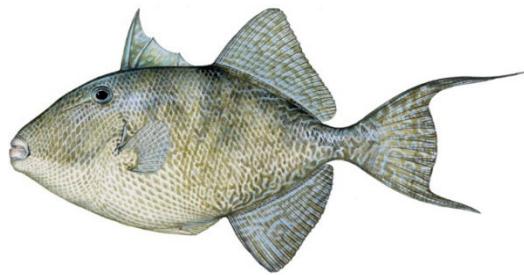


# **Modification of Gray Triggerfish Commercial Trip Limits**



## **Draft Framework Action under the Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico**

**Including Environmental Assessment, Regulatory Impact Review, and  
Regulatory Flexibility Act Analysis**

**October 2022**



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Atmospheric Administration Award No. NA20NMF4410007.*

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# ENVIRONMENTAL ASSESSMENT COVER SHEET

Framework Action under the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico: Modification of Gray Triggerfish Commercial Trip Limits, including Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Act Analysis.

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This Environmental Assessment is being prepared using the 2020 CEQ NEPA Regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020, and reviews begun after this date are required to apply the 2020 regulations unless there is a clear and fundamental conflict with an applicable statute. 85 Fed. Reg. at 43372-73 (§§ 1506.13, 1507.3(a)). This Environmental Assessment began on [TBD], and accordingly proceeds under the 2020 regulations.

## ABBREVIATIONS USED IN THIS DOCUMENT

ABC	acceptable biological catch
ACL	annual catch limit
ACT	Annual Catch Target
AM	accountability measure
B	biomass
GMFMC	Gulf of Mexico Fishery Management Council
EA	environmental assessment
FL	Fork Length
FMP	Fishery Management Plan
FR	Federal Register
Gulf	Gulf of Mexico
lbs	pounds
LEAP	Law Enforcement Advisory Panel
LETC	Law Enforcement Technical Committee
M	instantaneous rate of natural mortality
MSST	minimum stock size threshold
MSY	Maximum sustainable yield
NMFS	National Marine Fisheries Service
OY	Optimum yield
Reef Fish FMP	Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico
RFA	Regulatory Flexibility Act
RIR	regulatory impact review
SEDAR	Southeast Data and Review
SERO	Southeast Regional Office
SPR	spawning potential ratio
SSC	Scientific and Statistical Committee
TIP	Trip Interview Program
TL	total length
ww	whole weight

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# CHAPTER 1. INTRODUCTION

## 1.1 Background

Gray triggerfish are managed under the Fishery Management Plan (FMP) for the Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP). The gray triggerfish stock is managed by allocating the stock annual catch limit (ACL) between the recreational and commercial sectors. This framework action would modify the commercial trip limits for the gray triggerfish stock by increasing the number of retained fish allowed per trip.

### *Establishment of commercial gray triggerfish catch limits*

The ACLs and annual catch targets (ACTs) for gray triggerfish were established in Amendment 30A (GMFMC 2008). After the completion of the 2011 Southeast Data Assessment and Review (SEDAR) 9 Update Assessment (SEDAR 9 Update 2011), the National Marine Fisheries Service (NMFS) published an interim rule<sup>1</sup> (77 FR 28308; May 14, 2012) that reduced the recreational and commercial ACLs and ACTs to end overfishing while Amendment 37 (GMFMC 2012) was being developed. Amendment 37 established a plan to rebuild the stock in 5 years and replaced the ACLs specified by the 2012 interim rule reducing the ACLs and ACTs. The SEDAR 43 (2015) stock assessment indicated the gray triggerfish stock was not rebuilt. Amendment 46 (GMFMC 2017b) retained the acceptable biological catch (ABC) and sector ACLs and ACTs set with Amendment 37, but established a new rebuilding timeline of nine years (or 2025), according to the results of the SEDAR 43 (2015) stock assessment and subsequent Council Scientific and Statistical Committee (SSC) review.

The gray triggerfish ABC, ACLs, and ACTs were recently increased in July of 2021 based on results of an interim analysis (NOAA 2020) and subsequent recommendations from the SSC. Amendment 46 to the Reef Fish FMP implemented a rebuilding plan based on the SSC's review of SEDAR 43,<sup>2</sup> and specified management measures in response to the results of that stock assessment. At that time the stock was considered overfished based on the results of SEDAR 43 (2015), and a minimum stock size threshold (MSST) defined as  $(1-M) \cdot B_{30\% \text{ SPR}}$ , where M is the natural mortality and B is the biomass. Amendment 44 (GMFMC 2017a) to the Reef Fish FMP changed the MSST for gray triggerfish to  $0.50 \cdot B_{\text{MSY (or proxy)}}$ , which resulted in a change in the stock status from overfished to not overfished but rebuilding.

### *Gray triggerfish commercial management and landings*

The fishing year for gray triggerfish is January 1 – December 31 with a fixed-closed season for the commercial sector from June 1 – July 31. The stock ACL is allocated 79% to the recreational sector and 21% to the commercial sector. The minimum size limit for gray

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<sup>1</sup> <https://www.govinfo.gov/content/pkg/FR-2012-05-14/pdf/2012-11663.pdf>

<sup>2</sup> <https://sedarweb.org/docs/supp/Gulf%20SSC%20Review%20Summary%20-%20SEDAR%2043%20-%20Gulf%20Gray%20Triggerfish.pdf>



triggerfish is a 14-inch FL for the commercial sector. The current commercial trip limit is 16 fish per vessel. The commercial sector has an ACT set at 8% below its ACL. This buffer was recently increased from 5% to 8% in the most recent framework action that increased the gray triggerfish catch levels (GMFMC 2021). When the commercial sector's landings reach or are projected to reach the ACT, it is closed to harvest for the remainder of its fishing year. If the commercial sector's landings exceed its ACL, then in the following fishing year, a post-season accountability measure (AM) overage adjustment (also called a payback) is applied that reduces the commercial ACL by the amount of the overage and adjusts the commercial ACT accordingly. The commercial sector has a payback provision that applies regardless of stock status. The commercial sector exceeded its ACL in 2012 and 2018, with the payback provision AM being applied in the year following the overages (2013 and 2019, respectively) (Table 1.1.1).

