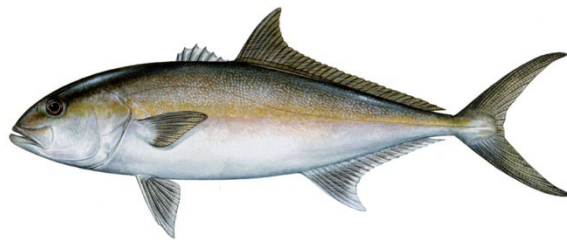


Modifications to the Greater Amberjack Catch Limits and Sector Allocation



Amendment 54 to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico

Including Environmental Assessment

June 2022



This is a publication of the Gulf of Mexico Fishery Management Council Pursuant to National Oceanic and Atmospheric Administration Award No. NA20NMF4410007

This page intentionally blank

ENVIRONMENTAL ASSESSMENT COVER SHEET

Modifications to the Greater Amberjack Catch Limits and Sector Allocation: Amendment 54 to the Fishery Management Plan for the Reef Fish Resources in the Gulf of Mexico including Environmental Assessment

Responsible Agencies and Contact Persons

Gulf of Mexico Fishery Management Council (Council)
4107 W. Spruce Street, Suite 200
Tampa, Florida 33607
John Froeschke (john.froeschke@gulfcouncil.org)

813-348-1630
813-348-1711 (fax)
<https://gulfcouncil.org/>

National Marine Fisheries Service (Lead Agency)
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
Kelli O'Donnell (kelli.odonnell@noaa.gov)

727-824-5305
727-824-5308 (fax)
[SERO website](#)

Type of Action

☐ Administrative
☒ Draft

☐ Legislative
☐ Final

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 in XXX 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 measures
B	biomass
CHTS	Coastal Household Telephone Survey
Council	Gulf of Mexico Fishery Management Council
EA	environmental assessment
EIS	environmental impact statement
F	fishing mortality rate
FES	Fishing Effort Survey
FL	fork length
FMP	fishery management plan
Gulf	Gulf of Mexico
gw	gutted weight
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MFMT	maximum fishing mortality threshold
mp	million pounds
MRIP	Marine Recreational Information Program
MRFSS	Marine Recreational Fisheries Statistics Survey
MSST	minimum stock size threshold
NMFS	National Marine Fisheries Service
OFL	overfishing limit
Reef Fish FMP	Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico
RFA	regulatory flexibility analyses
RIR	regulatory impact review
SEDAR	Southeast Data, Assessment and Review
SEFSC	Southeast Fisheries Science Center
SPR	spawning potential ratio
SRHS	Southeast Region Headboat Survey
SSB	spawning stock biomass
SSC	Scientific and Statistical Committee
TAC	total allowable catch
ww	whole weight

TABLE OF CONTENTS

Abbreviations Used in this Document	ii
Table of Contents	iii
List of Tables	iv
List of Figures	v
Chapter 1. Introduction	1
1.1 Background	1
1.2 Purpose and Need	6
1.3 History of Management	7
Chapter 2. Management alternatives	10
2.1 Action 1 – Modify the Gulf of Mexico Greater Amberjack Sector Allocations, Overfishing Limit (OFL), Acceptable Biological Catch (ABC), and Annual Catch Limits (ACL)	10
2.2 Action 2 – Modify the Gulf of Mexico Greater Amberjack Sector Annual Catch Targets (ACTs) Based on the Catch Limits and Allocation Selected in Action 1	15
Chapter 3. References	17
Appendix A. Changes to Recreational Data Collection.....	20
Appendix B. ACL/ACT Control Rule for the Recreational Sector Using years 2017-2020	22
Appendix C. ACL/ACT Control Rule for the Commercial Sector using years 2017-2020	23
Appendix D. ACL/ACT Control Rule for the Recreational Sector Using years 2016-2019.....	24
Appendix E. ACL/ACT Control Rule for the Commercial Sector using years 2016-2019	25

LIST OF TABLES

Table 1.1.1. Summary of stock assessments, outcomes, and subsequent management actions for Gulf greater amberjack.	1
Table 1.1.2. The Gulf greater amberjack management advice table (SEDAR 70 2020) as reviewed at the November 2021 SSC meeting. The stock is undergoing overfishing ($F_{\text{current}}/\text{MFMT} = 1.25$) and is overfished ($\text{SSB}_{\text{current}}/\text{MSST} = 0.83$) as noted in gray below.	4
Table 1.1.3. Commercial and recreational landings (MRIP-CHTS and MRIP-FES) of greater amberjack for calendar years 1981-2019.	1
Table 1.1.4. Recreational and commercial management measures for the harvest of greater amberjack.	5
Table 2.2.3. Commercial and recreational sector ACTs in 2022 resulting from alternatives in Actions 1 and 2.	16

LIST OF FIGURES

Figure 1.1.1. Commercial and recreational landings (blue and gray bars; left y-axis) and length of fishing season in days (orange and yellow lines; right y-axis) for 1990-2019. Recreational landings are in MRIP-CHTS units.	6
--	---

CHAPTER 1. INTRODUCTION

1.1 Background

Amendment 54 to the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP) is being developed by the Gulf of Mexico Fishery Management Council (Council) to address the results of the Southeast Data Assessment and Review (SEDAR) 70 (2020) stock assessment and subsequent overfishing limit (OFL) and acceptable biological catch (ABC) recommendations from the Council's Scientific and Statistical Committee (SSC). Amendment 54 proposes to revise the Gulf of Mexico (Gulf) greater amberjack allocation between the recreational and commercial sectors and modify the OFL, ABC, annual catch limits (ACL), and annual catch targets (ACT).

In 2020, SEDAR 70 was completed and reviewed by the SSC. The stock assessment results and SSC indicated that greater amberjack is overfished and experiencing overfishing at its January 2021 meeting. Earlier stock assessments have also indicated that the stock is overfished and overfishing has continued despite the implementation of several management measures that have constrained catch and reduced the fishing mortality of juveniles (Table 1.1.1). The results of SEDAR 70 require modifications to greater amberjack catch limits in order to meet the 2027 rebuilding timeline put in place with a 2017 framework action (GMFMC 2017a). The revised catch limits specified in Amendment 54 are expected to immediately end overfishing and rebuild the stock by 2027.

Table 1.1.1. Summary of stock assessments, outcomes, and subsequent management actions for Gulf greater amberjack.

Stock Assessment	Stock Status	Management Action
Turner et al. 2000	Overfished and overfishing	Secretarial Amendment 2 (GMFMC 2002)
SEDAR 9 2006	Overfished and overfishing	Amendment 30A (GMFMC 2008)
SEDAR 9 Update 2011	Overfished and overfishing	Amendment 35 (2012)
SEDAR 33 2014	Overfished and overfishing	Framework Action (2015)
SEDAR 33 Update 2016	Overfished and overfishing	Framework Action (2017)
SEDAR 70 2020	Overfished and overfishing	Amendment 54 (in progress)

The first stock assessment for greater amberjack was completed by Turner et al. (2000) and determined the greater amberjack stock to be overfished and undergoing overfishing as of 1998. Secretarial Amendment 2 (GMFMC 2002) established a rebuilding plan for greater amberjack that was expected to rebuild the stock within 7 years (by the end of 2009). New management measures were implemented in January 1997 (GMFMC 1995) to reduce the recreational bag limit from three fish to one fish per person per day and in January 1998, a March through May fixed spawning season closure was established for the commercial sector (GMFMC 1997).

These management measures were expected to end overfishing, and thus no additional management measures were established in Secretarial Amendment 2.

In 2006, SEDAR 9 was completed and determined the greater amberjack stock was not recovering as previously projected. The stock continued to be overfished and was experiencing overfishing (SEDAR 9 2006). The Council developed Amendment 30A (GMFMC 2008) to end overfishing and rebuild the stock by 2010, consistent with the time frame of the original rebuilding plan implemented with Secretarial Amendment 2 (GMFMC 2002). A 40% reduction in fishing mortality was required to rebuild the stock as required by the rebuilding plan. In an effort to meet this rebuild target date, Amendment 30A established quotas to serve as the ACL for the recreational and commercial sectors and required sector-specific, in-season closure and postseason payback accountability measures (AM).

In 2010, SEDAR 9 Update was completed and reviewed by the SSC at its March 2011 meeting. The SSC agreed with the outcomes of the assessment, which concluded that the stock remained overfished and was continuing to experience overfishing (SEDAR 9 Update 2010). Although the SSC recommended that the SEDAR 9 Update assessment was the best scientific information available, it determined that the harvest projections resulting from this assessment were too sensitive to projection settings (e.g., minor changes to initial conditions, F, or catch levels produced widely divergent results) to be plausible and elected to accept the assessment in terms of the stock status determination but used tier 3b of the ACL control rule (GMFMC 2011) as the mechanism to determine the OFL and ABC.

