Framework Amendment 4

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

Management Measures for Atlantic Cobia

October 28, 2016

Environmental Assessment Regulatory Impact Review Regulatory Flexibility Analysis

A publication of the South Atlantic Fishery Management Council pursuant to National Oceanic and Atmospheric Administration (NOAA) Award Number FNA10NMF4410012

Abbreviations and Acronyms Used in the FMP

ABC	acceptable biological catch
ACL	annual catch limits
AM	accountability measures
ACT	annual catch target
B	a measure of stock biomass in either weight or other appropriate unit
B_{MSY}	the stock biomass expected to exist under equilibrium conditions when fishing at F_{MSY}
B_{OY}	the stock biomass expected to exist under equilibrium conditions when fishing at F_{OY}
B_{CURR}	The current stock biomass
CLM	Commercial Landings Monitoring System
CMP	coastal migratory pelagics
CPUE	catch per unit effort
EA	environmental assessment
EEZ	exclusive economic zone
EFH	essential fish habitat
ESA	Endangered Species Act
F	a measure of the instantaneous rate of fishing mortality
$F_{30\%SPR}$	fishing mortality that will produce a static SPR = 30%
F_{CURR}	the current instantaneous rate of fishing mortality
F_{MSY}	the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}
F_{OY}	the rate of fishing mortality expected to achieve OY under equilibrium conditions and a corresponding biomass of B_{OY}
FEIS	final environmental impact statement
FMP	fishery management plan
FMU	fishery management unit
HAPC	Habitat Area of Particular Concern
M	natural mortality rate
MARMAP	Marine Resources Monitoring Assessment and Prediction Program
MFMT	maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistics Survey
MRIP	Marine Recreational Information Program
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSST	minimum stock size threshold
MSY	maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NS	National Standard
OFL	overfishing limit
OY	optimum yield
PSE	percent standard error
RIR	regulatory impact review
SEDAR	Southeast Data Assessment and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SPR	spawning potential ratio
SRD	Science and Research Director
SSC	Scientific and Statistical Committee

Framework Amendment 4 to the Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region with Environmental Assessment and Regulatory Impact Review

Proposed action:	Modify recreational and commercial management measures for Atlantic cobia
Lead agency:	Framework Amendment – South Atlantic Fishery Management Council (South Atlantic Council) Environmental Assessment – National Marine Fisheries Service (NMFS) Southeast Regional Office
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Summary

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing Framework Amendment 4 to the Fishery Management Plan (FMP) for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region (CMP FMP). Framework Amendment 4 includes changes to the bag limit, minimum size limit, and accountability measures (AMs) for recreational harvest of Atlantic migratory group cobia (Atlantic cobia), in addition to establishing a recreational vessel limit and commercial trip limit for Atlantic cobia.

The actions in Framework Amendment 4 are in accordance with the provisions set forth in the Magnuson-Stevens Fishery Conservation and Management Act and regulations found at 50 CFR 622.389 (Adjustment of Management Measures) and the framework procedure for the CMP FMP. The intent of this amendment is to slow the rate of harvest in order to reduce the likelihood of exceeding the annual catch limit (ACL) and triggering AMs, and to provide fair access to the Atlantic cobia resource for all participants. Framework Amendment 4, with the integrated Environmental Assessment, has been made available for public review before and during each South Atlantic Council meeting and during the proposed rule phase.

Atlantic Cobia Recreational Management Measures

The South Atlantic Council chose management measures for recreational harvest of Atlantic cobia to include a bag limit of 1 fish per person per day, a vessel limit of 6 fish per vessel per day, and a minimum size limit of 36 inches fork length (FL).

Action 1. Modify the recreational management measures for Atlantic cobia

Action 1-1: *Modify the recreational harvest limits for Atlantic cobia*

Preferred Alternative 2. Establish a recreational bag limit for Atlantic cobia.

Preferred Sub-alternative 2a. 1 fish per person per day

Preferred Alternative 3. Establish a recreational vessel limit for Atlantic cobia.

Preferred Sub-alternative 3f. 6 fish per vessel per day

Action 1-2*: Modify the minimum size limit for recreational harvest of Atlantic cobia*

Preferred Alternative 2. Modify the minimum size limit for Atlantic cobia for recreational harvest of Atlantic cobia.

Preferred Sub-alternative 2c. 36 inches FL

The combination of these measures is expected to slow the rate of harvest and reduce the likelihood that recreational landings will exceed the recreational ACL, triggering the recreational AMs for the following fishing year. Under the preferred alternatives/sub-alternatives during a year with high landings (such as 2015), it would be expected that the recreational ACL would not be reached until mid-July. In a year with recreational

landings closer to the average of 2005-2014, the proposed measures would be expected to slow the rate of harvest so that landings would not reach the recreational ACL until October.

Atlantic Cobia Recreational Accountability Measures (AMs)

Under Action 2, the South Atlantic Council selected two preferred alternatives to establish a modified system of recreational AMs for Atlantic cobia.

Action 2: Modify the recreational accountability measures for Atlantic cobia

Preferred Alternative 2. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, recreational landings will be monitored for a persistence in increased landings. If necessary, the Regional Administrator shall publish a notice to reduce the length of the following fishing season to ensure that recreational landings meet the recreational annual catch target (ACT) but do not exceed the recreational ACL, based on the recreational landings in the previous year. The length of the recreational season will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

> **Preferred Sub-alternative 2b.** The Regional Administrator will reduce the length of the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Preferred Alternative 5. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, recreational landings will be monitored for a persistence in increased landings. If necessary, the Regional Administrator shall publish a notice to reduce the recreational vessel limit for the following fishing year to ensure that recreational landings meet the recreational ACT but do not exceed the recreational ACL, based on the recreational landings in the previous year. The recreational vessel limit will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

> **Preferred Sub-alternative 5b.** The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

The South Atlantic Council specified that if a post-season AM is triggered, the Regional Administrator would first apply a reduced vessel limit of no fewer than 2 fish per vessel per day for the fishing year following an overage. If a reduced vessel limit is determined to not be sufficient in preventing recreational landings from exceeding the recreational ACL in the subsequent fishing year, then the Regional Administrator would also implement a reduced season length. This system would ensure that a reduced season length, which has negative effects on recreational fishing opportunities, would only be applied if other measures were not effective in preventing recreational landings from exceeding the recreational ACL.

Atlantic Cobia Commercial Trip Limit

Under Action 3, the South Atlantic Council proposes to establish the commercial trip limit for Atlantic cobia at 2 per person per day or 6 per vessel per day, whichever is more restrictive. The South Atlantic Council also considered a reduced commercial trip limit when 75% of the commercial ACL is met, but decided that a vessel limit would be adequate to reduce the likelihood commercial landings would exceed the commercial ACL, but still allow the opportunity to reach the commercial ACL.

Action 3: Establish a commercial trip limit for Atlantic cobia

Preferred Alternative 5. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day or 6 fish per vessel per day, whichever is more restrictive.

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Chapter 1. Introduction

1.1 What Actions are Being Proposed?

Framework Amendment 4 amends the Fishery Management Plan (FMP) for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region (CMP FMP). Framework Amendment 4 includes actions to change the bag limit, minimum size limit, and accountability measures (AMs) for recreational harvest of Atlantic migratory group cobia (Atlantic cobia), in addition to actions to establish a recreational vessel limit and a commercial trip limit for Atlantic cobia. This framework amendment applies to harvest of Atlantic cobia in the exclusive economic zone (EEZ) from the Georgia/Florida line through the Mid-Atlantic region.

1.2 Who is Proposing these Actions?

The coastal migratory pelagics (CMP) fishery is managed jointly by the Gulf of Mexico Fishery Management Council (Gulf Council) and the South Atlantic Fishery Management Council (South Atlantic Council). Amendments to the FMP (plan amendments) and framework amendments affecting both Gulf of Mexico and Atlantic cobia must be approved by both the Gulf Council and the South Atlantic Council. Because this framework amendment applies only to Atlantic cobia, the South Atlantic Council is proposing the actions and will give final approval on the actions. Following approval by the South Atlantic Council, the framework amendment will be submitted to the National Marine Fisheries Service (NMFS), who implements the measures in the framework amendment on behalf of the Secretary of Commerce. NMFS is a line office in the National Oceanic and Atmospheric Administration.

South Atlantic Fishery Management Council

- Responsible for conservation and management of fish stocks
- The South Atlantic Council consists of 13 voting members appointed by the Secretary of Commerce and 4 non-voting members. The Mackerel Cobia Committee of the South Atlantic Council also includes two voting seats for representatives from the Mid-Atlantic Fishery Management Council. The management area is from 3 to 200 nautical miles off the coasts of North Carolina, South Carolina, Georgia, and Florida through the Atlantic side of Key West. The South Atlantic Council manages the CMP Fishery through the Mid-Atlantic region.
- Develop management plans/amendments and recommends regulations to NMFS for implementation

1.3 Why is the South Atlantic Council Considering Action?

In 2015, recreational landings for Atlantic migratory group (Georgia to New York[1]) cobia (Atlantic cobia) exceeded the 2015 recreational annual catch limit (ACL) of 630,000 pounds whole weight (ww) and the 2015 stock ACL (commercial and recreational ACLs combined[2]) of 690,000 lbs ww. The current AM for Atlantic cobia specifies that if total landings exceed the stock ACL, NMFS must file a notice to reduce the length of the following recreational season by the amount necessary to ensure recreational landings may achieve the recreational annual catch target, but do not exceed the recreational ACL.

On March 10, 2016, NMFS announced that the 2016 recreational season for Atlantic cobia in federal waters would close on June 20, 2016 (81 FR 12601). Because the closure occurred during months of high recreational effort for cobia, the early closure likely had negative social and economic impacts on recreational anglers, for-hire businesses, for-hire clients, and associated support businesses, such as tackle shops[3]. Although Virginia and North Carolina did not adopt compatible regulations after the federal closure was announced and harvest in Virginia and North Carolina state waters remained open after June 20, 2016, the more restrictive management measures implemented for Virginia and North Carolina state waters also affected recreational fishermen and businesses in those areas, as described in further detail in Chapter 4. The negative effects of the federal closure would likely be greatest for recreational fishermen and businesses in North Carolina and Virginia as landings are highest in these states (**Table 1.3.1)** and recreational landings are generally higher in the later months of the summer in North Carolina and Virginia (**Figure 1.3.1**).

Table 1.3.1. Recreational landings (lbs ww) of Atlantic cobia from 2005-2015. Data sources: MRIP and SEFSC

Year	VA Landings	NC Landings	SC Landings	GA Landings	TOTAL ATLANTIC
2005	577,284	322,272	5,793	3,358	908,707
2006	733,740	104,259	101,018	4,824	943,841
2007	322,887	90,197	268,677	64,708	746,469
2008	167,949	66,258	50,108	257,690	542,006
2009	552,995	123,061	76,229	3,997	756,282
2010	232,987	561,486	65,688	79,855	940,015
2011	136,859	121,689	3,565	90,375	352,488
2012	36,409	68,657	224,365	105,193	434,623
2013	354,463	492,969	19,130	29,224	895,786
2014	214,427	277,489	31,927	20,642	544,485
2015	718,647	630,373	123,952	67,804	1,565,186

[1] No recreational landings were reported north of Virginia (MRIP and SEFSC).
[2] Federal regulations do not specify 'commercial' and 'recreational' sectors for Atlantic cobia, but instead refer to the different landings as 'cobia that are sold' and 'cobia that are not sold.' Throughout this amendment, 'commercial' will refer to cobia that are sold, and 'recreational' will refer to cobia that are not sold.
[3] The 2016 recreational landings of Atlantic cobia (from MRIP) are not available at this time to estimate the effect of state and federal actions on recreational catch and effort. However, public comment indicates that the June 20 closure negatively affected many recreational fishermen and businesses in North Carolina and Virginia.

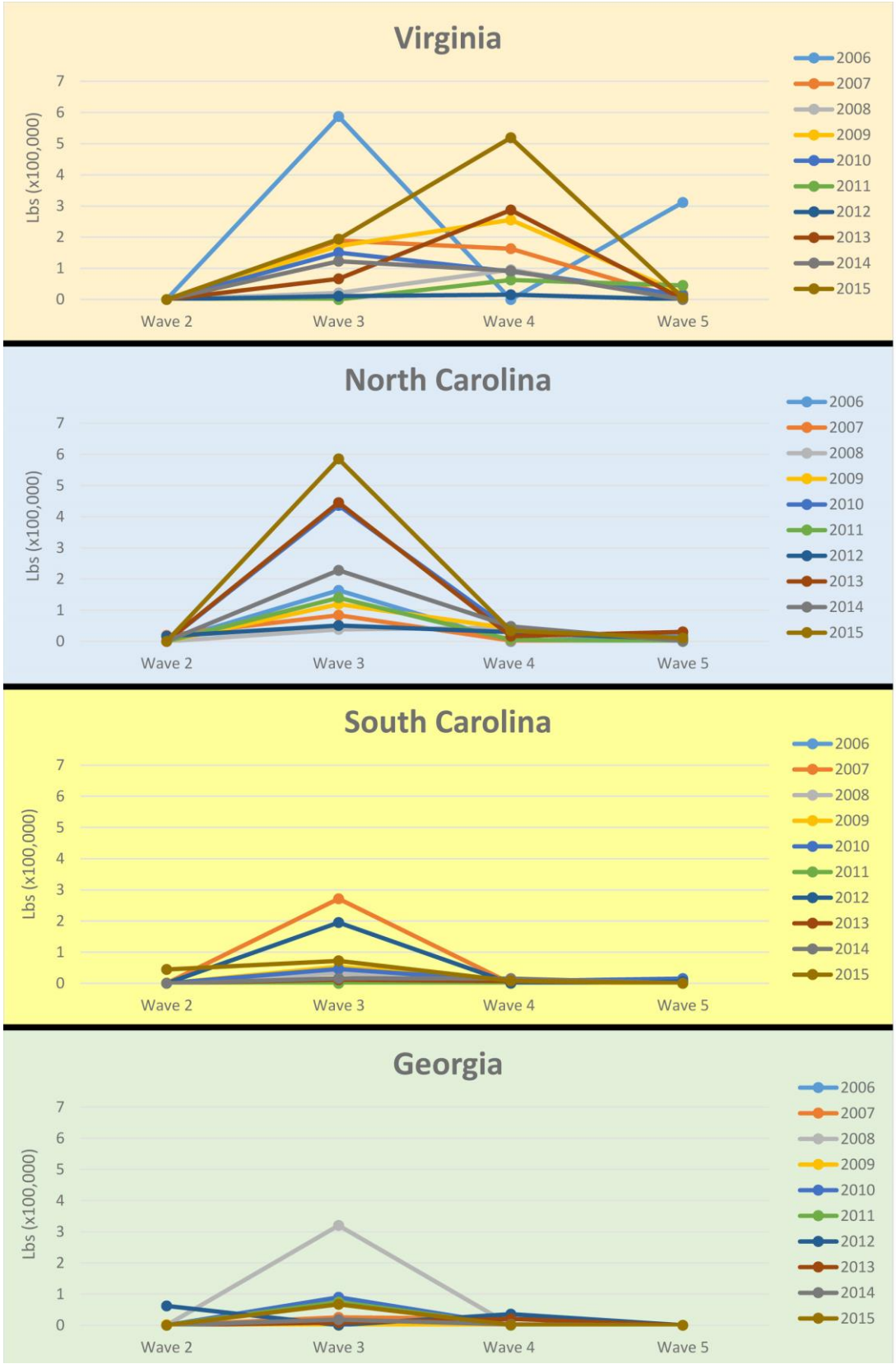

Figure 1.3.1. Recreational catch of Atlantic cobia (lbs ww) by wave from 2006-2015 for Waves 2-5. Data sources: SERO and MRIP database. The MRIP-estimated recreational landings of Atlantic cobia in states north of Virginia from 2006-2015 are minimal, with only small numbers reported in Delaware and

New Jersey every few years. Additionally, MRIP estimates for 2016 (preliminary) show landings from Maryland.

The South Atlantic Council is considering changes to management measures of Atlantic cobia in federal waters to reduce the likelihood of exceeding the ACL and triggering AMs, to provide fair access to the Atlantic cobia resource, and to enable the recreational and commercial sectors have an opportunity to catch Atlantic cobia during the typical months the species is targeted (**Figure 1.3.1**). Specifically, the objective of the proposed measures is to ensure that in the event of a future ACL overage and implementation of associated AM(s), the fishing season would be open long enough into the fishing year to allow for fishermen in all states to have the opportunity to catch cobia.

The framework amendment includes actions to modify the recreational bag limit, establish a recreational vessel limit, increase the recreational minimum size limit, change the recreational AMs, and modify the commercial harvest limits.

1.3.1 Purpose and Need Statement

Purpose for Action

The purpose of this amendment is to revise the management measures for Atlantic migratory group cobia to ensure consistent, stable, and equitable fishing opportunities for all participants in the Atlantic cobia component of the coastal migratory pelagics fishery.

Need for Action

The need for this amendment is to respond to changing fishery characteristics for Atlantic migratory group cobia, while increasing social and economic benefits of the coastal migratory pelagics fishery through sustainable fishing opportunities and harvest of Atlantic cobia.

1.4 What are the Current Regulations for Atlantic Cobia in State and Federal Waters?

Federal regulations for commercial and recreational harvest of Atlantic cobia in the EEZ (Georgia through New York) include a minimum size limit of 33 inches fork length (FL) and a possession limit of 2 fish per person per day. Regulations in federal waters are consistent with regulations in state waters of Georgia and some areas of South Carolina (see explanation below). In the Mid-Atlantic, New Jersey and New York are subject to a minimum size limit of 37 inches total length (TL) and a bag limit of 2 fish per person per day, but Virginia has different regulations for state waters (described below). Recreational landings estimates from MRIP show low landings of Atlantic cobia north of Virginia, with only small numbers in the MRIP estimates from Delaware and New Jersey every few years. Additionally, MRIP estimates for 2016 (preliminary) show landings from Maryland.

Virginia, North Carolina, and South Carolina have recently implemented management changes for cobia harvest in state waters. Effective June 1, 2016, the recreational harvest limits in Virginia state waters are 1 fish per person and 2 fish per boat; the minimum size limit is 40

inches TL and no more than one cobia over 50 inches TL is allowed per boat; no gaffing is allowed; and state waters closed for the remainder of the year on August 30, 2016. The meeting summary is available at: http://www.mrc.virginia.gov/Commission_Summaries/cs0516.shtm.

In February 2016, the North Carolina Marine Fisheries Commission (North Carolina Commission) approved a reduction in the recreational bag limit for cobia in North Carolina state waters to 1 fish per person per day, effective February 27, 2016 (see http://portal.ncdenr.org/web/mf/proclamation-ff-09-2016). The North Carolina Commission made additional changes to cobia harvest in state waters in May 2016. Effective May 23, 2016, the recreational minimum size limit is 37 inches FL, and state waters closed on September 30, 2016. On for-hire trips, the harvest limit is 4 cobia per vessel per day or 1 cobia per person per day if fewer than four people are on board. Private recreational harvest is only allowed on Monday, Wednesday, and Saturday, with a vessel limit of 2 cobia per day and a bag limit of 1 cobia per person per day if there is only one person on board. Shore-based cobia harvest is allowed seven days a week with a recreational bag limit of 1 fish per person per day. The proclamation is available here: http://portal.ncdenr.org/web/mf/proclamation-ff-25-2016.

In April 2016, the governor of South Carolina approved legislation to establish a Southern Cobia Management Zone, which includes South Carolina state waters from Jeremy Inlet, Edisto Island, to the South Carolina/Georgia boundary. Effective May 1, 2016, cobia harvest in the Southern Cobia Management Zone is limited to catch and release only from May 1 through May 31, and is limited to 1 fish per person per day or 3 fish per vessel per day, whichever is lower, from June 1 through April 30. The full language of the bill is available here: https://legiscan.com/SC/text/H4709/2015.

In March 2016, the South Atlantic Council sent a letter to the Atlantic States Marine Fisheries Commission (ASMFC) requesting that the ASMFC consider complementary management measures for cobia. In May 2016, the Interstate Fisheries Management Program Policy Board discussed cobia and the ASMFC has started exploring options for the development of an interstate fishery management plan for cobia. The Policy Board directed the South Atlantic Board of the ASMFC to develop alternatives for developing an FMP that is either joint, complementary, or exclusively managed by the Commission to determine what type of FMP is the best way to move forward. In August 2016, the ASFMC's South Atlantic Board discussed management of cobia and approved the development of a new Interstate FMP for the Atlantic Migratory Group of Cobia, which would allow for complementary management. The August 2016 meeting summary is available at: http://www.asmfc.org/files/Meetings/2016SummerMtg/2016SummerMeetingSummary.pdf. In October 2016, the South Atlantic Federal/State Fisheries Management Board will review a draft public information document for the cobia FMP.