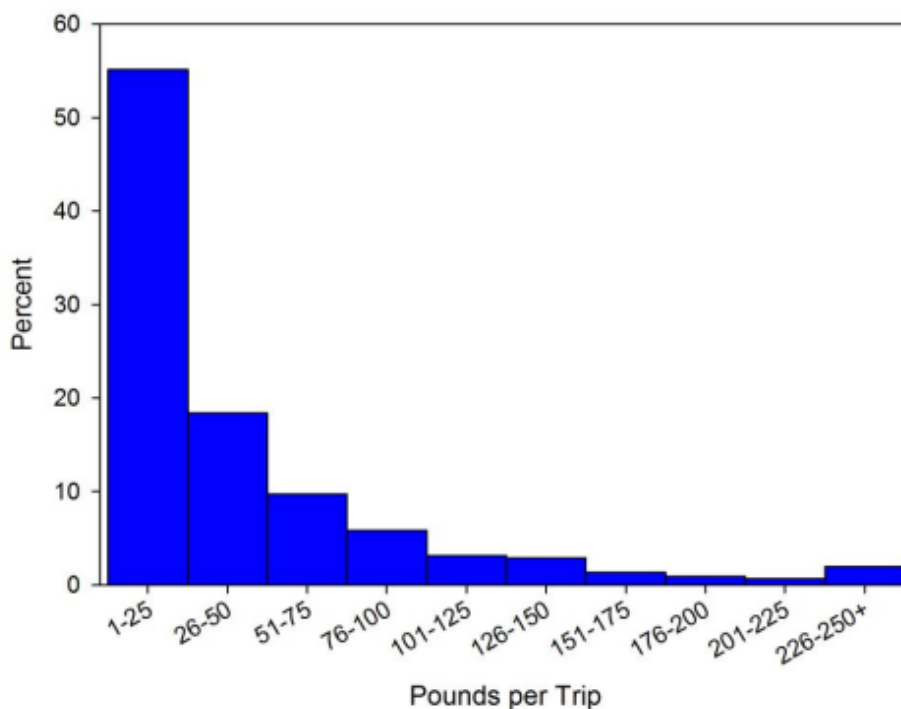
**Table 1.1.1.** Gray triggerfish commercial landings, commercial ACL, payback-adjusted ACL, percent ACL landed, and quota closure dates for 2008-2021. Landing units are in pounds whole weight (lbs ww).

Year	Landings	ACT	Adjusted ACT	ACL	Adjusted ACL	Percent of ACL Landed	Closure Date
2008	76,717	80,000	None	105,000	None	73.1	None
2009	78,117	93,000	None	122,000	None	64.0	None
2010	55,661	106,000	None	138,000	None	40.3	None
2011	105,251	106,000	None	138,000	None	76.3	None
2012	72,778	60,900	None	64,100	None	113.5	7/1/2012
2013	63,086	60,900	51,602	64,100	54,802	98.4	None
2014	40,664	60,900	None	64,100	None	63.4	None
2015	47,496	60,900	None	64,100	None	74.1	None
2016	59,147	60,900	None	64,100	None	92.3	None
2017	62,647	60,900	None	64,100	None	97.7	11/17/2017
2018	64,702	60,900	None	64,100	None	100.9	10/07/2018
2019	62,487	60,900	60,298	64,100	63,498	97.5	11/26/2019
2020	52,597	60,900	None	64,100	None	82.1	None
2021	44,861	88,273	None	95,949	None	46.8	None

Source: Southeast Fisheries Science Center (SEFSC) Commercial ACL data retrieved August 5, 2022 from SERO website. 2021 data is preliminary.

A large proportion of commercial gray triggerfish landings occur from harvest in the eastern Gulf, specifically off the Florida panhandle, followed by central Florida. Some commercial management measures for gray triggerfish were set in Amendment 30A (GMFMC 2008) such as the current 14-inch fork length (FL). At that time, a reduction in harvest was advised in order to assure a fishery-wide landings reduction required by the rebuilding plan. Analyses of trip limits, size limits, and season closures indicated that reducing the trip limit, increasing the size limit, and restricting the season would all be options to reduce commercial landings by the recommended amount. Therefore, the Council chose to increase the commercial size limit to 14-

inches FL and establish a commercial quota to achieve the percent reduction in harvest. Amendment 37 (GMFMC 2012) established trip limits, specifically a 12-fish trip limit as part of the modified rebuilding plan, effective June 2013. The Council used a commercial decision tool to estimate reductions in landings associated with various management measures. Reductions in landings for trip limits were determined using commercial logbooks and Trip Interview Program (TIP) data. The Council decided to establish the trip limit in numbers of fish instead of weight based on recommendations made by the Law Enforcement Advisory Panel (now the Law Enforcement Technical Committee). The panel believed it would be difficult to enforce a low poundage of fish per trip (i.e., if trip limits were set at less than 75 lbs ww); however, the advisory panel did support changing the trip limit to pounds for larger quantities of fish (i.e., 500 lbs ww or more). Trip limit options were based on the percent of commercial trips that landed at least 1 pound of gray triggerfish. The maximum pounds of gray triggerfish harvested per trip by each vessel was also explored. The conclusion was that the commercial sector typically landed a relatively small number of pounds per trip.



