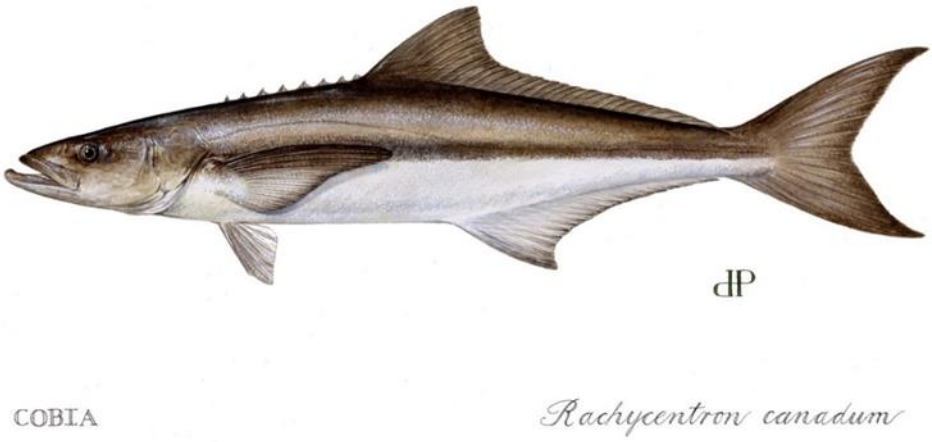
Modifications to the Gulf of Mexico Migratory Group Cobia Catch Limits, Possession Limits, Size Limits, and Framework Procedure



Amendment 32

to the Fishery Management Plan for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Region

Public Hearing Draft: August 2021

DRAFT DOCUMENT

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AMENDMENT 32 TO THE FISHERY MANAGEMENT PLAN FOR COASTAL MIGRATORY PELAGIC RESOURCES IN THE GULF OF MEXICO AND ATLANTIC REGION

Including Environmental Assessment, Fishery Impact Statement, Regulatory Impact Review, and Regulatory Flexibility Act Analysis

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Proposed actions: Modify the Gulf of Mexico migratory group cobia catch limits, possession limits, size limits, and the coastal migratory pelagics framework procedure

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Type of Action

( ) Administrative ( ) Legislative
(X) Draft ( ) Final

ABBREVIATIONS USED IN THIS DOCUMENT

ABC	acceptable biological catch
ACL	annual catch limit
ACT	annual catch target
ALS	Accumulated Landings System
AM	accountability measure
ASMFC	Atlantic States Marine Fisheries Commission
Atlantic Group Cobia	Atlantic migratory group of cobia
CFPA	cash flow per angler
CHTS	coastal household telephone survey
CMP	coastal migratory pelagics
Councils	Gulf of Mexico and South Atlantic Fishery Management Councils
CS	consumer surplus
CVA	climate vulnerability analyses
EA	environmental assessment
EEZ	exclusive economic zone
EFH	essential fish habitat
EIS	environmental impact statement
EJ	environmental justice
E.O.	Executive Order
F	fishing mortality
FES	Fishing Effort Survey
FL	fork length
FLEC	Florida East Coast Zone
FMP	Fishery Management Plan
FWC	Florida Fish and Wildlife
GDP	Gross Domestic Product
Gulf	Gulf of Mexico
Gulf Group Cobia	Gulf migratory group of cobia
Gulf Council	Gulf of Mexico Fishery Management Council
gw	gutted weight
IPCC	Intergovernmental Panel on Climate Control
ISFMP	Interstate Fisheries Management Program
LA Creel	Louisiana Department of Wildlife and Fisheries Creel Survey
lb	pounds
LDWF	Louisiana Department of Wildlife and Fisheries
LHWG	Life History Working Group
lw	landed weight
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MRIP	Marine Recreational Information Program
MSY	maximum sustainable yield
NOAA	National Oceanic and Atmospheric Administration
NOR	net operating revenue
OFL	overfishing limit

PAH	polycyclic aromatic hydrocarbons
PS	producer surplus
PSE	Proportional Standard Error
RA	Regional Administrator
RFA	regulatory flexibility analysis
RIR	regulatory impact review
RQ	regional quotient
Secretary	Secretary of Commerce
SEDAR	Southeast Data, Assessment, and Review
SEFSC	Southeast Fisheries Science Center
South Atlantic Council	South Atlantic Fishery Management Council
SRHS	Southeast Regional Headboat Survey
SSC	Scientific & Statistical Committee
TNR	trip net revenue
TPWD	Texas Parks and Wildlife Department
ww	whole weight

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CHAPTER 1. INTRODUCTION

1.1 Background

Cobia is managed jointly by the South Atlantic Fishery Management Council (South Atlantic Council) and the Gulf of Mexico (Gulf) Fishery Management Council (Gulf Council) (together: "Councils") under the Fishery Management Plan (FMP) for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region (CMP FMP). Two migratory groups of cobia are managed in the southeastern US: the Atlantic migratory group (Atlantic Group Cobia) and the Gulf migratory group (Gulf Group Cobia), but only Gulf Group Cobia is managed in the CMP FMP. The current stock and management boundaries are shown in Figure 1.1.1.

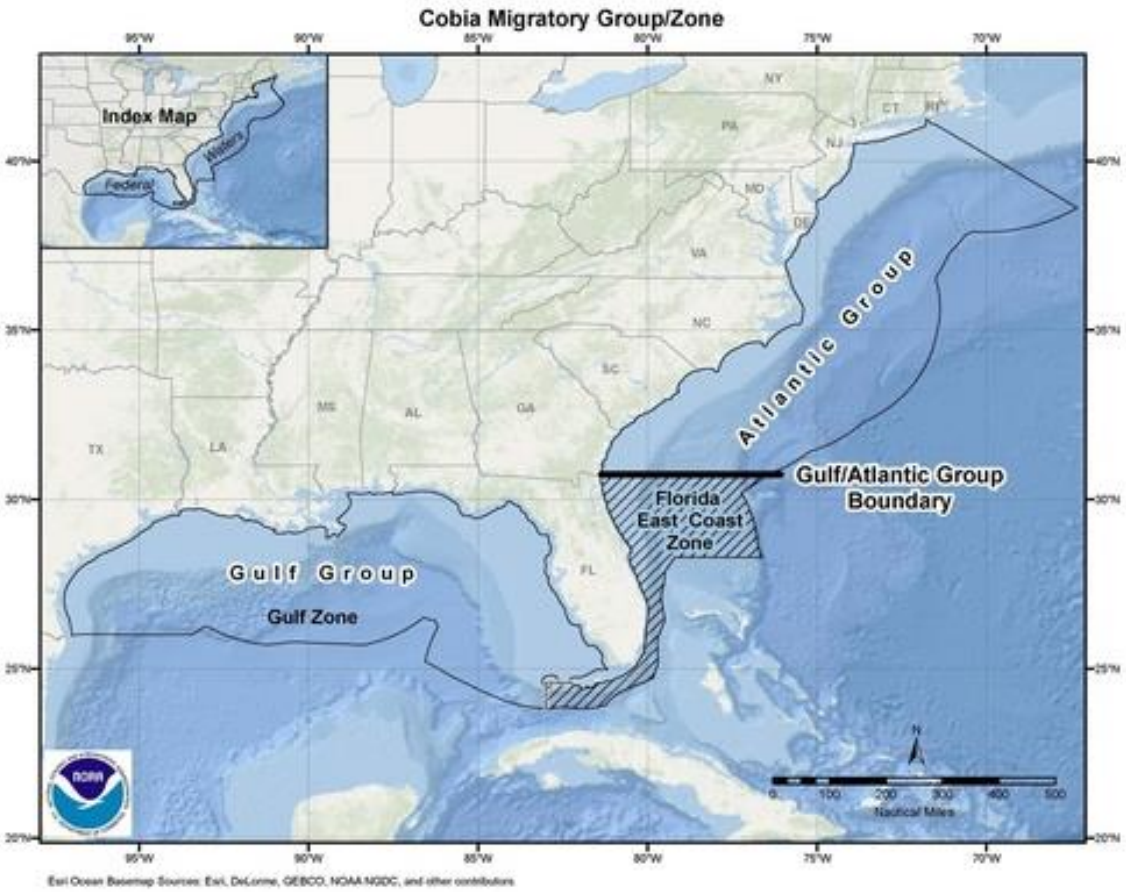

Figure 1.1.1. Gulf Group and Atlantic Group Cobia stock boundaries used for management purposes by the Councils and the Atlantic States Marine Fisheries Commission (ASMFC). The Gulf Group is divided into Gulf Zone (managed by Gulf Council) and the Florida East Coast Zone (hash-marks, jointly managed between the Gulf Council and South Atlantic Council). The ASMFC manages Atlantic Group Cobia.[1]

[1] Source: https://www.fisheries.noaa.gov/resource/map/cobia-migratory-group-zones-fishery-management-areas-map-gis-data

Recently, Atlantic Group Cobia was removed from the CMP FMP and is no longer managed under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), because most of Atlantic Group cobia is landed in state waters (GMFMC and SAFMC 2018). Atlantic Group Cobia is now managed by the Atlantic States Marine Fisheries Commission (ASMFC) under the Atlantic Coastal Fisheries Cooperative Management Act.

Gulf Group Cobia is managed in federal waters under the CMP FMP from Texas to the Florida-Georgia state boundary (Figure 1.1.1), overlapping the jurisdictions of the Gulf and South Atlantic Councils. A percentage of the Gulf Group Cobia stock catch limit is apportioned to the Florida East Coast (FLEC) Zone (hash-marked section in Figure 1.1.1), and the South Atlantic Council is responsible for establishing the specific management actions in this area as outlined in the CMP framework procedure (Appendix A): trip limits, closed seasons or areas, and/or gear restrictions. The Gulf Council is responsible for establishing management measures for Gulf Group Cobia in the Gulf Zone (Figure 1.1.1) and management measures for the FLEC Zone that are not specified in the framework procedure as responsibilities of the South Atlantic Council.

Gulf Group Cobia

Cobia migratory group that is found from Texas to the Florida-Georgia state boundary, and it's jointly managed between the Gulf and South Atlantic Councils.

Gulf Zone

Portion of the Gulf Group Cobia managed by the Gulf Council within its jurisdiction (Texas to the Gulf and South Atlantic Council boundary).

FLEC Zone

Portion of the Gulf Group Cobia partially managed by the South Atlantic Council (Atlantic side of the Florida Keys to the Florida-Georgia state boundary).

The Gulf Group Cobia fishing season is open year-round from January 1 – December 31 with no seasonal closure. There is a 2-cobia per person, per day, possession limit for commercial and recreational anglers across both zones. The annual catch limit (ACL) and annual catch target (ACT) were established for Gulf Group Cobia in Amendment 18 to the CMP FMP, with the ACL being set equal to the acceptable biological catch (ABC) (GMFMC and SAMFC 2011). The apportionment of Gulf Group Cobia to the FLEC Zone was established in Amendment 20B to the CMP FMP (GMFMC and SAFMC 2014), using the average landings across both zones from 1998 – 2012 to establish the percentage split for the Gulf Group Cobia ABC between the two zones. The FLEC Zone apportionment of the Gulf Group Cobia ABC is 36%, and the Gulf Zone apportionment is 64%. Gulf Zone cobia is managed as a stock, without sector allocations, with an ACT set at 90% of the ACL. The FLEC Zone cobia ACL is allocated between sectors (8% commercial, 92% recreational). The recreational sector ACT is set equal to ACL * [(1-Proportional Standard Error [PSE] of the recreational landings) or 0.5, whichever is greater],

which equaled 83% of the ACL when established under CMP Amendment 18. There is no ACT for the commercial sector in the FLEC Zone.

The in-season accountability measure (AM) for Gulf Group Cobia in the Gulf Zone states that when the stock ACT is reached or projected to be reached, the fishing season is closed within that zone. The Gulf Zone does not have a post-season AM. In the FLEC Zone, there are separate AMs for cobia that are sold and cobia that are not sold. For ease of reference, this document refers to those cobia that are sold as "commercial", and those cobia that are not sold as "recreational". The in-season AM for commercial cobia in the FLEC Zone states that when landings of commercial cobia reach or are projected to reach the commercial FLEC Zone ACL, the sale of cobia is prohibited for the remainder of the fishing year. The FLEC Zone has post-season AMs for commercially and recreationally harvested cobia. For commercial cobia, if the total ACL for the FLEC Zone is exceeded, and Gulf Group Cobia is overfished, the FLEC Zone commercial sector ACL will be reduced in the following year by the amount of the overage. For recreational cobia, if the total ACL for the FLEC Zone is exceeded, the length of the following fishing season is reduced by the amount necessary to ensure that recreational landings achieve the ACT, but do not exceed the ACL in the following fishing year. Lastly, if the total ACL for the FLEC Zone is exceeded, and Gulf Group Cobia is overfished, the applicable ACL and ACT for the FLEC Zone will be reduced by the amount of the overage in the following fishing year.

Gulf Group Cobia Landings

The Gulf Zone and FLEC Zone cobia ACLs have never been exceeded since their implementation in 2015 (Table 1.1.1 and 1.1.2). Gulf Group Cobia landings are monitored in terms of landed weight or "as reported", which is a combination of gutted and whole weight. For the purpose of this document, landed weight is considered as pounds (lbs) landed weight (lw). The conversion between lw and ww is almost 1:1; thus, in cases where lw is presented in this document instead of ww, it is assumed those weights are equivalent to lw. Gulf Group Cobia landings across both zones have been decreasing since 2011 (Figures 1.1.2, 1.1.3, and 1.1.4). Recreational harvest estimates are presented in the Marine Recreational Information Program's (MRIP) Coastal Household Telephone Survey (CHTS) data currency. In 2018, MRIP-CHTS was replaced by a mail survey (Fishing Effort Survey, FES) to estimate marine recreational fishing effort. A more detailed description of the recent changes to the collection of recreational catch and effort data can be found in Appendix B. Gulf stakeholders, predominantly federal for-hire operators and recreational fishermen, provided public testimony during several Gulf Council meetings between 2018 and 2020[2], reporting a decrease in the presence of Gulf Zone cobia. Similar comments were received through the Gulf Council's Something's Fishy sentiment analysis tool[3]. The majority of those respondents identified as recreational fishermen. The results from Something's Fishy indicated a negative trend in the perception of the Gulf Group Cobia stock's abundance, and noted a reduction in the lengths of the fish being observed. The public asked the Gulf Council to address this negative trend as a potential problem with the status of the Gulf Group Cobia stock.

[2] https://gulfcouncil.org/meetings/council/archive/
[3] https://gulfcouncil.org/wp-content/uploads/C-5c-Somethings-Fishy-Cobia-Summary.pdf

Table 1.1.1. Gulf Zone landings of Gulf Group Cobia for the recreational (lbs ww, in MRIP-CHTS) and commercial (lbs lw) sectors compared to the current ACL and ACT (lbs lw) for years 2015 through 2019.

Year	Recreational Landings	Commercial Landings	Total Landings	ACT	ACL	% ACT	% ACL
2015	784,457	70,370	854,827	1,450,000	1,610,000	59.0	53.1
2016	974,015	75,559	1,049,574	1,500,000	1,660,000	70.0	63.2
2017	515,257	73,604	588,861	1,500,000	1,660,000	39.3	35.5
2018	638,909	41,069	679,978	1,500,000	1,660,000	45.3	41.0
2019	612,842	37,993	650,835	1,500,000	1,660,000	43.4	39.2

Source: SEFSC Commercial ACL data (Accessed August 21, 2020), and SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

Table 1.1.2. FLEC Zone landings of Gulf Group Cobia for the recreational (lbs ww, in MRIP-CHTS) and commercial (lbs lw) sectors, compared to the current ACL and ACT (lbs lw), for years 2015 through 2019.

Year	Rec. Landings	Com. Landings	Total Landings	Rec. ACT	Rec. ACL	Rec. % ACT	Rec. % ACL	Com. ACL	Com.% ACL
2015	420,776	62,464	483,240	680,000	830,000	61.9	50.7	70,000	89.2
2016	592,812	48,611	641,423	710,000	860,000	83.5	68.9	70,000	69.4
2017	323,516	41,043	364,559	710,000	860,000	45.6	37.6	70,000	58.6
2018	614,607	32,839	647,446	710,000	860,000	86.6	71.5	70,000	46.9
2019	194,126	33,874	228,000	710,000	860,000	27.3	22.6	70,000	48.4

Source: SEFSC Commercial ACL data (Accessed August 21, 2020), and SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

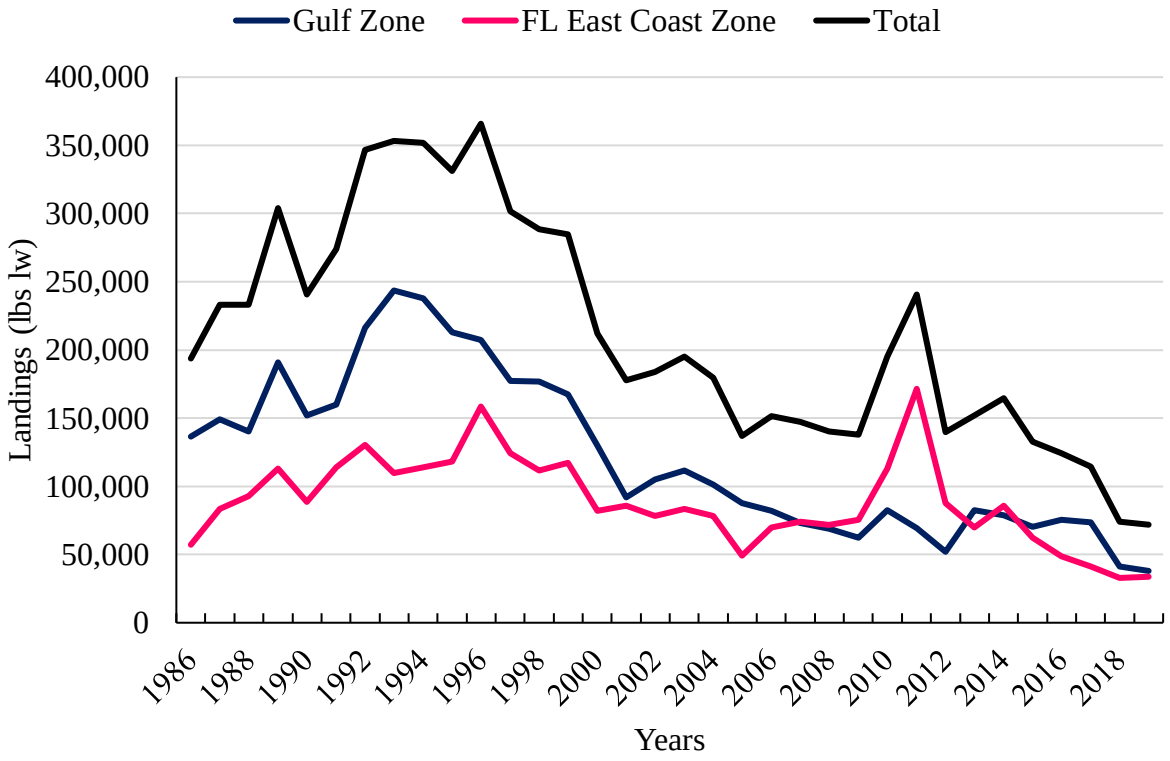

Figure 1.1.2. Commercial landings (lbs lw) history for Gulf Group Cobia for the Gulf and FLEC Zones from 1986 – 2019.
Source: SEFSC Commercial ACL data (Accessed August 21, 2020).

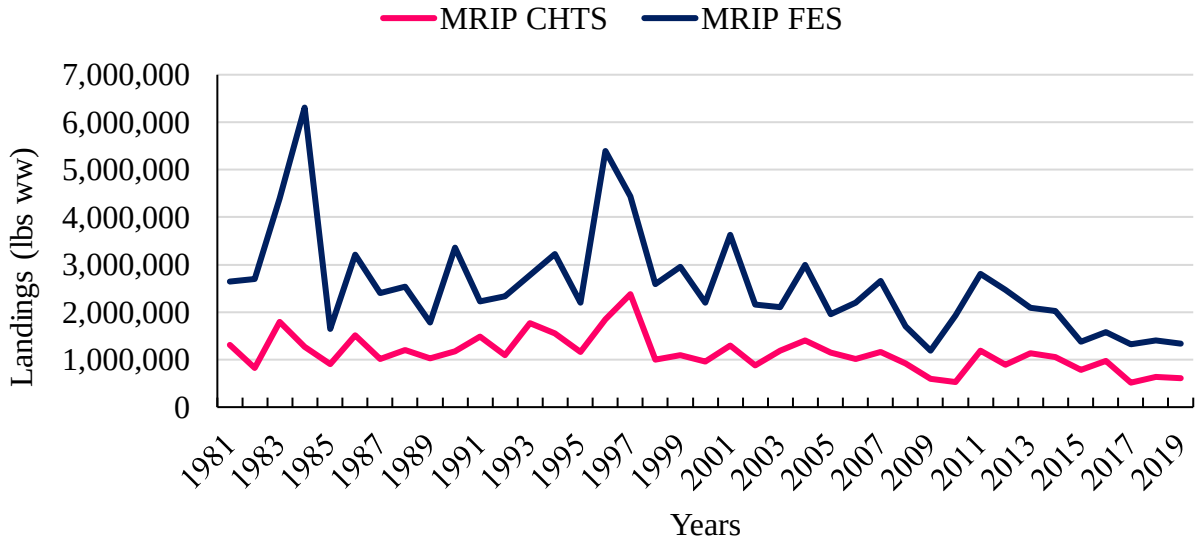

Figure 1.1.3. Recreational landings (lbs ww) history for Gulf Zone cobia from 1981 – 2019.
Source: SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

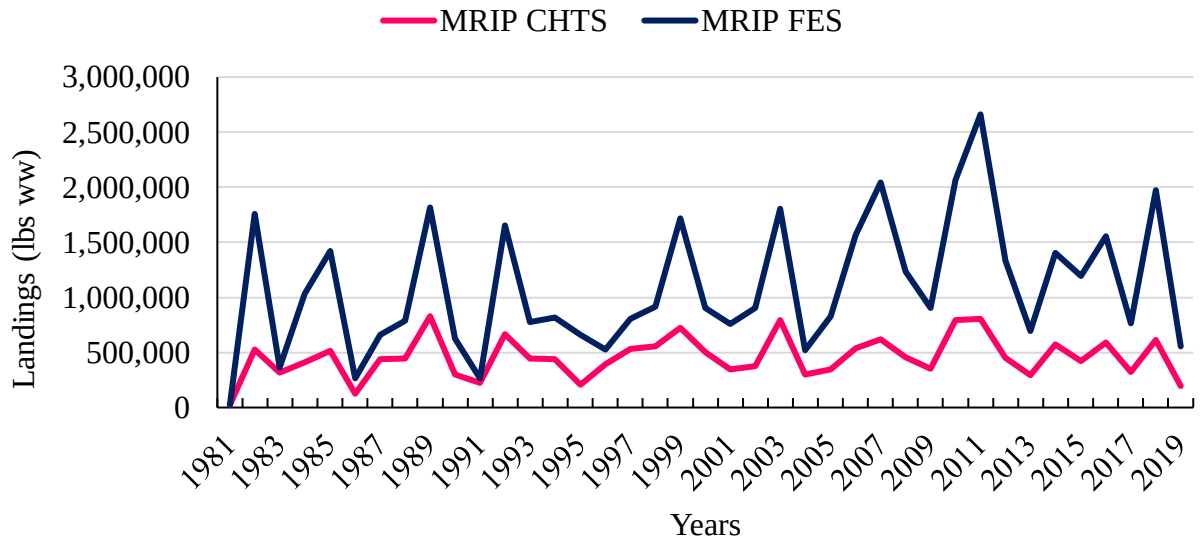

Figure 1.1.4. Recreational landings (lbs ww) history for the FLEC Zone from 1981 – 2019.
Source: SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

Most Recent Management Action

At its meeting in April 2018, the Gulf Council discussed options to reduce fishing mortality on Gulf Group Cobia, including modifications to minimum size and possession limits, while the results from a stock assessment were underway. Subsequently, Framework Amendment 7 (GMFMC 2019b) to the CMP FMP increased the minimum size limit of Gulf Zone cobia from 33 inches fork length (FL) to 36 inches FL for both sectors. Increasing the Gulf Zone minimum size limit was expected to reduce fishing mortality by reducing harvest and increasing the probability of a fish reproducing and contributing to the biomass of the stock. Analyses in Framework Amendment 7 estimated that increasing the Gulf Zone minimum size limit to 36 inches FL would decrease fishing mortality by 10.3% for the commercial sector, and 26.1% for the recreational sector (Table 2.1.2 of Framework Amendment 7). The South Atlantic Council chose not to change the minimum size limit (33 inches FL) in the FLEC Zone. The South Atlantic Council's intent was to review the Southeast Data, Assessment, and Review (SEDAR) 28 Update assessment before making any management changes

Though the last stock assessment (SEDAR 28 2013) did not indicate that Gulf Group Cobia were overfished or undergoing overfishing, the Gulf action in Framework Amendment 7 was designed to take a precautionary approach while the SEDAR 28 Update assessment (2020) was being conducted. The Gulf Council's intent was to reduce fishing mortality in response to constituent concerns that the observed decrease in landings indicated some presently unknown issue with the stock.

CMP FMP Framework Procedure

The CMP framework procedure (Appendix A) provides standardized procedures for implementing management changes pursuant to the provisions of the CMP FMP, which is

managed jointly by the Councils. The last revision to the CMP framework procedure was adopted in Amendment 26 to the CMP FMP by removing language that referred to the king mackerel Florida East Coast Subzone (GMFMC 2016). Currently, the South Atlantic Council is only allowed to modify the following specific management measures for Gulf Group Cobia in the FLEC Zone through the framework process: vessel trip limits, closed seasons or areas, and/or gear restrictions. The Gulf Council is required to be involved for changes to any other management measures within the FLEC Zone. The proposed changes in this document would expand the South Atlantic Council's responsibilities in the CMP framework procedure for cobia in the FLEC Zone beyond setting vessel trip limits, closed seasons or areas, or gear restrictions without requiring approval from the Gulf Council. This change would allow the South Atlantic Council to independently approve Framework Amendments specifically pertaining to management measures for the FLEC Zone for Gulf Group Cobia, similar to the division of each Council's responsibilities for king and Spanish mackerel. The proposed changes in this document would not allow the South Atlantic Council to make unilateral changes to management measures that affect the entire Gulf migratory group of cobia throughout its range, such as removing the FLEC Zone apportionment of the migratory group from the CMP FMP, or modifying the Gulf Group Cobia overfishing limit (OFL), ABC, or ACL.

Update Stock Assessment

The SEDAR 28 Update stock assessment for Gulf Group Cobia was completed in July 2020 with a terminal year for data of 2018 (SEDAR 28 Update 2020). SEDAR 28 Update included updated recreational catch and effort data derived using MRIP-FES, which formally replaced MRIP-CHTS in 2018. This change resulted in increased estimates of virgin spawning stock biomass, recruitment, and projected yields. The results from SEDAR 28 Update indicated that Gulf Group Cobia is undergoing overfishing with biomass at reduced levels, which puts the stock at risk of becoming overfished if no change in management is implemented. Moreover, SEDAR 28 Update suggests that the stock has experienced overfishing every year from 1975 through 2018, with the exceptions of 1983 and 2009. Since the stock is not considered to be overfished, a rebuilding plan is not required at this time. SEDAR 28 Update did not capture any changes to stock status related to the increase in the minimum size limit to 36 inches FL in Framework Amendment 7 to the CMP FMP (GMFMC 2019b), as that regulatory change was not implemented until 2020.

Upon reviewing SEDAR 28 Update, the Councils' Scientific and Statistical Committees (SSC) recommended that the results be considered the best scientific information available for Gulf Group Cobia, recommending an increasing yield stream for OFLs and ABCs for 2021 – 2023 and subsequent years (Table 1.1.3). The increase in the SSC-recommended stock catch limits compared to the current catch limits is largely a result of converting the recreational catch and effort data to the MRIP-FES data currency. Had MRIP-FES data been available for SEDAR 28 in 2013, the current ACL recommendations would represent approximately a 33% decrease in yield from SEDAR 28 (SEDAR 28 Update 2020).

Table 1.1.3. Catch limits for Gulf Group Cobia stock for 2021 – 2023 and subsequent years, as recommended by the Councils' SSCs in July 2020. Values are in pounds landed weight and MRIP-FES.

Year	OFL*	ABC*
2021	3,030,000	2,340,000
2022	3,210,000	2,600,000
2023	3,310,000	2,760,000

* OFL and ABC values are for Gulf Group Cobia in both the Gulf and FLEC Zones.

Summary of Actions

Actions 1 – 4 of this amendment address the changes in catch limits for the entire stock and each of its zones. Figure 1.1.5 outlines the step-by-step progression of the Actions 1 – 4, and the regions affected by each change therein. Actions 5 and 6 are additional management measures to further reduce cobia harvest and mortality by modifying the daily possession limits and minimum size limits. Action 7 updates the language outlining the responsibilities of each Council for the joint management of CMP resources through framework actions.

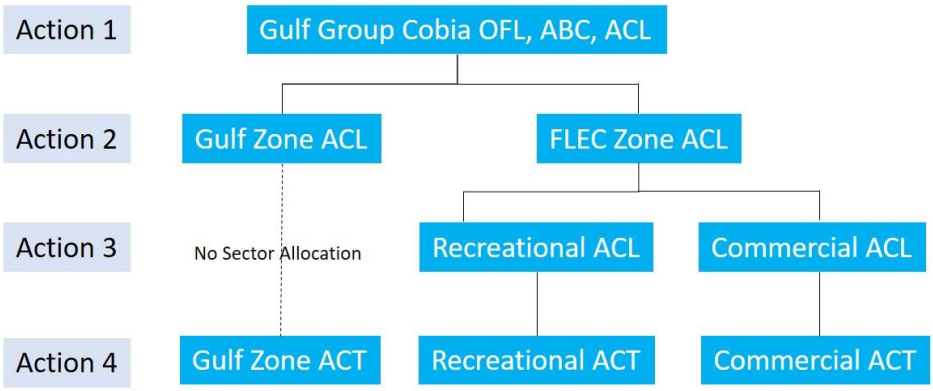

Figure 1.1.5. Step by step of the actions modifying catch limits of Gulf Group Cobia, it's Zones, and sectors.

1.2 Purpose and Need

The purpose of this plan amendment is to consider whether to modify Gulf Group Cobia catch limits, revise the apportionment between the Gulf Zone and the FLEC Zone for Gulf Group Cobia in response to new information on the stock provided in the SEDAR 28 Update stock assessment, revise the sector allocation in the FLEC Zone, modify management measures related to size and possession limits, and to clarify language in the CMP framework procedure regarding the responsibilities of the Gulf and South Atlantic Councils for management of Gulf Group Cobia.

The need is to end overfishing of Gulf Group Cobia as required by the Magnuson-Stevens Act, update existing Gulf Group Cobia catch limits to be consistent with best scientific information

available and contemporary data collection methods, and to clarify the Gulf and South Atlantic Councils' responsibilities in the CMP framework procedure.

1.3 History of Management

The **CMP FMP**, with environmental impact statement (EIS) and regulatory impact review (RIR), was approved in 1982 and implemented by regulations effective in February 1983 (GMFMC and SAFMC 1983). The management unit includes king mackerel, Spanish mackerel, and cobia. The CMP FMP treated king and Spanish mackerel as unit stocks in the Atlantic and Gulf and set the minimum size limit for cobia at 33 inches FL. A history of management for all CMP species can be found in CMP **Amendment 18** (GMFMC and SAFMC 2011), **Amendment 20B** (GMFMC and SAFMC 2014), and **Amendment 26** (GMFMC 2016) and are incorporated here by reference. A complete history of management for CMP species is provided on the Gulf Council website.[4]

Amendment 5, with environmental assessment (EA) and RIR, implemented in August 1990, set the current federal possession limit for Gulf Group Cobia of two fish per person per day (recreational and commercial sectors).

Amendment 6, with EA, RIR, and regulatory flexibility analysis (RFA), implemented in December 1992, changed the cobia size limit measure to fork length only, and set the commercial cobia fishing year to the calendar year.

Amendment 16—July 2003 Regulatory Amendment, with EA, RIR, and RFA, implemented in April 2004, defined maximum sustainable yield, optimum yield, the overfishing threshold, and the overfished condition for Gulf Group Cobia.

Amendment 18, with EA, RIR, and RFA, implemented in January 2012, separated cobia into Atlantic and Gulf migratory groups and established ACLs, ACTs, and AMs for Gulf Group Cobia.

Amendment 20B, with EA, RIR, and RFA, implemented in March 2015, created a FLEC Zone for Gulf migratory group cobia with a separate apportionment of the ABC, which would be partially managed by the South Atlantic Council.

Amendment 26, with EA, RIR, and RFA, effective in May 2017, removed the Eastern Zone-East Coast Subzone for Gulf migratory group king mackerel from the framework procedure.

Amendment 31, with EA, RIR, and RFA, implemented in March 2019, removed the Atlantic migratory group of cobia from the CMP FMP.

Framework Amendment 7, with EA, RIR, and RFA, implemented in March 2020, increased the minimum size limit for Gulf Zone cobia to 36 inches FL for commercial and recreational sectors.

[4] https://gulfcouncil.org/fishery-management/implemented-plans/coastal-migratory-pelagics/

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1 – Modify the Gulf of Mexico (Gulf) Migratory Group Cobia (Gulf Group Cobia) Stock Overfishing Limit (OFL), Acceptable Biological Catch (ABC), and Annual Catch Limit (ACL).

Alternative 1: No Action. Retain the Gulf Group Cobia stock OFL, ABC, ACL as implemented in 2015 by Amendment 20B to the Fishery Management Plan for Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Regions (CMP FMP).

	Gulf Group Cobia		
Year	**OFL**	**ABC**	**ACL**
2016+	2,660,000	2,600,000	2,600,000
MRIP-FES equivalent	4,870,000	4,500,000	4,500,000

Note: Catch limits in pounds landed weight (lbs lw; combined gutted and whole). The recreational portion of the current OFL, ABC, and ACL are based on Marine Recreational Information Program Coastal Household Telephone Survey (MRIP-CHTS) data. The recreational portion of the MRIP Fishing Effort Survey (FES) equivalent was calculated in the SEDAR 28 Update stock assessment (2020) and is provided for comparison only.

Preferred Alternative 2: Modify the Gulf Group Cobia stock OFL, ABC, and ACL based on the recommendation of the Gulf and South Atlantic (Councils)' Scientific and Statistical Committees (SSCs) as presented in July 2020, for an increasing yield stream for 2021 to 2023, and then maintain the 2023 levels for subsequent fishing years or until changed by a future management action. The stock ACL is set equal to the stock ABC.

	Gulf Group Cobia		
Year	**OFL**	**ABC**	**ACL**
2021	3,030,000	2,340,000	2,340,000
2022	3,210,000	2,600,000	2,600,000
2023+	3,310,000	2,760,000	2,760,000

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

Alternative 3: Modify the Gulf Group Cobia stock OFL, ABC, and ACL as a constant catch value for 2021 and subsequent fishing years or until changed by a future management action. The stock ACL is set equal to the stock ABC.

	Gulf Group Cobia		
Year	**OFL**	**ABC**	**ACL**
2021+	3,030,000	2,340,000	2,340,000

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

Note: Landings are reported in mixed weight, meaning whole weight and gutted weight as landed are combined. Therefore, while the OFL, and ABC were recommended by the Council's SSCs in lbs ww, ACLs and annual catch targets will be in mixed weights consistent with current regulations (i.e., lbs landed weight [lw]).

Discussion:

Alternatives in Action 1 apply to the Gulf Group Cobia stock, which refers to the cobia that would be landed from the Texas/Mexico border to the Florida/Georgia state boundary. This action does not modify the apportionment of the stock ACL between the Gulf and the Florida East Coast (FLEC) Zone. Modifications to the ACL apportionment are covered under Action 2.

The Southeast Data Assessment and Review (SEDAR) 28 Update assessment (2020) indicated that Gulf Group Cobia was not overfished, but was undergoing overfishing. The Gulf of Mexico Fishery Management Council's (Gulf Council) SSC recommended that the SEDAR 28 Update be considered the best scientific information available, and recommended increasing yields for the OFL and ABC based on the assessment for 2021 – 2023. The buffer between the OFL and the ABC reflects scientific uncertainty, and was fixed at 75% of the fishing mortality rate (F) at maximum sustainable yield (MSY) which, in the case of Gulf Group Cobia, is set at the proxy value of 30% of the spawning potential ratio (i.e., the projected yield at 75% of $F_{SPR30\%}$). Amendment 18 to the Fishery Management Plan (FMP) for Coastal Migratory Pelagic Resources (CMP) in the Gulf of Mexico and Atlantic Region defined the ACL as equal to ABC (GMFMC and SAFMC 2011).

The actions in Amendment 18 provided the definition for the Gulf Group Cobia stock ACL being set equal to the ABC with no buffer, because: 1) there was no indication at the time that Gulf Group Cobia was overfished or experiencing overfishing; 2) the accountability measures (AM) implemented through Amendment 18 are in place to account for any ACL overages, should they occur; and, 3) repeated ACL overages are not expected due to improved commercial monitoring mechanisms, proposed improvements to dealer reporting, and proposed improvements to the reporting of recreational data. Although the current stock assessment indicates that Gulf Group Cobia is experiencing overfishing, the Gulf Group Cobia OFL has never been exceeded. However, a larger buffer between the OFL and ABC is now recommended by the SSC to account for additional scientific uncertainty, and annual catch targets (ACT) will continue to be used to address management uncertainty. AMs remain in place to correct for ACL overages.

Alternative 1 (No Action) retains the existing OFL, ABC, and ACL, all of which are based on the previous Gulf Group Cobia stock assessment (SEDAR 28 2013). The ACL is equal to the ABC, as adopted in Amendment 18. This definition of the ACL was retained in Amendment 20B (GMFMC and SAFMC 2014), which set the ACL for the Gulf Group Cobia stock for the years 2014 – 2016 and beyond. The OFL, ABC and ACL in **Alternative 1** are based, in part, on Marine Recreational Information Program's (MRIP) Coastal Household Telephone Survey (CHTS) data. One of the major changes between the SEDAR 28 (2013) and SEDAR 28 Update (2020) base models is the incorporation of the MRIP Fishing Effort Survey (FES) adjustments to the recreational catch and effort estimates, which are considered by National Marine Fisheries Service to be is the best scientific information available. Therefore, retaining the OFL, ABC and ACL under **Alternative 1**, which are based on MRIP-CHTS data, is not a viable alternative.

Preferred Alternative 2 would modify the catch limits for the Gulf Group Cobia stock based on the recommendations of the Councils' SSCs from the SEDAR 28 Update. The revised Gulf Group Cobia stock ACL is consistent with the MRIP-FES transition in the recreational data and addresses the overfishing status of the Gulf Group Cobia stock. **Preferred Alternative 2** sets the stock ACL equal to the Councils' SSCs' recommendation for the stock ABC for 2021 – 2023, and then maintains the ABC and ACL at the 2023 level for subsequent years until changed by future management action. When comparing historical Gulf Group Cobia landings that are adjusted in FES currency to the 2021 OFL, ABC, and ACL in **Preferred Alternative 2** (the lowest of the 2021 – 2023 SSC-recommended catch limits), total Gulf Group Cobia landings would have exceeded the ACL in six of the eight years since ACLs were implemented (Table 2.1.1). Landings would have also exceeded the 2021 OFL in four of the eight years since the OFLs were implemented. When comparing historical Gulf Group Cobia landings that are adjusted in FES currency to the 2023 OFL, ABC, and ACL in **Preferred Alternative 2** (the highest of the 2021 – 2023 SSC-recommended catch limits), total Gulf Group Cobia landings would have exceeded the 2023 ACL in five of the eight years between 2012 and 2019 (Table 2.1.1). Landings would have exceeded the 2023 OFL in three of the eight years since OFLs were implemented. Therefore, changes to other management measures may be needed to constrain harvest to the ACL and prevent an overage of the OFL.

Alternative 3 would modify the catch limits for Gulf Group Cobia stock as a constant catch based on the SSC's recommended OFL and ABC for 2021. Similar to **Alternative 1** and **Preferred Alternative 2,** the ACL for **Alternative 3** would remain equal to the ABC. Also, similar to **Preferred Alternative 2**, changes to other management measures may still be needed to constrain harvest to the ACL and prevent an overage of the OFL. It should be noted that the SSC did not recommend a constant catch scenario for Gulf Group Cobia because, as the stock is currently experiencing overfishing, more fine-scale annually projected catch limits may benefit the stock to ensure that it can recover from its "experiencing overfishing" stock status in a timely manner, assuming that catches are constrained to the ACL.

Table 2.1.1. Gulf Group Cobia (Zones combined) recreational (lbs ww) and commercial landings (lbs lw) using MRIP-CHTS and MRIP-FES units, and total ACL in MRIP-CHTS units for the years 2012 – 2019.

Year	Rec. Landings (CHTS)	Rec. Landings (FES)	Com. Landings	Total Landings (CHTS)	Total Landings (FES)	Proposed 2021 ACL (FES)	Proposed 2023+ ACL (FES)
2012	1,336,029	3,799,097	139,736	1,475,765	3,938,833	2,340,000	2,760,000
2013	1,421,717	2,790,938	152,131	1,573,848	2,943,069	2,340,000	2,760,000
2014	1,626,624	3,430,720	164,744	1,791,368	3,595,464	2,340,000	2,760,000
2015	1,205,233	2,575,262	132,834	1,338,067	2,708,096	2,340,000	2,760,000
2016	1,566,827	3,127,758	124,170	1,690,997	3,251,928	2,340,000	2,760,000
2017	838,773	2,089,986	114,647	953,420	2,204,633	2,340,000	2,760,000
2018	1,253,516	3,379,295	73,908	1,327,424	3,453,203	2,340,000	2,760,000
2019*	806,968	1,897,489	71,867	878,835	1,969,356	2,340,000	2,760,000

Source: SEFSC Commercial ACL data (Accessed August 21, 2020), and SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

2.2 Action 2 – Modify the Gulf Group Cobia Stock Apportionment Between the Gulf Zone and the Florida East Coast (FLEC) Zone, and Update the Zones' ACLs Based on the ACL Selected in Action 1.

Alternative 1: No Action. Retain the current Gulf Group Cobia stock ACL apportionment of 64% to the Gulf Zone and 36% to the FLEC Zone based on MRIP-CHTS average landings for Gulf Group Cobia for the years 1998 – 2012.

Alternative 2: Retain the Gulf Group Cobia stock ACL apportionment between the zones at 64% to the Gulf Zone and 36% to the FLEC Zone, and use this apportionment to update both Zone ACLs using MRIP-FES units based on the Gulf Group Cobia stock ACL(s) selected in Action 1.

Preferred Alternative 3: Modify the Gulf Group Cobia stock ACL apportionment at 63% to the Gulf Zone and 37% to the FLEC Zone, based on the MRIP-FES average landings for Gulf Group Cobia for the years 1998 – 2012, and use this apportionment to update the Zone ACLs based on the Gulf Group Cobia stock ACL(s) selected in Action 1.

Alternative 4: Modify the Gulf Group Cobia stock ACL apportionment at 59% to the Gulf Zone and 41% to the FLEC Zone, based on the MRIP-FES average landings for Gulf Group Cobia for the years 2003 – 2019, and use this apportionment to update the Zone ACLs based on the Gulf Group Cobia ACL(s) selected in Action 1.

Discussion:

Alternatives in Action 2 apply to the apportionment of the Gulf Group Cobia stock between the two management zones: Gulf Zone and FLEC Zone. The ACLs for each zone are determined based on the Gulf Group Cobia ACL selected in Action 1.

The ACLs and ACTs for Gulf Group Cobia were modified, and a new FLEC Zone designated, in Amendment 20B (GMFMC and SAFMC 2014). Amendment 20B established zone apportionments for the Gulf Group Cobia ACL of 64% to the Gulf Zone and 36% to the FLEC Zone, based on the combined average landings of Gulf Group Cobia from 1998 – 2012 across its range (Texas east and north to the Florida/Georgia state boundary). This time period was selected as it included the landings from the most recent 15 years, which at the time was the longest time period that could capture long-term dynamics of the stock. At the time this decision was made, the results from SEDAR 28 (2013) determined Gulf Group Cobia to be healthy, and Councils considered this apportionment to be a fair and equitable distribution of the resource between their jurisdictions. The FLEC Zone ACL was further allocated 92% to the recreational sector and 8% to the commercial sector. These Zone apportionments, based on historic landings in MRIP-CHTS, would remain in effect under **Alternative 1** of this action. They would not be modified according to the SSCs' recommendation based on the SEDAR 28 Update assessment to monitor catch and effort in the MRIP-FES data currency (SEDAR 28 Update 2020). Therefore, **Alternative 1** is not a viable alternative.

Tables 2.2.1 and 2.2.2 summarize the recreational and commercial landings data for the time series used to calculate the ACL apportionment between the Gulf and FLEC Zones. The ACL poundage for each Zone is summarized in Table 2.2.3. **Alternative 2** would transition recreational data monitoring from MRIP-CHTS to MRIP-FES, but the percentages used for the ACL apportionment would remain the same, and catch limits would be updated using this apportionment (Table 2.2.3 and 2.2.4). **Preferred Alternative 3** would transition recreational data monitoring from MRIP-CHTS to MRIP-FES, but retains the time period used in Amendment 20B (i.e., 1998 – 2012) to calculate the apportionment. Catch limits would be updated using this apportionment (Table 2.2.4). **Alternative 4** would update the apportionments and catch limits (Table 2.2.4) by incorporating transitioning the recreational data from MRIP-CHTS to MRIP-FES and by considering a more recent time period (i.e., 2003 – 2019) in the calculation of average landings (Tables 2.2.1 and 2.2.2). It is important to note that the time series under **Alternative 4** may be biased by recent changes in the management of Gulf Group Cobia.

Table 2.2.1. Gulf Zone cobia recreational (lbs ww) and commercial (lbs lw) landings using MRIP-CHTS and MRIP-FES units, and the stock ACL (lbs lw) in MRIP-CHTS units for the years 1998 – 2019.

Year	Recreational Landings (CHTS)	Recreational Landings (FES)	Commercial Landings	Stock Total Landings (CHTS)	Stock Total Landings (FES)	Stock ACL (CHTS)
1998	1,003,506	2,583,814	176,978	1,180,484	2,760,792	N/A
1999	1,099,709	2,954,532	167,416	1,267,125	3,121,948	N/A
2000	959,280	2,206,198	129,890	1,089,170	2,336,088	N/A
2001	1,296,703	3,625,034	92,108	1,388,811	3,717,142	N/A
2002	876,253	2,157,024	105,252	981,505	2,262,276	N/A
2003	1,191,268	2,101,349	111,436	1,302,704	2,212,785	N/A
2004	1,407,228	2,998,358	101,211	1,508,439	3,099,569	N/A
2005	1,143,814	1,958,920	87,582	1,231,396	2,046,502	N/A
2006	1,017,720	2,204,813	81,948	1,099,668	2,286,761	N/A
2007	1,165,878	2,662,004	73,208	1,239,086	2,735,212	N/A
2008	922,218	1,703,737	68,723	990,941	1,772,460	N/A
2009	591,469	1,189,342	62,239	653,708	1,251,581	N/A
2010	530,123	1,924,253	82,361	612,484	2,006,614	N/A
2011	1,189,851	2,803,465	69,168	1,259,019	2,872,633	N/A
2012	887,225	2,464,238	51,911	939,136	2,516,149	1,460,000
2013	1,128,765	2,098,096	82,508	1,211,273	2,180,604	1,460,000
2014	1,051,304	2,023,921	78,762	1,130,066	2,102,683	1,460,000
2015	784,457	1,381,507	70,370	854,827	1,451,877	1,610,000
2016	974,015	1,573,088	75,559	1,049,574	1,648,647	1,660,000
2017	515,257	1,328,116	73,604	588,861	1,401,720	1,660,000
2018	638,909	1,406,879	41,069	679,978	1,447,948	1,660,000
2019	612,842	1,342,194	37,993	650,835	1,380,187	1,660,000

Source: SEFSC Commercial ACL data (August 21, 2020), and SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

Table 2.2.2. FLEC Zone cobia recreational (lbs ww) and commercial (lbs lw) landings and ACLs in pounds landed weight using MRIP-CHTS and MRIP-FES units, and ACLs (lbs lw) in MRIP-CHTS for the years 1998 – 2019.

Year	Rec. Landings (CHTS)	Rec. Landings (FES)	Rec. ACL (CHTS)	Com. Landings	Com. ACL (CHTS)	Total Landings (CHTS)	Total Landings (FES)	FLEC total ACL (CHTS)
1998	557,850	918,091	N/A	111,452	N/A	669,302	1,029,543	N/A
1999	726,302	1,715,939	N/A	117,262	N/A	843,564	1,833,201	N/A
2000	504,606	906,654	N/A	82,229	N/A	586,835	988,883	N/A
2001	345,791	760,075	N/A	85,605	N/A	431,396	845,680	N/A
2002	374,498	905,328	N/A	78,441	N/A	452,939	983,769	N/A
2003	791,831	1,807,656	N/A	83,488	N/A	875,319	1,891,144	N/A
2004	298,901	521,113	N/A	78,219	N/A	377,120	599,332	N/A
2005	345,091	828,307	N/A	49,415	N/A	394,506	877,722	N/A
2006	535,747	1,569,137	N/A	69,639	N/A	605,386	1,638,776	N/A
2007	616,904	2,043,940	N/A	74,278	N/A	691,182	2,118,218	N/A
2008	453,807	1,236,012	N/A	71,525	N/A	525,332	1,307,537	N/A
2009	350,111	903,567	N/A	75,604	N/A	425,715	979,171	N/A
2010	792,410	2,063,955	N/A	112,942	N/A	905,352	2,176,897	N/A
2011	805,024	2,661,682	N/A	171,472	N/A	976,496	2,833,154	N/A
2012	448,804	1,334,859	N/A	87,825	N/A	536,629	1,422,684	N/A
2013	292,952	692,842	N/A	69,623	N/A	362,575	762,465	N/A
2014	575,320	1,406,799	N/A	85,982	N/A	661,302	1,492,781	N/A
2015	420,776	1,193,755	830,000	62,464	70,000	483,240	1,256,219	900,000
2016	592,812	1,554,670	860,000	48,611	70,000	641,423	1,603,281	930,000
2017	323,516	761,870	860,000	41,043	70,000	364,559	802,913	930,000
2018	614,607	1,972,416	860,000	32,839	70,000	647,446	2,005,255	930,000
2019	194,126	555,295	860,000	33,874	70,000	228,000	589,169	930,000

Source: SEFSC Commercial ACL data (August 21, 2020), and SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

Table 2.2.3. Gulf Group Cobia average landings for each alternative in Action 2, and the percent of the stock ACL attributable to each Zone for each alternative.

		Landings (lbs lw)			
Alternative	**Method/Years**	**Gulf Group Cobia**	**Gulf Zone**	**FLEC Zone**	**% ACL Gulf:FLEC Zone**
1	Average (1998 – 2012) in MRIP-CHTS	1,729,311	1,106,056	623,255	64:36
2	Retain Zone apportionment and set ACL in MRIP-FES	3,901,615	64% of the ACL selected in Action 1	36% of the ACL selected in Action 1	64:36
Preferred Alternative 3	Average (1998 – 2012) in MRIP-FES	3,901,615	2,466,567	1,435,047	63:37
4	Average (2003 – 2019) in MRIP-FES	3,457,097	2,024,349	1,432,748	59:41

Source: Alt. 1: CMP Amendment 20B; Alt. 2 – 4: SEFSC Commercial ACL data (August 21, 2020), and SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

Table 2.2.4. ACLs for Gulf Zone and FLEC Zone based on the ACL selected in Action 1. All weights for OFL, ABC, and ACL are in pounds landed weight. Alternative 1 is in MRIP-CHTS units and Alternatives 2 – 4 are in MRIP-FES units. Sector allocation of FLEC Zone is addressed in Action 3.

Action 2			**Action 1, Preferred Alternative 2**		**Action 2**	
Alternative	**% Gulf:FLEC Zone**	**Year**	**Gulf Group Cobia**		**Gulf Zone**	**FLEC Zone**
			OFL	**ABC**	**ACL**	**ACL**
1	64:36	2021+	2,660,000	2,600,000	1,660,000	930,000
2	64:36	2021	3,030,000	2,340,000	1,497,600	842,400
		2022	3,210,000	2,600,000	1,664,000	936,000
		2023+	3,310,000	2,760,000	1,766,400	993,600
Preferred Alternative 3	63:37	2021	3,030,000	2,340,000	1,474,200	865,800
		2022	3,210,000	2,600,000	1,638,000	962,000
		2023+	3,310,000	2,760,000	1,738,800	1,021,200
4	59:41	2021	3,030,000	2,340,000	1,380,600	959,400
		2022	3,210,000	2,600,000	1,534,000	1,066,000
		2023+	3,310,000	2,760,000	1,628,400	1,131,600

2.3 Action 3 – Modify the FLEC Zone Cobia Allocation Between the Commercial and Recreational Sectors, and Update each Sector's ACLs Based on the ACLs and Apportionments Selected in Actions 1 and 2

Alternative 1: No Action. Retain the FLEC Zone cobia ACL allocation of 8% to the commercial sector and 92% to the recreational sector based on the South Atlantic Council's allocation formula for Atlantic Group cobia based on MRIP-CHTS landings which balanced historical catches (2000 – 2008) with more recent landings (2006 – 2008):

Sector allocation = (50% * average of Atlantic cobia long catch range (lbs) 2000 – 2008 + (50% * average of recent catch trend (lbs) 2006 – 2008)[5].

Alternative 2: Modify the FLEC Zone cobia ACL allocation to 5% to the commercial sector and 95% to the recreational sector based on the South Atlantic Council's allocation formula for Atlantic Group cobia, which balanced historical catches landings (2000 – 2008) with more recent landings (2006 – 2008), but use MRIP-FES data:

Sector allocation = (50% * average of Atlantic Group cobia long catch range (lbs) 2000 – 2008 + (50% * average of recent catch trend (lbs) 2006 – 2008).

Preferred Alternative 3: Retain the FLEC Zone cobia ACL allocation of 8% to the commercial sector and 92% to the recreational sector and update the ACL(s) selected in Action 2 based on MRIP-FES landings.

Alternative 4: Modify the FLEC Zone cobia ACL allocations to be calculated based on maintaining the current commercial ACL (i.e., 70,000 lbs) beginning in the 2021 fishing season and allocating the remaining revised total ACL to the recreational sector. The allocation percentages will remain in following years.

Discussion:

This action only affects the allocation of the FLEC Zone ACL between the commercial and recreational sectors.

In Amendment 18, the Gulf and South Atlantic Councils established the ABCs, ACLs, and sector allocations for separate migratory groups of cobia using the Gulf and South Atlantic Councils' jurisdictional boundary in west of the Dry Tortugas. As a result, the east coast of Florida, including the Atlantic side of the Florida Keys, was considered part of the Atlantic migratory group of cobia (Atlantic Group Cobia). The South Atlantic Council chose an allocation formula for Atlantic Group Cobia that balanced historical catches (2000 – 2008) with more recent landings (2006 – 2008). This allocation formula, by function of using the years 2006 – 2008 on

[5] Com Sector % = (50% x Average Com 2000-2008) + (50% x Average Com 2006-2008) / (50% x Avg Com 2000-2008 + 50% x Avg Com 2006-2008) + (50% x Avg Rec 2000-2008 + 50% x Avg Rec 2006-2008)

Rec Sector % = (50% x Average Rec 2000-2008) + (50% x Average Rec 2006-2008) / (50% x Avg Rec 2000-2008 + 50% x Avg Rec 2006-2008) + (50% x Avg Com 2000-2008 + 50% x Avg Com 2006-2008)

both sides of the allocation equation, more heavily weights the landings data from these years. The resulting allocation was 92% to the recreational sector and 8% to the commercial sector. During SEDAR 28 (2013), panelists determined the biological boundary between the Gulf and Atlantic migratory groups of cobia to be at the Florida/Georgia border. To account for this change, management of the portion of the Gulf Group Cobia ACL attributable to the east coast of Florida and Atlantic side of the Florida Keys was designated to the South Atlantic Council via Amendment 20B (GMFMC to SAFMC 2014) as the FLEC Zone. The South Atlantic Council chose to maintain the current sector allocation percentages (i.e., 8% to the commercial sector and 92% to the recreational sector) for Gulf Group Cobia in the new FLEC Zone.

These sector allocations were based on historic Atlantic Group Cobia landings for the entire Mid-Atlantic and South Atlantic region using MRIP-CHTS, and would remain in effect under **Alternative 1** of this action. They would not be modified according to the SSCs' OFL and ABC recommendation based on the SEDAR 28 Update assessment to monitor recreational catch and effort in MRIP-FES data currency (SEDAR 28 Update 2020), nor would the calculation use FLEC Zone cobia-specific landings. Therefore, **Alternative 1** (No Action) is not a viable alternative.

Alternative 2 would use the same formula and time series used for **Alternative 1**; however, landings data for FLEC Zone cobia using MRIP-FES adjusted recreational data would be used. This formula results in an allocation under **Alternative 2** of 5% commercial, 95% recreational. Catch limits would be updated using this allocation (Table 2.3.1). **Preferred Alternative 3** would retain an allocation of 8% commercial and 92% recreational, with the resulting catch limits determined using MRIP-FES data (Table 2.3.2). **Alternative 4** would hold the commercial sector at their current catch limit of 70,000 lbs lw during the 2021 fishing season, determine the allocation percentage by this fixed commercial catch limit, and allocate the remaining revised FLEC Zone ACL (determined in Action 2) to the recreational sector. The commercial and recreational catch limits would then update based on the allocation percentages in place for the 2021 season for 2022, 2023, and beyond (Table 2.3.3).

Based on the possible ACLs, a commercial closure analysis and a projection of when the recreational ACL would be met was conducted for the FLEC Zone (Appendices C and D). The recreational ACLs are predicted to be met during the month of August under the most conservative ACLs (Action 3 Alternative 4) projected for 2021 (Appendix C, Table 2). Similar results are predicted under the most conservative ACLs (Action 3 Alternative 4) for the 2022 fishing year (Appendix C, Table 3). Recreational FLEC Zone cobia currently do not have an in-season closure AM. Their post season AM states that if the total FLEC Zone stock ACL is exceeded in one year, then in the following year, the recreational season will be projected to and closed when the recreational ACT is met. Based on the analyses of the most conservative FLEC Zone recreational ACLs, it seems likely a recreational closure will occur in 2023 (based on anticipated implementation in 2022) if no other management measures (e.g., reduced possession limit (Action 5.2), increased size limit (Action 6)) are changed for the recreational sector (Appendix C Table 5). While the most conservative ACLs were used for the analyses, the **Preferred Alternative 3** ACLs are similar to **Alternative 4**. Based on the analyses of the most conservative FLEC Zone commercial sector ACLs (Action 3 Alternative 4), no commercial closures are projected (Appendix D).

Table 2.3.1. ACLs for FLEC Zone cobia under Action 1 Alternative 2 and 3, Action 2 Alternatives 2 – 4, and Action 3 Alternative 2. ACLs are in lb lw. Alternatives 2 – 4 are in MRIP-FES units.

Action 2 Alternative	% apportionment to FLEC Zone	Year	Gulf Group Cobia ACL	Action 3 Alternative 2 FLEC Zone ACL	
				Commercial (5%)	Recreational (95%)
2	36	2021	2,340,000	42,120	800,280
		2022	2,600,000	46,800	889,200
		2023+	2,760,000	49,680	943,920
Preferred Alternative 3	37	2021	2,340,000	43,290	822,510
		2022	2,600,000	48,100	913,900
		2023+	2,760,000	51,060	970,140
4	41	2021	2,340,000	47,970	911,430
		2022	2,600,000	53,300	1,012,700
		2023+	2,760,000	56,580	1,075,020

Note: Actions 1 and 2 Alternative 1 are not presented in this table because they use MRIP-CHTS units. Alternatives presented in this table are under the assumption that Alternative 1 in Actions 1 and 2 would not be selected.

Table 2.3.2. ACLs for FLEC Zone cobia under Action 1 Alternatives 2 and 3, Action 2 Alternatives 2 – 4, and Action 3 Alternatives 1 and 3 (result in same allocation). ACLs are in lbs lw. Alternatives 2 – 4 are in MRIP-FES units.

Action 2 Alternative	% apportionment to FLEC Zone	Year	Gulf Group Cobia ACL	Action 3 Preferred Alternative 3 FLEC Zone ACL	
				Commercial (8%)	Recreational (92%)
2	36	2021	2,340,000	67,392	775,008
		2022	2,600,000	74,880	861,120
		2023+	2,760,000	79,488	914,112
Preferred Alternative 3	37	2021	2,340,000	69,264	796,536
		2022	2,600,000	76,960	885,040
		2023+	2,760,000	81,696	939,504
4	41	2021	2,340,000	76,752	882,648
		2022	2,600,000	85,280	980,720
		2023+	2,760,000	90,528	1,041,072

Note: Actions 1 and 2 Alternative 1 are not presented in this table because they use MRIP-CHTS units. Alternatives presented in this table are under the assumption that Alternative 1 in Actions 1 and 2 would not be selected.