CMP Joint Fishery Management Plan Objectives

The current management objectives in the joint CMP FMP as amended are:

1) The primary objective of this FMP is to stabilize yield at the maximum sustainable yield (MSY), allow recovery of overfished populations, and maintain population levels sufficient to ensure adequate recruitment.
2) To provide a flexible management system for the resource which minimizes regulatory delay while retaining substantial South Atlantic Council and public input in management

decisions and which can rapidly adapt to changes in resource abundance, new scientific information, and changes in fishing patterns among user groups or by areas.

3) To provide necessary information for effective management and establish a mandatory reporting system for monitoring catch.
4) To minimize gear and user group conflicts.
5) To distribute the total allowable catch of Atlantic migratory group Spanish mackerel between recreational and commercial user groups based on the catches that occurred during the early to mid-1970s, which is prior to the development of the deep water run-around gillnet sector and when the resource was not overfished.
6) To minimize waste and bycatch in the fishery.
7) To provide appropriate management to address specific migratory groups of king mackerel.
8) To optimize the social and economic benefits of the CMP fisheries.

The actions proposed in the amendment specifically help to meet CMP FMP Objectives 2 and 8.

1.5 Which species and areas would be affected by the actions?

Though king mackerel, Spanish mackerel, and cobia are included in the CMP FMP, cobia is the only species addressed in this framework amendment. Cobia is managed as two migratory groups (Atlantic and Gulf of Mexico). The actions in this amendment address management of Atlantic migratory group cobia (Atlantic cobia) only.

The stock boundary between the Atlantic and Gulf of Mexico (Gulf) migratory groups of cobia extends due east of the Georgia/Florida border. The northern stock boundary of Atlantic cobia is at the jurisdictional boundary between the Mid-Atlantic and New England Fishery Management Councils (**Figure 1.5.1**). The southern boundary is based on the approach used in the most recent stock assessment (SEDAR 28, 2013), which incorporated new information about the Gulf and Atlantic stocks through genetic data and tagging studies. Cobia caught off the east coast of Florida are considered Gulf migratory group cobia (Gulf cobia) and are counted towards the Florida East coast zone's allocation of the Gulf ACL. However, the South Atlantic Council manages harvest of cobia off the east coast of Florida since it is in the South Atlantic's jurisdiction. Cobia caught in state and federal waters count towards that area or zone's ACL.

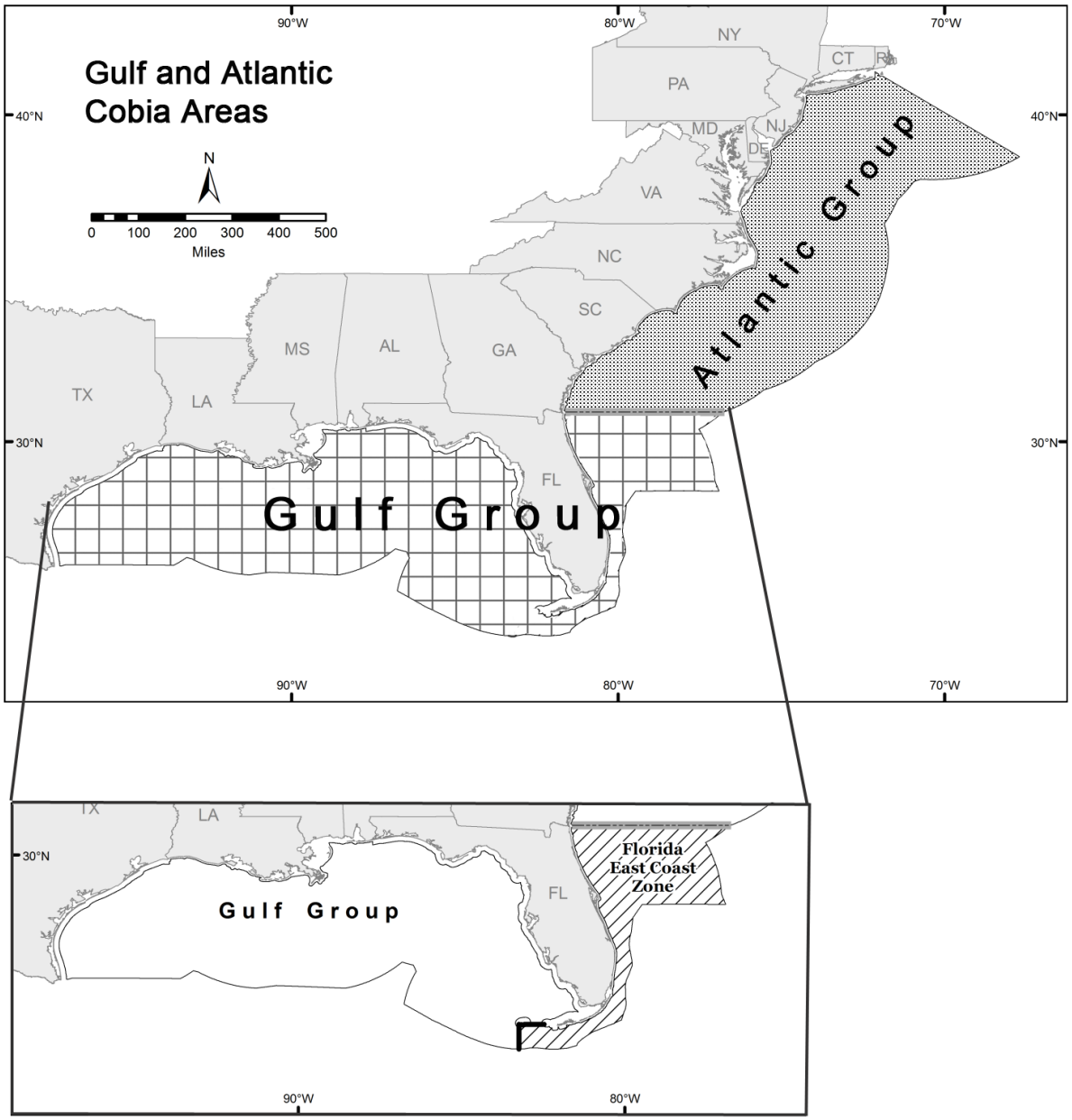

Figure 1.5.1. Boundary between Atlantic and Gulf cobia

Chapter 2. Proposed Actions and Alternatives

Action 1: Modify the recreational management measures for Atlantic cobia

Action 1-1: Modify the recreational harvest limits for Atlantic cobia

Alternative 1 (No Action). Do not modify the possession limit of 2 fish per person per day for Atlantic cobia that are not sold.

Preferred Alternative 2. Establish a recreational bag limit for Atlantic cobia.
- **Preferred Sub-alternative 2a**. 1 fish per person per day
- **Sub-alternative 2b**. 2 fish per person per day

Preferred Alternative 3. Establish a recreational vessel limit for Atlantic cobia.
- **Sub-alternative 3a**. 1 fish per vessel per day
- **Sub-alternative 3b**. 2 fish per vessel per day
- **Sub-alternative 3c**. 3 fish per vessel per day
- **Sub-alternative 3d**. 4 fish per vessel per day
- **Sub-alternative 3e**. 5 fish per vessel per day
- **Preferred Sub-alternative 3f**. 6 fish per vessel per day

Action 1-2: Modify the minimum size limit for recreational harvest of Atlantic cobia

Alternative 1 (No Action). Do not modify the minimum size limit of 33 inches fork length (FL) for recreational harvest of Atlantic cobia.

Preferred Alternative 2. Modify the minimum size limit for Atlantic cobia for recreational harvest of Atlantic cobia.
- **Sub-alternative 2a**. 34 inches FL
- **Sub-alternative 2b**. 35 inches FL
- **Preferred Sub-alternative 2c**. 36 inches FL
- **Sub-alternative 2d**. 37 inches FL
- **Sub-alternative 2e**. 38 inches FL
- **Sub-alternative 2f**. 39 inches FL
- **Sub-alternative 2g**. 45 inches FL
- **Sub-alternative 2h**. 50 inches FL

Discussion:

Action 1 includes two sub-actions that would modify recreational harvest limits through bag limits, vessel limits, minimum size limits, or a combination of these management measures. The intent of this action is to slow the rate of cobia harvest and reduce the likelihood that an accountability measure (AM) would be triggered, which could shorten the season or restrict access in some way (e.g., reduced bag or vessel limit) for a future fishing year. The combination of harvest limits and minimum size limits are often effective in slowing the rate of harvest. The Council is considering changes to the minimum size limit for only recreational sector due to the negative economic and social effects of the shortened 2016 recreational fishing season.

Action 1-1 includes alternatives to modify the recreational possession limit by establishing a recreational bag limit and a recreational vessel limit. The current possession limit for commercial and recreational trips harvesting Atlantic cobia in federal waters is 2 fish per person per day.

Under **Alternative 1 (No Action)**, the current limit on recreational harvest of Atlantic cobia would remain as 2 fish per person per day. Under **Preferred Alternative 2**, the recreational bag limit would be 1 fish per person per day (**Preferred Sub-alternative 2a**), or 2 fish per person per day (**Sub-alternative 2b**). It should be noted that the only difference between **Alternative 1 (No Action)** and **Sub-alternative 2b** is the regulatory language ('possession limit' versus 'recreational bag limit'), but that both result in a 2 fish per person limit for recreational harvest. **Preferred Alternative 3** would establish a vessel limit for recreational cobia harvest at 1 fish (**Sub-alternative 3a**), 2 fish (**Sub-alternative 3b**), 3 fish (**Sub-alternative 3c**), 4 fish (**Sub-alternative 3d**), 5 fish (**Sub-alternative 3e**) or 6 fish (**Preferred Sub-alternative 3f**) per vessel per day.

Action 1-2 includes alternatives to modify the current minimum size limit for recreational harvest of Atlantic cobia. Under **Alternative 1 (No Action)**, the minimum size limit for recreational harvest would remain at 33 inches FL. **Sub-alternatives 2a-2h** under **Preferred Alternative 2** would increase the minimum size limit to 34, 35, 36, 37, 38, 39, 45, or 50 inches FL.

Table 2.1.1 shows the estimated dates when recreational landings would meet the recreational annual catch limit (ACL) of 620,000 pounds whole weight (lbs ww) (for 2016 and subsequent years) under the different combinations of bag/vessel limit and minimum size limit, based on recreational harvest patterns from 2013 through 2015 for state and federal waters of Georgia through New York. The same analysis was also conducted using recreational harvest patterns from 2005 through 2014 (see **Table 2.1.2**). The two analyses are discussed and compared in more detail below.

Considering recreational landings patterns from 2013-2015, the current preferred alternatives in **Actions 1-1** and **1-2** (highlighted in **Table 2.1.1**) are estimated to result in landings reaching the recreational ACL around the middle of July, under the current recreational fishing year of January 1- December 31 and assuming consistent harvest limits in state and federal waters.

Table 2.1.1. Estimated dates when Atlantic cobia recreational landings would meet the recreational ACL (620,000 lbs ww for 2016 and subsequent years) under the range of minimum size limits, bag limits, and vessel limits based on recreational landings from 2013-2015. Highlighted cells are the preferred sub-alternatives in Action 1.

	Minimum Size Limit (inches FL)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per person	2-Jul	5-Jul	10-Jul	17-Jul	23-Jul	31-Jul	5-Aug	None	None
2 per person	30-Jun	3-Jul	7-Jul	14-Jul	20-Jul	28-Jul	1-Aug	None	None
Vessel Limit									
1	30-Jul	4-Aug	11-Aug	22-Aug	22-Sep	None	None	None	None
2	11-Jul	15-Jul	20-Jul	28-Jul	5-Aug	15-Aug	21-Aug	None	None
3	5-Jul	9-Jul	13-Jul	20-Jul	27-Jul	5-Aug	10-Aug	None	None
4	3-Jul	6-Jul	11-Jul	18-Jul	24-Jul	2-Aug	7-Aug	None	None
5	2-Jul	6-Jul	10-Jul	17-Jul	23-Jul	1-Aug	6-Aug	None	None
6	30-Jun	4-Jul	8-Jul	15-Jul	21-Jul	29-Jul	3-Aug	None	None

Note: This analysis assumed that the recreational bag limit, vessel limit, and minimum size limit would be consistent in state and federal waters for the South Atlantic and Mid-Atlantic regions. Additionally, the estimated dates were generated based on recreational landings from 2013-2015.

Table 2.1.2 shows the outcome of the same analysis, except using recreational data from 2005 through 2014. Public comment indicated that many fishermen were concerned about the Marine Recreational Information Program (MRIP) estimates for 2015. Some fishermen suggested that analysis of the proposed measures should also consider the longer time period (2005-2014) without the 2015 landings, because the 2015 landings were much higher than any other year from 2005-2015. Under the preferred sub-alternatives for **Action 1** (highlighted), in years with landings closer to those during 2005-2014, recreational landings would be expected to reach the recreational ACL in October.

Tables 2.1.1 and **2.1.2** suggest that if recreational landings are higher (such as in 2015) than the landings during 2005-2014, the bag/vessel limit and the increased minimum size limit may still not slow the rate of harvest so that recreational landings would not reach the recreational ACL until after the summer months. Information in **Table 2.1.1** suggests that even with more restrictive harvest limits, landings would reach the ACL in July or early August in most combinations, except with very the larger minimum size limits. However, if recreational landings for a given year are similar to those in 2005-2014, it is likely that the bag/vessel limit and increased minimum size limit would slow the rate of harvest into the fall months, as shown in **Table 2.1.2**.

Table 2.1.2. Estimated dates when Atlantic cobia recreational landings would meet the recreational ACL (620,000 lbs ww for 2016 and subsequent years) under the range of minimum size limits, bag limits, and vessel limits based on recreational landings from 2005-2014. Highlighted cells are the preferred sub-alternatives in Action 1.

	Minimum Size Limit (inches FL)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per person	21-Aug	26-Aug	5-Sep	23-Oct	None	None	None	None	None
2 per person	17-Aug	23-Aug	28-Aug	2-Oct	None	None	None	None	None
Vessel Limit									
1	None	None	None	None	None	None	None	None	None
2	12-Sep	12-Oct	None	None	None	None	None	None	None
3	25-Aug	31-Aug	29-Sep	None	None	None	None	None	None
4	22-Aug	27-Aug	12-Sep	31-Oct	None	None	None	None	None
5	21-Aug	26-Aug	6-Sep	25-Oct	None	None	None	None	None
6	19-Aug	24-Aug	30-Aug	11-Oct	None	None	None	None	None

Note: This analysis assumed that the recreational bag limit, vessel limit, and minimum size limit would be consistent in state and federal waters for the South Atlantic and Mid-Atlantic regions. Additionally, the estimated dates were generated based on recreational landings from 2005-2014.

Table 2.1.3 shows the current regulations in state waters compared to the bag limits and vessel limits in **Action 1-1.**

Table 2.1.3. Bag limits and vessel limits in state waters of Virginia, North Carolina, South Carolina, and Georgia, compared to limits in options under **Preferred Alternatives 2** and **3** in **Action 1-1.**

	Bag limit	**Vessel limit**	**Consistent Sub-alternatives**
Virginia	1 fish	2 fish	Sub-alternatives 2a (Pref), 3b
North Carolina	1 fish	For-hire: 4/vessel or 1 person when less than 4 people on board Private: 2 fish on vessels with more than 1 person on board	Sub-alternative 2a (Pref), 3d (for-hire), 3b (private)
South Carolina-north of Jeremy Inlet, Edisto Island	2 fish	None	Sub-alternative 2b
South Carolina-south of Jeremy Inlet, Edisto Island	1 fish June 1-Apr 30 Catch and release only May 1-May 31	3 fish per vessel or 1 fish per person, whichever is lower	June 1- Apr 30: Sub-alternatives 2a (Pref) and 3c
Georgia	2 fish	None	Sub-alternative 2b

Table 2.1.4 shows the current minimum size limit in state waters compared to the minimum size limits in **Action 1-2.**

Table 2.1.4. Minimum size limits in state waters of Virginia, North Carolina, South Carolina, and Georgia, compared to limits in options under **Preferred Alternative 2** in **Action 1-2.**

	Minimum size limit	**Consistent Sub-alternatives**
Virginia	40 inches total length	None, but comparable to Sub-alternatives 2b or 2c (Pref).
North Carolina	37 inches FL	Sub-alternative 3d
South Carolina	33 inches FL	Alt 1 No Action
Georgia	33 inches FL	Alt 1 No Action

Summary of Effects:

Biological Effects

The effect of restricting recreational harvest of Atlantic cobia through bag and vessel limits would be to slow the rate of harvest and delay or reduce the likelihood of triggering an AM because the ACL is exceeded. However, the biological effects of alternatives in **Action 1-1** would be expected to be neutral because ACLs and AMs are in place to limit harvest during the fishing season, and take action if the ACL is exceeded. Furthermore, SEDAR 28 indicates that release mortality of cobia is very low for hook and line gear (less than 1%). Thus, bag or vessel limits that could increase discarding of cobia would not be expected to have negative effects on the stock.

Action 1-2 proposes a range in minimum size limits for Atlantic cobia, and the greatest reduction in harvest is seen with the highest minimum size limits. Since ACLs and AMs are in place, the effect of the harvest reductions associated with the minimum size limits would be expected to extend the fishing season. Larger minimum size limits would be expected to increase discarding of cobia, but since release mortality is very low, an increase in discards would not be expected to negatively affect the stock. SEDAR 28 indicates that cobia females greater than 800 mm FL (31.5 inches FL) are sexually mature. In addition, fecundity and egg viability increases as females attain larger sizes. Thus, larger minimum size limits would be expected to provide biological benefits to the stock by providing greater spawning opportunities and enhanced fecundity for females over a longer life span.

Economic Effects

Estimates from the MRIP indicate that on most trips where cobia are landed, there is not more than one cobia harvested per person. Based on this assumption, it is not likely that lowering the bag limit to 1 fish per person per day (**Action 1-1/ Preferred Sub-alternative 2a**), without additional changes, would have a different effect than **Alternative 1 (No Action)** and **Sub-alternative 2b** on most recreational cobia trips. While the overall economic effect is expected to be minor, some Consumer Surplus (CS) may be lost on trips when more than 1 fish per person could be kept and the angler desires to do so. The economic effects of a vessel limit are similar to those described under a reduced bag limit, but these effects would be more pronounced on trips where the vessel limit is more restrictive than the bag limit. **Action 1-1/ Preferred Sub-alternative 3f** is expected to reduce cobia harvest by 1%, signaling some

potential negative economic effects. It is unclear how this option would impact overall fishing effort and thus for-hire net operating revenue or revenue for other fishing-related businesses, but the lower vessel limit options would be more likely to create heightened negative economic effects. These negative effects may be offset if the harvest is extended as a result of the more restrictive bag limits and/or vessel limits.

In general, increasing the minimum size limit for a species typically has little long-term economic effect unless the larger minimum size limit is set so high that it negatively impacts long-term effort, it results in greater numbers of fish reaching spawning size, and/or fish have higher fecundity prior to being harvested. The further that the increase in minimum size limit (**Action 1-2**/**Sub-alternatives 2a through 2h**) differs from **Action 1-2**/**Alternative 1 (No Action)**, the probability increases for lengthened short-term negative economic effects. However, this action could also eventually result in greater long-term positive economic outcomes as long as the increased minimum size limit may result in a larger spawning biomass that would create additional fishing and harvest opportunities. **Action 1-2/Preferred Sub-alternative 2c** sets the minimum size limit at 36 inches FL and is expected to initially decrease harvest by 10.7%. This relatively small decrease demonstrates that the majority of Atlantic cobia kept are at or above this limit and most trips would not be negatively affected. There may be some positive economic benefits from this minimum size limit change, should it help maintain or increase the overall cobia stock biomass in the long-term as well as prevent closures or prolong the fishing season.

The implementation of vessel limits, reduced bag limits, and increased minimum size limits would be anticipated to prolong the harvest season. Should a harvest closure occur, there may be loss of CS and anglers may decide to forgo some fishing trips due to the closure, depending on the closure timing. While some economic benefits would still be realized from catch and release fishing during a harvest closure, anglers often value being able to harvest cobia, resulting in a decrease in overall recreational effort. As a consequence, there would be negative economic effects from a closure to for-hire operators and other fishing related businesses due to the reduced recreational fishing activity and the reduction in angler expenditures on durable and non-durable goods that go along with this activity.

