gray triggerfish are provided in Table 7. As a percentage, average private angling landings for gray triggerfish expressed in MRIP-FES units ranged from 48.8% (1992-2001 average) to 83.7% (2012-2019 average) of the total recreational gray triggerfish landings. For the entire time series (1992-2019), private anglers accounted for an average of 68.5% of the recreational gray triggerfish landings. Percentages landed by the for-hire component correspond to the complement of the percentages provided for private angling landings, e.g., the 68.5% historical average landed by private anglers means that the for-hire component accounted for 31.5% of the gray triggerfish landings during the same time interval (100% - 68.5%).

Table 7. Private angling and for-hire landings for **gray triggerfish** (1992-2019).

Year	Private Angling MRIP CHTS		Private Angling MRIP FES		For-Hire MRIP FES
	Pounds	Percent	Pounds	Percent	Pounds
Average (1992-2001)	334,898.93	22.3%	726,566.28	48.8%	852,135.59
Average (2002-2011)	324,675.15	26.0%	995,186.83	75.9%	304,589.96
Average (2012-2019)	211,412.92	32.3%	543,802.73	83.7%	114,271.17
Average (1992-2019)	295,965.86	26.5%	770,284.03	68.5%	445,765.17

Source: Averages computed from data compiled by A. Gray (SERO) from
 MRIPACLSpec_rec81_20wv3_14Sep20wLACreel_2014_2019.xlsx;
 MRIP_FES_rec81_20wv3_16Sep20wLACreel2014to2019.xlsx;
 MRIP Survey Data (https://www.st.nmfs.noaa.gov/st1/recreational/MRIP_Survey_Data/)

Private angling and federal charter boats' average effort for gray triggerfish measured in trips are provided in Table 8. Headboat effort for gray triggerfish is not included because it is typically measured in angler days rather than trips. All effort estimates presented are expressed in MRIP-FES units. The number of trips shown are catch trips (trips during which gray triggerfish were

caught) plus target trips (trips during which gray triggerfish were the primary or secondary target). As a percentage, average private angling effort for gray triggerfish ranged from 62.6% (1992-2001 average) to 83.9% (2012-2019 average). For the entire time series (1992-2019), private anglers accounted for an average of 75.3% of the recreational gray triggerfish effort. Between 1992 and 2019, charter effort averaged 24.7% of the recreational gray triggerfish trips.

Table 8. Private angling and charter effort for **gray triggerfish** (1992-2019).

Year	Private Angling		Charter	
	Trips	Percent	Trips	Percent
Average (1992-2001)	308,772	62.6%	182,428	37.4%
Average (2002-2011)	483,389	81.7%	107,559	18.3%
Average (2012-2019)	477,027	83.9%	92,352	16.1%
Average (1992-2019)	416,831	75.3%	130,782	24.7%

Source: Averages computed from data compiled by A. Gray (SERO) from SEFSC MRIP FES Recreational Survey. Effort includes trips where gray triggerfish was either caught or was the first or secondary target.

III. Potential Actions for a Sector Separation Amendment

Should the Council elect to develop an amendment to the Reef Fish FMP to consider sector separation for some or all of the reef fish species discussed in this document, actions included in Amendment 40 could provide a starting point for the structure of the future amendment. Thus, a hypothetical future amendment could include at least three management actions.

The first action would consider the establishment of a private angling component and a federal for-hire component for the management of some or all reef fish species discussed. The Council could consider several alternatives and options including the preferred alternative in Amendment 40. Amendment 40 defined the federal for-hire component to include all for-hire operators with a valid or renewable federal charter/headboat permit for reef fish and established a private angling component including all other for-hire operators (e.g., state-licensed) and recreational anglers fishing from privately owned or rented vessels. This action could also include options to determine the species to be managed under sector separation (all species listed or a subset of the species).

For the species selected to be managed with sector separation, the second action would determine the percentages of each species' recreational ACL to allocate to the private angling and for-hire components. Allocation alternatives could be based on landings during a variety of time intervals or rely on alternative allocation methods to be determined by the Council. For reference, Amendment 40 allocated the red snapper ACL between components based on the percentages landed by each component during the entire time series available at the time (1986-2013) and the percentages landed during the last eight years of the dataset used at the time (2006-2013).