Table 2.3.3. ACLs for FLEC Zone cobia under Action 1 Alternatives 2 and 3, Action 2 Alternatives 2 – 4, and Action 3 Alternative 4. ACLs are in lbs lw. Alternatives 2 – 4 are in MRIP-FES units.

Action 2 Alt.	% apportionment to FLEC Zone	Year	Gulf Group Cobia ACL	Action 3 Alternative 4 FLEC Zone ACL		Action 3 Alternative 4 FLEC Zone Percentages	
				Com.	Rec.	Com.	Rec.
2	36	2021	2,340,000	70,000	772,400	8.310%	91.690%
		2022	2,600,000	77,782	858,218	8.310%	91.690%
		2023+	2,760,000	82,568	911,032	8.310%	91.690%
Pref. Alt. 3	37	2021	2,340,000	70,000	795,800	8.085%	91.915%
		2022	2,600,000	77,778	884,222	8.085%	91.915%
		2023+	2,760,000	82,564	938,636	8.085%	91.915%
4	41	2021	2,340,000	70,000	889,400	7.296%	92.704%
		2022	2,600,000	77,775	988,225	7.296%	92.704%
		2023+	2,760,000	82,562	1,049,038	7.296%	92.704%

Note: Actions 1 and 2 Alternative 1 are not presented in this table because they use MRIP-CHTS units. Alternatives presented in this table are under the assumption that Alternative 1 in Actions 1 and 2 would not be selected.

2.4 Action 4 – Update and/or Establish Annual Catch Targets (ACT) for the Gulf Group Cobia Zones Based on the Apportionment Selected in Action 2 and FLEC Zone Sector Allocation in Action 3.

Alternative 1: No Action. The Gulf Zone ACT equals 90% of the Gulf Zone ACL. The FLEC Zone ACT equals the FLEC Zone ACL multiplied by [(1-Proportional Standard Error [PSE] of the FLEC Zone recreational landings) or 0.5, whichever is greater].

Preferred Alternative 2: Use the Gulf Council's ACL/ACT Control Rule to calculate ACTs for the Gulf Zone and the recreational sector in the FLEC Zone.

Alternative 3: Establish an ACT for the commercial sector in the FLEC Zone using the Gulf Council's ACL/ACT Control Rule.

Gulf Migratory Group	
Gulf Zone	**FL East Coast Zone**
Stock ACT = 90% ACL **Or use** Gulf ACL/ACT Control Rule calculations	Recreational ACT = ACL * [(1-PSE) or 0.5, whichever is greater] **Or use** Gulf ACL/ACT Control Rule calculations

Currently established ACT calculations for Gulf Group Cobia implemented with CMP Amendment 18 and 20B and proposed ACT calculations under Action 4.

Discussion:

Amendment 18 established the Gulf Group Cobia buffer of 10% between the ACL and ACT for the Gulf Zone, represented by **Alternative 1** (No Action). Table 2.4.1 shows the results of the selected ACT calculation under **Alternative 1** for the Gulf Zone based on the alternatives selected in previous actions. The calculation for determining the FLEC Zone recreational sector ACT established in Amendment 20B is retained (Recreational ACT = ACL * [(1-PSE) or 0.5, whichever is greater]). The PSE expresses the standard error of an estimate as a percentage of the estimate and is a measure of precision.

In Amendment 20B, the buffer between the ACT and the ACL for the recreational sector in the FLEC Zone was determined using the time series selected under Alternative 1 of Action 2, which determined that the **Alternative 1** PSE for the recreational data was 0.17. As such, the FLEC Zone ACT would be equal to the FLEC Zone ACL multiplied by (1-0.17), or 0.83, setting the FLEC Zone ACT at 83% of the FLEC Zone ACL. For the time series in Action 2, Alternatives 2 and 3, the PSE for the recreational data was 0.24. The resulting FLEC Zone ACT would be equal to the FLEC Zone ACL multiplied by (1-0.24), or 0.76, setting the FLEC Zone ACT at 76% of the FLEC Zone ACL. While Alternatives 2 and 3 in Action 2 use the same time series as

Alternative 1 of Action 2, the calculated buffer has increased due to the PSE increasing, which is an acknowledgement that those landings are known with less precision using MRIP-FES data than previously estimated under MRIP-CHTS. For Action 2, Alternative 4, the PSE for the recreational data was 0.25. The resulting FLEC Zone ACT would be equal to the FLEC Zone ACL multiplied by (1-0.25), or 0.75, setting the FLEC Zone ACT at 75% of the FLEC Zone ACL. Tables 2.4.2, 2.4.3, and 2.4.4. show the results of the selected ACT calculation under **Alternative 1** for the FLEC Zone based on the alternatives selected in previous actions.

Preferred Alternative 2 and **Alternative 3** would update the calculation for determining the ACT by using the Gulf Council's ACL/ACT Control Rule (Appendix E). Under this control rule, the ACTs for the Gulf Zone and for the recreational sector in the FLEC Zone would be set 10% below their respective zone ACLs, based on the PSEs for the most recent four years of landings data (2016 – 2019) and the factors considered in the Gulf Council's ACL/ACT Control Rule (Appendix E). **Alternative 3** provides an option to establish an ACT for the commercial sector in the FLEC Zone, which would also be set 10% below the commercial ACL. Implementing an ACT would provide a mechanism to maintain harvest levels below the FLEC Zone commercial ACL. Furthermore, if the quota monitoring system is operating properly, landings in excess of the commercial ACL would not be expected. If **Alternative 3** is selected for the commercial sector in the FLEC Zone, the AMs for FLEC Zone Cobia would need to be updated through an additional action since commercial landings for the FLEC Zone are currently managed to the FLEC Zone's commercial ACL for their in-season AM. Only the recreational sector has a post-season AM that utilizes an ACT. There would have to be mention of the commercial ACT if it is being used for management purposes. Tables 2.4.1, 2.4.2, 2.4.3, and 2.4.4 show the results of the selected ACT calculation under **Alternative 1, Preferred Alternative 2** and/or **Alternative 3** based on the ACL selected in Action 1, Alternatives 2 and 3, all Zone apportionments in Action 2, and for the FLEC Zone, the sector allocation chosen in Action 3.

While **Alternative 1** results in a larger buffer for the FLEC Zone, selecting **Preferred Alternative 2** and/or **Alternative 3** would standardize ACT calculations for Gulf Group Cobia in the FLEC Zone similar to how they are calculated for other Gulf federally-managed species for consistency. Similarly, for the Gulf Zone, selection of **Preferred Alternative 2** would standardize the ACT calculation.

Gulf Zone cobia has an in-season closure AM that states both sectors will be closed when the stock ACT is met or projected to be met. Based on the possible ACTs, which are the same under either **Alternative 1** and **Preferred Alternative 2**, a closure analysis was conducted for the Gulf Zone (Appendix F). Based on the apportionment alternatives in Action 2 for the Action 1 2021 ACLs, the proposed Action 4 ACTs are projected to be met between October and November for all alternatives under Action 4 except **Alternative 1** (Appendix F, Table 2). On the other hand, under the apportionment alternatives in Action 2 for the Action 1 2022 ACLs, the proposed Action 4 ACTs are, not projected to be met except under Action 2 Alternative 4 (Appendix F, Table 3). With the FLEC Zone stock ACL being projected to me be met under the 2021 and 2022 analyses (Appendix C and D), a FLEC Zone recreational closure projected to the ACT will be conducted in 2023 (based on document implementation timeline in 2022) unless other

management measures for the FLEC Zone in this document are able to constrain harvest below the FLEC Zone stock ACL.

Table 2.4.1. ACTs for Gulf Zone cobia for Action 1 Alternatives 2 and 3 and each combination of alternatives in Action 2 and Action 4 Alternatives 1 and 2. Weights for ACTs are in pounds landed weight. Alternative 1 under Actions 1, 2, and 4 is in MRIP-CHTS units, and Alternatives 2 – 4 under Actions 1, 2, and 4 are in MRIP-FES units.

Action 2 Alternatives	Action 1 Year	Action 4 Alternative 1	Action 4 Preferred Alternative 2
		Gulf Zone ACT	Gulf Zone ACT
1	2021+	1,500,000	N/A
2	2021	1,347,840	1,347,840
	2022	1,497,600	1,497,600
	2023+	1,589,760	1,589,760
Preferred Alternative 3	2021	1,326,780	1,326,780
	2022	1,474,200	1,474,200
	2023+	1,564,920	1,564,920
4	2021	1,242,540	1,242,540
	2022	1,380,600	1,380,600
	2023+	1,465,560	1,465,560

Table 2.4.2. ACTs for FLEC Zone cobia for Action 1 Alternatives 2 and 3 each combination of alternatives in Action 2 and Action 4, and Action 3 Alternatives 1 and 3. ACTs are in lbs lw. Alternative 1 under Actions 1, 2, 3, and 4 is in MRIP-CHTS units, and Alternatives 2 – 4 under Actions 1, 2, 3, and 4 are in MRIP-FES units.

Action 3, Alternative 1 and Preferred Alternative 3 FLEC Zone Allocation 92% Rec. 8% Comm.				
Action 2 Alternatives	**Action 1 Year**	**Action 4 Alternative 1**	**Action 4 Preferred Alternative 2**	**Action 4 Alternative 3**
		FLEC Zone Rec. ACT	**FLEC Zone Rec. ACT**	**FLEC Zone Comm. ACT**
1	2021+	710,000	N/A	N/A
2	2021	589,006	697,507	60,653
	2022	654,451	775,008	67,392
	2023+	694,725	822,701	71,539
Preferred Alternative 3	2021	605,367	716,882	62,338
	2022	672,630	796,536	69,264
	2023+	714,023	845,554	73,526
4	2021	661,986	794,383	69,077
	2022	735,540	882,648	76,752
	2023+	780,804	936,965	81,475

Table 2.4.3. ACTs for FLEC Zone cobia for Action 1 Alternatives 2 and 3, each combination of alternatives in Action 2 and Action 4, and Action 3 Alternative 2. ACTs are in lbs lw. Alternative 1 under Actions 1, 2, 3, and 4 is in MRIP-CHTS units, and Alternatives 2 – 4 under Actions 1, 2, 3, and 4 are in MRIP-FES units.

Action 3, Alternative 2 FLEC Zone Allocation 95% Rec. 5% Comm.				
Action 2 Alternatives	**Action 1 Year**	**Action 4 Alternative 1**	**Action 4 Preferred Alternative 2**	**Action 4 Alternative 3**
		FLEC Zone Rec. ACT	**FLEC Zone Rec. ACT**	**FLEC Zone Comm. ACT**
1	2021+	710,000	N/A	N/A
2	2021	608,213	720,252	37,908
	2022	675,792	800,280	42,120
	2023+	717,379	849,528	44,712
Preferred Alternative 3	2021	625,108	740,259	38,961
	2022	694,564	822,510	43,290
	2023+	737,306	873,126	45,954
4	2021	683,573	820,287	43,173
	2022	795,525	911,430	47,970
	2023+	806,265	967,518	50,922

Table 2.4.4. ACTs for FLEC Zone cobia for Action 1 Alternatives 2 and 3, each combination of alternatives in Action 2 and Action 4, and Action 3 Alternatives 1 and 3. ACTs are in lbs lw. Alternative 1 under Actions 1, 2, 3, and 4 is in MRIP-CHTS units, and Alternatives 2 – 4 under Actions 1, 2, 3, and 4 are in MRIP-FES units.

Action 3, Alternative 4 FLEC Zone based on retaining 70,000 Comm. ACL for 2021, recalculating allocation, and retaining those percentages for 2022, and 2023+				
Action 2 Alternatives	**Action 1 Year**	**Action 4 Alternative 1**	**Action 4 Preferred Alternative 2**	**Action 4 Alternative 3**
		FLEC Zone Rec. ACT	**FLEC Zone Rec. ACT**	**FLEC Zone Comm. ACT**
1	2021+	710,000	N/A	N/A
2	2021	587,024	695,160	63,000
	2022	652,246	772,397	70,003
	2023+	692.384	819,929	74,311
Preferred Alternative 3	2021	604,808	716,220	63,000
	2022	672,009	795,800	70,000
	2023+	713,363	844,772	74,308
4	2021	667,050	800,460	63,000
	2022	741,168	889,402	69,998
	2023+	786,779	944,135	74,305

2.5 Action 5 – Modification of Gulf Zone and FLEC Zone Cobia Possession, Vessel, and Trip Limits

2.5.1 Action 5.1 – Modify the Possession, Vessel, and Trip Limits in the Gulf Zone

Alternative 1: No Action. Retain the current recreational and commercial daily possession limit of 2 fish per person, regardless of the number or duration of trips in the Gulf Zone. No vessel limit or trip limit is currently defined.

Preferred Alternative 2: Reduce the daily possession limit to 1 fish per person, regardless of the number or duration of trips.

Preferred Option 2a: for the recreational sector
Preferred Option 2b: for the commercial sector

Preferred Alternative 3: Create a recreational vessel limit. Fishermen may not exceed the per person daily possession limit.

Preferred Option 3a: The vessel limit is two fish per trip
Option 3b: The vessel limit is four fish per trip
Option 3c: The vessel limit is six fish per trip.

Preferred Alternative 4: Create a commercial trip limit. Fishermen may not exceed the per person daily possession limit.

Preferred Option 4a: The trip limit is two fish.
Option 4b: The trip limit is four fish.
Option 4c: The trip limit is six fish.

Note: Alternative 2 may be selected with Alternative 3 and/or Alternative 4.

Discussion:

Action 5 has been divided into sub-actions to provide the Councils the opportunity to select changes to the possession, vessel, or trip limit by zones: Action 5.1 for the Gulf Zone and Action 5.2 for the FLEC Zone. The range of alternatives and data analyses are consistent in both zones.

The Councils are considering options to reduce harvest, mortality and constrain Gulf Group Cobia harvest to the ACL. Reducing the number of legal-size cobia caught on a fishing trip which may be retained would be expected to constrain harvest on Gulf Group Cobia, however, analyses shows the reductions have minimal effects (Table 2.5.1.1).

During its September 2020 meeting, the Gulf Council received public testimony recommending that it explore possession limits similar to those established by the State of Florida. The Florida

Fish and Wildlife Conservation Commission (FWC) enforces a daily bag limit of one fish per person or two per vessel, whichever is less, for cobia caught in Gulf state waters off Florida.

In determining the effects of changing the per person daily possession limits, or the addition of vessel or trip limits, the cobia harvest per person and per vessel on each trip for Gulf Zone Cobia was analyzed in a similar way as for Framework Amendment 7. However, data were updated and summarized for 2017 – 2019 (Appendix G). This was done for the commercial, charter for-hire, private angling, and headboat harvest data. The data include trips that harvested cobia. As with Framework Amendment 7, the majority of both recreational and commercial trips in the Gulf Zone harvested one or less than one cobia per person (Figures 2.5.1.1, and 2.5.1.2). Less than one cobia harvested per person happens, for example, if a trip harvested two cobia and had four people on the boat, this would be half a cobia per person. To avoid confusion with fractions of fish, any trips that harvested less than one cobia per person was grouped with the trips that harvested one cobia per person. Data were also examined for cobia harvested per vessel per trip. These data revealed that the majority of the commercial and recreational trips harvested one cobia per vessel per trip (Figures 2.5.1.3, and 2.5.1.4). As with the catch analysis, any vessels/trips that harvested less than one cobia were grouped with the trips that harvested one cobia per vessel/trip.

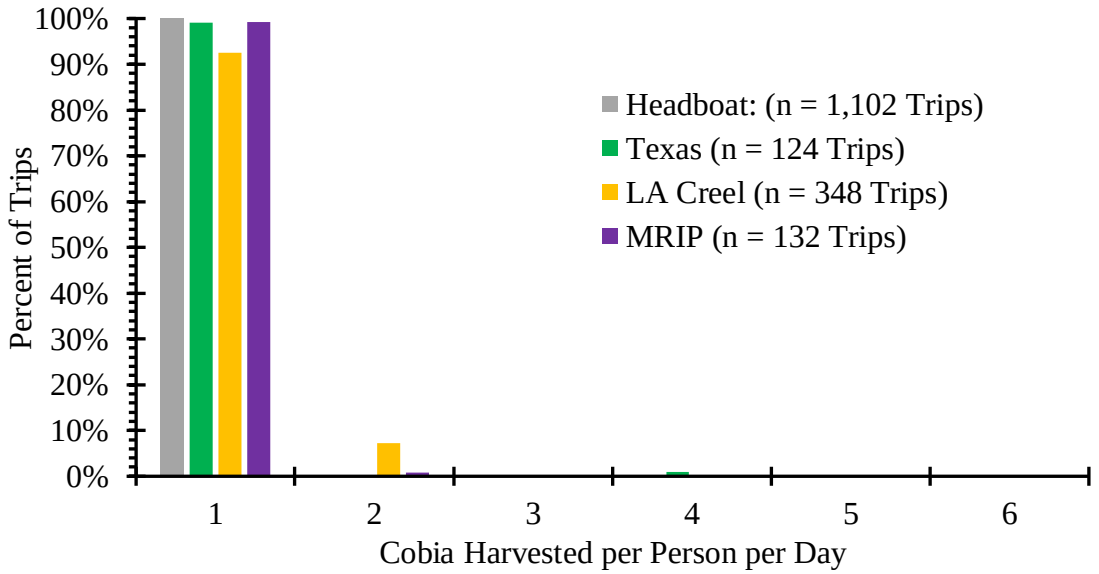

Figure 2.5.1.1. Distribution of the recreational cobia harvested (numbers of fish) per person per day in the Gulf of Mexico from 2017 to 2019. The data are separated by the different recreational datasets because the different recreational surveys operate in different states. Texas and Louisiana only operate within their own states, Headboat operates in all of the Gulf of Mexico states and Florida, and MRIP operates in Mississippi, Alabama, and west Florida.
Source: MRIP (Accessed May 20, 2020), Southeast Regional Headboat Survey (SRHS) (Accessed July 10, 2020), Louisiana Creel Survey (LA Creel) (Accessed April 24, 2020), and Texas Parks and Wildlife Department Recreational Survey (TPWD) (Accessed August 17, 2020).

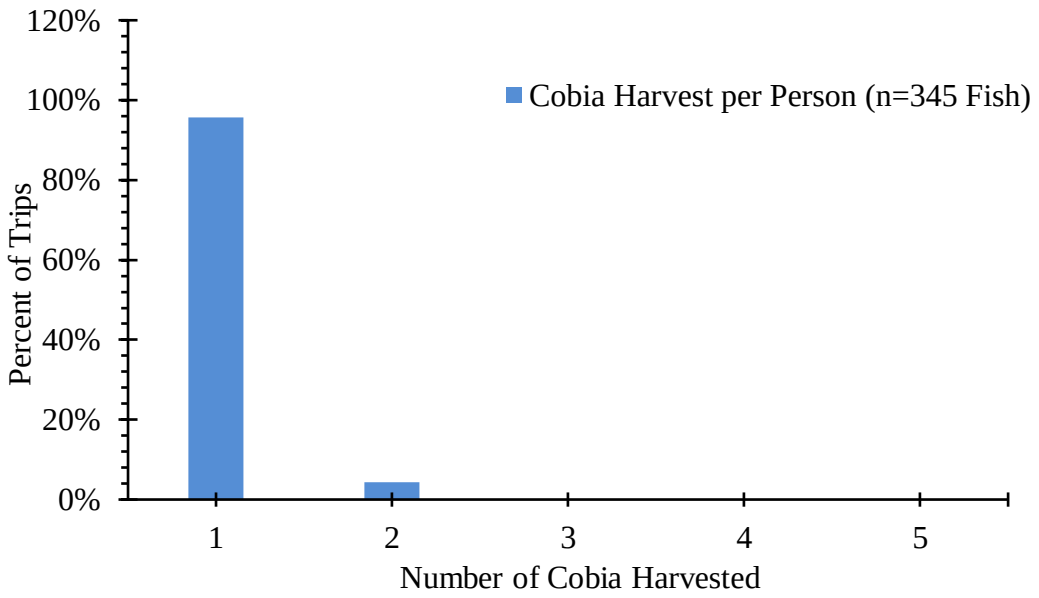

Figure 2.5.1.2. Distribution of the commercial cobia harvested (numbers of fish) per person in the Gulf of Mexico from 2017 to 2019. This was generated from the TIP data and resulted in a sample size of 275 trips.
Source: Southeast Fisheries Science Center (SEFSC) Trip Interview Program (TIP) Accessed November 27, 2020.

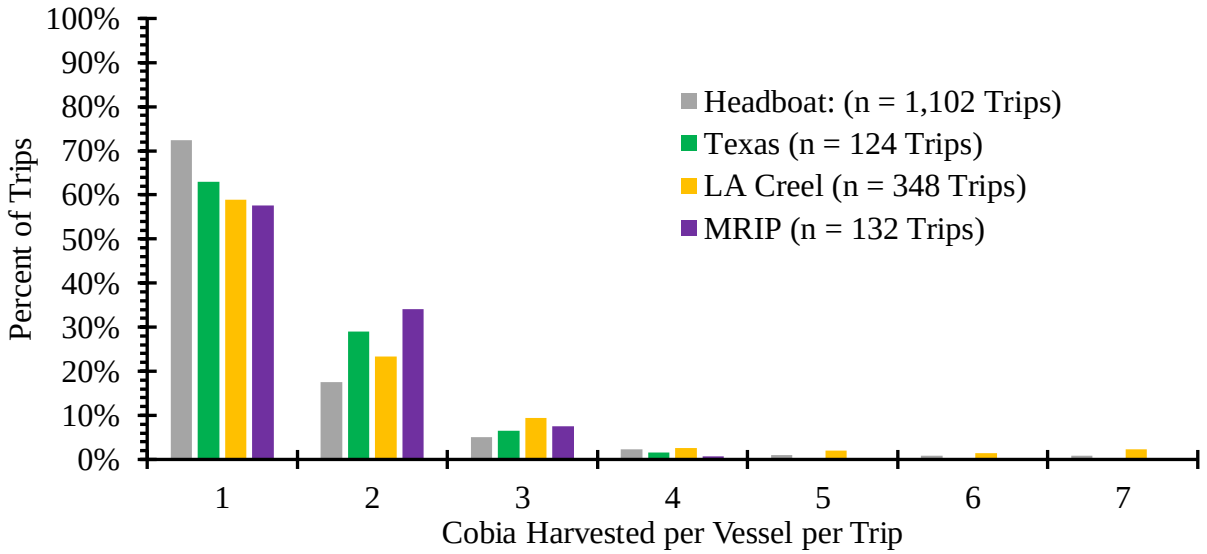

Figure 2.5.1.3. Distribution of the recreational cobia harvested (numbers of fish) per vessel per trip in the Gulf of Mexico from 2017 to 2019. The data are separated by the different recreational datasets because the different recreational surveys operate in different states. Texas and Louisiana only operate within their own states, Headboat operates in all of the Gulf of Mexico states, and MRIP operates in Mississippi, Alabama, and Florida.
Source: MRIP (Accessed May 20, 2020), SRHS (Accessed July 10, 2020), LA Creel (Accessed April 24, 2020), and TPWD (Accessed August 17, 2020).

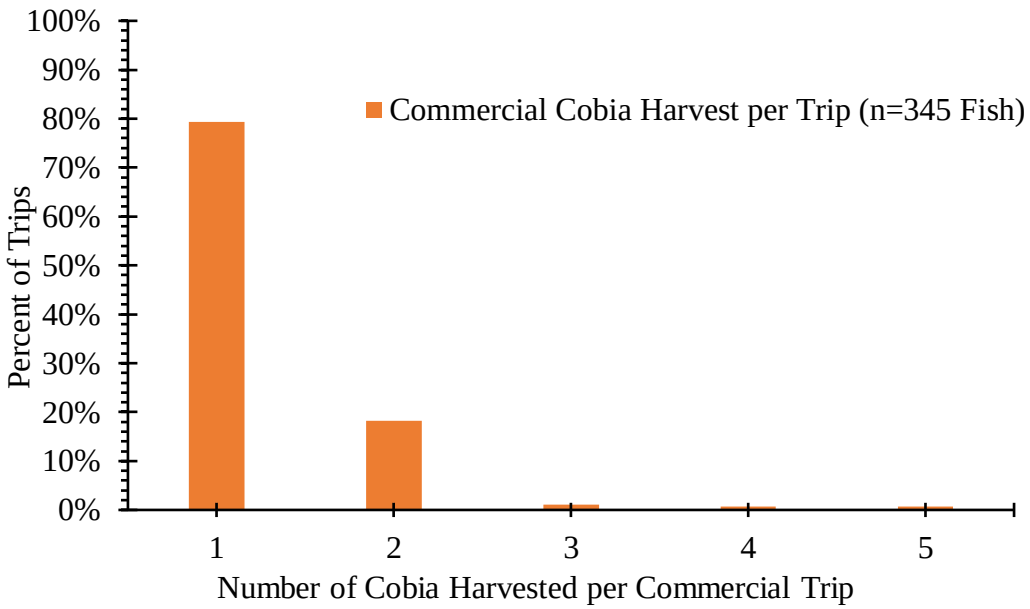

Figure 2.5.1.4. Distribution of the commercial cobia harvested (numbers of fish) per trip in the Gulf Zone from 2017 to 2019.
Source: SEFSC TIP Accessed November 27, 2020.

Alternative 1 would maintain the current daily possession limit for Gulf Zone cobia of two fish per person for both sectors, without a vessel or trip limit, which has been in effect since the implementation of Amendment 5 to the CMP FMP (GMFMC 1990). Therefore, **Alternative 1** is not expected to reduce fishing mortality or reduce harvest from the status quo.

Preferred Alternative 2 would decrease the per person daily possession limit for Gulf Zone cobia from two to one fish per person per day, regardless of the number or duration of trips taken, resulting in halving the maximum possible harvest per person. This alternative provides the Councils the opportunity to select this change for the recreational sector (**Preferred Option 2a)** and/or for the commercial sector (**Preferred Option 2b**). Less than one cobia per angler is already retained, on average, on all trips in the Gulf Zone (Figures 2.5.1.1, and 2.5.1.2). Therefore, reducing the per person possession limit to one fish per day is projected to result in minimal reductions to harvest rate (Table 2.5.1.1). While not expected to significantly reduce the harvest rate, **Preferred Alternative 2** is expected to reduce the complexity of complying with the regulations in waters off the Gulf coast of Florida because the daily possession limit in state waters is currently one fish per person per day. Further details on the precedence and distribution of cobia landings by the recreational sector are included in Tables 1 and 2 of Appendix G.

Table 2.5.1.1. Estimated percent reduction in Gulf Zone cobia landings, generated from 2017 – 2019 landings data.

Alternative	Details	Percent Reduction of Total Cobia Landings
1	2 Fish per Person per Day Commercial and Recreational Sector	0%
Preferred Alternative 2: 1 Fish per Person per Day		
Preferred 2a	Recreational Sector	1.2%
Preferred 2b	Commercial Sector	<1%
Preferred Alternative 3 Recreational Vessel Limit per Trip		
Preferred 3a	2 Fish per Vessel per Trip	9.0%
3b	4 Fish per Vessel per Trip	<1%
3c	6 Fish per Vessel per Trip	<1%
Preferred Alternative 4 Commercial Trip Limit		
Preferred 4a	2 Fish per Trip	<1%
4b	4 Fish per Trip	<1%
4c	6 Fish per Trip	0%

Source: MRIP (Accessed May 20, 2020), SRHS (Accessed July 10, 2020), LA Creel (Accessed April 24, 2020), TPWD (Accessed August 17, 2020), and SEFSC TIP (Accessed November 27, 2020).

Preferred Alternative 3 would create a recreational vessel limit for Gulf Zone cobia. The vessel limit would be either two fish (**Preferred Option 3a**), four fish (**Option 3b**), or six fish (**Option 3c**) per trip. However, anglers would not be permitted to exceed the per person daily possession limit. For example, if there were three anglers on a vessel, and the daily possession limit was two fish per person (**Alternative 1**) with a two fish vessel limit (**Preferred Option 3a**), then the maximum number of cobia that could be retained on that vessel for all anglers combined would be two fish, as opposed to six fish in the absence of a vessel limit. However, since the majority of trips catching cobia retain one fish per vessel (Figure 2.5.1.3), the predicted reductions in harvest from the options in **Preferred Alternative 3** are low (Table 2.5.1.1). **Alternative 3 Preferred Option 3a,** like **Preferred Options 2a and 2b** would reduce the complexity of complying with the regulations in waters off the Gulf coast of Florida because the vessel limit in state waters is currently two fish per vessel.

Preferred Alternative 4 would create a commercial trip limit for Gulf Zone cobia. The trip limits would be either two fish (**Preferred Option 4a**), four fish (**Option 4b**), or six fish (**Option 4c**). However, commercial fishermen would not be permitted to exceed the per person daily possession limit. Similar to the recreational sector, the majority of the commercial trips average one or less cobia per trip, the predicted reduction in harvest from this management measure is low under all options (Table 2.5.1.1). However, **Alternative 4 Preferred Option 4a,** like **Alternative 2 Preferred Options 2a** and **b, and Alternative 3 Preferred Option 3a,** would reduce the complexity of complying with the regulations in waters off the Gulf coast of Florida because the vessel limit in state waters is currently two fish per vessel.

2.5.2 Action 5.2 – Modify the Possession, Vessel, and Trip Limits in the FLEC Zone

Alternative 1: No Action. Retain the current recreational and commercial daily possession limit of 2 fish per person, regardless of the number or duration of trips, in the FLEC Zone. No vessel limit or trip limit is currently defined.

Preferred Alternative 2: Reduce the daily possession limit to 1 fish per person, regardless of the number or duration of trips.

> **Preferred Option 2a:** for the recreational sector
> **Preferred Option 2b:** for the commercial sector

Preferred Alternative 3: Create a recreational vessel limit. Fishermen may not exceed the per person daily possession limit.

> **Preferred Option 3a:** The vessel limit is two fish per trip
> **Option 3b:** The vessel limit is four fish per trip
> **Option 3c:** The vessel limit is six fish per trip.

Preferred Alternative 4: Create a commercial vessel trip limit. Fishermen may not exceed the per person daily possession limit.

> **Preferred Option 4a:** The vessel trip limit is two fish.
> **Option 4b:** The vessel trip limit is four fish.
> **Option 4c:** The vessel trip limit is six fish.

Note: Alternative 2 may be selected with Alternative 3 and/or Alternative 4.

Discussion:

Action 5.2 is considering modifying the possession, vessel, and trip limit for cobia landed in the FLEC Zone. The range of alternatives included in this action are the same as those included in Action 5.1 for cobia landed in the Gulf Zone. The Councils have received public testimony recommending possession limits similar to those established by the State of Florida. For cobia caught in South Atlantic state waters off Florida, FWC enforces a daily bag limit of one fish per person or six per vessel, whichever is less.

The analyses to determine the effects of changing the per person possession limits, and the addition of a vessel or trip limit were performed in a similar way to the analyses in Framework Amendment 7 to the CMP FMP and in Action 5.1. Data were also updated and summarized for 2017 – 2019 in the FLEC Zone (Appendix H). Some trips harvested less than one cobia per person. Less than one cobia per person harvested happens, for example, if a trip harvested two cobia and had four people on the boat, this would be half a cobia per person. To avoid confusion with fractions of fish, any trips that harvested less than one cobia per person was grouped with the trips that harvested one cobia per person. In the FLEC Zone, the majority of recreational

trips (Figure 2.5.2.1) and commercial trips (Figure 2.5.2.2) harvested one or less than one cobia per person. In addition, the majority of recreational and commercial trips in the FLEC Zone harvested one or less than one cobia per vessel per trip (Figures 2.5.2.3 and 2.5.2.4).

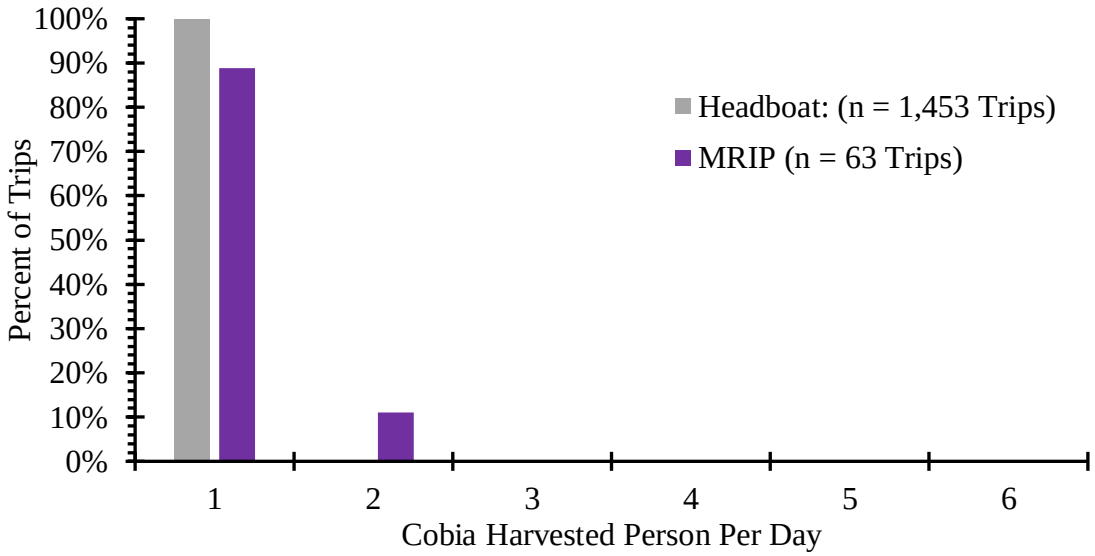

Figure 2.5.2.1 Distribution of the recreational cobia harvested (numbers of fish) per person per day in the FLEC Zone from 2017 to 2019. Only results from Headboat and MRIP are provided because these are the only two recreational surveys that operate on the east coast of Florida.
Source: MRIP (Accessed May 20, 2020) and SRHS (Accessed July 10, 2020).

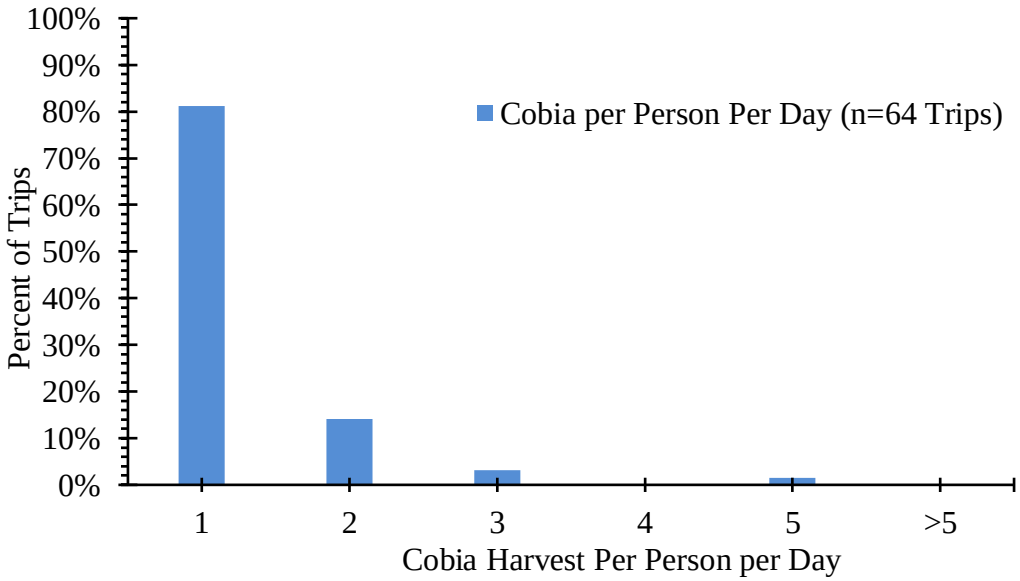

Figure 2.5.2.2. Distribution of the commercial cobia harvested (numbers of fish) per person per day in the FLEC Zones from 2017 to 2019.
Source: Southeast Fisheries Science Center (SEFSC) Trip Interview Program (TIP) Accessed November 27, 2020.

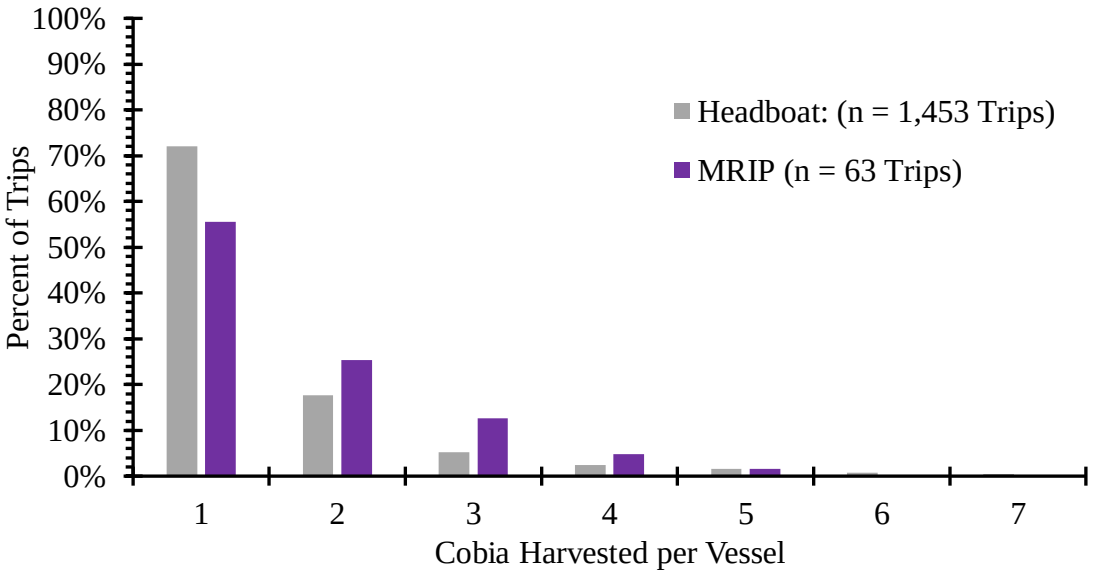

Figure 2.5.2.3. Distribution of the recreational cobia harvested (numbers of fish) per vessel per trip in the FLEC Zone from 2017 to 2019. Only results from Headboat and MRIP are provided because these are the only two recreational surveys that operate on the east coast of Florida.
Source: MRIP (Accessed May 20, 2020) and SRHS (Accessed July 10, 2020).

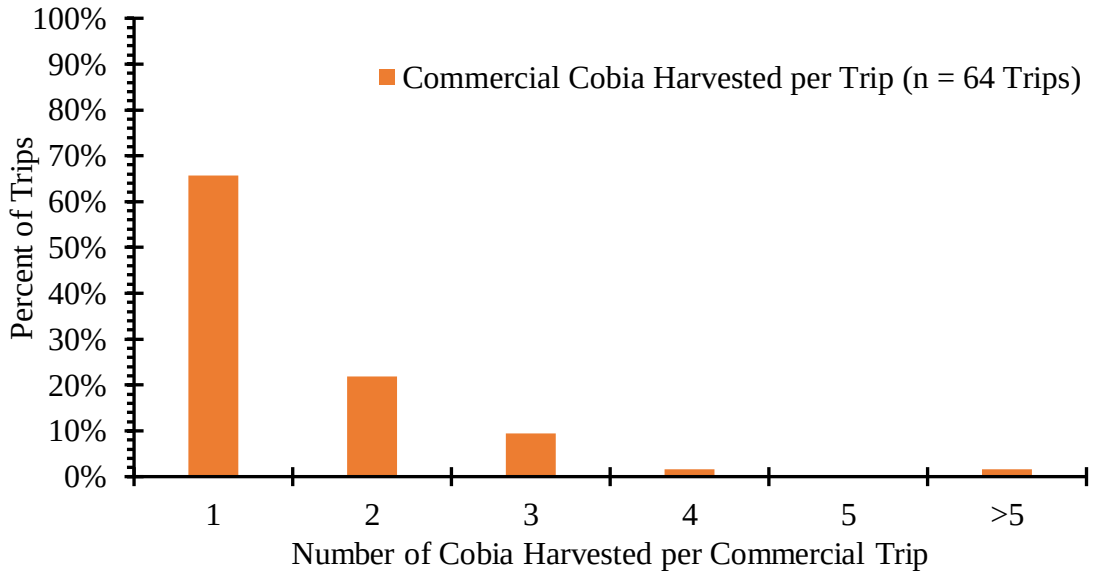

Figure 2.5.2.4. Distribution of the commercial cobia harvested (numbers of fish) per trip in the FLEC Zone from 2017 to 2019.
Source: SEFSC TIP Accessed November 27, 2020.

Alternative 1 would maintain the current daily possession limit for FLEC Zone cobia of two fish per person for both sectors, without a vessel or trip limit, which has been in effect since the implementation of Amendment 5 (GMFMC 1990). Therefore, **Alternative 1** is not expected to result in any change to fishing mortality or reduce fishing harvest from the status quo.

Preferred Alternative 2 would decrease the per person daily possession limit for FLEC Zone cobia from two to one fish per person per day, regardless of the number or duration of trips

taken. **Preferred Alternative 2** would halve the maximum possible harvest per person. **Preferred Options 2a** and **2b** provide the Councils the opportunity to select this change by sector. However, like in the Gulf Zone, one or less than one cobia per angler are already retained on average on all trips in the FLEC Zone (Figures 2.5.2.1, and 2.5.2.2). Therefore, reducing the per person possession limit to one fish per day would be expected to result in only minimal reductions in harvest levels (Tables 2.5.2.1). The reduction is slightly more pronounced in the commercial sector with a reduction in landings of 14% as compared to 11% in the recreational sector. (Table 2.5.2.1). **Preferred Alternative 2** would also reduce the complexity of complying with the regulations in waters off the east coast of Florida because the possession in state waters is currently 1 fish per person per day.

Table 2.5.2.1. Calculated percent reduction in FLEC Zone landings for Action 5.2 using recent recreational data (2017 – 2019).

Alternative	Details	% Reduction of total FLEC Zone cobia landings
1	2 Fish per Person per Day Commercial and Recreational Sector	0%
Preferred Alternative 2: 1 Fish per Person per Day		
Preferred 2a	Recreational Sector	11%
Preferred 2b	Commercial Sector	14%
Preferred Alternative 3 Recreational Trip Limit		
Preferred 3a	2 Fish per Vessel per Trip	18.9%
3b	4 Fish per Vessel per Trip	4.6
3c	6 Fish per Vessel per Trip	<1%
Preferred Alternative 4 Commercial Trip Limit		
Preferred 4a	2 Fish per Trip	9%
4b	4 Fish per Trip	3%
4c	6 Fish per Trip	3%

Source: MRIP (Accessed May 20, 2020), SRHS (Accessed July 10, 2020), and SEFSC TIP (Accessed November 27, 2020)

Note: The results were weighted by the contribution each recreational dataset made to the total recreational landings.

Preferred Alternative 3 would create a recreational vessel limit for FLEC Zone cobia. The vessel limit would be either two fish (**Preferred Option 3a**), four fish (**Option 3b**), or six fish (**Option 3c**) per trip. However, anglers would not be permitted to exceed the per person daily possession limit. For example, if there were three anglers on a vessel, and the possession limit was two fish per person (**Alternative 1**) with a two fish vessel limit (**Preferred Option 3a**), then the maximum number of cobia that could be retained on that vessel for all anglers combined would be two fish, as opposed to six fish in the absence of a vessel limit. However, while the majority of trips catching cobia average one fish retained per vessel (Figures 2.5.2.3), the predicted reductions in harvest in **Preferred Option 3a** are almost 20% (Table 2.5.2.1). **Preferred Option 3a** would not reduce the complexity of complying with the regulations in waters off the east coast of Florida because the vessel limit in state waters is currently six fish per

vessel (same as **Option 3c**). Like **Preferred Alternative 2**, **Preferred Alternative 3** provides another option to change a recreational management measure that is likely needed to prevent triggering of a postseason AM.

Preferred Alternative 4 would create a commercial trip limit for FLEC Zone cobia. The trip limits would be either two fish (**Preferred Option 4a**), four fish (**Option 4b**), or six fish (**Option 4c**). Commercial fishermen would not be permitted to exceed the per person daily possession limit. Similarly, to the recreational sector, the majority of the commercial trips average one cobia per trip (Figure 2.5.2.4). However, predicted reductions in commercial harvest for **Preferred Option 4a** are half of what they are for the recreational sector because fewer commercial trips land more than one cobia (Table 2.5.2.1). Further, **Preferred Option 4a** would not reduce the complexity of complying with the regulations in waters off the east coast of Florida because the vessel limit in state waters is currently six fish per vessel **(Option 4c)**. **Preferred Alternative 4** would serve as a conservative management measure given Gulf Group Cobia is undergoing overfishing.

2.6 Action 6 – Modify the Gulf Group Cobia Minimum Size Limit

Alternative 1: No Action. Retain the current recreational and commercial minimum size limit of 36 inches fork length (FL) in the Gulf Zone and 33 inches FL in the FLEC Zone.

Preferred Alternative 2: Retain the current recreational and commercial minimum size limit of 36 inches FL in the Gulf Zone and increase the recreational and commercial minimum size limit to 36 inches FL in the FLEC Zone.

Alternative 3: Increase the recreational and commercial minimum size limit to 39 inches FL.
Option 3a: in the Gulf Zone
Option 3b: in the FLEC Zone

Alternative 4: Increase the recreational and commercial minimum size limit to 42 inches FL.
Option 4a: in the Gulf Zone
Option 4b: in the FLEC Zone

*Councils may select more than one Alternative and Option. The selected size limits are not required to match for both Zones.

Discussion:

Action 6 considers alternatives to increase the recreational and commercial minimum size limit. In general, an increase in the minimum size limit is expected to reduce the harvest rate and potentially the total harvested catch. This can support the management objectives to increase the season length or reduce the allowable harvest. Decreasing the minimum size limit would be expected to increase landings by allowing retention of cobia that are currently being released. Given that Gulf Group Cobia is currently experiencing overfishing and there is a need to decrease harvest, reducing the minimum size limit is not being considered by the Councils in this action.

As with Action 5, determining the effects of changing the minimum size limit for Gulf Group Cobia was analyzed in the same way as was done for Framework Amendment 7 (GMFMC 2019b). Data on fork length distribution were compiled and summarized for the recreational and commercial sectors, and for the Gulf and FLEC Zones, during the years 2017 – 2019 (Appendix I). On March 25, 2020, Framework Amendment 7 increased the minimum size limit from 33 inches FL to 36 inches FL for cobia harvested in the Gulf Zone. Thus, the effects of this change are not reflected in the time series included in this Action. Overall, commercial fishermen in both zones, and recreational fishermen in the FLEC Zone, harvested larger cobia than Gulf Zone recreational fishermen. However, possible illegal harvest of fish under 33 inches FL for this time series in both zones is occurring (Figures 2.6.1, 2.6.2, 2.6.3, and 2.6.4). This could be in part to the use of gaffing and the difficulty of determining fish length until the fish is brought on board. The use of a gaff to land cobia is widespread and expected to result in substantially higher discard mortality than the 5% discard mortality rate currently presumed in the SEDAR 28 Update stock assessment (2020) which was carried over from SEDAR 28 (2013).

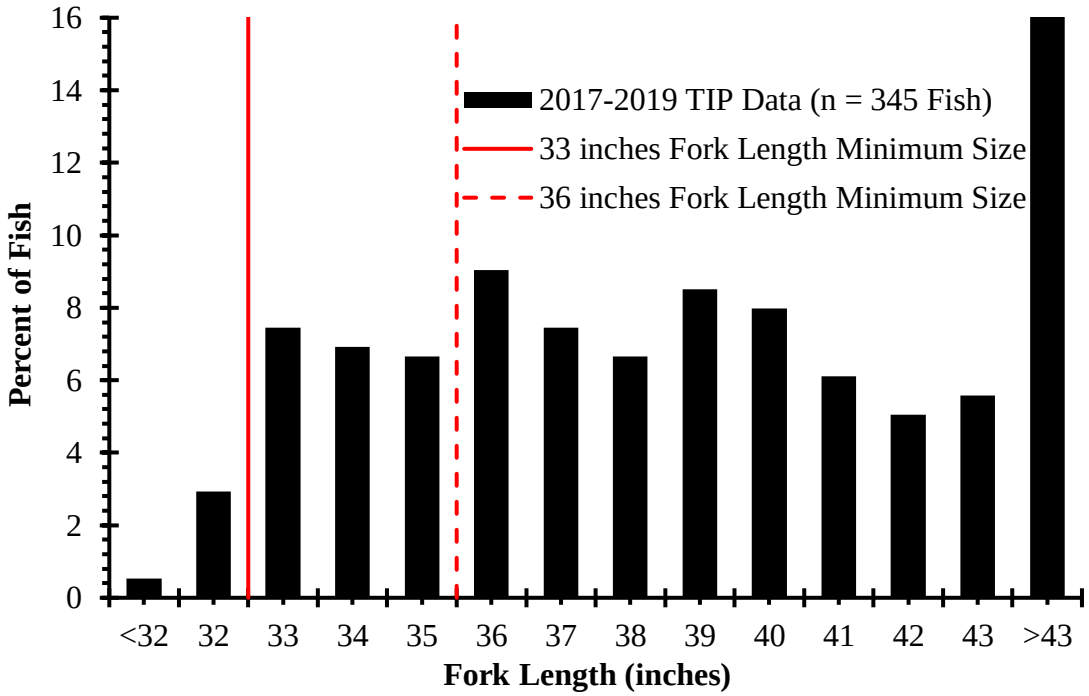

Figure 2.6.1. Length distribution of cobia harvested in the commercial sector in the Gulf Zone. Two different minimum size limits are shown (red lines) in the figure because Framework Amendment 7 recently (March 2020) increased the minimum size limit from 33 to 36 inches FL in the Gulf of Mexico. However, this dashed line is for informational purposes only to show the percent of fish being harvested above this increased minimum size limit in 2017-2019.
Source: SEFSC TIP Accessed November 27, 2020.

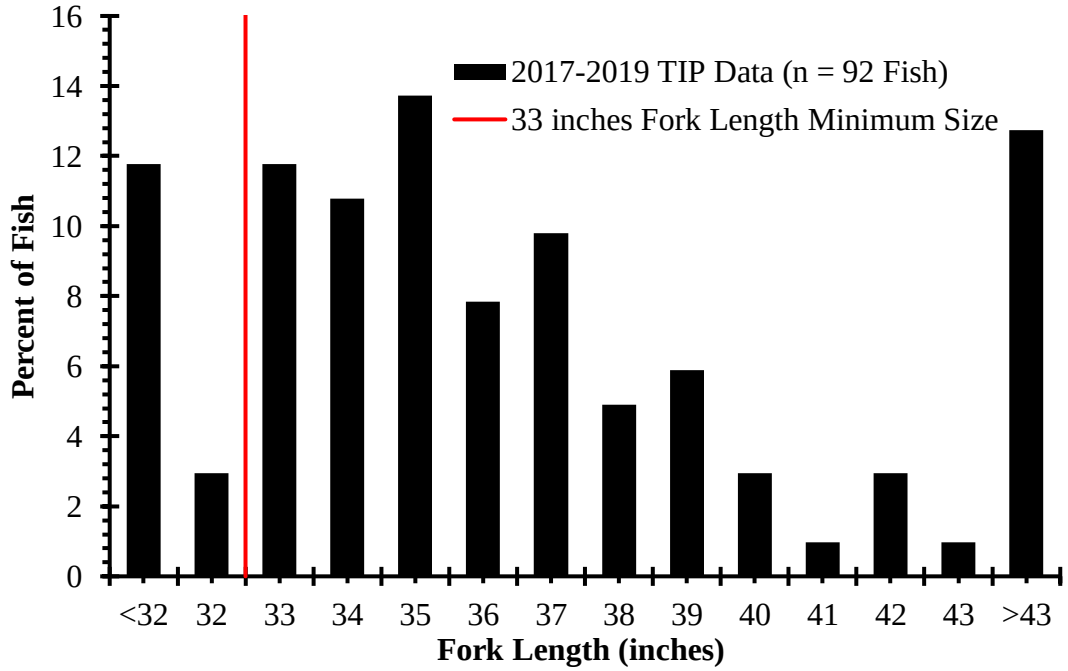

Figure 2.6.2. Length distribution of cobia harvested in the commercial sector in the FLEC Zone. The red line is the current minimum size limit (33 inches FL) for the FLEC Zone.
Source: SEFSC TIP Accessed November 27, 2020.

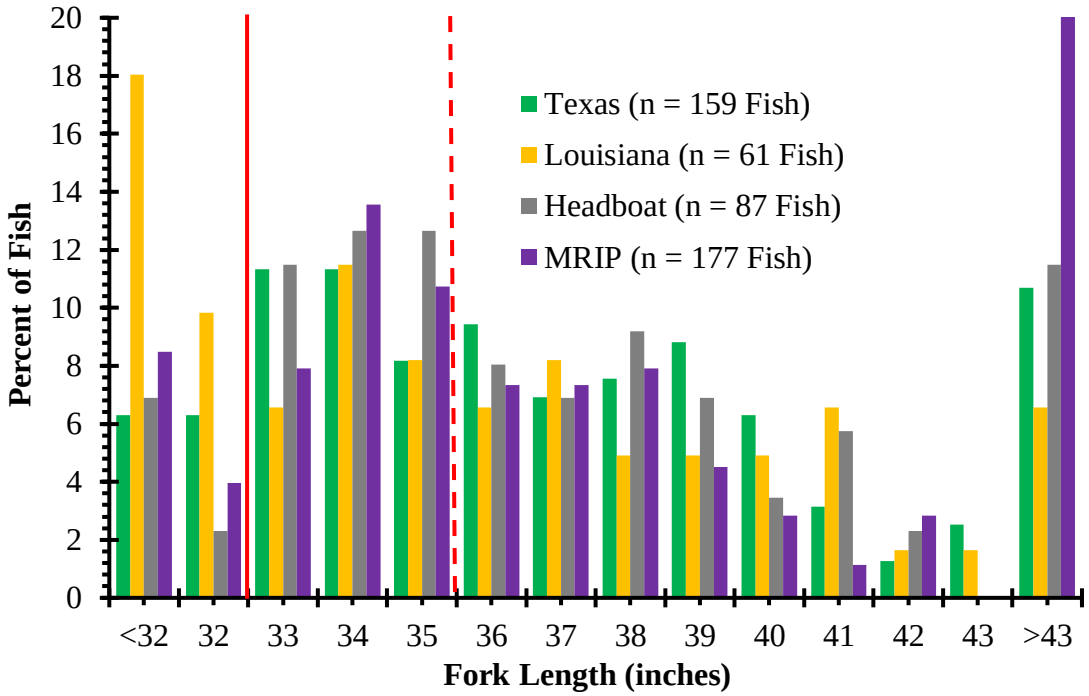

Figure 2.6.3. Fork length distribution of the recreational cobia harvested in the Gulf Zone from 2017 to 2019. The data are separated by the different recreational datasets because the different recreational surveys operate in different states. Headboat operates in all of the Gulf of Mexico states, Texas and Louisiana only operate within their own states, and MRIP operates in Mississippi, Alabama, and Florida. Two different minimum size limits are shown (red lines) on the figure because Framework Amendment 7 recently (March 2020) increased the minimum size limit from 33 to 36 inches FL in the Gulf of Mexico. However, this dashed line is for informational purposes only to show the percent of fish being harvested above this increased minimum size limit in 2017-2019.
Source: MRIP (Accessed May 20, 2020), SRHS (Accessed July 10, 2020), LA Creel (Accessed April 24, 2020), and TPWD (Accessed August 17, 2020).

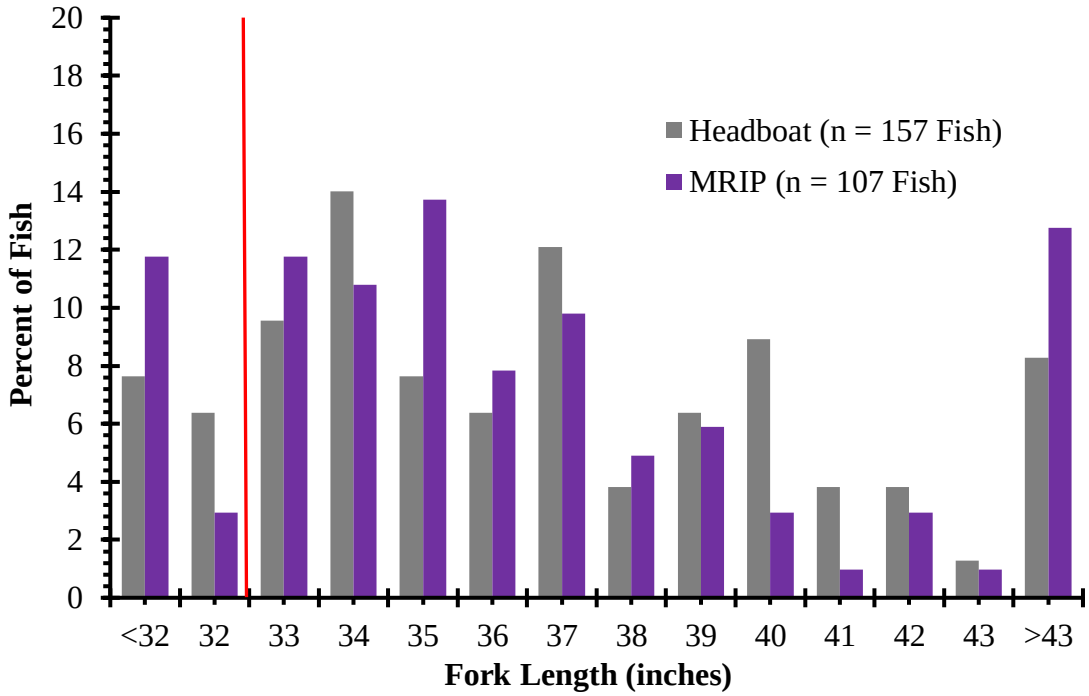

Figure 2.6.4. Fork length distribution of the recreational cobia harvested in the FLEC Zone from 2017 to 2019. Only the recreational surveys of Headboat and MRIP operate on the east coast of Florida. The red line is the current minimum size limit (33 inches FL) for east Florida. Source: MRIP (Accessed May 20, 2020 and SRHS (Accessed July 10, 2020).

Alternative 1 would not change the minimum size limit of 36 inches FL for the Gulf Zone, or 33 inches FL for the FLEC Zone. The increase from 33 inches FL to 36 inches FL for Gulf Zone cobia was implemented in March 2020 through Framework Amendment 7 (GMFMC 2019b) to reduce fishing mortality in the near-term while a stock assessment (SEDAR 28 Update 2020) was underway. SEDAR 28 Update was completed in July 2020, and determined Gulf Group Cobia to not be overfished, but undergoing overfishing; however, the increase in the minimum size limit in the Gulf Zone and how it affected the stock was not captured in that assessment.

Preferred Alternative 2 would increase the minimum size limit for the FLEC Zone from 33 inches FL to 36 inches FL, to be equal to the minimum size limit in the Gulf Zone, and is expected to reduce the rate of harvest in the FLEC Zone and subsequently the landings for both sectors (Table 2.6.1 and Table 2.6.2). Increasing the minimum size limit under **Preferred Alternative 2** for the FLEC Zone, or under **Alternative 3** or **Alternative 4** is expected to reduce fishing harvest in two ways: by increasing the minimum size limit, anglers would be expected to release cobia that they would otherwise retain under the current regulations (**Alternative 1**); and, by increasing the probability of a fish reproducing, perhaps more than once, before being selected by the fishery. However, **Preferred Alternative 2, Alternative 3,** and **Alternative 4** would be expected to increase regulatory discards of undersized cobia, especially those brought on board by a gaff. Furthermore, increasing the minimum size limit under **Alternatives 3** and **4** would indirectly drive fishing efforts to target more fecund female cobia, which may have a negative effect on the spawning stock biomass. The length at which 50% of cobia are thought to be sexually mature is 33 inches FL, with female cobia being observed to be larger than males of the same age. However, an increase in the minimum size limit is predicted to reduce harvest

more so than by what is projected in Action 5. That being said, an increase in the minimum size limit **(Alternatives 2 - 4)** would result in an increase in the weight of fish landed, and may result in a shorter fishing season under the lower ACLs in Alternatives 2 and 3 of Action 1. A 27% reduction in harvest is projected for the FLEC Zone commercial sector under **Preferred Alternative 2** (Table 2.6.1)**.** Increasing the minimum size limit in the FLEC Zone to match that in the Gulf Zone would reduce the complexity of complying with the regulations in federal waters.

While the effects of increasing the minimum size limit for Gulf Zone cobia show a 0% reduction (Table 2.6.1 and 2.6.2) since this change is already effective, it is assumed there has been some sort of effect to the stock since the implementation of the increase. At this time, the associated impacts of the recent increase in minimum size limit for Gulf Zone cobia cannot be fully characterized given the short timeseries (implemented in March 2020) as well as data bias associated with the changes in fishing effort as a result of the COVID-19 pandemic. The estimated reduction in Gulf Zone cobia landings with the increase in the minimum size limit were projected in Framework Amendment 7 (GMFMC 2019b) to be 10.3% for the commercial sector and 26.1% for the recreational sector (using landings data from 2015 – 2017).

Table 2.6.1. Estimated percent reduction in commercial landings for the Gulf and FLEC Zones for the proposed alternatives in Action 6.