Social Effects

When considering changes to harvest limits, the trade-off of effects on recreational fishermen, for-hire businesses and their associated communities must balance the restrictions on harvest with the benefits of slowing the rate of harvest (so as not to exceed the ACL and triggering AMs). Greater negative short-term effects due to potential decreased trip satisfaction resulting from restrictive harvest measures would be expected under **Action 1-1**/**Preferred Sub-alternative 2a** than under **Action 1-1**/**Sub-alternative 2b** and under lower vessel limits, with **Action 1-1**/**Sub-alternative 3a** resulting in the most negative effects, followed by **Sub-alternative 3b**, **Sub-alternative 3c**, **Sub-alternative 3d**, **Sub-alternative 3e**, and then **Preferred Sub-alternative 3f.** When considering the minimum size limit in **Action 1-2**, the most negative effects on trip satisfaction and recreational fishermen would be expected under **Sub-alternative 2h**, followed by**, Sub-alternative 2g, Sub-alternative 2f, Sub-alternative 2e, Sub-alternative 2d, Preferred Sub-alternative 2c, Sub-alternative 2b,** and then **Sub-alternative 2a**.

When considering the potential benefits from slowing the rate of harvest and avoiding reaching the ACL until later in the year, the alternatives would have the opposite effect on potential impacts for the recreational sector. The benefits would be more pronounced in years with high recreational effort and catch (see **Table 4.1.3.1**) since more restrictive measures for recreational harvest could help keep the ACL from being met until later in the summer. The bag and vessel limits in **Action 1-1**/**Preferred Alternatives 2** and **3,** combined with an increased minimum size limit **Action 1-2**/**Preferred Alternative 2,** would be expected to allow the more northern areas, in particular northern North Carolina and Virginia, to still have access to cobia during the usual time of year when cobia fishing is popular and profitable.

Administrative Effects

Establishing bag limits, vessel limits, and size limits would result in an administrative burden associated with rulemaking, outreach, education, and enforcement. However, the impact is expected to be minimal based on the alternatives proposed in this amendment as possession limits are already in place (**Action 1-1, Alternative 1 (No Action)**) and revising these would not be administratively difficult. The action alternatives under **Action 1-2** would have a higher administrative burden than the no-action (**Alternative 1 (No Action)**) but this burden is expected to be minimal and mostly associated with rulemaking, outreach, and enforcement.

Action 2: Modify the recreational accountability measures for Atlantic cobia

Alternative 1 (No Action): Do not revise the recreational accountability measures (AMs) for Atlantic cobia as established in Amendment 18 (GMFMC/SAFMC 2011).

Recreational

- If recreational landings exceed the recreational annual catch limit (ACL), the stock ACL is exceeded *and* the stock is overfished, then the following year's recreational ACL will be reduced by the amount of the overage.
- If recreational landings exceed the recreational ACL, the Regional Administrator (RA) will evaluate the overage based on the most recent three years of landings under the current ACL. The length of the following fishing year will be reduced so that landings meet the recreational annual catch target (ACT) but not exceed the ACL. The recreational ACT = recreational ACL [(1-PSE) or 0.5, whichever is greater]
- The recreational ACT for 2016 and subsequent fishing years is 500,000 lbs ww.

Preferred Alternative 2. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, recreational landings will be monitored for a persistence in increased landings. If necessary, the Regional Administrator shall publish a notice to reduce the length of the following fishing season to ensure that recreational landings meet the recreational annual catch target (ACT) but do not exceed the recreational ACL, based on the recreational landings in the previous year. The length of the recreational season will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 2a. The Regional Administrator will reduce the length of the following fishing year only if the species is overfished.

Preferred Sub-alternative 2b. The Regional Administrator will reduce the length of the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Sub-alternative 2c. The Regional Administrator will reduce the length of the following fishing year only if the species is overfished **and** the stock ACL (commercial ACL and recreational ACL) is exceeded.

Alternative 3. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, the Regional Administrator shall publish a notice to reduce the recreational ACL in the following fishing year by the amount of the recreational overage. The recreational ACL will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary. The ACT would also be adjusted.

Sub-alternative 3a. The Regional Administrator will reduce the recreational ACL and ACT of the following fishing year only if the species is overfished.

Sub-alternative 3b. The Regional Administrator will reduce the recreational ACL and ACT of the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Sub-alternative 3c. The Regional Administrator will reduce the recreational ACL and ACT of the following fishing year only if the species is overfished **and** the stock ACL (commercial ACL and recreational ACL) is exceeded.

Alternative 4. If recreational landings reach or are projected to reach the recreational ACL, the Regional Administrator shall publish a notice to close the recreational sector for the remainder of the fishing year, unless, using the best scientific information available, the Regional Administrator determines that a closure is unnecessary.

Sub-alternative 4a. If the species is overfished.

Sub-alternative 4b. Regardless of the overfished status of the species.

Preferred Alternative 5. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, recreational landings will be monitored for a persistence in increased landings. If necessary, the Regional Administrator shall publish a notice to reduce the recreational vessel limit for the following fishing year to ensure that recreational landings meet the recreational ACT but do not exceed the recreational ACL, based on the recreational landings in the previous year. The recreational vessel limit will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 5a. The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the species is overfished.

Preferred Sub-alternative 5b. The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Sub-alternative 5c. The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the species is overfished **and** the stock ACL (commercial ACL and recreational ACL) is exceeded.

Discussion:

The AMs for the Atlantic migratory group of cobia were established in Amendment 18 (GMFMC/SAFMC 2011) as follows:

Commercial

The commercial AM for this stock is to prohibit harvest, possession, and retention when the commercial quota (stock ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the commercial quota is met or projected to be met.

If total Atlantic cobia landings exceeds the stock ACL, and Atlantic cobia are overfished, based on the most recent status of U.S. Fisheries Report to Congress, the commercial ACL for following fishing year will be reduced by the amount of any applicable sector-specific ACL overage in the prior fishing year.

Recreational

If the recreational sector quota (stock ACL x recreational allocation) is exceeded and the stock ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACT for the following fishing year, but only if the stock ACL

is exceeded. The season length will allow recreational landings to achieve the applicable recreational ACT but not exceed the applicable recreational ACL.

To calculate the recreational season length if this AM is triggered, the RA will use the following direction from Amendment 18:

Compare the recreational ACL with recreational landings over a range of years. For 2011, use only 2011 landings. For 2012, use the average landings of 2011 and 2012. For 2013 and beyond, use the most recent three-year (fishing years) running average. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter.

If the recreational and stock ACLs are exceeded, and the stock is overfished, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the recreational ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the following formula: recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater].

Because Amendment 20B (GMFMC/SAFMC 2014) changed the cobia ACLs beginning in 2015 (based on the SEDAR 28 (2013) stock assessment), only the 2015 landings were used to determine whether the recreational and stock ACL were exceeded such that the AM was triggered. For 2015, both the recreational ACL and the stock ACL were exceeded, and the National Marine Fisheries Service (NMFS) published a notice to reduce the length of the 2016 fishing season to ensure that 2016 recreational landings did not exceed the 2016 recreational ACL (81 FR 12601).

Alternative 1 (No Action) would not modify the recreational AMs for Atlantic cobia, with no changes to the three-year rolling average used for evaluation when landings exceed the ACL. **Preferred Alternative 2** would modify the recreational AMs to reduce the season length of the following fishing year if recreational landings exceeded the recreational ACL, and the evaluation would be *based only on that year's recreational landings*. The sub-alternatives would reduce the length of the following fishing year only if the species is: overfished (**Sub-alternative 2a**), the stock ACL is exceeded (**Preferred Sub-alternative 2b**), or the species is overfished and the stock ACL is exceeded (**Sub-alternative 2c**).

Alternative 3 would modify the recreational AMs and would reduce the recreational ACL and ACT in the following fishing year if recreational landings exceeded the recreational ACL. The evaluation would be based only on that year's recreational landings**.** The sub-alternatives would reduce the recreational ACL and ACT the following fishing year only if the species is: overfished (**Sub-alternative 3a**), the stock ACL is exceeded (**Sub-alternative 3b**), or the species is overfished and the stock ACL is exceeded (**Sub-alternative 3c**).

Alternative 4 would modify the recreational AMs to include an in-season closure if recreational landings meet or are projected to meet the recreational ACL. The in-season closure would occur only if Atlantic cobia are designated as overfished under **Sub-alternative 4a**, but

would occur regardless of stock status under **Sub-alternative 4b.** An in-season closure could help reduce the likelihood of a substantial overage of the recreational ACL, because recreational harvest could be prohibited sooner.

Preferred Alternative 5 would establish a recreational AM to reduce the recreational vessel limit during the following fishing year if recreational landings exceeded the recreational ACL, and the evaluation would be *based only on that year's recreational landings*. The reduced vessel limit would only apply for the fishing year following the year with the overage. After the year with the reduced vessel limit, the vessel limit would return to the permanent limit as determined in Action 1-1, unless recreational landings continue to exceed the recreational AM. If this occurs for more than one year, there could be multiple years with a vessel limit lower than the permanent vessel limit specified in **Action 1-1**. The sub-alternatives would reduce the vessel limit only if the species is: overfished (**Sub-alternative 5a**), the stock ACL is exceeded (**Preferred Sub-alternative 5b**), or the species is overfished and the stock ACL is exceeded (**Sub-alternative 5c**).

Under this action, the South Atlantic Council has selected multiple alternatives and sub-alternatives as the preferred alternatives to establish the AM system for recreational harvest of Atlantic cobia. The South Atlantic Council determined that the post-season AM of a reduced season length (**Preferred Alternative 2**) and reduced vessel limit (**Preferred Alternative 5**) would be used in combination, with the reduced vessel limit of no fewer than 2 cobia per vessel applied first to mitigate for an overage and/or ensure the subsequent fishing year's landings do not exceed that year's ACL, as determined by the Regional Administrator. If the reduced vessel limit is determined by the Regional Administrator to be insufficient to ensure that the following year's recreational landings will not exceed the recreational ACL, then the Regional Administrator may reduce the length of the following year's recreational season.

Table 2.3.1 contains a summary of the recreational AMs under each alternative and sub-alternative.

Table 2.3.1. Summary of recreational AMs under the alternatives

	In-season AM	**Post-season AM**
Alternative 1 (No Action)	No in-season closure	Reduced season length so ACT is met but ACL not exceeded ONLY if rec ACL and stock ACL are exceeded. Use the rolling average of most recent 3 years. Reduce the recreational ACL if rec ACL and stock ACL are exceeded, AND Atlantic cobia is designated as overfished.
Alternative 2. Sub-alt 2a		Reduce season length based on last year's landings if overfished
Alternative 2. Sub-alt 2b (Preferred)		Reduce season length based on last year's landings if stock ACL exceeded
Alternative 2. Sub-alt 2c		Reduce season length based on last year's landings if stock ACL exceeded and overfished
Alternative 3 Sub-alt 3a		Reduce rec ACL and ACT by amount of the overage if overfished
Alternative 3 Sub-alt 3b		Reduce rec ACL and ACT by amount of the overage if stock ACL exceeded
Alternative 3 Sub-alt 3c		Reduce rec ACL and ACT by amount of the overage if stock ACL exceeded and overfished
Alternative 4 Sub-alt 4a	In-season closure when rec ACL is met or projected to be met if overfished	
Alternative 4 Sub-alt 4b	In-season closure when rec ACL is met or projected to be met regardless of stock status	
Alternative 5. Sub-alt 5a		Reduce vessel limit based on last year's landings if overfished
Alternative 5. Sub-alt 5b (Preferred)		Reduce vessel limit based on last year's landings if stock ACL exceeded
Alternative 5. Sub-alt 5c		Reduce vessel limit based on last year's landings if stock ACL exceeded and overfished

Summary of Effects:

Biological Effects

Preferred Alternative 2, **Alternative 3**, **Alternative 4,** and **Preferred Alternative 5** would remove the three-year average of landings to determine if the AM has been triggered. Cobia landings can be variable and capturing very high or very low landings into a three-year average can result in an artificial shortening or lengthening of the recreational fishing season, respectively. Thus, using just one year of landings in the action alternatives could have positive or negative biological effects relative to **Alternative 1 (No Action)**. The alternatives would be expected to have positive biological effects relative to the no action alternative, if one year of high landings triggered an AM sooner than a three-year average of landings, and thereby reduced fishing effort on the stock. Alternatively, the action alternatives would be expected to have negative biological effects relative to the no action if low landings resulted in a lengthening of the fishing season relative to **Alternative 1 (No Action)**.

The sub-alternatives under **Preferred Alternative 2, Alternative 3,** and **Preferred Alternative 5** are identical. **Sub-alternatives 2a, 3a,** and **5a** would only result in biological benefits if the species is overfished. **Sub-alternatives 2b (Preferred), 3b,** and **5b (Preferred)** are likely to have similar or greater beneficial biological impacts than **Sub-alternatives 2a, 3a,** and **5a**, as the AM would be triggered when the stock ACL (both the recreational and commercial) have been exceeded regardless of overfished status. **Sub-Alternatives 2c, 3c,** and **5c** would be triggered the least frequently of all the AMs under consideration, because the AM would only be required if two criteria are met (overfished status and the total ACL has been exceeded. Among the sub-alternatives, **Sub-alternatives 2b (Preferred), 3b,** and **5b (Preferred)** would be expected to have the greatest biological benefits since they would have the greatest chance of being triggered.

Economic Effects

Action 1 (No Action) would continue the use of a 3-year rolling average to evaluate overages of the ACL. This may lead to negative economic effects when one year of especially high landings are included, thereby potentially triggering early closures in cobia harvest as was experienced in 2016. If the recreational ACL is exceeded, greater short-term negative economic effects would be expected from **Alternative 3** sub-alternatives than from **Preferred Alternative 2** sub-alternatives, as **Preferred Alternative 2** options would monitor landings for a persistence in increased landings, and would result in a reduced length of following season, if necessary. **Alternative 3** options would automatically reduce the recreational sector ACL in the next season by the amount of overage. Minimizing ACL overages under **Alternative 4** has long-term positive economic effects, since this can prevent overfishing and the restrictive measures that are triggered by an AM. The overall economic effects of **Preferred Alternative 5** would vary based on the severity of the vessel limit reduction. However, if the ACL is not exceeded in any given season, there would be no differences between **Alternatives 1-5**.

Social Effects

AMs can have significant direct and indirect social effects because, when triggered, AMs can restrict harvest in the current season or subsequent seasons. 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 effects. In general, the most

long-term benefits for the stock and for sustainable fishing opportunities would result from a combination of measures to slow the rate of harvest during the year (as in **Preferred Alternative 2** and **Preferred Alternative 5**) and to mitigate an overage in a following year (as in **Alternatives 3** and **4**). Implementing a lower vessel limit as the AM in **Preferred Alternative 5**, particularly as the first measure in a series of potential post-season AMs, would be expected to have less negative effects on recreational fishermen than a post-season AM that would shorten the season (**Preferred Alternative 2**). However, some flexibility in how these AMs are triggered, such as conditions in the sub-alternatives of the stock being overfished or the stock ACL being exceeded, can help to mitigate the negative short-term impacts on fishermen and associated businesses and communities.

Administrative Effects

The administrative impacts associated with **Alternative 3**, **Alternative 4,** and **Preferred Alternative 5** are largely the same as those under **Preferred Alternative 2**, because landings are already closely monitored and recreational AMs are in place, the triggering of an AM (either a reduction of the ACL, an in season closure, or revising vessel limits) would not result in a great administrative burden. Therefore, compared to **Alternative 1 (No Action),** none of the action alternatives would constitute a significant increase in the need for increased staff time or agency funds.

The sub-alternatives under **Alternatives 2-5** would be associated with different administrative burdens based on the frequency with which they are triggered. **Sub-alternative 3b**, **4b**, or **5b (Preferred)** would be the most likely to be triggered, and **Sub-alternative 3c**, **4c**, or **5c** would be the least likely to be triggered. **Sub-alternative 3a** represents a mid-point of potential administrative impacts that may result from any of the three sub-alternatives considered under **Alternatives 3, Alternative 4,** and **Preferred Alternative 5**. Overall, the administrative impacts of all the alternatives considered under this action, compared to **Alternative 1 (No Action)**, are expected to be minimal.

Action 3: Establish a commercial trip limit for Atlantic cobia

Alternative 1 (No Action). Do not modify the possession limit of 2 fish per person per day.

Alternative 2. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day. The trip limit will decrease to 1 fish per person per day when 75% of the commercial ACL has been met.

Alternative 3. Establish a commercial trip limit for Atlantic cobia of 6 fish per vessel per day. The trip limit will decrease to 3 fish per vessel per day when 75% of the commercial ACL has been met.

Alternative 4. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day, with no more than 6 fish per vessel per day. The trip limit will decrease to 1 fish per person per day, with no more than 3 per vessel per day when 75% of the commercial ACL has been met.

Preferred Alternative 5. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day or 6 fish per vessel per day, whichever is more restrictive.

Discussion:

Cobia are unique among federally managed species in the southeast region, in that there is no federal commercial permit requirement to harvest cobia from federal waters to sell commercially. The daily possession limit of 2 cobia per person per day currently applies to both recreational and commercial catch.

Although there is not a federal commercial permit requirement to fish for and sell cobia caught in federal waters, all cobia from federal waters must be sold to a federally permitted dealer. Therefore, cobia harvested from a vessel fishing without any federal permit may only be sold to a dealer that has a state license but not a federal dealer permit.

Alternative 1 (No Action) would not change the possession limit of 2 fish per person per day that applies to commercial harvest of Atlantic cobia. **Alternative 2** would establish a commercial trip limit of 2 fish per person per day, with a possible reduction to 1 fish per person per day when commercial landings reach or are projected to reach 75% of the commercial ACL (37,500 lbs). **Alternative 3** would establish a vessel limit for commercial harvest of Atlantic cobia of 6 fish per vessel per day, which is based on the typical number of commercial crew (1-3 people) and the current possession limit of 2 fish per person per day. When commercial landings reach or are projected to reach 75% of the commercial ACL, the vessel limit would decrease to 3 fish per vessel per day. **Alternative 4** includes both the per-person limit and the vessel limit, with the step-down to 1 per person or 3 per vessel per day when landings reach 75% of the commercial ACL. **Preferred Alternative 5** would establish the per-person limit (2 fish) and the vessel limit (6 fish), whichever is more restrictive, but does not include a step-down when 75% of the commercial ACL is reached. The step-down proposed in **Alternatives 2-4** would be expected to slow the rate of harvest when commercial landings reach 75% of the commercial ACL and extend the season. However, a step-down may prohibit the commercial sector from

reaching the commercial ACL.

The commercial ACL for Atlantic cobia is 50,000 lbs (landed weight[4]) in 2016 and subsequent years, and the trigger for the step-down under **Alternatives 2-4** would be 37,500 lbs. A trigger for a reduced trip limit at 75% of the commercial ACL is the same trigger used for other species with a commercial step-down trip limit that are managed by the South Atlantic Council, including Atlantic Spanish mackerel, gag, and vermilion snapper.

Table 2.4.1 shows the month each year when actual Atlantic cobia commercial landings reached 75% of the current commercial ACL and when landings reached 100% of the current commercial ACL. In more recent years, the step-down would have occurred in the fall or late summer, but in years with lower landings, a step-down may not occur at all.

Table 2.4.1. Estimated month when actual Atlantic cobia commercial landings reached 75% of the commercial ACL (37,500 lbs) and the current commercial ACL (50,000 lbs).

Year	Total Annual Landings	Date 75% of ACL was met	Date ACL was met
2005	29,290	None	None
2006	31,990	None	None
2007	32,037	None	None
2008	33,739	None	None
2009	42,385	3-Nov	None
2010	56,393	19-Sep	9-Nov
2011	33,963	None	None
2012	42,176	25-Oct	None
2013	53,108	28-Aug	22-Nov
2014	69,197	6-Aug	11-Sep
2015	71,790	14-Aug	17-Oct

Data sources: SERO Quota Monitoring and SEFSC.

Summary of Effects:

Biological Effects

The biological effects of the different trip limits are expected to be neutral because harvest closures occur for cobia when the commercial ACL is met or is expected to be met. More restrictive trip limits can result in increased discards of cobia that are incidentally caught. However, release mortality is estimated to be less than 1% by hook and line fishermen (SEDAR 28). Thus, no negative biological effects are expected from trip limit alternatives that would result in increased discards of cobia. The effect of the trip limit would be to slow the rate of harvest and lengthen a fishing season.

[4] Landed weight is a combination of gutted weight or whole weight, and depends on how the fish are reported when sold.

Based on comparing historic landings to the 50,000 lbs commercial ACL established in 2016, the reduced trip limit would not go into effect for many of the years examined. However, in recent years, reducing the trip limit when 75% of the ACL was met would likely have extended the season and prevented potential closures of the commercial sector.