**Figure 1.1.1.** Percent of commercial trips landing gray triggerfish in 25-pound increments in the Gulf of Mexico from 2009 through 2011 (n = 4,692 trips that landed at least 1-pound of gray triggerfish). Pounds are in whole weight.

Source: SERO Annual Catch Limits dataset.

Amendment 46 (GMFMC 2018) increased the commercial trip limit to 16 fish per trip. The amendment sought to establish a new rebuilding time period, catch levels, and management measures because the Gulf gray triggerfish stock was not making adequate progress towards rebuilding. Commercial landings per trip were analyzed to determine the impact of changes to the trip limit. The Council carefully considered increasing the commercial trip limit, despite the

rebuilding plan not making adequate progress. However, because the commercial sector continuously harvested below its ACT, since implementation of the 12-fish commercial trip limit in 2013 (GMFMC 2018), the Council decided increasing the commercial trip limit would provide a better opportunity for the commercial sector to achieve the quota.

The analysis provided for the various alternatives indicated that the majority of Gulf commercial trips from 2014 through 2015 landed 12 gray triggerfish or less on any particular trip, since implementation of the 12-fish trip limit. There also appeared to be some harvest exceeding the trip limit with over 10% of the trips harvesting more than 12 gray triggerfish. Overall, the small number of commercial trips that landed 12 fish suggested that gray triggerfish was a non-targeted species by the commercial industry that was likely landed opportunistically when gray triggerfish were encountered with target species on a trip. Recently, at Reef Fish Advisory Panel meetings and Council public testimony, commercial industry stakeholders have indicated that the 16-fish trip limit is still limiting and gray triggerfish are only landed incidentally when targeting other species. Commercial fishermen have requested an increase in the trip limit to reduce discards when encountering gray triggerfish and allow for increased harvest of these fish to make it worthwhile to retain them when they are encountered.

## 1.2 Purpose and Need

The purpose of this action is to increase the gray triggerfish commercial trip limit to allow commercial fishermen the opportunity to land the commercial ACT.

The need for this action is to help reduce dead discards and achieve optimum yield of Gulf gray triggerfish consistent with the Magnuson-Stevens Fishery Conservation and Management Act.

## 1.3 History of Management

The **Fishery Management Plan (FMP) for Reef Fish Resources in the Gulf of Mexico (Reef Fish FMP)** was implemented in November 1984. The original list of species included in the management unit consisted of snappers, groupers, and sea basses. This summary focuses on actions pertinent to commercial management measures of gray triggerfish. A complete history of management for the **Reef Fish FMP** is available on the Council's website,<sup>3</sup> including other actions affecting gray triggerfish management.

**Amendment 1** [with its associated Environmental Assessment (EA), Regulatory Impact Review (RIR), and Regulatory Flexibility Act Analysis (RFA)], implemented in 1990, added gray triggerfish to the fishery management unit and provided a framework procedure for specifying the total allowable catch. The framework procedure specified that allocations between the commercial and recreational sectors were based on historical landing percentages from average landings during 1979-1987.

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<sup>3</sup> <https://gulfcouncil.org/fishery-management/implemented-plans/reef-fish/>

**Amendment 12** (with its associated EA and RIR), implemented in January 1997, created an aggregate bag limit of 20-reef fish for all reef fish species not having a bag limit, including gray triggerfish.

**Amendment 16B** (with its associated EA and RIR), implemented in 1999, established a gray triggerfish 12-inch total length (TL) minimum size limit.

**Amendment 30A** (with its supplemental EIS, RIR and RFA), implemented in 2008, was developed in part to stop overfishing of gray triggerfish and rebuild the overfished stock. The amendment established the maximum sustainable yield (MSY), MSST, and OY status determination criteria, and set ACLs, ACTs and AMs, set sector allocations of 21% commercial and 79% recreational, and increased the gray triggerfish minimum size limit to 14-inches FL. The size limit was changed from TL to FL to assist fishermen in measuring gray triggerfish.

The **2012 interim rule** reduced the recreational and commercial ACLs and ACTs, respectively, after the results of the 2011 Update Assessment (SEDAR 9 Update 2011) until Amendment 37 could be finalized.

**Amendment 37** (with its associated EA, RIR, and RFA), implemented in May 2013, for ACLs and ACTs, and June 10, 2013, for management measures, modified the gray triggerfish rebuilding plan based on a 2011 gray triggerfish update assessment, which determined that the stock was not rebuilding on target. This amendment reduced the commercial and recreational ACL to 64,100 and 241,200 lbs ww respectively, and reduced the commercial and recreational ACTs to 60,900 and 217,100 lbs ww respectively. To meet the necessary reductions, a fixed closed season from June 1 through July 31 was established for the commercial and recreational sectors. In addition, this amendment established a commercial trip limit of 12 gray triggerfish, and a recreational bag limit of 2 gray triggerfish per angler within the 20-reef fish aggregate. The recreational accountability measures were modified by establishing an in-season closure authority based on the recreational ACT, and an overage adjustment to reduce the gray triggerfish ACL and ACT by the amount of the overage. This overage adjustment applies only while gray triggerfish is overfished.

**Amendment 44** (with its associated EA), implemented in 2017, re-defined MSST for seven reef fish species including gray triggerfish. MSST was re-defined to be 50% of the BMSY proxy.