Alternative	Size Limit (Inches FL)	% Reduction
Gulf Zone		
Alternative 1 No Action	36	0
Preferred Alternative 2	36	0
Alternative 3a	39	20.3
Alternative 4a	42	45.2
FLEC Zone		
Alternative 1 No Action	33	0
Preferred Alternative 2	36	27.2
Alternative 3b	39	48.9
Alternative 4b	42	60.3

Table 2.6.2. Estimated percent reduction in recreational landings for the Gulf and FLEC Zones for the proposed alternatives in Action 6.

Alternative	Size Limit (Inches FL)	Gulf Zone % Reduction	FLEC Zone % Reduction
Texas			
Alternative 1 No Action	36	0	NA
Preferred Alternative 2	36	0	NA
Alternative 3a	39	20.3	NA
Alternative 4a	42	39.9	NA
Louisiana			
Alternative 1 No Action	36	0	NA
Preferred Alternative 2	36	0	NA
Alternative 3a	39	20.3	NA
Alternative 4a	42	46.5	NA
Headboat: All Gulf of Mexico States and Both Coasts of Florida			
Alternative 1 No Action	33	NA	0
Preferred Alternative 2	36	0	23.4
Alternative 3a, b	39	19.3	43
Alternative 4a, b	42	37.6	65.2
MRIP: Mississippi, Alabama, and Both Coasts of Florida			
Alternative 1 No Action	33	NA	0
Preferred Alternative 2	36	0	33.9
Alternative 3a, b	39	19.6	55.4
Alternative 4a, b	42	38.7	74.4

2.7 Action 7 – Modify the Framework Procedure

Alternative 1: No Action. Retain the CMP framework procedure as last revised in Amendment 26. The current language in the framework procedure is:

This framework procedure provides standardized procedures for implementing management changes pursuant to the provisions of the Coastal Migratory Pelagic Fishery Management Plan (FMP) managed jointly between the Gulf of Mexico and South Atlantic Fishery Management Councils (Councils). Two basic processes are included: the open framework process and the closed framework process. The open framework process/procedure addresses issues where more policy discretion exists in selecting among various management options developed to address an identified management issue, such as changing a size limit to reduce harvest. The closed framework process addresses much more specific factual circumstances, where the FMP and implementing regulations identify specific action to be taken in the event of specific facts occurring, such as closing a sector of a fishery when the quota is or is projected to be harvested.

Open Framework Procedure:

1. Situations under which this framework procedure may be used to implement management changes include the following:
    a. A new stock assessment resulting in changes to the overfishing limit, acceptable biological catch, or other associated management parameters. In such instances the Councils may, as part of a proposed framework action, propose an annual catch limit (ACL) or series of ACLs and optionally an annual catch target (ACT) or series of ACTs, as well as any corresponding adjustments to MSY, OY, and related management parameters.
    b. New information or circumstances. The Councils will, as part of a proposed framework action, identify the new information and provide rationale as to why this new information indicates that management measures should be changed.
    c. Changes are required to comply with applicable law such as the Magnuson-Stevens Fishery Conservation and Management Act, Endangered Species Act, Marine Mammal Protection Act, or are required as a result of a court order. In such instances the NMFS Regional Administrator (RA) will notify the Councils in writing of the issue and that action is required. If there is a legal deadline for taking action, the deadline will be included in the notification.

2. Open framework actions may be implemented in either of two ways: abbreviated documentation or standard documentation process.
    a. Abbreviated documentation process: Regulatory changes that may be categorized as a routine or insignificant may be proposed in the form of a letter or memo from the Councils to the RA containing the proposed action, and the relevant biological, social and economic information to support the action. Either Council may initiate the letter or memo, but both Councils must approve it. If multiple actions are proposed, a finding that the actions are also routine or insignificant must also be included. If the RA concurs with the determination and approves the proposed action, the action will be implemented through publication of appropriate notification in the Federal Register. Changes that may be viewed as

routine or insignificant include, among others:

i. Reporting and monitoring requirements;
ii. Permitting requirements;
iii. Gear marking requirements;
iv. Vessel marking requirements;
v. Restrictions relating to maintaining fish in a specific condition (whole condition, filleting, use as bait, etc.);
vi. Bag and possession limit changes of not more than one fish;
vii. Size limit changes of not more than 10% of the prior size limit;
viii. Vessel trip limit changes of not more than 10% of the prior trip limit;
ix. Closed seasons of not more than 10% of the overall open fishing season,
x. Species complex composition;
xi. Restricted areas (seasonal or year-round) affecting no more than a total of 100 nautical square miles;
xii. Re-specification of ACL, ACT or quotas that had been previously approved as part of a series of ACLs, ACTs or quotas;
xiii. Specification of MSY proxy, OY, and associated management parameters (such as overfished and overfishing definitions) where new values are calculated based on previously approved specifications;
xiv. Gear restrictions, except those that result significant changes in the fishery, such as complete prohibitions on gear types;
xv. Quota changes of not more than 10%, or retention of portion of an annual quota in anticipation of future regulatory changes during the same fishing year.

b. Standard documentation process: Regulatory changes that do not qualify as a routine or insignificant may be proposed in the form of a framework document with supporting analyses. Non-routine or significant actions that may be implemented under a framework action include:

i. Specification of ACTs or sector ACTs;
ii. Specification of ABC and ABC/ACL control rules;
iii. Rebuilding plans and revisions to approved rebuilding plans;
iv. The addition of new species to existing limited access privilege programs (LAPP);
v. Changes specified in section 2(a) that exceed the established thresholds;
vi. Changes to AMs including:

In-season AMs

1. Closures and closure procedures
2. Trip limit reductions or increases
3. Designation of an existing IFQ program as the AM for species in the IFQ program
4. Implementation of gear restrictions

Post-season AMs

5. Adjustment of season length
6. Implementation of closed seasons/time periods
7. Adjustment or implementation of bag, trip, or possession limit
8. Reduction of the ACL/ACT to account for the previous year

overage
9. Revoking a scheduled increase in the ACL/ACT if the ACL was exceeded in the previous year
10. Implementation of gear restrictions
11. Reporting and monitoring requirements

3. Either Council may initiate the open framework process to inform the public of the issues and develop potential alternatives to address those issues. The framework process will include the development of documentation and public discussion during at least one meeting for each Council.

4. Prior to taking final action on the proposed framework action, each Council may convene their advisory committees and panels, as appropriate, to provide recommendations on the proposed actions.

5. For all framework actions, the initiating Council will provide the letter, memo, or completed framework document along with proposed regulations to the RA in a timely manner following final action by both Councils.

6. For all framework action requests, the RA will review the Councils' recommendations and supporting information and notify the Councils of the determinations, in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (Section 304) and other applicable law.

Closed Framework Procedure:
Consistent with existing requirements in the FMP and implementing regulations, the RA is authorized to conduct the following framework actions through appropriate notification in the *Federal Register*:

1. Close or adjust harvest any sector of the fishery for a species, sub-species, or species group that has a quota or sub-quota at such time as projected to be necessary to prevent the sector from exceeding its sector-quota for the remainder of the fishing year or sub-quota season;
2. Reopen any sector of the fishery that had been prematurely closed;
3. Implement an in-season AM for a sector that has reached or is projected to reach, or is approaching or is projected to approach its ACL, or implement a post-season AM for a sector that exceeded its ACL in the current year.

Responsibilities of Each Council:

1. Recommendations with respect to the Atlantic migratory groups of king mackerel, Spanish mackerel, and cobia will be the responsibility of the South Atlantic Council, and those for the Gulf migratory groups of king mackerel, Spanish mackerel, and cobia will be the responsibility of the Gulf Council, with the following exceptions:

   The South Atlantic Council will have responsibility to set vessel trip limits, closed seasons or areas, or gear restrictions for:

   a. The east coast of Florida including the Atlantic side of the Florida Keys for Gulf migratory group cobia.

2. For stocks where a stock assessment indicates a different boundary between the Gulf and Atlantic migratory groups than the management boundary, a portion of the ACL for one migratory group may be apportioned to the appropriate zone, but management measures for that zone will be the responsibility of the Council within whose management area that zone is located.

3. Both councils must concur on recommendations that affect both migratory groups.

Preferred Alternative 2: Modify the framework procedure to update the responsibilities of each Council for setting regulations for the Gulf Group Cobia. The responsibilities of each Council would be modified as follows:

1. Recommendations with respect to the Atlantic migratory groups of king mackerel, and Spanish mackerel ~~and cobia~~ will be the responsibility of the South Atlantic Council, and those for the Gulf migratory groups of king mackerel, Spanish mackerel, and cobia will be the responsibility of the Gulf Council, with the following exceptions:
    a. The South Atlantic Council will have the responsibility to:
        - set vessel trip limits;
        - closed seasons or areas;
        - gear restrictions;
        - per person bag and possession limits;
        - size limits;
        - in-season and post-season accountability measures;
        - specification of ACTs or sector ACTs

for the east coast of Florida including the Atlantic side of the Florida Keys for Gulf migratory group cobia (i.e., Florida East Coast Zone).

2. Both Councils must concur on recommendations that affect both migratory groups.

Discussion:

The CMP framework procedure allows the Councils to change specific management measures through framework amendments. Typically, these changes can be implemented within a shorter timeframe than a plan amendment. The current language for the CMP framework procedure, **Alternative 1** (Appendix A), was last revised in Amendment 26 by removing language that referred to the king mackerel Florida East Coast Subzone (GMFMC 2016). **Alternative 1** allows the South Atlantic to modify specific management measures for Gulf Group Cobia in the FLEC Zone: vessel trip limits, closed seasons or areas, and/or gear restrictions. **Alternative 1** would retain the current CMP framework procedure without any changes

Preferred Alternative 2 would expand the South Atlantic Council's responsibilities beyond setting recreational vessel and commercial trip limits, closed seasons or areas, and/or gear restrictions to also include: gear restrictions, per person bag and possession limits, size limits, in-season and post-season accountability measures, and specification of ACTs or sector ACTs.

This allows the South Atlantic Council to independently approve Framework Amendments specifically pertaining to management measures for the FLEC Zone for Gulf Group Cobia.

Explicitly defining additional management measures that the South Atlantic Council may recommend independently will allow the South Atlantic Council to react more quickly to new information. The ability of the South Atlantic Council to be more responsive to updated scientific information or changes in fishing harvest is expected to yield biological, economic, and social benefits, by simultaneously ensuring the sustainability of the stock and access to that stock for stakeholders. **Preferred Alternative 2** would not allow the South Atlantic Council to make unilateral changes to management measures that affect an entire Gulf migratory group throughout its range, such as removing the FLEC Zone apportionment of Gulf Group Cobia from the CMP FMP, or modifying the OFL, ABC, or Gulf Group Cobia ACL. These actions will continue to be modified via a joint CMP FMP document. Therefore, Gulf Council input and consent would be required for these types of actions to move forward.

Two additional corrections are being included to the framework procedure via this amendment. Atlantic migratory group of cobia (Atlantic Cobia) was removed from the CMP FMP with Amendment 31 (GMFMC and SAFMC 2018). However, the CMP framework procedure was not updated at that time to remove reference to Atlantic Cobia. In addition, the CMP framework language referencing the ABC/ACL Control rule is incorrect because there is not an ABC/ACL control rule. Instead, this should refer to the ABC and ACL/ACT Control Rules. The Councils are making these corrections through this amendment.

CHAPTER 3. AFFECTED ENVIRONMENT

3.1 Description of the Fishery

Permits

Commercial

The Gulf of Mexico Fishery Management Council (Gulf Council), the South Atlantic Fishery Management Council (South Atlantic Council), together Councils, and the National Marine Fisheries Service (NMFS) do not require a specific federal permit for the commercial harvest of Gulf of Mexico (Gulf) Migratory Group cobia (Gulf Group Cobia). However, because Gulf Group Cobia is included in the Fishery Management Plan (FMP) for Coastal Migratory Pelagic (CMP) Resources in the Gulf of Mexico and Atlantic Region (CMP FMP), the regulations at 50 C.F.R. §§ 622.386(b) and (c) restrict the sale and purchase of Gulf Group Cobia by federally permitted vessels and seafood dealers. Section 622.386(b) requires that Gulf Group Cobia harvested on any vessel that has a valid federal commercial vessel permit or a charter vessel/headboat permit be sold to a seafood dealer who has a valid federal Gulf and South Atlantic dealer permit. Under section 622.386(c), a dealer who has a valid federal Gulf and South Atlantic dealer permit may purchase Gulf Group Cobia harvested in or from the Gulf or South Atlantic exclusive economic zone (EEZ) only from a vessel that has been issued a federal commercial or charter vessel/headboat CMP permit (i.e., king or Spanish mackerel permit). NMFS has determined that the dealer limitation in section 622.386(c) is inconsistent with the requirement in section 622.386(b) for Gulf Group Cobia on all federally permitted vessels to be sold to a federally permitted dealer, as well as with the Gulf and South Atlantic Council's Generic Amendment (GMFMC and SAFMC 2013) that created the federal Gulf and South Atlantic dealer permit. Therefore, NMFS intends to correct the regulations at 50 C.F.R. 622.386(c) to make the restriction applicable only to king and Spanish mackerel harvested in or from the Gulf, Mid-Atlantic, or South Atlantic EEZ. This will allow federally permitted dealers to accept Gulf Group Cobia harvested from the EEZ from any vessel regardless of permit status.

Recreational

The Councils and NMFS do not require a recreational permit for private angling of Gulf Group Cobia in federal waters, however, each state requires its own recreational fishing license for anglers fishing in their respective state waters. A Gulf federal charter/headboat vessel permit or a South Atlantic federal charter/headboat vessel permit is required to fish for or possess Gulf coastal migratory pelagic fish or Atlantic coastal migratory pelagic fish, respectively 50 C.F.R. § 622.370(b). The Gulf charter/headboat vessel permit is a limited access permit while the South Atlantic charter/headboat vessel permit is an open access permit. As of July 20, 2021, there were 1,294 vessels with a Gulf federal charter/headboat vessel CMP permit (1,203 valid and 91 renewable). A permit in “renewable” status is an expired permit that may not be actively fished, but is renewable for up to one year after expiration. Valid and renewable permits are transferable. Approximately 97.5% of vessels with a Gulf federal charter/headboat CMP permit list a mailing recipient in a Gulf or South Atlantic state, with the majority of permits being listed

in Florida (Table 3.1.1). As of July 20, 2021, there were 6 vessels with a Gulf federal historical captain charter/headboat pelagic fish permit (4 valid and 2 renewable). All but one historical permit list a mailing address in Florida. With the implementation of an abbreviated framework to the CMP FMP (GMFMC 2019a), effective May 20, 2020, the holders of the 6 remaining historical charter/headboat CMP permits have until May 20, 2022 to convert them to standard charter/headboat CMP permits. If they are not converted, they will remain historical charter/headboat CMP permits. As of July 20, 2021, there were 1,810 vessels with a South Atlantic federal charter/headboat vessel CMP permit. Approximately 91% of vessels with a South Atlantic federal charter/headboat CMP permit list a mailing recipient in a South Atlantic or Gulf state, with the majority of permits being listed in Florida (Table 3.1.1).

Table 3.1.1. Number and percentage of vessels with a federal Gulf charter/headboat CMP permit and/or a federal South Atlantic charter/headboat CMP permit by state.

State	Gulf Charter/Headboat CMP Permits		South Atlantic Charter/Headboat CMP Permits	
	Number	Percent	Number	Percent
Alabama	135	10.7	17	1.0
Florida	754	59.7	1,057	63.9
Georgia	16	1.3	41	2.5
Louisiana	95	7.5	10	0.6
Mississippi	36	2.9	3	0.2
North Carolina	7	0.5	330	20.0
South Carolina	0	0	176	10.7
Texas	219	17.4	19	1.1
Subtotal	**1,262**	**97.5%**	**1,653**	**91.3%**
Other	32	2.5	157	8.7
Total	**1,294**	**100.0%**	**1,810**	**100.0%**

Source: NOAA FOIA Permits website (Accessed July 20, 2021).

Management Measures

The commercial and recreational fishing year for Gulf Group Cobia in the EEZ of the Gulf and South Atlantic begins January 1 and ends December 31 (GMFMC and SAFMC 1992). Gulf Group Cobia is managed as a single stock with one annual catch limit (ACL) and one annual catch target (ACT) in the Gulf of Mexico Fishery Management Council's (Gulf Council) jurisdiction (Gulf Zone) (Figure 1.1.1), for both the recreational and commercial sectors. Gulf Group Cobia occurring in the South Atlantic Fishery Management Council's (South Atlantic Council) jurisdiction (from the Council jurisdictional boundary east and north to the Georgia/Florida state line) are apportioned to the South Atlantic Council and jointly managed between both Councils (Florida East Coast [FLEC] Zone) (Figure 1.1.1). In the FLEC Zone, Gulf Group Cobia is managed by sectors with a current ACL allocation of 8% commercial and

92% recreational. Only the recreational sector has an ACT. Neither the recreational nor the commercial sector in either zone has a fixed closed season.

In the Gulf Zone, Gulf Group Cobia recreational and commercial management measures include a 36-inch fork length (FL) minimum size limit (GMFMC 2019b), a daily possession limit of two fish per person, regardless of the number of trips or duration of a trip (GMFMC and SAFMC 1990), and an in-season accountability measure (AM) (GMFMC and SAFMC 2011). The AM states that if recreational and commercial landings combined reach or are projected to reach the Gulf Zone ACT, both sectors will close for the remainder of the fishing year in this zone. The stock ACT has not been reached since it was implemented in 2012 and the harvest of Gulf Group Cobia in the Gulf Zone has never been closed (Table 1.1.1). The Gulf Zone does not have a post-season AM.

In the FLEC Zone, Gulf Group Cobia recreational and commercial management measures include a 33-inch FL minimum size limit (GMFMC and SAFMC 1983), a daily possession limit of two fish per person, regardless of the number of trips or duration of a trip (GMFMC and SAFMC 1990), and sector specific in-season and post-season AMs (GMFMC and SAFMC 2014). The in-season AM states when commercial landings reach, or are projected to reach, the commercial FLEC Zone cobia ACL, sale of Gulf Group Cobia harvested from this zone is prohibited for the remained of the fishing year. There is not a recreational sector in-season AM. The post-season AM states for the commercial sector, if the FLEC Zone cobia total ACL is exceeded, and Gulf Group Cobia are overfished, the commercial sector FLEC Zone cobia ACL will be reduced in the following year by the amount of the overage. For the recreational sector, if the FLEC Zone cobia total ACL is exceeded, the length of the following year's fishing season is reduced by the amount necessary to ensure landings achieve the ACT, but do not exceed the ACL in that year. Lastly, if the FLEC Zone cobia total ACL is exceeded and Gulf Group Cobia are overfished, the applicable sector ACL and ACT (if applicable) for the FLEC Zone will be reduced by the amount of the overage in the following year. The total FLEC Zone cobia ACL has not been reached since it was implemented in 2015 and the harvest of Gulf Group Cobia in the FLEC Zone has never been closed (Table 1.1.2).

Landings

Gulf Group Cobia is specified and monitored in terms of landed weight (lw)[6], which is a combination of gutted and whole weight. This means landings in gutted weight are not converted to whole weight, or vice-versa, but landings in whole or gutted weight are simply added together to track landings against the ACL.

Commercial

The commercial sectors in both zones harvest Gulf Group Cobia predominantly by hook-and-line. Commercial landings of cobia in the Gulf Zone peaked in 1993, but have been well below this level in subsequent years (Figure 3.1.1). Reduced landings are not believed to be in part to harvest levels constrained to maximum sustainable yield or the implementation of a stock ACL and ACT in 2012, as all of these have been over one million lbs. On average, only 57% of the

[6] Landed weight is equivalent to "as reported."

total stock ACL has been landed since 2012 of which, the commercial sector landed on average 4% of that total. However, only an average of 39% of the total stock ACL was landed in 2017-2019 with the commercial sector landing an average 3% of that total. Commercial landings of cobia in the FLEC Zone peaked in 1997 and again in 2011, but also have been below these levels in the years following these peaks (Figure 3.1.1). As with the Gulf Zone, this decline in the FLEC Zone is not believed to be in part to harvest levels constrained to an ACL and ACT starting in 2015 as landings were already in decline. Landings before 2015 were attributed to the Atlantic Migratory Group of cobia as the migratory group boundaries were different before this time. Landings provided in Figure 3.1.1 for years before 2015 show what landings would have occurred in the current FLEC Zone had it been in existence. Commercial landings in the FLEC Zone have never exceeded the sector's ACL. On average, only 85% of the commercial sector ACL has been landed since 2015. However, only an average of 72% of the commercial sector ACL was landed in 2017–2019. A declining trend is still seen, as 2018 and 2019 landings were less than 60%. While there has been some variability in landings overall, commercial landings in both zones have generally been in decline.

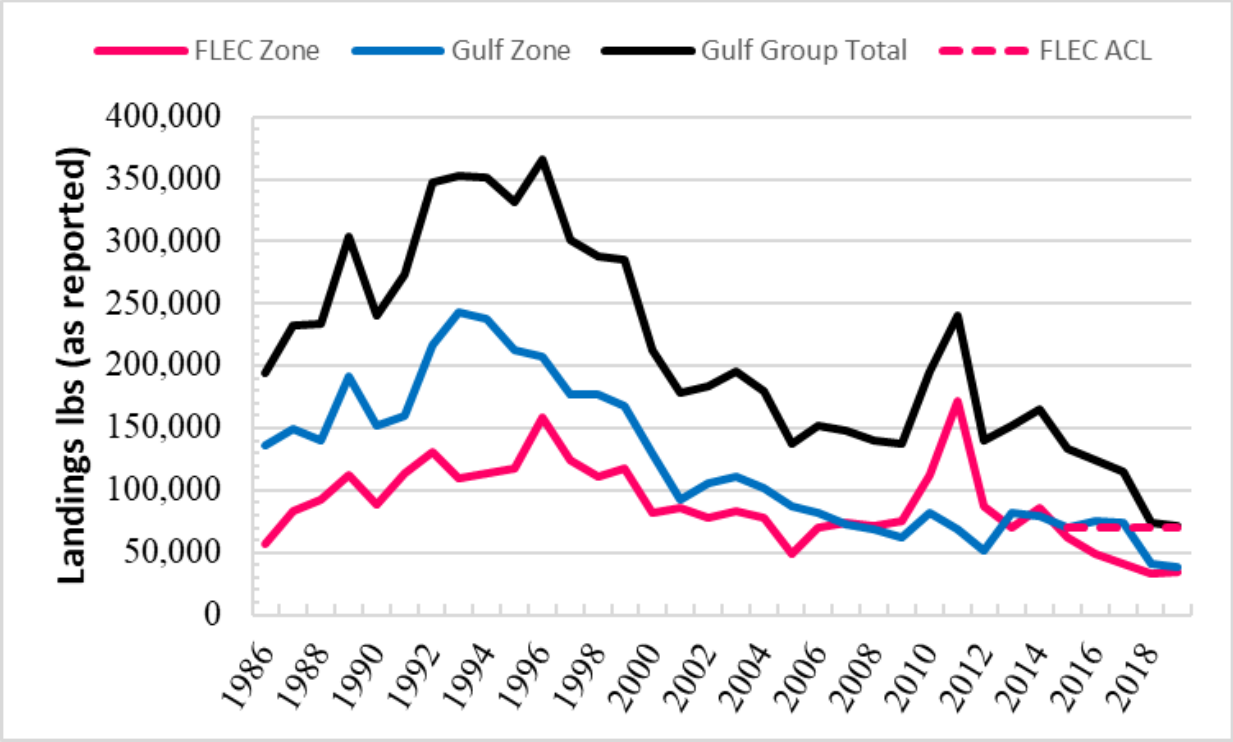

Figure 3.1.1. Commercial cobia landings (lbs lw) history of Gulf Group Cobia in the Gulf and FLEC Zones from 1986 through 2019 separate and combined, including the current FLEC Zone commercial sector ACL.
Note: The Gulf Zone is managed as a stock so there is not a Gulf Zone commercial sector ACL to list. The current Gulf Group total ACL is 2,600,000 lbs and is in MRIP-CHTS.
Source: SEFSC Commercial ACL data (Accessed August 21, 2020).

The recreational sectors in both zones harvest Gulf Group Cobia predominantly by hook-and-line, with some occasionally targeted by spear. The majority of landings of cobia in the Gulf Zone are from the recreational sector. Recreational landings of cobia in the Gulf Zone peaked in 1997, but have been well below this level in subsequent years (Figure 3.1.2). MRIP-FES

equivalent landings for MRIP-CHTS show the same trends with higher peaks and valleys. As with the commercial sector, declining recreational landings in the Gulf Zone are not believed to be in part to harvest levels constrained to maximum sustainable yield or the implementation of a stock ACL and ACT in 2012. Of the average 57% of the total stock ACL that has been landed since 2012, the recreational sector landings have averaged 53% of that total. Of the most recent three-year average for total stock ACL landings (2017–2019; 39%) recreational sector landing have averaged 35% of that total. MRIP-FES equivalent landings have shown similar results with the recreational sector landings averaging 59% of the total MRIP-FES equivalent stock ACL average landings since 2012 of 61% and 47% of the most recent three-year average (2017–2019) for total MRIP-FES equivalent stock ACL landings of 49%. The Gulf Zone stock ACL has never been exceeded. Recreational landings of cobia in the FLEC Zone have had regular peaks and valleys since 1981, but have always been below the ACL implemented in 2015 when this zone was established (Figure 3.1.3). As with the recreational sector in the Gulf Zone, MRIP-FES equivalent landings in the FLEC Zone show the same trends as MRIP-CHTS landings with higher peaks and valleys for the same years and an overall declining trend in landings. On average, 50% of the recreational sector ACL has been landed since 2015. However, only an average of 44% of the recreational sector ACL was landed in 2017–2019. While MRIP-FES equivalent landings show what would have been an exceedance of the MRIP-FES equivalent recreational ACL in 2016 and 2018 (Figure 3.1.3), average MRIP-FES equivalent recreational sector landings since 2015 were 81% and were 74% of the most recent three-year average (2017–2019). However, if the MRIP-FES equivalent total ACL for the FLEC Zone would have been in effect for these years, post season AMs would have been implemented due to the exceedance of the MRIP-FES equivalent FLEC Zone total ACL.

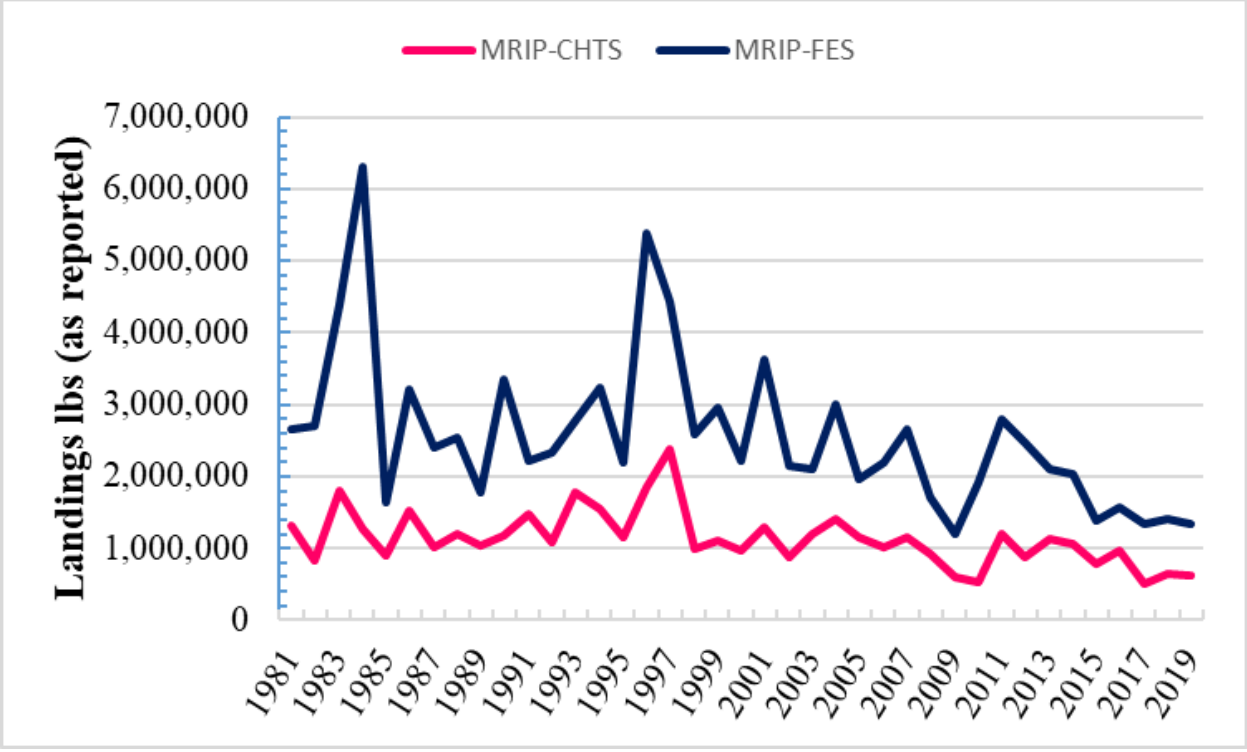

Figure 3.1.2. Recreational cobia landings (lbs lw) history for Gulf Zone cobia from 1981 through 2019 in MRIP-CHTS and the MRIP-FES equivalent.

Note: The Gulf Zone is managed as a stock so there is not a Gulf Zone recreational sector ACL to list. The current Gulf Group total ACL is 2,600,000 lbs and is in MRIP-CHTS.
Source: SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

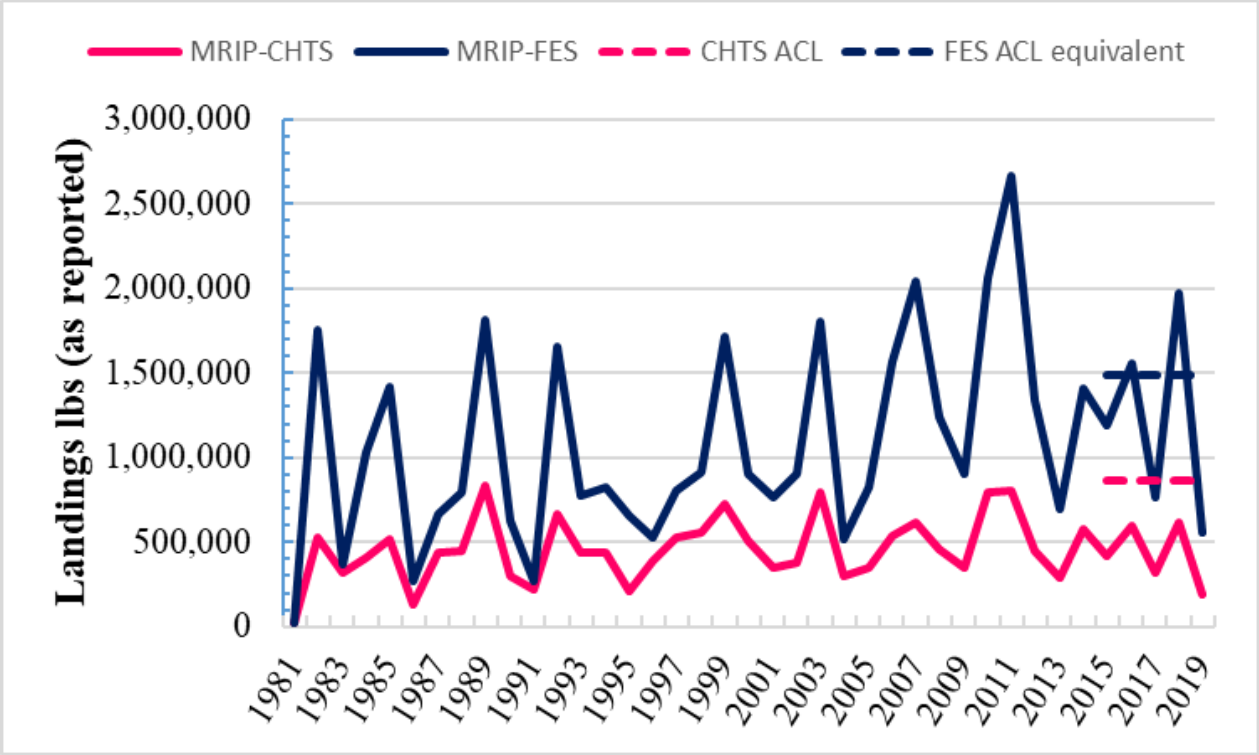

Figure 3.1.3. Recreational cobia landings (lbs lw) history for the FLEC Zone from 1981 through 2019 including the current FLEC Zone sector ACL in MRIP-CHTS units and the MRIP-FES equivalent.
Source: SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

3.2 Description of the Physical Environment

3.2.1 Gulf of Mexico

The physical environment for CMP species is provided in the Generic Essential Fish Habitat (EFH) Amendment (GMFMC 2004), Generic Amendment 3 (GMFMC 2005), Amendment 18 to the CMP FMP (GMFMC and SAFMC 2011) and Amendment 20B to the CMP FMP (GMFMC and SAFMC 2014) which are hereby incorporated by reference, and are summarized below.

The Gulf has a total area of approximately 600,000 square miles (1.5 million km^2), including state waters (Gore 1992). It is a semi-enclosed, oceanic basin connected to the Atlantic Ocean by the Straits of Florida and to the Caribbean Sea by the Yucatan Channel (Figure 3.2.1.1). Oceanographic conditions are affected by the Loop Current, discharge of freshwater into the northern Gulf, and a semi-permanent, anti-cyclonic gyre in the western Gulf. The Gulf includes both temperate and tropical waters (McEachran and Fechhelm 2005). Gulf water temperatures range from 54º F to 84º F (12º C to 29º C) depending on time of year and depth of water. Mean

annual sea surface temperatures ranged from 73 through 83º F (23–28º C) including bays and bayous (Figure 3.2.1.1) between 1982 and 2009, according to satellite-derived measurements.[7] In general, mean sea surface temperature increases from north to south with large seasonal variations in shallow waters.

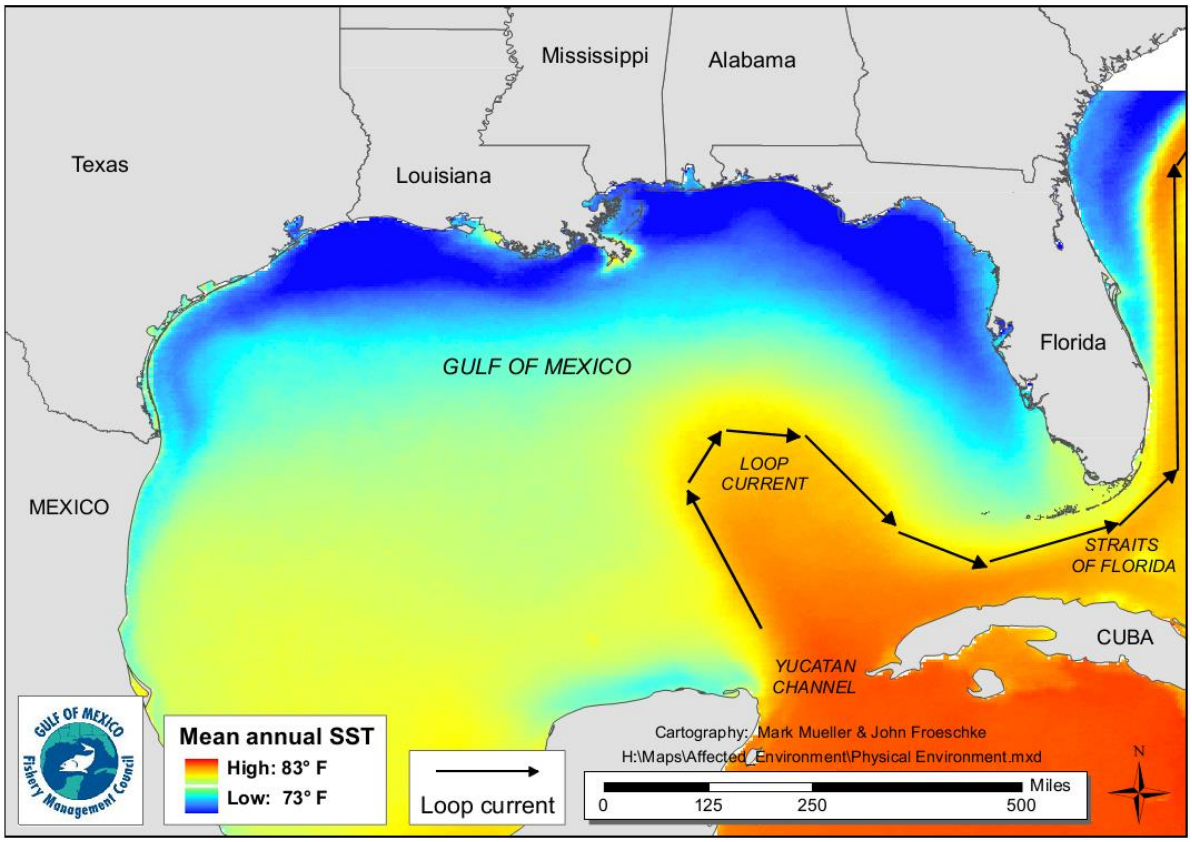

Figure 3.2.1.1. Mean annual sea surface temperature derived from the Advanced Very High-Resolution Radiometer Pathfinder Version 5 sea surface temperature data set.[8]

Habitat Areas of Particular Concern (HAPC) and Environmental Sites of Special Interest

Detailed information pertaining to HAPCs is provided in Generic Amendment 3 for addressing EFH, HAPC (GMFMC 2005) and Amendment 9 to the Fishery Management Plan for the Coral and Coral Reefs of the Gulf of Mexico, U.S. Waters (GMFMC 2018). Detailed information pertaining to the Gulf area closures and marine reserves is provided in Amendment 32 to the Fishery Management Plan for the Reef Fish Resources in the Gulf of Mexico (GMFMC 2011). There are environmental sites of special interest that are discussed in the Generic EFH Amendment (GMFMC 2004) that are relevant to CMP management. These documents are hereby incorporated by reference.

Northern Gulf of Mexico Hypoxic Zone

[7] http://accession.nodc.noaa.gov/0072888
[8] http://pathfinder.nodc.noaa.gov

Every summer in the northern Gulf, a large hypoxic zone forms. It is the result of allochthonous materials and runoff from agricultural lands resulting in increasing nutrient inputs to multiple rivers. These tributaries feed in to the Mississippi River, which disperses to the Gulf, and creates a temperature and salinity dependent, layering of waters. The nutrient rich fresh waters from the Mississippi create seasonal, large algal blooms at the surface that eventually die, sink to the bottom, and decompose. This creates the oxygen-poor, hypoxic, bottom water layer unless front or storm events occur, which allows for mixing of the layers (Rabalais and Turner 2019). Mapping of the hypoxic zone began in 1985. For 2021, the projected extent of the hypoxic area is estimated to be 4,880 square miles, double what it was in 2020 (2,116 square miles), but substantially less than the extent of the 2017 hypoxia area (8,776 square miles). The changes in hypoxic area can be attributed to changing amounts of river discharge and its associated nutrient load and from storm events. The major factor for the reduced size in 2020 was the active storm season with Hurricane Hanna passing right over the zone, allowing for mixing of the waters. While the 2021 projection is lower than the 5-year hypoxic area average (5,408 square miles), it is still larger than the 1,930 square mile goal set by the Interagency Mississippi River and Gulf of Mexico Hypoxia Task Force to be reached by 2035.[9] The hypoxic conditions in the northern Gulf directly impact less mobile benthic macroinvertebrates (e.g., polychaetes) by influencing density, species richness, and community composition (Baustian and Rabalais 2009; Breitburg et al. 2018). However, more mobile macroinvertebrates and demersal fishes, such as cobia, are able to detect lower dissolved oxygen levels and move away from hypoxic conditions. Therefore, these organisms are indirectly affected by limited prey availability and constrained available habitat (Baustian and Rabalais 2009; Craig 2012). Cobia are also found to be relatively hypoxia tolerant at 75°F (24°C) although their oxygen levels are expected to decrease as temperatures increase (Crear et al. 2018).

Greenhouse gases

The Intergovernmental Panel on Climate Change (IPCC) has indicated greenhouse gas emissions are one of the most important drivers of recent changes in climate. Wilson et al. (2017) inventoried the sources of greenhouse gases in the Gulf from sources associated with oil platforms and those associated with other activities such as fishing. A summary of the results of the inventory are shown in Table 3.2.1.1 with respect to total emissions and from fishing. Commercial fishing and recreational vessels make up a small percentage of the total estimated greenhouse gas emissions from the Gulf (2.04% and 1.67%, respectively).

[9] http://gulfhypoxia.net

Table 3.2.1.1. Total Gulf greenhouse gas 2014 emissions estimates (in tons per year) from oil platform and non-oil platform sources, commercial fishing, and percent greenhouse gas emissions from commercial fishing vessels of the total emissions*.

Emission source	CO_2	Greenhouse CH_4	Gas N_2O	Total CO_{2e}**
Oil platform	5,940,330	225,667	98	11,611,272
Non-platform	14,017,962	1,999	2,646	14,856,307
Total	**19,958,292**	**227,665**	**2,743**	**26,467,578**
Commercial fishing	531,190	3	25	538,842
Recreational fishing	435,327	3	21	441,559
Percent commercial fishing	2.66%	>0.01%	0.91%	2.04%
Percent recreational fishing	2.18%	>0.01%	0.77%	1.67%

*Compiled from Tables 6–11, 6–12, and 6–13 in Wilson et al. (2017). **The CO_2 equivalent (CO_{2e}) emission estimates represent the number of tons of CO_2 emissions with the same global warming potential as one ton of another greenhouse gas (e.g., CH_4 and N_2O). Conversion factors to CO_{2e} are 21 for CH_4 and 310 for N_2O.

3.2.2 South Atlantic

The South Atlantic Council has management jurisdiction of the federal waters (3–200 nm) offshore of North Carolina, South Carolina, Georgia, and east Florida to Key West. The continental shelf off the southeastern U.S., extending from the Dry Tortugas, Florida, to Cape Hatteras, North Carolina, encompasses an area in excess of 38,600 square miles (100,000 kilometers $(km)^2$ (Menzel 1993). Based on physical oceanography and geomorphology, this environment can be divided into two regions: Dry Tortugas, Florida, to Cape Canaveral, Florida, and Cape Canaveral, Florida, to Cape Hatteras, North Carolina. The continental shelf from the Dry Tortugas, Florida, to Miami, Florida, is approximately 15.5 miles wide and narrows to approximately 3 miles off Palm Beach, Florida. The shelf then broadens to approximately 75 miles off Georgia and South Carolina before narrowing to 19 miles off Cape Hatteras, North Carolina. The Florida Current/Gulf Stream flows along the shelf edge throughout the region. In the southern region, this boundary current dominates the physics of the entire shelf (Lee et al. 1994).

In the northern region, additional physical processes are important and the shelf environment can be subdivided into three oceanographic zones (Atkinson et al. 1985; Menzel 1993), the outer shelf, mid-shelf, and inner shelf. The outer shelf (131–246 ft [40–75 m]) is influenced primarily by the Gulf Stream and secondarily by winds and tides. On the mid-shelf (66–131 ft [20–40 m]), the water column is almost equally affected by the Gulf Stream, winds, and tides. Inner shelf waters (0–66 ft [0–20 m]) are influenced by freshwater runoff, winds, tides, and bottom friction. Water masses present from the Dry Tortugas, Florida, to Cape Canaveral, Florida, include Florida Current water, waters originating in Florida Bay, and shelf water. From Cape Canaveral,

Florida, to Cape Hatteras, North Carolina four water masses are found: Gulf Stream water; Carolina Capes water; Georgia water; and Virginia coastal water.

Spatial and temporal variation in the position of the western boundary current has dramatic effects on water column habitats. Variation in the path of the Florida Current near the Dry Tortugas induces formation of the Tortugas Gyre (Lee et al. 1994). This cyclonic eddy has horizontal dimensions of approximately 62 miles and may persist near the Florida Keys for several months. The Pourtales Gyre, which has been found to the east, is formed when the Tortugas Gyres moves eastward along the shelf. Upwelling occurs in the center of these gyres, thereby adding nutrients to the near surface (less than 328 ft [100 m]) water column. Wind and input of Florida Bay water also influence the water column structure on the shelf off the Florida Keys (Smith 1994; Wang et al. 1994). Further, downstream, the Gulf Stream encounters the "Charleston Bump", a topographic rise on the upper Blake Ridge where the current is often deflected offshore resulting in the formation of a cold, quasi-permanent cyclonic gyre and associated upwelling (Brooks and Bane 1978). On the continental shelf, offshore projecting shoals at Cape Fear, North Carolina, Cape Lookout, North Carolina, and Cape Hatteras, North Carolina affect longshore coastal currents and interact with Gulf Stream intrusions to produce local upwelling (Blanton et al. 1981; Janowitz and Pietrafesa 1982). Shoreward of the Gulf Stream, seasonal horizontal temperature and salinity gradients define the mid-shelf and inner-shelf fronts. In coastal waters, river discharge and estuarine tidal plumes contribute to the water column structure.

The water column from Dry Tortugas, Florida, to Cape Hatteras, North Carolina, serves as habitat for many marine fish and shellfish. Most marine fish and shellfish release pelagic eggs when spawning and thus, most species utilize the water column during some portion of their early life history (Leis 1991; Yeung and McGowan 1991). Many fish inhabit the water column as adults. Pelagic fishes include numerous clupeoids, flying fish, jacks, cobia, bluefish, dolphin, barracuda, and the mackerels (Schwartz 1989). Some pelagic species are associated with particular benthic habitats, while other species are truly pelagic.

3.3 Description of the Biological/Ecological Environment

A description of the biological and ecological environment can be found in Amendment 18 to the CMP FMP (GMFMC and SAFMC 2011) and Amendment 20B to the CMP FMP (GMFMC and SAFMC 2014). Those descriptions are summarized in the following sections and incorporated herein by reference.

3.3.1 Gulf Group Cobia Life History and Biology

Distribution and Meristics:

Cobia are a member of the family Rachycentridae, and are managed in the CMP FMP because of their migratory behavior, of which there are two migratory groups (Gulf and Atlantic). Cobia are distributed worldwide in tropical, subtropical and warm-temperate waters (Migdalski and Fichter 1983). Cobia are found in the western Atlantic Ocean from Nova Scotia, Canada, south to Argentina, including the Caribbean Sea, and are abundant in warm waters off the coast of the

U.S. from the Chesapeake Bay south and throughout the Gulf (Shaffer and Nakamura 1989). Food availability and water temperature are likely causes of these migratory patterns. Cobia prefer water temperatures between 68°–86°F (20–30°C) and are seldom found in temperatures less than 68°F (20°C) (GMFMC 1998). As a pelagic fish, cobia are found over the continental shelf and around offshore rocky outcrops, coral reefs, and artificial reefs, however, they occasionally enter estuaries. Cobia prefer to reside near any structure that interrupts open water, including pilings, buoys, platforms, anchored boats, and flotsam. Gulf Group Cobia studies have shown a significant seasonal trend in migration and recaptures with a large portion of cobia in the winter occurring in the Florida Keys and a large portion of cobia in the summer occurring in the northcentral Gulf of Mexico (Shaffer and Nakamura 1989; Burns et al. 1992; Franks and Brown-Peterson 2002; Dippold et al. 2017).

Cobia are opportunistic predators that feed on crustaceans, cephalopods, shrimp, and small fish (Shaffer and Nakamra 1989; Franks et al. 1999; Arendt et al. 2001). Gulf cobia can weigh up to a record 61 kilograms (kg) (135 lbs ww), but are more common at weights of up to 23 kg (50 lbs ww). They reach lengths of 50–120 centimeters (cm) (20–47 inches), up to a maximum of 200 cm (79 inches). Gulf cobia grow quickly and have a moderate life span. Maximum ages observed for cobia in the Gulf were 9 and 11 years for males and females, respectively (Franks et al. 1999; Franks and Brown-Peterson 2002).

Stock Description

Cobia from federal waters off the east coast of Florida south and west through Texas are part of the Gulf migratory group. Cobia from the Florida/Georgia border north to New York are considered the Atlantic migratory group. Genetic research has demonstrated a distinct population segment for the Gulf extending around the Florida peninsula into southeast Florida (Darden 2012). Tag-recapture data from several long-term studies suggest that a high number of tagged fish demonstrate little movement or exchange between stocks in the Atlantic and Gulf (Perkinson and Denson 2012; Perkinson et al. 2019).

Atlantic cobia were removed from the CMP FMP in 2019 because most Atlantic cobia are landed in state waters (GMFMC and SAFMC 2018) and federal management measures were doing little to restrict landings. The Atlantic States Marine Fisheries Commission has assumed management of that stock under the Atlantic Coastal Fisheries Cooperative Management Act.

Spawning

Cobia form large aggregations, spawning during daylight hours in the Gulf from April through September (Biesiot et al. 1994; Lotz et al. 1996; Brown-Peterson 2001; Franks and Brown-Peterson 2002). Gonad values for both sexes of cobia from the eastern Gulf began to increase in March, peaked in July, and declined and leveled off thereafter. Gonad values for females from the north central Gulf increased in March, peaked in May, and then declined through September (Ditty and Shaw 1992; Thompson et al. 1992; Biesiot et al. 1994; Lotz et al. 1996; Brown-Peterson et al. 2001). In contrast, gonad values of males from the north central Gulf steadily increased through July then fell in August (Franks and Brown-Peterson 2002). Spawning frequency is once every 4–5 days in the north central Gulf and once every 9–12 days in the

western Gulf (west of the Mississippi River; Brown-Peterson 2001; Franks and Brown-Peterson 2002). Spawning occurs 15–20 times during the season. During spawning, cobia undergo changes in body coloration from brown to a light horizontal-striped pattern, releasing eggs and sperm into offshore open water. Cobia eggs are spherical, averaging 1.24 millimeters (mm) in diameter (Lotz et al. 1996). Eggs are pelagic and usually found in the top meter of the water column (GMFMC 1998). Larvae are released approximately 24–36 hours after fertilization. Newly hatched larvae are 2.5 mm (1 inch) long and lack pigmentation. Five days after hatching, the mouth and eyes develop, allowing for active feeding, and a pale-yellow streak is visible, extending the length of the body (Ditty and Shaw 1992). By day 30, the juvenile cobia takes on the appearance of the adult, with two color bands running from the head to the posterior end. Larvae and juveniles are found in estuarine and offshore shelf waters of the northern Gulf from the surface to depths of 300m (GMFMC 1998).

Size at Maturity

Cobia grow quickly in the first few years of life and mature at young ages. Sexually dimorphic growth is exhibited, with females attaining larger sizes than males (Franks and Brown-Peterson 2002). Males begin maturing at 64 cm (25 inches) FL (approximately age 1 fish) and most are mature by age 2 (Thompson et al. 1992, Smith 1995, Lotz et al. 1996; Brown-Peterson 2001). Female cobia do not begin maturing until 83 cm (33 inches) FL (approximately age 2 fish) and most are mature at age 3 (Thompson et al. 1992, Lotz et al. 1996; Brown-Peterson 2001). Smith (1995) found that most females caught off the southeastern United States were mature by 80 cm (32 inches) FL. No immature cobia age 4 or greater have been observed. The following excerpt is from the Southeast Data, Assessment, and Review (SEDAR) 28 stock assessment (2013) on cobia, detailing the recommendations of the Life History Working Group (LHWG):

> "Maturity in cobia appears to more strongly correlate with size than age. Due to the paucity of samples at the youngest ages for both stocks, and the influence of the minimum size limit on size at age of those young fish, the [LHWG] recommends using age-2 for age at [which] 50% [of cobia are sexually mature] for Gulf and Atlantic stocks [sexes combined]. All fish aged 3+ in the samples were mature. Again, due to the influence of the minimum size limit on the young fish, there is a chance that not all age-3 fish are mature. When back calculating the length of the fish to age using the von Bertalanffy growth curve, not all age-3 fish would be mature…
>
> Because of the lack of samples below the minimum size limit of 838 mm FL and the fact that female cobia above 800 mm FL are likely to be mature […], one can only guess at the size at [which] 50% [of cobia are sexually mature]. If the [assessment workshop] desires to use size rather than age at maturity, as a *first* estimate the LHWG suggests using 700 mm and examine model sensitivity by trying 650 and 750 mm as well."

Stock Status

The first Gulf Group Cobia assessments concluded that the population status was virtually unknown, given the degree of uncertainty in the estimates from the assessment model (Thompson 1996; Williams 2001). The only statement that could be made with any degree of

certainty about Gulf cobia was that the population had increased since the 1980s. It was not until SEDAR 28 (2013) that Gulf and Atlantic cobia were determined to be genetically distinct, and Gulf Group Cobia was not overfished and not experiencing overfishing. However, anglers expressed concern to the Gulf Council about decreased landings and infrequent sightings of Gulf Zone cobia in times and places where they have previously seemed abundant. Anglers asked the Gulf Council to reduce fishing mortality until the next stock assessment was completed. Framework Amendment 7 to the CMP FMP, implemented in 2020, increased the Gulf Zone cobia minimum size limit, in hopes to allow more fish to spawn before being harvested. SEDAR 28 Update (2020) determined the Gulf Group Cobia was not overfished, but was undergoing overfishing. Due to the implementation timing of Framework Amendment 7 and the SEDAR 28 Update terminal year of data (2017), this assessment was not able to capture any changes to the stock status from the Gulf Zone increased size limit. The next stock assessment for Gulf Group Cobia is not scheduled at this time.

Bycatch

Details of previous bycatch estimates in the cobia portion of the CMP fishery can be found in Appendix C (Bycatch Practicability Analysis) of Framework Amendment 7 to the CMP FMP (GMFMC 2019b), and is hereby incorporated by reference and summarized below.

Since SEDAR 28 (2013), the SEDAR data workshop panel has recommended a cobia discard mortality rate of 5% (range of 2% to 8%) for the commercial sector utilizing hook-and-line gear and the same for the recreational sector utilizing all gear. With anglers being able to specifically target cobia by spear or vertical line, increases in discards by these gear types is expected to be minimal, even in recent years. Commercial discard mortality for gillnet use was estimated at 51% (with a range of 36% to 77%). The gillnet range was developed from gillnet use where 10 or greater cobia were observed released. However, of the 586 reported gill net trips that occurred in the Gulf between 2002 and 2010 none reported cobia discards. Gillnet discards may increase more than spear or vertical line. Due to concerns about the accuracy and precision of the annual estimates of cobia bycatch from the shrimp fishery the advisory panel agreed to not use annual point estimates of bycatch in SEDAR 28 or SEDAR 28 Update. However, the advisory panel recommended that shrimp fishery effort be used as a proxy for cobia bycatch trends since shrimp fishery effort is known with more certainty. It was determined the recreational sector has been the largest contributor to cobia fishing mortality. There is no evidence that the cobia fishery is adversely affecting seabirds or marine mammals and no other finfish species are known to be incidentally caught in the cobia fishery.

There is concern about possible under-reporting of commercial discards as comparison of commercial discard logbooks and observer reports show different values. There is further concern of under-reporting of recreational discard mortality when a gaff is used. Depending on where gaffed, almost 100% of fish are expected to die after release (A. Rios, Southeast Fisheries Science Center, pers. comm. 2021). This recreational observation was not captured in the most recent Gulf cobia stock assessment (SEDAR 28 Update 2020). Lastly, there have been anecdotally remarks of high shark predation mortality associated with fishing for cobia. Therefore, the discard recommendations from the SEDAR data workshop panel may represent the minimum number of discards from both sectors.

3.3.2 General Information

Status of CMP Stocks

The National Ocean Service collaborated with NMFS and the Councils to develop distributions of CMP species (and other species) in the Gulf and South Atlantic (SEA 1998). CMP species are widely distributed in the Gulf and South Atlantic, occupying pelagic habitats during their life cycle. In general, both eggs and larval stages are planktonic. Larval fish feed on zooplankton and phytoplankton.

The CMP FMP currently encompasses 3 species that have migratory groups in each Council's jurisdiction. Stock assessments and status determinations have been conducted and designated for all CMP stocks and can be found on the Councils[10][11] and the SEDAR[12] websites (Table 3.3.2.1). The NMFS Office of Sustainable Fisheries updates its Status of U.S. Fisheries Report to Congress[13] on a quarterly basis. This quarterly update provides more real time information on if a stock is determined to be undergoing overfishing in between times when stock assessments occur. Only a stock assessment determines if a stock is overfished.

Of the CMP stocks for which stock assessments have been conducted, the last quarter report of the 2021 Status of U.S. Fisheries classifies none as overfished and one stock as undergoing overfishing (Gulf Group Cobia). The status of stocks in the CMP FMP, as of the last stock assessment and most recent version of the Status of U.S. Fisheries Report, is provided in Table 3.3.2.1.

Table 3.3.2.1. Status of species in the CMP FMP grouped by family.

Common Name	Scientific Name	Stock Status		Most recent assessment or SSC workshop
		Overfishing	Overfished	
Family Scombridae – Mackerels				
Gulf Migratory Group of King Mackerel	*Scomberomorus cavalla*	N	N	SEDAR 38 Update 2020
Southern Atlantic Coast Migratory Group of King Mackerel	*Scomberomorus cavalla*	N	N	SEDAR 38 Update 2020
Gulf Migratory Group of Spanish Mackerel	*Scomberomorus maculatus*	N	N	SEDAR 28 2012
Southern Atlantic Coast Migratory Group of Spanish Mackerel	*Scomberomorus maculatus*	N	N	SEDAR 28 2012
Family Rachycentridae – Cobia				
Gulf Migratory Group of Cobia	*Rachycentron canadum*	Y	N	SEDAR 28 Update 2020

[10] www.gulfcouncil.org
[11] https://safmc.net/
[12] www.sedarweb.org
[13] https://www.fisheries.noaa.gov/national/population-assessments/fishery-stock-status-updates

Note: In years when a stock assessment does not occur, species overfishing status is based on the most recent fish stock sustainability index (FSSI) report. Except for Gulf Group Cobia, species stock overfishing status is based on the NOAA Quarter 1 2021 FSSI report. The most recent stock assessment is provided for reference.

Protected Species

NMFS manages marine protected species in the Southeast region under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). A summary of these two laws and more information is available on NMFS Office of Protected Resources website.[14] ESA-listed species or Distinct Population Segments (DPS) of marine mammals, sea turtles, fish, and corals occur in the EEZ of the Gulf and South Atlantic. There are numerous stocks of marine mammals managed within the Southeast region. All marine mammals in U.S. waters are protected under the MMPA.

Six of the marine mammals (sperm, sei, fin, blue, humpback, North Atlantic right whale) protected under the MMPA are also listed as endangered under the ESA and may occur in the Gulf and/or South Atlantic. Bryde's whales are the only resident baleen whales in the Gulf of Mexico with the species recently being listed as endangered[15]. Manatees, listed as threatened under the ESA, also occur in the Gulf and South Atlantic and are the only marine mammal species in this area managed by the U.S. Fish and Wildlife Service.

Sea turtles, fish, and corals that are listed as threatened or endangered under the ESA and occur in the Gulf and South Atlantic include the following: five species/DPS of sea turtles (Kemp's ridley, Northwest Atlantic DPS of loggerhead, North Atlantic DPS of green, leatherback, and hawksbill); six species/DPS of fish (Atlantic sturgeon, Gulf sturgeon, U.S. DPS of smalltooth sawfish, Nassau grouper, oceanic whitetip shark, and giant manta ray); and seven species of coral (elkhorn, staghorn, lobed star, mountainous star, boulder star, pillar, and rough cactus).

Additionally, critical habitat designated under the ESA for the Northwest Atlantic Ocean DPS of loggerhead sea turtle occurs in federal waters of the Gulf.

NMFS completed a biological opinion on June 18, 2015, evaluating the impacts of the CMP fishery on ESA-listed species. In the biological opinion (NMFS 2015), NMFS determined that the proposed continued authorization of the CMP fishery is not likely to adversely affect any ESA-listed whales, Gulf of Mexico sturgeon, or corals. NMFS also determined that the CMP fishery is not likely to adversely affect designated critical habitat for elkhorn and staghorn coral or the Northwest Atlantic DPS of loggerhead sea turtle, and will have no effect on designated critical habitat for the North Atlantic right whale. The 2015 biological opinion concluded that the CMP fishery's continued authorization is likely to adversely affect, but is not likely to jeopardize, green, hawksbill, Kemp's ridley, leatherback, or the Northwest Atlantic DPS of loggerhead sea turtles, as well as Atlantic sturgeon or smalltooth sawfish. An incidental take statement for sea turtles, smalltooth sawfish, and Atlantic sturgeon was issued. Reasonable and

[14] https://www.fisheries.noaa.gov/about/office-protected-resources

[15]The Gulf of Mexico Bryde's whale has recently been identified as morphologically and genetically distinct from other whales under the Bryde's whale complex, warranting classification as a new species of baleen whale living in the Gulf of Mexico to be named *Balaenoptera ricei* or Rice's whale.

prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them.

On April 6, 2016, NMFS and the U.S. Fish and Wildlife Service published a final rule (81 FR 20057), effective May 6, 2016, listing 11 DPSs of green sea turtle. The final rule, which superseded the previous green sea turtle listing, listed eight DPS as threatened and three DPSs as endangered. On June 29, 2016, NMFS published a final rule (81 FR 42268) to list Nassau grouper as threatened under the ESA, effective July 29, 2016. Because the range of both the North Atlantic and South Atlantic DPSs of green sea turtle and the Nassau grouper occur within the action area of the CMP fishery, NMFS reinitiated consultation on the CMP fishery in March 2017. NMFS completed an Amendment to the 2015 biological opinion on November 13, 2017. The amended biological opinion (NMFS 2017) concluded that the CMP fishery's continued authorization is not likely to adversely affect Nassau grouper and is likely to adversely affect, but is not likely to jeopardize, the North Atlantic and South Atlantic DPSs of green sea turtle. A revised incidental take statement was issued.