Using Tier 3b, the SSC set the OFL for greater amberjack equal to the weight of the mean landings for the most recent ten years (2000 - 2009) and then set the ABC at 75% of that 10-year mean (i.e., 1,780,000 lbs whole weight [ww]).¹ Even though the SSC recommendations were based on landings during a time period when overfishing was occurring, the SSC determined that the magnitude of overfishing was unknown, but expected the ABC recommendation (i.e., 75% of the OFL) to reduce, and ultimately end overfishing.

In response, the Council developed Reef Fish Amendment 35 (GMFMC 2012), which reduced the greater amberjack stock OFL, ABC, and ACLs, and established sector ACTs that were used as management targets. The management measures implemented in Amendment 35 were expected to end overfishing; however, it could not be determined if the stock would meet its rebuilding schedule until a new benchmark assessment was completed.

In 2014, the SEDAR 33 benchmark stock assessment was completed and reviewed by the SSC at its June 2014 meeting. The SSC agreed with the outcomes of the assessment, which concluded that greater amberjack remained overfished, was experiencing overfishing as of 2012 (SEDAR 33 2014), and did not meet the rebuilding timeline set with Secretarial Amendment 2 (GMFMC 2002). The SSC recommended an OFL and ABC equivalent to 75% of MFMT starting in 2015, consistent with the National Standard (NS) 1 guidelines. In 2015, the Council developed a framework action, which was implemented in 2016, that increased the OFL, but further reduced the sector ACLs and ACTs in an effort to end overfishing (GMFMC 2015). With those changes, the stock was expected to rebuild by the end of 2019.

¹ http://gulfcouncil.org/resources/SSC_Reports.php

In 2016, the SEDAR 33 Update assessment was completed and reviewed by the SSC at its March 2017 meeting. The SSC agreed with the outcomes of the assessment, which concluded that greater amberjack was still overfished and undergoing overfishing as of 2015 and the stock would not be rebuilt by 2019 as previously projected. The results indicated that greater amberjack had been overfished in all years since 1987 and had been undergoing overfishing since 1985. While the results were generally consistent with the SEDAR 33 assessment, the update assessment produced lower estimates of spawning stock biomass and higher estimates of fishing mortality in the most recent years. The National Marine Fisheries Service (NMFS) notified that Council that the stock was not making adequate progress towards rebuilding and the Council developed a framework action to modify the rebuilding time and the catch levels. The framework action, which was implemented in 2017, reduced the OFL and sector ACLs and ACTs in an effort to end overfishing and rebuild the stock by 2027 (GMFMC 2017a).

SEDAR 70 (2020) Stock Assessment

In 2020, SEDAR 70 was completed and reviewed by the Council's SSC at its January 2021 meeting. The SSC agreed with the outcomes of the assessment, which concluded that Gulf greater amberjack was overfished and experiencing overfishing (Table 1.1.2). The results also indicated that the greater amberjack stock has been overfished and undergoing overfishing almost continuously since 1980. The Council discussed this outcome at its January 2021 meeting and directed staff to begin work on a plan amendment to revise the greater amberjack catch limits to immediately end overfishing and meet the 2027 rebuilding timeline.

Table 1.1.2. The Gulf greater amberjack management advice table (SEDAR 70 2020) as reviewed at the November 2021 SSC meeting. The stock is undergoing overfishing ($F_{\text{current}}/\text{MFMT} = 1.25$) and is overfished ($\text{SSB}_{\text{current}}/\text{MSST} = 0.83$) as noted in gray below.

Criteria	Definitions	SEDAR 70	SEDAR 33 Update
M		0.28	0.28
Steepness		0.777	0.85
Virgin Recruitment	1,000s	3,698	2,761
SSB Unfished		23,733	18,779
Mortality rate criteria			
F_{MSY} or proxy	$F_{\text{SPR}30\%}$	0.242	0.20
MFMT	$F_{\text{SPR}30\%}$	0.242	0.20
F_{CURRENT}	$0.75 * \text{Directed F at } F_{30\% \text{SPR}}$	0.302	0.33
F_{CURRENT}/MFMT	Current stock status based on F_{MSY} proxy and MFMT	1.25	1.69
Biomass criteria			
SSB_{MSY} or proxy	Equilibrium $F_{\text{SPR}30\%}$	5,838	5,686
MSST (Mtons)	$0.5 * \text{SSB}_{\text{SPR}30\%}$	2,919	4,094 ²
SSB_{CURRENT} (Mtons)	SSB_{2018}	2,433	1,640
SSB_{CURRENT}/SSB_{SPR30%}	Current stock status based on $\text{SSB}_{\text{SPR}30\%}$ (Equilibrium)	0.42	0.288
SSB_{CURRENT}/MSST	Current stock status based on $\text{MSST}_{\text{SPR}30\%}$	0.83	0.400
SSB_{CURRENT}/SSB unfished	Current stock status based on $\text{MSST}_{\text{SPR}30\%}$	0.10	0.09

The Council also discussed the implications of changing from the MRIP Coastal Household Telephone Survey (CHTS) to FES-adjusted MRIP recreational data on allocation and catch limits. Reef Fish Amendment 30A (GMFMC 2008) used Marine Recreational Fisheries Statistics Survey (MRFSS) data for the recreational sector in determining the sector allocations and catch levels. The use of MRIP-FES data in stock assessments has two primary effects on the results of the SEDAR 70 greater amberjack stock assessment and subsequent management actions. First, the MRIP-FES estimates of historical recreational effort and catch are substantially greater than previous assessments. The use of MRIP-FES recreational data leads to higher estimates of historical removals for this stock. Second, the proportion of landings from the recreational sector is higher than previously thought when the allocation was established in Amendment 30A (GMFMC 2008). Table 1.1.3 provides recreational landings in MRIP-CHTS and MRIP-FES, commercial landings, and total landings for greater amberjack.

² $\text{MSST} = (1-M) * \text{SSB}_{\text{SPR}30\%}$

Table 1.1.3. Commercial and recreational landings (MRIP-CHTS and MRIP-FES) of greater amberjack for calendar years 1981-2019. Units in pounds whole weight.

	Commercial	Recreational MRIP-CHTS	Recreational MRIP-FES	Total (Comm + CHTS)	Total (Comm + FES)
1981	232,739	547,621	1,535,588	780,360	1,768,327
1982	221,683	5,665,086	14,249,538	5,886,769	14,471,221
1983	276,074	3,351,993	8,744,054	3,628,067	9,020,128
1984	523,645	1,496,948	1,933,531	2,020,593	2,457,176
1985	761,646	2,652,312	5,788,808	3,413,958	6,550,454
1986	1,129,479	5,797,352	7,741,413	6,926,831	8,870,892
1987	1,561,381	7,011,335	18,301,807	8,572,716	19,863,188
1988	2,077,356	2,746,488	3,267,167	4,823,844	5,344,523
1989	1,968,751	6,108,206	8,948,748	8,076,957	10,917,499
1990	1,264,664	833,285	1,417,110	2,097,949	2,681,774
1991	1,782,934	4,342,851	6,030,388	6,125,785	7,813,322
1992	1,062,769	4,723,367	11,920,679	5,786,136	12,983,448
1993	1,623,943	3,189,067	4,857,808	4,813,010	6,481,751
1994	1,287,402	2,287,572	3,364,206	3,574,974	4,651,608
1995	1,243,250	806,492	1,109,144	2,049,742	2,352,394
1996	1,246,440	1,556,020	2,623,428	2,802,460	3,869,868
1997	1,069,462	1,371,608	2,211,032	2,441,070	3,280,494
1998	655,805	933,853	1,901,048	1,589,658	2,556,853
1999	728,441	1,046,405	2,540,025	1,774,846	3,268,466
2000	850,537	1,402,255	2,369,875	2,252,792	3,220,412
2001	706,405	1,610,989	2,270,655	2,317,394	2,977,060
2002	768,941	2,434,464	4,339,407	3,203,405	5,108,348
2003	960,552	3,529,823	6,463,326	4,490,375	7,423,878
2004	951,048	2,975,994	6,671,435	3,927,042	7,622,483
2005	717,170	1,474,028	3,262,366	2,191,198	3,979,536
2006	591,947	1,828,066	3,034,526	2,420,013	3,626,473
2007	587,865	887,267	1,287,113	1,475,132	1,874,978
2008	468,859	1,319,955	2,561,504	1,788,814	3,030,363
2009	594,833	1,604,289	2,482,621	2,199,122	3,077,454
2010	554,510	1,268,182	2,992,744	1,822,692	3,547,254
2011	519,564	943,476	2,082,231	1,463,040	2,601,795
2012	315,165	1,301,684	2,987,024	1,616,849	3,302,189
2013	471,301	1,642,863	3,217,306	2,114,164	3,688,607
2014	532,032	1,303,657	2,327,463	1,835,689	2,859,495
2015	500,613	1,933,746	2,618,841	2,434,359	3,119,454
2016	478,545	1,567,866	2,353,695	2,046,411	2,832,240
2017	484,024	624,941	1,011,487	1,108,965	1,495,511
2018	325,545	1,494,129	2,508,766	1,819,674	2,834,311
2019	356,840	468,121	687,758	824,961	1,044,598

Source: Recreational landings April 2021 MRIP_FES_rec81_20wv6_02Mar21w2014to2020LAcreel.xlsx. MRIP-CHTS: MRIPACLSpec_rec81_20wv6_02Mar21w2014_2020LAcreel.xlsx. Commercial landings from SEDAR 70 (2020) for 1981-2018 and ACL dataset WH_ACLS_2014-2020_05APR2021workingcopy.xlsx for 2019.