**Amendment 46** (with its associated EA, RIR, and RFA), implemented in 2018, established a rebuilding time period of 9 years, or the end of 2025, modified the recreational fixed-closed season to be January 1 through the end of February, and June 1 through July 31, reduced the recreational bag limit to 1 gray triggerfish per angler per day within the 20-reef fish aggregate bag limit, increased the recreational minimum size limit for gray triggerfish to 15-inches FL and increased the commercial trip limit for gray triggerfish to 16 fish per trip.

**The Framework Action: Modifications to Gray Triggerfish Catch Levels** (with its associated EA, RIR, and RFA), implemented in July of 2021, increased the gray triggerfish annual catch limits and annual catch targets. It also used the ACL/ACT Control Rule to revise the buffers for the commercial and recreational sectors to 8 percent and 24 percent, respectively.

## CHAPTER 2. MANAGEMENT ALTERNATIVES

### 2.1 Action 1: Increase the gray triggerfish commercial trip limit

**Alternative 1:** No Action. Retain the current commercial trip limit of 16 gray triggerfish.

**Alternative 2:** Increase the commercial trip limit to 20 gray triggerfish per vessel.

**Alternative 3:** Increase the commercial trip limit to 25 gray triggerfish per vessel.

**Alternative 4:** Increase the commercial trip limit to 30 gray triggerfish per vessel.

**Alternative 5:** Increase the commercial trip limit to 40 gray triggerfish per vessel.

#### **Discussion:**

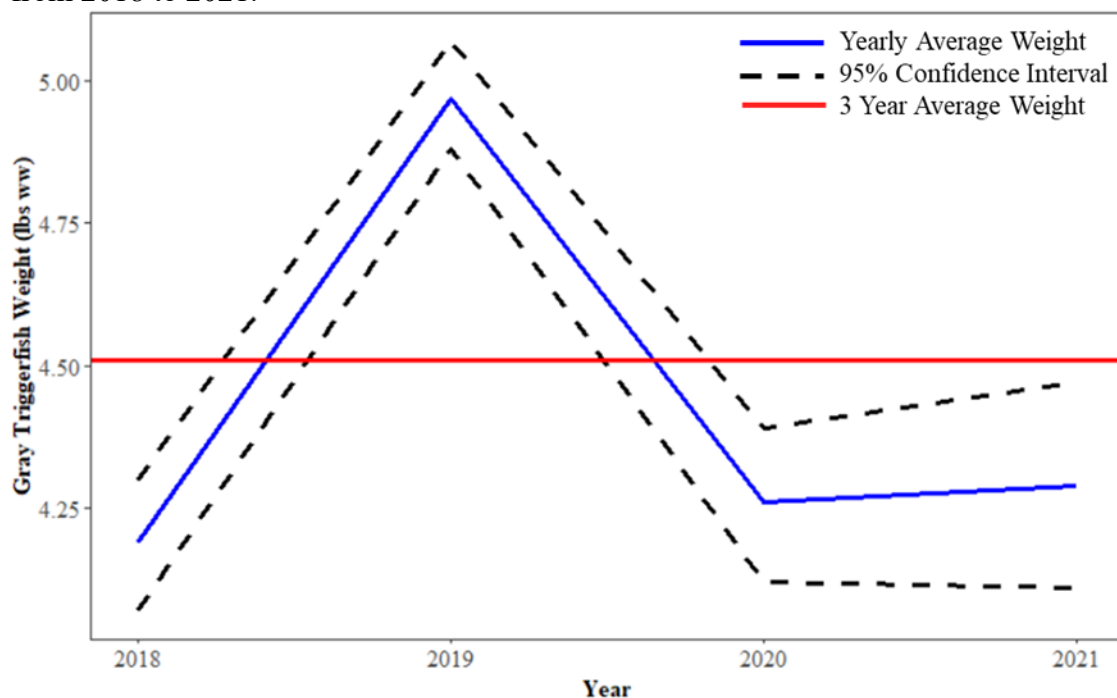
**Action 1** evaluates different commercial trip limits as a measure to allow commercial fishermen the opportunity to land a greater number of gray triggerfish. Requests to increase the commercial trip limits have been made by industry stakeholders, especially since the increase in the stock annual catch limits (ACLs) and annual catch targets (ACTs) in 2021 (GMFMC 2021). Trip limits are still set in numbers of fish at the recommendation of the Law Enforcement Advisory Panel (LEAP). The LEAP felt it would be difficult to enforce a low poundage of gray triggerfish per trip (i.e., 25, 50, and 75 lbs ww) compared with counting a low number of fish; therefore, they recommended that the trip limit be set using numbers of fish. For larger quantities of fish, the LEAP supported trip limits set in pounds (i.e., 500 lbs ww or more). During the August 2016 Council meeting, a Council member requested the gray triggerfish commercial trip limit be changed to pounds of fish instead of number of fish due to potential high grading to larger fish by some commercial fishermen. The Law Enforcement Technical Committee (LETC), previously named the LEAP, met again in October 2016 and discussed trip limits in pounds versus number of fish and made the same recommendation as before. Given the small weight of fish in the alternatives, the LETC recommended the trip limit be set in numbers of fish rather than weight.

**Table 2.1.1.** Commercial gray triggerfish average weights with upper and lower 95% confidence intervals.

Year	Number of Gray Triggerfish	Average Weight	Lower 95% Confidence Interval	Upper 95% Confidence Interval
2018	920	4.19	4.07	4.3
2019	1,479	4.97	4.88	5.07
2020	754	4.26	4.12	4.39
2021	442	4.29	4.11	4.47

Source: Southeast Fisheries Science Center (SEFSC) TIP data from 2018 to 2021, provided June 2022.