Since then, NMFS listed the giant manta ray (*Manta birostris*) as threatened under the ESA, effective February 21, 2018. On January 30, 2018, NMFS listed the oceanic whitetip shark (*Carcharinus longimanus*) as threatened under the ESA, effective March 1, 2018.

On June 11, 2018, NMFS requested reinitiation of ESA Section 7 consultation on the continued authorization of the CMP fishery under the Magnuson-Stevens Act to address the listings of the giant manta ray and oceanic whitetip sharks. In this consultation request memorandum, NMFS developed ESA Section 7(a)(2) and Section 7(d) analyses that considered allowing the CMP fishery to continue during the reinitiation period. As a result of those analyses, NMFS determined that allowing the CMP fishery to continue during the reinitiation period is not likely to jeopardize any protected species, nor does it constitute an irreversible or irretrievable commitment of resources.

The alternatives considered in CMP Amendment 32 would not significantly modify the way in which the CMP fishery is prosecuted and, as such, are not anticipated to modify the operation of the CMP fishery in a manner that would cause effects to ESA-listed species or critical habitat not previously considered in the 2015 and 2017 biological opinions or in the June 11, 2018, analyses. Only with the completion of a new biological opinion, however, can a Section 7(a)(2) analysis be completed for the long-term, foreseeable future.

On April 15, 2019, NMFS published a final rule listing the Gulf Bryde's whale as endangered under the ESA. In a memorandum dated July 8, 2019, NMFS determined that the very limited overlap between the CMP fishery and Gulf of Mexico Bryde's whale habitat and the utilization of a gear types unlikely to pose an entanglement risk, the risk of adverse effects on the Gulf of Mexico Bryde's whale from interactions with fishing under the CMP FMP were discountable. In that same July 8, 2019, memorandum, NMFS concluded that the activities associated with the CMP FMP were not likely to adversely affect the continued existence of the Gulf Bryde's whale

during the revised reinitiation period[16]. The determinations for the Bryde's whale, giant manta ray, and oceanic whitetip will be addressed in a new amendment to the 2015/2017 biological opinion.

There is no information to indicate marine mammals and birds rely on cobia for food, and they are not generally caught by fishermen harvesting cobia. The primary gear in the Gulf and South Atlantic CMP fishery used to harvest cobia are hook-and-line. This gear is classified in the 2022 Marine Mammal Protection Act Proposed List of Fisheries as a Category III fishery (86 FR 43491), meaning the annual mortality and serious injury of a marine mammal resulting from the fishery is less than or equal to 1% of the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. Additionally, there is no evidence that the cobia fishery is adversely affecting seabirds.

Deepwater Horizon **MC252 Oil Spill**

General Impacts on Fishery Resources

The presence of polycyclic aromatic hydrocarbons (PAH), which are highly toxic chemicals that tend to persist in the environment for long periods of time, in marine environments can have detrimental impacts on marine finfish, especially during the more vulnerable larval stage of development (Whitehead et al. 2012). The future reproductive success of fish species may be negatively affected by episodic events resulting in high-mortality years or low recruitment. These episodic events could leave gaps in the age structure of the population, thereby affecting future reproductive output (Mendelssohn et al. 2012). Other studies have described the vulnerabilities of various marine finfish species, with morphological and/or life history characteristics similar to species found in the Gulf, to oil spills and dispersants (Hose et al. 1996; Carls et al. 1999; Heintz et al. 1999; Short 2003).

In addition to the crude oil, over a million gallons of the dispersant, Corexit 9500A®, was applied to the ocean surface and an additional hundreds of thousands of gallons of dispersant was pumped to the mile-deep wellhead (National Commission 2010). No large-scale applications of dispersants in deep water had been conducted until the *Deepwater Horizon* MC252 oil spill. Thus, no data exist on the environmental fate of dispersants in deep water. Twenty-first century dispersant applications are thought to be less harmful than their predecessors. However, the combination of oil and dispersants has proven to be more toxic to marine fishes than either dispersants or crude oil alone. Marine fish which are more active (e.g. a pelagic species versus a demersal species) appear to be more susceptible to negative effects from interactions with weathered oil/dispersant emulsions. These effects can include mobility impairment and inhibited respiration (Swedmark et al. 1973). The effect of oil, dispersants, and the combination of oil and dispersants on fishes of the Gulf remains an area of concern. More information about the

[16]Any official change to the name of the species listed under the ESA as the Gulf of Mexico Bryde's whale has no effect on NMFS's conclusion that the activities associated with the CMP FMP were not likely to adversely affect the continued existence of the species during the revised reinitiation period.

Deepwater Horizon MC252 oil spill is available on the NOAA Southeast Regional Office website.[17]

Climate change

Climate change projections predict increases in sea-surface temperature and sea level; decreases in sea-ice cover; and changes in salinity, wave climate, and ocean circulation (IPCC).[18] These changes are likely to affect plankton biomass and fish larvae abundance that could adversely impact fish, marine mammals, seabirds, and ocean biodiversity. Kennedy et al. (2002) and Osgood (2008) have suggested global climate change could affect temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; change precipitation patterns and cause a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influence the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs. The National Oceanic and Atmospheric Association (NOAA) Climate Change Web Portal[19] predicts the average sea surface temperature in the Gulf and South Atlantic will increase by 1–3ºC for 2010–2070 compared to the average over the years 1950–2010. For reef fishes and snapper-grouper species, Burton (2008) and Morley et al. (2018) speculated climate change could cause shifts in spawning seasons, changes in migration patterns, and changes to basic life history parameters such as growth rates. Cobia are considered hypoxia tolerant at 75ºF (24°C), however, increasing temperatures due to climate change may create a temperature oxygen squeeze where hypoxic water forces fish further up in the water column. Conversely, warmer temperatures at the surface actually forces them further down (Crear et al. 2018). This idea suggests that as conditions worsen, cobia may experience habitat reduction in the future.

The distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms (Sokolow 2009; Hollowed et al. 2013; Maynard et al. 2015; Wells et al. 2015; Gobler 2020). Some stocks have already shown increases in abundance in the northern Gulf (Fodrie et al. 2010) and Texas estuaries (Tolan and Fisher 2009). Integrating the potential effects of climate change into the fisheries assessment process is currently difficult due to the assessment rarely projecting through a time span that would include detectable climate change effects (Hollowed et al. 2013). However, there are ecosystem models available or being developed that incorporate future, potential, climate change effects (King and McFarlane 2006; Pinsky and Mantua 2014; Gruss et al. 2017; Chagaris et al. 2019). While complex, these factors do not change the reality of climate change impacts on managed species and the need to incorporate this information into stock assessments. Better planning and collaboration with managers are currently being pursued to include this type of data into the assessment process.

The Southeast Fisheries Science Center (SEFSC) has developed climate vulnerability analyses (CVA)[20] that can be used to determine the vulnerability of cobia to climate changes stressors.

[17] https://www.fisheries.noaa.gov/news/deepwater-horizon-10-years-later-10-questions
[18] http://www.ipcc.ch/
[19] https://www.esrl.noaa.gov/psd/ipcc/
[20] https://www.fisheries.noaa.gov/national/climate/climate-vulnerability-assessments

According to the SEFSC CVA, and as is the case for many species in the Gulf, cobia have very high climate exposures to sea surface temperatures, ocean acidification, dissolved oxygen, and salinity. However, cobia's biological processes (Table 3.3.2.2) were projected to have low sensitivity. Meaning overall, cobia have specific needs and requirements, but can move around fairly well to find sufficient conditions, so they have a low climate vulnerability. Generally, the Gulf is projected by the SEFSC models used to become warmer, saltier, less oxygenated, and more acidic everywhere during the current fifty years. Conditions will have similar, but amplified, patterns in the 2056–2099 period (Quinlan et al. in prep).

Table 3.3.2.2. Cobia biological processes analyzed for climate change sensitivities.

	Rachycentron canadum
Sensitivity Attributes	Habitat Specificity
	Prey Specificity
	Adult Mobility
	Dispersal of Early Life Stages
	Early Life History Survival and Settlement Requirements
	Complexity in Reproductive Strategy
	Spawning Cycle
	Sensitivity to Temperature
	Sensitivity to Ocean Acidification
	Population Growth Rate
	Stock Size/Status
	Other Stressors

3.4 Description of the Economic Environment

Economic information pertaining to cobia can be found in Framework Amendment 7 (GMFMC 2019b), Vondruska (2010), as well as Amendment 18 (GMFMC and SAFMC 2011) and Amendment 20B (GMFMC/SAFMC 2014), and is incorporated herein by reference. The following section contains updated information on the economic environment of the Gulf of Mexico and FLEC Zone cobia portion of the CMP fishery.

3.4.1 Commercial Sector

There is no federal permit required for the commercial harvest of Gulf Group Cobia. However, because cobia is a CMP fish, the regulations at 50 C.F.R. 622.386(b) and (c) restrict the sale and purchase of cobia by federally permitted vessels and dealers. Section 622.386(b) requires that cobia harvested on any vessel that has a valid federal commercial vessel permit or a charter vessel/headboat permit be sold to a dealer who has a valid federal Gulf and South Atlantic dealer permit. Under section 622.386(c), a dealer who has a valid federal Gulf and South Atlantic dealer permit may purchase cobia harvested in or from the Gulf or South Atlantic EEZ only from a vessel that has been issued a federal commercial or charter vessel/headboat CMP permit (i.e., king or spanish mackerel permit).

NMFS has determined that the dealer limitation in section 62.386(c) is inconsistent with the requirement in section 622.386(b) for cobia on all federally permitted vessels to be sold to a federally permitted dealer, as well as with the Gulf and South Atlantic Council's Generic Amendment that created the federal Gulf and South Atlantic dealer permit. Therefore, NMFS intends to correct the regulations at 50 C.F.R. 622.386(c) to allow a dealer with a federal Gulf and South Atlantic dealer permit to purchase cobia from any vessel that has a valid federal commercial vessel permit or a charter vessel/headboat permit.

As of July 12, 2021, there were 373 entities with a federal Gulf and South Atlantic Dealers permit. Cobia harvested in the Gulf Zone or FLEC Zone by vessels that do not have a valid federal commercial or charter vessel/headboat permit may be sold or transferred to state authorized seafood dealers. Such sales are subject to the regulations of the state where the cobia is sold.

Total Landings and Dockside Revenue

Gulf Group Cobia are managed under a stock ACL that includes both the Gulf Zone (portion of the Gulf Group Cobia stock managed by the Gulf Council within its jurisdiction [Texas to the Gulf and South Atlantic Council boundary]) and the FLEC Zone (portion of the Gulf Group Cobia stock managed by the South Atlantic Council [Atlantic side of the Florida Keys to the Florida-Georgia state line]). The ACL is specified and monitored in terms of landed weight (lw)[21], which is a combination of gutted and whole weight. This means landings in gutted weight are not converted to whole weight, or vice-versa, but landings in whole or gutted weight are simply added together to track landings against the ACL.

Florida generally accounted for the majority of cobia landings and revenue in the Gulf Zone from 2015-2019 with the exception of 2018, which saw a substantial decrease in landings from the previous year (Table 3.4.1.1). Louisiana's cobia landings briefly trended upwards from 2015–2017, but declined sharply in 2018 and further into 2019. Alabama and Texas' cobia landings declined over this period as well, and there were no cobia landings reported in Mississippi (which is closed to commercial harvest). The average annual ex-vessel price for Gulf Zone cobia from 2015 through 2019 was approximately $3.68 per pound lw (2019 dollars). Landings and ex-vessel revenue for commercial Gulf Zone cobia, on average, were highest in April of each year, followed by July and September (Figure 3.4.1.1).

[21] Landed weight is equivalent to "as reported."

Table 3.4.1.1. Commercial Gulf Zone cobia ladings (lbs lw) and revenue (2019 $) by state.*

-	AL	FL	LA	TX	Total
	Landings (lbs lw)				
2015	2,582	46,245	18,544	2,999	70,370
2016	3,694	41,153	24,893	5,819	75,559
2017	1,394	38,268	29,275	4,667	73,604
2018	1,636	18,296	17,874	3,263	41,069
2019	1,519	24,747	8,930	2,797	37,993
Average	2,165	33,742	19,903	3,909	59,719
	Dockside Revenue (2019 $)				
2015	$5,275	$163,880	$66,842	$11,892	$247,890
2016	$12,284	$167,699	$80,171	$21,893	$282,047
2017	$3,430	$164,693	$99,919	$17,456	$285,497
2018	$4,171	$69,391	$58,114	$11,918	$143,594
2019	$5,618	$96,971	$31,389	$9,740	$143,718
Average	$6,156	$132,527	$67,287	$14,580	$220,549

Source: SEFSC Commercial ACL Dataset (October 2019)
*No commercial cobia landings were reported in Mississippi.

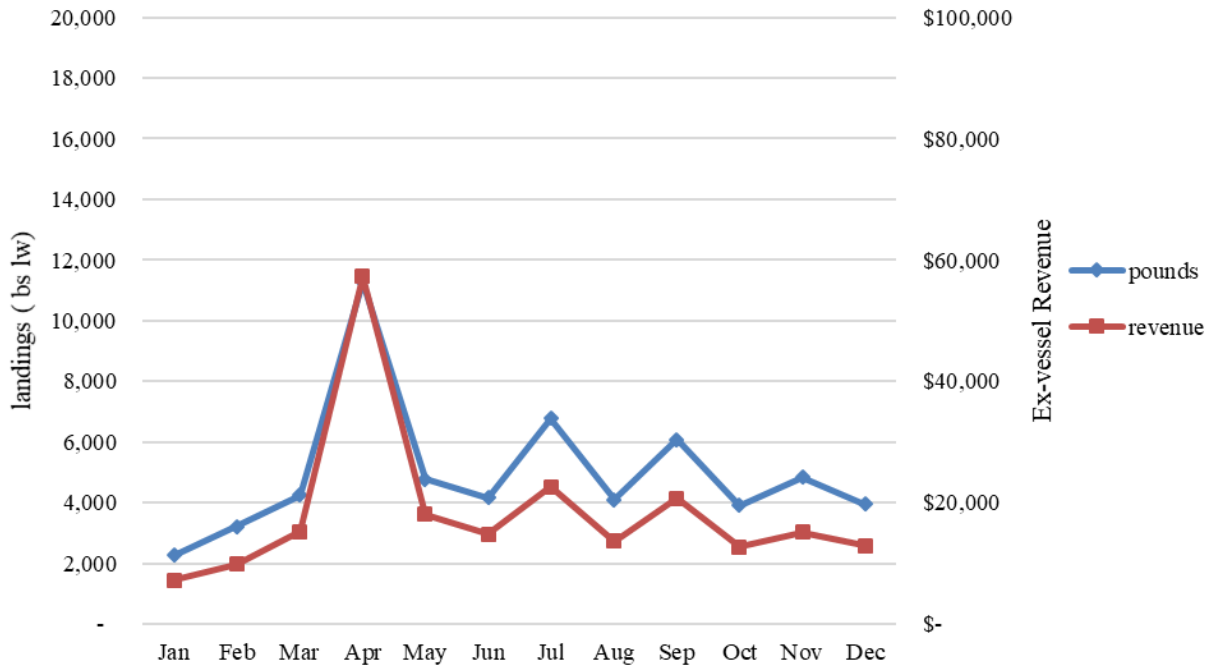

Figure 3.4.1.1. Average (2015–2019) monthly Gulf Zone cobia landings (lbs lw) and ex-vessel revenue (2019 $).
Source: SEFSC Commercial ACL Dataset (October 2019)

The FLEC Zone, which again is the portion of the Gulf Group Cobia partially managed by the South Atlantic Council (Atlantic side of the Florida Keys to the Florida-Georgia state boundary) experienced a decline in landings as well from 2015–2019. The average annual ex-vessel price for FLEC Zone cobia from 2015 through 2019 was approximately $4.22 per pound lw (2019 dollars) (Table 3.4.1.2). The FLEC Zone records the majority of its landings from March-July, with a significant reduction for the remainder of the year (Figure 3.4.1.2).

Table 3.4.1.2. Commercial FLEC Zone cobia landings (lbs lw) and revenue (2019$)

-	Landings (lbs lw)	Dockside Revenue (2019 $)
2015	62,464	$251,247
2016	48,611	$204,567
2017	41,043	$174,364
2018	32,839	$138,106
2019	34,183	$151,451
Average	43,828	$183,947

Source: SEFSC Commercial ACL Dataset (October 2019)

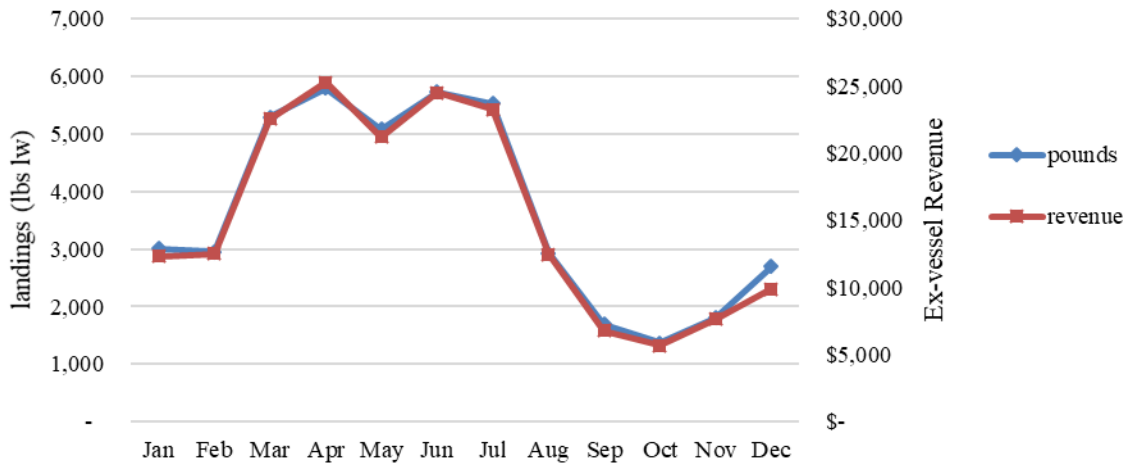

Figure 3.4.1.2. Average (2015–2019) monthly FLEC Zone cobia landings (lbs lw) and ex-vessel revenue (2019 $).
Source: SEFSC Commercial ACL Dataset (October 2019)

Vessels, Trips, Landings, and Dockside Revenue

The following summaries of landings, revenue, and effort (Tables 3.4.1.3 - 3.4.1.6) are based on logbook information and the NMFS Accumulated Landings System (ALS) for prices and so would not match exactly with the landings and revenue values presented above. In addition, the landings are presented in gutted weight (gw) rather than in total or lw. Landings for all species in the Southeast Fisheries Science Center Social Science Research Group's (SEFSC-SSRG) Socioeconomic Panel data are expressed in gw to provide one unit for all species. This is because data summarizations, as presented in Tables 3.4.1.3 - 3.4.1.6 below, generally involve a multitude of species. However, cobia have almost an equal 1 to 1 gw to ww conversion so it can be assumed gw is equal to lw. It is also important to note that federally-permitted vessels that are required to submit logbooks generally report their harvest of most species regardless of whether the fish were caught in state or federal waters. Because there is no federal permit required for the commercial harvest of Gulf Zone or FLEC Zone cobia, the estimates presented in Table 3.4.1.3 - Table 3.4.1.6 only describe cobia fishing activity by commercial vessels that held federal permits for other commercial species.

The number of federally permitted vessels that harvested Gulf Zone cobia decreased over the last five years, with a significant reduction occurring in 2018 (Table 3.4.1.3). On average (2015 through 2019), these vessels landed cobia on approximately 18% of their Gulf trips, but cobia comprised less than 1% of their annual revenue from all species (Table 3.4.1.3 and Table 3.4.1.4).

Table 3.4.1.3. Number of vessels, trips, and landings (lbs gw) by year for Gulf Zone cobia.

Year	# of vessels that caught Gulf Zone cobia (> 0 lbs gw)	# of trips that caught Gulf Zone cobia	Gulf Zone cobia landings (lbs gw)	Other species' landings jointly caught w/ Gulf Zone cobia (lbs gw)	# of Gulf trips that only caught other species	Other species' landings on Gulf trips w/o Gulf Zone cobia (lbs gw)	All species landings on South Atlantic trips (lbs gw)
2015	285	814	35,502	3,451,637	4,567	10,347,443	490,677
2016	284	934	39,905	3,626,434	4,393	10,110,468	646,728
2017	276	831	35,281	2,838,170	4,414	9,491,704	586,251
2018	247	645	24,371	2,179,594	3,813	8,721,254	456,601
2019	237	610	25,902	2,086,953	3,837	8,977,564	472,287
Average	261	755	31,365	2,682,788	4,114	9,325,248	540,467

Source: SEFSC-SSRG Socioeconomic Panel (Jan 2021 version)

Table 3.4.1.4. Number of vessels and ex-vessel revenues by year (2019 dollars) for Gulf Zone cobia.

Year	# of vessels that caught Gulf Zone cobia (> 0 lbs gw)	Dockside revenue from Gulf Zone cobia	Dockside revenue from 'other species' jointly caught w/ Gulf Zone cobia	Dockside revenue from 'other species' caught on Gulf trips w/o Gulf Zone cobia	Dockside revenue from 'all species' caught on South Atlantic trips	Total dockside revenue	Average total dockside revenue per vessel
2015	285	$120,587	$14,688,273	$40,995,637	$1,344,369	$57,148,866	$200,522
2016	284	$145,775	$15,280,549	$40,540,766	$1,325,670	$57,292,760	$201,735
2017	276	$136,088	$11,875,000	$37,287,263	$1,473,097	$50,771,448	$183,955
2018	247	$90,292	$9,469,959	$35,699,587	$1,273,328	$46,533,167	$188,393
2019	237	$101,198	$9,750,058	$37,525,395	$1,035,060	$48,411,711	$204,269
Average	261	$118,338	$11,593,892	$37,763,253	$1,276,789	$50,752,271	$194,588

Source: SEFSC-SSRG Socioeconomic Panel (Jan 2021 version)

The FLEC Zone experienced a similar reduction in the total number of vessels harvesting cobia during this timeframe. The largest decline occurred from between 2016–2017. On average (2015 through 2019), these vessels landed cobia on approximately 8% of their Gulf trips, and cobia accounted for 13% of their total revenue on those trips (Table 3.4.1.5 and Table 3.4.1.6).

Table 3.4.1.5. Number of vessels, number of trips, and landings (lbs gw) by year for FLEC Zone cobia.

Year	# of vessels that caught FLEC Zone cobia (> 0 lbs gw)	# of trips that caught FLEC Zone cobia	FLEC Zone cobia landings (lbs gw)	Other species' landings jointly caught w/ FLEC Zone cobia (lbs gw)	# of South Atlantic trips that only caught other species	Other species' landings on South Atlantic trips w/o FLEC Zone cobia (lbs gw)	All species landings on Gulf trips (lbs gw)
2015	285	844	31,411	316,074	11,126	4,379,136	564,645
2016	277	784	25,883	327,460	11,371	4,323,008	FALSE
2017	247	692	24,386	306,922	10,680	3,966,675	575,629
2018	236	603	25,479	280,893	10,028	3,403,482	464,132
2019	230	569	18,897	243,937	9,070	3,410,434	436,591
Average	248	662	23,661	289,803	10,287	3,775,900	492,117

Source: SEFSC-SSRG Socioeconomic Panel (Jan 2021 version)

Table 3.4.1.6. Number of vessels and ex-vessel revenues by year (2019 dollars)* for FLEC Zone cobia.

Year	# of vessels that caught FLEC Zone cobia (> 0 lbs gw)	Dockside revenue from FLEC Zone cobia	Dockside revenue from 'other species' jointly caught w/ FLEC Zone cobia	Dockside revenue from 'other species' caught on South Atlantic trips w/o FLEC Zone cobia	Dockside revenue from 'all species' caught on Gulf trips	Total dockside revenue	Average total dockside revenue per vessel
2015	285	$129,963	$860,370	$11,165,314	$1,385,292	$13,540,939	$47,512
2016	277	$111,492	$848,302	$10,847,749	$1,572,219	$13,379,761	$48,302
2017	247	$106,671	$868,028	$9,528,942	$1,519,166	$12,022,807	$48,675
2018	236	$109,777	$874,419	$8,494,645	$1,236,208	$10,715,049	$45,403
2019	230	$85,426	$665,033	$7,953,515	$952,253	$9,656,227	$41,984
Average	248	$103,341	$813,946	$9,206,213	$1,319,962	$11,443,461	$46,091

Source: SEFSC-SSRG Socioeconomic Panel (Jan 2021 version)

Imports

Imports of seafood products compete with domestically caught seafood within similar markets and for several years have compromised the majority of seafood products consumed in the United States. Imports affect the price for domestic seafood products and tend to set the price in the market segments in which they dominate. Seafood imports have downstream effects on the local fish market. At the harvest level for cobia, imports affect the returns to fishermen through the ex-vessel prices they receive for their landings. As substitutes to domestic production of cobia, imports tend to cushion the adverse economic effects on consumers resulting from a reduction in domestic landings. The following describes the imports of fish products that directly compete with domestic harvest of cobia.

Imports[22] of fresh cobia during 2015–2019 have exhibited a decline. Imports of fresh cobia ranged from 1.4 million lbs product weight (pw) to 1.7 million lbs pw during 2015 through 2017, but declined by 36% in 2018 and a further 46% to 507,000 lbs pw in 2019. Annual revenue from these imports ranged from a peak of $8.2 million in 2017 to low of $2.5 million in 2019 (2019 dollars[23]). Imports of fresh cobia primarily originated in Panama, and entered the U.S. through the port of Miami.

[22] NOAA Fisheries Service purchases fisheries trade data from the Foreign Trade Division of the U.S. Census Bureau. Data are available for download at https://www.fisheries.noaa.gov/national/sustainable-fisheries/foreign-fishery-trade-data

[23]Converted to 2019 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

Imports of frozen cobia rose dramatically from 34,000 lbs pw in 2015 to 200,000 lbs pw in 2016 and then to 308,000 lbs pw in 2017 worth approximately $175,000, $380,000, $1.2 million respectively (2019 dollars). Frozen cobia imports declined by almost half 2018 and more moderately in 2019. Imports of frozen cobia primarily originated in Panama, Ecuador, and Indonesia and entered the U.S. through the ports of Los Angeles, New York, and Miami.

Business Activity

The commercial harvest and subsequent sales and consumption of fish generates business activity as fishermen expend funds to harvest the fish and consumers spend money on goods and services, such as cobia purchased at a local fish market and served during restaurant visits. These expenditures spur additional business activity in the region(s) where the harvest and purchases are made, such as jobs in local fish markets, grocers, restaurants, and fishing supply establishments. In the absence of the availability of a given species for purchase, consumers would spend their money on substitute goods, such as other finfish or seafood products, and services, such as visits to different food service establishments. As a result, the analysis presented below represents a distributional analysis only; that is, it only shows how economic effects may be distributed through regional markets and should not be interpreted to represent the impacts if these species are not available for harvest or purchase.

Estimates of the U.S. average annual business activity associated with the commercial harvest of cobia in the Gulf Zone and FLEC Zone were derived using the model developed for and applied in NMFS (2018) and are provided in Table 3.4.1.7 and Table 3.4.1.8.[24] This business activity is characterized as jobs (full- and part-time), income impacts (wages, salaries, and self-employed income), output impacts (gross business sales), and value-added impacts, which represent the contribution made to the U.S. Gross Domestic Product (GDP). These impacts should not be added together because this would result in double counting. It should be noted that the results provided should be interpreted with caution and demonstrate the limitations of these types of assessments. These results are based on average relationships developed through the analysis of many fishing operations that harvest many different species. Separate models to address individual species are not available. For example, the results provided here apply to an "all other finfish" category rather than just cobia, and a harvester job is "generated" for approximately every $35,000 (2019 dollars) in ex-vessel revenue. These results contrast with the number of harvesters (vessels) with recorded landings of cobia presented in Table 3.4.1.3 and Table 3.4.1.5

Table 3.4.1.7. Average annual business activity (2015 through 2019) associated with the commercial harvest of Gulf Zone cobia. All monetary estimates are in 2019 dollars.*

Species	Average Ex-vessel Value ($ thousands)	Total Jobs	Harvester Jobs	Output (Sales) Impacts ($ thousands)	Income Impacts ($ thousands)	Value Added ($ thousands)
Cobia	$220	27	6	$2,194	$795	$1129

Source: Calculated by NMFS SERO using the model developed for and applied in NMFS (2018).
*Converted to 2019 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

[24]A detailed description of the input/output model is provided in NMFS (2011).

Table 3.4.1.8. Average annual business activity (2015 through 2019) associated with the commercial harvest of FLEC Zone cobia. All monetary estimates are in 2019 dollars.*

Species	Average Ex-vessel Value ($ thousands)	Total Jobs	Harvester Jobs	Output (Sales) Impacts ($ thousands)	Income Impacts ($ thousands)	Value Added ($ thousands)
Cobia	$184	23	5	$749	$663	$942

Source: Calculated by NMFS SERO using the model developed for and applied in NMFS (2018).
*Converted to 2019 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

3.4.2 Recreational Sector

The recreational sector is comprised of the private and for-hire modes. The private mode includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire mode is composed of charter boats and headboats. Charter boats generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person. The type of service, from a vessel- or passenger-size perspective, affects the flexibility to search different fishing locations during the course of a trip and target different species because larger concentrations of fish are required to satisfy larger groups of anglers.

Landings

Gulf Group Cobia is managed under a stock ACL that includes both the Gulf Zone (portion of the Gulf Group Cobia stock managed by the Gulf Council within its jurisdiction [Texas to the Gulf and South Atlantic Council boundary]) and the FLEC Zone (portion of the Gulf Group Cobia stock managed by the South Atlantic Council [Atlantic side of the Florida Keys to the Florida-Georgia state line]). The ACL is specified and monitored in terms of landed weight (lw)[25], which is a combination of gutted and whole weight. This means landings in gutted weight are not converted to whole weight, or vice-versa, but landings in whole or gutted weight are simply added together to track landings against the annual catch limit.

This section contains landings data from the SEFSC MRIP ACL monitoring data set, with the addition of landings estimates provided by the Louisiana Department of Wildlife and Fisheries (LDWF), and the Texas Parks and Wildlife Department (TPWD). Gulf Zone recreational landings of cobia remained relatively stable from 2015–2019, ranging from a low of 1.3 million lbs in 2019 to a high of 1.6 million in 2016. Private/rental vessel trips accounted for 94% of all landings on average from 2015–2019 (Figure 3.4.2.1). Only a small amount of landings were attributed to headboats and shore modes during this time period. The greatest percentage of recreational cobia landings on average came from Florida (59%), followed by Alabama (20%), Louisiana and Mississippi combined (19%), and Texas (2%) (Figure 3.4.2.2). Seasonal landings

25 Landed weight is equivalent to "as reported."

fluctuated each year and across years from 2015 through 2019, but on average peak landings occurred in MRIP wave 3 (May/June) followed by MRIP wave 4 (Figure 3.4.2.3).

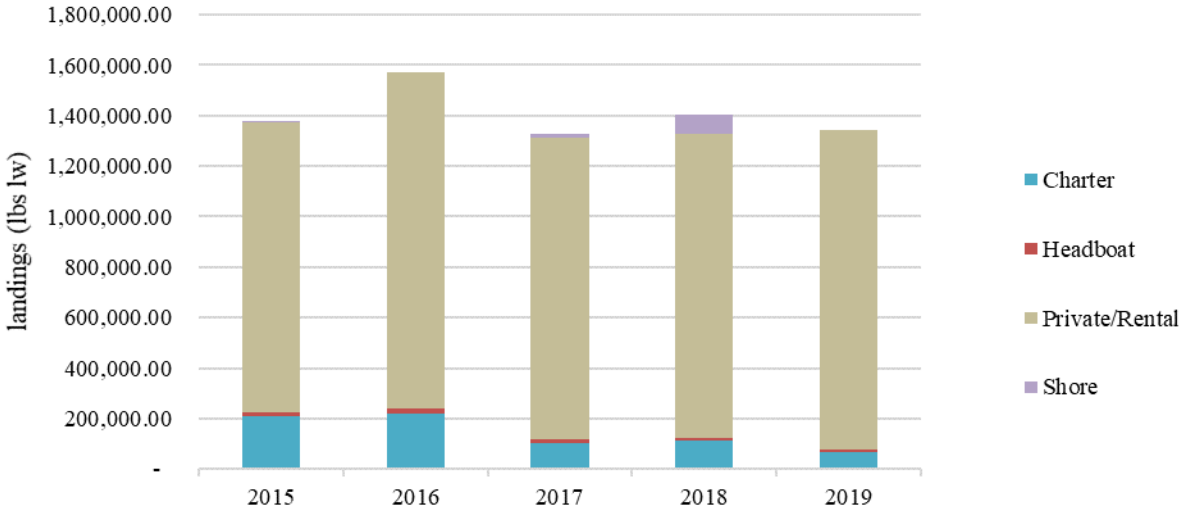

Figure 3.4.2.1. Recreational landings of Gulf Zone cobia by mode.
Source: SEFSC MRIP ACL data set (June 2021)

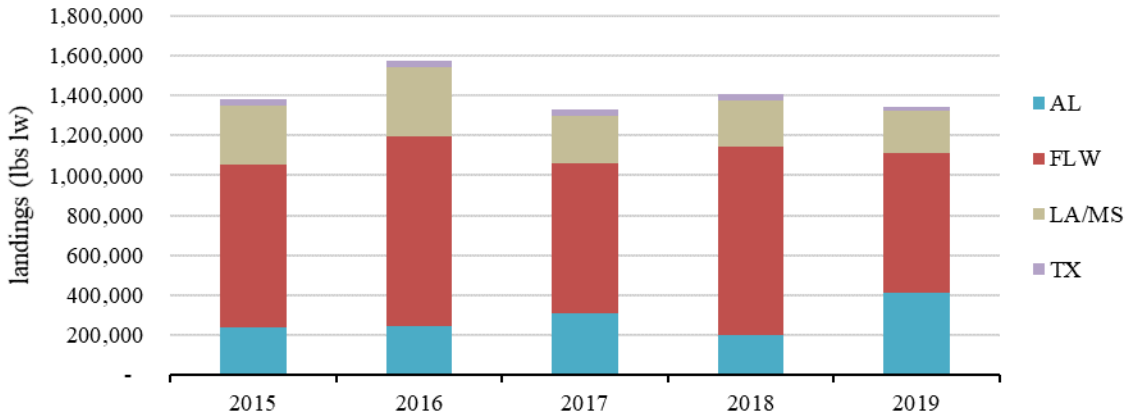

Figure 3.4.2.2. Recreational landings of Gulf Zone cobia by state.*
Source: SEFSC MRIP ACL data set (July 2021).
*Louisiana and Mississippi are combined here to align with the way headboat landings were reported.

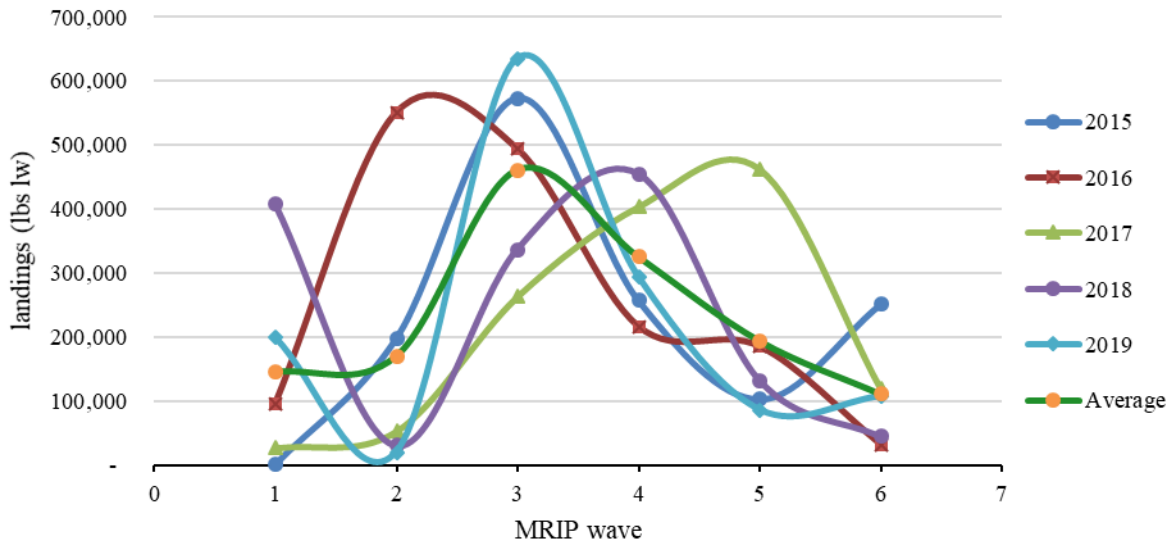

Figure 3.4.2.3. Recreational landings of Gulf Zone cobia by MRIP wave.
Source: SEFSC MRIP ACL data set (July 2021).

The FLEC Zone had fluctuations in landings from 2015–2019, peaking in 2018 at 1.9 million lbs lw. On average (2015–2019), 94% of landings were from private/rental vessels, with charter vessels landing only 6% (Figure 3.4.2.4). No headboat or shore landings were reported for the FLEC Zone from 2015–2019. Landings of FLEC Zone cobia were highest on average during MRIP wave 4 (Figure 3.4.2.5).

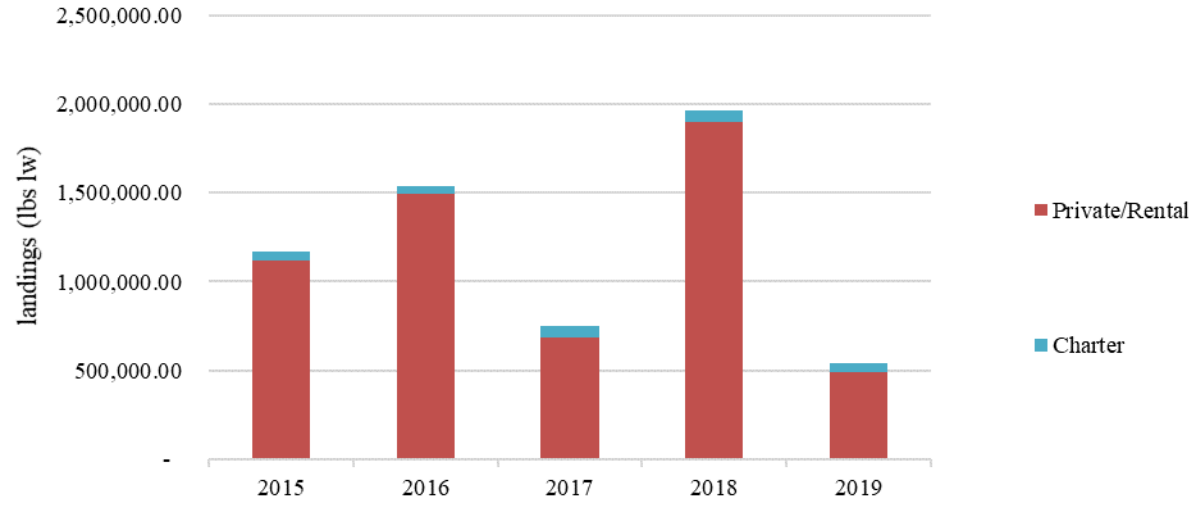

Figure 3.4.2.4. Recreational landings of FLEC Zone cobia by mode.
Source: SEFSC MRIP ACL data set (July 2021).

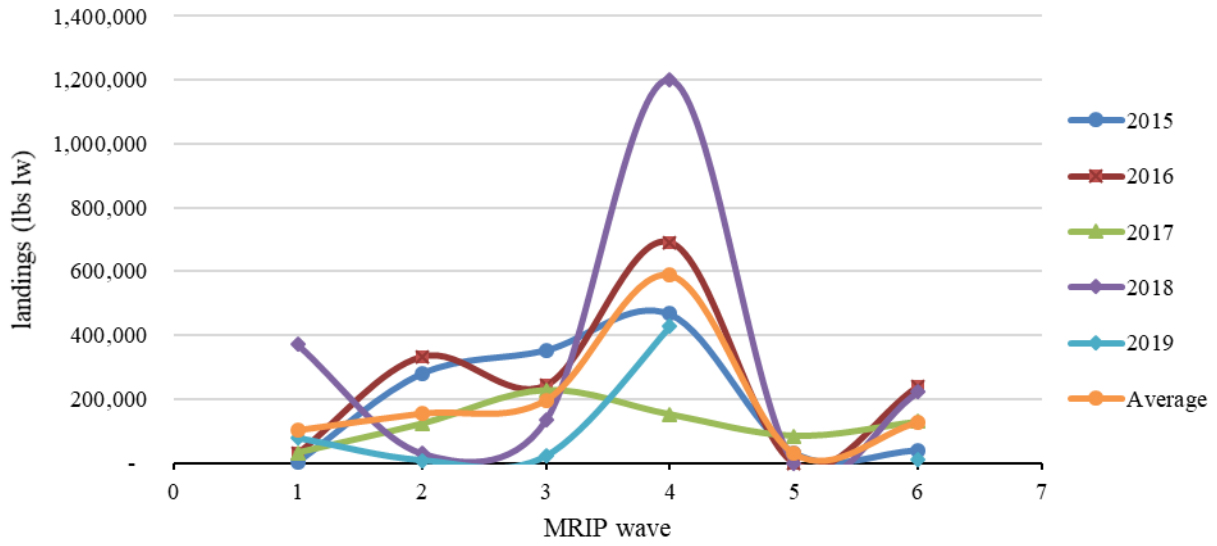

Figure 3.4.2.5. Recreational landings of FLEC Zone cobia by MRIP wave.
Source: SEFSC MRIP ACL data set (July 2021).

Permits

For anglers to fish for or possess CMP species in or from the Gulf EEZ on for-hire vessels, those vessels are required to have a limited access Gulf Charter/Headboat for Coastal Migratory Pelagics permit (Gulf CMP for-hire permit) (a similar, but separate, permit is required for Gulf reef fish species). On July 3, 2021, there were 1,285 valid (non-expired) or renewable[26] Gulf CMP for-hire permits and 33 valid or renewable Gulf CMP historical captain for-hire permits. For anglers to fish for or possess CMP species in or from the Mid-Atlantic or South Atlantic EEZ on for-hire vessels, those vessels are required to have an open access South Atlantic Charter/Headboat for Coastal Migratory Pelagics permit (SA CMP for-hire permit) (a similar, but separate, permit is required for South Atlantic snapper-grouper species). In 2020, there were 1,348 valid SA CMP for-hire permits.

Although the for-hire permit application collects information on the primary method of operation, the permit itself does not identify the permitted vessel as either a headboat or a charter vessel and vessels may operate in both capacities. However, only federally permitted headboats are required to submit harvest and effort information to the NMFS Southeast Region Headboat Survey (SRHS).[27] Participation in the SRHS is based on determination by the SEFSC that the

[26] A renewable permit is an expired permit that may not be actively fished, but is renewable for up to one year after expiration.

[27] All federal charter/headboat permit holders, including charter vessel owners or operators, are required to comply with the new Southeast For-Hire Electronic Reporting Program as of January 5, 2021. Under this program, all such permit holders must declare trips prior to departure and submit electronic fishing reports prior to offloading fish, or within 30 minutes after the end of a trip, if no fish are landed. Those vessels selected to report to the SRHS (i.e., federally permitted headboats) will continue to submit their reports under the new requirements directly to the SRHS program. For more information, see: https://www.fisheries.noaa.gov/southeast/recreational-fishing-data/southeast-hire-electronic-reporting-program?utm_medium=email&utm_source=govdelivery

vessel primarily operates as a headboat. As of March 9, 2021, 69 Gulf headboats were registered in the SRHS and another 39 operating in the FLEC Zone. The majority of these headboats were located in Florida (76 total), followed by Texas (16), Alabama (9), and Mississippi/Louisiana (5).

Information on Gulf charter vessel and headboat operating characteristics is included in Savolainen et al. (2012) and is incorporated herein by reference.

There are no specific federal permitting requirements for recreational anglers to fish for or harvest CMP species, including cobia. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions. As a result, it is not possible to identify with available data how many individual anglers would be expected to be affected by this proposed framework amendment.

Angler Effort

Recreational effort derived from the MRIP database can be characterized in terms of the number of trips as follows:

- Target effort - The number of individual angler trips, regardless of duration, where the intercepted angler indicated that the species or a species in the species group was targeted as either the first or the second primary target for the trip. The species did not have to be caught.
- Catch effort - The number of individual angler trips, regardless of duration and target intent, where the individual species or a species in the species group was caught. The fish did not have to be kept.
- Total recreational trips - The total estimated number of recreational trips in the Gulf, regardless of target intent or catch success.

A target trip may be considered an angler's revealed preference for a certain species, and thus may carry more relevant information when assessing the economic effects of regulations on the subject species than the other two measures of recreational effort. Given the subject nature of this action, the following discussion focuses on target trips for cobia in the Gulf.

The majority of estimated target trips for cobia in the Gulf Zone, on average (2015 through 2019), were taken in Florida and the dominant mode of fishing was the private/rental mode (Table 3.4.2.1). Target trips for cobia peaked in 2018 at approximately 675,000 trips. Targeted trips for cobia in the FLEC Zone declined from a peak of approximately 404,000 trips in 2015 to a low of approximately 175,000 trips in 2019 (Table 3.4.2.2).

Table 3.4.2.1. Gulf Zone cobia recreational target trips, by mode and state, 2015–2019.*

-	Alabama	Florida	Mississippi	Louisiana**	Total
	Shore Mode				
2015	12,535	218,523	0	N/A	231,058
2016	60,486	129,398	0	N/A	189,884
2017	36,206	167,332	0	0	203,538
2018	11,200	468,446	0	0	479,646
2019	10,204	81,153	0	0	91,357
Average	26,126	212,970	0	0	239,097
	Charter Mode				
2015	434	3,337	0	N/A	3,771
2016	605	1,641	0	N/A	2,246
2017	593	4,813	0	299	5,406
2018	39	6,385	282	384	6,706
2019	281	1,803	311	139	2,395
Average	390	3596	119	274	4,105
	Private/Rental Mode				
2015	24,827	145,852	95,267	N/A	265,946
2016	26,990	288,991	13,082	N/A	329,063
2017	28,933	132,801	33,574	3,346	195,308
2018	4,018	173,590	10,916	4,328	188,524
2019	19,796	168,252	7,776	2,080	195,824
Average	20,913	181,897	32,123	3,251	234,933
	All Modes				
2015	37,796	367,713	95,267	N/A	500,776
2016	88,081	420,030	13,082	N/A	521,193
2017	65,732	304,946	33,574	3,645	404,252
2018	15,258	648,421	11,198	4,712	674,877
2019	30,282	251,208	8,087	2,219	289,577
Average	47,430	398,464	32,242	3,525	478,135

Source: MRIP database, SERO, NMFS.
*TX target trip estimates are unavailable at this time.
** The Louisiana Department of Wildlife and Fisheries did not collect targeted effort data until 2017.

Table 3.4.2.2. FLEC Zone cobia recreational target trips, by mode, 2015–2019.

	Shore Mode	Charter Mode	Private/Rental Mode	Total
2015	49,614	2,753	351,705	404,072
2016	0	567	301,116	301,683
2017	33,739	1,885	232,873	268,497
2018	-	765	296,210	296,975
2019	15,817	80	158,831	174,728
Average	24,793	1,210	268,147	289,191

Source: MRIP database, SERO, NMFS.

Similar analysis of recreational effort is not possible for the headboat mode because headboat data are not collected at the angler level. Estimates of effort by the headboat mode are provided in terms of angler days, or the total number of standardized full-day angler trips.[28] Headboat angler days were fairly stable across the Gulf States from 2015 through 2019 (Table 3.4.2.3). There was, however, a downward trend in reported angler days in Florida from 2016 on. On average (2015 through 2019), Florida accounted for the majority of headboat angler days reported, followed by Texas and Alabama; whereas, Mississippi and Louisiana combined, accounted for only a small percentage (Table 3.4.2.3). Headboat effort in terms of angler days for the entire Gulf was concentrated most heavily during the summer months of June through August on average (2015 through 2019; Table 3.4.2.4).

Table 3.4.2.3. Gulf headboat angler days and percent distribution by state (2015 through 2019).

	Angler Days				Percent Distribution			
	FL	AL	MS-LA**	TX	FL	AL	MS-LA	TX
2015	176,375	18,008	3,587	55,135	69.7%	7.1%	1.4%	21.8%
2016	183,147	16,831	2,955	54,083	71.3%	6.5%	1.1%	21.0%
2017	178,816	17,841	3,189	51,575	71.1%	7.1%	1.3%	20.5%
2018	171,996	19,851	3,235	52,160	69.6%	8.0%	1.3%	21.1%
2019	161,564	18,607	2,632	52,456	68.7%	7.9%	1.1%	22.3%
Average	174,380	18,228	3,120	53,082	70.1%	7.3%	1.3%	21.3%

Source: NMFS SRHS (February, 2020).
*Headboat data from Mississippi and Louisiana are combined for confidentiality purposes.

[28] Headboat trip categories include half-, three-quarter-, full-, and 2-day trips. A full-day trip equals one angler day, a half-day trip equals .5 angler days, etc. Angler days are not standardized to an hourly measure of effort and actual trip durations may vary within each category.

Table 3.4.2.4. Gulf headboat angler days and percent distribution by month (2015 – 2019).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Headboat Angler Days											
2015	9,444	10,594	22,827	20,684	20,973	44,731	45,192	26,637	15,114	17,246	9,757	9,906
2016	7,954	13,233	21,829	18,691	21,693	50,333	49,881	21,775	13,596	15,827	11,823	10,381
2017	8,998	14,007	21,032	19,383	19,186	47,673	54,028	22,984	10,289	11,054	11,299	11,488
2018	5,524	13,694	20,762	17,584	16,876	54,251	53,304	24,819	13,235	10,633	8,183	8,377
2019	2,330	12,819	21,796	16,299	18,271	46,046	47,594	24,212	11,369	13,687	10,389	10,447
Avg	6,850	12,869	21,649	18,528	19,400	48,607	50,000	24,085	12,721	13,689	10,290	10,120
	Percent Distribution											
2015	3.7%	4.2%	9.0%	8.2%	8.3%	17.7%	17.9%	10.5%	6.0%	6.8%	3.9%	3.9%
2016	3.1%	5.1%	8.5%	7.3%	8.4%	19.6%	19.4%	8.5%	5.3%	6.2%	4.6%	4.0%
2017	3.6%	5.6%	8.4%	7.7%	7.6%	19.0%	21.5%	9.1%	4.1%	4.4%	4.5%	4.6%
2018	2.2%	5.5%	8.4%	7.1%	6.8%	21.9%	21.6%	10.0%	5.4%	4.3%	3.3%	3.4%
2019	1.0%	5.4%	9.3%	6.9%	7.8%	19.6%	20.2%	10.3%	4.8%	5.8%	4.4%	4.4%
Avg	2.7%	5.2%	8.7%	7.4%	7.8%	19.5%	20.1%	9.7%	5.1%	5.5%	4.1%	4.1%

Source: NMFS SRHS (February, 2020)

Headboat angler days for the East coast of Florida have declined over the past five years with the sharpest decline occurring in 2017 (Table 3.4.2.5). East Florida headboat angler days were generally concentrated during the summer months of June and July, averaging 13% and 15% of total angler days respectively (Table 3.4.2.6).

Table 3.4.2.5. East Florida headboat angler days.

	Angler Days
2015	193,202
2016	194,913
2017	124,385
2018	118,879
2019	118,642
Average	150,004

Source: NMFS SRHS (February, 2020).

Table 3.4.2.6. East Florida headboat angler days and percent distribution by month (2015 through 2019).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Headboat Angler Days											
2015	12,622	11,124	20,652	20,907	17,889	24,502	26,986	18,983	10,413	9,174	7,986	11,964
2016	9,738	12,102	21,297	18,851	20,590	24,068	29,184	16,739	11,852	5,951	11,338	13,203
2017	7,635	10,025	11,908	12,413	13,200	15,240	19,975	11,937	2,855	3,605	6,641	8,951
2018	4,368	9,655	12,572	11,480	7,166	15,886	18,074	14,650	6,467	5,233	6,401	6,927
2019	7,610	8,370	13,397	11,946	11,675	15,453	18,316	10,335	3,367	5,206	6,871	6,096
Avg	8,395	10,255	15,965	15,119	14,104	19,030	22,507	14,529	6,991	5,834	7,847	9,428
	Percent Distribution											
2015	7%	6%	11%	11%	9%	13%	14%	10%	5%	5%	4%	6%
2016	5%	6%	11%	10%	11%	12%	15%	9%	6%	3%	6%	7%
2017	6%	8%	10%	10%	11%	12%	16%	10%	2%	3%	5%	7%
2018	4%	8%	11%	10%	6%	13%	15%	12%	5%	4%	5%	6%
2019	6%	7%	11%	10%	10%	13%	15%	9%	3%	4%	6%	5%
Avg	6%	7%	11%	10%	9%	13%	15%	10%	4%	4%	5%	6%

Source: NMFS SRHS (February, 2020).

Economic Value

Economic value can be measured in the form of consumer surplus (CS) per additional cobia kept on a trip for anglers (the amount of money that an angler would be willing to pay for a fish in excess of the cost to harvest the fish). There is no available estimate of CS for cobia, but dolphin or king mackerel CS estimates may be close proxies. The estimated values of the CS per fish for a second, third, fourth, and fifth king mackerel kept on a trip are approximately $105, $71, $52, and $39, respectively. For dolphin, the values for the second, third, fourth, and fifth kept fish are approximately $16, $10, $8, and $6, respectively (Carter and Liese 2012; values updated to 2019 dollars).[29]

The foregoing estimates of economic value should not be confused with economic impacts associated with recreational fishing expenditures. Although expenditures for a specific good or service may represent a proxy or lower bound of value (a person would not logically pay more for something than it was worth to them), they do not represent the net value (benefits minus cost), nor the change in value associated with a change in the fishing experience.

With regard to for-hire businesses, economic value can be measured by producer surplus (PS) per passenger trip (the amount of money that a vessel owner earns in excess of the cost of providing the trip). Estimates of the PS per for-hire passenger trip are not available. Instead, trip net revenue (TNR), which is the return used to pay all labor wages, returns to capital, and owner

[29] Converted to 2019 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

profits, is used as a proxy for PS. When TNR is divided by the number of anglers on a trip, it represents cash flow per angler (CFpA). The estimated CFpA value for an average Gulf charter angler trip is $234 (2019 dollars) and the estimated CFpA value for an average Gulf headboat angler trip is $98 (Souza and Liese 2019). For an average South Atlantic charter angler trip, CFpA is estimated at $200 (2019 dollars) and for an average South Atlantic headboat angler trip, CFpA is estimated at $70 (Souza and Liese 2019). Estimates of CFpA for a cobia target trip, in particular, are not available.

According to Savolainen et al. (2012), the average charter vessel operating in the Gulf is estimated to receive approximately $90,000 (2019 dollars) in gross revenue and $27,000 in net income (gross revenue minus variable and fixed costs) annually. The average headboat is estimated to receive approximately $272,000 (2019 dollars) in gross revenue and $79,000 in net income annually. Holland et al. (2012) estimated average annual gross revenue for charter vessels and headboats operating in the South Atlantic at approximately $125,000 and $222,000 (2019 dollars), respectively. Comparable estimates of annual net income for South Atlantic charter vessels and headboats are not available.

Business Activity

The desire for recreational fishing generates economic activity as consumers spend their income on various goods and services needed for recreational fishing. This spurs economic activity in the region where recreational fishing occurs. It should be clearly noted that, in the absence of the opportunity to fish, the income would presumably be spent on other goods and services and these expenditures would similarly generate economic activity in the region where the expenditure occurs. As such, the analysis below represents a distributional analysis only.

Estimates of the business activity (economic impacts) associated with recreational angling for cobia in the Gulf were calculated using average trip-level impact coefficients derived from the 2016 Fisheries Economics of the U.S. report (NMFS 2018) and underlying data provided by the NOAA Office of Science and Technology. Economic impact estimates in 2016 dollars were adjusted to 2019 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

Business activity (economic impacts) for the recreational sector is characterized in the form of jobs (full- and part-time), income impacts (wages, salaries, and self-employed income), output impacts (gross business sales), and value-added impacts (contribution to the GDP in a state or region). Estimates of the average annual economic impacts (2015–2019) resulting from Gulf Zone and FLEC Zone cobia target trips are provided in Table 3.4.2.7 and Table 3.4.2.8. The average impact coefficients, or multipliers, used in the model are invariant to the "type" of effort (e.g., target or catch) and can therefore be directly used to measure the impact of other effort measures such as cobia catch trips. To calculate the multipliers from Table 3.4.2.7 & Table 3.4.2.8, simply divide the desired impact measure (sales impact, value-added impact, income impact or employment) associated with a given state and mode by the number of target trips for that state and mode.

The estimates provided in Table 3.4.2.7 and Table 3.4.2.8 only apply at the state-level. Addition of the state-level estimates to produce a regional (or national) total may underestimate the actual amount of total business activity, because state-level impact multipliers do not account for interstate and interregional trading. It is also important to note that these economic impacts estimates are based on trip expenditures only and do not account for durable expenditures. Durable expenditures cannot be reasonably apportioned to individual species. As such, the estimates provided in Table 3.4.2.7 and Table 3.4.2.8 may be considered a lower bound on the economic activity associated with those trips that targeted cobia.

Estimates of the business activity associated with headboat effort are not available. Headboat vessels are not covered in MRIP in the Southeast, so, in addition to the absence of estimates of target effort, estimation of the appropriate business activity coefficients for headboat effort has not been conducted.

Table 3.4.2.7. Estimated annual average economic impacts (2015–2019) from recreational trips that targeted Gulf Zone cobia, by state and mode, using state-level multipliers. All monetary estimates are in 2019 dollars in thousands.*

	FL	AL	MS	LA
	Charter Mode			
Target Trips	3,596	390	119	274
Value Added Impacts	$1,243	$161	$53	$128
Sales Impacts	$2,087	$292	$99	$241
Income Impacts	$726	$92	$30	$76
Employment (Jobs)	19	3	1	3
	Private/Rental Mode			
Target Trips	181,897	20,913	32,123	3,346
Value Added Impacts	$6,480	$934	$693	$493
Sales Impacts	$10,043	$1,445	$1,150	$844
Income Impacts	$3,400	$364	$364	$267
Employment (Jobs)	93	14	12	7
	Shore			
Target Trips	212,970	26,126	0	0
Value Added Impacts	$7,709	$1,822	$0	$0
Sales Impacts	$12,047	$3,138	$0	$0
Income Impacts	$4,061	$938	$0	$0
Employment (Jobs)	112	32	0	0
	All Modes			
Target Trips	398,463	47,429	32,242	3,620
Value Added Impacts	$15,432	$2,917	$745	$622
Sales Impacts	$24,178	$4,876	$1,249	$1,086
Income Impacts	$8,187	$1,393	$395	$342
Employment (Jobs)	224	49	13	10

Source: Effort data from MRIP; economic impact results calculated by NMFS SERO using NMFS (2018) and underlying data provided by the NOAA Office of Science and Technology.
*TX Estimates are unavailable at this time.

Table 3.4.2.8. Estimated annual average economic impacts (2015–2019) from recreational trips that targeted FLEC Zone cobia, by mode, using state-level multipliers. All monetary estimates are in 2019 dollars in thousands.

Mode	Total # of Trips	Value Added Impacts ($ thousands)	Sales Impacts ($ thousands)	Income Impacts ($ thousands)	Employment Impacts (Jobs)
Charter	1,210	$284	$476	$168	4
Private/Rental	268,147	$7,387	$11,021	$3,649	106
Shore	24,793	$8,209	$12,292	$4,090	119

Source: Effort data from MRIP; economic impact results calculated by NMFS SERO using NMFS (2018) and underlying data provided by the NOAA Office of Science and Technology.

3.5 Description of the Social Environment

This amendment affects the commercial and recreational management of cobia in the Gulf Zone and FLEC Zone. This amendment also modifies the framework procedure for CMP species in the Gulf and South Atlantic, which is primarily an administrative process and therefore the following description focuses on cobia. Descriptions of CMP species are included in Framework Amendment 7 (GMFMC 2019b) and Amendment 20B (GMFMC and SAFMC 2014).

The following description includes commercial and recreational cobia landings and federal for-hire permits by state in order to provide information on the geographic distribution of fishing involvement. Descriptions of the top communities involved in commercial fishing for cobia are included, along with the top recreational fishing communities based on recreational engagement and reliance, and the top-ranking communities by the number of federal charter/headboat permits. Community level data are presented in order to meet the requirements of National Standard 8 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), which requires the consideration of the importance of fishery resources to human communities when changes to fishing regulations are considered. Lastly, social vulnerability data are presented to assess the potential for environmental justice concerns.