Economic Effects

Generally, trip limits are not considered to be economically efficient because they require an increase in the number of trips and associated trip costs to land the same amount of fish. However, the negative economic effects of this inefficiency can be offset by price support resulting from the supply limitations and the lengthening of seasons. Given the relatively restrictive commercial limit on cobia of 2 fish per person per day, the direct negative economic effect would be decreased by reducing the number of trips that are prohibited from retaining cobia because the trip limit has been reached, assuming the ACL is not met and the season does not close. While dependent on how many people are onboard a commercial trip, **Action 1 (No Action)** would provide the fewest negative economic impacts, assuming the commercial season does not close due to meeting or exceeding the commercial ACL. **Alternative 2** would potentially be more restrictive than **Alternative 1 (No Action)** because it would reduce the commercial trip limit to 1 fish per person per day when 75% of the commercial ACL is reached, reducing revenue received from cobia landed on commercial trips. Presumably, the step down in trip limits present in **Alternative 2** through **Alternative 4** would allow the commercial cobia sector to remain open longer, which may help offset the negative economic effects of the reduced trip limit. **Preferred Alternative 5** maintains a commercial cobia trip limit of 2 fish per person per day but also implements a 6 fish per vessel per day, whichever is more restrictive. Much like **Alternatives 3** and **4**, the economic effects in comparison to **Alternative 1 (No Action)** would be dependent on the number of people onboard that can legally harvest cobia commercially. If 3 or fewer such crew members are onboard, there would be no economic effect. However, the vessel limit would cap the maximum number of cobia that can be commercially harvested daily on a vessel with a crew of more than 3 people and thereby potentially limit the revenue received from cobia on such a commercial trip.

Social Effects

In general, a commercial trip limit may help slow the rate of harvest, lengthen a season, and prevent the ACL from being exceeded, but trip limits that are too low may make fishing trips inefficient and too costly if fishing grounds are too far away. Additionally, if the trip limit is too low, the commercial ACL may not be met. In most years, it is unlikely that the step-down in **Alternatives 2-4** at 75% of the commercial ACL would be implemented and the effects of **Alternative 1 (No Action)** through **Alternative 4** would be minimal or none for the commercial sector, and would be the same effects as under **Preferred Alternative 5**. In years with higher levels of commercial landings, the step-down in **Alternatives 2-4** may help slow the rate of harvest and reduce the likelihood of an early in-season closure or an overage. **Preferred Alternative 5** will not slow the rate of harvest through the reduced trip limit, but may benefit fishermen who sell cobia by allowing the full potential to meet the commercial ACL.

Administrative Effects

There would be no difference in the administrative burden between **Alternative 2**, **Alternative 3** and **Alternative 4**. However, these action alternatives would result in a slight increase to the administrative burden over **Alternative 1 (No Action)** and **Preferred**

Alternative 5. The impacts would be associated with rule-making, quota monitoring, outreach, education and enforcement.

Chapter 3. Affected Environment

This section describes the affected environment in the proposed project area. The affected environment is divided into five major components:

- **Habitat environment** (Section 3.1)
- **Biological environment** (Section 3.2)
- **Economic environment** (Section 3.3)
- **Social environment** (Section 3.4)
- **Administrative environment** (Section 3.5)

3.1 Habitat Environment

The South Atlantic Fishery Management Council (South Atlantic Council) has management jurisdiction of the federal waters (3-200 nautical miles) offshore of North Carolina, South Carolina, Georgia, and Florida. Under the Fishery Management Plan for Coastal Migratory Pelagic (CMP) Resources in the Gulf of Mexico and Atlantic Region (CMP FMP), the South Atlantic Council manages Atlantic migratory group cobia (Atlantic cobia) through the Mid-Atlantic region.

South Atlantic Region

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 100,000 square km (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 25 km wide and narrows to approximately 5 km off Palm Beach, Florida. The shelf then broadens to approximately 120 km off Georgia and South Carolina before narrowing to 30 km 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 (40-75 meters (m)) is influenced primarily by the Gulf Stream and secondarily by winds and tides. On the mid-shelf (20-40 m), the water

column is almost equally affected by the Gulf Stream, winds, and tides. Inner shelf waters (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.

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. 1992, 1994). This cyclonic eddy has horizontal dimensions of approximately 100 km 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 (<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, Cape Lookout, 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.

Mid-Atlantic Region

Information about the physical environment of the Mid-Atlantic region was provided by the Mid-Atlantic Fishery Management Council and adapted from the 2016 Mackerel, Squid, and Butterfish Specifications Environmental Assessment, available at: http://www.greateratlantic.fisheries.noaa.gov/regs/2016/January/16msb2016specspr.html.

Climate, physiographic, and hydrographic differences separate the Atlantic Ocean from Maine to Florida into the New England-Middle Atlantic Area and the South Atlantic Area (division/mixing at Cape Hatteras, North Carolina). The inshore New England-Middle Atlantic area is fairly uniform physically and is influenced by many large coastal rivers and estuarine areas. The continental shelf (characterized by water less than 650 ft. in depth) extends seaward approximately 120 miles off Cape Cod, narrows gradually to 70 miles off New Jersey, and is 20 miles wide at Cape Hatteras. Surface circulation is generally southwesterly on the continental shelf during all seasons of the year, although this may be interrupted by coastal indrafting and some reversal of flow at the northern and southern extremities of the area. Water temperatures

range from less than 33ºF from the New York Bight north in the winter to over 80ºF off Cape Hatteras in summer.

Within the New England-Middle Atlantic Area, the Northeast U.S. Continental Shelf Large Marine Ecosystem includes the area from the Gulf of Maine to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream. The Northeast U.S. Continental Shelf Large Marine Ecosystem is a dynamic, highly productive, and intensively studied system providing a broad spectrum of ecosystem goods and services. This region, encompassing the continental shelf area between Cape Hatteras and the Gulf of Maine, spans approximately 250,000 km^2 and supports some of the highest revenue fisheries in the U.S. The system historically underwent profound changes due to very heavy exploitation by distant-water and domestic fishing fleets. Further, the region is experiencing changes in climate and physical forcing that have contributed to large-scale alteration in ecosystem structure and function. Projections indicate continued future climate change related to both short and medium terms cyclic trends as well as non-cyclic climate change.

A number of distinct subsystems comprise the region. The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with various sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and fast-moving currents. The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, North Carolina. Detailed information on the affected physical and biological environments inhabited by the managed resources is available in Stevenson et al. (2006).

EFH for Coastal Migratory Pelagics

A description of the EFH for CMP species is provided in Amendment 18 to the CMP FMP (GMFMC and SAFMC 2011), and is incorporated herein by reference. EFH for CMPs include coastal estuaries from the US/Mexico border to the boundary between the areas covered by the Gulf of Mexico Fishery Management Council and the South Atlantic Fishery Management Council from estuarine waters out to depths of 100 fathoms (GMFMC 2004). In the South Atlantic, EFH for coastal migratory pelagic species includes sandy shoals of capes and offshore bars, high profile rocky bottom and barrier island ocean-side waters, from the surf to the shelf break zone, but from the Gulf Stream shoreward, including *Sargassum*. In addition, all coastal inlets, all state-designated nursery habitats of particular importance to coastal migratory pelagics (for example, in North Carolina this would include all primary nursery areas and all secondary nursery areas).

For cobia, EFH also includes high salinity bays, estuaries, and seagrass habitat. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse coastal migratory pelagic larvae. For king and Spanish mackerel and cobia, essential fish habitat occurs in the South Atlantic and Mid-Atlantic Bights.

HAPCs for Coastal Migratory Pelagics (CMP)

A description of the HAPCs for CMP species is provided in Amendment 18 to the CMP FMP (GMFMC/ SAFMC 2011), and is incorporated herein by reference. Areas which meet the criteria

for HAPCs include sandy shoals of Capes Lookout, Cape Fear, and Cape Hatteras from shore to the ends of the respective shoals, but shoreward of the Gulf stream; The Point, The Ten- Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and Hurl Rocks (South Carolina); The Point off Jupiter Inlet (Florida); *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; nearshore hard bottom south of Cape Canaveral; The Hump off Islamorada (Florida); The Marathon Hump off Marathon (Florida); The "Wall" off of the Florida Keys; Pelagic *Sargassum*; and Atlantic coast estuaries with high numbers of Spanish mackerel and cobia based on abundance data from the Estuarine Living Marine Resources Program. Estuaries meeting this criteria for Spanish mackerel include Bogue Sound and New River (North Carolina), for cobia, Broad River (South Carolina).

3.2 Biological and Ecological Environment

3.2.1 Fish Populations Affected by this Amendment

The actions in this amendment only apply to the cobia component of the coastal migratory pelagics fishery.

3.2.1.1

Cobia is a member of the family Rachycentridae but is managed in the CMP FMP because of its migratory behavior. Cobia is distributed worldwide in tropical, subtropical and warm-temperate waters. In the western Atlantic it occurs from Nova Scotia, Canada, south to Argentina, including the Caribbean Sea. It is abundant in warm waters off the coast of the U.S. from the Chesapeake Bay south and throughout the Gulf of Mexico (Gulf). Cobia prefer water temperatures between 68-86°F. Seeking shelter in harbors and around wrecks and reefs, cobia are often found off south Florida and the Florida Keys. As a pelagic fish, cobia are found over the continental shelf as well as around offshore reefs. It prefers to reside near any structure that interrupts the open water such as pilings, buoys, platforms, anchored boats, and flotsam. Cobia are also found inshore inhabiting bays, inlets, and mangroves.

3.2.1.2 Cobia Reproduction

Cobia form large aggregations, spawning during daylight hours between June and August in the Atlantic Ocean near the Chesapeake Bay, off North Carolina in May and June, and in the Gulf during April through September. Spawning frequency is once every 9-12 days, spawning 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 have also been observed spawning in estuaries and shallow bays with the young heading offshore soon after hatching. Cobia eggs are spherical, averaging 1.24 mm in diameter. Larvae are released approximately 24-36 hours after fertilization.

3.2.1.3 Cobia Development Growth and Movement Patterns

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. A pale yellow streak is

visible, extending the length of the body. By day 30, the juvenile takes on the appearance of the adult cobia with two color bands running from the head to the posterior end of the juvenile.

Weighing up to a record 61 kg (135 pounds whole weight [lbs ww]), cobia are more common at weights of up to 23 kg (50 lbs ww). They reach lengths of 50-120 cm (20-47 inches), with a maximum of 200 cm (79 inches). Cobia grow quickly and have a moderately long life span. Maximum ages observed for cobia in the Gulf were 9 and 11 years for males and females, respectively, while off the North Carolina coast maximum ages were 14 and 13 years, respectively. Females reach sexual maturity at 3 years of age and males at 2 years in the Chesapeake Bay region. During autumn and winter months, cobia migrate south and offshore to warmer waters. In early spring, migration occurs northward along the Atlantic coast.

3.2.2 Description of the Cobia Portion of the Coastal Migratory Pelagics Fishery

Currently, no commercial vessel permit is required for harvest or sale of cobia. Cobia is considered a limited harvest species, and the possession limit for recreational or commercial harvest is 2 fish per person per day.

Two migratory groups, Gulf of Mexico and Atlantic, are recognized for cobia. Cobia from federal waters off the east coast of Florida are part of the Gulf of Mexico migratory group. Cobia from the Florida/Georgia border north to New York are considered the Atlantic migratory group. In 2016, the Atlantic cobia annual catch limit (ACL) was 50,000 lbs ww for the commercial sector and 620,000 lbs ww for the recreational sector.

Over the last 5 years (2011-2015), annual landings have averaged approximately 50,516 lbs ww (**Table 3.2.2.1**). Recreational landings from federal waters off Virginia and North Carolina have been increasing in recent years, and in 2015, landings off Virginia and North Carolina accounted for the highest landings in the region (**Table 3.2.2.1**). Landings in New York are relatively minor. According to landings data, the majority of these landings originate from state waters (e.g., pound net landings or landings originating within Chesapeake Bay).

Table 3.2.2.1. Annual commercial and recreational landings (lbs ww*) of cobia in the state and Federal waters of the Atlantic (New York-Georgia).

Year	Commercial Landings	Recreational Landings
2005	29,290	915,300
2006	31,990	980,071
2007	32,037	745,776
2008	33,739	537,767
2009	42,385	760,841
2010	56,393	938,527
2011	33,963	347,527
2012	42,176	496,173
2013	53,108	895,925
2014	69,197	544,952
2015	71,790 (lbs landed weight)	1,565,186

* All years are in whole weight except for 2015 commercial landings, which are landed weight (gutted weight plus whole weight)
Source: Southeast Fisheries Science Center (SEFSC) ACL Landings Dataset, 2015 Commercial Quota Monitoring Program

Table 3.2.2.2. Recreational landings (lbs ww) of cobia from state and Federal waters, Georgia through New York during 2013-2015.

Year	GA	SC	NC	VA	Total
2013	29,224	19,130	492,969	354,463	895,786
2014	20,642	31,927	277,489	214,427	544,485
2015	68,447	125,365	642,906	728,468	1,565,186

Source: Southeast Fisheries Science Center

3.2.3 Status of Stock

Cobia

Both the Gulf and Atlantic migratory groups of cobia were assessed by SEDAR 28 in 2013. The SEDAR 28 stock assessment for Atlantic migratory group cobia (Atlantic cobia) determined that the stock is not overfished or experiencing overfishing. The Gulf of Mexico Fishery Management Council Scientific and Statistical Committee's (SSC) review of the SEDAR 28 stock assessment of Gulf migratory group cobia (Gulf cobia) determined that the stock was not overfished or experiencing overfishing.

3.2.4 Bycatch

Cobia is normally an incidentally caught species while fishermen are fishing for other species. **Table 3.2.4.1** lists the top three species caught on trips where at least one pound of cobia was caught in the Gulf of Mexico and South Atlantic and cobia contributed only 7% of harvest

on these trips. Red Grouper, red snapper and king mackerel contributed to most of the landings on these trips.

Table 3.2.4.1 Top three species caught on trips where at least one pound of cobia was caught with all gear types in the Gulf of Mexico and South Atlantic from 2010-2014. Cobia were not listed in the top three species by harvest on these trips. Cobia contributed only 7% of harvest on these trips.

Species	% of Harvest (All Gear Types)
Red Grouper	35.4%
Red Snapper	15.9%
King mackerel	9.0%

Source: Southeast Fisheries Science Center Commercial Logbook (April 2016)

The Bycatch Practicability Analysis in **Appendix D** describes bycatch in the CMP fishery in more detail.

3.2.5 Protected Species

The actions discussed in this amendment may potentially affect five sea turtle species listed under the Endangered Species Act: the endangered leatherback, the endangered hawksbill, the endangered Kemp's ridley, the threatened Northwest Atlantic distinct population segment (DPS) of loggerhead, and the threatened North Atlantic and South Atlantic DPS of green turtles.

The South Atlantic and Carolina DPS of the threatened Atlantic sturgeon, and the endangered smalltooth sawfish, also occur within the area encompassed by the CMP FMP. Additionally, two threatened *Acropora* coral species, elkhorn and staghorn, can be found in areas off Florida.

Species of large whales protected by the ESA that occur throughout the Atlantic Ocean include the blue whale, humpback whale, fin whale, North Atlantic right whale, sei whale, and the sperm whale. Additionally, the West Indian manatee also occurs in both the Gulf of Mexico and the Atlantic Ocean. These species are also considered depleted under the Marine Mammal Protection Act (MMPA). Depleted and endangered designations afford special protections from captures, and further measures to restore populations to recovery or the optimum sustainable population are identified through required recovery (ESA species) or conservation plans (MMPA depleted species). Numerous other species of marine mammals listed under the MMPA occur throughout the Atlantic Ocean.

Aside from the aforementioned protected species, portions of designated critical habitat *Acropora* corals and the North Atlantic Right Whale also occur within areas encompassed by the alternatives in this amendment.

National Marine Fisheries Service (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 determined that the proposed continued authorization of the CMP Fishery, is not likely to adversely affect any listed whales (i.e., blue, sei, sperm, fin, humpback, or North Atlantic right whales), Gulf sturgeon, or elkhorn and staghorn corals. NMFS also determined that CMP Fishery is not likely to adversely affect designated critical habitats for elkhorn and staghorn

corals or loggerhead sea turtles, and will have no effect on designated critical habitat for North Atlantic right whale.

According to the 2015 Biological Opinion on CMP fisheries, green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles, Atlantic sturgeon, and the smalltooth sawfish are all likely to be adversely affected by the CMP fishery. Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles area all highly migratory, travel widely throughout the GOM and South Atlantic, and are known to occur in area of the fishery. The distribution of Atlantic sturgeon and smalltooth sawfish within the action area is more limited, but all of these species do overlap in certain regions of the action area and these species have the potential to be been incidentally captured in CMP fisheries.

An incidental take statement for sea turtles, smalltooth sawfish, and Atlantic sturgeon was issued for incidental take coverage in the federal CMP fisheries throughout the action area. Reasonable and prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them.

On March 23, 2015, NMFS published a proposed rule (80 FR 15271) listing 11 distinct population segments (DPSs) for green sea turtles; the proposed North Atlantic DPS for green sea turtles is listed as threatened, and is the only DPS whose individuals can be expected to be encountered in the action area. The listing of the DPSs of green turtles triggers reinitiation of consultation under Section 7 of the ESA because the previous opinion did not consider what effects the CMP fishery is likely to have on this species, therefore NMFS Protected Resources must analyze the impacts of these potential interactions.

On June 29, 2016, NMFS published a notice (81 FR42268) to list Nassau grouper as threatened under the ESA, effective July 29, 2016. Currently the Protected Resources Division is evaluating the potential actions, such as critical habitat or application of the 4(d) rule in the ESA.

The Gulf and South Atlantic CMP hook-and-line fishery is classified in the 2017 Marine Mammal Protection Act List of Fisheries as a Category III fishery (81 FR 54019), 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 moralities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.

The Gulf and South Atlantic CMP gillnet fishery is classified as Category II fishery in the 2017 Marine Mammal Protection Act List of Fisheries. This classification indicates an occasional incidental mortality or serious injury of a marine mammal stock resulting from the fishery (1-50% annually of the potential biological removal). The fishery has no documented interaction with marine mammals; NMFS classifies this fishery as Category II based on analogy (i.e., similar risk to marine mammals) with other gillnet fisheries.

3.3 Economic Environment

3.3.1. Commercial Sector

There is no federal permit required for the commercial harvest of Atlantic migratory group cobia. However, commercial harvest of cobia in the EEZ may be sold only to dealers with a federal dealer permit. As of September 29, 2016, there were 410 entities with a Gulf and South Atlantic Dealer permit.

Total Landings and Dockside Revenues

Additional information on commercial landings and fishing for cobia can be found in Amendment 18 (GMFMC/SAFMC 2011) and Amendment 20B (GMFMC/SAFMC 2014), and is incorporated herein by reference.

Prior to 2015, the South Atlantic Council's management area for Atlantic cobia extended from the east coast of Florida through New York. As implemented through Amendment 20B (GMFMC/SAFMC 2014) and effective in 2015, the harvests of cobia off the east coast of Florida has been considered part of the Gulf migratory group, thus the current management area for Atlantic cobia extends from Georgia through New York. The tables presented below include cobia landings and revenues from Georgia through New York, and thus exclude those from Florida. In this way, reported landings and revenues for 2010 through 2014 are consistent with those for 2015 under the new geographic designation of Atlantic cobia. For this section, all states from Virginia to New York are combined as one area denoted as Mid-Atlantic (MA).

There are three important issues worth recognizing regarding the landings data for Atlantic cobia presented in **Table 3.3.1.1** and **Table 3.3.1.2**, and corresponding figures. First, landings are in whole weight. It is noted that the Atlantic cobia ACL is specified and monitored in terms of landed weight ("as reported"), which is generally 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. The Atlantic Coastal Cooperative Statistics Program (ACCSP), which is a major source of cobia (and other Atlantic species) landings, reports landings in whole weight but may be converted to gutted weight using a conversion factor. However, the ACCSP is not currently set up to provide landed weight. Second, the 2015 data shown in the tables is preliminary but a more recent update has been made by SEFSC. The updated 2015 Atlantic cobia commercial landings were 71,790 lbs landed weight (**Table 3.1.1.1**). This number is lower than that shown in the tables and is also in landed weight, not total weight. Third, landings prior to 2015 cannot be directly converted to landed weight. Note, however, that the commercial ACL (quota) prior to 2015 was monitored in terms of whole weight. Also, there were no commercial quotas before 2011.

Table 3.3.1.1. Updated 2015 commercial landings (landed weight) and revenues (2014 $).

	States			
	GA/SC	NC	Mid-Atl	Total
Pounds (lw)	3,219	42,338	26,233	71,790
Revenues (2014 $)	$28,755	$113,052	$75,394	$217,200

Source: D. Gloeckner (pers. comm., 2016) for 2015 data.