Since the trip limit is set in numbers of fish, in order to make changes to the trip limit, an average weight of gray triggerfish is needed for a conversion of numbers of fish to pounds, given the ACL is set in pounds. A total of 3,595 fish were sampled by the Trip Interview Program (TIP) from 2018 to 2021. Because TIP weights are in both gutted weight and whole weight, a conversion factor of 1.04 was used to convert gutted weight to whole weight. Using length and weight data gathered from TIP from 2019 to 2021, average weight in pounds whole weight (lbs ww) (Table 2.1.2) and average lengths [Fork length (FL) in inches] (Figure 2.1.1) were calculated for each year from 2019 to 2021. Figure 2.1.1 shows the change in average weight from 2018 to 2021.



**Figure 2.1.1:** Commercial sector Gulf gray triggerfish annual average weight and 95% confidence intervals from 2018 through 2021. A three-year average (2019 – 2021) is represented by the solid red line.

Source: SEFSC TIP data

Port samplers conducting dockside surveys for TIP also collect length data. Figure 2.1.2 provides the distribution of gray triggerfish lengths in fork length. There is some variability in the size of commercially landed gray triggerfish; therefore, the estimated weight of gray triggerfish could vary annually, as seen in the previous figure. The average weight, using 2019 through 2021, all years combined, is 4.51 lbs ww. The average weight using these three years allows for the variability in the most recent years to be incorporated into a trip limit analysis.