3.5.1 Commercial Sector

Gulf

Commercial fishing accounts for a small portion of total Gulf Zone landings of cobia (average of 7.8% from 2015-2019, Table 1.1.1). The majority of commercial cobia landings in the Gulf Zone are from waters adjacent to Florida (65.1% in 2019), followed by Louisiana (23.5%), and Texas (7.4%), and Alabama (4%, SEFSC Commercial ACL Data).

The regional quotient (RQ) is the proportion of landings and value out of the total landings and value of that species for that region, and is a relative measure. These communities would be most likely to experience the effects of the proposed actions. If a community is identified as a cobia community based on the RQ, this does not necessarily mean that the community would

experience significant impacts due to changes in the fishery if a different species or number of species were also important to the local community and economy.

The top Gulf cobia communities are located in Florida, Louisiana, Texas, and Alabama (Figure 3.5.1.1). About 16% of Gulf cobia is landed in the top community of Key West, Florida, representing 19% of Gulf-wide ex-vessel value for the species. Destin, Florida ranks second in terms of pounds RQ for Gulf cobia, representing about 13% of landings and 17% of value.

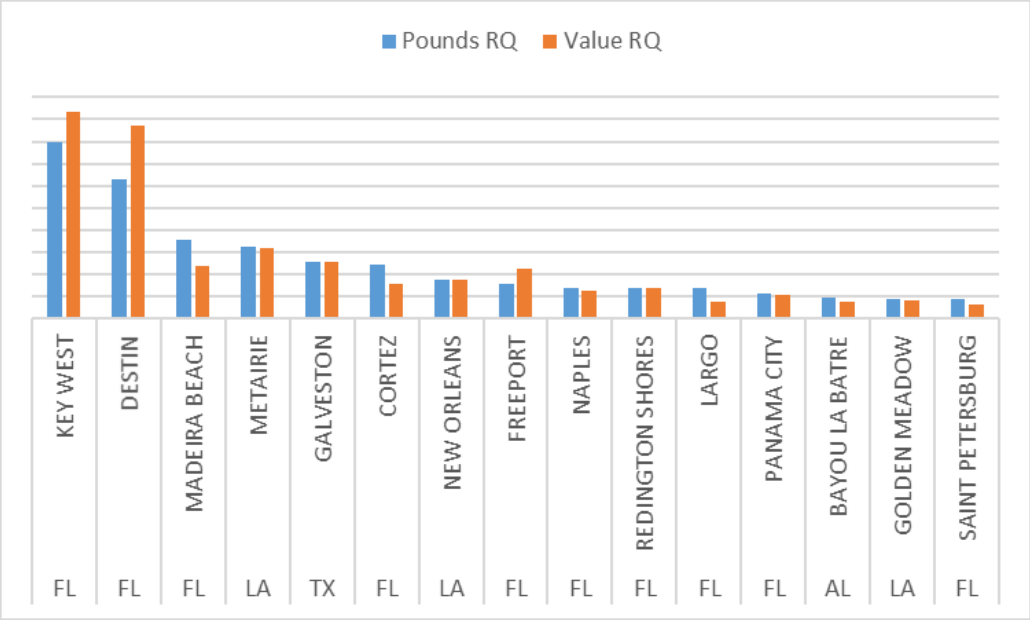

Figure 3.5.1.1. Top Gulf communities ranked by pounds and value RQ of cobia. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO, Community ALS 2019.

Florida East Coast

Commercial fishing accounts for a small portion of total FLEC Zone landings of cobia (average of 9.3% from 2015-2019, Table 1.1.1). The top Florida East Coast cobia communities are presented in Figure 3.5.1.2. The top three communities of Cocoa, Jensen Beach, and Titusville, Florida collectively represent about 51.2% of landings and 53% of Florida East Coast-ex-vessel value for cobia (Figure 3.5.1.2).

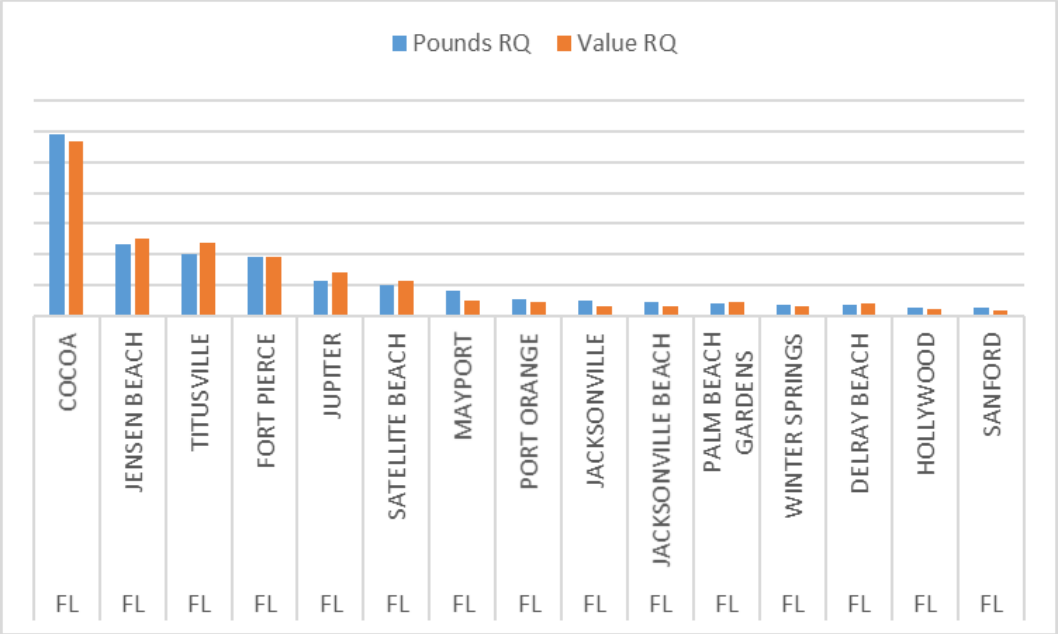

Figure 3.5.1.2. Top Florida East Coast communities ranked by pounds and value RQ of cobia. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO, Community ALS 2019.

3.5.2 Recreational Sector

Gulf

The majority of Gulf Zone cobia is landed by recreational anglers (average of 92.2% from 2015-2019, Table 1.1). The greatest proportion of Gulf Zone recreational cobia landings are from waters adjacent to Florida (approximately 52.1% in 2019), followed by Alabama (31%), Louisiana and Mississippi (15.8%), and Texas (1.2%, SEFSC Recreational MRIP-FES Data)

Landings for the remainder of the recreational sector are not available by species at the community level, making it difficult to identify communities as dependent on recreational fishing for red snapper. Because limited data are available concerning how recreational fishing communities are engaged and reliant on specific species, indices were created using secondary data from permit and infrastructure information for the southeast recreational fishing sector at the community level (Jepson and Colburn 2013, Jacob et al. 2013). Recreational fishing engagement is represented by the number of recreational permits and vessels designated as "recreational" by homeport and owners address. Fishing reliance includes the same variables as fishing engagement, divided by population. Factor scores of both engagement and reliance were plotted by community.

Figure 3.5.2.1 identifies the top Gulf communities that are engaged and reliant upon recreational fishing in general. Two thresholds of one and one-half standard deviation above the mean were plotted to help determine a threshold for significance. Communities are presented in ranked order by fishing engagement and all 20 included communities demonstrate high levels of recreational engagement, although this is not specific to fishing for cobia. Because the analysis

used discrete geo-political boundaries, Panama City and Panama City Beach had separate values for the associated variables. Calculated independently, each still ranked high enough to appear in the top 20 list suggesting a greater importance for recreational fishing in that area.

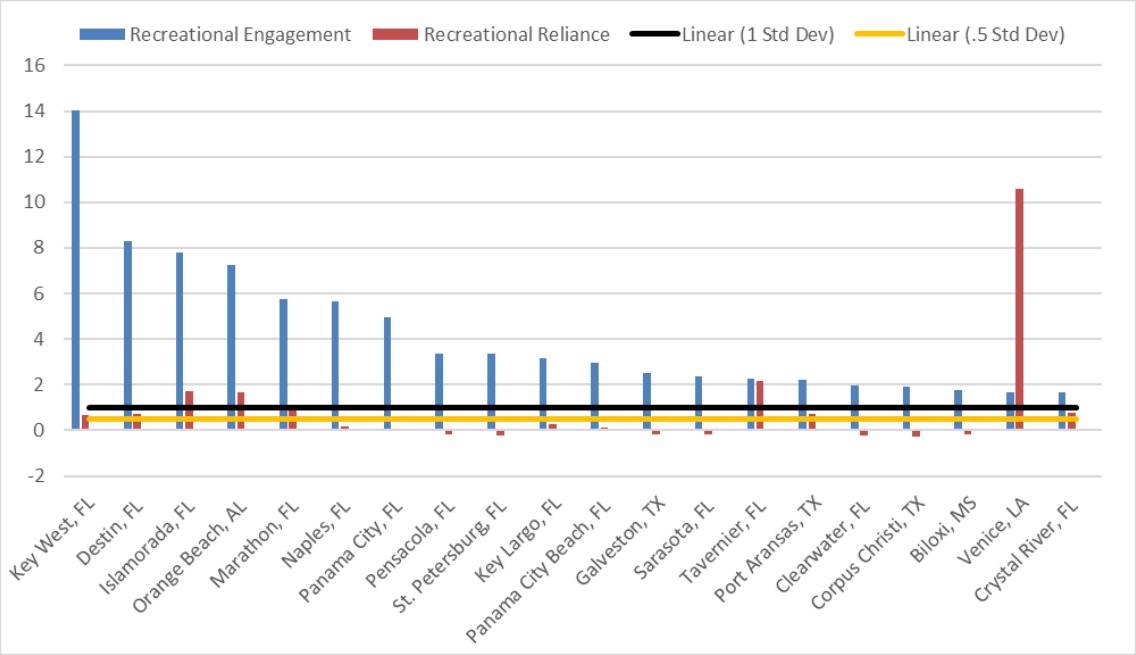

Figure 3.5.2.1. Top 20 Gulf recreational fishing communities' engagement and reliance.
Source: SERO, Community Social Vulnerability Indicators Database 2019.

As of July 8, 2021, there were 1303 Gulf federal charter/headboat permits for pelagic fish, including historical captain permits (SERO permit office). The majority of Gulf federal charter/headboat permits for pelagic fish are held by individuals in Florida (58.3%), followed by Texas (17.1%), Alabama (10.4%), Louisiana (7.3%), Mississippi (2.8%), and other states (4.1%, SERO permit office, July 8, 2021). Gulf federal charter/headboat permits for pelagic fish are held by individuals with mailing addresses in 356 communities, located in 22 states.

Communities with the most charter/headboat permits for pelagic fish are located in Florida, Alabama, and Texas (Table 3.5.2.1). The communities with the most Gulf charter/headboat permits for pelagic fish are Destin, Florida (4.6% of Gulf charter/headboat permits for pelagic fish); Panama City, Florida (4.3%); and Orange Beach, Alabama (4%).

Table 3.5.2.1. Top communities by number of federal charter/headboat permits for Gulf pelagic fish, including historical captain permits.

State	Community	Permits
FL	Destin	60
FL	Panama City	56
AL	Orange Beach	52
FL	Naples	43
FL	Key West	41
FL	Pensacola	26
FL	Sarasota	21
TX	Corpus Christi	21
TX	Galveston	21
FL	St. Petersburg	20
FL	Clearwater	18
FL	Panama City Beach	18
FL	Cape Coral	16
FL	Fort Myers	15
FL	Crystal River	14
FL	Gulf Breeze	14
TX	Port Aransas	14
FL	Fort Walton Beach	13
FL	Largo	13

Source: SERO permit office, July 8, 2021.

Florida East Coast

Recreational fishing accounts for the majority of FLEC Zone cobia landings (average of 90.7% from 2015 – 2019, Table 1.1).

Figure 3.5.2.2 identifies the top Florida East Coast communities that are engaged and reliant upon recreational fishing in general. Communities are presented in ranked order by fishing engagement and all 20 included communities demonstrate high levels of recreational engagement, although this is not specific to fishing for cobia.

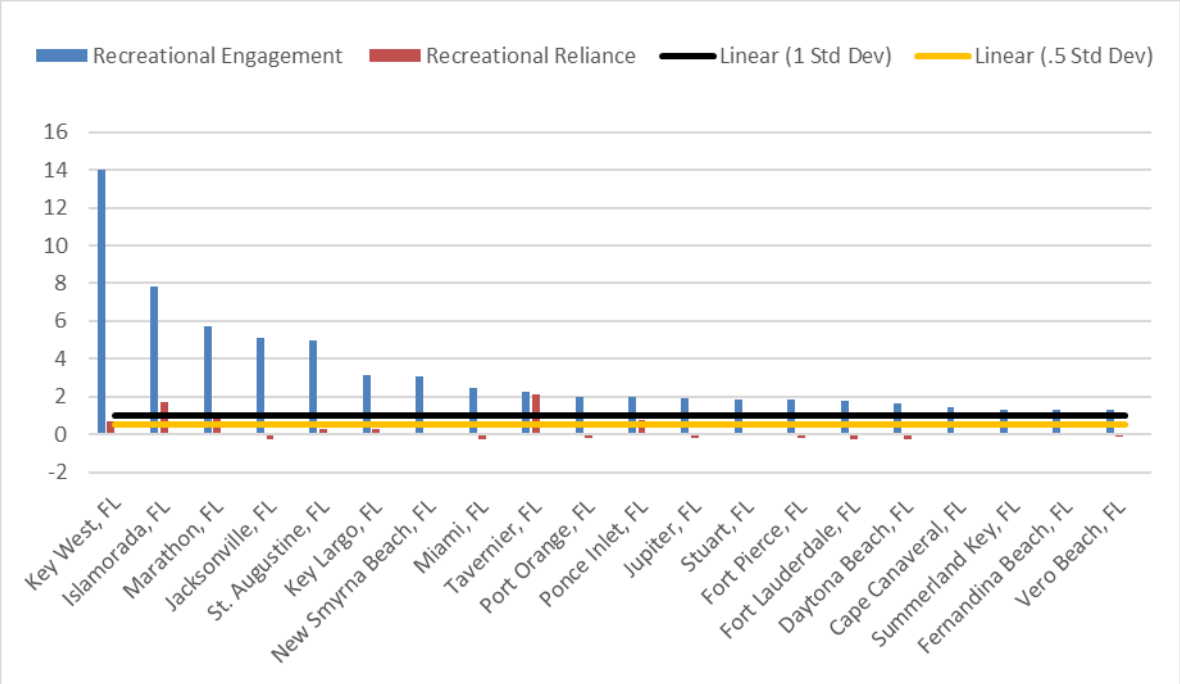

Figure 3.5.2.2. Top 20 Florida East Coast recreational fishing communities' engagement and reliance.
Source: SERO, Community Social Vulnerability Indicators Database 2019.

As of July 8, 2021, there were 1770 South Atlantic federal charter/headboat permits for pelagic fish, including 1028 permits held by individuals in Florida with addresses in 189 communities (SERO permit office). The Florida communities with the most South Atlantic charter/headboat permits for pelagic fish are Key West (12.4% of South Atlantic charter/headboat permits for pelagic fish) Marathon (5%), and Islamorada (4.6%, Table 3.5.2.2).

Table 3.5.2.2. Top Florida communities by number of federal charter/headboat permits for South Atlantic pelagic fish.

State	Community	Permits
FL	Key West	127
FL	Marathon	51
FL	Islamorada	47
FL	St. Augustine	37
FL	Tavernier	36
FL	Jacksonville	33
FL	Ft. Lauderdale	30
FL	Merritt Island	26
FL	Port Orange	23
FL	Summerland Key	20
FL	Jupiter	17
FL	Miami	17
FL	Marco Island	13
FL	Naples	13
FL	New Smyrna	13
FL	Pompano Beach	13
FL	St. Petersburg	13
FL	Cape Canaveral	12
FL	Key Largo	12
FL	Sebastian	12

3.5.3 Environmental Justice

Executive Order (E.O.) 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. The main focus of E.O. 12898 is to consider "the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories…" This E.O. is generally referred to as environmental justice (EJ).

Information is available concerning communities' overall status with regard to minorities and poverty (e.g., census data). To help assess whether any EJ concerns may be present within regional communities, a variety of indices were created to examine the social vulnerability of coastal communities. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the

literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups, more single female-headed households and households with children under the age of five, disruptions such as higher separation rates, higher crime rates, and unemployment all are signs of populations experiencing vulnerabilities. Again, for those communities that exceed the threshold it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

Figures 3.5.3.1 and 3.5.3.2 provide the social vulnerability of the top commercial and recreational cobia communities. Two communities exceed the threshold of one standard deviation above the mean for all three indices, Bayou La Batre, Alabama and Fort Pierce, Florida. Several other communities exceed the threshold of one standard deviation above the mean for any of the indices (Cocoa, Florida; Crystal River, Florida; Daytona Beach, Florida; Miami, Florida; Golden Meadow, Louisiana; and New Orleans, Louisiana). These communities would be the most likely to exhibit vulnerabilities to social or economic disruption due to regulatory change.

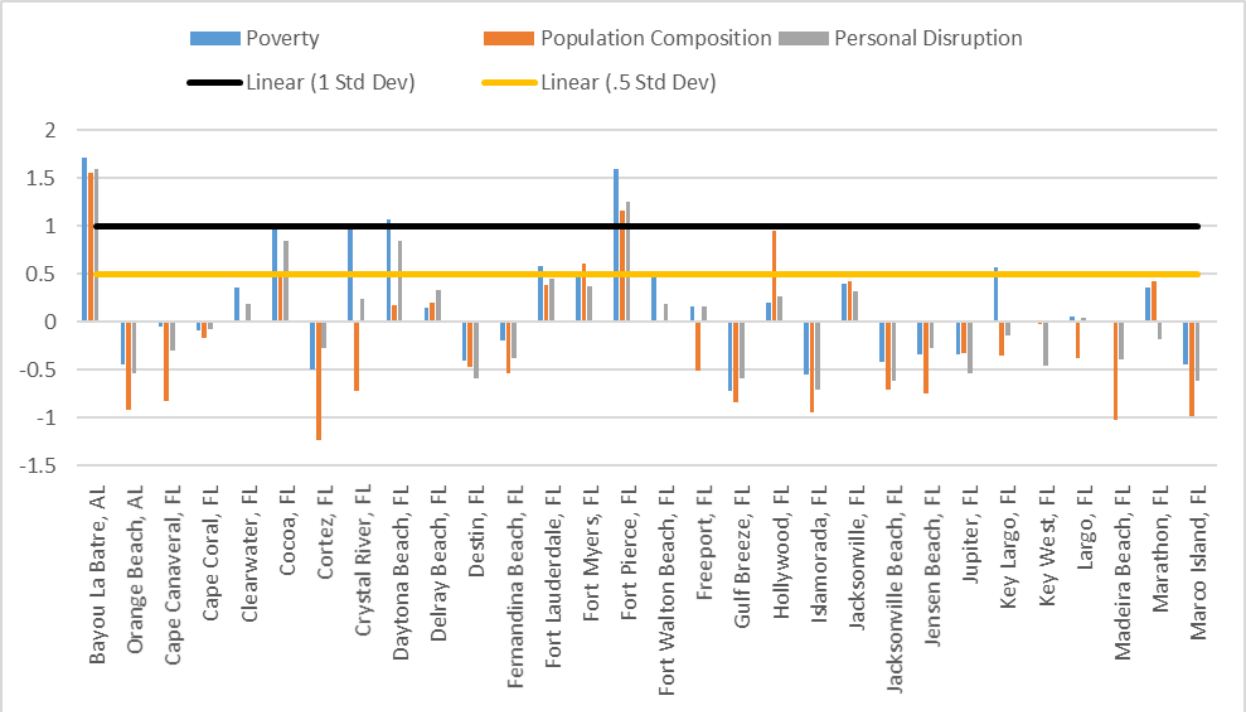

Figure 3.5.3.1. Social vulnerability indices for top commercial and recreational cobia communities.
Source: SERO, Community Social Vulnerability Indicators Database 2018.

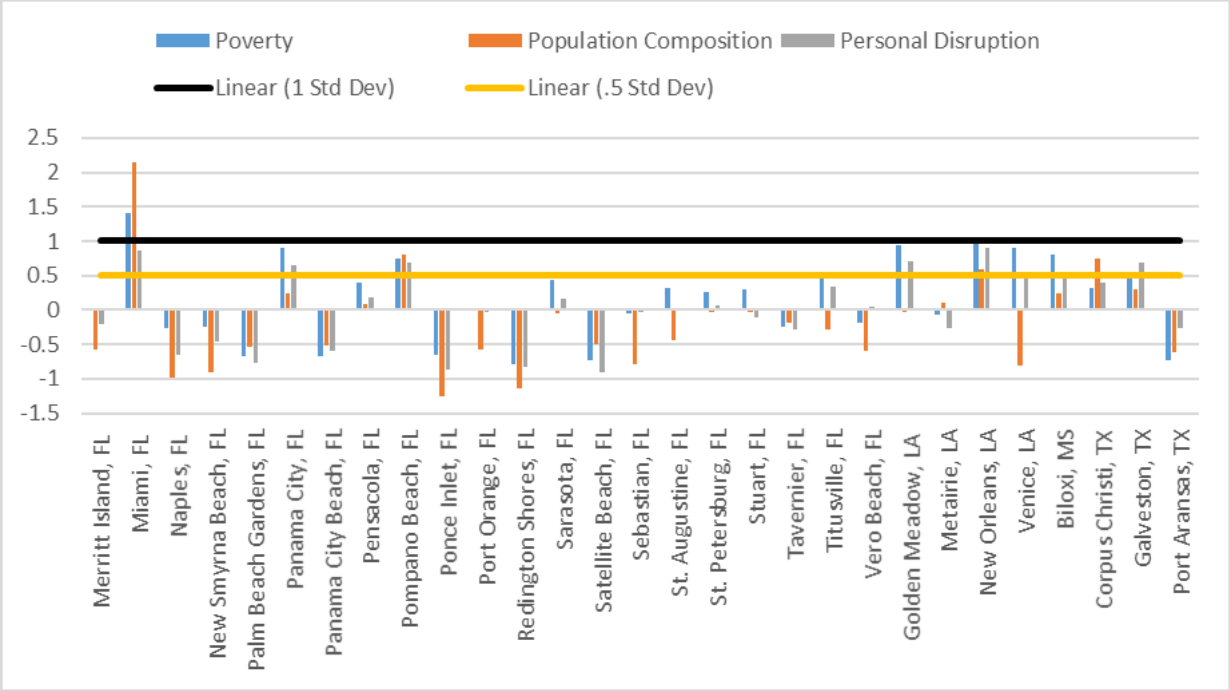

Figure 3.5.3.2. Social vulnerability indices for top commercial and recreational cobia communities continued.
Source: SERO, Community Social Vulnerability Indicators Database 2018.

People in these communities may be affected by fishing regulations in two ways: participation and employment. Although these communities may have the greatest potential for EJ concerns, complete data are not available on the race and income status for those involved in the local fishing industry (employment), or for their dependence on cobia specifically (participation). Although no EJ issues have been identified, the absence of potential EJ concerns cannot be assumed.

3.6 Description of the Administrative Environment

3.6.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Act (16 U.S.C. 1801 *et seq.*), originally enacted in 1976 as the Fishery Conservation and Management Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the EEZ. The EEZ is defined as an area extending 200 nautical miles from the seaward boundary of each of the coastal states. The Magnuson-Stevens Act also claims authority over U.S. anadromous species and continental shelf resources that occur beyond the EEZ.

Responsibility for federal fishery management decision-making is divided between the Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their

jurisdiction. The Secretary is responsible for promulgating regulations to implement proposed plans and amendments after ensuring management measures are consistent with the Magnuson-Stevens Act and with other applicable laws summarized in Section 10. In most cases, the Secretary has delegated this authority to NMFS.

The Gulf Council is responsible for fishery resources in federal waters of the Gulf. These waters extend 9 to 200 nautical miles offshore from the seaward boundaries of Alabama, Florida, Louisiana, Mississippi, and Texas, as those boundaries have been defined by law. The length of the Gulf coastline is approximately 1,631 miles. Florida has the longest coastline extending 770 miles along its Gulf coast, followed by Louisiana (397 miles), Texas (361 miles), Alabama (53 miles), and Mississippi (44 miles).

The Gulf Council consists of seventeen voting members: 11 public members appointed by the Secretary; one each from the fishery agencies of Texas, Louisiana, Mississippi, Alabama, and Florida; and one from NMFS. The public is also involved in the fishery management process.

The South Atlantic Council is responsible for conservation and management of fishery resources in federal waters of the U.S. South Atlantic. These waters extend from 3 to 200 nm offshore from the seaward boundary of the States of North Carolina, South Carolina, Georgia, and east Florida to Key West. The South Atlantic Council has 13 voting members: one from NMFS, one each from the state fishery agencies, and eight public members appointed by the Secretary. Non-voting members include representatives of the U.S. Fish and Wildlife Service, US Coast Guard (USCG), and Atlantic States Marine Fisheries Commission (ASMFC).

The Atlantic Coastal Fisheries Cooperative Management Act (Atlantic Coastal Act) was signed into law in December 1993. It presents a coordinated management of coastal migratory fisheries along the U.S. Atlantic coast. The cooperative management process the law establishes involves the ASMFC, NMFS, and the U.S. Fish and Wildlife Service. The Atlantic Coastal Act provides a mechanism to ensure Atlantic coastal state compliance with mandated conservation measures in ASMFC-approved FMPs.

Prior to the passage of the Atlantic Coastal Act, state implementation of an ASMFC FMP was voluntary, with the exception of the FMP for Atlantic Striped Bass. Today, all Atlantic coast states that are included in an ASMFC FMP must comply with certain conservation provisions of the plan or the Secretary of Commerce may impose a moratorium in that state's waters for harvesting the species in question.

The ASMFC was formed by the fifteen Atlantic coast states more than fifty years ago to assist in managing and conserving their shared coastal fishery resources. The bulk of the ASMFC's fisheries decision-making occurs through the Interstate Fisheries Management Program (ISFMP), where species management boards determine management strategies that the states implement through fishing regulations. The ISFMP Policy Board is responsible for the overall administration and management of the ASMFC's fishery management programs and provides direct oversight to the individual species management boards. The Program promotes the conservation of Atlantic coastal fishery resources, is based on the use of sound science, and provides adequate opportunity for public participation.

Currently, the ISFMP coordinates the conservation and management of 27 Atlantic coastal fish species or species groups, including Atlantic cobia. For species that have significant fisheries in both state and federal waters (e.g., Atlantic herring, summer flounder, Spanish mackerel and spiny dogfish), the ASMFC works jointly with the relevant East Coast regional fishery management council to develop FMPs. The ASMFC also works with NMFS to develop compatible regulations for the waters within the EEZ (3 – 200 miles offshore).

3.6.2 State Fishery Management

The purpose of state representation at the Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters. The state governments of Texas, Louisiana, Mississippi, Alabama, and Florida have the authority to manage their respective state fisheries. Each of the five states exercises legislative and regulatory authority over their states' natural resources through discrete administrative units. Although each agency is the primary administrative body with respect to the states' natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources. A more detailed description of each state's primary regulatory agency for marine resources is provided on their respective web pages (Table 3.6.2.1). As this document only deals with Gulf Group Cobia, only the states where Gulf Group Cobia are found are listed.

Table 3.6.2.1. State marine resource agencies and web pages.

State Marine Resource Agency	Web Page
Alabama Marine Resources Division	http://www.outdooralabama.com/
Florida Fish and Wildlife Conservation Commission	http://myfwc.com/
Louisiana Department of Wildlife and Fisheries	http://www.wlf.louisiana.gov/
Mississippi Department of Marine Resources	http://www.dmr.ms.gov/
Texas Parks and Wildlife Department	http://tpwd.texas.gov/

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

4.1 Action 1 – Modify the Gulf of Mexico (Gulf) Migratory Group Cobia (Gulf Group Cobia) Stock Overfishing Limit (OFL), Acceptable Biological Catch (ABC), and Annual Catch Limit (ACL).

Alternative 1: No Action. Retain the Gulf Group Cobia stock OFL, ABC, ACL as implemented in 2015 by Amendment 20B to the Fishery Management Plan for Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Regions (CMP FMP).

	Gulf Group Cobia		
Year	**OFL**	**ABC**	**ACL**
2016+	2,660,000	2,600,000	2,600,000
MRIP-FES equivalent	4,870,000	4,500,000	4,500,000

Note: Catch limits in pounds landed weight (lbs lw; combined gutted and whole). The recreational portion of the current OFL, ABC, and ACL are based on Marine Recreational Information Program Coastal Household Telephone Survey (MRIP-CHTS) data. The recreational portion of the MRIP Fishing Effort Survey (FES) equivalent was calculated in the SEDAR 28 Update stock assessment (2020) and is provided for comparison only.

Preferred Alternative 2: Modify the Gulf Group Cobia stock OFL, ABC, and ACL based on the recommendation of the Gulf and South Atlantic (Councils)' Scientific and Statistical Committees (SSCs) as presented in July 2020, for an increasing yield stream for 2021 to 2023, and then maintain the 2023 levels for subsequent fishing years or until changed by a future management action. The stock ACL is set equal to the stock ABC.

	Gulf Group Cobia		
Year	**OFL**	**ABC**	**ACL**
2021	3,030,000	2,340,000	2,340,000
2022	3,210,000	2,600,000	2,600,000
2023+	3,310,000	2,760,000	2,760,000

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

Alternative 3: Modify the Gulf Group Cobia stock OFL, ABC, and ACL as a constant catch value for 2021 and subsequent fishing years or until changed by a future management action. The stock ACL is set equal to the stock ABC.

	Gulf Group Cobia		
Year	**OFL**	**ABC**	**ACL**
2021+	3,030,000	2,340,000	2,340,000

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

4.1.1 Direct and Indirect Effects on the Physical Environment

Gulf Group Cobia are typically caught at the ocean surface with hook-and-line and spearfishing gear and, therefore, typically do not come in contact with bottom habitat. However, these gear types have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Any increase in effort would increase these impacts on the physical environment.

Modifications to the OFL, ABC, and ACL as proposed in Action 1 are not expected to result in significant effects on the physical environment. Despite the OFL, ABC, and ACLs proposed in **Preferred Alternative 2** and **Alternative 3** seeming higher than the current catch levels (**Alternative 1**), they incorporate the transition to the Marine Recreational Information Program (MRIP) Fishing Effort Survey (FES) from the Coastal Household Telephone Survey (CHTS) and actually represent an approximate 30% reduction due to the transition. Had SEDAR 28 (2013) used MRIP-FES data, the catch limits under **Alternative 1** would be almost double what they currently are. The reduced catch limits in **Preferred Alternative 2** and **Alternative 3** address the overfishing status of Gulf Group Cobia. Although the viable alternatives in Action 1 are assumed to reduce fishing effort, fishing for Gulf Group Cobia is typically secondary to the direct targeting of other CMP or reef fish species by both fishing sectors; thus, the effects on the physical environment are not expected to be measurably different from the status quo.

4.1.2 Direct and Indirect Effects on the Biological/Ecological Environment

Management actions that affect the biological environment mostly relate to the impacts of fishing on a species' population size, life history, and the role of the species within its habitat. Removal of fish from the population through fishing can reduce the overall population size if harvest is not maintained at sustainable levels. Impacts of these alternatives on the biological environment would depend on the resulting reduction or increase in fishing mortality as a result of each alternative.

Modifications to the OFL, ABC, and ACL of the Gulf Group Cobia could result in changes to the biological/ecological effects, as changing these catch limits determined the amount of fish

that can be harvested. **Alternative 1** (No Action) is not a viable alternative, as the catch limits therein are based on MRIP-CHTS data, and this methodology is no longer considered by the National Marine Fisheries Service as the best scientific information available. Catch limits proposed in **Preferred Alternative 2** and **Alternative 3** incorporate MRIP-FES data, and constitute a reduction in the stock catch limits compared to the status quo. This reduction in Gulf Group Cobia harvest is expected to end overfishing, which will result in beneficial effects to the biological and ecological environment, as the reduction in fishing mortality is expected to help rebuild the spawning stock biomass (SSB). Discards would not be expected to increase under these alternatives, as Gulf Group Cobia is most often an opportunistically and not directly targeted species (see Section 3.3). **Preferred Alternative 2** allows for a yearly increase in allowable harvest of Gulf Group Cobia, while **Alternative 3** is more conservative and would set the catch limits as a constant based on the SSC's recommendations for the 2021 fishing year. Therefore, **Alternative 3** would allow less fishing and result in slightly more beneficial effects than **Preferred Alternative 2**. However, any effects are not expected to significant because the overall prosecution of the CMP fishery is not expected to change. There are no additional impacts on Endangered Species Act (ESA)-listed species or designated critical habitats anticipated as a result of this action.

4.1.3 Direct and Indirect Effects on the Economic Environment

Alternative 1 (No Action) would maintain the current reference points (OFL and ABC) and the stock ACL for Gulf migratory group cobia. Therefore, **Alternative 1** would not be expected to change fishing practices or recreational and commercial harvests of Gulf Group Cobia and would not be expected to result in economic effects. However, **Alternative 1** would not be consistent with the SSC's latest recommendations and would not constitute a viable alternative because the reference points and ACL are based on MRIP-CHTS.

Preferred Alternative 2 and **Alternative 3** would address the overfishing status of the Gulf Group Cobia stock and modify the reference points and stock ACL stock based on the SSCs' recommendations. The proposed Gulf Group Cobia stock reference points and ACL considered in **Preferred Alternative 2** and **Alternative 3** are based on MRIP-FES data.

For each alternative, Table 4.1.3.1 provides the OFL and ACL considered and the corresponding buffer between the OFL and ACL and the ACL difference relative to the status quo ACL. **Preferred Alternative 2** would establish increasing ACLs between 2021 and 2023. **Alternative 3** would be based on a constant catch scenario, which was not recommended by the SSC.

Table 4.1.3.1. Gulf Group Cobia OFLs, ACLs, buffers between OFL and ACL, and ACL differences by alternative.

	Year	OFL	Buffer OFL-ACL (%)	ACL	Difference ACL
Alternative 1	2021+	4,870,000	7.6%	4,500,000	
Preferred Alternative 2	2021	3,030,000	22.8%	2,340,000	-2,160,000
	2022	3,210,000	19.0%	2,600,000	-1,900,000
	2023+	3,310,000	16.6%	2,760,000	-1,740,000
Alternative 3	2021+	3,030,000	22.8%	2,340,000	-2,160,000

Alternative 1 OFL and ACL are expressed in FES equivalent. **Preferred Alternative 2** and **Alternative 3** OFL and ACLs are based on FES.

The differences between the status quo ACL and the ACLs considered in **Preferred Alternative 2** and **Alternative 3** are primarily indicative of the transition from CHTS to FES units and of ACL reductions. Although this action is expected to result in ACL reductions relative to the status quo, ACL differences provided in Table 4.1.3.1 do not represent differences between status quo harvest opportunities and expected future harvests. Therefore, economic effects that would result from proposed ACL changes cannot be quantified. Because **Preferred Alternative 2** would establish an increasing yield stream between 2021 and 2023 while **Alternative 3** would set a constant catch level based on the lowest ACL considered in **Preferred Alternative 2**, **Preferred Alternative 2** would be expected to result in more economic benefits than **Alternative 3**.

However, relative to the buffer between the status quo OFL and ACL, the magnitude of the buffers between the OFL and ACLs for **Preferred Alternative 2** and **Alternative 3** suggest that **Preferred Alternative 2** and **Alternative 3** would provide more protection to the Gulf Group Cobia. Therefore, **Preferred Alternative 2** and **Alternative 3**, which both address the overfishing condition of the stock, would be expected to result in economic benefits due to the added protection afforded to the Gulf Group Cobia.

4.1.4 Direct and Indirect Effects on the Social Environment

Additional effects would not be expected from **Alternative 1**, which would retain existing catch levels. However, these catch levels do not reflect the best available science, as overfishing could continue to occur and the recreational data units would remain in MRIP-CHTS units. The Gulf Group Cobia stock has likely experienced overfishing nearly every year through 2018 (SEDAR 28 Update 2020). That the stock has been experiencing overfishing is supported by fishermen's reports in recent years of a decreased presence. These observations led the Council to apply a precautionary approach to reduce fishing mortality through Framework Amendment 7 (GMFMC 2019b).

Although the harvest of Gulf Group Cobia has remained well below the catch levels in place since 2015, negative effects would be expected under **Preferred Alternative 2** from lost harvest

opportunities as the ACL would be reduced in 2021 to nearly 400,000 lbs below the average total landings for 2015-2019 adjusted to MRIP-FES units. These effects are further discussed for subsequent actions in this amendment that aim to reduce harvest including changes to possession, vessel, and trip limits (Sections 4.5.1.4 and 4.5.2.4); and minimum size limit (Section 4.6.3.4). These negative effects may be mitigated as the stock's health improves, allowing catch levels to be increased as supported by the alternative's increasing yield stream.

While **Preferred Alternative 2** provides an increasing yield stream following the most restrictive catch levels in 2021, **Alternative 3** would adopt the same catch levels in 2021 and retain those restrictive catch levels until changed through subsequent regulatory action. Thus, greater negative effects would be expected from **Alternative 3** compared with **Preferred Alternative 2**, as catch levels would remain below those necessary to end overfishing. Projected closures for **Preferred Alternative 2** and **Alternative 3** would depend on the apportionment between the Gulf Zone and FLEC Zone (Action 2) and sector allocations for the FLEC Zone (Action 3).

In theory, there should be no effects from converting the ACL from MRIP-CHTS units to MRIP-FES units, as the change in units is intended to be a conversion. The current ACL of 2.6 million pounds (mp) ww in MRIP-CHTS units is equivalent to 4.5 mp ww in MRIP-FES units. MRIP data units are for the recreational sector only and there is no sector allocation. While MRIP-FES has been determined to be the best available science, the adoption of the data units has been controversial for stocks with a sector allocation, because the conversion has been adopted concurrent to changes in the allowable catch levels. It is possible for unintended indirect effects to result for the different user groups that remain unknown at this time.

4.1.5 Direct and Indirect Effects on the Administrative Environment

Modifying annual harvest levels including the ABC and ACLs does not typically result in significant effects on the administrative environment. **Alternative 1** is not expected to affect the administrative environment because it would not change the current harvest levels. However, it would continue the administrative burden with the need to convert MRIP-FES data (how landings for Gulf Group Cobia are collected) into MRIP-CHTS units to compare landings to the ACL. **Preferred Alternative 2** would result in a short-term increased burden on the administrative environment due to the establishment of new catch limits. Changing the catch limits from **Alternative 1** would increase the burden for the National Marine Fisheries Service (NMFS), which would have to engage in rulemaking to implement this change in management. However, **Preferred Alternative 2** would reduce the burden by eliminating the need to convert MRIP-FES data (how landings for Gulf Group Cobia are collected) into MRIP-CHTS units to compare landings, as the ACL would also be in MRIP-FES units. The administrative burden for law enforcement would go largely unchanged, as law enforcement officers would continue to monitor compliance with any established catch limits. Some administrative burden is anticipated with respect to outreach as it relates to notifying stakeholders of the changes to catch limits. Since **Alternative 3** would also result in changes to the current catch limits, the same effects are expected as under **Preferred Alternative 2**.

4.2 Action 2 – Modify the Gulf Group Cobia Stock Apportionment Between the Gulf Zone and the Florida East Coast (FLEC) Zone, and Update the Zones' ACLs Based on the ACL Selected in Action 1.

Alternative 1: No Action. Retain the current Gulf Group Cobia stock ACL apportionment of 64% to the Gulf Zone and 36% to the FLEC Zone based on MRIP-CHTS average landings for Gulf Group Cobia for the years 1998 – 2012.

Alternative 2: Retain the Gulf Group Cobia stock ACL apportionment between the zones at 64% to the Gulf Zone and 36% to the FLEC Zone, and use this apportionment to update both Zone ACLs using MRIP-FES units based on the Gulf Group Cobia stock ACL(s) selected in Action 1.

Preferred Alternative 3: Modify the Gulf Group Cobia stock ACL apportionment at 63% to the Gulf Zone and 37% to the FLEC Zone, based on the MRIP-FES average landings for Gulf Group Cobia for the years 1998 – 2012, and use this apportionment to update the Zone ACLs based on the Gulf Group Cobia stock ACL(s) in Action 1.

Alternative 4: Modify the Gulf Group Cobia stock ACL apportionment at 59% to the Gulf Zone and 41% to the FLEC Zone, based on the MRIP-FES average landings for Gulf Group Cobia for the years 2003 – 2019, and use this apportionment to update the Zone ACLs based on the Gulf Group Cobia ACL(s) in Action 1.

4.2.1 Direct and Indirect Effects on the Physical Environment

Changing the ACL apportionment between the Gulf and FLEC Zone could affect the physical environment if the fishing effort changes from current levels. Gulf cobia are typically caught at the ocean surface with hook-and-line and spearfishing gear and, therefore, typically do not come in contact with bottom habitat. However, these gear types have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Any increase in fishing effort may increase these impacts on the physical environment.

Amendment 20B (GMFMC and SAFMC 2014) to the CMP FMP set the current ACL apportionment between the Gulf and FLEC Zone based on historic landings in MRIP-CHTS. **Alternative 1** (No Action) is not a viable alternative, as the catch limits would still be in MRIP-CHTS, which do not represent the best scientific information available. **Alternatives 2 – 4** would either retain the current apportionment or modify the apportionment between the Zones and monitor the ACLs in MRIP-FES, which is considered to be the best scientific information available. **Alternative 2** would retain the current apportionment of the Gulf Group Cobia ACL as 64% to the Gulf Zone and 36% to the FLEC Zone. **Alternatives 3** and **4** would shift come proportion of the stock ACL to the FLEC Zone. **Preferred Alternative 3** would modify the

apportionment as 63% to the Gulf Zone and 37% to the FLEC Zone. Lastly, **Alternative 4** would modify the apportionment to be 59% to the Gulf Zone and 41% to the FLEC Zone.

Historically, commercial landings have been decreasing in both Zones (Figure 1.1.2). The trend differs in the recreational record as the Gulf Zone has seen a decrease in landings (Figure 1.1.3), while FLEC Zone recreational landings have remained stable with annual variability (Figure 1.1.4). The ACL apportionment in **Action 2** is directly dependent upon the Gulf Group Cobia ACL in **Action 1**. Although the viable alternatives in Action 1 are assumed to reduce fishing effort, fishing for Gulf Group Cobia is typically secondary to the direct targeting of other CMP or reef fish species by both fishing sectors. Further, because Gulf Group Cobia are part of a multi-species CMP fishery, and because fishing effort for CMP species is not expected to change measurably in either the Gulf or FLEC Zone as a result of the viable alternatives in Action 2, the effects on the physical environment are not expected to be measurably different from the status quo.

4.2.2 Direct and Indirect Effects on the Biological/Ecological Environment

As with the effects to the physical environment, the effects to the biological/ecological environment are expected to follow the effects from Action 1 as the amount of harvest allowed is not changing with this Action; rather, only the apportionment between regional zones, which will only shift between zones by 1% under **Preferred Alternative 3**. This apportionment shift is not expected to result in any detectible effects to the biological/ecological environment as total harvest remains the same. No changes in effects are expected under **Alternatives 1** or **2** as the apportionment remains status quo under both. **Alternative 4** shifts 5% of the Gulf Group Cobia ACL to the FLEC Zone from the status quo (**Alternative 1**); however, the shift itself is not expected to result in any measurable change in effects to the biological/ecological environment. Alternatively, a positive effect to the biological environment is expected if the projected in-season closures occur under the reduced harvest levels from **Action 1** and the apportionment shift in **Action 2**, as this may foster a faster recovery of the stock from its current overfishing stock status determination. There are no additional impacts on ESA-listed species or designated critical habitats anticipated as a result of this action.

4.2.3 Direct and Indirect Effects on the Economic Environment

Alternative 1 (No Action) would maintain the current apportionment of the Gulf Group Cobia stock ACL between the Gulf and the FLEC Zones. Therefore, **Alternative 1** would not be expected to affect Gulf Group Cobia harvests and would not be expected to result in economic effects. However, **Alternative 1** is not a viable alternative because it does not recognize that the catch limits are now being set and monitored in MRIP-FES units.

Preferred Alternative 3 and **Alternative 4** would determine the apportionment between zones based on MRIP-FES. The greatest and lowest percentages of the Gulf Group Cobia ACL allocated to the Gulf Zone would correspond to **Alternative 2** and **Alternative 4**, respectively. **Alternative 2** and **Alternative 4** would apportion 64% and 59% of the Gulf Group Cobia to the Gulf Zone, respectively. **Preferred Alternative 3** would apportion 63% of the ACL to the Gulf Zone and 37% to the FLEC Zone. All alternatives under consideration would apportion the Gulf

Group ACL selected in **Action 1** between the zones. Because it is assumed that the economic value derived from a Gulf Group Cobia is independent from the zone in which it is harvested, this action would not be expected to result in net changes in aggregate economic benefits but would simply result in benefit transfers from one zone to the next. For example, **Preferred Alternative 3**, which allocates 63% of the ACL to the Gulf instead of 64% under the status quo, would be expected to result in a transfer of benefits from the Gulf Zone to the FLEC Zone. **Alternative 4** would correspond to the greatest economic benefit to the FLEC Zone because it would allocate the greatest percentage of the ACL to the FLEC Zone.

4.2.4 Direct and Indirect Effects on the Social Environment

Apportioning the ACL between two zones is an allocation decision, and allocation is an inherently controversial topic as discrete user groups benefit from obtaining the largest share for their group. The reapportionment between the Gulf Zone and FLEC Zone in this action is related to Action 1, which proposes the adoption of the new catch levels in MRIP-FES units. Additional effects would not be expected from retaining the current apportionment of the Gulf Group Cobia stock ACL of 64% to the Gulf Zone and 36% to the FLEC Zone (**Alternative 1**). However, similar to Action 1, the **Alternative 1** apportionment is based on MRIP-CHTS landings and would be inconsistent with the preceding action if MRIP-FES units are adopted through the updated catch levels.

Both **Alternative 2** and **Preferred Alternative 3** would adopt MRIP-FES, with **Alternative 2** retaining the current percentages of the zone apportionment and **Preferred Alternative 3** retaining the formula used to calculate the current zone apportionment. This results in a 1% difference in the zone allocation, and the effects on each zone would be inverse to one another. For the Gulf Zone, positive effects would be greater under **Alternative 2** compared to **Preferred Alternative 3**, and for the FLEC Zone, positive effects would be greater under **Preferred Alternative 3** compared to **Alternative 2**. Although the shift in zone apportionment is relatively small, apportionments have broader social implications as an indicator of cultural significance that quantifies the access of different user groups. The directional change, in this case, towards the FLEC Zone, would indicate an increasing social valuation of cobia in the FLEC Zone.

Alternative 4 would adopt MRIP-FES and modify the time series of historical landings used to calculate the zone allocation to reflect a more recent time series (2003-2019). However, this time period coincides with management actions that affected access to cobia differently in each zone. Compared to **Alternative 2** and **Preferred Alternative 3**, **Alternative 4** would result in greater negative effects for the Gulf Zone and greater positive effects for the FLEC Zone.

4.2.5 Direct and Indirect Effects on the Administrative Environment

Alternative 1 is not expected to affect the administrative environment because it would not change the current apportionment between regional management Zones. The changes to the Gulf Group Cobia total ACL under **Alternative 2**, **Preferred Alternative 3**, and **Alternative 4** would result in a short-term increased burden on the administrative environment due to the establishment of an updated apportionment and subsequent new catch limits per Zone. While **Alternative 2** retains the same apportionment as **Alternative 1**, new catch levels using MRIP-

FES under this alternative would have to be established. Changing the apportionment from **Alternative 1** would increase the burden for NMFS, which would have to engage in rulemaking to implement this change in management. The administrative burden for law enforcement would go largely unchanged, as law enforcement officers would continue to monitor compliance with any established catch limits. Some administrative burden is anticipated with respect to outreach as it relates to notifying stakeholders of the changes to catch limits.

4.3 Action 3 – Modify the FLEC Zone Cobia Allocation Between the Commercial and Recreational Sectors, and Update each Sector's ACLs Based on the ACLs and Apportionments Selected in Actions 1 and 2

Alternative 1: No Action. Retain the FLEC Zone cobia ACL allocation of 8% to the commercial sector and 92% to the recreational sector based on the South Atlantic Council's allocation formula for Atlantic Group cobia based on MRIP-CHTS landings which balanced historical catches (2000 – 2008) with more recent landings (2006 – 2008):

Sector allocation = (50% * average of Atlantic cobia long catch range (lbs) 2000 – 2008 + (50% * average of recent catch trend (lbs) 2006 – 2008)[30].

Alternative 2: Modify the FLEC Zone cobia ACL allocation to 5% to the commercial sector and 95% to the recreational sector based on the South Atlantic Council's allocation formula for Atlantic Group cobia, which balanced historical catches landings (2000 – 2008) with more recent landings (2006 – 2008), but use MRIP-FES data:

Sector allocation = (50% * average of Atlantic Group cobia long catch range (lbs) 2000 – 2008 + (50% * average of recent catch trend (lbs) 2006 – 2008).

Preferred Alternative 3: Retain the FLEC Zone cobia ACL allocation of 8% to the commercial sector and 92% to the recreational sector and update the ACL(s) selected in Action 2 based on MRIP-FES landings.

Alternative 4: Modify the FLEC Zone cobia ACL allocations to be calculated based on maintaining the current commercial ACL (i.e., 70,000 lbs) beginning in the 2021 fishing season and allocating the remaining revised total ACL to the recreational sector. The allocation percentages will remain in following years.

4.3.1 Direct and Indirect Effects on the Physical Environment

Changing the allocation of the ACL FLEC Zone could affect the physical environment if the fishing effort changes from current levels. Gulf Group Cobia are typically caught at the ocean surface and, therefore, hook-and-line and spearfishing gear typically do not come in contact with bottom habitat. However, these gear types have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Any increase in effort may increase these impacts on the physical environment. Historically, commercial landings have been decreasing in both Zones (Figure 1.1.2). The trend differs in the recreational record as the Gulf Zone has seen a decrease in landings (Figure 1.1.3), while

[30] Com Sector % = (50% x Average Com 2000-2008) + (50% x Average Com 2006-2008)
(50% x Avg Com 2000-2008 + 50% x Avg Com 2006-2008) + (50% x Avg Rec 2000-2008 + 50% x Avg Rec 2006-2008)
Rec Sector % = (50% x Average Rec 2000-2008) + (50% x Average Rec 2006-2008)
(50% x Avg Rec 2000-2008 + 50% x Avg Rec 2006-2008) + (50% x Avg Com 2000-2008 + 50% x Avg Com 2006-2008)

recreational landings in the FLEC Zone have remained stable with annual variability (Figure 1.1.4).

The allocations being considered in **Action 3** are directly dependent upon the Gulf Group Cobia ACL established in **Action 1** and the FLEC Zone apportionment in **Action 2**. Given the dependency of **Action 3** on the decisions made with respect to **Actions 1** and **2**, and because Gulf Group Cobia are part of a multi-species CMP fishery throughout its range for both fishing sectors, effects on the physical environment from the change in allocation proposed in **Action 3** are not expected to be different from that in **Actions 1** or **2**, or to result in any measurable effects to the physical environment.

4.3.2 Direct and Indirect Effects on the Biological/Ecological Environment

Alternative 1 (No Action) would maintain the current commercial sector allocation of 8% of the current FLEC zone ACL, which is based on historical MRIP-CHTS landings. This alternative is not a viable alternative for consideration because it is not based on the best scientific information available. Of the alternatives analyzed, only **Alternative 2** results in a reduction of allocation to the commercial sector (5% from 8%, and 95% to the recreational sector). **Preferred Alternative 3** would retain the allocation of 8% to commercial and 92% to the recreational sector, with the FLEC Zone ACLs selected in Action 2 based on MRIP-FES landings. As shown in Table 2.3.3, **Alternative 4** would result in the largest allocation to the commercial sector but even still, it is just a slight increase over **Alternative 1** and **Alternative 2**.

The five-year running average (2015 – 2019) of commercial landings is 43,766 lbs (Table 2.2.2. and Tables 2.3.1-2.3.3). All of the alternatives proposed under **Action 3** would result in a higher commercial allocation than these average landings. **Alternative 2** would result in a lower commercial allocation than the other alternatives in **Action 3**, but even then, the commercial allocation would exceed sector's the five-year running average (Table 2.3.1).

Biological effects of allocation alternatives are generally expected to be neutral; both the commercial and recreational sectors would be limited to their respective ACLs and the accountability measures (AM) in place for Gulf Group Cobia. The current system of ACLs and AMs is designed to prevent the ACLs from being exceeded, and to correct for any ACLs overages if they occur. So long as these sector-specific ACLs are not exceeded, no negative biological effects are expected.

The allocation alternatives in **Action 3** are directly dependent upon the Gulf Group Cobia ACL in **Action 1** and the FLEC Zone apportionment in **Action 2**. Given that the viable alternatives in **Action 1** represent an overall reduction in the catch limits, effects on the biological environment from this action are expected to follow the effects from **Action 1** as the overall amount of harvest allowed is not further modified by this action. Thus, the viable alternatives in **Action 3** are not, by themselves, expected to result in a measurable change in these biological effects.

None of the alternatives considered under this action would significantly alter the way in which the fishery for Gulf Group Cobia is prosecuted in the FLEC Zone. No significant adverse impacts on endangered or threatened species are anticipated because of this action; nor are any adverse impacts on essential fish habitats or habitat areas of particular concern including corals, sea grasses, or other habitat types expected because of this action.

4.3.3 Direct and Indirect Effects on the Economic Environment

The sector ACL does not directly impact the fishery for a species unless harvest changes, fishing behavior changes, or the sector ACL is exceeded, thereby potentially triggering accountability measures (AMs) such as harvest closures or other restrictive measures. As such, sector ACLs that are set above the observed baseline landings in the fishery for a species do not change harvest or fishing behavior, and thus may not have realized economic effects each year. Nevertheless, sector ACLs set above observed harvest levels would likely create a buffer between the sector ACL and typical landings that may be utilized in years of exceptional abundance or accessibility to a species, thus providing the opportunity for increased landings and a reduced likelihood of triggering restrictive AMs. As such, there are potential economic benefits from sector ACLs that allow for such a buffer. The opposite is true for sector ACLs that constrain harvest or fishing effort within a fishery or reduce the previously described buffer between average landings and the sector ACL.

Commercial Sector

The current and potential commercial sector ACLs for FLEC Zone cobia in **Alternative 1** (No Action) through **Alternative 4** for 2022 (anticipated implementation timeline) and 2023+ are higher than the 5-year average (2015-2019) commercial landings of 43,766 lbs lw that are used as a baseline assumption for estimating changes in the commercial fishery (Table 2.2.2; Tables 2.3.1-2.3.3). Thus, all of the alternatives considered in **Action 3** are not expected to be constraining on commercial harvest. As a result, no direct economic effects are anticipated from **Alternative 1** (No Action) through **Alternative 4** in the short-term assuming average abundance and average commercial landings.

Alternative 1 (No Action) would maintain the current commercial sector allocation of 8% of the current FLEC Zone total ACL, which were established using MRIP-CHTS landings and is not a viable alternative since it does not recognize that the catch limits are now being set and monitored in MRIP-FES units. **Alternative 1** (No Action) would also maintain a commercial sector ACL of 70,000 lbs lw, which is approximately 60% above 5-year average (2015-2019) commercial landings, thus offering a considerable expansion of landings and associated economic benefits if conditions allow (Table 4.3.3.1). **Alternative 2** would use the same formula as **Alternative 1** but would use MRIP-FES data. This would result in a decrease the commercial sector allocation to 5% of the revised FLEC Zone total ACL and result in a sector ACL between 48,100 lbs lw and 51,060 lbs lw, depending on the year examined (2022 or 2023+). This alternative would set the sector ACL approximately 10% to 17% above 5-year average commercial landings (Table 4.3.3.1). **Preferred Alternative 3** would maintain the current commercial sector allocation of 8% of the revised FLEC Zone ACL, which would increase the sector ACL to between 76,960 lbs lw and 81,696 lbs lw due to application of the

sector allocation to the revised FLEC Zone total ACL. This would set the sector ACL 76% to 87% higher than 5-year (2015-2019) average commercial landings (Table 4.3.3.1). **Alternative 4** would increase the commercial sector allocation to 8.085% of the revised FELC Zone total ACL and result in a sector ACL between 77,778 lbs lw and 82,564 lbs lw. This would provide the largest buffer between average landings and the sector ACL of the alternatives considered, with the sector ACL being set 78% to 89% higher than 5-year average (2015-2019) commercial landings (Table 4.3.3.1).

Table 4.3.3.1. Commercial sector allocation, ACL, and percent difference between the ACL and 5-year average landings from 2015-2019.

Alternative	Commercial allocation (% of total FLEC ACL)*	Commercial ACL (lbs lw)*	Difference from Alternative 1 (lbs lw)	Percent difference between average annual landings from 2015-2019 and the sector ACL
Alternative 1 (No Action)	8%	70,000	0	60%
Alternative 2	5%	48,100 to 51,060	-18,940 to -21,900	10% - 17%
Pref. Alternative 3	**8%**	**76,960 to 81,696**	**6,960 to 76,960**	**76% - 87%**
Alternative 4	8.085%	77,778 to 82,564	7,778 to 12,564	78% - 89%

*Sector ACLs are based on Preferred Alternative 3 in Action 2, with the exception of **Alternative 1** (No Action), and are dependent on the year examined (2022 or 2023+).

Recreational Sector

Alternative 1 (No Action) would maintain the current recreational sector allocation of 92% of the total FLEC Zone ACL. This alternative would also maintain a current recreational sector ACL of 860,000 lbs ww (MRIP-CHTS), which is below the 5-year average (2015-2019) recreational landings of 429,167 lbs ww (MRIP-CHTS) that are used as a baseline assumption for estimating changes in the recreational fishery. Therefore, changes in economic value would not be expected to result from this alternative. While not viable as a preferred alternative, the landings expected to occur under **Alternative 1** (No Action) in MRIP-FES terms and the associated economic value are still used in this analysis as the benchmark for changes in economic value for the other alternatives. As such, the 5-year average (2015-2019) recreational landings of 1,207,601 lbs ww or 52,757 fish (MRIP-FES) is used as a proxy for the No Action alternative (Table 2.2.2). In addition, the 5-year average (2015- 2019) of MRIP-FES recreational landings exceeds the recreational ACL from **Preferred Alternative 3** and **Alternatives 2** and **4**, so this analysis assumes the recreational sector will land the entire allocated recreational sector ACL. All three of these alternatives decrease the current MRIP-FES equivalent recreational sector ACL and are presumed to be constraining on harvest, at least over several years due to triggering the recreational AM, therefore negative economic effects are expected assuming average abundance and average recreational landings.

The economic effects expected to result from **Preferred Alternative 3** and **Alternatives 2** and **4** in comparison to **Alternative 1** (No Action) are analyzed as a function of the sector ACL. The

proposed changes in the recreational sector ACL and estimates of associated annual changes in landings and economic values are provided in Table 4.3.3.2 through Table 4.3.3.4. Estimates of the consumer surplus (CS) per fish for FLEC Zone cobia are not available. CS per additional fish kept during a trip is defined as the amount of money an angler would be willing to pay for a fish in excess of the cost to harvest the fish and is used to measure economic value. A proxy value used in this analysis is the CS value for a second dolphin kept on a trip, which is $16 (2019 $) (Carter and Liese, 2012; Section 3.3). This value is chosen since the current recreational possession limit for FLEC Zone cobia is 2 fish per person and is applied to the difference between the ACL and 5-year average (2015-2019) annual landings. A weight of 22.89 lbs ww per cobia is used to convert the difference between the ACL and 5-year average annual landings from lbs ww to numbers of fish (MRIP Query, accessed July 28, 2021)[31].In comparing alternatives, the status quo (**Alternative 1** (No Action)) is compared to an alternative for the sector ACLs in 2022 and 2023+ since the regulatory changes from this amendment will not go into place until that time (i.e., after 2021).

The following statements reflect the estimated economic effects assuming Action 2, Preferred Alternative 3 and are reflective of changes in the ACL in 2022 since this is the first year that a revised ACL would be implemented. In 2022, under **Alternative 2**, the FLEC cobia recreational sector allocation would increase to 95% of the revised FLEC total ACL but recreational landings due to reduced allowable harvest would decrease by 293,708 (MRIP-FES), compared to **Alternative 1**. As a result, CS would be expected to decrease by $205,300 (2019 $) under **Alternative 2** (Table 4.3.3.2). Compared to **Alternative 1**, where the FLEC cobia recreational sector allocation would remain at 92% of the revised FLEC total ACL, recreational landings due to reduced allowable harvest would decrease 322,568 lbs ww under **Preferred Alternative 3**, resulting in an expected decrease in CS of $225,473 (2019 $) (Table 4.3.3.3). Under **Alternative 4**, the FLEC cobia recreational sector allocation ACL would decrease by 323,386 lbs ww, compared to **Alternative 1**. As a result, CS would be expected to decrease by $226,045 (2019 $) (Table 4.3.3.4). All aforementioned economic effects would be lower in 2023 and subsequent years since a less restrictive ACL will go into place. These effects are provided in Tables 4.3.3,2 through 4.3.3.4.