From 2010 through 2015, annual commercial landings of Atlantic cobia ranged from approximately 33,000 lbs ww to 83,000 lbs ww (**Table 3.3.1.2**). Dockside revenues from those landings ranged from approximately $79,000 to $233,000 (2014 $) (**Table 3.3.1.2**). The average dockside price for those six years was $2.43 per lb ww (2014 $). The highest landings and revenues occurred in 2015 whereas the lowest for both landings and revenues occurred in 2011. When the Florida east coast zone was still part of the management area for Atlantic cobia, commercial harvest reached the sector's quota of 125,712 lbs ww in 2014 and closed on December 11, 2014. Under the modified management area, excluding the Florida east coast zone, the quota for Atlantic cobia was revised to 60,000 lbs landed weight (lw) in 2015 and 50,000 lbs lw in 2016 and thereafter. Although landings exceeded the 2015 quota, no quota closure was imposed. As of September 27, 2016, commercial landings of Atlantic cobia were about 30,491 lbs lw. This amount trails that of the 2015 landings from January through September.

North Carolina has been the top producer of cobia, followed by the Mid-Atlantic states and South Carolina/Georgia (**Table 3.3.1.2)**. Georgia and South Carolina landings are combined for confidentiality purposes because of the relatively small amount of cobia landings in Georgia. Virginia (not shown in the table) accounted for most of the Mid-Atlantic landings. One notable feature for the Mid-Atlantic area is the surge in landings in 2013 and 2014, although they were still lower than landings in North Carolina. Mid-Atlantic landings continued to increase in 2015 but not as rapidly as in the previous two years.

Table 3.3.1.2. Commercial Atlantic cobia landings (lbs ww) and revenues (2014 $) by state/area, 2010-2015.

	GA/SC	NC	Mid-Atl	Total
	Pounds (ww)			
2010	3,174	43,737	9,364	56,275
2011	4,610	19,950	9,233	33,793
2012	3,642	32,008	6,309	41,959
2013	4,041	35,496	13,095	52,632
2014	4,180	41,848	23,111	69,139
2015	3,555	52,315	27,277	83,148
Average	3,867	37,559	14,732	56,158
	Dockside Revenues (2014 $)			
2010	$11,377	$70,377	$19,976	$101,730
2011	$19,666	$37,893	$21,666	$79,224
2012	$15,554	$66,887	$14,597	$97,038
2013	$15,639	$79,397	$35,792	$130,828
2014	$13,320	$95,462	$67,972	$176,754
2015	$11,151	$147,160	$75,360	$233,672
Average	$14,451	$82,863	$39,227	$136,541

Georgia landings are very small and so are combined with those of South Carolina.
Source: SEFSC Commercial ACL Dataset (December 2015) for 2010-2014 data; D. Gloeckner (pers. comm., 2016) for 2015 data.

Commercial fishermen harvest cobia using various gear types. **Table 3.3.1.3** shows commercial Atlantic cobia landings and revenues by gear type. In **Table 3.3.1.3,** "Hook and

Line" includes handline, longline, power-assisted line, and troll line while "Others" includes traps, other net gear, dredges/gigs/spears, and unclassified gear. Handline has been the foremost gear type used in harvesting cobia for most years in **Table 3.3.1.3**, followed closely by gillnets, and then by a host of other types. Within the "Others" category, the largest landings were assigned to "unclassified gear." Although not shown in the table, handline accounted for the biggest share of the hook and line landings. Longline has been a minor gear type in the commercial harvest of cobia.

Table 3.3.1.3. Commercial Atlantic cobia landings (lb ww) and revenues (2014$) by gear, 2010-2015.

	Hook and Line	Gillnets	Others	Total
	Pounds (ww)			
2010	26,758	23,495	6,022	56,275
2011	18,322	9,177	6,294	33,793
2012	12,962	21,091	7,906	41,959
2013	28,356	13,343	10,933	52,632
2014	37,082	23,540	8,517	69,139
2015	37,702	36,417	9,030	83,148
Average	26,864	21,177	8,117	56,158
	Dockside Revenues (2014 $)			
2010	$49,095	$38,605	$14,030	$101,730
2011	$39,265	$18,242	$21,717	$79,224
2012	$29,677	$43,875	$23,486	$97,038
2013	$69,433	$30,206	$31,189	$130,828
2014	$99,959	$55,275	$21,520	$176,754
2015	$108,165	$100,130	$25,377	$233,672
Average	$65,932	$47,722	$22,886	$136,541

"Hook and line" includes handline, longline, power assisted line, and troll line; "others" include traps, dredges/gigs/spears, other net gear, and unclassified gear.
Source: SEFSC Commercial ACL Dataset (December 2015) for 2010-2014 data; D. Gloeckner (pers. comm., 2016) for 2015 data.

On average, May is the peak month for cobia landings and dockside revenues (**Figure 3.3.1.1)**. January through April and December are the lowest months for landings and revenues. There are, however, some notable variations from the general average. Two peak landings occurred in 2012 (June and October) and in 2014 (May and August) (**Figure 3.3.1.2**). In terms of revenues, the 2014 peak occurred in August (**Figure 3.3.1.3**). In 2010 and 2011, landings steeply dropped off after their peaks, but in later years the decline appears to be more gradual. This perhaps suggests an increasing interest in fishing for cobia later in the year. Noticeable is the November and December spike in landings and revenues for 2015 relative to the earlier years.

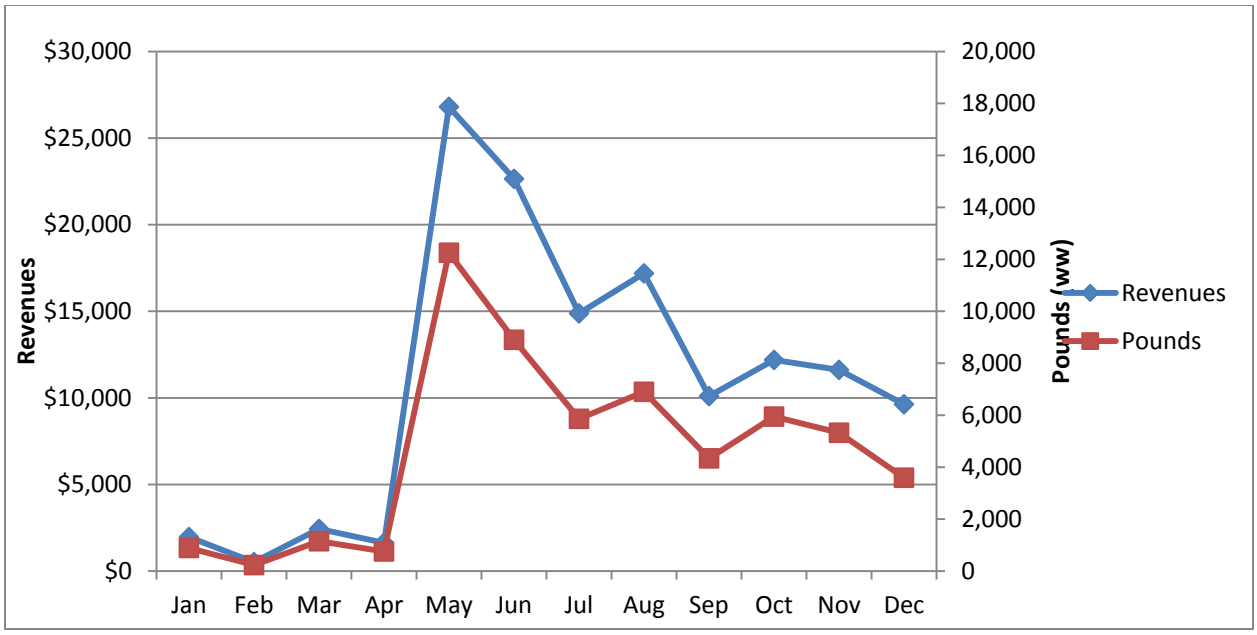

Figure 3.3.1.1. Average (2010-2015) monthly Atlantic cobia landings (lbs ww) and revenues (2014 $). Source: SEFSC Commercial ACL Dataset (December 2015) for 2010-2014 data; D. Gloeckner (pers. comm., 2016) for 2015 data.

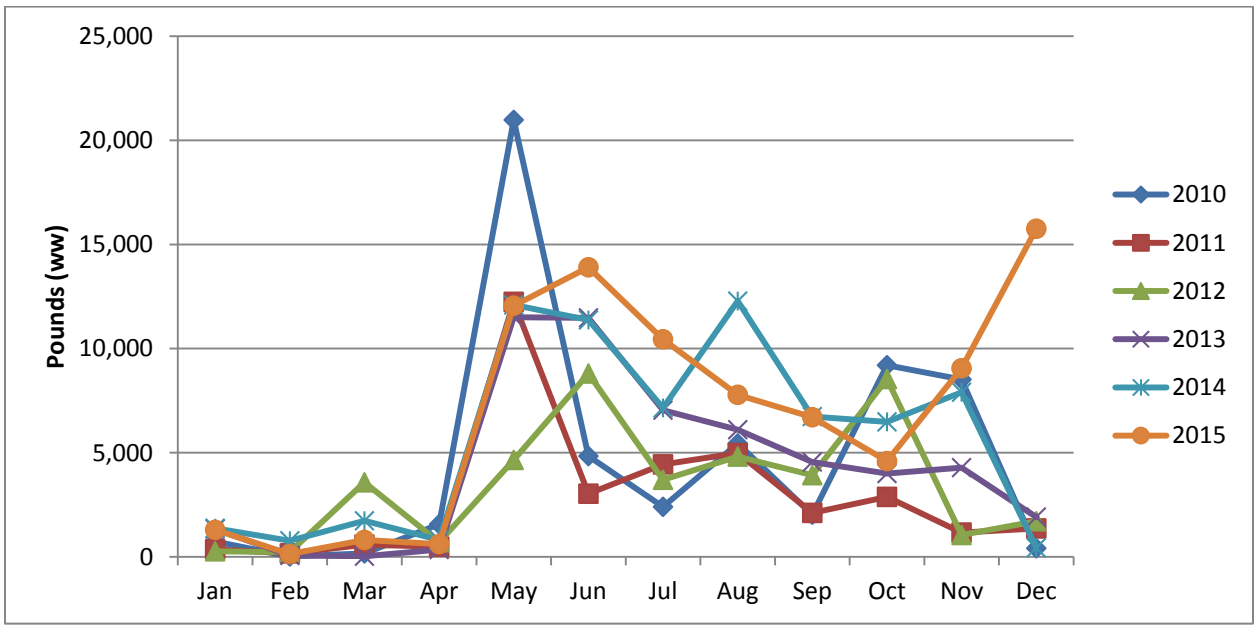

Figure 3.3.1.2. Monthly Atlantic cobia landings (lbs ww), 2010–2015. Source: SEFSC Commercial ACL Dataset (December 2015) for 2010-2014 data; D. Gloeckner (pers. comm., 2016) for 2015 data.

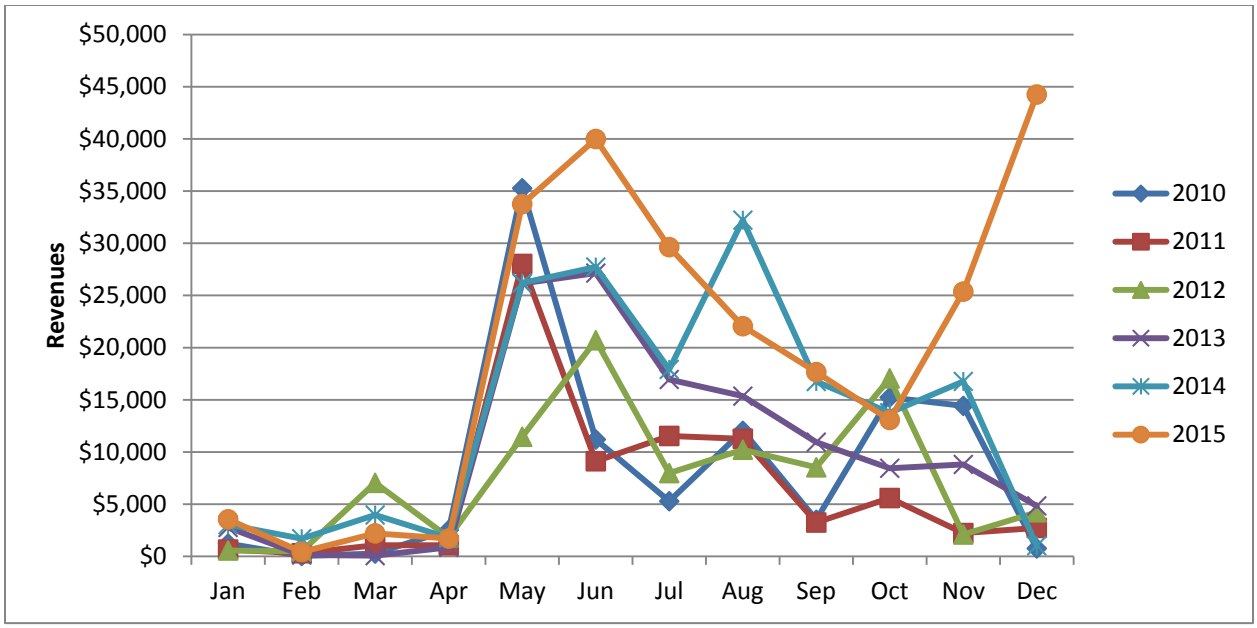

Figure 3.3.1.3. Monthly Atlantic cobia revenues (2014 $), 2010–2015.
Source: SEFSC Commercial ACL Dataset (December 2015) for 2010-2014 data; D. Gloeckner (pers. comm., 2016) for 2015 data.

Vessel Trips, Landings, and Dockside Revenues

The following vessel trip level summaries (**Tables 3.3.1.4** and **3.3.1.5**) are based on logbook information for landings and NMFS Accumulated Landings System (ALS) for prices and so would not exactly match with the landings and revenues presented above. In addition, the landings are presented in gutted weight rather than in total or landed weight. Landings for all species in the SEFSC-SSRG Economic Panel Data are expressed in gutted weight to provide one unit for all species, because data summarizations as done in the **Tables 3.3.1.4** and **3.3.1.5** below generally involves a multitude of species. Federally permitted vessels required to submit logbooks generally report their harvest of most species regardless of whether the fish were caught in state or federal waters.

From 2010 through 2015, excluding the Mid-Atlantic States, an annual average of 98 vessels took 318 commercial trips that combined landed an average of 13,469 lbs gutted weight (gw) of cobia annually with a dockside value (2014 dollars) of $31,115 (**Table 3.3.1.4**). Average annual dockside revenue from cobia represented approximately 3.6% of total dockside revenues from trips that landed cobia from 2010 through 2015. For consistency with the new geographic range of Atlantic cobia, which is from Georgia through New York, these trip level numbers from 2010 through 2015 do not include vessels in Florida.

Table 3.3.1.4. South Atlantic vessels and trips with cobia landings by weight (lb gw) and dockside revenue (2014 $), 2010–2015.

Year	Number vessels that landed cobia	Number trips that landed cobia	Cobia landings (lb gw)	Dockside revenue from cobia (2014 $)	'Other species' landed with cobia (lb gw)	Dockside revenue from 'other species' landings (2014 $)	Total dockside revenue (2014 $) from trips with cobia landings
2010	96	320	15,422	$30,665	359,263	$815,180	$845,845
2011	96	265	9,695	$23,919	337,688	$879,590	$903,509
2012	92	331	13,027	$30,078	307,053	$707,214	$737,292
2013	103	335	14,078	$34,612	311,009	$891,488	$926,099
2014	109	383	15,384	$36,623	340,692	$882,715	$919,338
2015	89	273	13,206	$30,793	248,572	$797,419	$828,213
Average	98	318	13,469	$31,115	317,380	$828,934	$860,049

Source: SEFSC-SSRG Economic Panel Data, 2016.

On average, the vessels that harvested cobia also took 2,338 trips per year without cobia landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed cobia was $74,066 (2014 dollars) (**Table 3.3.1.5**). Annual dockside revenue from cobia landings represented, on average, approximately 0.4% of the total dockside revenue from all commercial landings from 2010 through 2015. Average annual dockside revenue per vessel from all landings was $74,066 as compared to $318 per vessel from cobia only.

Table 3.3.1.5. South Atlantic dockside revenues (2014 $) from all sources for vessels that landed cobia in trips with or without cobia, 2010–2015.

Year	Number vessels that landed cobia	Dockside revenue from cobia (2014 $)	Dockside revenue from 'other species' jointly landed with cobia (2014 $)	Dockside revenue from 'other species' landed on trips without cobia (2014 $)	Total dockside revenue (2014 $)	Average total dockside revenue per vessel (2014 $)
2010	96	$30,665	$815,180	$4,803,688	$5,649,533	$58,849
2011	96	$23,919	$879,590	$5,427,004	$6,330,512	$65,943
2012	92	$30,078	$707,214	$4,876,666	$5,613,958	$61,021
2013	103	$34,612	$891,488	$5,697,926	$6,624,025	$64,311
2014	109	$36,623	$882,715	$9,600,851	$10,520,189	$96,515
2015	89	$30,793	$797,419	$7,871,829	$8,700,042	$97,753
Average	98	$31,115	$828,934	$6,379,661	$7,239,710	$74,066

Source: SEFSC-SSRG Economic Panel Data, 2016.

Tabulation of vessel/trip level information for Mid-Atlantic vessels similar to that in **Table 3.3.1.4** or **Table 3.3.1.4** is not available. However, an approximation of similar information for the Mid-Atlantic vessels is presented in **Table 3.3.1.6** that focuses only on cobia landings and revenues. Total revenues from cobia landings and revenues are the same as those presented in **Table 3.3.1.2** and vessel/trip information is based on the Dealer Weigh-out database (Larkin, pers. comm. 2016). As in **Table 3.3.1.2**, landings presented in **Table 3.3.1.6** are in whole weight.

Table 3.3.1.6. Mid-Atlantic vessels and trips with cobia landings by weight and dockside revenue (2014 $), 2010–2015.

Year	Number of vessels that landed cobia	Number of trips that landed cobia	Cobia landings (lb ww)	Dockside revenue from cobia (2014 $)	Revenue per vessel from cobia (2014 $)
2010	25	129	9,364	$19,976	$799
2011	21	139	9,233	$21,666	$1,032
2012	22	131	6,309	$14,597	$664
2013	32	134	13,095	$35,792	$1,119
2014	21	153	23,111	$67,972	$3,237
2015	25	383	27,277	$75,360	$3,014
Average	24	178	14,732	$39,227	$1,644

Source: Table 3.3.1.2 for cobia landings and revenues; dealer weighout database for vessels and trips.

Based on the same data set used to generate **Tables 3.3.1.4** and Table **3.3.1.5**, the crew size per vessel per trip is estimated to average 1.8 persons for hook and line vessels, 2.0 persons for gillnet vessels, and 2.4 persons for vessels using other gear types. The overall average for all vessels combined is less than 2 persons per vessel per trip.

Imports

Information on the imports of fish (fresh, frozen, or other product forms) is available at: http://www.st.nmfs.noaa.gov/st1/trade/cumulative_data/TradeDataProduct.html. In 2014, the U.S imported approximately 2.5 million metric tons of edible fishery products, valued at $20.2 billion. Information on the imports of each individual species is not generally available, but imports of cobia have been reported in the last few years. Imports of cobia were 435 metric tons valued at $2.54 million in 2012, 641 metric tons valued at $4.433 million in 2013, and 769 metric tons valued at $7.032 million in 2014. These amounts are contrasted with the total domestic harvest of cobia of 82.3 metric tons valued at $0.519 million in 2012, 93 metric tons valued at $0.633 million in 2013, and 102.5 metric tons valued at $0.695 million in 2014 (data available at: http://www.st.nmfs.noaa.gov/commercial-fisheries/publications/index). Although the levels of domestic production and imports are not totally comparable for several reasons, including considerations of different product form such as fresh versus frozen, and possible product mislabeling, the difference in the magnitude of imports relative to amount of domestic harvest is indicative of the dominance of imports in the domestic market. Final comparable data for more recent years is not currently available.

Commercial Sector Business Activity

Estimates of the business activity (economic impacts) in the U.S. associated with Atlantic cobia harvests were derived using the model developed for and applied in NMFS (2011). Business activity for the commercial sector is characterized in the form of jobs, income impacts (wages, salaries, and self-employed income), and output (sales) impacts (gross business sales). Income impacts should not be added to output (sales) impacts because this would result in double counting. The estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors). The average annual total ex-vessel revenues from cobia and their associated economic activities are presented in **Table 3.3.1.7**.

Table 3.3.1.7. Average (2010-2015) annual dockside revenues from Atlantic cobia and associated business activities. Dollar values are in 2014 dollars.