Finally, the third action could address recreational closure provisions. For example, this action could consider the establishment of component-specific annual catch targets and include additional provisions to determine season length for each component.

IV. Management Considerations

This section provides the stock status and as well as recent and current actions being evaluated by the Council for the four subject stocks.

Red grouper

Currently, the red grouper stock is not overfished and is not undergoing overfishing.

At its January 2021 meeting, the Council will review a draft of Reef Fish Amendment 53 that addresses the results of the recent stock assessment (SEDAR 61 2019). The amendment considers modifying the allocation of red grouper between the recreational and commercial sectors based on updated historical recreational harvest data. Based on the allocation decision made in the first action, the amendment considers alternatives that would revise the OFLs, ABCs, ACLs, and ACTs based on the stock assessment results and the resultant yield projections.

Gag

Currently, the gag grouper stock is not overfished and is not undergoing overfishing. There are no actions currently under development by the Council that would affect recreational management of the gag stock. A stock assessment for gag (SEDAR 72) is currently underway.¹

Greater Amberjack

As of the 2020 fourth quarter status of the stocks report,² greater amberjack is no longer undergoing overfishing, but remains overfished. At its January 2021 meeting, the SSC reviewed the results of the SEDAR 70 (2020) stock assessment. Based on SEDAR 70, the SSC determined that greater amberjack is overfished and is undergoing overfishing. It is likely that the Council will initiate a new amendment to address further changes to the management of greater amberjack.

An update assessment was completed in 2016 (SEDAR 33 Update), from which the SSC concluded in 2017 that greater amberjack was overfished and undergoing overfishing, and that the stock would not be rebuilt by 2019. In response, the Council completed two framework actions in 2017. The first reduced the catch levels (ABC, ACL, and ACT) for 2018 and 2019, followed by an increase in 2020 and beyond (GMFMC 2017c). These catch levels were expected to end overfishing and rebuild the stock by 2027. In addition, this framework action modified the fixed season closure for the recreational sector to be January 1 through June 30

¹ https://sedarweb.org/docs/supp/S72_schedule_FINAL_v5.pdf

² Greater amberjack was classified as undergoing overfishing until October 2020.
<https://media.fisheries.noaa.gov/2020-10/Q3%202020%20Stock%20StatusSummaryChanges.pdf?null>

each year. The second framework action modified the recreational fishing year to begin on August 1 and run through July 31 of the following year. It also modified the fixed closed season so that recreational harvest is prohibited from November 1 – April 30 and June 1 – July 31 (GMFMC 2017d).

A framework action, Modifications to the Greater Amberjack Recreational Management Measures, was initiated by the Council in June 2019. It included actions to establish recreational fishing zones and quotas, reduce the bag limit; establish a possession limit on multi-day trips, modify the fishing year to begin on January 1, and modify the recreational fixed closed season. The Council discontinued further work on the document in January 2020.

Gray Triggerfish

Currently, the gray triggerfish stock is not overfished and is not undergoing overfishing, although the stock is rebuilding (GMFMC 2017a).

At its January 2021, the Council will review a draft framework action to modify the gray triggerfish catch levels (ABC, ACL, and ACT). The action alternative would increase the catch levels based on the results of the 2020 Interim Analysis (NOAA 2020). Existing catch levels were established through Amendment 46 (GMFMC 2017b), implemented in 2018. A separate framework action will consider modifying the fixed closed season for the recreational sector's harvest of gray triggerfish. The Council will review the action at an upcoming meeting.

Generic

The Southeast For-Hire Electronic Reporting Program was implemented January 5, 2021 (GMFMC 2017e). The amendment requires vessels with a federal charter/headboat permit for reef fish or pelagic fish to:

- Submit an electronic fishing report via a NMFS-approved hardware and software for each fishing trip before offloading fish from that fishing trip or within 30 minutes after the end of each trip if no fish were landed;
- Notify NMFS through a trip declaration (i.e., hail-out) before departing for any trip to identify if the trip will be for-hire or another trip type. If the vessel will be operating as a for-hire vessel, the other details of the trip will need to be provided; and
- Use NMFS-approved hardware and software with global positioning system (GPS) location capabilities that, at a minimum, archives vessel position data during a trip for transmission to NMFS.