With a reduction in the amount of cobia available to harvest in **Alternatives 2** through **4**, there is the potential that angler demand for for-hire trips would decrease as well, resulting in decreased booking rates and for-hire business net operating revenue (NOR). Due to the complex nature of angler behavior and the for-hire industry, it is not possible to quantify these potential economic effects with available data[32]. As such, no estimates of the change in for-hire NOR are provided, although they may exist. **Alternative 1** would not restrict recreational harvest, thus there are not expected changes to for-hire NOR from this alternative.

[31] https://www.fisheries.noaa.gov/data-tools/recreational-fisheries-statistics-queries

[32] Anglers have heterogeneous preferences and may target and/or harvest a diverse mix of coastal migratory pelagic, snapper grouper, and other species on a trip. The absence of the opportunity to fish for any single species may or may not affect their overall desire to take/pay for trips.

Table 4.3.3.2. Comparison of the estimated change in recreational landings and economic value for Alternative 2 to Alternative 1 (No Action) in Action 3.

Action 2 Alternative	Year	Action 3 Alternative 2			
		Recreational ACL in # of fish	Difference relative to **Alternative 1**		
		(95% of FLEC total ACL)	lbs ww	# of fish	Economic value (2019 $)
Alt 2	2022	38,847	-318,408	-13,910	-$222,565
	2023+	41,237	-263,688	-11,520	-$184,316
Pref. Alt 3	2022	39,926	-293,708	-12,831	-$205,300
	2023+	42,383	-237,468	-10,374	-$165,989
Alt 4	2022	44,242	-194,908	-8,515	-$136,240
	2023+	46,965	-132,588	-5,792	-$92,678

Table 4.3.3.3. Comparison of the estimated change in recreational landings and economic value for Preferred Alternative 3 to Alternative 1 (No Action) in Action 3.

Action 2 Alternative	Year	Action 3 Preferred Alternative 3			
		Recreational ACL in # of fish	Difference relative to **Alternative 1**		
		(92% of FLEC total ACL)	lbs ww	# of fish	Economic value (2019 $)
Alt 2	2022	37,620	-346,488	-15,137	-$242,193
	2023+	39,935	-293,496	-12,822	-$205,152
Pref. Alt 3	**2022**	**38,665**	**-322,568**	**-14,092**	**-$225,473**
	2023+	**41,044**	**-268,104**	**-11,713**	**-$187,403**
Alt 4	2022	42,845	-226,888	-9,912	-$158,593
	2023+	45,482	-166,536	-7,275	-$116,408

Table 4.3.3.4. Comparison of the estimated change in recreational landings and economic value for Alternative 4 to Alternative 1 (No Action) in Action 3.

Action 2 Alternative	Year	Action 3 Alternative 4			
		Recreational ACL in # of fish	Difference relative to **Alternative 1**		
		(91.69% to 92.7% of FLEC total ACL)	lbs ww	# of fish	Economic value (2019 $)
Alt 2	2022	37,493	-349,390	-15,264	-$244,222
	2023+	39,800	-296,576	-12,957	-$207,305
Pref. Alt 3	2022	38,629	-323,386	-14,128	-$226,045
	2023+	41,006	-268,972	-11,751	-$188,010
Alt 4	2022	43,173	-219,383	-9,584	-$153,347
	2023+	45,830	-158,570	-6,927	-$110,839

Change in Net Economic Benefits

Alternatives in **Action 3** can be ranked for the commercial sector from a short-term economic perspective with **Alterative 4** having the highest potential economic benefit, followed by **Preferred Alternative 3**, **Alternative 1** (No Action), and **Alternative 2**. For the recreational sector the ranking would be different from a short-term economic perspective with **Alternative 1** (No Action) having the highest potential economic benefit, followed by **Alternative 2**, **Preferred Alternative 3**, and **Alternative 4**. In terms of estimated net benefits for the action, the same ranking would apply as stated for the recreational sector, with expected changes to net economic benefits being the same as those reflected in Tables 4.3.2 through 4.3.4.

4.3.4 Direct and Indirect Effects on the Social Environment

Sector allocations exist for the recreational and commercial sectors already, **Alternative 1** (No Action) would maintain the current allocation percentages and may have few social effects as both sectors would retain the increased poundage. However, **Alternative 1** (No Action) is based on MRIP-CHTS landings which are now outdated. With **Alternative 2** there would be a decrease in the commercial percentage compared to **Alternative 1** (No Action), which could have some negative social effects to the commercial sector if commercial fishermen have a negative perception of this change due to the potential decrease in fishing opportunity if landings were to increase and concerns about long-term social effects, especially if other actions further decreased harvest opportunities. Alternatively, **Preferred Alternative 3** retains the same sector allocation but updates the ACL data units to MRIP-FES. **Preferred Alternative 3** and **Alternative 4** are expected to be less controversial than **Alternative 2** for the commercial sector. Only status quo or slight positive effects are expected for the recreational sector as the alternatives under this Action either retain or increase their allocation. However, short term negative effects would be seen if a sector in-season closure occurs.

As mentioned, there can be many different social effects that result as further allocations are discussed, and perceptions are formed. In the past there has been some resistance to further decreasing a given sector's percentage allocation. Again, it is difficult to predict the social effects with any allocation scheme as it would depend upon other actions in conjunction with this one. A reduction in allocation for one sector may be compounded by a restrictive choice of ABC or ACL (**Action 1** and **Action 2**) and may have further effects that could be either negative or positive depending upon the combination of effects. Therefore, the choice of an allocation would need to be assessed with other actions within this amendment to determine the overall social effects and whether short-term losses are offset by any long-term biological gains.

Projections for **Action 1 – Preferred Alternative 2** and **Action 2 – Preferred Alternative 3** indicate that the commercial ACL for FLEC Zone cobia would not be reached under the any of the alternatives proposed in **Action 3**. However, the recreational ACL could be reached under all the proposed alternatives (**Alternative 1** (No Action) through **Alternative 4**) unless additional management actions are taken to reduce harvest (**Actions 5.2** and **6**). FLEC Zone cobia currently do not have an in-season closure accountability measure (AM) for the recreational sector. Their post season AM states that if the total FLEC Zone stock ACL is exceeded in one year, then in the following year, the recreational season will be projected to and closed when the annual catch target (**Action 4**) is met. AMs can have significant direct and indirect social effects because, when triggered, they can restrict harvest. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior or business operations that could have long-term social and biological effects, such as increased pressure on another species, or fishermen having to stop fishing due to regulatory closures. However, restrictions on harvest that would end overfishing and contribute to sustainable management goals and are expected to be beneficial to fishermen and communities in the long term.

4.3.5 Direct and Indirect Effects on the Administrative Environment

Alternative 1 is not expected to affect the administrative environment because it would not change the current sector allocation in the FLEC Zone for Gulf Group Cobia. The changes to the FLEC Zone ACL under **Alternative 2**, **Preferred Alternative 3**, and **Alternative 4** would result in a short-term increased burden on the administrative environment due to the establishment of updated sector allocations and subsequent new catch limits by sector. While **Preferred Alternative 3** retains the same allocation as **Alternative 1**, new catch levels using MRIP-FES under this alternative would have to be established. Changing the sector allocations from **Alternative 1** would increase the burden for NMFS, which would have to engage in rulemaking to implement this change in management. The administrative burden for law enforcement would go largely unchanged, as law enforcement officers would continue to monitor compliance with any established catch limits. Some administrative burden is anticipated with respect to outreach as it relates to notifying stakeholders of the changes to catch limits.

4.4 Action 4 – Update and/or Establish Annual Catch Targets (ACT) for the Gulf Group Cobia Zones Based on the Apportionment Selected in Action 2 and FLEC Zone Sector Allocation in Action 3.

Alternative 1: No Action. The Gulf Zone ACT equals 90% of the Gulf Zone ACL. The FLEC Zone ACT equals the FLEC Zone ACL multiplied by [(1-Proportional Standard Error [PSE] of the FLEC Zone recreational landings) or 0.5, whichever is greater].

Preferred Alternative 2: Use the Gulf Council's ACL/ACT Control Rule to calculate ACTs for the Gulf Zone and the recreational sector in the FLEC Zone.

Alternative 3: Establish an ACT for the commercial sector in the FLEC Zone using the Gulf Council's ACL/ACT Control Rule.

4.4.1 Direct and Indirect Effects on the Physical Environment

Modifications to the ACT could affect the physical environment if fishing effort changes from current levels. If harvest is restricted under an ACT, fishing effort would be constrained by a shortened season. Gulf Group Cobia is typically caught at the ocean surface with hook-and-line and spearfishing gear and, therefore, the fishing gear used typically does not come in contact with bottom habitat. However, these gear types have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral.

Amendment 18 (GMFMC and SAFMC 2011) to the CMP FMP set the Gulf Group Cobia ACT at 90% of the ACL, with the ACL being set equal to the ABC. This definition was retained for Gulf Group Cobia in the Gulf Zone after the separation of Zones in Amendment 20B (GMFMC and SAFMC 2014) to the CMP FMP. Amendment 20B also created an ACT for the FLEC Zone's recreational sector, which was defined as the ACL multiplied by [(1-PSE) or 0.5, whichever is greater], where PSE refers to the proportional standard error for the point estimate of landings recorded for a fishing year.

Action 4 is directly influenced by **Actions 1 – 3**. **Action 1** sets the Gulf Group Cobia OFL, ABC, and stock ACL. **Action 2** apportions the Gulf Group Cobia stock ACL between the Gulf and FLEC Zones. **Action 3** allocates the FLEC Zone ACL between the recreational and commercial sectors. Gulf Zone cobia is managed as a single stock and this document does not modify this management measure. Currently, Gulf Zone cobia has an ACT set at 90% of the Gulf Zone ACL, while the FLEC Zone recreational sector has an ACT defined as the FLEC Zone recreational ACL multiplied by [(1-PSE) or 0.5, whichever is greater].

In **Action 4**, **Preferred Alternative 2** would modify the way in which the ACT is calculated for the Gulf Zone and the FLEC Zone's recreational sector, by using the Gulf Council's ACL/ACT Control Rule. This control rule uses the recent landings history and catch limits, combined with

the use of in-season and/or post-season AMs, to establish a buffer between the ACT and ACL to account for management uncertainty. Under these calculations, the buffer for both Zones equals 10% of the ACL (i.e., ACT = 90% of the ACL). For the Gulf Zone, this means that the buffer will remain the same as under **Alternative 1**. For the FLEC Zone's recreational sector, **Preferred Alternative 2** represents a smaller buffer compared to **Alternative 1.** Further, **Alternative 3** would establish an ACT for the commercial sector in the FLEC zone using the Gulf Council's ACL/ACT Control Rule. Under **Alternatives 2** and **3**, the allowable harvest would be reduced compared to **Alternative 1**, which would be expected to reduce targeted fishing effort on Gulf Group Cobia by way of a reduction in that allowable harvest through managing to the ACT. By itself, this reduction would be expected to reduce negative effects on the physical environment to the extent that any detrimental effects from fishing effort would be reduced. However, because both the commercial and recreational sectors primarily harvest cobia without anchoring, and without fishing gear interacting with bottom habitats, the alternatives in **Action 4** are not expected to result in negative, or discernibly different, effects to the physical environment.

4.4.2 Direct and Indirect Effects on the Biological/Ecological Environment

Modifying the ACTs from the current values (**Alternative 1**) could have an impact on the biological environment if harvest changes from the current levels and if AMs are triggered. As explained in Section 4.4.1, **Action 4** is directly influenced by **Actions 1 – 3**. Similar effects would be expected as with **Action 1**, as a reduction in catch limits and potential in-season closure would have a positive effect in helping the stock recover from its overfishing stock status determination from SEDAR 28 Update (2020).

For the Gulf Zone, **Alternative 1** and **Preferred Alternative 2** retain a 10% buffer between the Zone's ACT and ACL. Historically, the Gulf Zone has remained under its ACT and an in-season closure AM has not been triggered. Under the proposed ACTs associated with the ACLs from the Zone apportionment in **Action 2**, a closure would not be expected if fishing effort remains unchanged, except for **Action 2 – Alternative 4**. The Gulf Zone ACT is expected to be met under a Gulf Group Cobia ACL apportionment of 59% to the Gulf Zone and 41% to the FLEC Zone (see Appendix F).

Under the proposed catch limits from **Actions 1 – 3**, the FLEC Zone ACL is projected to be exceeded, thus triggering the use of the FLEC Zone recreational AM in the following fishing year. The reduction in the buffer associated with **Preferred Alternative 2** allows for additional harvest by the recreational sector than with the buffer associated with **Alternative 1** before triggering a closure. However, a reduced buffer increases the chances of that sector's ACL being exceeded, which would negatively affect stock recovery from its overfishing stock status determination. There are no additional impacts on Endangered Species Act (ESA)-listed species or designated critical habitats anticipated as a result of this action.

4.4.3 Direct and Indirect Effects on the Economic Environment

Alternative 1 (No Action) would retain current Gulf Zone and FLEC Zone ACTs. As a result, **Alternative 1** would not be expected to affect Gulf Group Cobia harvests and would not be expected to result in economic effects.

Preferred Alternative 2 would use the Gulf Council's ACL/ACT Control Rule to determine ACTs for the Gulf Zone and the recreational sector in the FLEC Zone. In the Gulf Zone, the switch from a constant ACT to an ACT calculated using the Gulf's control rule has resulted in the same buffer between the ACL and the ACT, i.e., 10%. Therefore, **Preferred Alternative 2** would not affect Gulf Group Cobia fishing practices or harvests in the Gulf Zone and would not result in economic effects.

In the FLEC Zone, **Preferred Alternative 2** and **Alternative 3** would modify the recreational ACT and establish a commercial ACT based on the Gulf Council's ACL/ACT control rule, respectively. As discussed in previous sections, e.g., Sections 4.4.1 and 4.4.2, outcomes expected to result from this action (**Action 4**) are directly affected by previous actions in this document (**Actions 1-3**). The magnitude of the FLEC Zone recreational and commercial ACT relative to the status quo will allow to provide a quantitative analysis of the alternatives considered. Quantitative estimates of economic effects are expected to be included in the regulatory impact review. It can be stated that for a given ACL, larger buffers between the ACL and ACT (**Alternative 3** for the FLEC Zone), i.e., smaller ACTs, would be expected to result in greater reductions in fishing opportunities and hence larger associated economic losses. Conversely, smaller buffers (**Preferred Alternative 2** for the FLEC Zone) would be expected to result in potential increases in fishing opportunities and commensurate increases in economic benefits. Smaller buffers would also be expected to result in an increased risk of overages and corresponding adverse impacts to the Gulf Group Cobia stock.

4.4.4 Direct and Indirect Effects on the Social Environment

Additional effects would not be expected from retaining **Alternative 1** and the ACT for the Gulf Zone and recreational sector in the FLEC Zone would remain unchanged. For the Gulf Zone, the effects of **Preferred Alternative 2** would be the same as **Alternative 1**, as the buffer setting the ACT would remain at 10% below the Gulf Zone ACL. Although the ACT in the FLEC Zone is not used to estimate the fishing season until a year following one in which the ACL is exceeded, some positive effects would be expected for the FLEC Zone as **Preferred Alternative 2** would reduce the size of the buffer compared to **Alternative 1**. Assuming the total catch levels would be reduced through Action 1, it would be more likely for the FLEC Zone ACL to be met or exceeded in the near future, triggering the use of the FLEC Zone ACT in the year following. The smaller buffer provided by **Preferred Alternative 2** would allow for more fishing opportunities at that time before the fishing season is closed. **Alternative 3** is unlikely to have an impact on commercial fishing communities in the FLEC Zone. If tied to management action such as AMs, a commercial ACT would result in negative social impacts in the short term, because these would be linked to reduced economic benefits and reduced fishing opportunities. However, commercial AMs do not currently include reference to a commercial ACT and no actions are being proposed in this amendment to modify commercial AMs.

4.4.5 Direct and Indirect Effects on the Administrative Environment

Modifying annual harvest levels including buffers between the ACT and ACL, does not typically result in substantial effects on the administrative environment. **Alternative 1** is not expected to affect the administrative environment because it would not change the current ACT buffers. **Preferred Alternative 2** would result in a short-term increased burden on the administrative environment due to the establishment of new ACTs under the reduced ACLs. Changing the ACTs from **Alternative 1** would increase the burden for NMFS, which would have to engage in rulemaking to implement this change in management. The administrative burden for law enforcement would go largely unchanged, as law enforcement officers would continue to monitor compliance with any established catch limits. Some administrative burden is anticipated with respect to outreach as it relates to notifying stakeholders of the changes to catch limits. Since **Alternative 3** would result in changes by establishing a commercial ACT, the same effects are expected under both **Preferred Alternative 2** and **Alternative 3**. Further, positive effects to the administrative environment are expected by way of consistency in how the ACT buffer is calculated for all managed areas of Gulf Group Cobia.

4.5 Action 5 – Modification of Gulf Zone and FLEC Zone Cobia Possession, Vessel, and Trip Limits

4.5.1 Action 5.1 – Modify the Possession, Vessel, and Trip Limits in the Gulf Zone

Alternative 1: No Action. Retain the current recreational and commercial daily possession limit of 2 fish per person, regardless of the number or duration of trips in the Gulf Zone. No vessel limit or trip limit is currently defined.

Preferred Alternative 2: Reduce the daily possession limit to 1 fish per person, regardless of the number or duration of trips.

> **Preferred Option 2a:** for the recreational sector
> **Preferred Option 2b:** for the commercial sector

Preferred Alternative 3: Create a recreational vessel limit. Fishermen may not exceed the per person daily possession limit.

> **Preferred Option 3a:** The vessel limit is two fish per trip
> **Option 3b:** The vessel limit is four fish per trip
> **Option 3c:** The vessel limit is six fish per trip.

Preferred Alternative 4: Create a commercial trip limit. Fishermen may not exceed the per person daily possession limit.

> **Preferred Option 4a:** The trip limit is two fish.
> **Option 4b:** The trip limit is four fish.
> **Option 4c:** The trip limit is six fish.

4.5.1.1 Direct and Indirect Effects on the Physical Environment

Gulf Group Cobia in the Gulf Zone is typically caught at the ocean surface and therefore neither hook-and-line nor spearfishing gear typically come in contact with bottom habitat. However, these gear types have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can harm marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Gulf Group Cobia is opportunistically targeted, and encountered infrequently by Gulf anglers, with fewer than one cobia typically landed per person (Figures 2.5.1.1 and 2.5.1.2), and one or fewer cobia typically landed per vessel (Figures 2.5.1.3 and 2.5.1.4). To that end, decreasing the daily per-person possession limit from two fish to one fish (**Preferred Options 2a** and **2b** of **Preferred Alternative 2**) would be expected to decrease cobia harvest by 1.2% for the recreational sector and <1% for the commercial sector (Table 2.5.1.1).

Creating recreational vessel trip limits in the Gulf Zone (**Preferred Alternative 3**) would result in a reduction of cobia harvest, with the greatest reduction coming from **Preferred Alternative 3**, **Preferred Option 3a**, followed by **Options 3b** and **3c** (Table 2.5.1.1). Concurrently, creating a commercial trip limit for Gulf Zone cobia (**Preferred Alternative 4**) would result in a minimal reduction of cobia harvest (i.e., <1%), with the creates reduction in commercial cobia harvest coming from **Preferred Option 4a**, followed by **Options 4b** and **4c**. Effects on the physical environment from fishing effort on Gulf Zone cobia would not be expected to change as a result of the alternatives presented in Action 5.1 because this action will not change the overall harvest levels or result in a significant reduction in fishing effort under current fishing effort levels.

4.5.1.2 Direct and Indirect Effects on the Biological/Ecological Environment

Management actions that affect the biological environment mostly relate to the impacts of fishing on a species' population size, life history, and the role of the species within its habitat. Removal of fish from the population through fishing can reduce the overall population size if harvest is not maintained at sustainable levels. Impacts of these alternatives on the biological environment would depend on the resulting reduction or increases in the level of fishing mortality as a result of each alternative.

Decreasing the per-person daily possession limit from two fish (**Alternative 1**; No Action) to one fish (**Preferred Options 2a** and **2b** of **Preferred Alternative 2**) would be expected to reduce harvest of Gulf Zone cobia by 1.2% for the recreational sector and less than 1% for the commercial sector (Table 2.5.1.1). This reduction in harvest, coupled with a 5% discard mortality rate for Gulf cobia (SEDAR 28 2013), would be expected to result in a marginal positive biological effect on the stock by reducing the removal of individuals from the population. Without a more in-depth analysis through a stock assessment, however, it is not possible to determine exactly how the reproductive capacity of the Gulf cobia stock would be impacted by this reduction in fishing mortality. Establishing recreational vessel and commercial trip limits for Gulf Zone cobia (**Preferred Alternatives 3** and **4**, and options) would also reduce harvest. The predicted reductions in harvest are greatest for **Preferred Alternative 3**, **Preferred Option 3a**, followed by **Options 3b** and **3c** (Table 2.5.1.1). Although the options in **Preferred Alternative 4** would have a smaller effect in reducing harvest compared to the other alternatives, this could reflect the limited interactions between anglers and cobia due to the overfishing stock status determination. As evidenced through provided public testimony, commercial fishermen do not specifically target cobia in the Gulf; the species is more frequently opportunistically harvested. Some areas of the Gulf may demonstrate specific targeting of cobia by the recreational sector; however, generally speaking for the Gulf as a whole, cobia is opportunistically harvested by this sector as well, and is a component of a larger multi-species recreational fishery which includes other reef fish and CMP species.

As with the proposed reduction in the daily possession limit in the options proposed in **Preferred Alternative 2**, the options proposed in **Preferred Alternatives 3** and **4** would be expected to slow the rate of harvest and decrease the probability of the ACL being exceeded. Therefore, the net biological effects of **Preferred Alternative 3** and **4** on Gulf Zone cobia are expected to be positive. If overfishing ends for the stock, the probability of encountering cobia may also increase by way of a reduction in removals to a level equivalent or below that at the

fishing mortality level at maximum sustainable yield (F_{MSY}). Thus, **Preferred Alternatives 3** and **4** could serve as a conservative measure which reduces F in conjunction with the other actions proposed in this amendment. However, the degree to which these positive biological effects could benefit the Gulf cobia stock cannot be determined without a more in-depth analysis through a stock assessment and are in part determinate on total harvest remaining below the stock ACL.

Ecosystem interactions among cobia and other species in the marine environment are poorly known. Cobia is migratory, interacting in various combinations of species groups at different levels on a seasonal basis. With the current state of knowledge, it is difficult to evaluate the potential ecosystem-wide impacts of these species-specific interactions, or the ecosystem impacts from the limited mortality estimated to occur from cobia fishing effort. However, there is very little bycatch in the cobia portion of the CMP fishery. Action 5.1 would not modify the gear types or fishing techniques for cobia. Therefore, ecological effects due to changes in bycatch for cobia are likely to be negligible. This action would not modify the way in which the Gulf Group Cobia portion of the CMP fishery is prosecuted in terms of gear types used or effort. Therefore, there are no additional impacts on ESA-listed species anticipated as a result of this action.

4.5.1.3 Direct and Indirect Effects on the Economic Environment

Alternative 1 (No Action) would maintain the current recreational and commercial daily possession limit of 2 fish per person for Gulf migratory group cobia harvested in the Gulf. Therefore, **Alternative 1** would not be expected to change fishing practices or recreational and commercial harvests of Gulf Group Cobia in the Gulf and would not be expected to result in economic effects.

Preferred Alternatives 2-4 consider modifications to the commercial and recreational daily possession limit and the implementation of a recreational vessel limit and a commercial trip limit.

For the recreational sector, the expected economic effects of the proposed alternatives were measured in changes in economic value, i.e., changes in consumer surplus (CS) for anglers. CS per additional fish kept during a trip is defined as the amount of money an angler would be willing to pay for a fish in excess of the cost to harvest the fish. The expected changes in CS were based on the estimated CS per Gulf Group Cobia and on the difference in landings relative to the status quo. Estimates of the CS per fish for Gulf Group Cobia are not available. The proxy value used in this analysis is the CS value for a second dolphin kept on a trip, i.e., $16 (Carter and Liese, 2012; values updated to 2019 dollars). Table 4.5.1.3.1 provides estimated landings, differences relative to the status quo and changes in economic value for management measures pertaining to the recreational sector in the Gulf Zone. Estimated landings and landings differences relative to **Alternative 1** are expressed in numbers of fish. Economic values are expressed in $2019.

Table 4.5.1.3.1. Estimated landings, differences relative to status quo, and changes in economic value for recreational management measures.

Alternative	Management measure Recreational GULF	Estimated Landings	Difference relative to **Alternative 1**	
		# of fish	# of fish	Economic Value ($)
Alternative 1	Status Quo landings	59,038		
Preferred Alternative 2 Preferred Option 2a	1 Fish per Person per Day	58,330	-708	-$11,335
Preferred Alternative 3 Preferred Option 3a	2 Fish per Vessel	53,725	-5,313	-$85,015
Preferred Alternative 3 Option 3b	4 Fish per Vessel	58,950	-89	-$1,417
Preferred Alternative 3 Option 3c	6 Fish per Vessel	58,979	-59	-$945

Based on estimates provided in Table 4.5.1.3.1, **Preferred Alternative 2-Preferred Option 2a** would reduce the recreational daily possession limit to one fish per person and would be expected to reduce recreational harvests of Gulf Group Cobia in the Gulf Zone by 708 fish. The expected loss in economic value expected to result from this reduction is estimated at $11,335. **Preferred Alternative 3-Preferred Option 3a** and **Options 3b-c** would establish a recreational vessel limit of 2, 4, and 6 fish per trip, respectively. Greater trip limits would be expected to result in smaller reductions in landings and associated losses in economic value. **Preferred Alternative 3-Preferred Option 3a** would be expected to reduce recreational landings in the Gulf Zone by 5,313 fish. The associated loss in economic value is estimated at $85,015.

For the commercial sector, economic effects that would be expected to result from the alternatives were measured by estimating changes in ex-vessel value. Changes in ex-vessel values provided were based on estimated differences in commercial landings relative to the status quo and on a 2015-2019 average ex-vessel price of $3.70 ($2019) per pound of Gulf Group Cobia. The average ex-vessel price was derived from average landings and revenues provided in Table 3.4.1.1. Table 4.5.1.3.2 provides estimated landings, differences relative to the status quo and changes in ex-vessel value for management measures pertaining to the commercial sector. Estimated landings and landings differences relative to **Alternative 1** are expressed in pounds. Ex-vessel values are expressed in $2019.

Table 4.5.1.3.2. Estimated landings, differences relative to status quo, and changes in economic value for commercial management measures in the Gulf Zone.

Alternative	Management measure Commercial GULF	Estimated Landings	Difference relative to Alternative 1	
		Pounds	Pounds	Ex vessel Value
Alternative 1	Status Quo landings	50,889		
Preferred Alternative 2 Preferred Option 2b	1 Fish per Person	50,838	-51	-$188
Preferred Alternative 4 Preferred Option 4a	2 Fish per Trip	49,593	-1,295	-$4,793
Preferred Alternative 4 Option 4b	4 Fish per Trip	50,519	-370	-$1,369
Preferred Alternative 4 Option 4c	6 Fish per Trip	50,889	0	$0

Based on estimates provided in Table 4.5.1.3.2, **Preferred Alternative 2-Preferred Option 2b** would reduce the commercial daily possession limit to one fish per person and would be expected to reduce commercial Gulf Group Cobia landings in the Gulf by 51 lbs lw. The associated loss in ex-vessel value expected to result from this reduction is estimated at $188. **Preferred Alternative 4-Preferred Option 4a** and **Options 4b-c** would establish a commercial trip limit of 2, 4, and 6 fish per trip, respectively. Greater trip limits would be expected to result in smaller reductions in landings and associated losses in ex-vessel value. **Preferred Alternative 4-Preferred Option 4a** would be expected to reduce commercial landings by 1,295 lbs lw. The associated loss in ex-vessel value is estimated at $4,793.

4.5.1.4 Direct and Indirect Effects on the Social Environment

Additional effects would not be expected from retaining **Alternative 1** and the possession limit of 2 fish per person for cobia caught in the Gulf Zone would remain in place for both sectors. In general, negative effects would be expected from reducing the amount of fish that may be retained. These negative effects would be expected to be mitigated in the long-term by ensuring the health of the stock and allowing for increased catch limits in the future. For cobia, although the current possession limit is 2 fish per person with no limit on the number of fish that may be aboard a vessel (**Alternative 1**), the vast majority of recreational and commercial vessels that land cobia land no more than one fish. Thus, reducing the recreational (**Preferred Alternative 2, Preferred Option 2a**) or commercial (**Option 2b**) possession limit from 2 fish to 1 fish per person would not be expected to result in substantial negative effects in the short term as the retention of more than 1 fish per person is generally uncommon (Figure 2.5.1.1 and 2.5.1.2). At the same time, reducing the possession limit is not likely to produce the long-term benefits of constraining harvest to end overfishing, as the possession reduction would be expected to reduce

harvest by 1.2% for the recreational sector (**Preferred Option 2a**) and less than 1% for the commercial sector (**Option 2b**; Table 2.5.1.1).

Similar to a possession limit reduction, negative effects would be expected from establishing a recreational vessel limit (**Preferred Alternatives 3**) or commercial trip limit (**Alternatives 4**), with the degree of effects relating to the extent the retention of cobia is constrained. For the recreational sector, the greatest negative effects would be expected under **Preferred Option 3a**, which would be expected to reduce landings by 9%. Negative effects would be minimal under **Options 3b** or **3c**, which would reduce recreational harvest by less than 1%. Negative effects would be minimal to none for the commercial sector under **Options 4a-4c**, as landings would be constrained less than 1%.

When fishing regulations differ between state and federal waters, negative effects can result. These effects may relate to issues of fishermen awareness of the different regulations depending on where one is fishing, or law enforcement issues in determining where a fish was caught. Reducing the possession limit to 1 fish per person (**Preferred Alternative 2**) would make federal regulations consistent with regulations in state waters off Florida, resulting in some additional positive effects compared to **Alternative 1**, but would introduce inconsistent state water regulations with the other four Gulf states, for which some small negative effects may be expected.

4.5.1.5 Direct and Indirect Effects on the Administrative Environment

Modifying daily per-person possession limit and creating vessel and trip limits does not typically result in substantial effects on the administrative environment. **Alternative 1** is not expected to affect the administrative environment because it would not change the current daily per-person possession limit. **Preferred Alternative 2** and **Preferred Options 2a and 2b**, **Preferred Alternative 3** and **Options 3a – 3c**, and **Preferred Alternative 4** and **Options 4a – 4c** would result in a short-term increased burden on the administrative environment due to modifying the daily per-person possession limit and creating vessel and trip limits. Modifying the daily per-person possession limit from **Alternative 1** and creating vessel and trip limits would increase the burden for NMFS, which would have to engage in rulemaking to implement these changes in management. The administrative burden for law enforcement would go largely unchanged, as law enforcement officers would continue to monitor compliance with any established daily per-person possession limit and new vessel and trip limits. Some administrative burden is anticipated with respect to outreach as it relates to notifying stakeholders of the changes to daily per-person possession limit and vessel and trip limits. However, **Preferred Alternative 2 Options 2a** and **b, Preferred Alternative 3 Option 3a**, and **Preferred Alternative 4 Option 4a** could reduce the administrative burden as compared to **Alternative 1**, if these alternatives lessen confusion about the possession, recreational vessel, and commercial trip limits that apply in the EEZ off Florida in both the Gulf and South Atlantic. Currently, the recreational and commercial daily possession limit in Florida Gulf state waters is one per day or two per vessel, whichever is less. Having consistent possession, recreational vessel, and commercial trip limit regulations for cobia between state and federal waters is expected to lessen confusion and ease compliance with fishery regulations.

4.5.2 Action 5.2 – Modify the Possession, Vessel, and Trip Limits in the FLEC Zone

Alternative 1: No Action. Retain the current recreational and commercial daily possession limit of 2 fish per person, regardless of the number or duration of trips, in the FLEC Zone. No vessel limit or trip limit is currently defined.

Preferred Alternative 2: Reduce the daily possession limit to 1 fish per person, regardless of the number or duration of trips.

> **Preferred Option 2a:** for the recreational sector
> **Preferred Option 2b:** for the commercial sector

Preferred Alternative 3: Create a recreational vessel limit. Fishermen may not exceed the per person daily possession limit.

> **Preferred Option 3a:** The vessel limit is two fish per trip
> **Option 3b:** The vessel limit is four fish per trip
> **Option 3c:** The vessel limit is six fish per trip.

Preferred Alternative 4: Create a commercial vessel trip limit. Fishermen may not exceed the per person daily possession limit.

> **Preferred Option 4a:** The vessel trip limit is two fish.
> **Option 4b:** The vessel trip limit is four fish.
> **Option 4c:** The vessel trip limit is six fish.

4.5.2.1 Direct and Indirect Effects on the Physical Environment

Gulf Group Cobia in the FLEC Zone is typically caught at the ocean surface and therefore neither hook-and-line nor spearfishing gear typically come in contact with bottom habitat. However, these gear types have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can harm marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Gulf Group Cobia is opportunistically targeted, and encountered infrequently by FLEC Zone anglers, with fewer than one cobia typically landed per person (Figures 2.5.2.1 and 2.5.2.2), and one or fewer cobia typically landed per vessel (Figures 2.5.2.3 and 2.5.2.4). To that end, decreasing the daily per-person possession limit from two fish to one fish for both the recreational and commercial sectors (**Preferred Alternative 2**, **Preferred Options 2a** and **2b**) would be expected to decrease cobia harvest by 11% for the recreational sector and 14% for the commercial sector (Table 2.5.2.1). Creating a recreational vessel trip limit for FLEC Zone cobia of two fish per trip (**Preferred Alternative 3**) would result in a reduction of cobia harvest, with the greatest reduction coming from **Preferred Alternative 3**, **Preferred Option 3a**, followed by **Options 3b** and **3c** (Table 2.5.2.1). Similarly, creating a commercial trip limit of two fish per trip (**Preferred**

Alternative 4) would result in the greatest reduction of cobia harvest for **Preferred Option 4a**, followed by **Options 4b**, and **4c** (Table 2.5.2.1).

Effects on the physical environment from fishing effort on Gulf Group Cobia in the FLEC Zone would not be expected to change as a result of the alternatives presented in Action 5.2. Fishing gear typically stays at the surface and changing the possession limit, the daily commercial trip limit, and/or the recreational daily possession limit is not expected to result in changes to the way the CMP fishery is prosecuted by either fishing sector.

4.5.2.2 Direct and Indirect Effects on the Biological/Ecological Environment

Management actions that affect the biological environment mostly relate to the impacts of fishing on a species' population size, life history, and the role of the species within its habitat. Removal of fish from the population through fishing can reduce the overall population size if harvest is not maintained at sustainable levels. Impacts of these alternatives on the biological environment would depend on the resulting reduction or increase in the level of fishing mortality as a result of each alternative.

Decreasing the per-person daily possession limit from two fish (**Alternative 1**; No Action) to one fish (**Preferred Alternative 2**, **Preferred Options 2a** and **2b**) would be expected to reduce harvest of FLEC Zone cobia by 11% for the recreational sector and 14% for the commercial sector (Table 2.5.2.1), respectively.

Creating recreational vessel trip limits for FLEC Zone cobia (**Preferred Alternative 3**) would result in a reduction of cobia harvest, with the greatest reduction coming from **Preferred Alternative 3**, **Preferred Option 3a**, followed by **Options 3b** and **3c** (Table 2.5.2.1). Similarly, creating a commercial trip limit (**Preferred Alternative 4**) would result in a reduction of cobia harvest highest for **Preferred Option 4a**, followed by **Options 4b**, and **4c** (Table 2.5.2.1). This reduction in harvest, coupled with a 5% discard mortality rate for Gulf cobia (SEDAR 28 2013), would be expected to result in a positive biological effect on the stock by reducing the removal of individuals from the population. Without a more in-depth analysis through a stock assessment, however, it is not possible to determine exactly how the reproductive capacity of the Gulf Group Cobia stock would be impacted by this reduction in fishing mortality.

As with the proposed reduction in the daily possession limit in **Preferred Alternative 2**, **Preferred Options 2a** and **2b**, the options proposed in **Preferred Alternatives 3** and **4** would be expected to slow the rate of harvest. Therefore, the net biological effects of **Preferred Alternatives 3** and **4** on FLEC Zone cobia are expected to be positive. As the stock recovers from its overfishing status, the possibility of encountering cobia may also increase; thus **Preferred Alternatives 3** and **4** could serve as a conservative measure to allow the stock to recover in conjunction with the other actions proposed in this amendment. However, the degree to which these positive biological effects could benefit the Gulf Group Cobia stock cannot be determined without a more in-depth analysis through a stock assessment.

The ecological effects of bycatch mortality are the same as fishing mortality from directed fishing effort. If not properly managed and accounted for, either form of mortality could

potentially reduce stock biomass to an unsustainable level. The Councils and NMFS are developing actions that would improve bycatch monitoring in all fisheries, including the CMP fishery. Ecosystem interactions among cobia and other species in the marine environment are poorly known. Cobia is migratory, interacting in various combinations of species groups at different levels on a seasonal basis. With the current state of knowledge, it is difficult to evaluate the potential ecosystem-wide impacts of these species-specific interactions, or the ecosystem impacts from the limited mortality estimated to occur from cobia fishing effort. However, there is very little bycatch in the cobia portion of the CMP fishery. Action 5.2 would not modify the gear types or fishing techniques for cobia. Therefore, ecological effects due to changes in bycatch for cobia are likely to be negligible. This action would not modify the way in which the Gulf Group Cobia portion of the CMP fishery is prosecuted in terms of gear types used or effort. Therefore, there are no additional impacts on ESA-listed species anticipated as a result of this action.

4.5.2.3 Direct and Indirect Effects on the Economic Environment

Alternative 1 (No Action) would maintain the current recreational and commercial daily possession limit of 2 fish per person for Gulf migratory group cobia harvested in FLEC Zone. Therefore, **Alternative 1** would not be expected to change fishing practices or recreational and commercial harvests of Gulf Group Cobia in the FLEC Zone and would not be expected to result in economic effects.

Preferred Alternatives 2-4 would reduce the commercial and recreational daily possession limit and implement recreational vessel and commercial trip limits. These restrictive measures would reduce landings of cobia in the FLEC Zone and are expected to result in direct short-term negative economic effects.

For the recreational sector, the expected economic effects of the proposed alternatives are measured in changes in harvested cobia and the resulting economic value, i.e., changes in CS for anglers. CS per additional fish kept during a trip is defined as the amount of money an angler would be willing to pay for a fish in excess of the cost to harvest the fish. The expected changes in CS are based on the estimated CS per FLEC Zone cobia and on the difference in landings relative to the status quo (**Alternative 1**). Estimates of the CS per fish for cobia are not available. A proxy value used in this analysis is the CS value for a second dolphin (i.e., mahi mahi) kept on a trip, which is $16 (2019 $) (Carter and Liese, 2012; Section 3.3). This value was chosen since the recreational bag limit on FLEC cobia is 2 fish per person, which is the same as the current bag limit for cobia, and is applied to the difference between the projected landings and 5-year (2015-2019) average annual landings (MRIP-FES). A weight of 22.89 lbs ww per cobia is used to convert the difference between the projected landings and 5-year average annual landings from lbs ww to numbers of fish (MRIP Query, accessed July 28, 2021)[33]. Projected landings reductions are based upon Table 2.5.2.1. Table 4.5.2.3.1 provides estimated landings (MRIP-FES), differences relative to the status quo and changes in economic value for management measures pertaining to the recreational sector in the FLEC Zone. Estimated

[33] https://www.fisheries.noaa.gov/data-tools/recreational-fisheries-statistics-queries

landings and landings differences relative to **Alternative 1** are expressed in numbers of fish. Economic values are expressed in 2019 dollars.

Table 4.5.2.3.1. Estimated landings, differences relative to status quo, and changes in economic value for recreational management measures in Action 5.2 (2019 $).

Alternative	Management measure Recreational FLEC Zone	Estimated Landings	Difference relative to **Alternative 1**	
		# of fish	# of fish	Economic Value ($)
Alternative 1	Status Quo landings	52,757		
Preferred Alternative 2 Preferred Option 2a	**1 Fish per Person per Day**	**46,954**	**-5,803**	**-$92,852**
Preferred Alternative 3 Preferred Option 3a	**2 Fish per Vessel**	**42,786**	**-9,971**	**-$159,537**
Preferred Alternative 3 Option 3b	4 Fish per Vessel	50,330	-2,427	-$38,829
Preferred Alternative 3 Option 3c	6 Fish per Vessel	52,235	-522	-$8,357

Preferred Alternative 2-Preferred Option 2a would reduce the recreational daily possession limit to one fish per person and would be expected to reduce recreational harvest of FLEC Zone cobia by 5,803 fish. The loss in economic value expected to result from this reduction is estimated at $92,852 (2019 $) (Table 4.5.2.3.1). **Preferred Alternative 3-Preferred Option 3a** and **Options 3b-c** would establish a recreational vessel limit of 2, 4, and 6 fish per trip, respectively. Greater trip limits would be expected to result in smaller reductions in landings and associated losses in economic value. **Preferred Alternative 3-Preferred Option 3a** would be expected to reduce recreational landings of FLEC Zone cobia by 9,971 fish. The associated loss in economic value is estimated at $159,537 (2019 $) (Table 4.5.2.3.1).

With a reduction in the amount of cobia available to harvest in **Alternatives 2** and **3**, there is the potential that angler demand for for-hire trips would decrease as well, resulting in decreased booking rates and for-hire business net operating revenue (NOR). Due to the complex nature of angler behavior and the for-hire industry, it is not possible to quantify these potential economic effects with available data[34]. As such, no estimates of the change in for-hire NOR are provided, although they may exist. **Alternative 1** would not restrict recreational harvest, thus there are not expected changes to for-hire NOR from this alternative.

For the commercial sector, economic effects that would be expected to result from the alternatives were measured by estimating changes in ex-vessel value and net revenue. Changes in ex-vessel values provided were based on estimated differences in commercial landings relative

[34] Anglers have heterogeneous preferences and may target and/or harvest a diverse mix of coastal migratory pelagic, snapper grouper, and other species on a trip. The absence of the opportunity to fish for any single species may or may not affect their overall desire to take/pay for trips.

to the status quo and on a 2015-2019 average ex-vessel price of $4.22 (2019 $) per pound of FLEC Zone cobia. Application of a net cash flow estimate of 20.7% of ex-vessel value (Overstreet et al., 2019) was used to estimate producer surplus (PS) (i.e. economic value) for the commercial sector. The average ex-vessel price was derived from average landings and revenues provided in Table 3.4.1.2. Projected landings reductions are based upon Table 2.5.2.1. Table 4.5.2.3.2 provides estimated landings, differences relative to the status quo and changes in ex-vessel value and PS for management measures pertaining to the commercial sector in the FLEC Zone. Estimated landings and landings differences relative to **Alternative 1** are expressed in pounds. Ex-vessel values and PS are expressed in 2019 dollars.

Table 4.5.2.3.2. Estimated landings, differences relative to status quo, and changes in economic value for commercial management measures in Action 5.2 (2019 $).

Alternative	Management measure Commercial FLEC Zone	Estimated Landings	Difference relative to **Alternative 1**		
		Pounds (lw)	Pounds (lw)	Ex vessel Value (2019 $)	Economic Value (2019 $)
Alternative 1	Status Quo landings	43,766			
Preferred Alternative 2 Preferred Option 2b	**1 Fish per Person**	**37,639**	**-6,127**	**-$25,857**	**-$5,352**
Preferred Alternative 4 Preferred Option 4a	**2 Fish per Trip**	**39,827**	**-3,939**	**-$16,622**	**-$3,441**
Preferred Alternative 4 Option 4b	4 Fish per Trip	42,453	-1,313	-$5,541	-$1,147
Preferred Alternative 4 Option 4c	6 Fish per Trip	42,453	-1,313	-$5,541	-$1,147

Preferred Alternative 2-Preferred Option 2b would reduce the commercial daily possession limit to one fish per person and would be expected to reduce commercial FLEC Zone cobia landings by 6,127 lbs lw. The associated loss in ex-vessel value and economic value expected to result from this reduction is estimated at $25,857 and $5,252 (2019 $). **Preferred Alternative 4-Preferred Option 4a** and **Options 4b-c** would establish a commercial trip limit of 2, 4, and 6 fish per trip, respectively. Greater trip limits would be expected to result in smaller reductions in landings and associated losses in ex-vessel value. **Preferred Alternative 4-Preferred Option 4a** would be expected to reduce commercial landings by 3,939 lbs lw. The associated loss in ex-vessel value and economic value is estimated at $16,622 and $3,441 (2019 $).

Overall there are short-term negative economic effects anticipated with the reduction of the possession limits and implementation of a recreational vessel and commercial trip limit. However, should positive biological effects to the stock occur due to reduced harvest, there are potential long-term economic benefits that could accrue to both the recreational and commercial sectors through increased ACLs and increased harvest opportunities in the future.

4.5.2.4 Direct and Indirect Effects on the Social Environment

In general, reducing the commercial possession limit and establishing a vessel limit may help slow the rate of harvest, lengthen a season, and prevent the ACL from being exceeded. However, trip limits that are too low may make fishing trips inefficient and too costly if fishing grounds are too far away. Reducing the recreational possession limit and establishing a vessel limit would restrict recreational fishing opportunities for cobia and change the recreational fishing experience. By restricting the number of cobia that can be kept, the season would also likely be longer because the rate of harvest would be slower. It is also likely that fishermen who have targeted cobia in recent years also target other species and may be able to adjust their businesses to adapt to regulatory changes.

Under the commercial ACLs proposed in Action 3, commercial landings of FLEC Zone cobia are not anticipated to result in triggering of commercial AMs. However, should commercial harvest increase in the coming years, reducing the commercial trip limits could assure the commercial fishing season remains open as long as possible and would reduce the negative short-term effects of shorter seasons. The proposed recreational ACL is anticipated to be met or exceeded without addressing additional management measures. Reducing the recreational possession limit may work to avoid triggering the recreational AMs. Reducing the per person possession limit to one fish per day is expected to result in only minimal reductions in harvest levels for the commercial sector of (14%; **Preferred Alternative 2b**) and the recreational sector (11%; **Preferred Alternative 2a**) and as such would result in minimal negative social effects (Appendix H, Table 1). **Preferred Alternative 2** would also reduce the complexity of complying with the regulations in waters off the east coast of Florida because the possession in state waters is currently 1 fish per person per day.

Preferred Alternative 3 and **Preferred Alternative 4** would create recreational vessel and commercial trip limit, respectively, for FLEC Zone cobia. **Preferred Option 3a** and **Preferred Option 4a** would result in the largest reduction in landings of 20% and 9% respectively, followed by **Options 3b** and **4b**, and **Options 3c** and **4c**. This reduction in landings is likely to have negative social effects on the recreational sector in the form of decreased access to the resource. However, the proposed vessel limit may provide a reduction in landings such that post-season accountability measures are not triggered, reducing access in subsequent seasons. The commercial sector is unlikely to experience substantial negative social effects from the proposed vessel limits because majority of commercial trips currently average one cobia per trip (**Preferred Option 4a**). Ultimately, slowing the rate of harvest and ending overfishing of Gulf cobia would be expected to contribute to the sustainability of harvest and the health of the Gulf cobia stock and provide for long-term social benefits to FLEC Zone fishing communities.

4.5.2.5 Direct and Indirect Effects on the Administrative Environment

Modifying daily per-person possession limits and creating vessel and trip limits does not typically result in substantial effects on the administrative environment. **Alternative 1** is not expected to affect the administrative environment because it would not change the current daily per-person possession limit. **Preferred Alternative 2** and **Preferred Options 2a** and **2b**, **Preferred Alternative 3** and **Options 3a – 3c**, and **Preferred Alternative 4** and **Options 4a –**

4c would result in a short-term increased burden on the administrative environment due to modifying the daily per-person possession limit and creating vessel and trip limits. Modifying the daily per-person possession limit from **Alternative 1** and creating vessel and trip limits would increase the burden for NMFS in the short term, which would have to engage in rulemaking to implement these changes in management. The administrative burden for law enforcement would go largely unchanged, as law enforcement officers would continue to monitor compliance with any established daily per-person possession limit and new vessel and trip limits. Some administrative burden is anticipated with respect to outreach as it relates to notifying stakeholders of the changes to daily per-person possession limit and vessel and trip limits. However, **Options 2a** and **2b** of **Preferred Alternative 2**, **Option 3a** of **Preferred Alternative 3**, and **Option 4a** of **Preferred Alternative 4** could reduce the administrative burden as compared to **Alternative 1**, if these alternatives lessen confusion about the possession, recreational vessel, and commercial trip limits that apply in the EEZ off Florida. Currently, the recreational and commercial daily possession limit in Florida Atlantic state waters is one per day or six per vessel, whichever is less. Should Florida regulations for state waters in the FLEC Zone change in the future to match those in federal waters, consistency in possession, recreational vessel, and commercial trip limit regulations for cobia is expected to lessen confusion and ease compliance with fishery regulations.

4.6 Action 6 – Modify the Gulf Group Cobia Minimum Size Limit

Alternative 1: No Action. Retain the current recreational and commercial minimum size limit of 36 inches fork length (FL) in the Gulf Zone and 33 inches FL in the FLEC Zone.

Preferred Alternative 2: Retain the current recreational and commercial minimum size limit of 36 inches FL in the Gulf Zone and increase the recreational and commercial minimum size limit to 36 inches FL in the FLEC Zone.

Alternative 3: Increase the recreational and commercial minimum size limit to 39 inches FL.
Option 3a: in the Gulf Zone
Option 3b: in the FLEC Zone

Alternative 4: Increase the recreational and commercial minimum size limit to 42 inches FL.
Option 4a: in the Gulf Zone
Option 4b: in the FLEC Zone

4.6.1 Direct and Indirect Effects on the Physical Environment

Gulf Group Cobia is typically caught at the ocean surface with hook-and-line and spearfishing gear and, therefore, these fishing gears typically do not come in contact with bottom habitat. However, these gear types have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. **Alternatives 2 – 4** and options address increasing the minimum size limit from the status quo (**Alternative 1**). changing the minimum size limit is not expected to significantly alter the current level of fishing effort as it is expected fishermen would shift their target species if required and therefore, would not be expected to alter the effects of fishing gear on habitat. As such, effects to the physical environment under Action 6 are expected to be negligible, regardless of which alternative is selected as the preferred alternative.

4.6.2 Direct and Indirect Effects on the Biological/Ecological Environment

Management actions that affect the biological environment mostly relate to the impacts of fishing on a species' population size, life history, and the role of the species within its habitat. Removal of fish from the population through fishing can reduce the overall population size if harvest is not maintained at sustainable levels. The same would be true of non-targeted species incidentally caught during cobia fishing. Because this action is not expected to significantly alter the current level of fishing effort for Gulf Group Cobia within both Councils' jurisdictional areas, the magnitude of bycatch or bycatch mortality is not is not expected to significantly change.

Action 6 may increase regulatory discards of Gulf Group Cobia. Increasing the minimum size limit from the status quo (**Alternative 1**; 36 inches FL in the Gulf Zone and 33 inches FL in the

FLEC Zone) will result in Gulf Group Cobia less than any new minimum size limit being discarded; whereas, presently, those cobia could have been retained, provided the possession limit had not been met. This increase in regulatory discards will be greatest for **Alternative 4** and options, followed by **Alternative 3** and options, and then **Preferred Alternative 2** and options. Most Gulf Group Cobia are harvested using hook-and-line gear. SEDAR 28 Update (2020) used a discard mortality rate for Gulf Group Cobia of 5% for hook-and-line gear (for both commercial and recreational sectors). Discards in the commercial sector are relatively low for cobia, and while discards of cobia in the private recreational sector are high, the discard mortality rate is very low for this species using hook-and-line gear (SEDAR 28 Update 2020). Therefore, although increased regulatory discards are expected as a result of **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4**, the low discard mortality rate of Gulf Group Cobia is expected to result in negligible negative biological effects to the stock (see Figures 2.6.1 to 2.6.4 for a size distribution of Gulf Group Cobia landed in the Gulf and FLEC Zones for 2017 – 2019). However, there is concern that a higher discard mortality rate is prevalent with the use of gaffs to land Gulf Group Cobia, as it may be difficult for the angler to determine fish size until the fish is brought aboard with a gaff. Neither Council encourages anglers to use a gaff to land fish which must first be measured to determine whether they are larger than the applicable minimum size limit.

Increasing the minimum size limit (**Alternatives 2 – 4**) may increase the probability of a cobia reproducing more than once during the April to September spawning season (see Section 3.3.1 for more information on Gulf Group Cobia life history), prior to the fish growing large enough to be selected by the fishery. Gulf Group Cobia exhibit rapid growth in the first few years of life, with the majority of individuals reaching sexual maturity by age three (approximately 35 inches FL for males; approximately 42 inches FL for females). Therefore, a larger minimum size limit for Gulf Group Cobia may allow for a greater proportion of the stock to become sexually mature prior to being harvested, with this positive biological effect being most pronounced under **Alternative 4** (42 inches FL), followed by **Alternative 3** (39 inches FL) and then **Preferred Alternative 2** (36 inches FL). However, a larger size limit may shift harvest of Gulf Group Cobia disproportionately to females, which achieve a larger size at age than males and are also more reproductively contributory (i.e., fecund) as they grow larger. The Gulf Council increased the minimum size limit for Gulf Zone cobia from 33 inches FL to 36 inches FL (GMFMC 2019) in response to stakeholder concerns of decreased landings and while the SEDAR 28 Update stock assessment (2020) was underway. The biological effects of this change have not been fully captured as this change was implemented in March 2020.

If the decrease in landings and the stakeholder-reported concerns regarding the Gulf Group Cobia stock are indicative of an issue with the spawning stock biomass, a shift in fishing effort which could remove more females from the population may result in deleterious effects on stock recruitment. This negative biological effect could be most pronounced under **Alternative 4** (42 inches FL), followed by **Alternative 3** (39 inches FL) and then **Preferred Alternative 2** (36 inches FL).

The ecological effects of bycatch mortality are the same as fishing mortality from directed fishing efforts. If not properly managed and accounted for, either form of mortality could potentially reduce stock biomass to an unsustainable level. The Councils and NMFS are

developing actions that would improve bycatch monitoring in all fisheries, including the CMP fishery. More comprehensive bycatch and discard data would provide a better understanding of the composition and magnitude of catch and bycatch, enhance the quality of data provided for stock assessments, increase the quality of assessment output, provide better estimates of interactions with protected species, and lead to better decisions regarding additional measures to reduce bycatch. Management measures that affect gear and fishing effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

Ecosystem interactions among cobia and other species in the marine environment are poorly known. Cobia is migratory, interacting in various combinations of species groups at different levels on a seasonal basis. With the current state of knowledge, it is difficult to evaluate the potential ecosystem-wide impacts of these species-specific interactions, or the ecosystem impacts from the limited mortality estimated to occur from cobia fishing effort. However, there is very little bycatch in the cobia portion of the CMP fishery. Action 6 would not modify the gear types or fishing techniques for Gulf Group Cobia. Therefore, ecological effects due to changes in bycatch for Gulf Group Cobia are likely to be negligible.

This action would not modify the way in which the Gulf Group Cobia portion of the CMP fishery is prosecuted in terms of gear types used or effort. Therefore, there are no additional impacts on ESA-listed species anticipated as a result of this action.

4.6.3 Direct and Indirect Effects on the Economic Environment

Alternative 1 (No Action) would retain the current recreational and commercial minimum size limit of 36 inches fork length (FL) in the Gulf Zone and 33 inches FL in the FLEC Zone for Gulf migratory group cobia. Therefore, **Alternative 1** would not be expected to change fishing practices or recreational and commercial harvests of Gulf Group Cobia and would not be expected to result in economic effects.

Preferred Alternative 2 would retain the current recreational and commercial minimum size limit of 36 inches FL in the Gulf Zone and increase the recreational and commercial minimum size limit to 36 inches FL in the FLEC Zone. **Alternatives 3-4** (**Options a-b**) consider increases to the recreational and commercial minimum size limits to 39- or 42-inches FL in the Gulf or FLEC Zones.

For the recreational sector, the expected economic effects of the proposed changes in minimum size limit were measured in changes in economic value, i.e., changes in consumer surplus (CS) for anglers. The expected changes in CS were based on an estimated CS per Gulf Group Cobia of $16 per fish (as indicated in Section 4.5.1.3) and on the difference in landings relative to the status quo. Table 4.6.3.1 provides estimated landings, differences relative to the status quo and changes in economic value for management measures considering changes to the recreational minimum size limit. Estimated landings and landings differences relative to **Alternative 1** are expressed in numbers of fish. Economic values are expressed in $2019.

Table 4.6.3.1. Estimated landings, differences relative to status quo, and changes in economic value for recreational size limits in the Gulf and FLEC Zones.

Alternative	Management measure **Recreational**	Estimated Landings	Difference relative to Alternative 1	
		# of fish	# of fish	Economic Value ($)
Alternative 1	Status Quo **FLEC** landings	42,223		
	Status Quo **GULF** landings	59,038		
Preferred Alternative 2	FLEC: Commercial and **Recreational** 36 in	42,181	-42	-$672
Alternative 3 Option 3a	**Gulf:** Commercial and **Recreational** 39 in	47,880	-11,158	-$178,532
Alternative 3 Option 3b	FLEC: Commercial and **Recreational** 39 in	42,181	-42	-$672
Alternative 4 Option 4a	**Gulf**: Commercial and **Recreational** 42 in	36,663	-22,376	-$358,009
Alternative 4 Option 4b	FLEC: Commercial and **Recreational** 42 in	42,181	-42	-$672

Based on estimates provided in Table 4.6.3.1, **Preferred Alternative 2,** which would retain the current recreational and commercial minimum size limit in the Gulf Zone and increase the recreational and commercial minimum size limit to 36 inches FL in the FLEC Zone, would be expected to marginally reduce recreational landings in the FLEC Zone by 42 fish. The associated loss in economic value is estimated at $672. **Alternative 3- Option 3b** and **Alternative 4-Option 4b**, which would increase the recreational minimum size limit in the FLEC Zone to 39 and 42 in, respectively, would also be expected to result in similar reductions in recreational landings and in associated economic values.

Alternative 3-Option 3a and **Alternative 4-Option 4a** would increase the recreational minimum size limit in the Gulf Zone to 39 and 42 in, respectively. For the recreational sector, reductions in numbers of fish harvested expected to result from **Alternative 3- Option 3a** and **Alternative 4-Option 4a** are estimated at 11,158 and 22,376 fish, respectively.

For the commercial sector, economic effects that would be expected to result from modifications to the commercial minimum size limit were measured by estimating changes in ex-vessel value. Changes in ex-vessel values provided were based on estimated differences in commercial landings relative to the status quo and on an ex-vessel price of $3.70 ($2019) per pound of Gulf Group Cobia (as indicated in Section 4.5.1.3). Table 4.3.6.2 provides estimated landings, differences relative to the status quo and changes in ex-vessel value for minimum size limits pertaining to the commercial sector. Estimated landings and landings differences relative to **Alternative 1** are expressed in pounds. Ex-vessel values are expressed in $2019.

Table 4.6.3.2 Estimated landings, differences relative to status quo, and changes in economic value for commercial size limits in the Gulf and FLEC Zones.

Alternative	Management measure Commercial	Estimated Landings	Difference relative to Alternative 1	
		Pounds	Pounds	Ex vessel Value ($)
Alternative 1	Status Quo **FLEC** landings	1,096,528		
	Status Quo **GULF** landings	50,889		
Preferred Alternative 2	**FLEC**: **Commercial** and Recreational 36 in	798,272	-298,256	-$1,103,545
Alternative 3 Option 3a	**Gulf: Commercial** and Recreational 39 in	41,271	-9,618	-$35,586
Alternative 3 Option 3b	**FLEC**: **Commercial** and Recreational 39 in	560,326	-536,202	-$1,983,948
Alternative 4 Option 4a	**Gulf**: **Commercial** and Recreational 42 in	31,602	-19,287	-$71,361
Alternative 4 Option 4b	**FLEC**: **Commercial** and Recreational 42 in	435,321	-661,206	-$2,446,463

Preferred Alternative 2, which would retain the current recreational and commercial minimum size limit in the Gulf Zone and increase the recreational and commercial minimum size limit to 36 inches FL in the FLEC Zone, would be expected to reduce commercial landings in the FLEC Zone by 298,256 lbs. The associated loss in ex-vessel value is estimated at $1.1 million in $2019, approximately. **Alternative 3- Option 3b** and **Alternative 4-Option 4b**, which would increase the commercial minimum size limit in the FLEC Zone to 39 and 42 in, respectively, would be expected to reduce commercial landings in the FLEC Zone by 536,202 and 661,206 lbs., respectively. Losses in ex-vessel value expected to result from **Alternative 3- Option 3b** and **Alternative 4-Option 4b** are approximately estimated at $2.0 and $2.4 million in $2019, respectively.

In the Gulf Zone**, Alternative 3-Option 3a** and **Alternative 4-Option 4a** would increase the commercial minimum size limit to 39 and 42 in, respectively. For the commercial sector in the Gulf Zone, landings reductions expected to result from **Alternative 3- Option 3a** and **Alternative 4-Option 4a** are estimated at 9,618 and 19,287 lbs, respectively. Expressed in in ex-vessel value, economic losses expected to result from **Alternative 3- Option 3a** and **Alternative 4-Option 4a** are estimated at $35,586 and $71,361 in $2019, respectively.