Due to the change in recreational data units from MRIP-CHTS to MRIP-FES used in the stock assessment and to monitor landings, the Council also directed staff to include an action to review the sector allocations and establish catch levels for each sector allocation option³. The Council directed staff to develop potential options for allocations that reflect the historical participation of each sector over representative time series. The annual MRIP-FES calibrated recreational data from the Southeast Fisheries Science Center (SEFSC) ACL monitoring dataset was then obtained, and the proportion of total landings harvested by each sector over the reference period for each option was calculated. For the commercial sector, data were provided from the SEDAR 70 stock assessment as these data correct landings prior to 1993 that were not reported to species. Since 1993, landings protocols require species specific identification for greater amberjack and thus few differences occur between the SEDAR 70 data and the dealer reported landings that are used for ACL monitoring since 1993. Based on these calculations the Council requested updated projections from the SEFSC for the following time series-based allocation scenarios.

- Using the years 1981-2004; 84% recreational: 16% commercial⁴
- Using the years 1993-2007; 78% recreational: 22% commercial⁵
- Using the years 1993-2019; 80% recreational: 20% commercial⁶

The Council also requested two additional allocation scenarios. One would maintain the current sector allocations and the other would maintain the commercial sector ACL at the current value (i.e., 484,380 lbs ww based on 27% of the current ABC) while the remaining allowable harvest would be allocated to the recreational sector.

- Maintain the current 73% recreational and 27% commercial allocation
- Maintain the commercial annual catch limit fixed at 484,380 lbs ww (GMFMC 2017a), calculate the sector allocation, then calculate OFL, ABC, and sector ACLs thereafter based on the calculated sector allocation.

While completing this Council request, the SEFSC introduced a new approach to generate projections for greater amberjack that incorporated technical improvements in forecasting software to produce harvest advice with a range of corresponding OFLs and ABCs. The approach was developed to streamline future Council requests for allocation scenarios after receiving the final stock assessment report. The new method used an iterative approach that is able simultaneously achieve multiple management targets, (e.g., Achieve desired fishing mortality while maintaining specified sector allocations)) using Stock Synthesis (SS) software. This method provides catch advice, but also re-estimates the model parameters and including biomass and fishing mortality estimates used to determine stock status in the base model as part of the projections. Historically, the SEFSC has not modified the base model after completion of

³ Selectivity including average size/age of capture and discard rates varies between the recreational and commercial fishing fleet and this affects the total OFL and ABC for the stock. Therefore, the allocation selected affects the OFL and ABC and varies for each allocation option being considered.

⁴ This is time series that the current allocation is based on.

⁵ Prior to 1993, commercial landings of jacks were combined and thus, commercial greater amberjack landings may be imprecise.

⁶ This option removes consideration of data prior to 1993 given concerns about the commercial data and extends the time series to reflect a longer and more recent basis determining allocation.

the SEDAR process for a given stock. In this case, the SEFSC's revised projection method changed the management benchmarks generated by the previously reviewed base model at the January 2021 SSC meeting. Because this change in the management benchmarks is in effect a change to the base model outside of the SEDAR process, the SEDAR 70 base model, including this new projection method, the SSC determined that additional review was necessary prior to making OFL and ABC recommendations.

At the September 2021 SSC meeting,⁷ SEFSC staff reviewed the new projection methodology used for greater amberjack including a decision tree to determine projection settings while noting that changes to recruitment estimates and biomass targets were updated from the original results presented at the January 2021 meeting and this change can influence the stock status determination (i.e., overfished and/or overfishing). The SSC determined that it was more appropriate to base future harvest off the recent recruitment rates as opposed to the average recruitment over the entire management period because there is evidence of a regime shift to a period of lower recruitment beginning in 1990. Based on this review, the SSC determined that the projections protocols were appropriate and requested the sector allocation specific projections be presented at the November 2021 SSC meeting.

The SEFSC provided updated projections in November 2021 to the SSC. Based on these projections, the SSC affirmed its prior determination that greater amberjack is overfished and experiencing overfishing. The SSC provided updated OFL, ABC, and rebuilding projections based on the allocation scenarios requested by the Council. These allocation scenarios, collectively, resulted in OFL values that differed by 5% or less. Had MRIP-FES data been available for SEDAR 33 Update in 2016, the current total stock ACL recommendations would represent approximately a 62% - 83% decrease in yield, depending on year and allocation scenario, from SEDAR 33 Update.

⁷ <https://gulfcouncil.org/wp-content/uploads/Gulf-SSC-Summary-Sept-2021-10192021.pdf>

Sector Allocation

Reef Fish Amendment 30A (GMFMC 2008) established quotas and allocated the greater amberjack stock between the recreational and commercial sectors. During development of the amendment, the Council initially decided to establish a sector allocation based on the long-term average landings from the recreational and commercial sectors from 1981 through 2004. However, the Council was not comfortable moving forward with the resulting allocation of 71% recreational and 29% commercial. During deliberations, the Council noted that the early years of the time series were primarily recreational landings (84% of landings from 1981 -1987; GMFMC 2008) while the most recent years in the allocation time series (2001-2004) had increasing landings by the commercial sector (32% of landings from 2001-2004; GMFMC 2008). Ultimately, the Council agreed to an interim allocation that reassigned 2% of the commercial allocation to the recreational sector and established a sector allocation of 73% recreational and 27% commercial (Action 1, Alternative 1).

Action 1 considers modifications to the allocation that would result from the integration of MRIP-FES data that were used in the stock assessment. The MRIP-FES recreational data provide landings estimates that are greater than those estimated with MRIP-CHTS data, thereby changing the proportion of historical landings made by the recreational sector. That is, the incorporation of MRIP-FES recreational data into the stock assessment and management reflects the greater contribution to historical effort and landings by the recreational sector and a larger percentage of the total landings than was recognized when the allocation in Amendment 30A was determined.

Management Measures

Table 1.1.4 summarizes the recreational and commercial management measures for the harvest of greater amberjack. The fishing year for commercial greater amberjack is January 1 – December 31 with a fixed-closed season from March 1 – May 31 (GMFMC 1981 and 1997). The fishing year for recreational greater amberjack is August 1 – July 31 with fixed closed seasons from November 1 – April 30 and June 1 – July 31 (GMFMC 2017b). The minimum size limits for greater amberjack are a 36-inch fork length (FL) for the commercial sector (GMFMC 1989), and 34-inch FL for the recreational sector (GMFMC 2015). The commercial trip limit is 1,000 lbs gutted weight (gw) with a step down to 250 lbs gw when 75% of the ACT has been harvested (GMFMC 2019). The recreational bag limit is one fish per person per day (GMFMC 1995).

Table 1.1.4. Recreational and commercial management measures for the harvest of greater amberjack.

	Recreational	Commercial
Fishing Year	Aug 1 – July 31	Jan 1 – Dec 31
Fixed Closed Season(s)	Nov 1 – Apr 30 and June 1 – July 31	Mar 1 – May 31
Minimum Size Limit	34-inch FL	36-inch FL
Bag/Trip Limit	1 fish per person per day	1,000 lbs gw until 75% of ACT is reached, then 250 lbs gw

Currently, the commercial and recreational sectors have ACTs set at 13% and 17% below their respective ACLs (GMFMC 2017a). When either sector's landings reach or are projected to reach its ACT, that sector is closed to harvest for the remainder of its fishing year. If either sector's landings exceed its ACL, then in the following fishing year, a post-season AM overage adjustment (also called a payback) is applied that reduces that sector's ACL by the amount of the overage and adjusts the ACT accordingly (GMFMC 2008). An in-season closure is then projected based on when the reduced ACT will be met.