The hail-out and trip declaration requirements are effective January 5, 2021. The GPS location requirement will become effective later in 2021.

V. References

GMFMC. 2014. Amendment 40 to the fishery management plan for the reef fish resources of the Gulf of Mexico: Recreational red snapper sector separation, including environmental impact statement, fishery impact statement, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida. 304 pp.

<https://gulfcouncil.org/wp-content/uploads/RF-40-Final-Draft-12-17-2014.pdf>

GMFMC. 2017a. Amendment 44 (revised) to the fishery management plan for the reef fish resources of the Gulf of Mexico: Minimum stock size threshold (MSST) revision for reef fish stocks with existing status determination criteria, including environmental assessment and fishery impact statement. Gulf of Mexico Fishery Management Council, Tampa, Florida. 124 pp.

<http://gulfcouncil.org/wp-content/uploads/Final-Amendment-44-revised-MSST-GOM-Reef-Fish-update-2.pdf>

GMFMC. 2017b. Amendment 46 to the fishery management plan for the reef fish resources of the Gulf of Mexico: Gray triggerfish rebuilding plan, including environmental assessment, fishery impact statement, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council, Tampa, Florida. 218 pp.

http://gulfcouncil.org/wp-content/uploads/Final-Amend-46_Gray-Triggerfish-Rebuilding-Plan_-_05_05_2017Revised.pdf

GMFMC. 2017c. Modifications to greater amberjack allowable harvest and rebuilding plan for the reef fish resources of the Gulf of Mexico, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida. 121 pp.

<http://gulfcouncil.org/wp-content/uploads/GreaterAmberjackFramework20170906FINAL.pdf>

GMFMC. 2017d. Modifications to the greater amberjack fishing year and the recreational fixed closed season for the reef fish resources of the Gulf of Mexico, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida. 100 pp.

<http://gulfcouncil.org/wp-content/uploads/Final-Framework-Action-to-Modify-Recreational-Fishing-Year-and-Fixed-Closed-Season.pdf>

GMFMC. 2017e. Generic amendment to the fishery management plan for the reef fish resources of the Gulf of Mexico and coastal migratory pelagic resources in the Gulf of Mexico and Atlantic region: Modifications to charter vessel and headboat reporting requirements, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council, Tampa, Florida. 185 pp.

<https://gulfcouncil.org/wp-content/uploads/Electronic-Reporting-for-For-Hire-Vessels-5-23-17.pdf>

NOAA. 2020. An interim analysis for Gulf of Mexico Gray Triggerfish. Southeast Fisheries Science Center; Southeast Regional Office. St. Petersburg, Florida. 10 pp.

SEDAR 33 Update. 2016. Stock assessment update report Gulf of Mexico greater amberjack (*Seriola dumerili*). SEDAR, North Charleston South Carolina. 148 pp.
http://sedarweb.org/docs/suar/GagUpdateAssessReport_Final_0.pdf

SEDAR 61. 2019. Stock assessment report of Gulf of Mexico red grouper. Southeast Data, Assessment, and Review. North Charleston, South Carolina. <http://sedarweb.org/sedar-61>

SEDAR 70. 2020. Stock assessment report Gulf of Mexico greater amberjack. Southeast Data, Assessment, and Review, North Charleston, South Carolina. 152 pp.
http://sedarweb.org/docs/sar/S70_SAR_FINAL.pdf

VI. Recreational landings and effort tables (1992-2019) for red grouper, gag, greater amberjack, and gray triggerfish

Table 6.1. Private angling and for-hire landings for red grouper (1992-2019).