4.6.4 Direct and Indirect Effects on the Social Environment

In general, increasing the minimum size limit results in negative effects as smaller fish must be discarded that may have been retainable under a smaller size limit. The degree of effects would relate to the size of the increase, with greater negative effects from a larger minimum size limit. Additional effects would not be expected from retaining the current minimum size limit for cobia

of 36 inches in the Gulf Zone and 33 inches in the FLEC Zone (**Alternative 1**). Increasing the minimum size limit for the FLEC Zone to 36 inches and retaining this size limit for the Gulf Zone (**Preferred Alternative 2**) would be expected to result in some negative effects for fishermen in the FLEC Zone, and no additional effects would be expected for the Gulf Zone compared to **Alternative 1**.

Compared to **Alternative 1** and **Preferred Alternative 2**, negative effects would be greater for both Zones under **Alternative 3**, which is expected to reduce harvest approximately 20% in the Gulf Zone (**Option 3a**) and by 43%-55% in the FLEC Zone, depending on the mode (**Option 3b**; Tables 2.6.1 and 2.6.2). Among the alternatives, the greatest negative effects would be expected from **Alternative 4** which would increase the minimum size limit the most, to 42 inches, and would be the largest minimum size limit of any species managed by either Council. Landings would be expected to be reduced substantially more than required by the ACL reduction in Action 1, suggesting that the negative effects incurred from the minimum size increase would be greater than the long-term benefits of ending overfishing. With **Alternative 4**, the expected landings reduction would be greater for the FLEC Zone than Gulf Zone (reduction of approximately 37%-47% in the Gulf Zone and 60%-74% in the FLEC Zone; Tables 2.6.1 and 2.6.2), suggesting greater negative effects for the FLEC Zone.

For the Gulf Zone, the negative effects from increasing the minimum size limit may be compounded under **Alternative 3** or **4**, because the Gulf Zone's minimum size limit for cobia was changed recently (March 2020). Changing harvest restrictions requires time for fishermen to learn and adjust to the new rules, and frequent changes in regulations can undermine fishermen's confidence in landings information and system of management.

4.6.5 Direct and Indirect Effects on the Administrative Environment

Modifying minimum size limits does not typically result in substantial effects on the administrative environment. **Alternative 1** is not expected to affect the administrative environment because it would not change the current minimum size limits. **Preferred Alternative 2** would result in a short-term increased burden on the administrative environment due to modifying the minimum size limit in the FLEC Zone. Modifying the minimum size limit from **Alternative 1** would increase the burden for NMFS, which would have to engage in rulemaking to implement this change in management. The administrative burden for law enforcement would go largely unchanged, as law enforcement officers would continue to monitor compliance with any established minimum size limits. Some administrative burden is anticipated with respect to outreach as it relates to notifying stakeholders of the changes to minimum size limits. Since **Alternatives 3** and **4** would result in changes to the current minimum size limits, the same effects are expected under **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4**. However, **Preferred Alternatives 2** could reduce the administrative burden as compared to **Alternative 1, Alternative 3**, and **Alternative 4** as this alternative lessens confusion about the minimum size limit that applies in federal waters off Florida in both the Gulf and South Atlantic.

4.7 Action 7 – Modify the Framework Procedure

Alternative 1: No Action. Retain the CMP framework procedure as last revised in Amendment 26.

Preferred Alternative 2: Modify the framework procedure to update the responsibilities of each Council for setting regulations for the Gulf Group Cobia. The responsibilities of each Council would be modified as follows:

1. Recommendations with respect to the Atlantic migratory groups of king mackerel, and Spanish mackerel ~~and cobia~~ will be the responsibility of the South Atlantic Council, and those for the Gulf migratory groups of king mackerel, Spanish mackerel, and cobia will be the responsibility of the Gulf Council, with the following exceptions:
    a. The South Atlantic Council will have the responsibility to:
        - set vessel trip limits;
        - closed seasons or areas;
        - gear restrictions;
        - per person bag and possession limits;
        - size limits;
        - in-season and post-season accountability measures;
        - specification of ACTs or sector ACTs

    for the east coast of Florida including the Atlantic side of the Florida Keys for Gulf migratory group cobia (i.e., Florida East Coast Zone).

2. Both Councils must concur on recommendations that affect both migratory groups.

4.7.1 Direct and Indirect Effects on the Physical Environment

Modifying the Framework procedure is an administrative action and no direct or indirect effects would be expected on the physical environment from the modifications proposed in this action. **Preferred Alternative 2** offers greater management flexibility than **Alternative 1**, especially in the management of FLEC Zone cobia. **Preferred Alternative 2** increases the range of actions that the South Atlantic Council can take through a framework amendment in the management of FLEC Zone cobia. This alternative would increase efficiency in the implementation of management changes that would otherwise have to be addressed via a joint plan amendment. Timelier implementation of management changes may benefit the physical environment if those management changes result in net positive effects to the physical environment.

4.7.2 Direct and Indirect Effects on the Biological/Ecological Environment

Modifying the framework procedure is an administrative action. **Preferred Alternative 2** would expand the ranges of management measures that the South Atlantic Council can implement without a full plan amendment for Gulf Group Cobia in the FLEC Zone. Changing the

framework procedure is not expected to result in any direct impacts on the biological/ecological environment.

4.7.3 Direct and Indirect Effects on the Economic Environment

Alternative 1 (No Action) would retain the current CMP framework procedure and would not be expected to affect the regulatory process, fishing practices or cobia landings. Therefore, **Alternative 1** would not be expected to result in economic effects.

Preferred Alternative 2 would modify the CMP framework procedure to widen the South Atlantic Council's responsibilities. **Preferred Alternative 2** would afford the South Atlantic Council the flexibility to independently approve framework regulatory actions specifically pertaining to the management of Gulf Group Cobia within the FLEC Zone. The added flexibility that would result from **Preferred Alternative 2** would be expected to result in economic benefits due to the timelier implementation of management measures within the FLEC Zone. The nature of the regulatory actions implemented and the time savings that would result from their speedier implementation would determine the magnitude of the potential economic benefits that would result from **Preferred Alternative 2**.

4.7.4 Direct and Indirect Effects on the Social Environment

Additional effects would not be expected from retaining the existing CMP Framework Procedure (**Alternative 1**). Some minimal positive effects could result by adopting the proposed modifications to update the responsibilities of each Council for setting regulations for Gulf Group Cobia (**Preferred Alternative 2**). These potential benefits would relate to the expedited adoption of new requirements by the respective Council.

4.7.5 Direct and Indirect Effects on the Administrative Environment

This action would have direct impacts on the administrative environment. **Alternative 1** would be the most administratively burdensome because any modifications to management measures for Gulf Group Cobia in the FLEC Zone except setting vessel trip limits, closed seasons or areas, or gear restrictions would need to be implemented through a full plan amendment, which is a more laborious and time-consuming process than a framework action. **Preferred Alternative 2** would give NMFS and the Councils flexibility by allowing the South Atlantic Council to set recreational vessel and commercial trip limits, closed seasons or areas, gear restrictions, per person bag and possession limits, size limits, in-season and post-season accountability measures, and specification of ACTs or sector ACTs for Gulf Group Cobia in the FLEC Zone through a framework action. Framework actions generally require less time and staff effort than plan amendments and, in this case, could be completed by only the South Atlantic Council even though Gulf Group Cobia is jointly managed by the Councils in the CMP FMP. Since **Preferred Alternative 2** provides the most flexibility, it results in the least administrative burden on the agency. This action has no effect on law enforcement or outreach.

4.8 Cumulative Effects Analysis

While this environmental assessment (EA) is being prepared using the 2020 Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations, the cumulative effects discussed in this section meet the two-part standard for "reasonable foreseeability" and "reasonably close causal connection" required by the new definition of effects or impacts. Below is the five-step cumulative effects analysis that identifies criteria that must be considered in an EA.

1. *The area in which the effects of the proposed action will occur* - The affected area of this proposed action encompasses the state and federal waters of the Gulf of Mexico (Gulf) and state and federal waters of the South Atlantic off Florida as well as their communities that are dependent on CMP fishing. Most relevant to this proposed action is cobia and those who fish for them. For more information about the area in which the effects of this proposed action will occur, please see Chapter 3, Affected Environment, which describes these important resources as well as other relevant features of the human environment.

2. *The impacts that are expected in that area from the proposed action* - The proposed Action 1 would decrease Gulf Group Cobia catch limits. The environmental consequences of the proposed action are analyzed in Section 4.1 and are not expected to be significant. Decreasing the catch limits is not expected to have effects on the physical environment as is not expected to alter the manner in which the cobia portion of the CMP fishery is prosecuted (Sections 4.1.1). It is expected to have positive effects on the biological environment because the action would reduce harvest and allow the stock to recover from undergoing overfishing (Section 4.1.2). Since Gulf Group Cobia are often part of a multi-species fishing strategy and fishermen can specifically target them, even with decreased catch limits, bycatch mortality is expected to remain the same. Further, changing fishing practices on one stock does not generally change overall fishing effort or fishing practices. This action would likely have some positive effects on the social and economic environments (Sections 4.1.3 and 4.1.4). While possibly a short-term negative effect on the social and economic environment due to decreased allowed harvest, addressing the overfishing status of the stock is expected to have positive long-term effects. Decreasing catch limits is not expected to lead to decreased costs in terms of vessel trips, as these trips would most likely be occurring for other fish species in general. Proposed Action 2 and 3 would modify the zone apportionment and modify the FLEC Zone sector allocation respectively (Section 4.2 and 4.3). Changing apportionments and allocations themselves are not expected to have effects on the physical and biological environment, as the total catch remains the same, there are only shifts in who can catch it (Sections 4.2.1, 4.2.2, 4.3.1, and 4.3.2). The same result is seen for the economic environment for the apportionment (Section 4.2). The action would not be expected to result in net changes in aggregate economic benefits, but would simply result in benefit transfers from one zone to the next (Section 4.2.3). While the shift in zone apportionment is relatively small, apportionments have broader social effects as indicators of cultural significance that quantifies the access of different user groups (Section 4.2.4). In this case, the sector allocation remains the same (Section 4.3) and is not expected to result in any effects to the commercial sector as none of the alternatives are expected to be constraining to commercial harvest. However, a negative economic effect is expected for the recreational sector, at least in the short term. This is due to a decreased ACL for this sector and it being projected

that the entire allocated recreational ACL will be landed (Section 4.3.3). No commercial effects to the social sector are anticipated, as the commercial sector is not projected to land its ACL. Negative short-term recreational social effects are expected due to changes in fishing behavior or business operations due to possible in-season closures. However, restrictions on harvest that would end overfishing and contribute to sustainable management goals and are expected to be beneficial to fishermen and communities in the long term (Section 4.3.4). Modifying the ACT (Section 4.4) is not expected to affect the physical environment as it is anticipated fishermen will continue the same fishing effort, but for other species (Section 4.4.1). However, it could affect the biological environment as the buffer for recreational harvest in the FLEC Zone could be reduced. This increases the chances of that sector's ACL being exceeded, which would negatively affect stock recovery from its overfishing stock status determination (Section 4.4.2). With the buffer staying the same for the Gulf Zone, no economic or social effects are anticipated. The smaller recreational buffer in the FLEC Zone would be expected to result in potential increases in fishing opportunities and commensurate increases in social and economic benefits (Sections 4.4.3 and 4.4.4). Reducing the possession limit and establishing recreational vessel and commercial trip limits in both zones (Section 4.5) are expected to have positive effects on the biological environment as it would slow harvest, resulting in reduced fishing mortality as there is little bycatch for this species and would help the Gulf Group Cobia stock recover (Sections 4.5.1.2 and 4.5.2.2). Effects on the physical environment are not expected to change as it is assumed fishing trips would most likely be occurring for other fish species whether cobia could be harvested or not (Sections 4.5.1.1 and 4.5.2.1). Negative economic effects are anticipated since overall harvest rates would be more limited and slowed to the status quo, however, these effects are expected to be short term. As the stock recovers and more harvest is allowed, economic benefit is expected (Sections 4.5.1.3 and 4.5.2.3). These same effects are expected for the social environment (Sections 4.5.1.4 and 4.5.2.4). As with Section 4.5, Section 4.6 modifying the minimum size limit is not expected to affect the physical environment as fishing effort is anticipated to continue for other species whether Gulf Group Cobia could be harvested or not (Section 4.6.1). Increasing the minimum size limit in the FLEC Zone is expected to have negligible negative biological effects to the stock as the species can be specifically targeted and bycatch mortality is low. However, use of a gaff to bring the fish aboard can increase mortality, although this is not expected to rise the effect to the level of significant. An anticipated benefit to the stock will occur with an increased minimum size limit by allowing more fish to reproduce more than once before harvest, thereby allowing the stock to recover on a faster timeline (Section 4.6.2). Economic negative effects for increasing the minimum size limit are negligible for the recreational sector as compared to the commercial sector, however, the anticipated recovery of the stock and potential for increased harvest in the future would lead to positive economic effects (Section 4.6.3). Under the preferred alternative, the Gulf Zone minimum size limit would remain the same, thus no changes to social effects are anticipated for fishermen in this zone. Some negative social effects are expected for the FLEC Zone, however, these are anticipated to be offset by the positive biological effects to the stock and the consistency for minimum size limits across zones (Section 4.6.4). Modifying the framework procedure is an administrative action and no direct or indirect effects would be expected on the physical or biological environments (Sections 4.7.1 and 4.7.2). However, there could be some positive biological, economical, and social effects if certain management measures that benefit the stock and those that rely on stock, are able to be implemented more quickly (Sections 4.7.2, 4.7.3, and 4.7.4). None of these actions are expected to significantly

affect the administrative environment (Section 4.1.5, 4.2.5, 4.3.5, 4.4.5, 4.5.5, 4.6.5, and 4.7.5), adversely or beneficially. Overall, these actions in combination are not expected to have significant beneficial or adverse cumulative effects. Any negative effects are expected to be short term and all effects combined are expected to be positive for the stock in the long term by addressing the overfishing status and with alternatives that are able to extend sector seasons as long as possible.

3. *Other past, present and reasonably foreseeable future actions (RFFAs) that have or are expected to have impacts in the area* - There are numerous actions under development in the Gulf and South Atlantic annually. Many of these activities are expected to have impacts associated with them and are listed below.

Other fishery related actions - The cumulative effects associated with modifying Gulf Group cobia catch limits, possession limits, size limits and the CMP framework procedure were analyzed in the EAs for Amendments 5 (GMFMC and SAFMC 1990), 6 (GMFMC and SAFMC 1992), 18 (GMFMC and SAFMC 2011), and Framework Amendment 7 (GMFMC 2019b) to the CMP FMP. In addition, cumulative effects relative to CMP management have been recently analyzed in the EAs for Amendment 20B (GMFMC and SAFMC 2014), Amendment 26 (GMFMC and SAFMC 2016), and Amendment 31 (GMFMC and SAFMC 2018). These cumulative effects analyses are incorporated here by reference. Regulatory measures have obviously affected the quantity and composition of harvest of cobia, through changes to size limits, possession limits, and quotas. Other pertinent actions are summarized in the history of management (Section 1.3). Currently, there are a few present actions and RFFAs that are being developed by the Councils or considered for implementation by NMFS that could affect Gulf CMP stocks. These include Amendment 33, which would revise Gulf king mackerel catch levels and sector allocation and a Gulf generic framework, which would modify the Gulf Council's ABC Control Rule.[35]

Non-fishery related actions - Actions affecting the CMP fishery have been described in previous cumulative effect analyses (e.g., Amendment 26). Three important events include impacts of the *Deepwater Horizon* MC252 oil spill, the Northern Gulf Hypoxic Zone, and climate change (See Section 3.3). Impacts from the *Deepwater Horizon* MC252 oil spill are still being examined; however, as indicated in Section 3.3.2, the oil spill had some adverse effects on fish species. Further, the impacts on the food web from phytoplankton, to zooplankton, to mollusks, to top predators may be significant in the future. Impacts to cobia from the oil spill may similarly affect other species that may be preyed upon by cobia or that might benefit from a reduced cobia stock. However, since the majority of the spawning biomass for cobia occurs outside the main areas affected by the *Deepwater Horizon* MC252 oil spill plume, it is less likely that a direct effect on either species will be detected.

CMP species are mobile and are able to avoid hypoxic conditions, so any effects from the Northern Gulf Hypoxic Zone on CMP species are likely minimal. Further, in the case of Gulf Group Cobia, they have been found to be tolerant to hypoxic conditions (Section 3.3.2).

[35] http://gulfcouncil.org

There is a large and growing body of literature on past, present, and future impacts of global climate change induced by human activities. Some of the likely effects commonly mentioned are sea level rise, increased frequency of severe weather events, and change in air and water temperatures. The Environmental Protection Agency's climate change web page provides basic background information on these and other measured or anticipated effects. In addition, the Intergovernmental Panel on Climate Change has numerous reports addressing their assessments of climate change[36] and is incorporated here by reference. Global climate changes could affect the Gulf and South Atlantic fisheries as discussed in Section 3.3.2, but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts would occur. Possible impacts are outlined in the Generic ACL amendment (GMFMC 2011). In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. The proposed action is not expected to significantly contribute to climate change through the increase or decrease in the carbon footprint from fishing, as this action should not change how the fishery is prosecuted. As described in Section 3.2, the contribution to greenhouse gas emissions from fishing is minor compared to other emission sources (e.g., oil platforms).

Bycatch of protected species in the cobia fishery are negligible and effects to habitat are minimized due to the gear types used for harvest (Section 3.3).

4. The impacts or expected impacts from these other actions - The cumulative effects from managing the CMP fishery have been analyzed in other actions as listed in part three of this section. They include detailed analysis of the CMP fishery, cumulative effects on non-target species, protected species, and habitats in the Gulf and South Atlantic. The effects of this action are positive, as they ultimately act to restore the stock to a level that will later allow for maximum benefits in yield and increased fishing opportunities to be achieved. Some negative impacts on the social and economic environments may continue to occur if in-season closures occur, which is more likely for the recreational sector. However, these effects would be reduced, compared to taking no action, as the management measure changes are expected to still allow harvest to continue later in the year even with the reduced ACL and will ultimately benefit the stock's recovery. Furthermore, it is assumed that CMP trips would occur regardless of whether cobia is open for harvest, as fishing for cobia is generally part of a multi-species fishing strategy.

5. *The overall impact that can be expected if the individual impacts are allowed to accumulate:* These actions, combined with other past actions, present actions, and RFFAs, are not expected to have significant beneficial or adverse effects on the physical and biological environments. Any effects are expected to be positive (Sections 4.1.1, 4.2.1, 4.3.1, 4.4.1, 4.5.1.1, 4.5.2.1, 4.6.1, 4.7.1 and Sections 4.1.2, 4.2.2, 4.3.2, 4.4.2, 4.5.1.2, 4.5.2.2, 4.6.2, 4.7.2). For the social and economic environments, some negative effects are expected to result for fishing communities from decreasing the ACL and possession limit, implementing a recreational vessel and commercial trip limit, and increasing the minimum size limit in the FLEC Zone (Sections 4.1.3, 4.5.3, 4.6.3 and Sections 4.1.4, 4.5.4, and 4.6.4). These effects are likely short-term as the proposed actions, along with other past actions, present actions, and RFFAs, are expected to benefit the stock and allow for increased harvest in the future. Because the other actions are considered more

[36] http://www.ipcc.ch/publications_and_data/publications_and_data.shtml

administrative in nature, it is unlikely these combined with the previously mentioned actions there would be any changes in how the CMP fishery is prosecuted, these actions, combined with past actions, present actions, and RFFAs, is not expected to have significant adverse effects on public health or safety.

6. Summary: The proposed action is not expected to have individual significant effects to the physical, biological, economic, or social environments. Any effects of the proposed action, when combined with other past actions, present actions, and RFFAs are not expected to be significant. The effects of the proposed actions are, and will continue to be, monitored through collection of landings data by NMFS, individual state programs, stock assessments and stock assessment updates, life history studies, economic and social analyses, and other scientific observations. Landings data for the commercial sector in the Gulf and South Atlantic are collected through trip ticket programs, port samplers, and logbook programs. Landings data for the recreational sector in the Gulf and South Atlantic are collected through the Marine Recreational Information Program and Southeast Region Headboat Survey. In the Gulf, they are also collected by the Louisiana Creel Survey and Texas Parks and Wildlife Department. The cumulative social and economic effects of past, present, and future amendments may be described as limiting fishing opportunities in the short-term, with some actions resulting in negative social and economic impacts. The intent of this amendment is to improve prospects for sustained participation in the respective fisheries over time, while recovering the Gulf Group Cobia stock. The proposed actions in this amendment are expected to result in some important long-term benefits to the commercial and for-hire fishing fleets, fishing communities and associated businesses, and private recreational anglers. Limiting harvest now is expected to allow for greater harvest in the future. The proposed changes in management for Gulf Group Cobia will contribute to changes in the fishery within the context of the current economic and regulatory environment at the local and regional level. This analysis found positive effects on the biophysical environment because it would maintain the Gulf Group Cobia stock at a level that allows the maximum benefits in yield while also allowing it to recover. However, short-term negative impacts on the socioeconomic environment associated with Gulf Group Cobia fishing are likely to continue due to the limiting of directed harvest. These negative impacts can be minimized by selecting measures that would provide the least disruption to the Gulf Group Cobia component of the CMP fishery.

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APPENDIX A. COASTAL MIGRATORY PELAGICS (CMP) FRAMEWORK PROCEDURE

Last modified by CMP Amendment 26 – December 2017

This framework procedure provides standardized procedures for implementing management changes pursuant to the provisions of the Coastal Migratory Pelagic Fishery Management Plan (FMP) managed jointly between the Gulf of Mexico and South Atlantic Fishery Management Councils (Councils). Two basic processes are included: the open framework process and the closed framework process. The open framework process/procedure addresses issues where more policy discretion exists in selecting among various management options developed to address an identified management issue, such as changing a size limit to reduce harvest. The closed framework process addresses much more specific factual circumstances, where the FMP and implementing regulations identify specific action to be taken in the event of specific facts occurring, such as closing a sector of a fishery when the quota is or is projected to be harvested.

Open Framework Procedure:

1. Situations under which this framework procedure may be used to implement management changes include the following:
    a. A new stock assessment resulting in changes to the overfishing limit, acceptable biological catch, or other associated management parameters. In such instances the Councils may, as part of a proposed framework action, propose an annual catch limit (ACL) or series of ACLs and optionally an annual catch target (ACT) or series of ACTs, as well as any corresponding adjustments to MSY, OY, and related management parameters.
    b. New information or circumstances. The Councils will, as part of a proposed framework action, identify the new information and provide rationale as to why this new information indicates that management measures should be changed.
    c. Changes are required to comply with applicable law such as the Magnuson-Stevens Fishery Conservation and Management Act, Endangered Species Act, Marine Mammal Protection Act, or are required as a result of a court order. In such instances the NMFS Regional Administrator (RA) will notify the Councils in writing of the issue and that action is required. If there is a legal deadline for taking action, the deadline will be included in the notification.

2. Open framework actions may be implemented in either of two ways: abbreviated documentation or standard documentation process.
    a. Abbreviated documentation process: Regulatory changes that may be categorized as a routine or insignificant may be proposed in the form of a letter or memo from the Councils to the RA containing the proposed action, and the relevant biological, social and economic information to support the action. Either Council may initiate the letter or memo, but both Councils must approve it. If multiple actions are proposed, a finding that the actions are also routine or insignificant must also be included. If the RA concurs with the determination and approves the proposed action, the action will be implemented through publication of

appropriate notification in the Federal Register. Changes that may be viewed as routine or insignificant include, among others:

i. Reporting and monitoring requirements;
ii. Permitting requirements;
iii. Gear marking requirements;
iv. Vessel marking requirements;
v. Restrictions relating to maintaining fish in a specific condition (whole condition, filleting, use as bait, etc.);
vi. Bag and possession limit changes of not more than one fish;
vii. Size limit changes of not more than 10% of the prior size limit;
viii. Vessel trip limit changes of not more than 10% of the prior trip limit;
ix. Closed seasons of not more than 10% of the overall open fishing season,
x. Species complex composition;
xi. Restricted areas (seasonal or year-round) affecting no more than a total of 100 nautical square miles;
xii. Re-specification of ACL, ACT or quotas that had been previously approved as part of a series of ACLs, ACTs or quotas;
xiii. Specification of MSY proxy, OY, and associated management parameters (such as overfished and overfishing definitions) where new values are calculated based on previously approved specifications;
xiv. Gear restrictions, except those that result significant changes in the fishery, such as complete prohibitions on gear types;
xv. Quota changes of not more than 10%, or retention of portion of an annual quota in anticipation of future regulatory changes during the same fishing year.

b. Standard documentation process: Regulatory changes that do not qualify as a routine or insignificant may be proposed in the form of a framework document with supporting analyses. Non-routine or significant actions that may be implemented under a framework action include:

i. Specification of ACTs or sector ACTs;
ii. Specification of ABC and ABC/ACL control rules;
iii. Rebuilding plans and revisions to approved rebuilding plans;
iv. The addition of new species to existing limited access privilege programs (LAPP);
v. Changes specified in section 2(a) that exceed the established thresholds;
vi. Changes to AMs including:

In-season AMs

1. Closures and closure procedures
2. Trip limit reductions or increases
3. Designation of an existing IFQ program as the AM for species in the IFQ program
4. Implementation of gear restrictions

Post-season AMs

5. Adjustment of season length
6. Implementation of closed seasons/time periods
7. Adjustment or implementation of bag, trip, or possession limit

8. Reduction of the ACL/ACT to account for the previous year overage
9. Revoking a scheduled increase in the ACL/ACT if the ACL was exceeded in the previous year
10. Implementation of gear restrictions
11. Reporting and monitoring requirements

3. Either Council may initiate the open framework process to inform the public of the issues and develop potential alternatives to address those issues. The framework process will include the development of documentation and public discussion during at least one meeting for each Council.

4. Prior to taking final action on the proposed framework action, each Council may convene their advisory committees and panels, as appropriate, to provide recommendations on the proposed actions.

5. For all framework actions, the initiating Council will provide the letter, memo, or completed framework document along with proposed regulations to the RA in a timely manner following final action by both Councils.

6. For all framework action requests, the RA will review the Councils' recommendations and supporting information and notify the Councils of the determinations, in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (Section 304) and other applicable law.

Closed Framework Procedure:
Consistent with existing requirements in the FMP and implementing regulations, the RA is authorized to conduct the following framework actions through appropriate notification in the *Federal Register*:

1. Close or adjust harvest any sector of the fishery for a species, sub-species, or species group that has a quota or sub-quota at such time as projected to be necessary to prevent the sector from exceeding its sector-quota for the remainder of the fishing year or sub-quota season;
2. Reopen any sector of the fishery that had been prematurely closed;
3. Implement an in-season AM for a sector that has reached or is projected to reach, or is approaching or is projected to approach its ACL, or implement a post-season AM for a sector that exceeded its ACL in the current year.

Responsibilities of Each Council:

1. Recommendations with respect to the Atlantic migratory groups of king mackerel, Spanish mackerel, and cobia will be the responsibility of the South Atlantic Council, and those for the Gulf migratory groups of king mackerel, Spanish mackerel, and cobia will be the responsibility of the Gulf Council, with the following exceptions:

   The South Atlantic Council will have responsibility to set vessel trip limits, closed seasons or areas, or gear restrictions for:

   a. The east coast of Florida including the Atlantic side of the Florida Keys for Gulf

migratory group cobia.

2. For stocks where a stock assessment indicates a different boundary between the Gulf and Atlantic migratory groups than the management boundary, a portion of the ACL for one migratory group may be apportioned to the appropriate zone, but management measures for that zone will be the responsibility of the Council within whose management area that zone is located.

3. Both councils must concur on recommendations that affect both migratory groups.

APPENDIX B. 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 cobia, 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).

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 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. In general, landings estimates are higher using the MRIP-FES as compared to the MRFSS 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 reports Gulf Zone cobia landings for 1986 through 2019 fishing years comparing MRIP-CHTS harvest data to MRIP-FES harvest data. Table 2 reports Gulf FLEC Zone cobia landings for 1986 through 2019 fishing years comparing MRIP-CHTS harvest data to MRIP-FES harvest data.

Table 1. Gulf Zone cobia recreational and commercial landings in pounds (lbs) landed weight (lw) using MRIP-CHTS and MRIP-FES units, and stock ACL in MRIP-CHTS for the years 1986 – 2019.

Year	Recreational Landings (CHTS)	Recreational Landings (FES)	Commercial Landings	Stock Total Landings (CHTS)	Stock Total Landings (FES)	Stock ACL (CHTS)
1986	1,518,149	3,209,741	136,649	1,654,798	3,346,390	N/A
1987	1,014,022	2,397,839	149,344	1,163,366	2,547,183	N/A
1988	1,206,395	2,538,052	140,383	1,346,778	2,678,435	N/A
1989	1,031,077	1,785,434	191,015	1,222,092	1,976,449	N/A
1990	1,169,343	3,358,411	151,775	1,321,118	3,510,186	N/A
1991	1,486,789	2,222,832	160,063	1,646,852	2,382,895	N/A
1992	1,088,573	2,332,832	216,325	1,304,898	2,549,157	N/A
1993	1,769,740	2,782,140	243,583	2,013,323	3,025,723	N/A
1994	1,556,208	3,224,655	237,976	1,794,184	3,462,631	N/A
1995	1,159,243	2,200,853	212,991	1,372,234	2,413,844	N/A
1996	1,851,629	5,392,514	207,324	2,058,953	5,599,838	N/A
1997	2,378,464	4,438,797	177,404	2,555,868	4,616,201	N/A
1998	1,003,506	2,583,814	176,978	1,180,484	2,760,792	N/A
1999	1,099,709	2,954,532	167,416	1,267,125	3,121,948	N/A
2000	959,280	2,206,198	129,890	1,089,170	2,336,088	N/A
2001	1,296,703	3,625,034	92,108	1,388,811	3,717,142	N/A
2002	876,253	2,157,024	105,252	981,505	2,262,276	N/A
2003	1,191,268	2,101,349	111,436	1,302,704	2,212,785	N/A
2004	1,407,228	2,998,358	101,211	1,508,439	3,099,569	N/A
2005	1,143,814	1,958,920	87,582	1,231,396	2,046,502	N/A
2006	1,017,720	2,204,813	81,948	1,099,668	2,286,761	N/A
2007	1,165,878	2,662,004	73,208	1,239,086	2,735,212	N/A
2008	922,218	1,703,737	68,723	990,941	1,772,460	N/A
2009	591,469	1,189,342	62,239	653,708	1,251,581	N/A
2010	530,123	1,924,253	82,361	612,484	2,006,614	N/A
2011	1,189,851	2,803,465	69,168	1,259,019	2,872,633	N/A
2012	887,225	2,464,238	51,911	939,136	2,516,149	1,460,000
2013	1,128,765	2,098,096	82,508	1,211,273	2,180,604	1,460,000
2014	1,051,304	2,023,921	78,762	1,130,066	2,102,683	1,460,000
2015	784,457	1,381,507	70,370	854,827	1,451,877	1,610,000
2016	974,015	1,573,088	75,559	1,049,574	1,648,647	1,660,000
2017	515,257	1,328,116	73,604	588,861	1,401,720	1,660,000
2018	638,909	1,406,879	41,069	679,978	1,447,948	1,660,000
2019	612,842	1,342,194	37,993	650,835	1,380,187	1,660,000

Source: SEFSC Commercial ACL data (August 21, 2020), and SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

Table 2. FLEC Zone cobia recreational and commercial landings and ACLs in pounds landed weight using MRIP-CHTS and MRIP-FES units, and ACLs in MRIP-CHTS for the years 1986 – 2019.

Year	Rec. Landings (CHTS)	Rec. Landings (FES)	Rec. ACL (CHTS)	Com. Landings	Com. ACL (CHTS)	Total Landings (CHTS)	Total Landings (FES)	FLEC total ACL (CHTS)
1986	127,898	266,279	N/A	57,251	N/A	185,149	323,530	N/A
1987	439,713	662,451	N/A	83,660	N/A	523,373	746,111	N/A
1988	444,929	790,084	N/A	92,812	N/A	537,741	882,896	N/A
1989	829,226	1,814,832	N/A	112,803	N/A	942,029	1,927,635	N/A
1990	300,056	625,675	N/A	88,647	N/A	388,703	714,322	N/A
1991	223,959	266,944	N/A	113,797	N/A	337,756	380,741	N/A
1992	664,137	1,654,027	N/A	130,525	N/A	794,662	1,784,552	N/A
1993	442,422	774,592	N/A	109,499	N/A	551,921	884,091	N/A
1994	438,355	819,174	N/A	113,956	N/A	552,311	933,130	N/A
1995	206,474	658,851	N/A	118,064	N/A	324,538	776,915	N/A
1996	390,922	527,938	N/A	158,535	N/A	549,457	686,473	N/A
1997	531,406	808,283	N/A	124,325	N/A	655,731	932,608	N/A
1998	557,850	918,091	N/A	111,452	N/A	669,302	1,029,543	N/A
1999	726,302	1,715,939	N/A	117,262	N/A	843,564	1,833,201	N/A
2000	504,606	906,654	N/A	82,229	N/A	586,835	988,883	N/A
2001	345,791	760,075	N/A	85,605	N/A	431,396	845,680	N/A
2002	374,498	905,328	N/A	78,441	N/A	452,939	983,769	N/A
2003	791,831	1,807,656	N/A	83,488	N/A	875,319	1,891,144	N/A
2004	298,901	521,113	N/A	78,219	N/A	377,120	599,332	N/A
2005	345,091	828,307	N/A	49,415	N/A	394,506	877,722	N/A
2006	535,747	1,569,137	N/A	69,639	N/A	605,386	1,638,776	N/A
2007	616,904	2,043,940	N/A	74,278	N/A	691,182	2,118,218	N/A
2008	453,807	1,236,012	N/A	71,525	N/A	525,332	1,307,537	N/A
2009	350,111	903,567	N/A	75,604	N/A	425,715	979,171	N/A
2010	792,410	2,063,955	N/A	112,942	N/A	905,352	2,176,897	N/A
2011	805,024	2,661,682	N/A	171,472	N/A	976,496	2,833,154	N/A
2012	448,804	1,334,859	N/A	87,825	N/A	536,629	1,422,684	N/A
2013	292,952	692,842	N/A	69,623	N/A	362,575	762,465	N/A
2014	575,320	1,406,799	N/A	85,982	N/A	661,302	1,492,781	N/A
2015	420,776	1,193,755	830,000	62,464	70,000	483,240	1,256,219	900,000
2016	592,812	1,554,670	860,000	48,611	70,000	641,423	1,603,281	930,000
2017	323,516	761,870	860,000	41,043	70,000	364,559	802,913	930,000
2018	614,607	1,972,416	860,000	32,839	70,000	647,446	2,005,255	930,000
2019	194,126	555,295	860,000	33,874	70,000	228,000	589,169	930,000

Source: SEFSC Commercial ACL data (August 21, 2020), and SEFSC Recreational ACL data (Accessed September 14, 2020 [CHTS] and September 16, 2020 [FES]).

APPENDIX C. FLORIDA EAST COAST ZONE COBIA RECREATIONAL ACL ANALYSIS

Amendment 32 to the Fishery Management Plan for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Regions (Amendment 32) is exploring changes to the Florida East Coast (FLEC) Zone (Atlantic side of the Florida Keys to the Florida/Georgia border) cobia annual catch limit (ACL). Specifically, Action 3 of Amendment 32 is exploring modification to the ACL sector allocation for the FLEC Zone cobia stock. There are a range of recreational ACLs being considered in Amendment 32 that are dependent on previous Actions. However, to simplify this analysis only the lowest recreational ACLs for 2021 and 2022 (Action 1 Alternatives 2 and 3, Action 2 Alternatives 1 – 4, and Action 3 Alternative 4) are used to determine if the ACL will be met. This analysis assumed the commercial sector 70,000 pounds (lbs) landed weight (ww) ACL would be retained in 2021, determine the allocation percentage by this catch limit, and allocate the remaining revised FLEC Zone ACL (determined in Action 2) to the recreational sector in subsequent years. The recreational ACLs of 2021 are lower than the recreational ACLs of 2022 however, if Action 1 Alternative 3 is selected, the 2021 ACL would remain constant. It's also likely that Amendment 32 will be implemented in 2022. Therefore, the 2022 ACL is presented in case Action 1 Alternative 2 is selected. Table 1 provides the lowest 2021 and 2022 ACLs being considered for this Amendment and analysis.

Table 1. Recreational ACLs for FLEC Zone cobia in 2021 and 2022 under, all Action 2 Alternatives, and assumed the commercial sector would retain a 70,000 lbs lw in 2021 and be adjusted for subsequent years (Action 3 Alternative 4). Each ACL is in lbs lw using MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alternatives 2 – 4.

Action 2 Alternatives	FLEC Zone Recreational ACL under Action 3 Alternative 4 2021/2022
1	860,000/860,000
2	772,400/858,218
3	795,800/884,222
4	889,400/988,225

Recreational landings data were provided from the Southeast Fisheries Science Center on September 16, 2020. The recreational landings are a summary of different recreational landings surveys that are conducted in the FLEC Zone. The recreational landings came from the two different recreational surveys of Southeast Region Headboat Survey and Marine Recreational Information Program (MRIP). The MRIP landings data were generated from the Fishing Effort Survey (FES). Figure 1 provides the historical recreational landings over the past 10 years (2010 through 2019) of available landings, and the Amendment 32 ACLs in 2021 (most conservative) listed in Table 1, all Action 2 Alternatives, and that assumed the commercial sector would retain a 70,000 lbs lw ACL in 2021 (Action 3 Alternative 4).

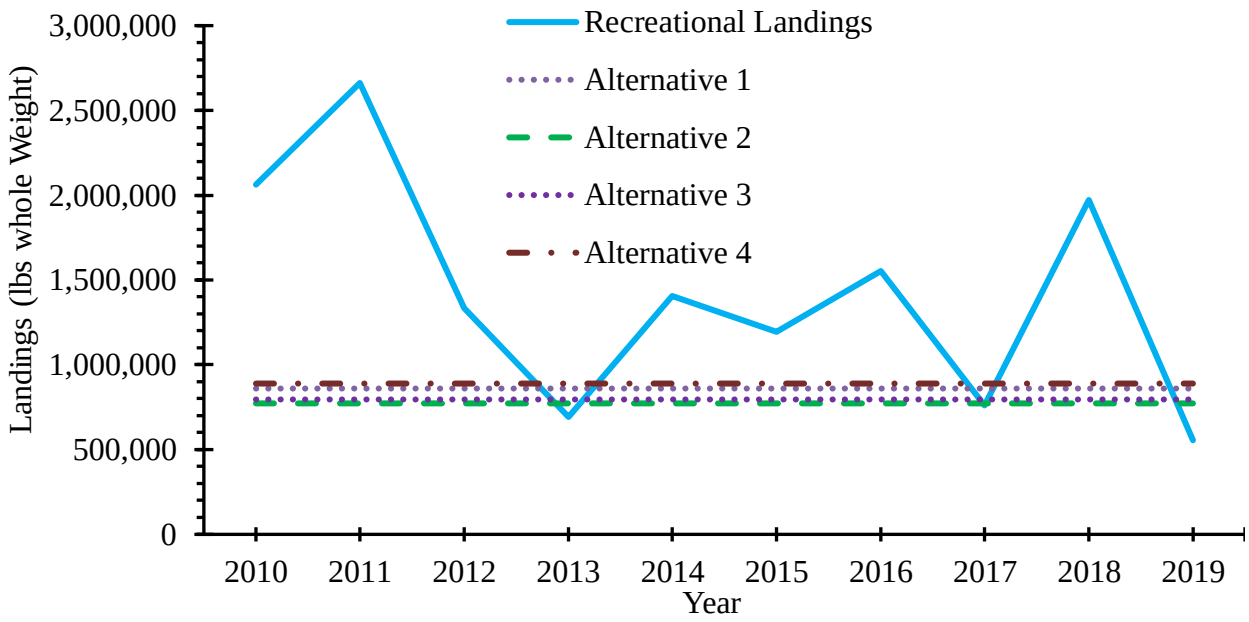

Figure 1. FLEC Zone cobia recreational landings plotted with the ACLs in 2021 (most conservative) under all Action 2 Alternatives and that assumed the commercial sector would retain a 70,000 lbs lw ACL in 2021 (Action 3 Alternative 4). The recreational landings are in MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alternatives 2 – 4.

The average 2017 through 2019 FLEC Zone cobia recreational landings were used as a proxy for future landings. The recreational landings were broken down into two-month wave (such as January/February, March/April) and the landings were assumed to be uniform within each wave. The average 2017 through 2019 landings were cumulatively summed following a calendar year, and the dates the ACLs is predicted to be met were determined when the landings reached the Action 3 Alternative 4 ACLs for 2021 and 2022 under all Action 2 Alternatives. Table 2 provides the dates the 2021 recreational ACLs are predicted to be met, and Table 2 provides the dates the 2022 recreational ACLs are predicted to be met. Recreational FLEC Zone cobia currently do not have an in-season closure accountability measure (AM). Their post season AM states that if the total FLEC Zone stock ACL is exceeded in one year, then in the following year, the recreational season will be projected to and closed when the annual catch target is met. The recreational ACLs are predicted to be met under all the scenarios (Tables 2 and 3). Alternative 1 (860,000 lbs lw) for both Tables 2 and 3 is not considered a viable alternative as it retains the use of MRIP-CHTS units, which are no longer considered best available science.

Table 2. Dates when the FLEC Zone recreational ACLs are predicted to be met for the Action 3 Alternative 4 (most conservative) ACLs for 2021 under all Action 2 Alternatives. These dates were predicted from cumulatively summing the combined average 2017 through 2019 recreational landings. The ACL is in MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alternatives 2 – 4.

Alternative	ACL	ACL Met Date
1	860,000	23-Aug
2	772,400	13-Aug
3	795,800	16-Aug
4	889,400	26-Aug

Table 3. Dates when the FLEC Zone recreational ACLs are predicted to be met for the Action 3 Alternative 4 (most conservative) ACLs for 2022 under all Action 2 Alternatives. These dates were predicted from cumulatively summing the combined average 2017 through 2019 recreational landings. The ACL is in MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alternatives 2 – 4.

Alternative	ACL	ACL Met Date
1	860,000	23-Aug
2	858,218	22-Aug
3	884,222	25-Aug
4	988,225	7-Nov

Will there be a closure in the recreational sector?

The FLEC Zone cobia recreational sector has a postseason accountability measure where the recreational sector will have a closure projection completed, which will be constrained to the sector annual catch target for the following fishing year, if the total (recreational and commercial combined) FLEC Zone ACL has been exceeded. Therefore, the recreational and commercial landings need to be combined to determine if the total FLEC Zone ACL will be met. If they are determined to be met, it is assumed any fishing past that date will exceed the total FLEC Zone ACL. A prediction of the recreational landings was already discussed earlier in this document. However, a prediction of total FLEC Zone landings is needed. Commercial landings data for cobia were obtained from the Southeast Fisheries Science Center (SEFSC) on August 21, 2020. Figure 2 provides the historical commercial landings over the past 10 years (2010 through 2019) of available commercial landings.

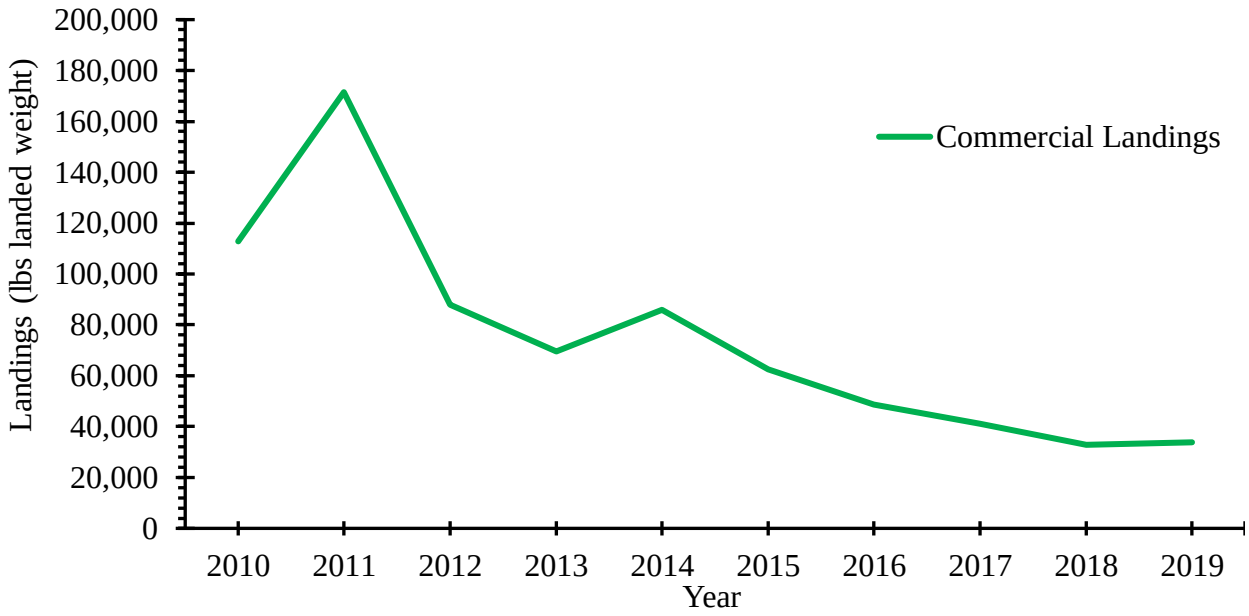

Figure 2. FLEC Zone cobia commercial landings from 2010 through 2019.

The average 2017 through 2019 FLEC Zone cobia total (recreational and commercial) landings were used as a proxy for future landings. These landings were cumulatively summed following a calendar year, and compared to Amendment 32 Action 2 total FLEC Zone ACLs from 2021 and 2022 (Table 4). Table 5 provides the dates when the predicted landings meet the ACLs being considered.

Table 4. Total (recreational and commercial) ACLs for FLEC Zone cobia in 2021 and 2022 under Action 2 of Amendment 32. Each ACL is in lbs lw using MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alternatives 2 – 4.

Alternative	2021 Stock ACL	2022 Stock ACL
1	930,000	930,000
2	842,400	936,000
3	865,800	962,000
4	959,400	1,066,000

Table 5. Dates when the predicted landings are expected to reach the Action 2 total FLEC Zone ACLs for the years of 2021 and 2022 (Table 4). These dates were predicted from cumulatively summing the combined average 2017 through 2019 recreational and commercial landings. The ACL is in MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alternatives 2 – 4.

Alternative	2021 ACL	2021 ACL Met Date	2022 ACL	2022 ACL Met Date
1	930,000	27-Aug	930,000	27-Aug
2	842,400	18-Aug	936,000	27-Aug
3	865,800	20-Aug	962,000	30-Aug
4	959,400	30-Aug	1,066,000	30-Nov

Under all scenarios explored in this analysis the total FLEC Zone ACL is projected to be met. It seems likely a recreational closure will occur in 2023 (based on implementation timeline in 2022) if no other management measures (e.g., reduced possession limit, increased size limit) are changed for the recreational sector.

APPENDIX D. FLORIDA EAST COAST ZONE COBIA COMMERCIAL CLOSURE ANALYSIS

Amendment 32 to the Fishery Management Plan for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Regions (Amendment 32) is exploring changes to the Florida East Coast (FLEC) Zone (Atlantic side of the Florida Keys to the Florida/Georgia border) cobia annual catch limit (ACL). Specifically, Action 3 of Amendment 32 is exploring modifying the commercial ACL for the FLEC Zone cobia stock. There are a range of commercial ACLs being considered in Amendment 32 that are dependent on previous actions. However, to simplify this analysis only the lowest commercial ACLs for 2021 under all Action 2 alternatives, and a shift in allocation to 5% commercial and 95% recreational in Action 3 Alternative 2, were considered. Table 1 provides the ACLs being considered under this analysis.

Table 1. Commercial ACLs for FLEC Zone cobia for 2021 under all Action 2 Alternatives and assuming Action 3 Alternative 2 was selected (allocation 5% commercial, 95% recreational). Each ACL is in pounds landed weight.

Action 2 Alternatives	FLEC Zone Commercial ACL under Action 3 Alternative 2
1	70,000
2	42,120
3	43,290
4	47,970

Commercial landings data for cobia were obtained from the Southeast Fisheries Science Center (SEFSC) on August 21, 2020. Figure 1 provides the historical commercial landings over the past 10 years (2010 through 2019) of available landings, and the Amendment 32 Action 3 Alternative 2 ACLs in 2021 (most conservative) listed in Table 1, under all Action 2 Alternatives.

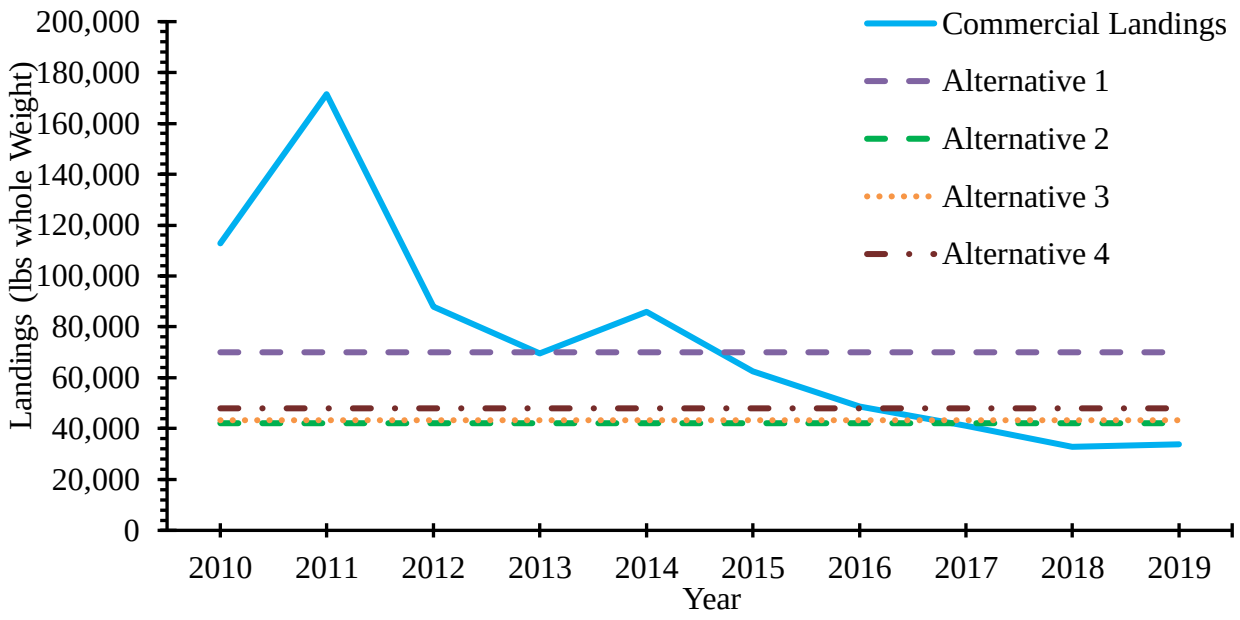

Figure 1. FLEC Zone cobia commercial landings plotted with the Action 3 Alternative 2 ACL allocation alternatives (5% commercial, 95% recreational) in 2021 (most conservative) under all Action 2 alternatives.

The FLEC Zone cobia commercial landings have been stable over the past three recent years of 2017 through 2019 (Figure 1). The average landings from this recent time period was used as a proxy for future landings. The commercial landings were broken down into the monthly landings and were assumed to be uniform within a month. The average 2017 through 2019 landings were cumulatively summed following a calendar year, and closure dates were determined when the landings reached the Action 3 Alternative 2 ACLs. The total annual average 2017 through 2019 landings are 35,919 pounds. All of the ACLs presented in Table 1 are above 35,919 pounds. Therefore, no closures are expected for the FLEC Zone commercial sector, regardless of if the current sector allocation of 8% commercial 92% recreational remains or it is reduced to 5% commercial and 95% recreational. Furthermore, while Amendment 32 is not expected to be implemented until 2022, 2022 values were not analyzed due to the most conservative 2021 ACLs not being projected to be met.

APPENDIX E. ACL/ACT CONTROL RULE FOR GULF OF MEXICO MIGRATORY GROUP COBIA

As of 011/16/2020				Gulf Cobia	
ACL/ACT Buffer Spreadsheet			version 4.1 - April 2011	Sector: Combined	
sum of points	3			Data: 2016-2019	
max points	7.0		Buffer between ACL and ACT (or ABC and ACL)	Unweighted	8
Min. Buffer	0	min. buffer	User adjustable	Weighted	10
Max Unw.Buff	19	max unwt. Buff			
Max Wtd Buff	25	max wtd. buffe	User adjustable		

Component	Element score	Element	Selection	Element result
Stock assemblag	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
	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	0.0	
		Not applicable (there is no catch limit)		
		Apply this component to recreational fisheries, not commercial or IFQ fisheries		
	0	Method of absolute counting		2
Precision of	1	MRIP proportional standard error (PSE) <= 20		
Landings Data	2	MRIP proportional standard error (PSE) > 20	x	
Recreational		Not applicable (will not be included in buffer calculation)		
		Apply this component to commercial fisheries or any fishery under an IFQ program		
Precision of	0	Landings from IFQ program		1
	1	Landings based on dealer reporting	x	
Landings Data	2	Landings based on other		
Commercial		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	3

Weighting factor				
	Element weight	Element	Selection	Weighting
Overfished statu	0	1. Stock biomass is at or above B_{OY} (or proxy).		0.2
	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 (M	x	
	0.3	4. Stock is overfished, below MSST.		
	0.3	5. Status criterion is unknown.		

Data used: 2020 NOAA Fisheries ACL Monitoring Data, for 2016-2019, retrieved 16 November 2020.

APPENDIX F. GULF ZONE COBIA CLOSURE ANALYSIS

Amendment 32 to the Fishery Management Plan for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Regions (Amendment 32) is exploring changes to the Gulf of Mexico Gulf of Mexico migratory group cobia (Gulf Group Cobia) annual catch target (ACT). This analysis focuses on the Gulf Zone (Texas to Gulf and South Atlantic Council's jurisdictional boundary). Table 1 provides the stock ACTs in pounds landed weight (lbs lw) being considered under Amendment 32 Action 4 for the Gulf Zone. Some Action 4 alternatives have different stock ACTs for different years. For example, Alternative 2 of Action 4 under Action 2 Alternative 2 has a different ACT for the years of 2021, 2022, and 2023 if Action 1 Alternative 2 is selected. If Action 1 Alternative 3 is selected then the 2021 ACT is maintained. Additionally, closure dates for the 2022 ACTs were also analyzed because Amendment 32 expected to be implemented in 2022.

Table 1. Stock ACTs for Gulf Zone cobia Action 4 Alternatives, under each Action 2 Alternative. Each ACT is in pounds landed weight using MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alternatives 2 – 4.

Action 2 Alternatives	Action 1 Year	Action 4 Alternative 1	Action 4 Alternative 2
		Gulf Zone ACT	Gulf Zone ACT
1	2021+	1,500,000	N/A
2	2021	1,347,840	1,347,840
	2022	1,497,600	1,497,600
	2023+	1,589,760	1,589,760
3	2021	1,326,780	1,326,780
	2022	1,474,200	1,474,200
	2023+	1,564,920	1,564,920
4	2021	1,242,540	1,242,540
	2022	1,380,600	1,380,600
	2023+	1,465,560	1,465,560

Gulf Zone cobia is managed as a stock that combines both the commercial and recreational landings. Commercial landings data for cobia were obtained from the Southeast Fisheries Science Center (SEFSC) on August 21, 2020. Recreational landings data were provided from the SEFSC on September 16, 2020. The recreational landings are a summary of the different recreational landings surveys that are conducted in the Gulf of Mexico. The recreational landings came from the four different recreational surveys of Southeast Region Headboat Survey, Texas Parks and Wildlife recreational survey, Louisiana Department of Wildlife and

Fisheries creel survey, and Marine Recreational Information Program Fishing Effort Survey. Figure 1 provides the historical commercial and recreational landings over the past 10 years (2010 through 2019) of available landings, and the Amendment 32 Action 4 Alternative ACTs for 2021 (most conservative) under all Action 2 Alternatives.

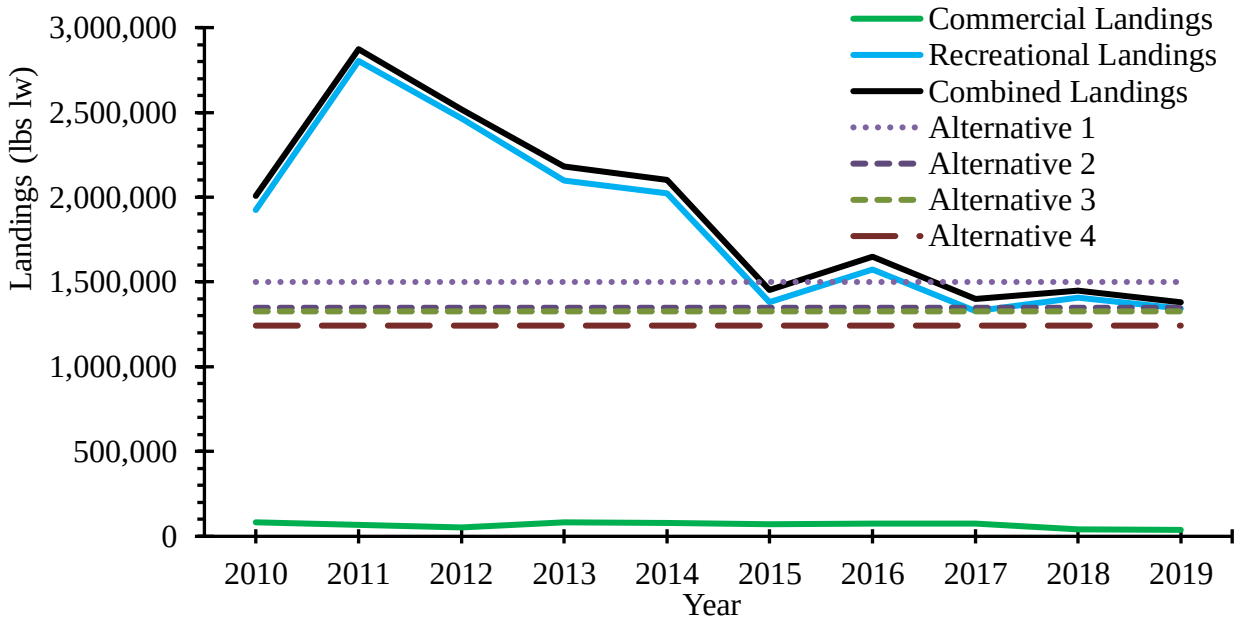

Figure 1. Commercial, recreational, and combined Gulf Zone cobia landings plotted with the Action 4 ACT alternatives for 2021 (most conservative) under all Action 2 Alternatives. The alternatives are in MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alternatives 2 - 4. The recreational landings are the Marine Recreational Information Program Fishing Effort Survey landings.

The Gulf Zone cobia landings (commercial and recreational landings) have been stable over the past three recent years of 2017 through 2019 (Figure 1). The average landings from this recent time period was used as a proxy for future landings. The commercial landings were broken down into the monthly landings, and the recreational landings were broken down into two-month wave (such as January/February, March/April). Commercial landings were assumed to be uniform within a month and recreational landings were assumed to be uniform within a two-month wave. The average 2017 through 2019 landings were cumulatively summed following a calendar year, and closure dates were determined with the combined commercial and recreational landings reached the Action 4 Alternative ACTs under Action 2 Alternatives. Table 2 provides the closure dates when the 2021 ACTs were predicted to be reached. Gulf Zone cobia have an in-season closure accountability measure (AM) that states both sectors will be closed when the stock ACT is met or projected to be met. The Gulf Zone cobia stock does not have a post season AM. All of the ACTs used in this analysis for 2021 except Alternative 1 predict the ACT to be met (Table 2). Amendment 32 is expected to be implemented in 2022, so 2022 ACTs are presented as well to give a more realistic picture of what would happen if Action 1 Alternative 2 is selected (Table 3). Only the Action 4 alternatives under the Action 2 Alternative 4 ACT used in this analysis for 2022 predict the ACT to be met. Action 1 Alternative 1

(1,500,000 lbs ww) for both Tables 2 and 3 is not considered a viable alternative as it retains the use of MRIP-CHTS units, which are no longer considered best available science.

Table 2. Predicted closure dates for the Action 4 Alternative ACTs for 2021 (most conservative) under all Action 2 Alternatives. These closure dates were predicted from cumulatively summing the combined average 2017 through 2019 commercial and recreational landings. The ACT is in MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alterative 2 – 4.

Alternative	ACT	Closure Date
1	1,500,000	None
2	1,347,840	23-Nov
3	1,326,780	10-Nov
4	1,242,540	14-Oct

Table 3. Predicted closure dates for the Action 4 Alternative ACTs for 2022 (most likely when implemented) under all Action 2 Alternatives. These closure dates were predicted from cumulatively summing the combined average 2017 through 2019 commercial and recreational landings. The ACT is in MRIP-CHTS units for Alternative 1 and MRIP-FES units for Alterative 2 – 4.