Overage adjustments resulting from these AMs have occurred for both the recreational and commercial sectors in recent years, and the reduced catch limits have contributed to the shortened fishing seasons. Figure 1.1.1 shows the commercial and recreational sector landings alongside the length of the fishing season for each sector beginning in 1990 when greater amberjack was added to the fishery management unit through Amendment 1 (GMFMC 1989). Recreational harvest estimates are presented in the MRIP-CHTS data currency.



Figure 1.1.1. Commercial and recreational landings (blue and gray bars; left y-axis) and length of fishing season in days (orange and yellow lines; right y-axis) for 1990-2019. Recreational landings are in MRIP-CHTS units.

1.2 Purpose and Need

The purpose of this action is to modify the rebuilding plan and associated catch levels necessary to end overfishing, rebuild the Gulf greater amberjack stock by 2027, and to modify the greater amberjack allocation between the commercial and recreational sectors using the best scientific information available based on the results from the SEDAR 70 stock assessment and subsequent OFL and ABC recommendations from the SSC.

The need is to end overfishing and rebuild the greater amberjack stock as required by the Magnuson-Stevens Fishery Conservation and Management Act, update existing greater amberjack catch limits to be consistent with best scientific information available and contemporary data collection methods while ensuring that the historical participation by the recreational and commercial sectors is accurately reflected by the OFL, ABC, and sector ACLs, and that the recreational ACL is consistent with the data used to monitor recreational landings and trigger AMs.

1.3 History of Management

The **Reef Fish FMP** (with environmental impact statement [EIS]) was implemented in November 1984 and set a calendar fishing year for those species in the FMP. The original list of species included in the management unit consisted of snappers, groupers, and sea basses. *Seriola* species, including greater amberjack, were in a second list of species included in the fishery, but not in the management unit. The species in this list were not considered to be target species, because they were generally taken incidentally to the directed fishery for species in the management unit. Their inclusion in the Reef Fish FMP was for purposes of data collection, and their take was not regulated. This history of management covers actions pertinent to the harvest of Gulf greater amberjack. A complete history of management for the Reef Fish Fishery Management Plan (Reef Fish FMP) is available on the Council's website.⁸

Amendment 1 (with environmental assessment [EA], regulatory impact review [RIR], and regulatory flexibility analyses [RFA]) implemented in 1990, added greater amberjack and lesser amberjack to the list of species in the management unit. It set a greater amberjack recreational minimum size limit of 28 inches fork length (FL), a 3-fish recreational bag limit, and a commercial minimum size limit of 36 inches FL.

Amendment 12 (with EA, RIR, and RFA), implemented in 1997, reduced the greater amberjack bag limit from three fish to one fish per person, and created an aggregate bag limit of 20 reef fish for all reef fish species not having a bag limit (including lesser amberjack, banded rudderfish, and almaco jack).

Amendment 15 (with EA, RIR, and RFA), implemented in 1998, established a fixed closed season for the commercial harvest of greater amberjack in the Gulf during the months of March, April, and May.

Generic Sustainable Fisheries Act Amendment (with EA), partially approved and implemented in 1999, set the maximum fishing mortality threshold (MFMT) for greater amberjack at the fishing mortality necessary to achieve 30% of the unfished spawning potential ratio (SPR) $F_{30\% SPR}$.

Secretarial Amendment 2 (with EA, RIR, and RFA), implemented in 2003, specified maximum sustainable yield (MSY) for greater amberjack as the yield associated with $F_{30\% SPR}$ (proxy for fishing mortality rate corresponding to an equilibrium yield of MSY [F_{MSY}]) when the stock is at equilibrium, optimum yield as the yield associated with an $F_{40\% SPR}$ when the stock is at equilibrium, MFMT equal to $F_{30\% SPR}$, and minimum stock size threshold (MSST) equal to $(1-M)*B_{MSY}$ (where M = natural mortality and B_{MSY} = stock biomass level capable of producing an equilibrium yield of MSY) or 75% of B_{MSY} . It also set a rebuilding plan expected to rebuild the stock in 7 years (by 2009). Regulations implemented in 1997 and 1998 (Amendments 12 and 15) were deemed sufficient to comply with the rebuilding plan so no new regulations were implemented.

⁸ http://www.gulfcouncil.org/fishery_management_plans/reef_fish_management.php

Amendment 30A (with EIS, RIR, and RFA), implemented in 2008, was developed to stop overfishing of greater amberjack. The amendment established ACLs and AMs for greater amberjack. The rebuilding plan was modified to be rebuilt by 2012, the recreational minimum size limit was increased to 30 inches FL, and a zero bag limit was implemented for captain and crew of for-hire vessels. **Amendment 30A** also established an allocation for greater amberjack harvest of 73% recreational and 27% commercial, which would be in effect until such time that the Council, through the recommendations of an Ad Hoc Allocation Committee, could implement a separate amendment that fairly and equitably allocated Reef Fish FMP resources between recreational and commercial sectors.

A Regulatory Amendment (with EA, RIR, and RFA), implemented in 2011, specified the greater amberjack recreational fixed closed season during the months of June and July. The intended effect of this final rule was to mitigate the social and economic impacts associated with implementing in-season closures.

Amendment 35 (with EA, RIR, and RFA), implemented in 2012 in response to a 2010 update stock assessment, modified the greater amberjack rebuilding plan and established a reduced the total stock ACL and set it equal to the ABC. Reducing the ABC by 18% was expected to end overfishing. The rule also established a commercial trip limit of 2,000 lbs ww throughout the fishing year and set commercial and recreational ACTs.

2015 Framework Action (with EA, RIR, and RFA), implemented in 2016 created a new rebuilding plan (stock rebuilt by 2019), reduced the total stock ACL, reduced the commercial trip limit from 2,000 lbs ww to 1,500 lbs gw, and increased the recreational minimum size limit from 30 inches FL to 34 inches FL.

Amendment 44 (with EA), was implemented in December 21, 2017. This amendment changed the MSST for seven species in the Reef Fish FMP, including greater amberjack. After the approval of Amendment 44, the greater amberjack stock was still classified as overfished and undergoing overfishing.

The Council approved two framework actions in 2017 that addressed management of Gulf greater amberjack. **Modifications to Greater Amberjack Allowable Harvest and Rebuilding Plan** (with EA, RIR, and RFA), implemented on January 27, 2018 modified the rebuilding time period to end in 2027 and set the sector-specific ACLs and ACTs for 2018 to 2020 and beyond. In addition, this framework action modified the fixed season closure for the recreational sector to be January 1 through June 30 each year.

Modifications to the Greater Amberjack Fishing Year and the Recreational Fixed Closed Season (with EA, RIR, and RFA), implemented on April 20, 2018 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. The framework was implemented on April 30, 2018.

2019 Framework Action (with EA, RIR, and RFA), implemented in 2020 reduced the commercial trip limit from 1,500 lbs gw to 1,000 lbs gw with a step down to 250 lbs gw when 75% of the commercial ACL was harvested.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1 – Modify the Gulf of Mexico Greater Amberjack Sector Allocations, Overfishing Limit (OFL), Acceptable Biological Catch (ABC), and Annual Catch Limits (ACL)

Alternative 1: No Action – Maintain the sector allocations of the total stock ACL for greater amberjack between the recreational and commercial sectors. The allocations for greater amberjack are 73% recreational and 27% commercial. The allocation was derived from the average landings using Marine Recreational Fisheries Statistics Survey (MRFSS) data from the years 1981 through 2004, established in Reef Fish Amendment 30A. Maintain the current OFL, ABC, and ACLs. The recreational sector ACL is in Marine Recreational Information Program (MRIP) Coastal Household Telephone Survey (CHTS) units.

Year	OFL	ABC	Total ACL	Rec ACL	Com ACL	Allocation (Rec:Com)
2020+	2,167,000	1,794,000	1,794,000	1,309,620	484,380	73:27
2020 + MRIP-FES equivalent	3,480,000	2,930,000	2,930,000			

Note: Catch limits in pounds whole weight. The recreational portion of the 2020+ OFL, ABC, total ACL and ACL are based on MRIP-CHTS data. The recreational portion of the MRIP Fishing Effort Survey (FES) equivalent is provided for comparison only. There is not an equivalent MRIP-FES commercial ACL since the effort estimation for the commercial sector is unchanged.

Alternative 2: Maintain the sector allocations as 73% recreational and 27% commercial. Revise the OFL and ABC as recommended by the Scientific and Statistical Committee (SSC) based on SEDAR 70 (2020). Set the total stock ACL equal to the ABC.