State	Average Annual Dockside Revenue (thousands)	Total Jobs	Harvester Jobs	Output (Sales) Impacts (thousands)	Income Impacts (thousands)
GA/SC[1]	$14.192	1	1	$47	$20
NC	$82.863	5	2	$285	$120
MA[2]	$39.227	3	1	$188	$69

[1]Combines revenues from Georgia and South Carolina but uses South Carolina multipliers.
[2]Combines revenues from all Mid-Atlantic states but uses Virginia multipliers.
Source: Economic impact results calculated by NMFS Southeast Regional Office (SERO) using the model developed for NMFS (2011b).

3.3.2 Recreational Sector

The following focuses on recreational landings and effort (angler trips) for Atlantic group cobia. The major sources of data summarized in this description are the Recreational ACL Dataset (SEFSC MRIPACLspec_rec81_15wv6_17Mar16_w14and15LACreel) for landings and the NOAA fisheries website for accessing recreational data (http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/index) for effort. Additional information on the recreational sector of the CMP fishery contained in previous amendments is incorporated herein by reference [see Amendments 18 and 20B].

The recreational sector is comprised of a private component and a for-hire component. The private component includes anglers fishing from shore (including all land-based structures) and private/rental boats. The for-hire component is composed of charter boats and headboats (also called partyboats). Although charter boats tend to be smaller, on average, than headboats, the key distinction between the two types of operations is how the fee is typically determined. On a charter boat trip, the fee charged is for the entire vessel, regardless of how many passengers are carried, whereas the fee charged for a headboat trip is paid per individual angler.

Permits

A federal charter/headboat (for-hire) vessel permit is required for harvesting CMP species, including cobia, when fishing on for-hire vessels. The South Atlantic for-hire permit is an open access system. As of May 16, 2016, there were 1,494 valid (non-expired) or renewable Atlantic charter/headboat CMP permits. A renewable permit is an expired permit that may not be actively fished, but is renewable for up to one year after expiration. Although the for-hire permit application collects information on the primary method of operation, the resultant permit itself does not identify the permitted vessel as either a headboat or a charter boat, operation as either a headboat or charter boat is not restricted by the permitting regulations, and vessels may operate in both capacities. However, only selected headboats are required to submit harvest and effort information to the NMFS Southeast Region Headboat Survey (SRHS). Participation in the SRHS is based on determination by the SEFSC that the vessel primarily operates as a headboat. There were 73 South Atlantic vessels registered in the SRHS as of February 22, 2016 (K. Fitzpatrick, NMFS SEFSC, pers. comm.).

Information on South Atlantic charter boat and headboat operating characteristics, including average fees and net operating revenues, as reported in Holland et al. (2012), and financial and economic impact information on Northeast for-hire vessels, as reported in Steinback and Brinson (2013), is incorporated herein by reference.

There are no specific federal permitting requirements for recreational anglers to fish for or harvest 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 amendment.

Harvest

On average, from 2010 through 2015, the recreational sector landed approximately 793,000 lbs ww of Atlantic cobia (**Table 3.3.2.1**). North Carolina has been the dominant state in recreational landings of cobia, followed by the Mid-Atlantic States, South Carolina, and Georgia. Virginia (not shown in the table) accounted for most of the recreational landings in the Mid-Atlantic. Noticeable in the table is the surge in the recreational landings of cobia for all states in 2015, resulting in 2015 landings that were more than double the recreational ACL.

The private/rental mode has been by far the most dominant fishing mode for harvesting cobia (**Table 3.3.2.2**). Headboats have provided the lowest contribution to recreational landings of cobia. Information reported in **Table 3.3.2.2** indicates that the 2015 surge in recreational landings can be attributed to substantial landings increases by the charter and private/rental fishing modes. Charter boat landings more than doubled while private/rental mode landings more than tripled in 2015. In the particular case of the South Carolina charter boat sector, increasing landings of cobia caught from offshore waters (greater than 3 miles) partly compensated for the declining landings from estuarine and nearshore waters (0-3 miles) since about 2007 [South Carolina Cobia Management Needs (PowerPoint Presentation), SC DNR, 2016].

Table 3.3.2.1. Annual recreational landings (lbs ww) of Atlantic cobia, by state, 2010-2015.

	Georgia	South Carolina	North Carolina	Mid-Atl	Total
2010	77,064	63,678	559,476	237,528	937,746
2011	88,049	1,554	119,678	137,931	347,213
2012	102,996	222,353	66,645	103,995	495,989
2013	28,427	19,159	492,998	354,463	895,048
2014	19,768	32,010	277,846	214,426	544,050
2015	67,250	124,057	631,024	718,647	1,540,978
Average	63,926	77,135	357,945	294,498	793,504

2015 data are preliminary.
Source: SEFSC MRIPACLspec_rec81_15wv6_17Mar16.

Table 3.3.2.2. Annual recreational landings (lbs ww) of Atlantic cobia, by fishing mode, 2010-2015.

	Charter	Headboat	Private/Rental	Shore	Total
2010	133,110	2,747	789,996	11,893	937,746
2011	23,608	1,886	282,728	38,990	347,213
2012	39,729	1,671	385,777	68,811	495,989
2013	73,623	5,485	815,940	0	895,048
2014	46,528	5,701	453,871	37,950	544,050
2015	102,941	1,741	1,400,338	35,957	1,540,978
Average	69,923	3,205	688,108	32,267	793,504

2015 data are preliminary.
Source: SEFSC MRIPACLspec_rec81_15wv6_17Mar16.

Peak recreational landings of cobia occurred in the May-June wave each year from 2010 through 2015 (**Figure 3.3.2.1**). Recreational landings steeply increased from the March-April wave to their peak and also steeply declined after the peak wave. Landings are concentrated around the May-June and July-August waves.

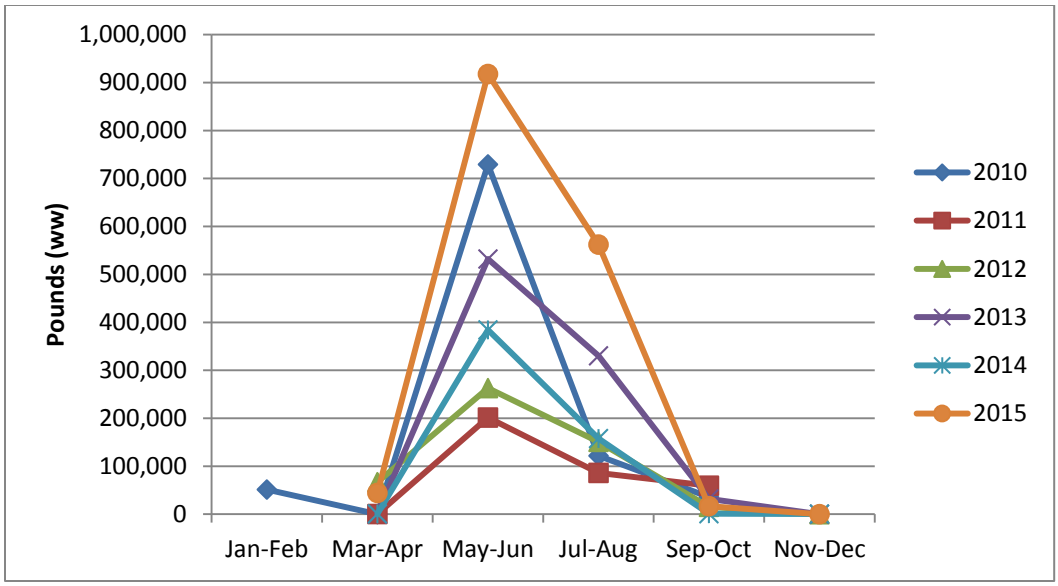

Figure 3.3.2.1. Distribution of Atlantic cobia recreational harvest, by wave, 2010-2015. 2015 data are preliminary.
Source: SEFSC MRIPACLspec_rec81_15wv6_17Mar16.

Effort

Recreational effort derived from the Marine Recreational Statistics Survey/Marine Recreational Information Program (Marine Recreational Fisheries Statistical Survey [MRFSS]/Marine Recreational Information Program [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 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 Atlantic, regardless of target intent or catch success.

Other measures of effort are possible, such as the number of harvest trips (the number of individual angler trips that harvest a particular species regardless of target intent), and directed trips (the number of individual angler trips that either targeted or caught a particular species), among other measures, but the three measures of effort listed above are used in this assessment.

Estimates of annual Atlantic cobia effort (in terms of individual angler trips) for 2010-2015 are provided in **Table 3.3.2.3** for target trips and **Table 3.3.2.4** for catch trips. Target and catch trips are shown by fishing mode (charter, private/rental, shore) for Georgia, South Carolina,

North Carolina, and the Mid-Atlantic states. These are trips for cobia in state or federal waters off of these states. Estimates of cobia target and catch trips for additional years, and other measures of directed effort, are available at http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/queries/index.

Cobia, like dolphin, is one of the few species where target trips generally exceed catch trips. The 2010-2015 average target trips were 4,519 for the charter mode, 130,360 for the private/rental mode, and 28,293 for the shore mode (**Table 3.3.2.3**). In contrast, the average catch trips were 3,114 for the charter mode, 33,329 for the private/rental mode, and 6,840 for the shore mode (**Table 3.3.2.4**). This is suggestive of a relatively strong interest in fishing for cobia among recreational anglers across all fishing modes. For each state, the private/rental mode has been the most dominant fishing mode both in target and catch effort.

Table 3.3.2.3. Target trips for Atlantic cobia, by fishing mode and state, 2010-2015.

Year	Charter				
	Georgia	S. Carolina	N. Carolina	Mid-Atlantic	Total
2010	0	3,349	3,029	358	6,736
2011	22	2,940	1,416	525	4,903
2012	0	1,025	345	156	1,526
2013	160	0	2,446	24	2,630
2014	0	1,452	1,703	295	3,450
2015	792	1,290	2,765	3,022	7,869
Average	162	1,676	1,951	730	4,519
	Private/Rental				
2010	5,453	14,228	49,358	67,730	136,769
2011	4,030	24,554	26,400	49,180	104,164
2012	2,495	57,543	23,320	37,706	121,064
2013	12,235	22,373	50,883	53,981	139,472
2014	1,322	23,365	50,112	49,075	123,874
2015	12,236	9,684	58,658	76,241	156,819
Average	6,295	25,291	43,122	55,652	130,360
	Shore				
2010	0	2,030	14,950	9,838	26,818
2011	0	0	10,090	2,366	12,456
2012	0	914	12,444	14,939	28,297
2013	0	627	15,977	5,693	22,297
2014	0	2,395	17,085	18,565	38,045
2015	0	363	21,925	19,554	41,842
Average	0	1,055	15,412	11,826	28,293

2015 data is preliminary
Source: http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/queries/index.

Table 3.3.2.4. Catch trips for Atlantic cobia, by fishing mode and state, 2010-2015.

Year	Charter				
	Georgia	South Car.	North Car.	Mid-Atlantic	Total
2010	97	1,301	4,398	237	6,033
2011	400	0	1,655	135	2,190
2012	140	372	472	156	1,140
2013	160	48	2,798	24	3,030
2014	55	110	1,559	72	1,796
2015	0	879	2,652	963	4,494
Average	142	452	2,256	265	3,114
	Private/Rental				
2010	3,320	2,939	18,433	13,600	38,292
2011	4,145	606	8,156	9,291	22,198
2012	3,296	5,134	4,869	6,658	19,957
2013	1,157	3,699	21,047	14,256	40,159
2014	1,436	2,957	10,561	14,803	29,757
2015	2,351	4,396	18,740	24,121	49,608
Average	2,618	3,289	13,634	13,788	33,329
	Shore				
2010	0	0	6,192	0	6,192
2011	0	0	6,528	0	6,528
2012	0	0	7,983	2,055	10,038
2013	0	0	2,673	0	2,673
2014	0	3,268	6,128	0	9,396
2015	0	2,697	3,514	0	6,211
Average	0	994	5,503	343	6,840

2015 data are preliminary
Source: http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/queries/index.

Headboat data in the Southeast do not support the estimation of target or catch effort because target intent is not collected and the harvest data (the data reflects only harvest information and not total catch) are collected on a vessel basis and not by individual angler. **Table 3.3.2.5** contains estimates of the number of headboat angler days for the South Atlantic states for 2010-2015. Georgia and South Carolina data are combined for confidentiality purposes. Mid-Atlantic information was not available because only South Atlantic headboats are included in the Southeast Region Headboat Survey (SRHS), and the Greater Atlantic region includes headboats in MRIP surveys only.

Table 3.3.2.5. South Atlantic headboat angler days, by state, 2010-2015.

	GA/SC	NC	TOTAL
2010	46,908	21,071	67,979
2011	46,210	18,457	64,667
2012	42,064	20,766	62,830
2013	42,853	20,547	63,400
2014	44,092	22,691	66,783
2015	41,479	22,716	64,195
Average	43,934	21,041	64,976

Source: NMFS Southeast Region Headboat Survey (SRHS).

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, fifth, and sixth king mackerel kept on a trip are approximately $100, $67, $49, $39, and $32, respectively. For dolphin, the values for the second, third, fourth, fifth, and sixth kept fish are $15.19, $10.13, $7.46, $5.88, and $4.85, respectively (Carter and Liese 2012; values updated to 2014 dollars).

With regards 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, net operating revenue (NOR), which is the return used to pay all labor wages, returns to capital, and owner profits, is used as a proxy for PS. The estimated NOR value is $153.45 (2014 dollars) per charter angler trip (Carter and Liese 2012). The estimated NOR value per headboat angler trip is $52.97 (2014 dollars) (C. Liese, NMFS SEFSC, pers. comm.). Estimates of NOR per cobia target trip are not available.

Recreational Sector Business Activity

Estimates of the business activity (economic impacts) associated with recreational angling for cobia were derived using average impact coefficients for recreational angling for all species, as derived from an add-on survey to MRIP to collect economic expenditure information, as described and utilized in NMFS (2011). Estimates of these coefficients for target or catch behavior for individual species are not available. Estimates of the average trip expenditures by recreational anglers are also provided in NMFS (2011) and are incorporated herein by reference.

Business activity for the recreational sector is characterized in the form of jobs, output (sales) impacts (gross business sales), and value-added impacts (difference between the value of goods and the cost of materials or supplies). Job and output (sales) impacts are equivalent metrics across both the commercial and recreational sectors. Income impacts (commercial sector) and value-added impacts (recreational sector) are not equivalent, though similarity in the magnitude of multipliers generated and used for the two metrics may result in roughly equivalent values. Similar to income impacts, value-added impacts should not be added to output (sales) impacts because this would result in double counting.

Estimates of the average cobia effort (2010-2015) and associated business activity (2014 dollars) are provided in **Table 3.3.2.6** for South Atlantic states and Virginia. Cobia target trip is selected as the measure of cobia effort. Target trips for cobia in the Mid-Atlantic, other than Virginia, are very negligible.

The estimates of the business activity associated with recreational trips for cobia are only available at the state level. Addition of the state-level estimates to produce a regional or national total will underestimate the actual amount of total business activity because summing the state estimates will not capture business activity that leaks outside the individual states. A state

estimate only reflects activities that occur within that state and not related activity that occurs in another state. For example, if a good is produced in South Carolina but sold in North Carolina, the measure of business activity in North Carolina associated with the sale in North Carolina does not include the production process in South Carolina. Assessment of business activity at the national (or regional) level would capture activity in both states and include all activity except that which leaks into other nations.

Table 3.3.2.6. Summary of cobia target trips (2010-2015 average) and associated business activity, South Atlantic states. Output and value added impacts are not additive. Dollar values are in thousands and in 2014 dollars.

	Georgia	South Carolina	North Carolina	Virginia*
	Charter			
Target Trips	162	1,676	1,951	730
Output/Sales Impact	$71	$988	$994	$85
Value Added Impact	$40	$570	$567	$144
Jobs Impact	1	11	10	1
	Private/Rental			
Target Trips	6,295	25,291	43,122	55,558
Output/Sales Impact	$285	$1,162	$3,319	$2,145
Value Added Impact	$178	$686	$2,017	$3,408
Jobs Impact	3	14	32	34
	Shore			
Target Trips	0	1,055	15,412	11,826
Output/Sales Impact	$0	$140	$1,795	$337
Value Added Impact	$0	$83	$1,056	$535
Jobs	0	2	19	6
	All Modes			
Target Trips	6,457	28,022	60,485	68,114
Output/Sales Impact	$356	$2,290	$6,108	$2,567
Value Added Impact	$218	$1,339	$3,641	$4,088
Jobs Impact	4	26	61	41

*Headboat target trips in Virginia are negligible.
Source: Effort data from the MRIP, economic impact results calculated by NMFS SERO using the model developed for NMFS (2011b).

It is noted that these estimates do not, and should not be expected to, represent the total business activity associated with a specific recreational harvest sector in a given state or in total. For example, these results do not state, or should be interpreted to imply, that there are only 11 jobs associated with the charter sector in South Carolina. Instead, as previously stated, these

results relate only to the business activity associated with target trips for cobia. Few businesses or jobs would be expected to be devoted solely to cobia fishing, but there may be some businesses that have significant dependence and reliance on the cobia fishery. The existence of these businesses and jobs, in total, is supported by the fishing for, and expenditures on, the variety of marine species available to anglers throughout the year. In addition, expenditures for durable goods, such as boats, rods, reels, that were used for harvesting cobia are not included in the economic impact estimation.

Estimates of the business activity (impacts) associated with headboat effort for cobia in the Southeast are not available. The headboat sector in the Southeast is not covered in the MRFSS/MRIP, so estimation of the appropriate impact coefficients for the headboat sector has not been conducted. While appropriate impact coefficients are available for the charter sector, potential differences in certain factors, such as the for-hire fee, rates of tourist versus local participation, and expenditure patterns, may result in significant differences in the business impacts of the headboat sector relative to the charter sector.

3.4 Social Environment

This section provides information on the fishermen, communities and businesses that may be affected by the proposed actions. Descriptions of fishing communities with high levels of commercial involvement and with recreational engagement are included, and community level data are presented in order to meet the requirements of National Standard 8 of the Magnuson-Stevens Act. Lastly, social vulnerability data are presented to assess the potential for environmental justice concerns.

The recent harvesting patterns for cobia reflect shifts in effort or changes in species range/status, which follow the establishment of two migratory groups of cobia and setting of ACLs and annual catch targets in Amendment 18 (GMFMC/SAFMC 2011) and a modified stock boundary in Amendment 20B (GMFMC/SAFMC 2014). The community description for Atlantic cobia includes only communities north of the Georgia/Florida line through Mid-Atlantic region with both recreational and commercial fishing communities identified. For more comprehensive demographic descriptions of the communities, see the SERO Community Snapshots [5] and for Mid-Atlantic communities, see the Northeast Fisheries Science Center Community Snapshots.[6]

South Atlantic Recreational Fishing Communities

There are little data on cobia harvest at the community level for recreational fishing communities, but the NMFS Southeast Region headboat survey does provide quantitative information of where cobia is recreationally harvested. **Figure 3.4.1** provides cobia landings trends for fishing communities in the South Atlantic for the time series from 2010 to 2014. The communities of Calabash, North Carolina, Tybee Island, Georgia and Atlantic Beach, North Carolina have all seen increases in their landings trend since 2010 in **Figure 3.4.1**. Others like Myrtle Beach, South Carolina and Carolina Beach, North Carolina have seen a recent downturn in their landings from 2013 to 2014.