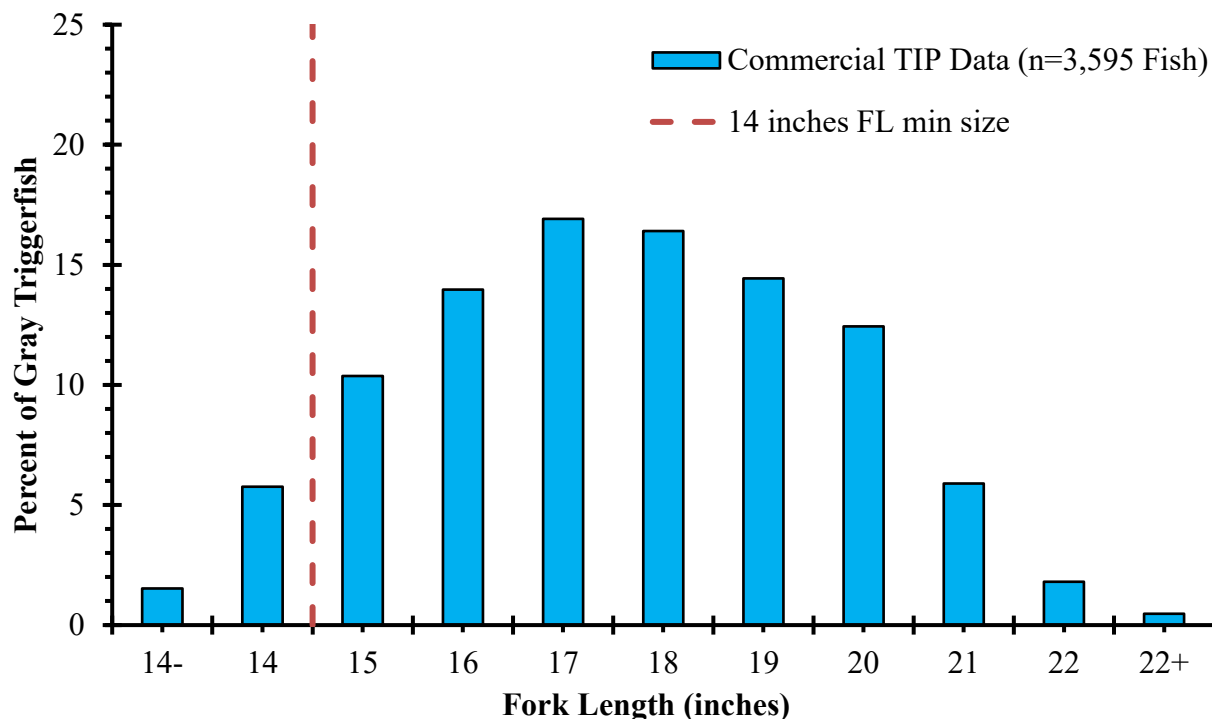


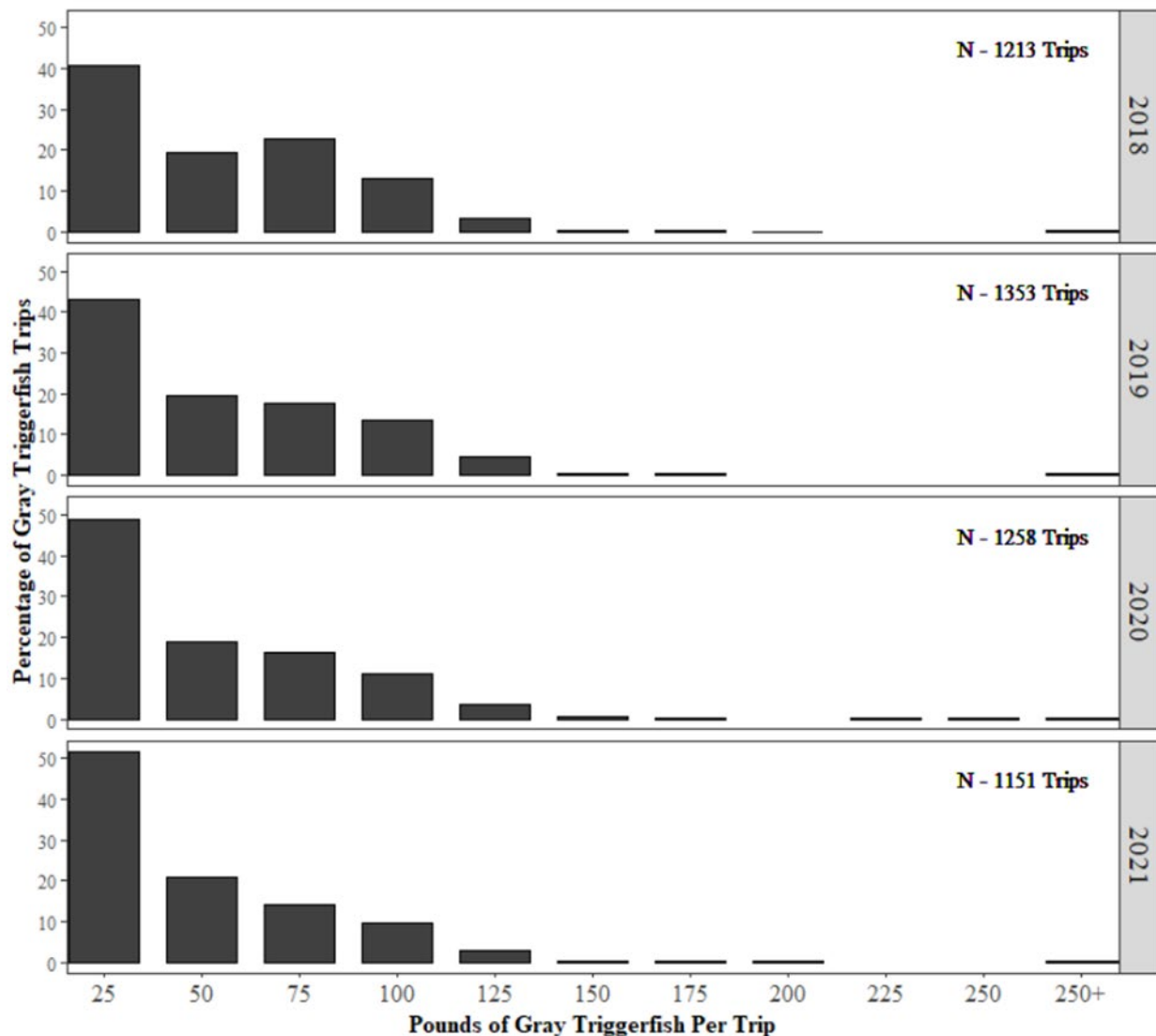
Figure 2.1.2. Gulf of Mexico gray triggerfish length distribution (FL in inches) from 2018 to 2021. The current minimum size limit is 14 inches FL.

Source: SEFSC TIP data 2018 – 2021.

Since implementation of the 16-fish trip limit in 2018 (GMFMC 2017b), landings have been below the commercial ACL, with the exception of 2018 when 100.9% of the ACL was landed (Table 1.1.1). Although 2021 landings are still preliminary, landings estimates indicate that only 46.8% of the commercial ACL was landed. Previous analyses done when considering a reduction or increase in the commercial trip limit show that the commercial sector routinely harvest less than their trip limit and their commercial ACL. Figure 1.1.1, illustrating analyses done in Amendment 37 (GMFMC 2012), shows that a majority of commercial trips harvested less than 50 pounds per trip, which is equivalent to 12 fish or less per trip when using an average weight of 4.1 pounds. In Amendment 46 (GMFMC 2017b), similar analyses were done when examining whether to modify the commercial trip limit. Whole weight pounds for each trip were converted to numbers of gray triggerfish by dividing landings by an average weight. Since implementation of the 12-fish trip limit, the majority of Gulf commercial trips (2014 through 2015 data) landed 12 fish or less per trip. Amendment 46 increased the trip limit to 16 fish. More recent analyses indicate this trend of harvesting less than the trip limit continues (Figure