Year	OFL	ABC	Total ACL	Rec ACL	Com ACL	Allocation (Rec:Com)
2022	2,102,000	521,000	521,000	380,330	140,670	73:27
2023	2,236,000	649,000	649,000	473,770	175,230	73:27
2024	2,343,000	770,000	770,000	562,100	207,900	73:27
2025	2,419,000	875,000	875,000	638,750	236,250	73:27
2026	2,472,000	964,000	964,000	703,720	260,280	73:27
2027	2,507,000	1,035,000	1,035,000	755,550	279,450	73:27

Note: Values are in pounds whole weight. The recreational portion of the OFL, ABC, total ACL and ACL are based on MRIP-FES data.

Alternative 3: Revise the allocation between the recreational and commercial sectors using MRIP-FES adjusted average landings during the years 1981 through 2004. The allocations for greater amberjack are 84% recreational and 16% commercial. Revise the OFL and ABC as recommended by the SSC based on SEDAR 70 (2020). Set the total stock ACL equal to the ABC.

Year	OFL	ABC	Total ACL	Rec ACL	Com ACL	Allocation (Rec:Com)
2022	1,996,000	497,000	497,000	417,480	79,520	84:16
2023	2,130,000	621,000	621,000	521,640	99,360	84:16
2024	2,234,000	739,000	739,000	620,60	118,240	84:16
2025	2,305,000	842,000	842,000	707,280	134,720	84:16
2026	2,354,000	929,000	929,000	780,360	148,640	84:16
2027	2,387,000	999,000	999,000	839,160	159,840	84:16

Note: Values are in pounds whole weight. The recreational portion of the OFL, ABC, total ACL and ACL are based on MRIP-FES data.

Alternative 4: Revise the allocation between the recreational and commercial sectors using MRIP-FES adjusted average landings during the years 1993 through 2007. The allocations for greater amberjack are 78% recreational and 22% commercial. Revise the OFL and ABC as recommended by the SSC based on SEDAR 70 (2020). Set the total stock ACL equal to the ABC.

Year	OFL	ABC	Total ACL	Rec ACL	Com ACL	Allocation (Rec:Com)
2022	2,052,000	509,000	509,000	397,020	111,980	78:22
2023	2,186,000	636,000	636,000	496,080	139,920	78:22
2024	2,292,000	756,000	756,000	589,680	166,320	78:22
2025	2,365,000	860,000	860,000	670,800	189,200	78:22
2026	2,417,000	947,000	947,000	738,660	208,340	78:22
2027	2,451,000	1,018,000	1,018,000	794,040	223,960	78:22

Note: Values are in pounds whole weight. The recreational portion of the OFL, ABC, total ACL and ACL are based on MRIP-FES data.

Alternative 5: Revise the allocation between the recreational and commercial sectors using MRIP-FES adjusted average landings during the years 1993 through 2019. The allocations for greater amberjack are 80% recreational and 20% commercial. Revise the OFL and ABC as recommended by the SSC based on SEDAR 70 (2020). Set the total stock ACL equal to the ABC.

Year	OFL	ABC	Total ACL	Rec ACL	Com ACL	Allocation (Rec:Com)
2022	2,033,000	505,000	505,000	404,000	101,000	80:20
2023	2,167,000	631,000	631,000	504,800	126,200	80:20
2024	2,272,000	750,000	750,000	600,000	150,000	80:20
2025	2,345,000	854,000	854,000	683,200	170,800	80:20
2026	2,395,000	941,000	941,000	752,800	188,200	80:20
2027	2,429,000	1,012,000	1,012,000	809,600	202,400	80:20

Note: Values are in pounds whole weight. The recreational portion of the OFL, ABC, total ACL and ACL are based on MRIP-FES data.

Alternative 6: Revise the allocation between the recreational and commercial sectors, such that the commercial ACL is retained at 484,380 lbs ww in 2022 resulting in an allocation equal to 24.4% recreational and 75.6% commercial in 2022. Maintain the recreational allocation at 24.4% recreational and 75.6% commercial thereafter. Set the total stock ACL equal to the ABC.

Year	OFL	ABC	Total ACL	Rec ACL	Com ACL	Allocation (Rec:Com)
2022	2,028,000	641,000	641,000	156,620	484,380	24.4:75.6
2023	2,160,000	757,000	757,000	184,963	572,037	24.4:75.6
2024	2,265,000	870,000	870,000	212,573	657,427	24.4:75.6
2025	2,339,000	970,000	970,000	237,007	732,993	24.4:75.6
2026	2,389,000	1,055,000	1,055,000	257,776	797,224	24.4:75.6
2027	2,423,000	1,124,000	1,124,000	274,635	849,365	24.4:75.6

Note: Values are in lbs ww. The recreational portion of the OFL, ABC, total ACL and ACL are based on MRIP-FES data.

Discussion

In 2020, SEDAR 70 was completed and reviewed by the SSC at multiple meetings in 2021. The SEDAR 70 assessment was completed to determine if the greater amberjack stock was rebuilding as expected and to incorporate the revised recreational data landings estimates using data from MRIP-FES. The use of MRIP-FES data changed the understanding of the magnitude of historical catch and the relative rates of participation from the recreational and commercial sectors. At its November 2021 meeting, the SSC accepted the greater amberjack assessment as the best scientific information available and concluded that greater amberjack remains overfished and is experiencing overfishing. The SSC made recommendations of OFL and ABC noting that the change in recreational data currency from the MRIP-CHTS to MRIP-FES affects estimates of historical landings and stock productivity. As such, the new catch level recommendations are not directly comparable to those in previous assessments or related management actions. However, the new recommendations do represent substantial decreases in the ABC, as necessary to end overfishing and rebuild the stock by 2027, in accordance with the current rebuilding plan (GMFMC 2017a).

Alternative 1 (No Action) retains the existing allocation that was established in Reef Fish Amendment 30A (GMFMC 2008). **Alternative 1** also retains the existing OFL and ABC, which are based on the previous Gulf greater amberjack stock assessment (SEDAR 33 Update 2016). The total stock ACL is equal to the ABC, as last specified in a 2017 Framework (GMFMC 2017a). The OFL, ABC and total stock ACL in **Alternative 1** are based, in part, on MRIP-CHTS data. One of the major changes between the SEDAR 33 Update (2016) and SEDAR 70 (2020) base models is the incorporation of the MRIP-FES adjustments to the recreational catch and effort estimates, which are considered by the National Marine Fisheries Service to be the best scientific information available. Therefore, it would not be consistent with National Standard 2 of the Magnuson-Stevens Fishery Conservation and Management Act to retain the OFL, ABC and total stock ACL under **Alternative 1**, which are based on MRIP-CHTS data. The catch limits in **Alternative 1** also do not reflect the outcomes of SEDAR 70 and the SSC's OFL and ABC recommendations. To facilitate comparison with the action alternatives, the

SEFSC completed an analysis⁹ using the MRIP-FES recreational data in the SEDAR 33 Update assessment and developed projections of the current OFL and ABC in MRIP-FES units. This analysis provides a basis for comparison for the change in catch levels attributed to the use of MRIP-FES alone and can be used to evaluate the change in allowable harvest between **Alternative 1** and **Alternatives 2-6**.

Alternatives 2-6 would modify the catch limits for Gulf greater amberjack based on the outcomes of SEDAR 70 and the Council's SSC catch level recommendations for 2022 through 2027. For each of these alternatives, the OFL is based on the maximum sustainable yield proxy (yield at $F_{30\%SPR}$) and ABC was established at the yield (mp ww) when fishing at $F_{Rebuild}$ ¹⁰ through the end of the rebuilding period (2027). For all alternatives, the total stock ACL is equal to the ABC.

The total stock ACL in **Alternatives 2-6** is apportioned between the respective sectors based on the allocation considered in each alternative. For any particular alternative, the sum of the sector ACLs is equal to the total stock ACL. The reduction in the ABC under each of the action alternatives in comparison to **Alternative 1** occurs because the stock is overfished and is experiencing overfishing. The ABC is based on the fishing mortality reductions necessary to immediately end overfishing and rebuild the stock by 2027. The total stock ACL in **Alternatives 2-6** increases each year from 2022 to 2027 as the stock rebuilds. The total stock ACL changes modestly with allocation alternatives because of differing fishery characteristics (e.g., size harvested, discard rate, discard mortality) between the sectors.