[5] http://sero.nmfs.noaa.gov/sustainable_fisheries/social/community_snapshot/index.html
[6] http://www.nefsc.noaa.gov/read/socialsci/communitySnapshots.php

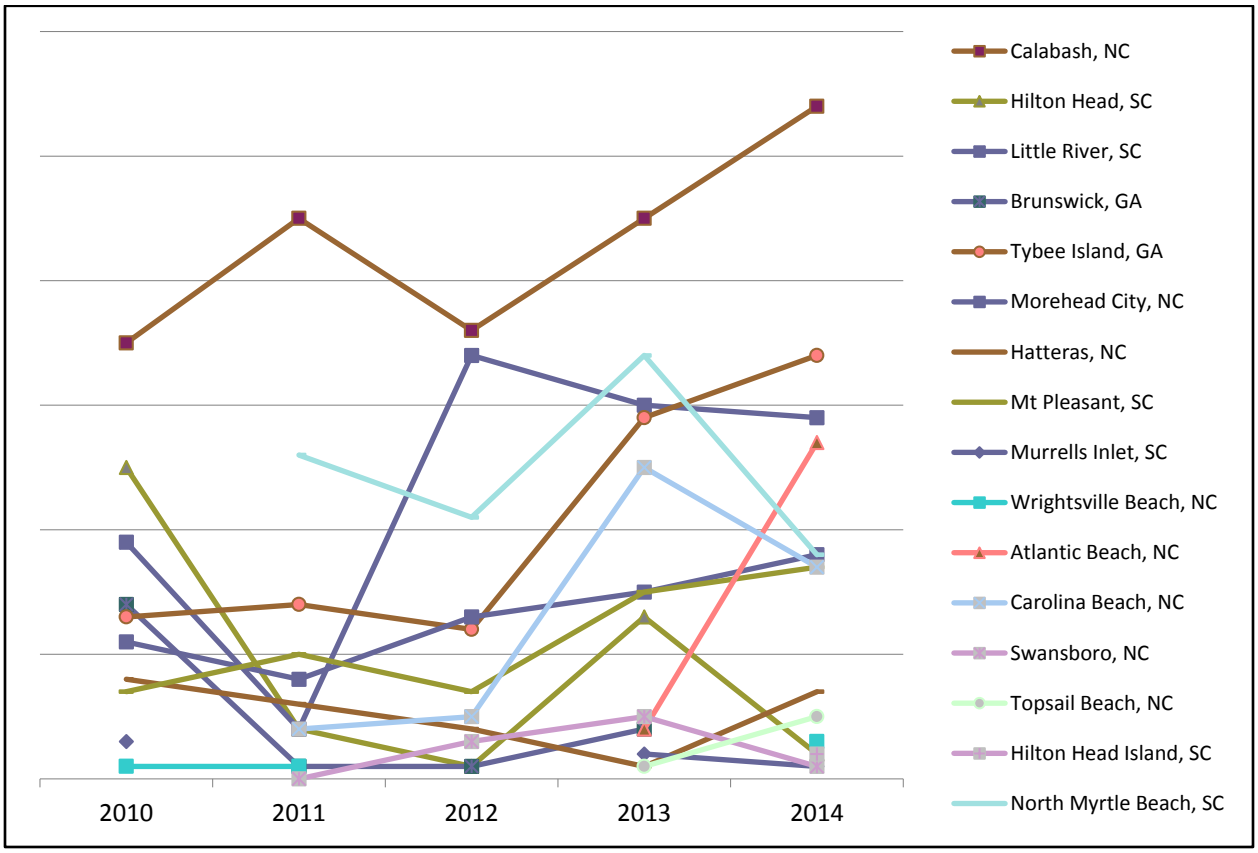

Figure 3.4.1. Cobia Headboat Landing Trends for South Atlantic Fishing Communities.
Source: NMFS Southeast Region Headboat Survey (SRHS).

Recreational fishing communities for the South Atlantic are listed in **Figure 3.4.2**. These communities were selected by their index ranking based on a factor analysis of a number of criteria including number of charter permits and recreational fishing infrastructure as listed under the MRIP survey identified within each community. There are two thresholds included in **Figure 3.4.2** that correspond to both1 and ½ standard deviations from the mean. The recreational engagement score is standardized so the mean is zero. Several communities in North Carolina and South Carolina exceed the threshold of 1 standard deviation which suggests those communities are highly engaged in recreational fishing. While this measure is not specific to cobia, but an overall recreational engagement measure, it is assumed that there would be more harvest of cobia from these ports recreationally because of increased effort.

The communities of Atlantic Beach, Hatteras, Manteo, Morehead City, North Carolina and Charleston, Hilton Head, Little River and Murrells Inlet, South Carolina all exceed the threshold of 1 standard deviation and likely have some dependence upon recreational fishing. The communities of Carolina Beach, Kill Devil Hills, Nags Head, Oak Island, Wanchese, Wilmington, North Carolina and Mount Pleasant, South Carolina all exceed the ½ standard deviation threshold and would also likely have some dependence upon recreational fishing within their economies, but not as much as those that exceed both thresholds. These communities may experience some effects of changes to management as they exhibit substantial

recreational fishing activity. Unfortunately, we are unable at this time to describe cobia harvest within a community and must rely on an overall recreational fishing measure.

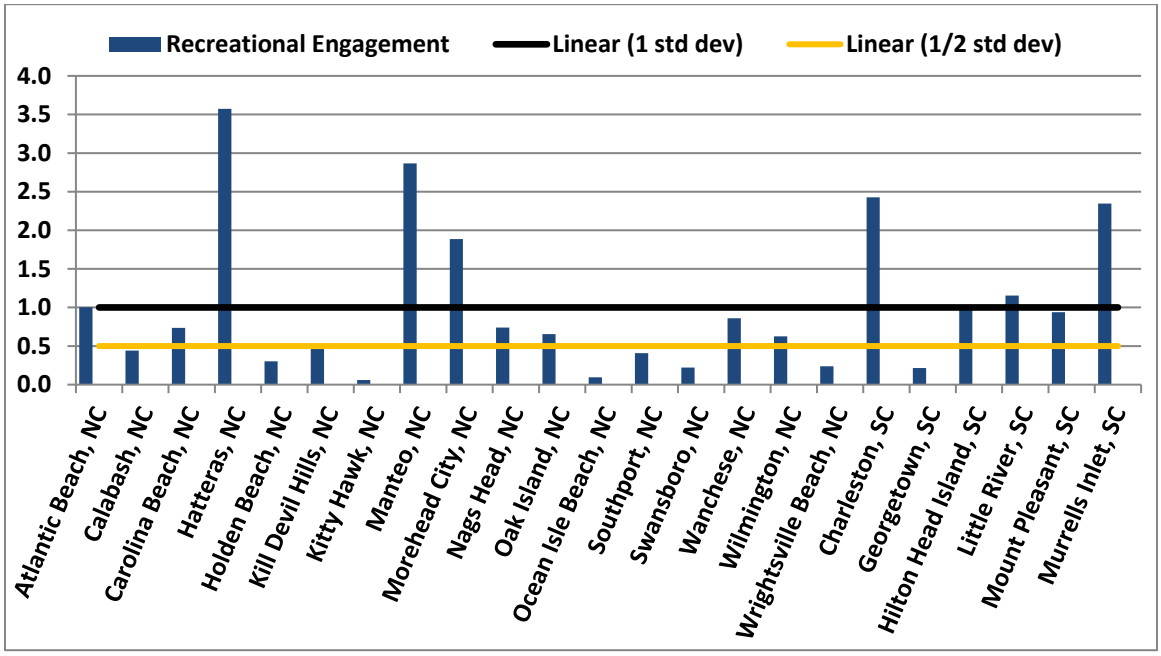

Figure 3.4.2. Recreational Engagement for Cobia Atlantic Group Fishing Communities. Source: SERO Community Social Vulnerability Indicators 2016.

South Atlantic Commercial Fishing Communities

The communities ranked in **Figure 3.4.3** represent those top 16 communities in terms of their commercial landings of cobia within the South Atlantic states, based on a regional quota (RQ). The RQ measures the highest proportions of commercial harvest of a species throughout the region to indicate the "top commercial communities." These communities will be the most likely to be affected by changes to commercial management for cobia. The data are based upon dealer data aggregated at the community level. The community of Hatteras has seen a marked increase in its RQ for cobia in 2014, whereas other communities, such as Wanchese and Avon have seen a marked decrease in their RQ in the past few years. In fact, most communities in **Figure 3.4.3** have seen decreases in their RQ.

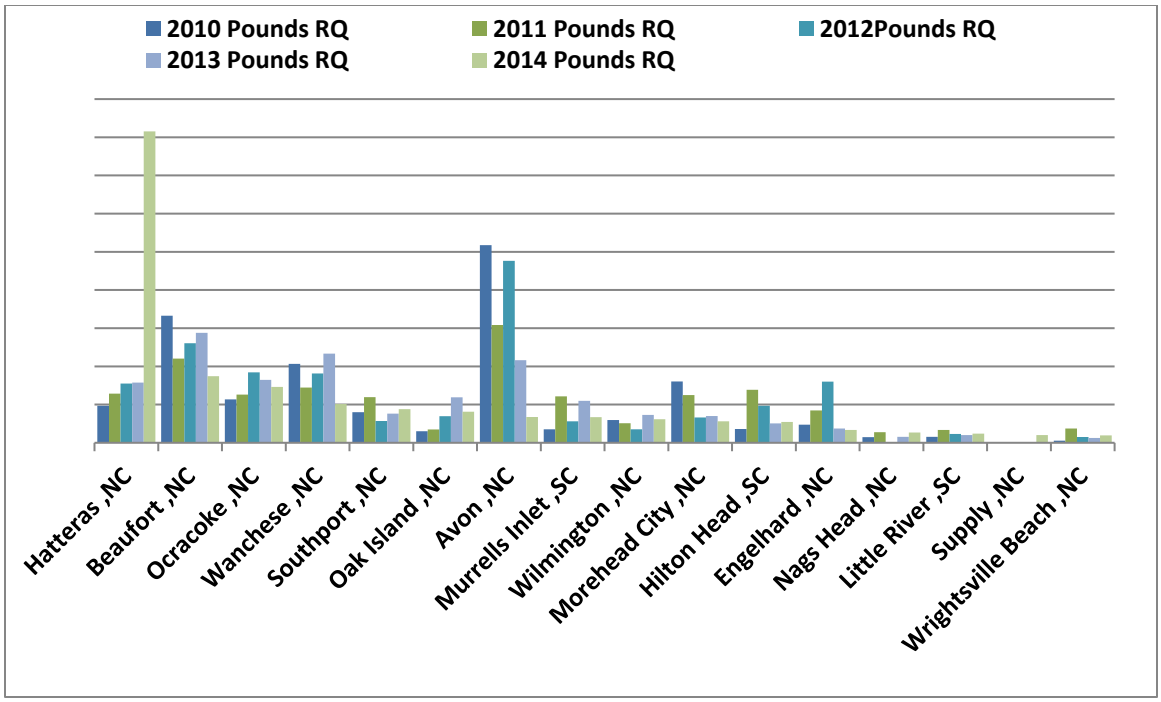

Figure 3.4.3. Cobia Commercial Regional Quotient for South Atlantic Fishing Communities. Data source: SEFSC Commercial ALS Dataset with dealer address

Mid-Atlantic Group Recreational Fishing Communities

Quantitative information on the recreational harvest of cobia from the Northeast headboat survey is sparser than for the South Atlantic. Many landings data do not have a homeport associated with them. From the data that are available, the communities of Northumberland, Virginia, and Hampton, Virginia, have seen recent increases in their cobia harvest. Most of the recreational harvest of cobia in the Mid-Atlantic is from private boat sector (Personal communication, Eric Thunberg NEFSC) for which we do not have data at the community level. However, input from public comments and attendance at public hearings indicate that Virginia Beach, Virginia, is an important community for recreational cobia.

Mid-Atlantic Commercial Fishing Communities

Commercial landings of cobia in the Mid-Atlantic have recently increased as shown in **Figure 3.4.4**. The communities of Arlington (County), Virginia; Norfolk, Virginia; and Frederick (County), Virginia have seen substantial increases in their cobia harvest in 2014.

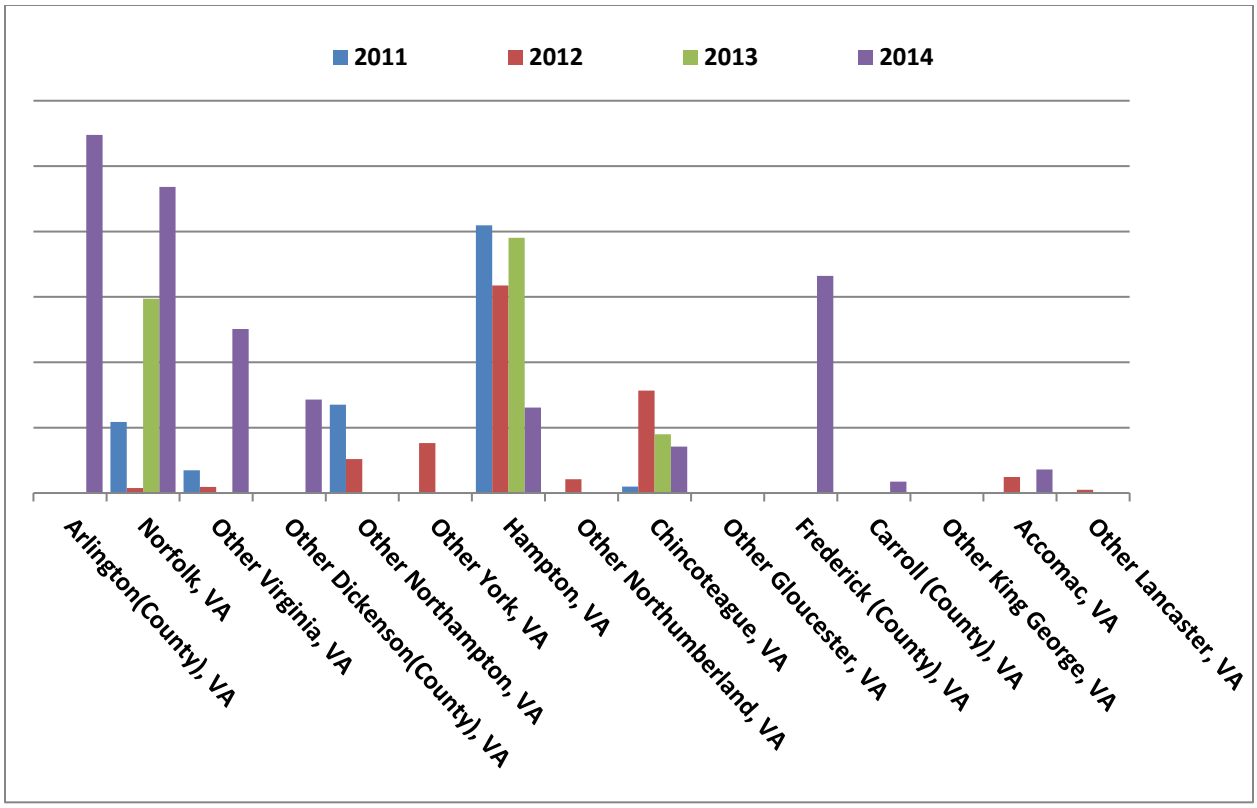

Figure 3.4.4. Cobia Commercial Regional Quotient for Mid-Atlantic Fishing Communities. NEFSC Commercial Landings Dataset with dealer address. Eric Thunberg (Pers Comm 2016).

Environmental Justice

Executive Order 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. This executive order is generally referred to as environmental justice (EJ).

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 (Jepson and Colburn 2013; Jacob et al. 2013). Indicators such as increased poverty rates for different groups, more single female-headed households and households with children under the age of 5, disruptions such as higher separation rates, higher crime rates and unemployment all are signs of populations experiencing vulnerabilities. These vulnerabilities signify that it may be difficult for someone living in these communities to recover from significant social disruption that might stem from a change in their ability to work or maintain a certain income level. For those communities that exceed the threshold of 1 Standard Deviation for all indices, it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

The suite of indices created to examine the social vulnerability of Atlantic Group fishing communities are depicted in **Figures 3.4.5** and **3.4.6**. No community exceeds both thresholds for all three vulnerabilities in **Figure 3.4.5**. The community of Manteo seems to demonstrate the most vulnerability by exceeding the 1 standard deviation threshold for Poverty and exceeding the ½ standard deviation for Personal Disruption. Calabash, Southport, Morehead City and Wilmington are the only other communities that exceed a threshold for any of their indicators.

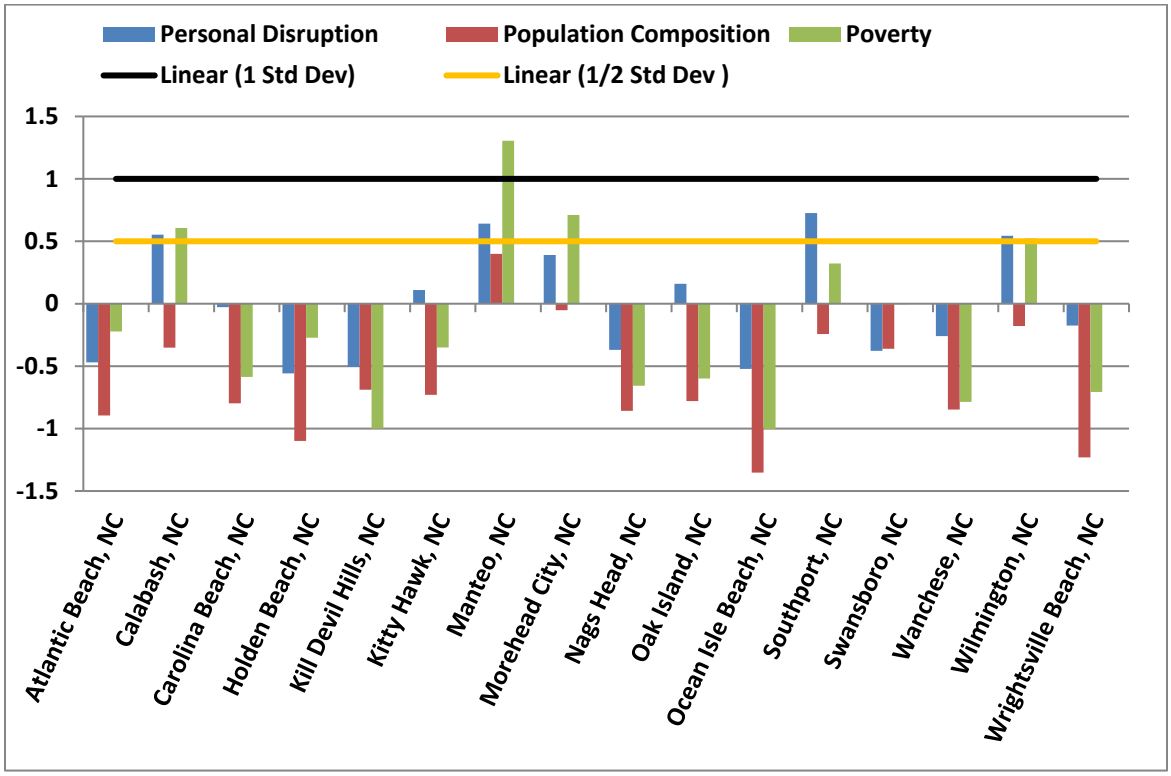

Figure 3.4.5. Social Vulnerability Indices for Atlantic Group Fishing Communities.
Source: SERO Community Social Vulnerability Indicators 2016.

The other communities that were included in the Atlantic Group also demonstrate little vulnerability, except Georgetown, South Carolina, and Beaufort, North Carolina. These two communities exceed the 1 Standard Deviation thresholds for both personal disruption and poverty. Georgetown, South Carolina, has a relatively high score for the population composition measure, which includes number of minorities.

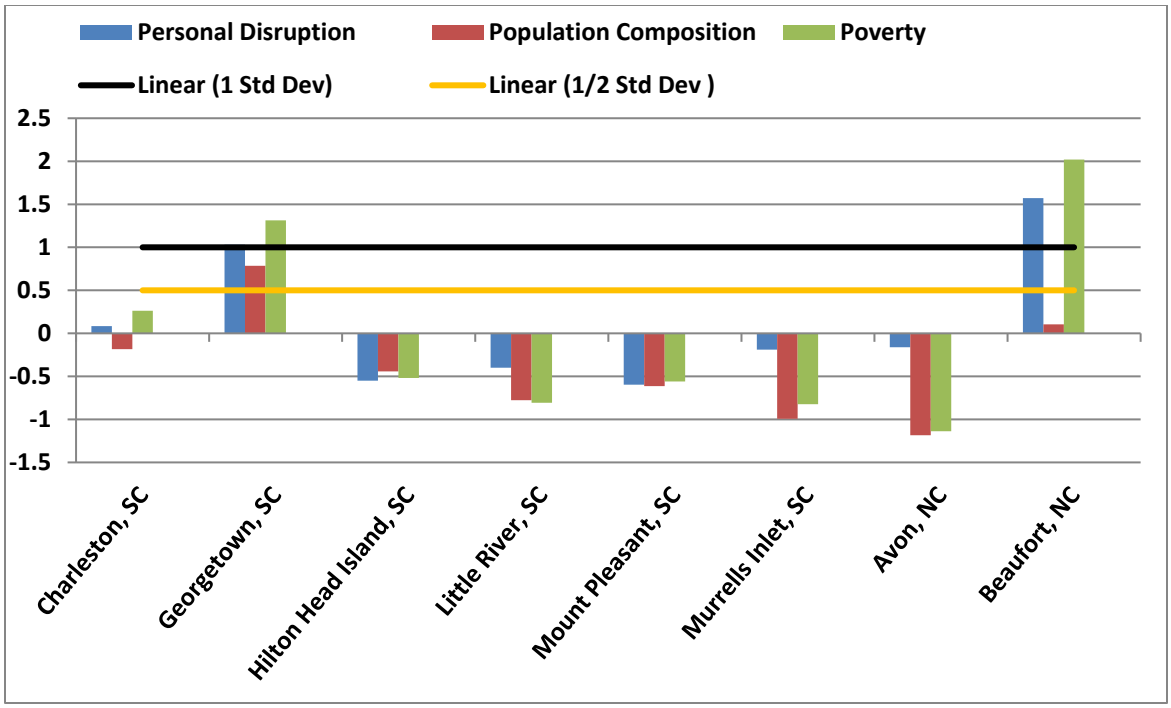

Figure 3.4.6. Social Vulnerability Indices for Atlantic Group Fishing Communities, cont.
Source:
SERO Community Social Vulnerability Indicators 2016.