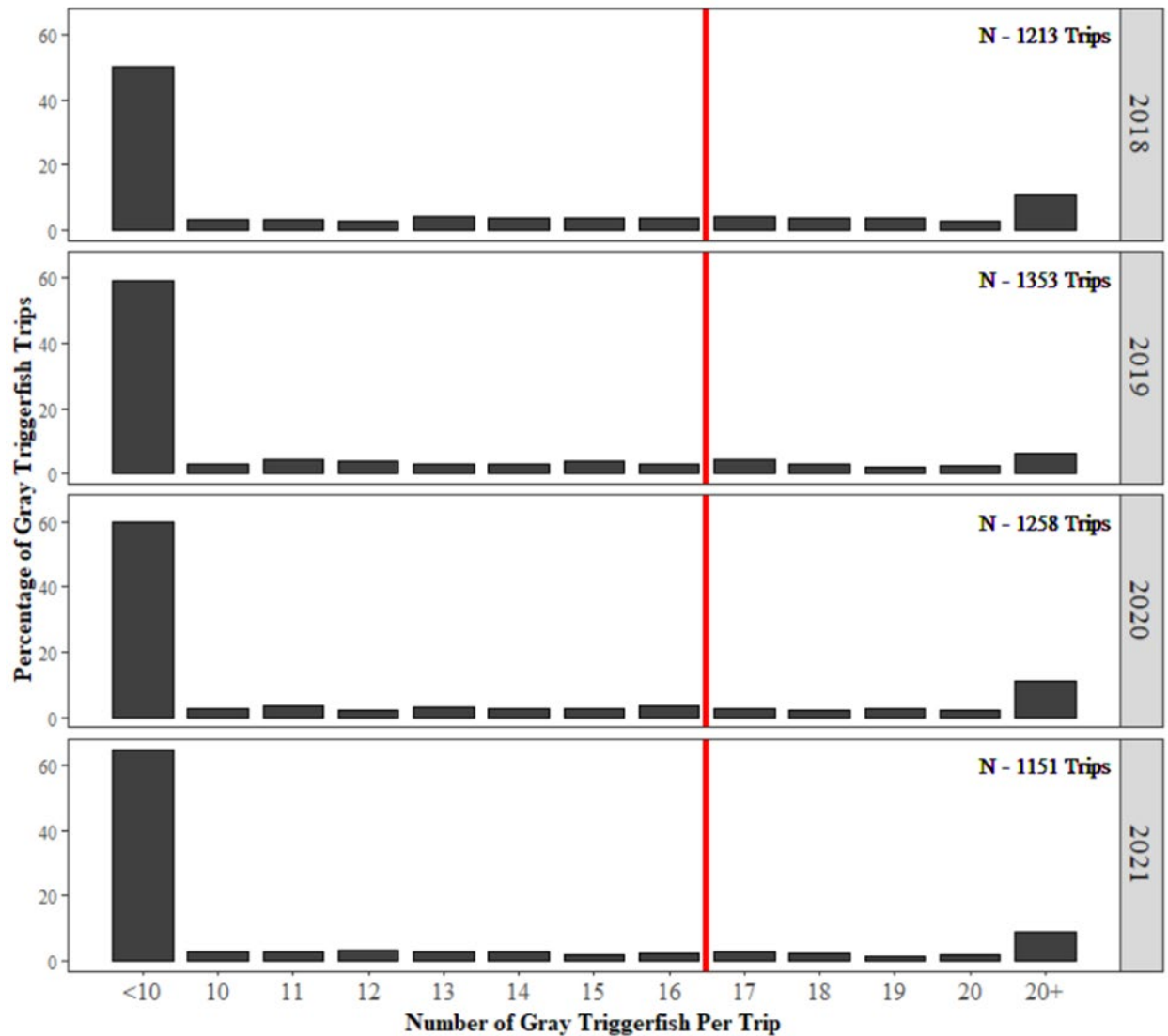
2.1.2 and 2.1.3). Figure 2.1.2 provides the distribution of lbs ww harvested per trip for 2018 through 2021. From 2018 to 2021, between 40 and 50% of the trips harvested 25 lbs or less per trip. Using the gray triggerfish average weight per year from 2018 to 2021, the pounds per trip were converted to numbers of gray triggerfish harvested per trip. For example, in 2021, a trip with a harvest of 10 pounds of gray triggerfish was divided by the average weight of 4.287 lbs to generate an estimate of approximately 2 gray triggerfish. Figure 2.1.3 provides the distribution of numbers of gray triggerfish harvested per trip for 2018 through 2021. Each year, at least 50% of the trips reported landing less than 10 gray triggerfish. Approximately 6 to 11% of trips reported harvesting more than 20 fish.



**Figure 2.1.2.** Gulf of Mexico gray triggerfish pounds per trip and trip sample size per year generated from the commercial logbook data from 2018 through 2021.

Source: SEFSC Commercial Logbook Program





**Figure 2.1.3.** Number of Gulf of Mexico gray triggerfish harvested per trip, based on the average weight for each year, and trip sample size per year generated from the commercial logbook data from 2018 through 2021.

Source: SEFSC Commercial Logbook Program

Trip limit and seasonal closure analyses were done to determine the potential impact of the proposed alternatives. Trips that landed less than 10 fish were not modified for the analysis. All trips landing 10 or more fish were modified by replacing the total number of pounds harvested with a new trip limit weight that corresponds with each trip limit alternative (Table 2.1.2). The number of fish for each trip limit alternative was multiplied by the average weight of 4.51 pounds per fish to equal the average weight for each trip limit.

**Table 2.1.2:** Trip limit weights (in lbs ww) for trips that harvested more than 10 gray triggerfish. These weights were used to replace reported landings for the trip limit analysis.

<b>Trip Limit (in number of fish)</b>	<b>Average Weight (per fish)</b>	<b>Trip Limit Weight</b>
<b>Alternative 2: 20 fish</b>	4.51	90.2
<b>Alternative 3: 25 fish</b>	4.51	112.75
<b>Alternative 4: 30 fish</b>	4.51	135.3
<b>Alternative 5: 40 fish</b>	4.51	180.4