Alternative 2 would maintain the allocation of Gulf greater amberjack established in Amendment 30A, of 73% recreational and 27% commercial. However, **Alternative 2** would revise the OFL and ABC based on SEDAR 70 and SSC recommendations. Under **Alternative 2**, the reduction in the total stock ACL would be approximately 82% relative to **Alternative 1**'s MRIP-FES equivalent total stock ACL in 2022 only. In **Alternative 2**, the total ACL increases each year and thus, the percent reduction in comparison to **Alternative 1** decreases as the stock rebuilds. This same pattern occurs for **Alternatives 3-6**. **Alternative 2** maintains the status quo allocation, but would address changes in allowable harvest necessary to immediately end overfishing and rebuild the stock by 2027. However, the recreational data used in establishing the allocation underestimated the historical landings and effort from the recreational sector and thus, does not reflect the nature of the fleets harvesting Gulf greater amberjack during the reference period using MRIP-FES.

Alternative 3 would modify the recreational and commercial sector allocations of Gulf greater amberjack based on landings from the same timeframe used in Amendment 30A (GMFMC 2008), 1981 through 2004, but using MRIP-FES landings, which is considered the best scientific information available. The resulting allocations are 84% recreational and 16% commercial. Under **Alternative 3**, the reduction in the total stock ACL in 2022 would be approximately 83% relative to **Alternative 1** and approximately 1% lower than the total stock ACL for **Alternative 2** in 2022. Similar to **Alternative 2**, the total stock ACL increases each year during the projection period. With respect to determining allocation, **Alternative 3** maintains the same

⁹ https://gulfcouncil.org/wp-content/uploads/20a.-GAJ_S33Update_FES_projections.pdf

¹⁰ F that would rebuild the stock to the level that supports MSY, $SSB_{SPR\ 30\%}$ in 2027 (SEDAR 70).

reference period as **Alternatives 1 and 2** but increases the recreational allocation to 84% of the total stock ACL to reflect the additional recreational effort and landings that NMFS estimates occurred during this period as reflected in the MRIP-FES data. **Alternative 3** represents the largest allocation to the recreational sector of the alternatives considered in this action.

Alternative 4 would modify the recreational and commercial sector allocations of Gulf greater amberjack based on landings from 1993 through 2007. Commercial greater amberjack landings were not identified to species prior to 1993. Thus, the greater amberjack commercial landings may be less accurate prior to 1993. The reference period would end in 2007 because this is the last year prior to the implementation of the current sector allocations and in-season, and post-season accountability measures in Reef Fish Amendment 30A (GMFMC 2008). The resulting allocations are 78% recreational and 22% commercial. Under **Alternative 4**, the reduction in the total stock ACL would be approximately 83% relative to **Alternative 1** in MRIP-FES units in 2022 only. The total stock ACL under **Alternative 4** is similar to the total stock ACL under both **Alternatives 2 and 3**.

Alternative 5 would modify the commercial and recreational allocations of Gulf greater amberjack-based landings from the timeframe 1993 through 2019. Similar to **Alternative 4**, this reference period begins in 1993, a period after which the commercial data are considered more accurate. However, this alternative also includes years from 2008-2019, in which the sector allocations were in place and would influence the observed landings. In addition, because the *Deepwater Horizon* MC252 oil spill began in April 2010 and resulted in extensive fishery closures landings from 2010 should be viewed with caution. For **Alternative 5**, the resulting allocations are 80% recreational and 20% commercial. Under **Alternative 5**, the reduction in the total stock ACL would be approximately 83% relative to **Alternative 1** in MRIP-FES units in 2022 only. The total stock ACL under **Alternative 5** is similar to the total stock ACL under **Alternatives 2-4**.

Alternative 6 would revise the sector allocations of the total stock ACL between the recreational and commercial sectors, such that the commercial ACL is would be set 484,380 lbs ww in 2022 and resulting in an allocation of 24.4% recreational and 75.6 commercial. This allocation would be retained throughout the projection. **Alternative 6** differs from **Alternatives 1-5** in that **6** allocates a majority of the total stock ACL to the commercial sector and does not consider historical participation in the fishery as a basis for determining allocation. Under **Alternative 6**, the reduction in the total stock ACL would be approximately 78% relative to **Alternative 1** in MRIP-FES units in 2022 only. The total stock ACL under **Alternative 6** is similar to the total stock ACL under **Alternatives 2-5**.

2.2 Action 2 – Modify the Gulf of Mexico Greater Amberjack Sector Annual Catch Targets (ACT) Based on the Catch Limits and Allocation Selected in Action 1

Alternative 1: No Action – Maintain the current buffer between the ACL and ACT for each sector. The recreational buffer is 17% and the commercial buffer is 13%.

Alternative 2: Apply the ACL/ACT Control Rule (years 2017-2020) to revise the buffer between the ACL and ACT for each sector. The recreational buffer is 13%, and the commercial buffer is 7%.

Alternative 3: Apply the ACL/ACT Control Rule (years 2016-2019) to revise the buffer between the ACL and ACT for each sector. The recreational buffer is 17%, and the commercial buffer is 7%.

Discussion:

Alternatives in Action 2 apply to the ACT buffers for the greater amberjack commercial and recreational sectors. The resulting ACTs for each sector in Action 2 are determined based on the sector ACLs and allocations selected in Action 1 and the ACT buffer selected in Action 2.

The Council will likely continue to use ACTs to address management uncertainty and the post-season accountability measures (AM) will remain in place to correct for any ACL overages. AMs for both sectors project in-season closures to harvest the ACT. A 2017 Reef Fish Framework Action established buffers between the ACL and ACT using the Gulf ACL/ACT Control Rule, which resulted in buffers of 17% for the recreational sector and 13% for the commercial sector (**Alternative 1**). The ACL/ACT Control Rule took into consideration for each sector the number of times the ACL was exceeded, the precision of recreational landings based on proportional standard error, the precision of commercial landings, in-season AMs in place, and the stock status for years (2013-2016). These same factors were taken into consideration for **Alternative 2** (2017-2020) and **Alternative 3** (2016-2019) with different time series being used to determine the buffers.

Alternative 2 uses the most recent time series of available landings (2017-2020) for the ACL/ACT Control Rule to calculate the ACT buffers. This results in buffers of 13% for the recreational sector and 7% for the commercial sector (Appendix B and C). This is a reduction from the current buffers of 17% for the recreational sector and 13% for the commercial sector and are due in part to a more recent time series being used in the ACL/ACT control rule. However, using 2020 landings may not be representative of normal fishing practices due to the onset of COVID-19 that resulted in changes in fishing behavior and harvest monitoring programs in this year.

Alternative 3 uses a time series of available landings (2016-2019) for the ACL/ACT Control Rule to calculate the ACT buffers that does not include the landings from 2020 in the calculations. This results in buffers of 17% for the recreational sector and 7% for the

commercial sector (Appendix D and E). This would maintain the same buffer as **Alternative 1** for the recreational sector and reduce the commercial buffer from 13% to 7%. Not including 2020 landings may be more representative of normal fishing practices as closures occurred for both sectors in the reference years as they had for the reference period under **Alternative 1**.

Table 2.2.3. Commercial and recreational sector ACTs in 2022 resulting from alternatives in Actions 1 and 2.

		Action 2 ACT					
		Alt 1 buffer		Alt 2 buffer		Alt 3 buffer	
		Rec	Comm	Rec	Comm	Rec	Comm
		17%	13%	13%	7%	17%	7%
Action 1	Alt 1	1,086,985	421,411	1,139,369	450,473	1,086,985	450,473
	Alt 2	315,674	122,383	330,887	130,823	315,674	130,823
	Alt 3	346,508	69,182	363,208	73,954	346,508	73,954
	Alt 4	329,527	97,423	345,407	104,141	329,527	104,141
	Alt 5	335,320	87,870	351,480	93,930	335,320	93,930
	Alt 6	129,995	421,411	136,259	450,473	129,995	450,473

CHAPTER 3. REFERENCES

Foster, J., F.J. Breidt, and J.D. Opsomer. 2018. APAIS data calibration methodology report. 10 pp. <https://www.fisheries.noaa.gov/webdam/download/68183814>

GMFMC. 1981. Environmental impact statement and fishery management plan for the reef fish resources of the Gulf of Mexico and environmental impact statement. Gulf of Mexico Fishery Management Council, Tampa, Florida.
<http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/RF%20FMP%20and%20EIS%201981-08.pdf>

GMFMC. 1989. Amendment 1 to the reef fish fishery management plan includes environmental assessment, regulatory impact review, and regulatory flexibility analysis. Gulf of Mexico Fishery Management Council, Tampa, Florida. 356 pp.
<https://gulfcouncil.org/wpcontent/uploads/FISHERY%20MANAGEMENT/REEF%20FISH/RF%20Amend-01%20Final%201989-08-rescan.pdf>