Year	Private Angling MRIP CHTS		Private Angling MRIP FES		For-Hire MRIP FES
	Pounds	Percent	Pounds	Percent	Pounds
1992	2,683,717.51	80.5%	5,394,986.34	89.2%	651,991.46
1993	2,007,831.66	90.2%	3,840,329.46	94.6%	217,604.19
1994	1,906,912.37	84.0%	3,462,763.95	90.5%	364,502.71
1995	1,447,785.42	69.8%	2,870,871.45	82.1%	625,672.44
1996	552,139.40	68.5%	656,347.16	72.1%	253,965.54
1997	359,031.58	67.4%	969,381.50	84.8%	173,576.07
1998	610,182.41	73.5%	1,294,278.68	85.5%	219,611.28
1999	1,143,830.97	79.8%	3,139,875.27	91.6%	288,677.65
2000	1,641,612.96	65.7%	3,383,611.24	79.8%	858,619.40
2001	1,188,775.22	76.5%	2,070,311.88	85.0%	365,144.02
2002	1,565,434.25	84.3%	2,880,760.44	90.8%	291,587.11
2003	1,029,312.04	76.9%	1,893,154.24	86.0%	308,342.15
2004	2,956,225.58	83.5%	7,398,472.55	92.7%	584,765.96
2005	871,682.18	59.7%	2,493,900.09	80.9%	588,078.84
2006	906,429.34	75.9%	2,367,235.58	89.2%	287,829.13
2007	823,004.00	82.9%	1,861,802.38	91.6%	170,064.62
2008	512,376.94	60.7%	1,273,149.46	79.4%	331,248.68
2009	634,981.09	74.0%	1,376,616.53	86.0%	223,446.83
2010	474,687.22	57.4%	1,611,094.98	82.0%	352,667.40
2011	339,810.25	54.8%	1,253,324.06	81.7%	280,788.81
2012	1,000,749.65	60.3%	3,472,809.40	84.1%	658,912.60
2013	1,719,049.85	66.3%	4,115,840.17	82.5%	874,470.32
2014	1,725,583.16	73.2%	4,737,123.30	88.2%	631,452.08
2015	1,374,331.74	71.4%	3,239,923.85	85.5%	550,689.66
2016	863,658.38	65.1%	2,169,801.09	82.4%	463,105.56
2017	374,492.01	50.7%	1,327,931.79	78.5%	364,581.39
2018	529,566.62	57.9%	1,669,114.58	81.3%	384,411.07
2019	402,052.48	55.4%	1,315,022.72	80.3%	323,053.01
Average (1992-2001)	1,354,181.95	75.6%	2,708,275.69	85.5%	401,936.48
Average (2002-2011)	1,011,394.29	71.0%	2,440,951.03	86.0%	341,881.95
Average (2012-2019)	998,685.49	62.5%	2,755,945.86	82.8%	531,334.46
Average (1992-2019)	1,130,187.37	70.2%	2,626,422.65	84.9%	417,459.29

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MRIP_FES_rec81_20wv3_16Sep20wLACreel2014to2019.xlsx;
MRIP Survey Data (https://www.st.nmfs.noaa.gov/st1/recreational/MRIP_Survey_Data/)

Table 6.2. Private angling and charter effort for **red grouper** (1992-2019).

Year	Private Angling		Charter	
	Trips	Percent	Trips	Percent
1992	1,148,513	95.7%	51,878	4.3%
1993	1,001,313	95.9%	43,177	4.1%
1994	1,015,365	93.3%	72,869	6.7%
1995	1,147,790	91.3%	109,043	8.7%
1996	923,627	93.4%	64,937	6.6%
1997	917,319	92.4%	75,182	7.6%
1998	877,664	86.4%	138,094	13.6%
1999	1,162,844	90.6%	120,442	9.4%
2000	1,006,973	91.4%	94,504	8.6%
2001	1,205,437	91.7%	108,497	8.3%
2002	1,216,318	92.7%	96,310	7.3%
2003	1,186,774	90.2%	128,477	9.8%
2005	1,409,820	89.4%	167,755	10.6%
2006	1,120,264	92.8%	87,189	7.2%
2007	940,210	92.2%	79,746	7.8%
2008	1,733,963	93.3%	124,603	6.7%
2009	1,613,730	93.3%	115,493	6.7%
2010	1,161,717	91.6%	106,887	8.4%
2011	1,260,014	92.4%	104,171	7.6%
2012	1,585,513	91.8%	141,161	8.2%
2013	1,517,984	91.5%	141,389	8.5%
2014	1,419,455	91.2%	136,825	8.8%
2015	1,067,385	89.3%	128,053	10.7%
2016	930,289	86.2%	149,033	13.8%
2017	857,830	88.9%	107,110	11.1%
2018	1,146,926	92.7%	90,066	7.3%
2019	754,851	89.2%	91,842	10.8%
Average (1992-2001)	1,040,685	92.2%	87,862	7.8%
Average (2002-2011)	1,293,646	92.0%	112,292	8.0%
Average (2012-2019)	1,160,029	90.1%	123,185	9.9%
Average (1992-2019)	1,160,366	91.5%	106,472	8.5%

Source: Compiled by A. Gray (SERO) from SEFSC MRIP FES Recreational Survey.
Effort includes trips where red grouper was either caught or was the first or secondary target.