Alternative	ACT	Closure Date
1	1,500,000	None
2	1,497,600	None
3	1,474,200	None
4	1,380,600	13-Dec

APPENDIX G. GULF ZONE COBIA POSSESSION LIMIT ANALYSIS

Amendment 32 to the Fishery Management Plan for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Regions (Amendment 32) is exploring changes to the cobia possession limit. Specifically, Action 5.1 of Amendment 32 is exploring modification to the cobia possession limit in the Gulf Zone (Texas to west Florida).

Commercial Sector

Commercial data for cobia were obtained from the Southeast Fisheries Science Center's Trip Interview Program (TIP) on November 27, 2020. TIP data is collected by port samplers that interview commercial fishers and collect information on the length, weight, and numbers of fish harvested, the gear used, and information on the fishing trip (e.g., date, location). TIP data was used instead of other commercial data because it provides details of the number of cobia caught on each commercial trip. Other commercial datasets provide the pounds of harvest of cobia for the trip, and do not provide the number of cobia harvested.

All available 2017 to 2019 TIP data that had cobia harvest were isolated. The Gulf Zone 2017–2019 TIP data had 275 commercial trips and a harvest of 345 cobia. The distribution of the cobia harvested per trip is shown in Figure 1. The distribution of the cobia harvested per person is shown in Figure 2.

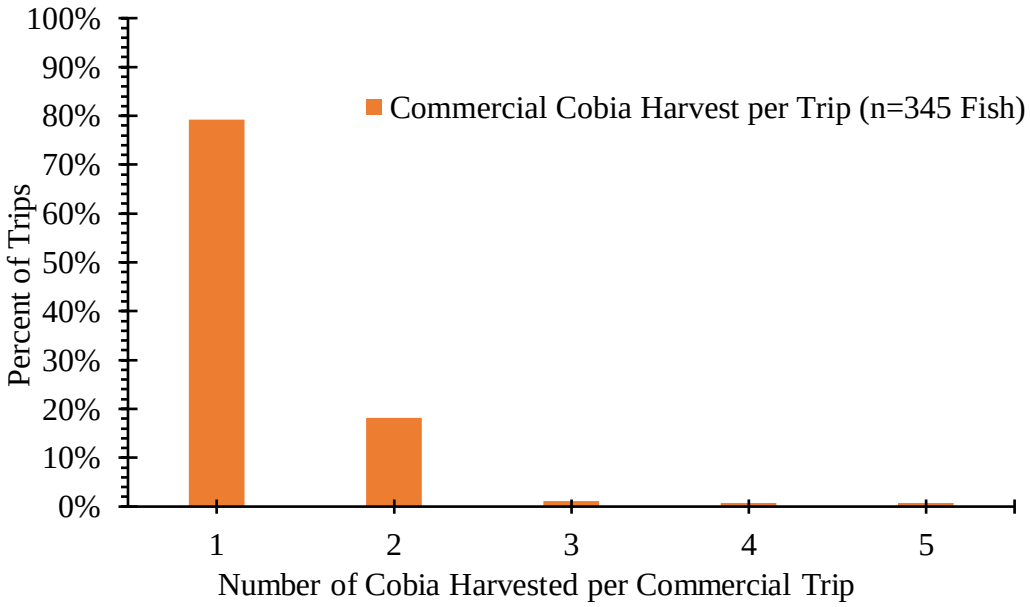

Figure 1. Distribution of the commercial cobia harvested (numbers of fish) per trip in the Gulf Zone from 2017 to 2019. This was generated from the TIP data and resulted in a sample size of 275 trips.

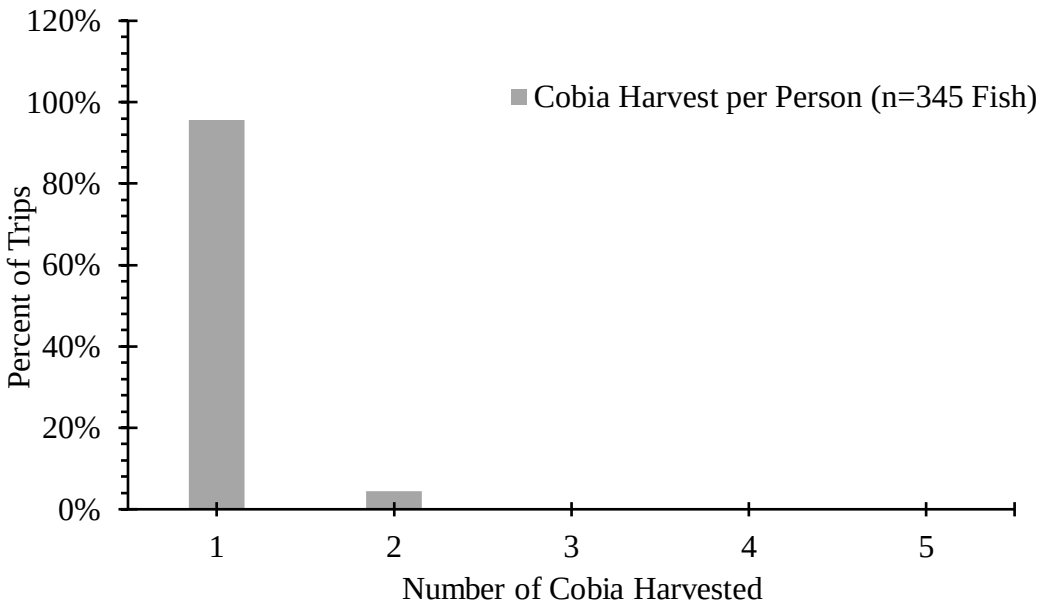

Figure 2. Distribution of the commercial cobia harvested (numbers of fish) per person in the Gulf Zone from 2017 to 2019. This was generated from the TIP data and resulted in a sample size of 275 trips.

Amendment 32 is considering possession limits that are influenced by the number of days (cobia per day) and the number of people on the trip (cobia per trip). The commercial data were analyzed to provide the distribution of the number of days for a commercial cobia trip (Figure 3). The cobia commercial trips from 2017 to 2019 range from 1 to 25 days and have an average of 6.4 days (standard deviation of 4.2 days).

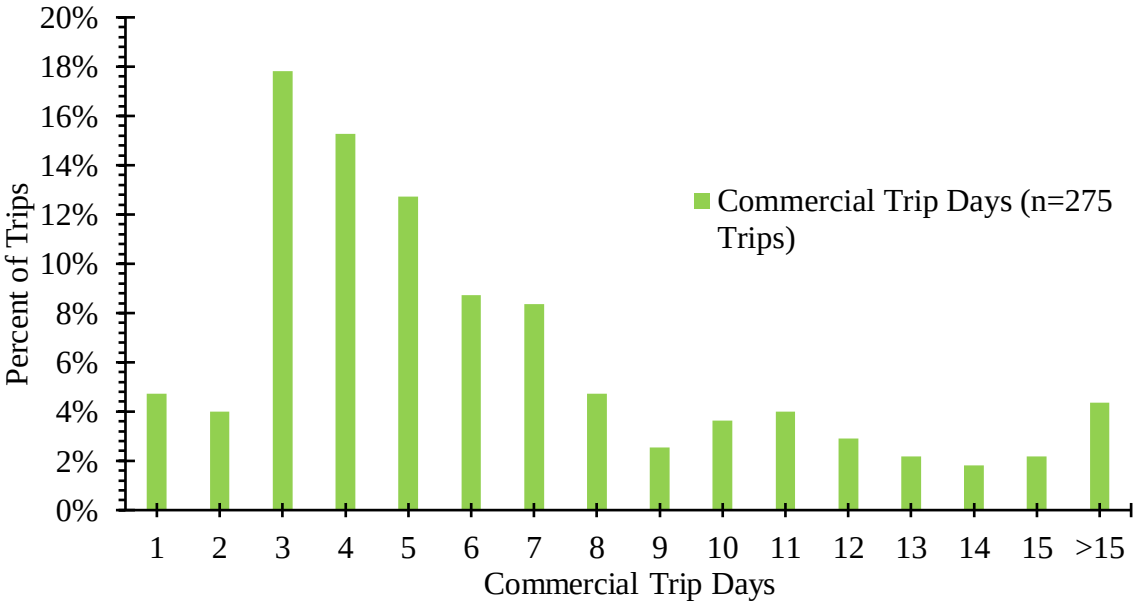

Figure 3. Distribution of the number of days for a commercial cobia trip in the Gulf Zone from 2017 to 2019. This was generated from the TIP data.

Amendment 32 is also considering possession limits that are influenced by the number of people on the trip (cobia per trip). The commercial data were analyzed to provide the distribution of the number of people on a commercial cobia trip (Figure 4). The cobia commercial trips from 2017 to 2019 had a range of 1 to 7 people, and have an average of 3.1 people (standard deviation of 1.4 people).

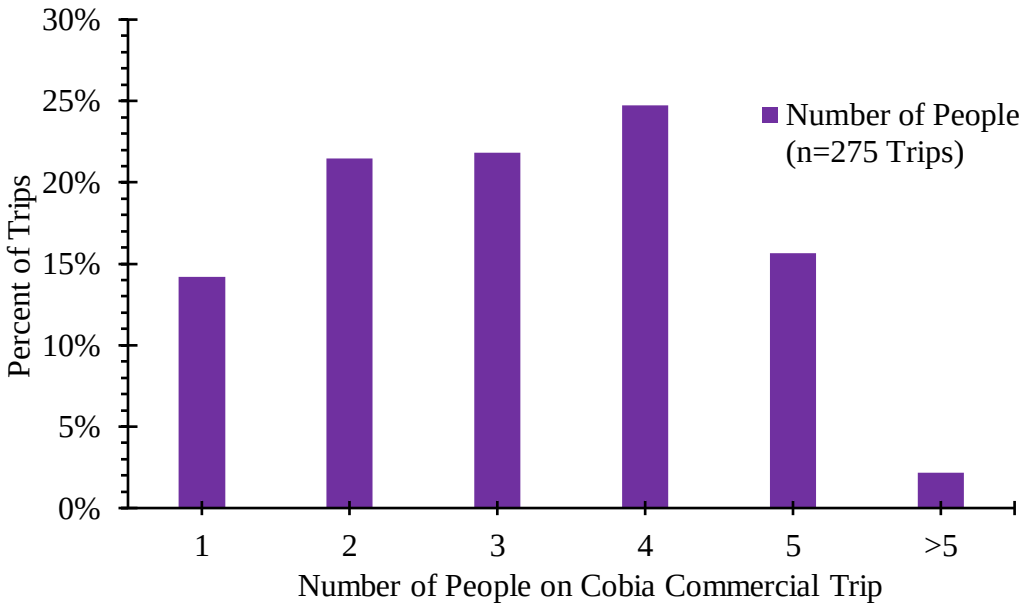

Figure 4. Distribution of the number of people on commercial cobia trips in the Gulf Zone from 2017 to 2019. This was generated from the TIP data.

Alternative 1 of Amendment 32 is the status quo regulation of 2 cobia per person per day. The majority of the commercial cobia trips are multiple days (Figure 3) and have multiple people (Figure 4). Therefore, the 2 cobia per person per day possession limit is rarely reached. Using the available commercial data from 2017 to 2019 none of the 275 trips met the 2 cobia per person per day possession limit. Alternative 2b of Amendment 32 states a possession limit of 1 cobia per person per day and this limit would have little impact on the commercial landings because it would influence less than 1% of the commercial trips.

Alternative 4 (4a, 4b, and 4c) of Amendment 32 considers commercial trip limits for only the commercial sector. Alternative 4 considers the commercial trip limits of 2, 4, and 6 cobia per trip per day. The Alternative 4 limits are not expected to impact the commercial landings because most of the commercial trips are multiple day trips (95% two or more days, Figure 3) and most of the commercial trips harvested only 1 cobia per trip (79% of commercial trips, Figure 1).

Recreational Sector

Recreational data for cobia in the Gulf Zone comes from four different recreational surveys. They are the Texas Parks and Wildlife Department's Recreational Survey (Texas), and Louisiana Department of Wildlife and Fisheries Creel Survey (LA Creel), Southeast Region Headboat

Survey (Headboat), and the Marine Recreational Information Program (MRIP). Texas covers private and charter modes in Texas, and LA Creel covers private and charter modes in Louisiana. Headboat covers headboat activity for the entire Gulf of Mexico and all of Florida. MRIP covers the private and charter modes in Mississippi, Alabama, and Florida. Data from Texas was obtained from the Texas Parks and Wildlife Department on August 17, 2020. Data from LA creel was obtained from the Louisiana Department of Wildlife and Fisheries on April 24, 2020. Data from Headboat was obtained from Southeast Fisheries Science Center on July 10, 2020. Data for MRIP was obtained from the NOAA Fisheries Recreational Fishing Data website (www.fisheries.noaa.gov/topic/recreational-fishing-data) on May 20, 2020.

Data with cobia harvest from all four recreational datasets from 2017 to 2019 were isolated. The Texas data had 124 trips that harvested cobia which resulted in the harvest of 182 cobia. The Texas recreational survey does collect information on trip duration and all of the 124 Texas cobia harvest trips were one-day trips. The majority (99%) of the Texas trips harvested 1 cobia per person per day. The LA creel data had 348 trips that harvested cobia which resulted in the harvest of 633 cobia. LA creel does not have any data on multi-day cobia trips because LA creel only collects information for one-day trips. If LA Creel intercepts a multi-day fishing trip then they only collect data on the day of the interview. For example if a LA Creel interview had a trip that fished on Tuesday and Wednesday and they LA Creel folks interviewed them on Wednesday then they would only collect harvest and other trip data for Wednesday. The headboat data had 1,102 trips that harvested cobia which resulted in the harvest of 1,694 cobia. The majority (91%) of the headboat trips were for a single day, however, there were 9% of the headboat trips that were multi-day trips (2 to 7 days). None of the 1,102 headboat trips exceeded the one fish per person per day limit. The MRIP data had 132 trips that resulted in the harvest of 149 cobia. MRIP does record the duration of the fishing trip and all of the 132 MRIP trips that harvested cobia were single day trips. The Gulf Zone distribution of the recreational cobia harvested per person per day by recreational dataset are shown in Figure 5. The Gulf Zone distribution of the recreational cobia harvested per vessel per trip are shown in Figure 6.

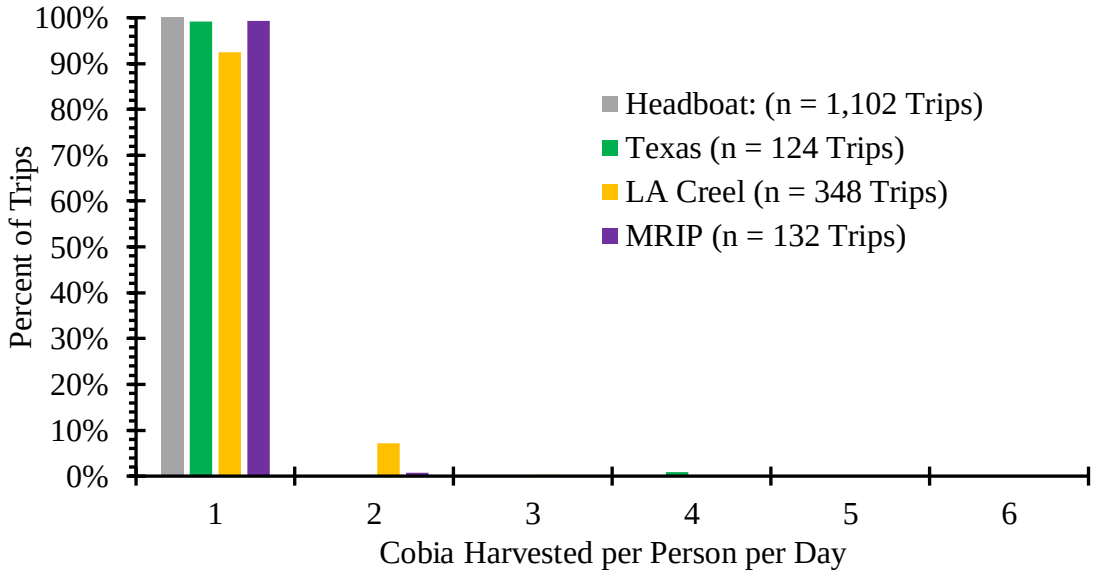

Figure 5. Distribution of the recreational cobia harvested (numbers of fish) per person per day in the Gulf Zone from 2017 to 2019. The data are separated by the different recreational datasets because the different recreational surveys operate in different states. Texas and Louisiana only operate within their own states, Headboat operates in all of the Gulf of Mexico states and Florida, and MRIP operates in Mississippi, Alabama, and Florida.

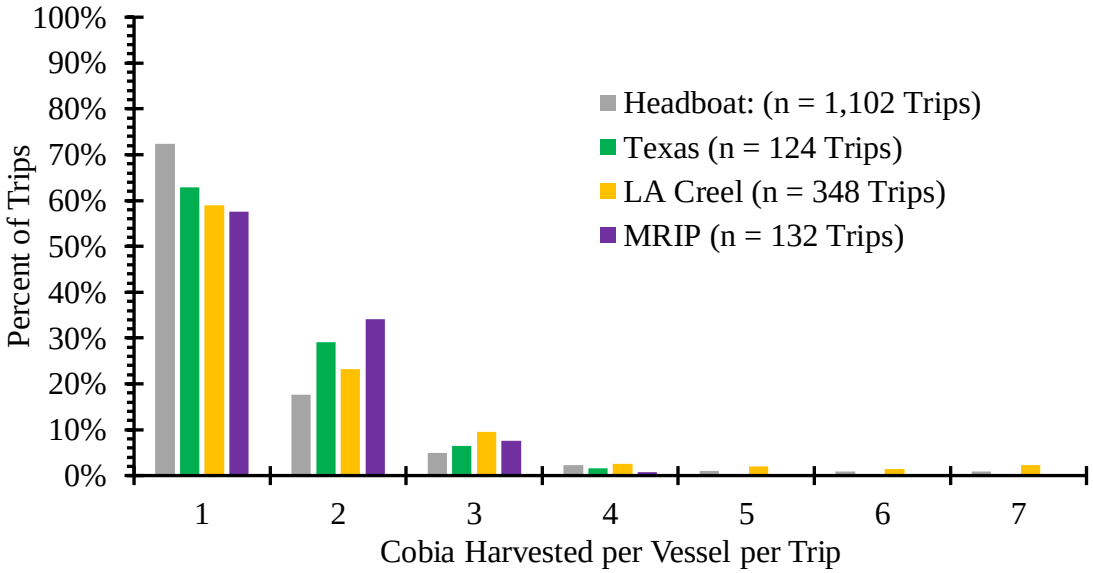

Figure 6. Distribution of the recreational cobia harvested (numbers of fish) per vessel per day in the Gulf Zone from 2017 to 2019. The data are separated by the different recreational datasets because the different recreational surveys operate in different states. Texas and Louisiana only operate within their own states, Headboat operates in all of the Gulf of Mexico states, and MRIP operates in Mississippi, Alabama, and Florida.

Percent Reduction in Landings

Percent reductions in landings were calculated for the Amendment 32 Action 5.1 alternatives by modifying recent trips that harvested cobia. The commercial and recreational data from 2017 through 2019 were used, and any trips that harvested less than the Action 5.1 limit being considered were not modified. Trips that met or exceeded the Action 5.1 limit being considered were changed to meet the limit being considered. For example, if a 1 fish per person per day limit of cobia is being analyzed then a trip that landed 2 cobia per person per day would be changed to a harvest of 1 fish per person per day limit. The unmodified data was compared to the new Action 5.1 limit modified data to determine percent reduction in landings. The results of the percent reduction in landings are shown in Table 1.

Table 1. Calculated percent reduction by dataset in Gulf Zone cobia landings for each of the Amendment 32 Action 5.1 alternatives. The percent reductions were generated from landings data from 2017 to 2019.

Alternative	Details	Dataset				
		Commercial	Recreational Texas	Recreational LA Creel	Recreational Headboat	Recreational MRIP
1	2 Fish per Person per Day Commercial and Recreational Sector	0	0	0	0	0
Alternative 2: 1 Fish per Person per Day						
2a	Recreational Sector	NA	<1%	7%	0	<1%
2b	Commercial Sector	<1%	NA	NA	NA	NA
Alternative 3 Recreational Vessel Limit per Trip						
3a	2 Fish per Vessel per Trip	NA	8%	18%	10%	8%
3b	4 Fish per Vessel per Trip	NA	0	6%	3%	0
3c	6 Fish per Vessel per Trip	NA	0	2%	1%	0
Alternative 4 Commercial Trip Limit per Day						
4a	2 Fish per Trip	3%	NA	NA	NA	NA
4b	4 Fish per Trip	1%	NA	NA	NA	NA
4c	6 Fish per Trip	0	NA	NA	NA	NA

Since this analysis used five different datasets (commercial, Texas, LA Creel, Headboat, and MRIP) the percent reductions were simplified by weighting the impact of the percent reductions by each datasets contribution to the total Gulf Zone cobia landings. Using the 2017 to 2019 landings data the contribution of the total landings by dataset are shown in Table 2. The simplified percent reductions are shown in Table 3.

Table 2. Percent contribution of the total Gulf Zone cobia landings by each dataset. This was generated from the 2017 to 2019 Gulf of Mexico cobia landings.

Dataset	Percentage of Total Landings
Commercial	4%
Recreational Texas	1%
Recreational LA Creel	10%
Recreational Headboat	1%
Recreational MRIP	84%

Table 3. Calculated percent reductions of the total Gulf Zone cobia landings for each of the Amendment 32 Action 5.1 alternatives. The percent reductions were generated from landings data from 2017 to 2019.

Alternative	Details	Percent Reduction of Total Cobia Landings
1	2 Fish per Person per Day Commercial and Recreational Sector	0
Alternative 2: 1 Fish per Person per Day		
2a	Recreational Sector	1.2%
2b	Commercial Sector	<1%
Alternative 3 Recreational Vessel Limit per Trip		
3a	2 Fish per Vessel per Trip	9.0%
3b	4 Fish per Vessel per Trip	<1%
3c	6 Fish per Vessel per Trip	<1%
Alternative 4 Commercial Trip Limit		
4a	2 Fish per Trip	<1%
4b	4 Fish per Trip	<1%
4c	6 Fish per Trip	0

APPENDIX H. FLORIDA EAST COAST ZONE COBIA POSSESSION LIMIT

Amendment 32 to the Fishery Management Plan for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Regions (Amendment 32) is exploring changes to the cobia possession limit. Specifically, Action 5.2 of Amendment 32 is exploring modification to the cobia possession limit in the Florida East Coast (FLEC) Zone (Atlantic side of the Florida Keys to the Florida-Georgia state line).

Commercial Sector

Commercial data for cobia were obtained from the Southeast Fisheries Science Center's Trip Interview Program (TIP) on November 27, 2020. TIP data is collected by port samplers that interview commercial fishers and collect information on the length, weight, and numbers of fish harvested, the gear used, and information on the fishing trip (e.g., date, location). TIP data was used instead of other commercial data because it provides details of the number of cobia caught on each commercial trip. Other commercial datasets provide the pounds of harvest of cobia for the trip, and do not provide the number of cobia harvested.

All available 2017 to 2019 TIP data that had cobia harvest were isolated. The FLEC Zone 2017–2019 TIP data had 64 commercial trips and a harvest of 102 cobia. The distribution of the commercial cobia harvested per trip is shown in Figure 1.

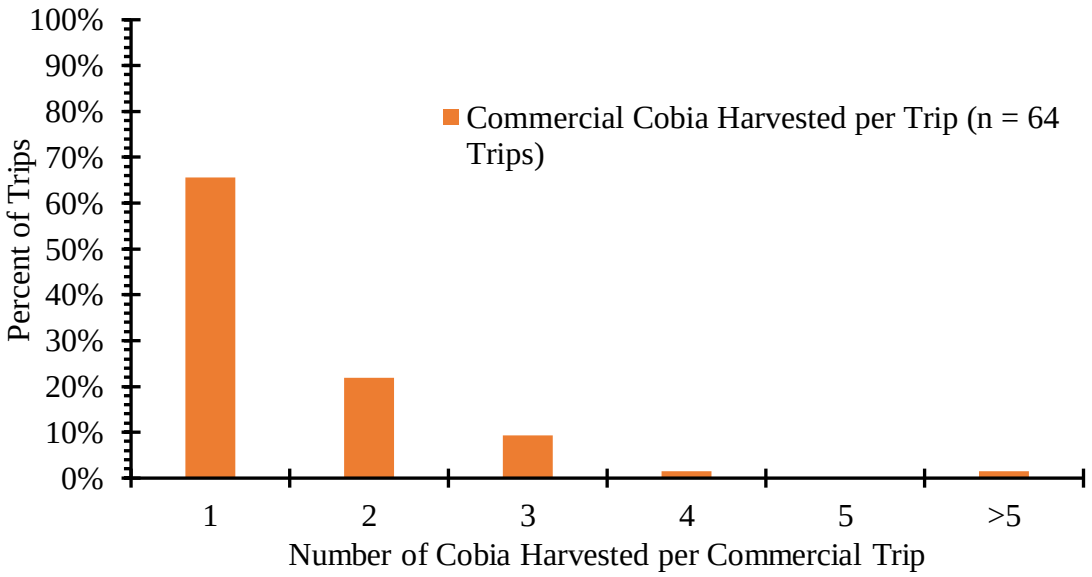

Figure 1. Distribution of the commercial cobia harvested (numbers of fish) per trip in the FLEC Zone from 2017 to 2019. This was generated from the TIP data and resulted in a sample size of 64 trips.

Amendment 32 is considering possession limits for the FLEC Zone that are influenced by the number of days (cobia per day). The commercial data were analyzed to provide the distribution of the number of days for a commercial cobia trip in the FLEC Zone (Figure 2). The cobia commercial trips from 2017 to 2019 range from 1 to 15 days and have an average of 2.24 days (standard deviation of 2.6 days).

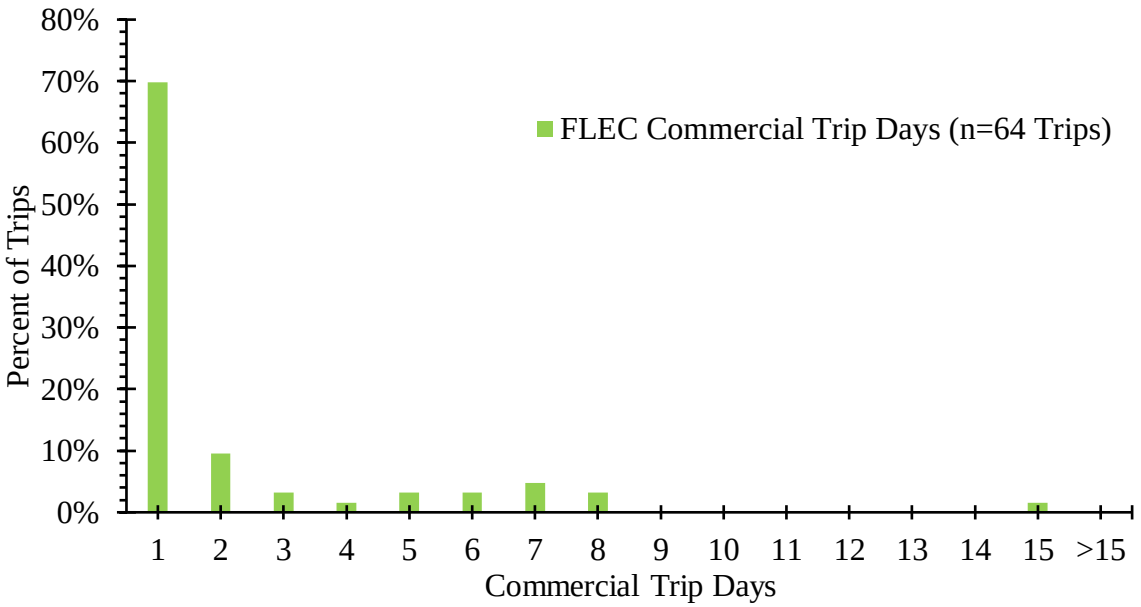

Figure 2. Distribution of the number of days for a commercial cobia trip in the FLEC Zone from 2017 to 2019. This was generated from the TIP data.

Amendment 32 is also considering possession limits in the FLEC Zone that are influenced by the number of people on the trip (cobia per trip). The commercial data were analyzed to provide the distribution of the number of people on a commercial cobia trip (Figure 3). The cobia commercial trips from 2017 to 2019 had a range of 1 to 4 people, and have an average of 1.7 people (standard deviation of 0.76 people).

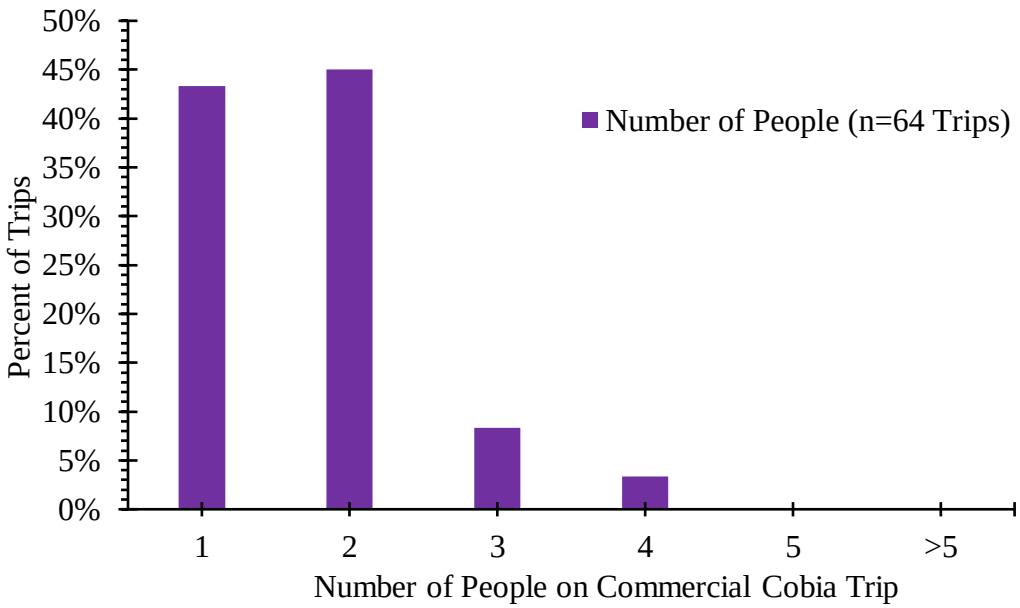

Figure 3. Distribution of the number of people on commercial cobia trips in the FLEC Zone from 2017 to 2019. This was generated from the TIP data.

Alternative 1 of Action 5.2 of Amendment 32 is the status quo regulation of 2 cobia per person per day. Figure 4 provides the distribution of the cobia per person per day from the FLEC Zone commercial data. About 14% of the trips met the current 2 cobia per person per day, and 5% of the trips exceeded the 2 cobia per person per day limit.

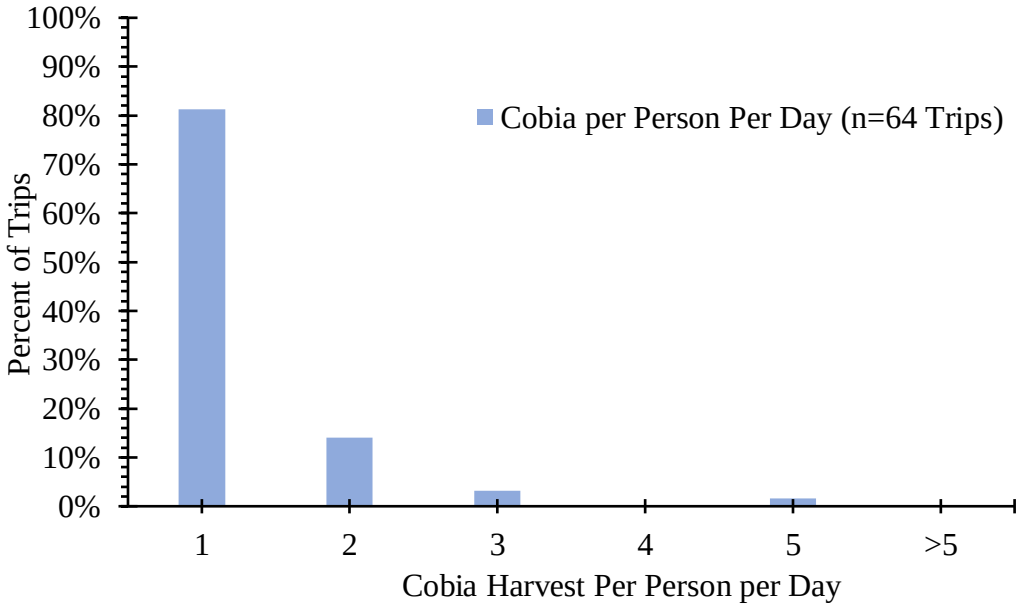

Figure 4. Distribution of the number of cobia harvested per person per day on commercial trips in the FLEC Zone from 2017 to 2019. This was generated from the TIP data.

Alternative 4 (4a, 4b, and 4c) of Action 5.2 of Amendment 32 considers commercial trip limits for only the commercial sector. Alternative 4 considers the commercial trip limits of 2, 4, and 6 cobia per trip. Figure 5 provides the distribution of the number of cobia harvested per trip. The majority of the trips (88%) harvested 2 or less cobia per trip per day, but there is some harvest above 2, 4, and 6 cobia per trip per day.

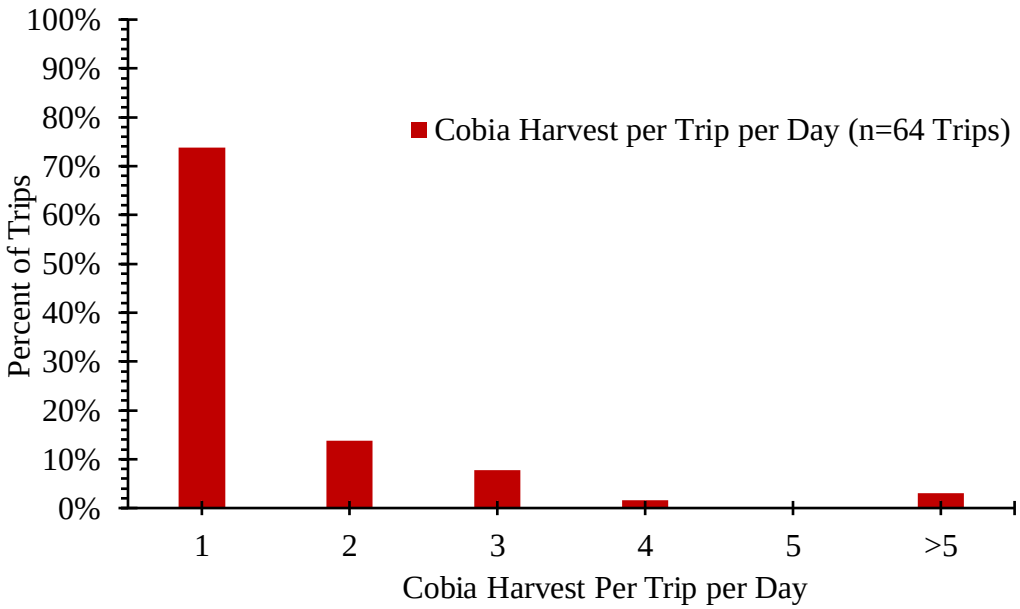

Figure 5. Distribution of the number of cobia harvested per trip per day on commercial trips in the FLEC Zone from 2017 to 2019. This was generated from the TIP data.

Recreational Sector

Recreational data for cobia in the FLEC Zone comes from two different recreational surveys. They Southeast Region Headboat Survey (Headboat) and the Marine Recreational Information Program (MRIP). Headboat covers headboat activity and MRIP covers the private and charter modes of the recreational sector. Data from Headboat was obtained from Southeast Fisheries Science Center on July 10, 2020. Data for MRIP was obtained from the NOAA Fisheries Recreational Fishing Data website (www.fisheries.noaa.gov/topic/recreational-fishing-data) on May 20, 2020.

Data with cobia harvest from the two recreational datasets from 2017 to 2019 were isolated. The headboat data had 1,453 trips that harvested cobia that resulted in the harvest of 2,149 cobia. The majority (99%) of the headboat trips were for a single day. None of the 1,453 headboat trips exceeded the one fish per person per day limit. The MRIP data had 63 trips that harvested cobia that resulted in the harvest of 94 cobia. MRIP does record the duration of the fishing trip and all of the 63 MRIP trips that harvested cobia were single day trips. The FLEC Zone distribution of the recreational cobia harvested per person per day by recreational datasets are shown in Figure 6. The FLEC Zone distribution of the recreational cobia harvested per vessel per trip are shown in Figure 7.

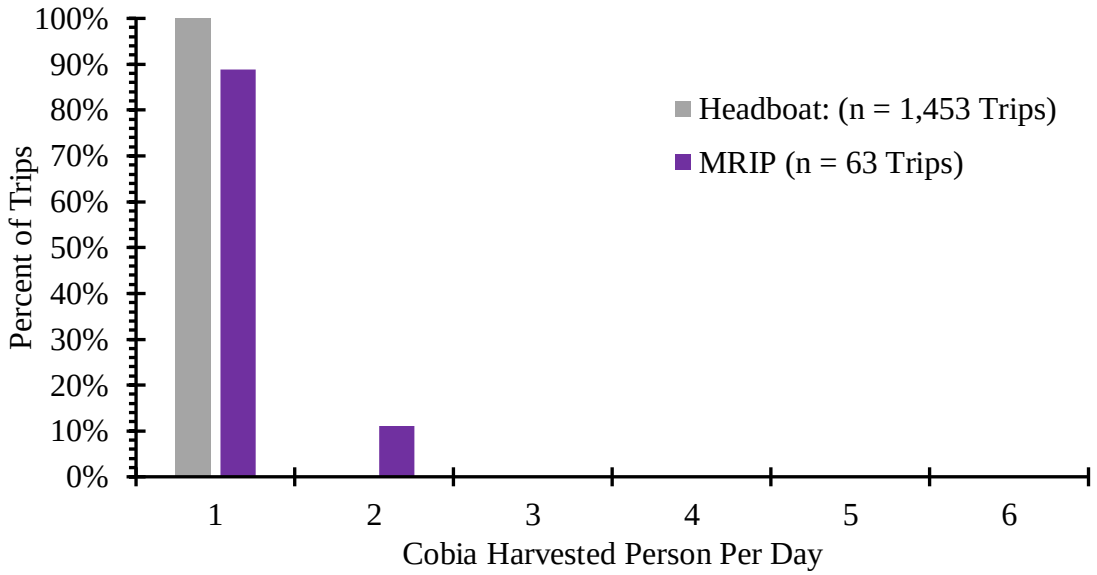

Figure 6. Distribution of the recreational cobia harvested (numbers of fish) per person per day in the FLEC Zone from 2017 to 2019. The data are separated by the different recreational datasets.

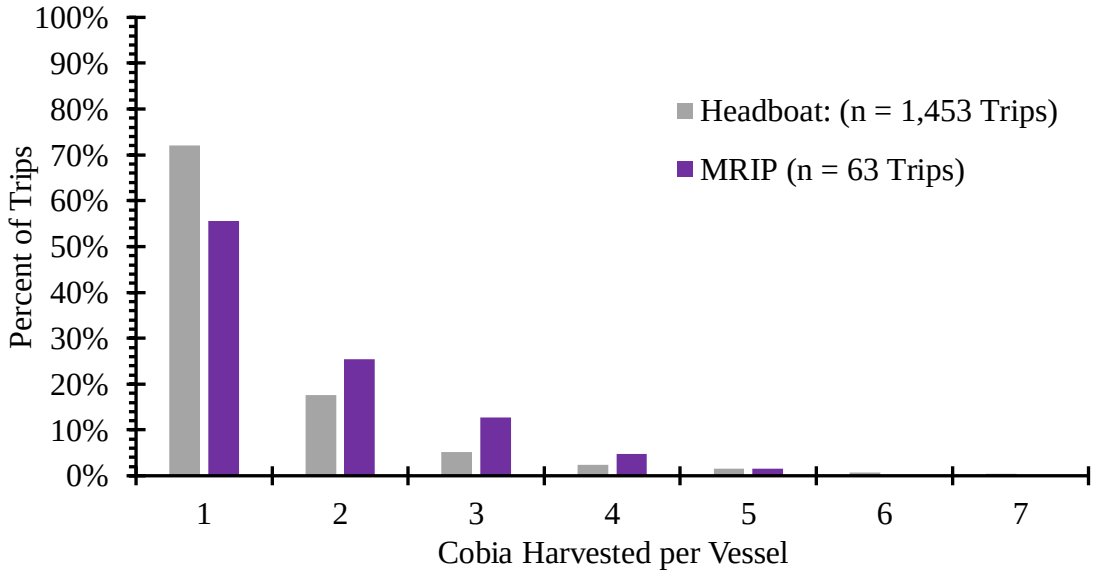

Figure 7. Distribution of the recreational cobia harvested (numbers of fish) per vessel per trip in the FLEC Zone from 2017 to 2019. The data are separated by the different recreational datasets.

Percent Reduction in Landings

Percent reductions in landings were calculated for the Amendment 32 Action 5.2 alternatives by modifying recent trips that harvested cobia. The commercial and recreational data from 2017 through 2019 were used, and any trips that harvested less than the Action 5.2 limit being considered were not modified. Trips that met or exceeded the Action 5.2 limit being considered

were changed to meet the limit being considered. For example if a 1 fish per person per day limit of cobia is being analyzed then a trip that landed 2 cobia per person per day would be changed to a harvest of 1 fish per person per day limit. The unmodified data was compared to the new Action 5.2 limit modified data to determine percent reduction in landings. The results of the percent reduction in landings are shown in Table 1.

Table 1. Calculated percent reduction in landings by dataset for FLEC Zone cobia for each of the Amendment 32 Action 5.2 alternatives. The percent reductions were generated from landings data from 2017 to 2019.

Alternative	Details	Dataset		
		Commercial	Recreational Headboat	Recreational MRIP
1	2 Fish per Person per Day Commercial and Recreational Sector	0	0	0
Alternative 2: 1 Fish per Person per Day				
2a	Recreational Sector	NA	0	11%
2b	Commercial Sector	14%	NA	NA
Alternative 3 Recreational Vessel Limit per Trip				
3a	2 Fish per Vessel per Trip	NA	10%	19%
3b	4 Fish per Vessel per Trip	NA	3%	2%
3c	6 Fish per Vessel per Trip	NA	<1%	0%
Alternative 4 Commercial Trip Limit				
4a	2 Fish per Trip	9%	NA	NA
4b	4 Fish per Trip	3%	NA	NA
4c	6 Fish per Trip	3%	NA	NA

Since this analysis used two different datasets (Headboat and MRIP) for the recreational sector the percent reductions were simplified by weighting the impact of the percent reductions by each datasets contribution to the total FLEC Zone recreational landings. Using the 2017 to 2019 recreational landings data the contribution to the total recreational landings by dataset are shown in Table 2. The percent reductions were weighted by the contribution of each dataset to the total recreational landings, and are shown in Table 3. Table 3 only provides alternatives that apply to the recreational sector.

Table 2. Percent contribution of the total recreational FLEC Zone cobia landings by each dataset. These values were generated from the 2017 to 2019 FLEC Zone cobia recreational landings.

Dataset	Percentage of Total Landings
Recreational Headboat	1.2%
Recreational MRIP	98.8%

Table 3. Calculated percent reductions of the recreational FLEC Zone cobia landings for each of the Amendment 32 Action 5.2 alternatives. The percent reductions were generated from the 2017 to 2019 recreational landings, and the percent reductions were weighted by the contribution each recreational dataset made to the total recreational landings.

Alternative	Details	Percent Reduction of Cobia Recreational Landings
1	2 Fish per Person per Day Commercial and Recreational Sector	0
Alternative 2: 1 Fish per Person per Day		
2a	Recreational Sector	11%
Alternative 3 Recreational Vessel Limit per Trip		
3a	2 Fish per Vessel per Trip	18.9%
3b	4 Fish per Vessel per Trip	4.6
3c	6 Fish per Vessel per Trip	<1%

APPENDIX I. GULF OF MEXICO COBIA MINIMUM SIZE LIMIT ANALYSIS

Amendment 32 to the Fishery Management Plan for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Regions (Amendment 32) is exploring changes to the cobia minimum size limit. Specifically, Action 6 of Amendment 32 is exploring modifications to the cobia minimum size limit in the Gulf Zone (Texas to west Florida) and from the Councils jurisdictional boundary to the eastern side of Florida (FLEC Zone).

Commercial Sector

Commercial length data for cobia were obtained from the Southeast Fisheries Science Center's Trip Interview Program (TIP) on November 27, 2020. TIP data were collected by port samplers that interviewed commercial fishers and collected information on the length and numbers of cobia landed, gear used, and information on the fishing trip (e.g., date, location). TIP data were used instead of other commercial data because it provides information on the length and weight of the individual of cobia that were landed.

TIP data from 2017 to 2019 that had cobia harvest were isolated. This resulted in 338 commercial trips that harvested 437 cobia. The length distribution of the harvested commercial cobia in the Gulf Zone are shown in Figure 1. The length distribution of the harvested cobia for the FLEC Zone are shown in Figure 2. On March 25, 2020 Framework Amendment 7 to the Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region (Framework 7) increased the cobia minimum size limit from 33 to 36 inches fork length in the Gulf Zone. This explains the high percentage of fish harvested that were below the minimum size limit in Figure 1. Framework Amendment 7 did not change the 33-inch minimum size limit for the FLEC Zone. TIP data for 2020 is not available at this time, therefore this analysis moved forward assuming the status quo minimum size limit of 36 inches fork length for the Gulf Zone and a 33-inch fork length minimum size limit for the FLEC Zone.

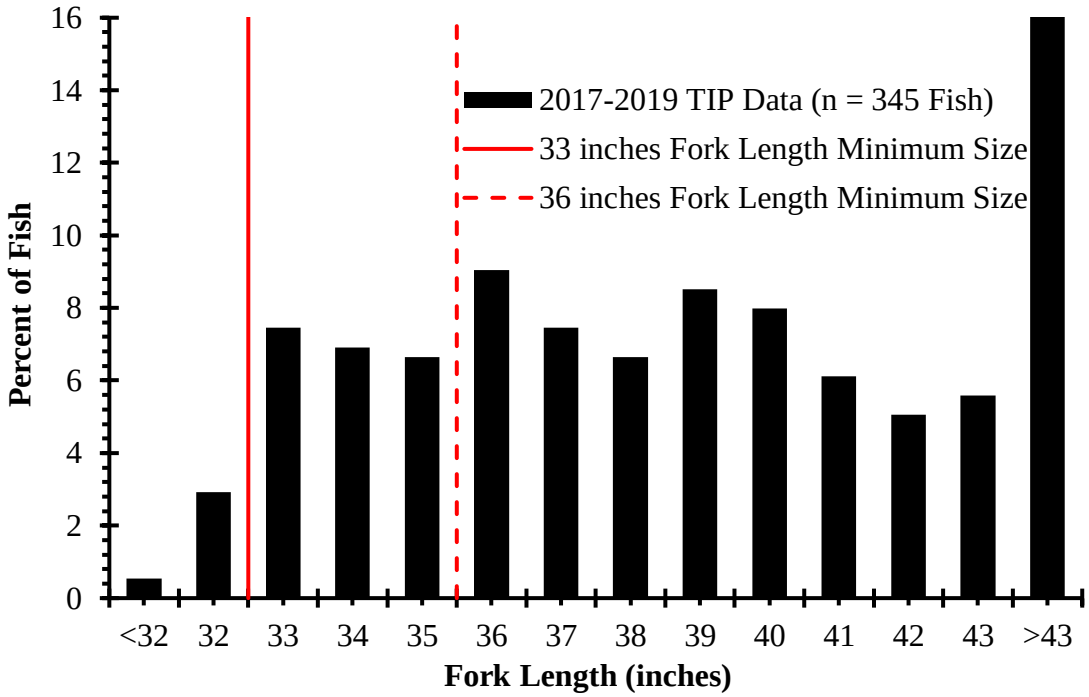

Figure 1. Length distribution of cobia harvested in the commercial sector in the Gulf Zone. Data come from 2017 to 2019 TIP data. Two different minimum size limits are shown (red lines) in the figure because Framework Amendment 7 recently (March of 2020) increased the minimum size limit from 33 to 36 inches fork length in the Gulf Zone.

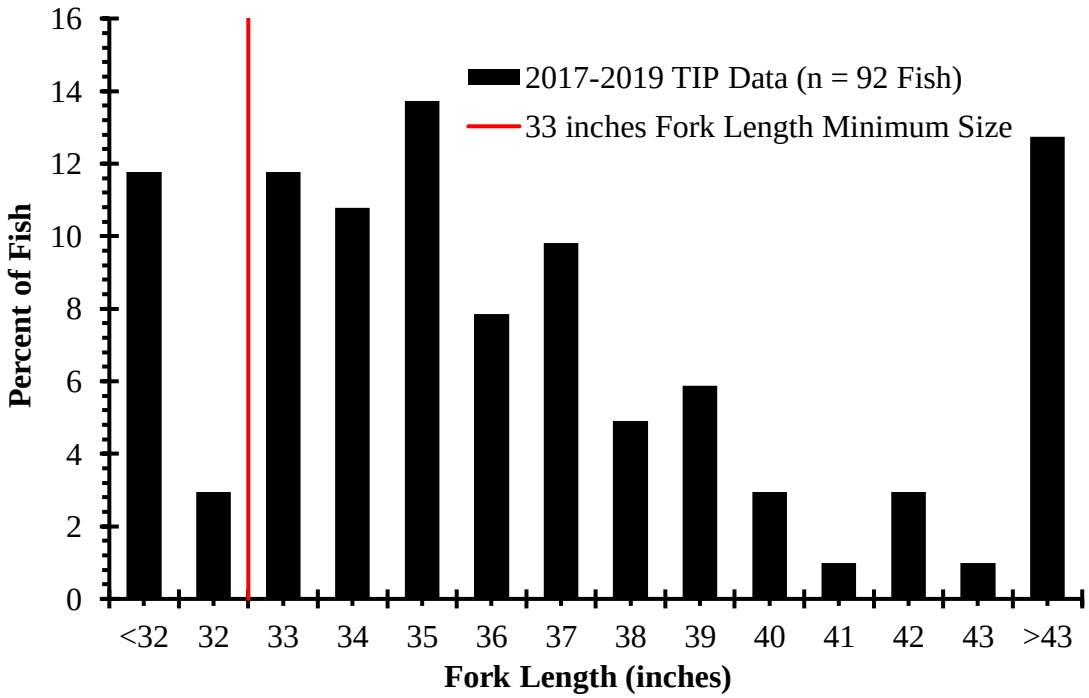

Figure 2. Length distribution of cobia harvested in the commercial sector in the FLEC Zone. Data are from 2017 to 2019 TIP data. The red line is the current minimum size limit (33 inches fork length) for the FLEC Zone.

Action 6 of Amendment 32 has alternatives which propose increasing the minimum size limit. The TIP data has both lengths and weights available for the cobia sampled, however some TIP samples only had length available. The weight of the cobia was generated for TIP data with length but no weight data by applying the SEDAR 28 length-weight conversion equation.

Percent reductions in harvest weight were calculated for the different Action 5 minimum size limits as follows:

Percent reduction = *((C – G) - B)/C*, where:
C = catch in pounds whole weight
G = weight of fish that are greater than or equal to the minimum size limit
B = weight of fish smaller than the 36-inch minimum size limit for the Gulf of Mexico and the 33-inch minimum size limit for east Florida.

Percent reductions associated with minimum size limit were normalized to a 0% reduction at the commercial status quo of 36 inches fork length for the Gulf Zone and 33 inches for FLEC Zone. Due to concerns about low sample sizes, the output was pooled for 2017 – 2019 data. Table 1 provides the calculated percent reduction in landings for the commercial sector.

Table 1. Estimated percent reduction in commercial cobia landings for the proposed alternatives of Action 6 of Amendment 32.

Alternative	Size Limit (Inches FL)	% Reduction
Gulf Zone		
Alternative 1 No Action	36	0
Alternative 2	36	0
Alternative 3a	39	20.3
Alternative 4a	42	45.2
FLEC Zone		
Alternative 1 No Action	33	0
Alternative 2	36	27.2
Alternative 3b	39	48.9
Alternative 4b	42	60.3

Recreational Sector

Recreational data for cobia in the Gulf Zone comes from four different recreational surveys. They are the Texas Parks and Wildlife Department's Recreational Survey (Texas), and Louisiana Department of Wildlife and Fisheries Creel Survey (Louisiana), Southeast Region Headboat Survey (Headboat), and the Marine Recreational Information Program (MRIP). Texas covers private and charter modes in Texas, and Louisiana covers private and charter modes in Louisiana. Headboat covers headboats for the entire Gulf of Mexico and east Florida. MRIP

covers the private and charter modes in Mississippi, Alabama, and both coasts of Florida. Data from Texas were obtained from the Texas Parks and Wildlife Department on August 17, 2020. Data from Louisiana were obtained from the Louisiana Department of Wildlife and Fisheries on April 24, 2020. Data from Headboat were obtained from Southeast Fisheries Science Center on July 10, 2020. Data for MRIP were obtained from the NOAA Fisheries Recreational Fishing Data website (www.fisheries.noaa.gov/topic/recreational-fishing-data) on May 20, 2020.

Recreational data that had cobia harvest from 2017 to 2019 for all four datasets were isolated and plotted. The fork length distribution of the recreational cobia harvested for each dataset are shown in Figure 3 for the Gulf Zone and Figure 4 for the FLEC Zone.

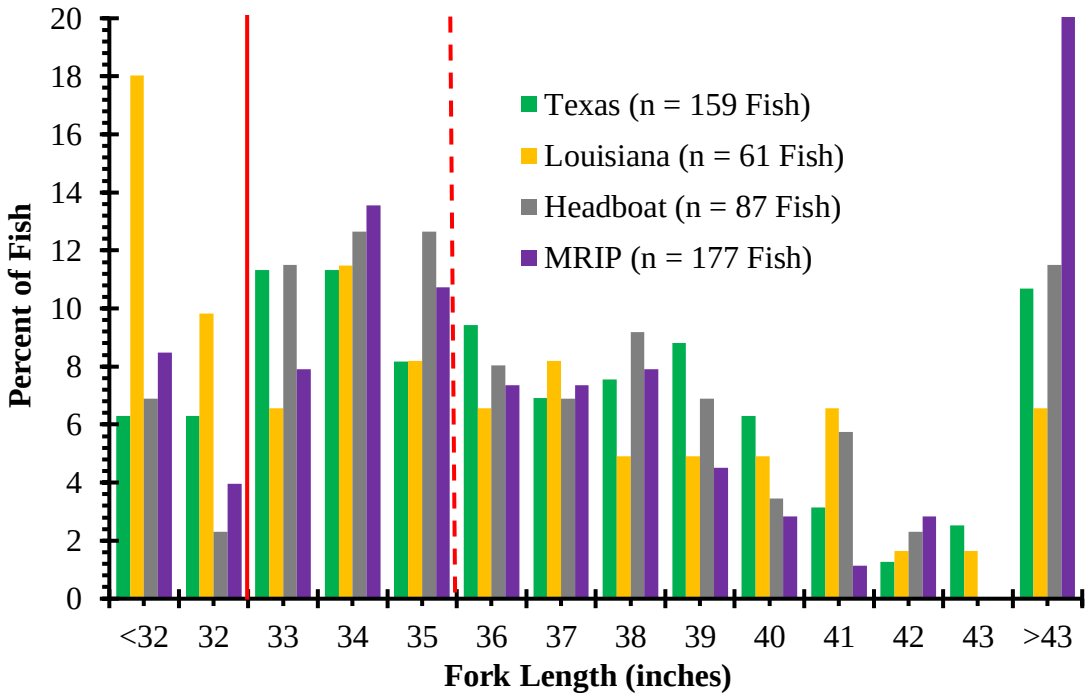

Figure 3. Fork length distribution of the recreational cobia harvested in the Gulf Zone from 2017 to 2019. The data are separated by the different recreational datasets because the different recreational surveys operate in different states. Headboat operates in all of the Gulf of Mexico states, Texas and Louisiana only operate within their own states, and MRIP operates in Mississippi, Alabama, and Florida. Two different minimum size limits are shown (red lines) on the figure because Framework Amendment 7 recently (March of 2020) increased the minimum size limit from 33 to 36 inches fork length in the Gulf Zone.

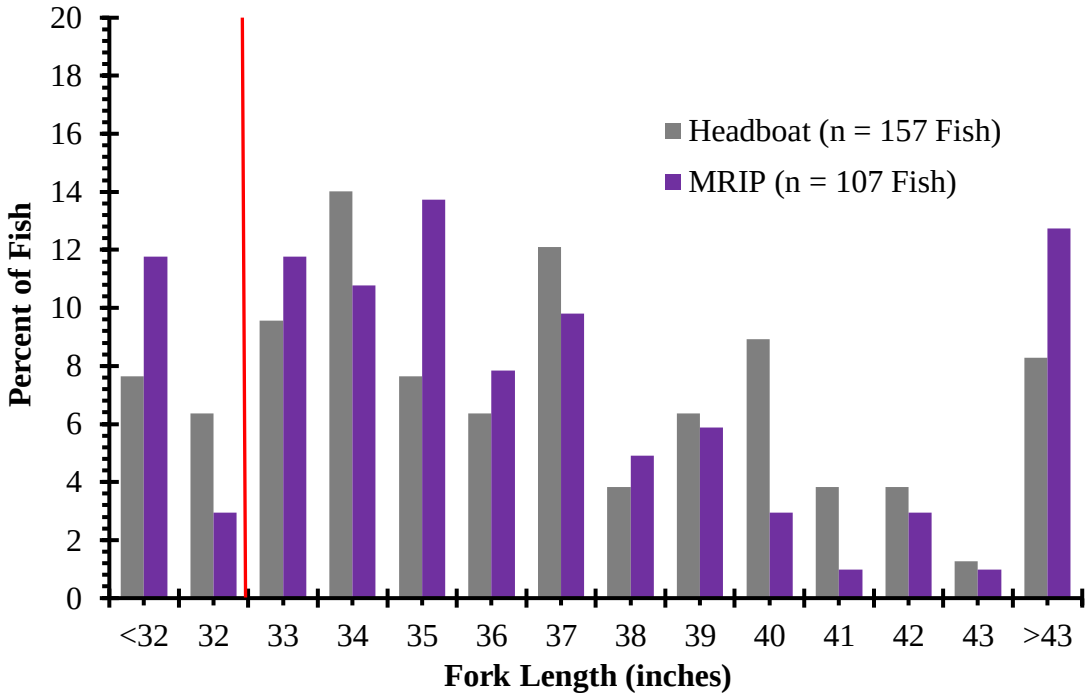

Figure 4. Fork length distribution of the recreational cobia harvested in the FLEC Zone from 2017 to 2019. Only the recreational surveys of Headboat and MRIP operate on the east coast of Florida. The red line is the current minimum size limit (33 inches fork length) for the FLEC Zone.

As stated above, Action 6 of Amendment 32 is considering changes to the minimum size limit in both the Gulf Zone and the FLEC Zone. The current minimum size limit is 36 inches fork length for the Gulf Zone and 33 inches fork length for the FLEC Zone. The alternatives of Action 5 were analyzed for the recreational sector using the same method that was described above for the commercial sector. Table 2 provides the calculated percent reduction in landings for the recreational sector.

Table 2. Calculated percent reduction in recreational landings for the different Amendment 32 Action 6 alternatives using the recent recreational data (2017 – 2019). The results are separated by the different recreational datasets because the different recreational surveys operate in different states. "NA" stands for not applicable and is listed for the FLEC Zone column for the Texas and Louisiana rows because these recreational surveys do not operate on the east coast of Florida.

Alternative	Size Limit (Inches FL)	Gulf Zone % Reduction	FLEC Zone % Reduction
Texas			
Alternative 1 No Action	36	0	NA
Alternative 2	36	0	NA
Alternative 3a	39	20.3	NA
Alternative 4a	42	39.9	NA
Louisiana			
Alternative 1 No Action	36	0	NA
Alternative 2	36	0	NA
Alternative 3a	39	20.3	NA
Alternative 4a	42	46.5	NA
Headboat: All Gulf of Mexico States and Both Coasts of Florida			
Alternative 1 No Action	33	NA	0
Alternative 2	36	0	23.4
Alternative 3a, b	39	19.3	43
Alternative 4a, b	42	37.6	65.2
MRIP: Mississippi, Alabama, and Both Coasts of Florida			
Alternative 1 No Action	33	NA	0
Alternative 2	36	0	33.9
Alternative 3a, b	39	19.6	55.4
Alternative 4a, b	42	38.7	74.4

APPENDIX J. ALTERNATIVES CONSIDERED BUT REJECTED

At its April 2021 meeting, the Gulf Council removed Alternative 4 of Action 2 from further consideration. At its June 2021 meeting, the South Atlantic Council concurred with the decision.

Action 2 - Modify the Gulf Group Cobia Stock Apportionment Between the Gulf Zone and the Florida East Coast (FLEC) Zone, and Update the Zones' ACLs Based on the ACL Selected in Action 1.

Alternative 4: Modify the Gulf Group Cobia stock ACL apportionment at 62% to the Gulf Zone and 38% to the FLEC Zone, based on the MRIP-FES average landings for Gulf Group Cobia for the years 2001 – 2015, and use this apportionment to update the Zone ACLs based on the Gulf Group Cobia ACL(s) in Action 1.