GMFMC. 1995. Amendment 12 to the reef fish fishery management plan for the reef fish resources of the Gulf of Mexico. Includes regulatory impact review and environmental assessment. Gulf of Mexico Fishery Management Council. Tampa, Florida. 44 pp.
<https://gulfcouncil.org/wp-content/uploads/RF-Amend-12-Final-1995-12.pdf>

GMFMC. 1997. Amendment 15 to the fishery management plan for the reef fish resources of the Gulf of Mexico, includes regulatory impact review, initial regulatory flexibility analysis, and environmental assessment. Gulf of Mexico Fishery Management Council. Tampa, Florida. 117 pp.
<https://gulfcouncil.org/wp-content/uploads/FISHERY%20MANAGEMENT/REEF%20FISH/AMEND15.pdf>

GMFMC. 1999. Generic sustainable fisheries act amendment, to the following FMPs: Gulf coral and coral reef resources, coastal migratory pelagics, red drum, reef fish, shrimp, spiny lobster, stone crab. Includes regulatory impact review, initial regulatory flexibility analysis and environmental assessment. Gulf of Mexico Fishery Management Council, Tampa, Florida. 318 pp. <https://gulfcouncil.org/wp-content/uploads/Generic-SFA-amendment-1999.pdf>

GMFMC. 2002. Secretarial amendment 2 to the reef fish fishery management plan to set greater amberjack sustainable fisheries act targets and thresholds and to set a rebuilding plan. Gulf of Mexico Fishery Management Council, Tampa, Florida.
<http://www.gulfcouncil.org/beta/gmfmcweb/downloads/Secretarial-Amendment-2-RF.pdf>

GMFMC. 2008. Final reef fish amendment 30A: greater amberjack – revised rebuilding plan, accountability measures; gray triggerfish – establish rebuilding plan, end overfishing, accountability measures, regional management, management thresholds and benchmarks including supplemental environmental impact statement, regulatory impact review, and

regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida.
<http://www.gulfcouncil.org/docs/amendments/Amend-30A-Final%20208.pdf>

GMFMC. 2011. Final generic annual catch limits/accountability measures amendment for the Gulf of Mexico Fishery Management Council's red drum, reef fish, shrimp, coral and coral reefs fishery management plans, including environmental impact statement, regulatory impact review, regulatory flexibility analysis, and fishery impact statement. Gulf of Mexico Fishery Management Council, Tampa, Florida. 406 pp.
<https://gulfcouncil.org/wp-content/uploads/Final-Generic-ACL-AM-Amendment-September-9-2011-v.pdf>

GMFMC. 2012. Final regulatory Amendment 35 to the reef fish fishery management plan – greater amberjack – Modifications to the Greater Amberjack Rebuilding Plan and Adjustments to the Recreational and Commercial Management Measures. Gulf of Mexico Fishery Management Council. Tampa, Florida.
http://gulfcouncil.org/Beta/GMFMCWeb/downloads/Final_Amendment_35_Greater_Amberjack_Rebuilding_8_May_2012.pdf

GMFMC. 2015. Modifications to greater amberjack allowable harvest and management measures. Framework action to the fishery management 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.
<http://gulfcouncil.org/docs/amendments/Greater%20AJ%20FINAL%20VERSION%207-10-15.pdf>

GMFMC. 2017a. Final framework action to the fishery management plan for the reef fish resources of the Gulf of Mexico: Modifications to greater amberjack allowable harvest and rebuilding plan, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council, Tampa, Florida. 121 pp.
https://gulfcouncil.org/wp-content/uploads/RF-GreaterAmberjackFramework20170906FINAL_508Compliant.pdf

GMFMC. 2017b. Final framework action to the fishery management plan for the reef fish resources of the Gulf of Mexico: Modifications to the greater amberjack fishing year and the recreational fixed closed season, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council, Tampa, Florida. 100 pp.
https://gulfcouncil.org/wp-content/uploads/RF-Final-Framework-Action-to-Modify-Recreational-Fishing-Year-and-Fixed-Closed-Season_508Compliant.pdf

GMFMC. 2019. Final framework action to the fishery management plan for reef fish resources in the Gulf of Mexico: Modifications to Gulf of Mexico greater amberjack commercial trip limits. Gulf of Mexico Fishery Management Council, Tampa, Florida. 76 pp.
http://gulfcouncil.org/wp-content/uploads/Framework-Action_GAJ-Comm-Trip-Limit_Final-July-2019.pdf

SEDAR 7. 2005. Stock assessment report of SEDAR 7 Gulf of Mexico red snapper. Southeast Data, Assessment, and Review. North Charleston, South Carolina.
<http://www.sefsc.noaa.gov/sedar/>.

SEDAR 9 2006. Stock assessment report 2 for Gulf of Mexico greater amberjack. Southeast Data, Assessment, and Review. North Charleston, South Carolina.
<http://www.sefsc.noaa.gov/sedar/>.

SEDAR 9 Update Assessment. 2011. Gulf of Mexico Greater Amberjack Stock Assessment Update Report. Southeast Data, Assessment, and Review. North Charleston, South Carolina. <http://www.sefsc.noaa.gov/sedar/>.

SEDAR 33. 2014. Gulf of Mexico Greater Amberjack Stock Assessment Report. SEDAR, North Charleston SC. 490 pp.
http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=33

SEDAR 33 Update Assessment. 2016. 33 Gulf of Mexico Greater Amberjack Stock Assessment Report. SEDAR, North Charleston SC. 490 pp.
http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=33

SEDAR 70. 2020. Gulf of Mexico Greater Amberjack Stock Assessment Report. SEDAR, North Charleston SC. 189 pp. http://sedarweb.org/docs/sar/S70_SAR_FINAL.pdf

Turner, S.C., N.J. Cummings, and C.P. Porch. 2000. Stock assessment of Gulf of Mexico greater amberjack using data through 1998. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. SFD-99/00-100.

APPENDIX A. CHANGES TO RECREATIONAL DATA COLLECTION

Changes to the Recreational Data Collection Survey

The Marine Recreational Fisheries Statistics Survey (MRFSS) was created in 1979 by NMFS. In the Gulf, MRFSS collected data on catch and effort in recreational fisheries, including greater amberjack, since 1981. The program included the APAIS, which consists of onsite interviews at marinas and other points where recreational anglers fish, to determine catch. MRFSS also included CHTS, which used random-digit dialing of homes in coastal counties to contact anglers to determine fishing effort. In 2000, the For-Hire Survey (FHS) was implemented to incorporate for-hire effort due to lack of coverage of charter boat anglers by the CHTS. The FHS used a directory of all known charter boats and a weekly telephone sample of the charter boat operators to obtain effort information.

MRFSS included both offsite telephone surveys and onsite interviews at marinas and other points where recreational anglers fish. In 2012 a new design was certified and subsequently implemented in 2013: MRIP replaced MRFSS to meet increasing demand for more precise, accurate, and timely recreational catch estimates. MRIP is a more scientifically sound methodology for estimating catch because it reduces some sources of potential bias as compared to MRFSS resulting in more accurate catch estimates. Specifically, CHTS was improved to better estimate private angling effort. Instead of random telephone calls, MRIP-CHTS used targeted calls to anglers registered with a federal or state saltwater fishing registry. The MRIP Access Point Angler Intercept Survey (APAIS) began incorporating a new survey design in 2013. This new design addressed concerns regarding the validity of the survey approach, specifically that trips recorded during a given time period are representative of trips for a full day (Foster et al. 2018). The more complete temporal coverage with the new survey design provides for consistent increases or decreases in APAIS angler catch rate statistics, which are used in stock assessments and management, for at least some species (NOAA Fisheries 2019). In 2018, NOAA Fisheries convened a peer review of a method of producing revised historical catch statistics that are comparable to those produced by the improved APAIS.¹¹

MRIP also transitioned from the legacy Coastal Household Telephone Survey (CHTS) to a new mail survey (Fishing Effort Survey, FES) beginning in 2015, and in 2018, the FES replaced the CHTS. Both survey methods collect data needed to estimate marine recreational fishing effort (number of fishing trips) by shore and private/rental boat anglers on the Atlantic and Gulf coasts. The CHTS used random-digit dialing of homes in coastal counties to contact anglers. The new mail-based FES uses angler license and registration information as one way to identify and

¹¹ <https://www.fisheries.noaa.gov/event/access-point-angler-intercept-survey-calibration-workshop>

contact anglers (supplemented with data from the U.S. Postal Service, which includes virtually all U.S. households). Because the FES and CHTS are so different, NMFS conducted side-by-side testing of the two methods from 2015 to 2018 and developed calibration procedures to convert the historical catch estimates (MRFSS, MRIP-CHTS, MRIP-APAIS [collectively MRFSS]) into MRIP-FES. This calibration model was peer reviewed in 2017¹² and the Council's Scientific and Statistical Committee reviewed the model at a July 8-9, 2020, meeting.¹³ In general, landings estimates are higher, and in some cases substantially higher, using the MRIP-FES as compared to the CHTS estimates. This is because the FES is designed to more accurately measure fishing activity than the CHTS, not because there was a sudden rise in fishing effort. NMFS developed a calibration model to adjust historic effort estimates so that they can be accurately compared to new estimates from the FES. The new effort estimates alone do not lead to definitive conclusions about stock size or status in the past or at current. NMFS determined that the MRIP-FES data, when fully calibrated to ensure comparability among years and across states, produced the best available data for use in stock assessments and management (NOAA Fisheries 2019). Table 1.1.3 in Draft Amendment 54 provides Gulf greater amberjack landings for 1981 through 2020 fishing years comparing MRIP-CHTS harvest data to MRIP-FES harvest data. While stock total landings in MRIP-FES are provided, only stock total landings in MRIP-CHTS should be compared to the total stock ACL.