Table 6.3. Private angling and for-hire landings for **gag** (1992-2019).

Year	Private Angling MRIP CHTS		Private Angling MRIP FES		For-Hire MRIP-FES
	Pounds	Percent	Pounds	Percent	Pounds
1992	1,318,769.04	48.7%	3,119,120.40	69.2%	1,387,836.90
1993	1,583,562.02	57.5%	4,502,255.95	79.4%	1,170,394.35
1994	1,509,995.03	69.7%	3,030,744.44	82.2%	655,599.90
1995	2,087,170.47	70.7%	5,948,201.87	87.3%	866,475.85
1996	1,387,870.83	57.2%	2,647,342.49	71.8%	1,038,067.81
1997	1,855,232.47	56.0%	4,788,811.24	76.7%	1,457,954.07
1998	2,300,810.25	49.7%	6,177,316.31	72.6%	2,326,584.99
1999	2,726,667.12	66.9%	7,559,595.74	84.9%	1,348,300.16
2000	3,787,758.97	73.6%	8,747,764.50	86.5%	1,360,026.11
2001	3,116,099.11	76.5%	8,362,189.01	89.7%	958,548.18
2002	3,295,976.72	74.1%	8,704,170.56	88.3%	1,152,498.90
2003	2,815,812.73	76.2%	5,854,166.10	86.9%	879,617.34
2004	3,926,590.17	76.5%	9,965,023.72	89.2%	1,209,512.40
2005	2,572,387.18	70.1%	7,569,650.91	87.3%	1,097,616.99
2006	1,850,941.23	76.1%	4,337,191.15	88.2%	580,577.25
2007	1,981,485.79	84.4%	4,254,027.55	92.1%	365,986.59
2008	2,346,977.46	74.2%	6,020,533.37	88.0%	817,294.06
2009	1,128,644.22	72.9%	2,852,915.13	87.2%	418,897.98
2010	1,147,368.87	69.6%	3,520,507.30	87.5%	501,395.34
2011	574,688.96	80.4%	1,980,276.49	93.4%	140,383.28
2012	555,531.62	57.5%	1,570,434.82	79.3%	410,344.54
2013	1,351,442.99	86.7%	3,144,670.87	93.8%	208,103.57
2014	1,084,093.52	88.8%	2,604,428.18	95.0%	136,241.52
2015	767,397.40	81.6%	2,221,954.53	92.8%	172,506.26
2016	694,892.57	76.2%	1,749,325.73	89.0%	216,526.06
2017	548,443.73	69.7%	2,150,337.40	90.0%	237,885.88
2018	795,929.11	78.8%	2,291,821.13	91.4%	214,368.01
2019	602,412.71	69.7%	1,908,135.72	87.9%	261,575.18
Average (1992-2001)	2,167,393.53	62.7%	5,488,334.20	80.0%	1,256,978.83
Average (2002-2011)	2,164,087.33	75.4%	5,505,846.23	88.8%	716,378.01
Average (2012-2019)	800,017.96	76.1%	2,205,138.55	89.9%	232,193.88
Average (1992-2019)	1,775,534.01	71.1%	4,556,532.59	86.0%	771,111.41

Source: Compiled by A. Gray (SERO) MRIPACLSpec_rec81_20wv3_14Sep20wLACreel_2014_2019.xlsx;
MRIP_FES_rec81_20wv3_16Sep20wLACreel2014to2019.xlsx;
MRIP Survey Data (https://www.st.nmfs.noaa.gov/st1/recreational/MRIP_Survey_Data/)

Table 6.4. Private angling and charter effort for gag (1992-2019).