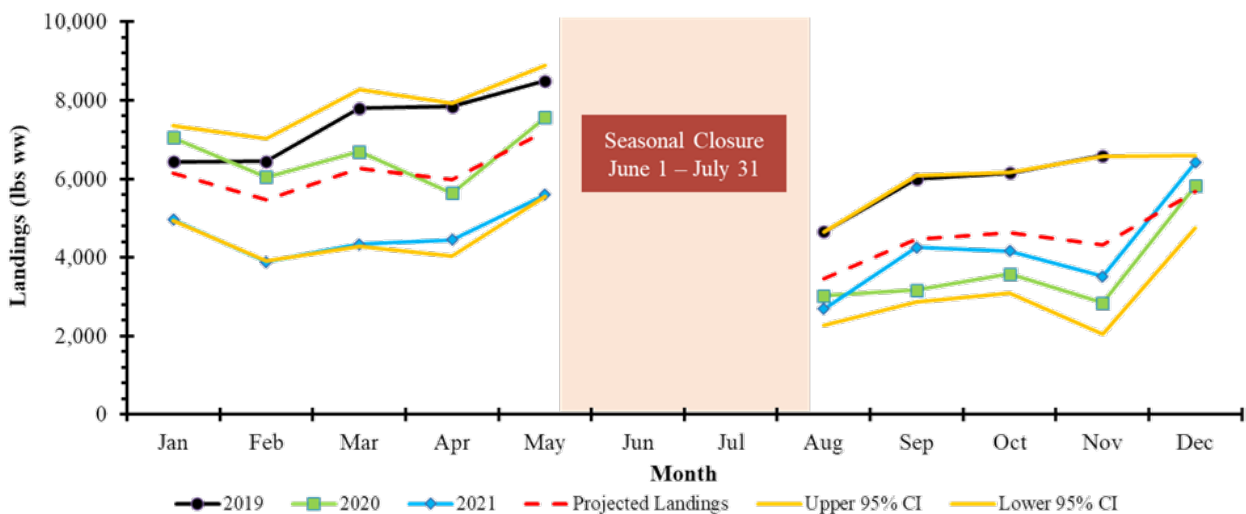
Although the daily trip limit is 16 fish, applying the alternative trip limits to all the records with 10 or more fish provides an additional buffer to account for the estimated change in landings. There is also a percentage of trips that exceed the current trip limit. It was assumed in this analysis that the same percentage of trips will continue to exceed the trip limit and therefore, the landed weight for these trips remained unchanged. Table 2.1.3 provides the percent predicted increase in landings per trip based on new total landings estimates calculated for each of the five alternatives, compared with landings under the current limit.

**Table 2.1.3:** Predicted percent increase in landings per trip from the current trip limit.

<b>Alternatives (Proposed Trip Limit)</b>	<b>Predicted Change in Landings</b>	<b>Predicted Closure Date</b>	<b>Predicted Season Length (Days)*</b>
<b>Alternative 1 (No Action): 16 fish per trip</b>	0%	-	304
<b>Alternative 2: 20 fish per trip</b>	17%	-	304
<b>Alternative 3: 25 fish per trip</b>	35%	-	304
<b>Alternative 4: 30 fish per trip</b>	55%	-	304
<b>Alternative 5: 40 fish per trip</b>	95%	11/11/22	254

\* The predicted season length will be 204 days or less because of the fixed June 1 through July 31 closure.

Additionally, a seasonal closure analysis using SEFSC commercial landings provided monthly landings from 2019 through 2021, and projected landings. Landings were summed by month and year for 2019 through 2021; however, monthly landings from December 2016 were used in place of the December 2019 landings due to a closure that year. The average monthly landings for the three-year period were calculated to create monthly projected landings. A daily catch rate was calculated by dividing projected monthly landings by the number of days per month. This was used to determine the predicted change in landings.



**Figure 2.1.4:** Gray triggerfish monthly landings in lbs ww for 2019 through 2021 and projected monthly landings (average landings from 2019 through 2021).

Source: SEFSC commercial ACL dataset obtained August 31, 2022.

**Alternative 1 (No Action)** would maintain the current 16-fish trip limit. Based on recent data, the commercial sector is not landing its ACL; this may be a result of the commercial trip limit being too low. Commercial fishermen may harvest gray triggerfish incidentally or opportunistically when fishing for other reef fish species, but likely do not target them because of the low trip limit. Anecdotally, some commercial fishermen have stated that if they do encounter gray triggerfish, it is often a large number, more than the trip limit, so they may try to avoid them completely to reduce the number of discards.

**Alternative 2** would increase the trip limit to 20 fish, an estimated 90.2 lbs per trip, or a predicted 17% increase in landings. **Alternative 3** would increase the trip limit to 25 fish, an estimated 112.7 lbs per trip, or 35% predicted increase in landings. **Alternative 4** (30 fish) would increase the lbs per trip to 135, or 55% predicted increase in landings and **Alternative 5** (40 fish) would increase it to 180 lbs per trip, or a predicted 95% increase in landings. It has been suggested in previous Council public testimony to increase the trip limit to anywhere from 32 to 40 fish to make it lucrative to commercial fishermen to harvest gray triggerfish. It is assumed that fishing behavior for those fishermen who currently harvest the 16-fish trip limit would continue to harvest the trip limit if it is increased. Commercial trips harvesting gray triggerfish in the logbook data are limited. It is possible that more commercial fishermen would begin to harvest gray triggerfish if the trip limit is increased. Based on the above analyses, a trip limit of 40 fish (**Alternative 5**) would create a 95% increase in landings and would cause a shortened season. However, **Alternatives 2, 3, and 4** are predicted to increase landings from 17-55% but they would likely not result in a shortened season. These alternatives to increase the trip limit are an attempt to maintain the rebuilding timeline while allowing more opportunity to the commercial sector to harvest its ACL.

## CHAPTER 3. LIST OF PREPARERS

### PREPARERS

Name	Expertise	Responsibility	Agency
Carly Somerset	Fishery Biologist	Co-Team Lead – Amendment development, biological analyses	GMFMC
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### REVIEWERS

Name	Expertise	Responsibility	Agency
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Adam Bailey	Technical writer and editor	Regulatory writer	SERO
Matthew Smith	Research Statistician	Review	SERO
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GMFMC = Gulf of Mexico Fishery Management Council; NOAA GC = National Oceanic and Atmospheric Administration General Counsel; SEFSC = Southeast Fisheries Science Center; SERO = Southeast Regional Office of the National Marine Fisheries Service

## **CHAPTER 4. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS CONSULTED**

National Marine Fisheries Service

- Southeast Fisheries Science Center
- Southeast Regional Office
  - Protected Resources
  - Habitat Conservation
  - Sustainable Fisheries

NOAA General Counsel

## CHAPTER 5. REFERENCES

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