Reference:

NOAA Fisheries. Office of Science & Technology; Southeast Fisheries Science Center; Southeast Regional Office. 2019. Recommended use of the current Gulf of Mexico surveys of marine recreational fishing in stock assessments. 32 pp.

¹² <https://www.fisheries.noaa.gov/event/fishing-effort-survey-calibration-model-peer-review>

¹³ <https://gulfcouncil.org/ssc/archive/>

APPENDIX B. ACL/ACT CONTROL RULE FOR THE RECREATIONAL SECTOR USING YEARS 2017-2020

As of 03/23/2022				Greater Amberjack	
ACL/ACT Buffer Spreadsheet		version 4.1 - April 2011		Sector: Recreational	
sum of points	3.5			Years: 2017-2020	
max points	6.5	Buffer between ACL and ACT (or ABC and ACL)		Unweighted	10
Min. Buffer	0	min. buffer	User adjustable	Weighted	13
Max Unw.Buff	19	max unwt. Buff			
Max Wtd Buff	25	max wtd. buffer	User adjustable		
	Component	Element score	Element	Selection	Element result
	Stock assemblage	0	This ACL/ACT is for a single stock.	x	0
		1	This ACL/ACT is for a stock assemblage, or an indicator species for a stock assemblage		
	Ability to Constrain Catch	0	Catch limit has been exceeded 0 or 1 times in last 4 years	x	1.5
		1	Catch limit has been exceeded 2 or more times in last 4 years		
		For the year with max. overage, add 0.5 pts. For every 10 percentage points (rounded up) above ACL		1.5	
		Not applicable (there is no catch limit)			
			Apply this component to recreational fisheries, not commercial or IFQ fisheries		
	Precision of Landings Data Recreational	0	Method of absolute counting		2
		1	MRIP proportional standard error (PSE) <= 20		
		2	MRIP proportional standard error (PSE) > 20	x	
		Not applicable (will not be included in buffer calculation)			
			Apply this component to commercial fisheries or any fishery under an IFQ program		
	Precision of Landings Data Commercial	0	Landings from IFQ program		not applicable
		1	Landings based on dealer reporting		
		2	Landings based on other		
		Not applicable (will not be included in buffer calculation)		x	
	Timeliness	0	In-season accountability measures used or fishery is under an IFQ	x	0
		1	In-season accountability measures not used		
					Sum
					3.5
Weighting factor					
	Element weight	Element		Selection	Weighting
Overfished status	0	1. Stock biomass is at or above B _{OY} (or proxy).			0.3
	0.1	2. Stock biomass is below B _{OY} (or proxy) but at or above B _{MSY} (or proxy).			
	0.2	3. Stock biomass is below B _{MSY} (or proxy) but at or above minimum stock size threshold (MSST).			
	0.3	4. Stock is overfished, below MSST.		x	
	0.3	5. Status criterion is unknown.			

APPENDIX C. ACL/ACT CONTROL RULE FOR THE COMMERCIAL SECTOR USING YEARS 2017-2020

[illegible]

APPENDIX D. ACL/ACT CONTROL RULE FOR THE RECREATIONAL SECTOR USING YEARS 2016-2019

sum of points	4.5			Years: 2016-2019	
max points	6.5		Buffer between ACL and ACT (or ABC and ACL)	Unweighted	13
Min. Buffer	0	min. buffer	User adjustable	Weighted	17
Max Unw. Buff	19	max unwt. Buff			
Max Wtd Buff	25	max wtd. buffer	User adjustable		
	Component	Element score	Element	Selection	Element result
	Stock assemblage	0	This ACL/ACT is for a single stock.	x	0
		1	This ACL/ACT is for a stock assemblage, or an indicator species for a stock assemblage		
	Ability to Constrain Catch	0	Catch limit has been exceeded 0 or 1 times in last 4 years		2.5
		1	Catch limit has been exceeded 2 or more times in last 4 years	x	
			For the year with max. overage, add 0.5 pts. For every 10 percentage points (rounded up) above ACL	1.5	
			Not applicable (there is no catch limit)		
			Apply this component to recreational fisheries, not commercial or IFQ fisheries		
	Precision of Landings Data Recreational	0	Method of absolute counting		2
		1	MRIP proportional standard error (PSE) <= 20		
		2	MRIP proportional standard error (PSE) > 20	x	
			Not applicable (will not be included in buffer calculation)		
			Apply this component to commercial fisheries or any fishery under an IFQ program		
	Precision of Landings Data Commercial	0	Landings from IFQ program		not applicable
		1	Landings based on dealer reporting		
		2	Landings based on other		
			Not applicable (will not be included in buffer calculation)	x	
	Timeliness	0	In-season accountability measures used or fishery is under an IFQ	x	0
		1	In-season accountability measures not used		
				Sum	4.5
Weighting factor					
	Element weight	Element	Selection	Weighting	
	Overfished status	0	1. Stock biomass is at or above B_{OY} (or proxy).		0.3
		0.1	2. Stock biomass is below B_{OY} (or proxy) but at or above B_{MSY} (or proxy).		
		0.2	3. Stock biomass is below B_{MSY} (or proxy) but at or above minimum stock size threshold (MSST).		
		0.3	4. Stock is overfished, below MSST.	x	
		0.3	5. Status criterion is unknown.		

APPENDIX E. ACL/ACT CONTROL RULE FOR THE COMMERCIAL SECTOR_USING YEARS 2016-2019

As of 03/23/2022				Greater Amberjack	
ACL/ACT Buffer Spreadsheet		version 4.1 - April 2011		Sector: Commercial	
sum of points	1.5			Years: 2016-2019	
max points	5.5	Buffer between ACL and ACT (or ABC and ACL)		Unweighted	5
Min. Buffer	0	min. buffer	User adjustable	Weighted	7
Max Unw. Buff	19	max unwt. Buff			
Max Wtd Buff	25	max wtd. buffer	User adjustable		

Component	Element score	Element	Selection	Element result
Stock assemblage	0	This ACL/ACT is for a single stock.	x	0
	1	This ACL/ACT is for a stock assemblage, or an indicator species for a stock assemblage		
Ability to Constrain Catch	0	Catch limit has been exceeded 0 or 1 times in last 4 years	x	0.5
	1	Catch limit has been exceeded 2 or more times in last 4 years		
		For the year with max. overage, add 0.5 pts. For every 10 percentage points (rounded up) above ACL	0.5	
		Not applicable (there is no catch limit)		
		Apply this component to recreational fisheries, not commercial or IFQ fisheries		
Precision of Landings Data Recreational	0	Method of absolute counting		not applicable
	1	MRIP proportional standard error (PSE) <= 20		
	2	MRIP proportional standard error (PSE) > 20		
		Not applicable (will not be included in buffer calculation)	x	
		Apply this component to commercial fisheries or any fishery under an IFQ program		
Precision of Landings Data Commercial	0	Landings from IFQ program		1
	1	Landings based on dealer reporting	x	
	2	Landings based on other		
		Not applicable (will not be included in buffer calculation)		
Timeliness	0	In-season accountability measures used or fishery is under an IFQ	x	0
	1	In-season accountability measures not used		
			Sum	1.5

Weighting factor				
	Element weight	Element	Selection	Weighting
Overfished status	0	1. Stock biomass is at or above B _{OY} (or proxy).		0.3
	0.1	2. Stock biomass is below B _{OY} (or proxy) but at or above B _{MSY} (or proxy).		
	0.2	3. Stock biomass is below B _{MSY} (or proxy) but at or above minimum stock size threshold (MSST).		
	0.3	4. Stock is overfished, below MSST.	x	
	0.3	5. Status criterion is unknown.		