Year	Private Angling		Charter	
	Trips	Percent	Trips	Percent
1992	779,375	91.7%	70,952	8.3%
1993	1,164,708	90.7%	119,216	9.3%
1994	1,259,697	92.5%	101,810	7.5%
1995	1,532,358	85.1%	267,839	14.9%
1996	1,208,041	81.8%	269,601	18.2%
1997	1,597,954	87.5%	228,269	12.5%
1998	1,616,705	81.5%	367,847	18.5%
1999	1,977,871	87.5%	281,777	12.5%
2000	1,751,408	91.5%	163,389	8.5%
2001	2,345,625	93.9%	152,950	6.1%
2002	2,189,103	93.6%	148,458	6.4%
2003	2,406,727	93.6%	163,299	6.4%
2005	2,785,196	92.8%	217,538	7.2%
2006	2,076,581	93.9%	135,697	6.1%
2007	2,220,995	95.2%	110,935	4.8%
2008	3,233,093	95.2%	161,487	4.8%
2009	2,368,786	94.9%	128,116	5.1%
2010	2,229,794	94.9%	119,778	5.1%
2011	1,374,387	95.2%	68,658	4.8%
2012	1,395,281	92.5%	113,864	7.5%
2013	1,701,618	93.7%	115,186	6.3%
2014	1,389,134	95.6%	63,902	4.4%
2015	942,524	94.4%	55,738	5.6%
2016	1,073,619	92.4%	88,278	7.6%
2017	1,441,427	94.8%	78,867	5.2%
2018	1,301,084	94.2%	80,387	5.8%
2019	1,149,785	93.2%	83,790	6.8%
Average (1992-2001)	1,523,374	88.4%	202,365	11.6%
Average (2002-2011)	2,320,518	94.4%	139,330	5.6%
Average (2012-2019)	1,299,309	93.8%	85,002	6.2%
Average (1992-2019)	1,744,734	91.9%	148,994	8.1%

Source: Compiled by A. Gray (SERO) from SEFSC MRIP FES Recreational Survey.
Effort includes trips where gag was either caught or was the first or secondary target.

Table 6.5. Private angling and for-hire landings for **greater amberjack** (1992-2019).

Year	Private Angling MRIP CHTS		Private Angling MRIP FES		For-Hire MRIP FES
	Pounds	Percent	Pounds	Percent	Pounds
1992	671,307.95	6.9%	1,205,874.31	11.7%	9,096,958.38
1993	743,353.17	21.2%	1,469,925.60	34.7%	2,762,802.38
1994	528,837.28	18.9%	1,101,727.94	32.7%	2,262,478.42
1995	489,317.57	56.8%	736,699.82	66.4%	372,443.93
1996	650,224.36	33.2%	1,314,607.19	50.1%	1,308,821.17
1997	515,105.54	34.1%	1,213,683.86	54.9%	997,347.95
1998	321,831.72	30.5%	788,542.14	51.8%	733,604.94
1999	461,763.65	34.9%	1,629,184.63	65.4%	860,656.87
2000	454,725.23	36.2%	1,368,794.48	63.1%	800,312.97
2001	900,379.49	58.8%	1,639,730.93	72.2%	630,924.56
2002	974,997.53	40.2%	2,888,196.54	66.6%	1,451,210.68
2003	2,022,898.79	54.8%	4,797,564.63	74.2%	1,665,761.00
2004	1,804,787.83	60.2%	5,478,004.14	82.1%	1,193,430.64
2005	1,007,886.89	68.4%	2,797,732.55	85.8%	464,633.82
2006	665,298.67	37.1%	1,907,634.51	62.9%	1,126,891.70
2007	278,871.55	30.3%	645,350.32	50.1%	641,762.94
2008	780,422.00	59.7%	2,035,026.66	79.4%	526,477.59
2009	798,658.12	50.1%	1,685,898.30	67.9%	796,722.28
2010	722,635.23	57.8%	2,465,552.57	82.4%	527,191.42
2011	279,447.11	28.3%	1,373,717.18	66.0%	708,514.22
2012	622,404.65	47.8%	2,307,767.40	77.3%	679,256.11
2013	939,035.85	57.2%	2,514,245.89	78.1%	703,060.12
2014	765,278.67	62.7%	1,617,769.79	78.0%	455,399.79
2015	949,212.44	49.1%	1,634,306.88	62.4%	984,533.78
2016	895,003.75	57.1%	1,680,833.21	71.4%	672,862.23
2017	483,774.45	77.4%	870,321.06	86.0%	141,166.34
2018	791,309.12	53.0%	1,805,945.40	72.0%	702,820.31
2019	219,764.80	46.9%	439,401.70	63.9%	248,355.94
Average (1992-2001)	573,684.60	33.1%	1,246,877.09	50.3%	1,982,635.16
Average (2002-2011)	933,590.37	48.7%	2,607,467.74	71.7%	910,259.63
Average (2012-2019)	708,222.97	56.4%	1,608,823.92	73.6%	573,431.83
Average (1992-2019)	740,661.91	45.3%	1,836,215.70	64.6%	1,197,014.37

Source: Compiled by A. Gray (SERO) MRIPACLSpec_rec81_20wv3_14Sep20wLACreel_2014_2019.xlsx;
MRIP_FES_rec81_20wv3_16Sep20wLACreel2014to2019.xlsx;
MRIP Survey Data (https://www.st.nmfs.noaa.gov/st1/recreational/MRIP_Survey_Data/)

Table 6.6. Private angling and charter effort for **greater amberjack** (1992-2019).

Year	Private Angling		Charter	
	Trips	Percent	Trips	Percent
1992	193,525	62.0%	118,771	38.0%
1993	208,214	61.5%	130,468	38.5%
1994	83,633	48.5%	88,756	51.5%
1995	104,542	64.7%	57,083	35.3%
1996	135,427	52.2%	123,869	47.8%
1997	71,239	55.6%	56,834	44.4%
1998	57,715	46.9%	65,278	53.1%
1999	146,735	66.5%	73,991	33.5%
2000	170,439	77.8%	48,582	22.2%
2001	504,308	92.5%	40,795	7.5%
2002	440,741	83.5%	86,970	16.5%
2003	542,659	86.3%	85,993	13.7%
2005	304,819	87.8%	42,231	12.2%
2006	216,728	79.3%	56,519	20.7%
2007	204,096	82.5%	43,222	17.5%
2008	435,578	89.7%	49,900	10.3%
2009	275,935	79.9%	69,441	20.1%
2010	501,252	93.0%	37,654	7.0%
2011	262,738	83.2%	53,110	16.8%
2012	349,016	89.6%	40,601	10.4%
2013	320,472	86.1%	51,719	13.9%
2014	265,356	86.2%	42,397	13.8%
2015	304,686	81.1%	70,923	18.9%
2016	350,459	87.0%	52,543	13.0%
2017	210,649	85.0%	37,104	15.0%
2018	334,891	89.2%	40,341	10.8%
2019	142,829	83.9%	27,377	16.1%
Average (1992-2001)	167,578	62.8%	80,443	37.2%
Average (2002-2011)	353,838	85.0%	58,338	15.0%
Average (2012-2019)	284,795	86.0%	45,376	14.0%
Average (1992-2019)	264,396	77.1%	62,684	22.9%

Source: Compiled by A. Gray (SERO) from SEFSC MRIP FES Recreational Survey. Effort includes trips where greater amberjack was either caught or was the first or secondary target.

Table 6.7. Private angling and for-hire **gray triggerfish** landings (1992-2019).

Year	Private Angling MRIP CHTS		Private Angling MRIP FES		For-Hire MRIP FES
	Pounds	Percent	Pounds	Percent	Pounds
1992	636,498.72	20.2%	1,312,732.50	41.6%	1,842,523.31
1993	495,923.83	20.8%	1,043,857.64	43.7%	1,343,902.64
1994	292,001.38	15.4%	702,428.27	37.1%	1,189,039.54
1995	333,725.47	17.4%	560,847.35	29.3%	1,354,486.02
1996	188,221.29	23.9%	347,074.67	44.1%	440,349.19
1997	232,680.30	20.1%	430,872.27	37.2%	726,031.38
1998	282,264.43	21.8%	785,315.32	60.8%	506,715.79
1999	316,771.38	25.3%	801,774.10	63.9%	452,023.96
2000	348,101.23	32.8%	761,936.82	71.7%	300,708.98
2001	222,801.23	25.2%	518,823.86	58.7%	365,575.13
2002	380,936.79	17.3%	1,722,281.02	78.1%	481,643.09
2003	592,928.17	25.0%	1,854,756.19	78.2%	516,482.17
2004	607,921.88	32.3%	1,423,982.55	75.6%	459,417.00
2005	306,871.98	22.7%	981,107.57	72.6%	370,335.62
2006	248,327.97	28.0%	623,408.76	70.4%	262,129.22
2007	244,389.44	28.5%	616,170.99	71.8%	242,231.08
2008	195,362.09	29.2%	460,377.89	68.9%	207,770.76
2009	183,785.40	32.7%	428,958.66	76.3%	133,143.37
2010	233,044.45	24.3%	841,386.86	87.9%	116,133.07
2011	253,183.28	20.2%	999,437.85	79.6%	256,614.21
2012	154,312.35	22.3%	623,385.52	89.9%	70,101.25
2013	467,677.28	37.3%	1,127,746.28	90.0%	125,297.60
2014	221,838.72	40.9%	483,332.88	89.0%	59,535.84
2015	74,091.60	47.2%	147,545.73	93.9%	9,537.09
2016	313,779.71	31.7%	756,362.67	76.5%	232,386.09
2017	43,968.92	20.6%	182,988.08	85.7%	30,616.54
2018	259,248.59	29.3%	651,484.76	73.7%	232,265.14
2019	156,386.22	29.4%	377,575.90	71.0%	154,429.79
Average (1992-2001)	334,898.93	22.3%	726,566.28	48.8%	852,135.59
Average (2002-2011)	324,675.15	26.0%	995,186.83	75.9%	304,589.96
Average (2012-2019)	211,412.92	32.3%	543,802.73	83.7%	114,271.17
Average (1992-2019)	295,965.86	26.5%	770,284.03	68.5%	445,765.17

Source: Compiled by A. Gray (SERO) from MRIPACLSpec_rec81_20wv3_14Sep20wLACreel_2014_2019.xlsx;
MRIP_FES_rec81_20wv3_16Sep20wLACreel2014to2019.xlsx;
MRIP Survey Data (https://www.st.nmfs.noaa.gov/st1/recreational/MRIP_Survey_Data/)

Table 6.8. Private angling and charter effort for **gray triggerfish** (1992-2019).

Year	Private Angling		Charter	
	Trips	Percent	Trips	Percent
1992	434,873	78.4%	120,052	21.6%
1993	302,255	61.7%	187,653	38.3%
1994	318,148	62.0%	194,788	38.0%
1995	230,461	44.9%	283,298	55.1%
1996	204,275	53.8%	175,443	46.2%
1997	312,344	61.3%	197,319	38.7%
1998	262,243	54.8%	216,388	45.2%
1999	400,661	67.0%	197,161	33.0%
2000	231,100	69.9%	99,461	30.1%
2001	391,358	71.9%	152,716	28.1%
2002	621,035	83.0%	127,576	17.0%
2003	444,651	78.6%	120,706	21.4%
2005	567,197	81.3%	130,448	18.7%
2006	498,481	80.8%	118,188	19.2%
2007	707,680	84.5%	130,147	15.5%
2008	333,257	76.4%	102,903	23.6%
2009	339,529	82.1%	74,185	17.9%
2010	372,701	88.4%	48,996	11.6%
2011	465,972	80.2%	114,882	19.8%
2012	399,913	87.5%	56,896	12.5%
2013	485,954	86.0%	79,292	14.0%
2014	310,531	83.5%	61,460	16.5%
2015	371,655	85.1%	64,866	14.9%
2016	595,567	83.7%	116,344	16.3%
2017	686,175	85.3%	118,136	14.7%
2018	534,071	80.1%	132,530	19.9%
2019	432,348	79.8%	109,292	20.2%
Average (1992-2001)	308,772	62.6%	182,428	37.4%
Average (2002-2011)	483,389	81.7%	107,559	18.3%
Average (2012-2019)	477,027	83.9%	92,352	16.1%
Average (1992-2019)	416,831	75.3%	130,782	24.7%

Source: Compiled by A. Gray (SERO) from SEFSC MRIP FES Recreational Survey. Effort includes trips where gray triggerfish was either caught or was the first or secondary target.