For the Mid-Atlantic communities presented in **Figure 3.4.7**, District 9 in Accomack County, Virginia and Norfolk are the only communities that exceed one or both thresholds for all three indices. Districts 3 and 6 in Accomack County also demonstrate some vulnerability with both personal disruption and poverty exceeding one or both thresholds; the same is true for District 5 in Northampton County, Virginia.

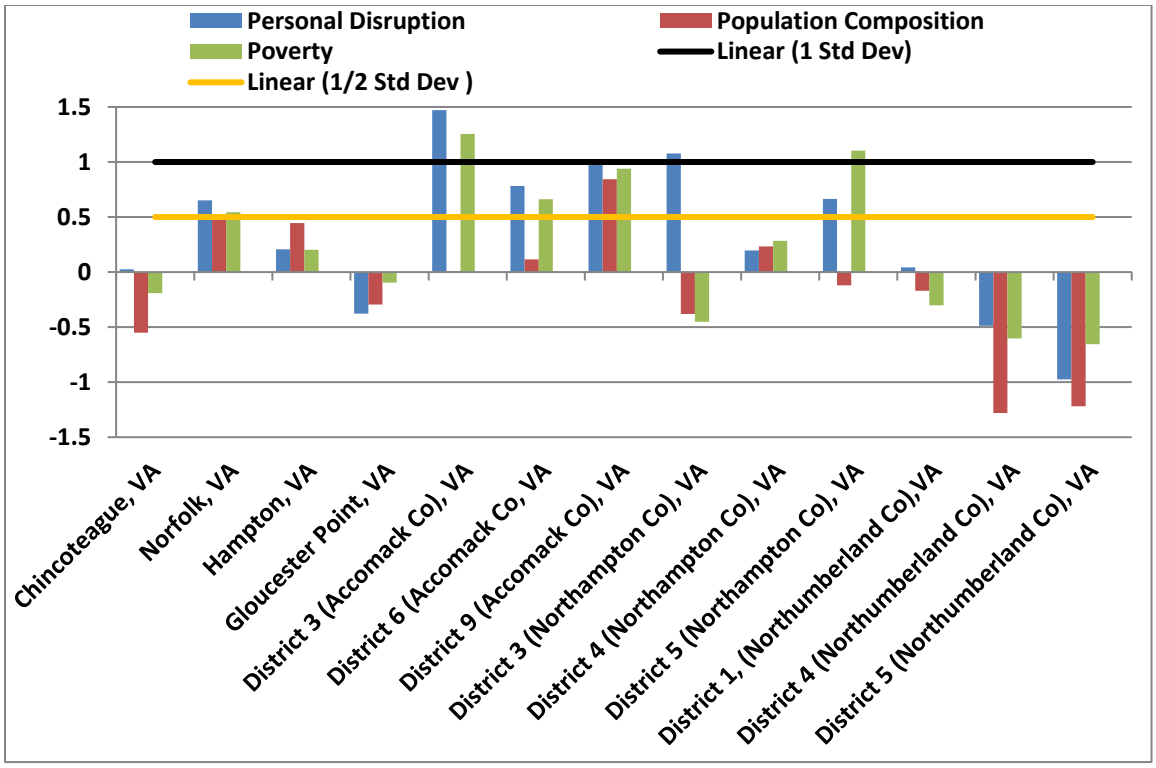

Figure 3.4.7. Social Vulnerability Indices for Mid-Atlantic Group Fishing Communities
Source: SERO Community Social Vulnerability Indicators 2016.

While these measures identify those communities that demonstrate social vulnerability, we cannot say for sure that fishermen in these communities will suffer the same vulnerabilities. Although we have information concerning the community's overall status with regard to minorities and poverty and other social vulnerabilities, we do not have such information for fishermen themselves. Therefore, we can only place our fishing activity within the community as a proxy for understanding the role that these social indicators have in the vulnerability of those being affected by regulatory change. While subsistence fishing is also an activity that can be affected by regulatory change, we have very little, if any, data on this activity at this time. We assume that the effects to other sectors will be similar to those that affect subsistence fishermen who may rely on cobia.

3.5 Administrative Environment

3.5.1 The Fishery Management Process and Applicable Laws

3.5.1.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; 16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management Act. The U.S. claims through the Magnuson-Stevens Act, sovereign rights and exclusive fishery management authority over most fishery resources within the EEZ, an area extending 200 nautical miles (nm)

from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the U.S. EEZ.

Responsibility for federal fishery management decision-making is divided between the U.S. 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 collecting and providing the data necessary for the councils to prepare fishery management plans and for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act and with other applicable laws. In most cases, the Secretary has delegated this authority to NMFS.

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 Mid-Atlantic Fishery Management Council (Mid-Atlantic Council) has two voting seats on the South Atlantic Council's Mackerel Cobia Committee but does not vote during Council sessions. The Mid-Atlantic Council is responsible for fishery resources in federal waters off New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. The coastal migratory pelagic fishery is jointly managed with the Gulf of Mexico Fishery Management Council (Gulf Council).

The Councils use their respective SSCs to review data and science used in assessments and fishery management plans/amendments. Regulations contained within FMPs are enforced through actions of the NMFS' Office for Law Enforcement (NOAA/OLE), the USCG, and various state authorities. The public is involved in the fishery management process through participation at public meetings, on advisory panels, and through council meetings that, with some exceptions, are open to the public. The regulatory process is in accordance with the Administrative Procedures Act, in the form of "notice and comment" rulemaking, which provides extensive opportunity for public scrutiny and comment, and requires consideration of and response to those comments.

3.5.1.2 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 have the authority to manage their respective state fisheries including enforcement of fishing regulations. Each of the states exercises legislative and regulatory authority over their states' natural resources through discrete administrative units. Although each agency listed below is the primary administrative body with respect to the state's natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources.

The states are also involved through the Gulf States Marine Fisheries Commission and the Atlantic States Marine Fisheries Commission in management of marine fisheries. These commissions were created to coordinate state regulations and develop management plans for interstate fisheries.

NMFS' State-Federal Fisheries Division is responsible for building cooperative partnerships to strengthen marine fisheries management and conservation at the state, inter-regional, and national levels. This division implements and oversees the distribution of grants for two national programs (Inter-jurisdictional Fisheries Act and Anadromous Fish Conservation Act) and two regional programs (Atlantic Coastal Fisheries Cooperative Management Act and Atlantic Striped Bass Conservation Act). Additionally, it works with the commissions to develop and implement cooperative State-Federal fisheries regulations.

More information about these agencies can be found from the following web pages:
Florida Fish and Wildlife Conservation Commission http://www.myfwc.com
Georgia Department of Natural Resources, Coastal Resources Division http://crd.dnr.state.ga.us/
South Carolina Department of Natural Resources http://www.dnr.sc.gov/
North Carolina Department of Environmental Qualityhttp://portal.ncdenr.org/web/guest/
Virginia Marine Resources Commission http://www.mrc.virginia.gov/
New York State Department of Environmental Conservation http://www.dec.ny.gov/
Maryland Department of Natural Resources, Estuarine and Marine Fisheries Division
http://dnr.maryland.gov/fisheries/Pages/default.aspx
Pennsylvania Fish and Boat Commission http://fishandboat.com/mpag1.htm
New Jersey Department of Environmental Protection, Division of Fish and Wildlife
http://www.nj.gov/dep/fgw/
Delaware Department of Natural Resources and Environmental Conservation
http://www.dnrec.delaware.gov/fw/Pages/DFW-Portal.aspx

3.5.1.3 Enforcement

Both the NOAA/OLE and the USCG have the authority and the responsibility to enforce regulations. NOAA/OLE agents, who specialize in living marine resource violations, provide fisheries expertise and investigative support for the overall fisheries mission. The USCG is a multi-mission agency, which provides at sea patrol services for the fisheries mission.

Neither NOAA/OLE nor the USCG can provide a continuous law enforcement presence in all areas due to the limited resources of NOAA/OLE and the priority tasking of the USCG. To supplement at sea and dockside inspections of fishing vessels, NOAA entered into Cooperative Enforcement Agreements with all but one of the states in the Southeast Region (North Carolina), which granted authority to state officers to enforce the laws for which NOAA/OLE has jurisdiction. In recent years, the level of involvement by the states has increased through Joint Enforcement Agreements, whereby states conduct patrols that focus on federal priorities and, in some circumstances, prosecute resultant violators through the state when a state violation has occurred.

NOAA General Counsel issued a revised Southeast Region Magnuson-Stevens Act Penalty Schedule in June 2003, which addresses all Magnuson-Stevens Act violations in the Southeast

Region. In general, this penalty schedule increases the amount of civil administrative penalties that a violator may be subject to up to the current statutory maximum of $120,000 per violation. The Final Penalty Policy was issued and announced on April 14, 2011 (76 FR 20959).

Chapter 4. Environmental Effects

4.1 Action 1: Modify the recreational management measures for Atlantic cobia

Action 1-1: Modify the recreational harvest limits for Atlantic cobia

Alternative 1 (No Action). Do not modify the possession limit of 2 fish per person per day for Atlantic cobia that are not sold.

Preferred Alternative 2. Establish a recreational bag limit for Atlantic cobia.
- **Preferred Sub-alternative 2a**. 1 fish per person per day
- **Sub-alternative 2b**. 2 fish per person per day

Preferred Alternative 3. Establish a recreational vessel limit for Atlantic cobia.
- **Sub-alternative 3a**. 1 fish per vessel per day
- **Sub-alternative 3b**. 2 fish per vessel per day
- **Sub-alternative 3c**. 3 fish per vessel per day
- **Sub-alternative 3d**. 4 fish per vessel per day
- **Sub-alternative 3e**. 5 fish per vessel per day
- **Preferred Sub-alternative 3f**. 6 fish per vessel per day

Action 1-2: Modify the minimum size limit for recreational harvest of Atlantic cobia

Alternative 1 (No Action). Do not modify the minimum size limit of 33 inches fork length (FL) for recreational harvest of Atlantic cobia.

Preferred Alternative 2. Modify the minimum size limit for Atlantic cobia for recreational harvest of Atlantic cobia.
- **Sub-alternative 2a**. 34 inches FL
- **Sub-alternative 2b**. 35 inches FL
- **Preferred Sub-alternative 2c**. 36 inches FL
- **Sub-alternative 2d**. 37 inches FL
- **Sub-alternative 2e**. 38 inches FL
- **Sub-alternative 2f**. 39 inches FL
- **Sub-alternative 2g**. 45 inches FL
- **Sub-alternative 2h**. 50 inches FL

4.1.1 Biological Effects

Action 1-1 and **Action 1-2** includes alternatives for recreational bag limits, vessel limits, minimum size limits, or a combination of these management measures. Recreational cobia landings for the Atlantic migratory group (Georgia to New York[1]) in 2015 were substantially higher than previous years including 2013 and 2014 (**Table 4.1.1.1**).

Table 4.1.1.1. Recreational landings in pounds whole weight (lbs ww) for Waves 1 through 5 for 2013, 2014, and 2015 by state. In 2013, 138 lbs ww were reported for Wave 6; no landings in Wave 6 of 2014; and only 71 lbs ww were reported for Wave 6 in 2015.

		2013		2014		2015	
Wave	**State**	**Landings**	**Wave Total**	**Landings**	**Wave Total**	**Landings**	**Wave Total**
1 Jan/Feb		0	0	0	0	0	0
2 March/April	NC	121		600		142	
	SC	306	427	24	624	44,310	44,452
3 May/June	GA	8,801		18,028		66,928	
	SC	11,781		15,976		71,916	
	NC	445,578		228,231		585,568	
	VA	66,476	532,636	122,740	384,975	193,795	918,208
4 July/August	GA	20,395		2,500		876	
	SC	6,914		15,449		7,619	
	NC	16,456		48,246		33,881	
	VA	286,937	330,703	91,687	157,882	519,139	561,514
5 September/October	GA	28		114		0	
	SC	129		478		107	
	NC	30,814		412		10,782	
	VA	1,050	32,021	0	1,004	5,713	16,601
Total			895,787		544,485		1,540,775

Source: SEFSC Recreational ACL Dataset

The 2015 recreational landings from Waves 1-5 reached 245% of the recreational annual catch limit (ACL) and 231% of the stock ACL (recreational and commercial ACLs combined). Only 71 lbs ww of cobia were reported in Wave 6 of 2015. The majority of the landings occurred off Virginia and North Carolina, with much lower landings off Georgia and South Carolina. Florida landings (both east and west coast) are considered to be part of the Gulf of Mexico migratory group cobia (Gulf cobia).

[1] No landings were reported north of Virginia.

The number of Atlantic cobia caught per person in 2014 and 2015 were very similar (2014 = 0.512 cobia per person and 2015 = 0.523 cobia per person. However, from 2013 to 2015 there was an increase in the average weight of Atlantic cobia (**Figure 4.1.1.1**), which contributed to the high landings of cobia in 2015. Another contributing factor to the high landings of cobia in 2015 was the increase in fishing effort. The recreational trips that targeted cobia from New York to Georgia increased by 25% from 2014 to 2015 (**Figure 4.1.1.2**).

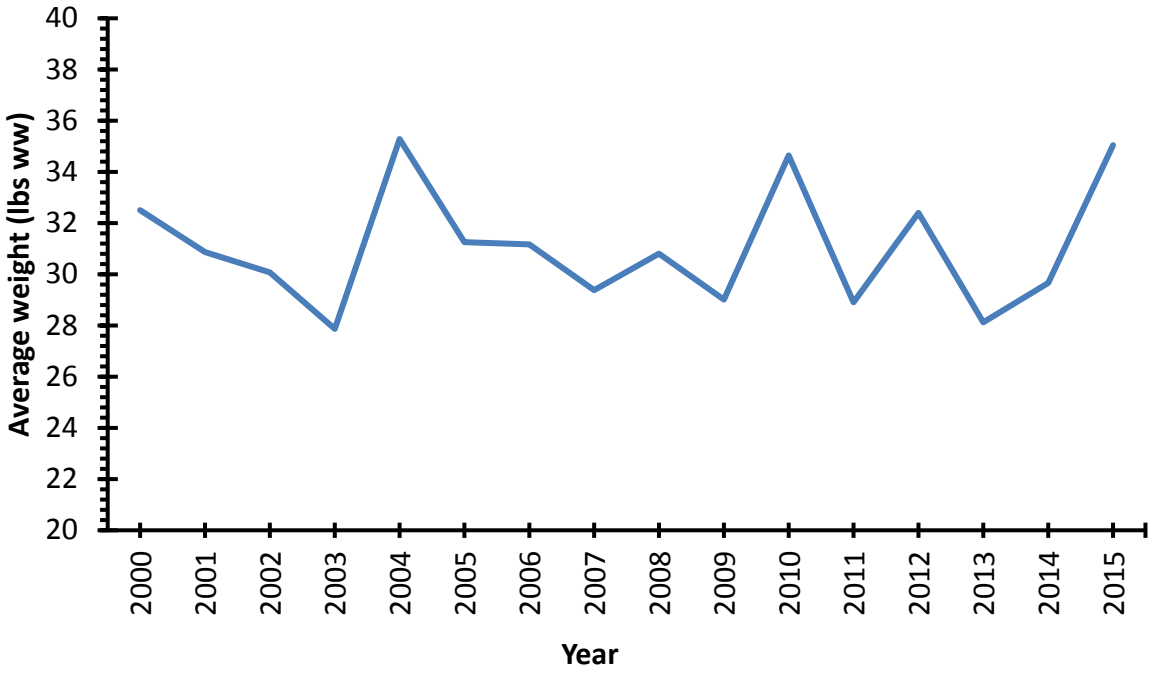

Figure 4.1.1.1. Average weights of cobia from New York to Georgia. The average weight for 2015 is preliminary. Source: SEFSC Recreational ACL Dataset

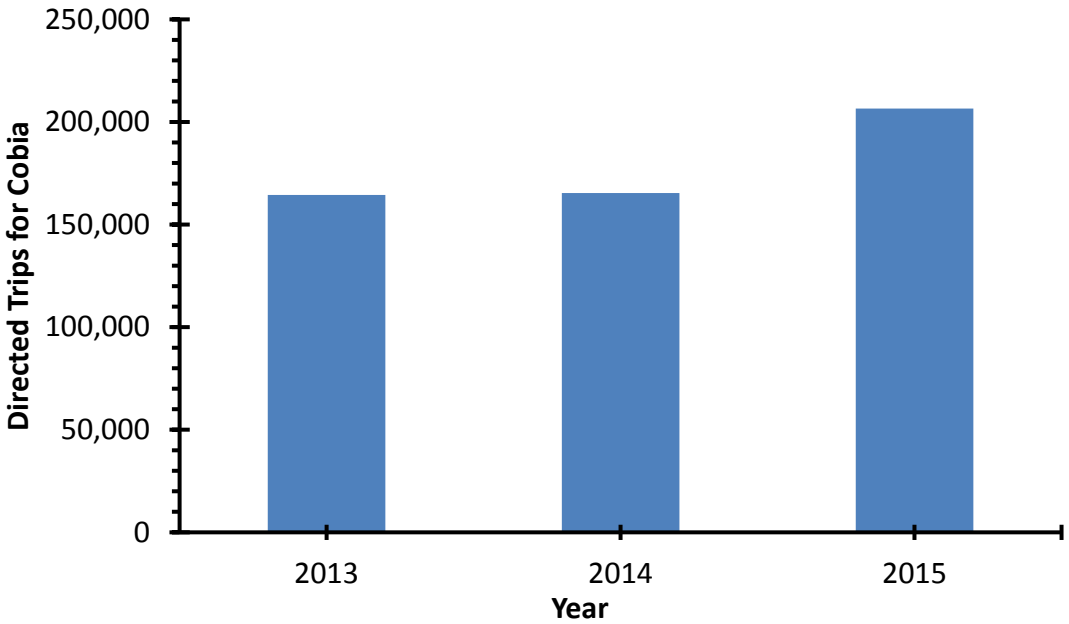

Figure 4.1.1.2. Directed recreational trips for cobia from New York to Georgia. The number of trips for 2015 are preliminary. Source: NOAA Office of Science and Technology Dataset

The recreational Atlantic cobia sector closed in the exclusive economic zone (EEZ) on June 20, 2016. However, North Carolina and Virginia did not adopt compatible regulations, and harvest continued in state waters after harvest was prohibited in the EEZ under more restrictive recreational harvest limits. The actions in this amendment are intended to lengthen the fishing season for the recreational cobia sector in upcoming years by slowing the rate of harvest so that landings reach the recreational ACL later in the year. **Action 1-1** analyzes the impact of bag limits, vessel limits, and an increase in the minimum size limits on recreational cobia harvest. **Table 4.1.1.2** shows the estimated percent decrease in recreational cobia landings based on the combinations of actions under **Action 1-1** and **Action 1-2.** The reductions in harvest assume that consistent regulations are implemented in both state and federal waters. The recreational bag limit for both North Carolina and Virginia is 1 fish per person per day.

Alternative 1 (No Action) would not modify the possession limit of 2 fish per person per day for Atlantic cobia that are not sold. Under this alternative, with current rates of fishing effort, it would be expected that the Atlantic cobia landings would not decrease from previous years, the ACL would likely be exceeded, and the biological and ecological impacts would be negative.

At their September 2016 meeting, the South Atlantic Fishery Management Council (South Atlantic Council) selected **Preferred Alternative 2, Preferred Sub-Alternative 2a (1 fish per person per day bag limit)),** and **Preferred Alternative 3, Preferred Sub-alternative 3f (6 fish per vessel limit).** The South Atlantic Council's intent was that whichever alternative management measure was more restrictive would apply. For example, if there were less than 6 people on the vessel, the 1 fish per person per day bag limit would apply. If there were more than 6 people on a vessel, the 6 fish per vessel limit per day would apply**.**

Table 4.1.1.2. Estimated percent decrease in Atlantic cobia landings for a combination of minimum size limits, bag limits, and vessel limits as proposed by Action 1-1 and Action 1-2. The highlighted cells indicate the preferred alternatives.

	Action 1-2 Minimum Size Limit								
	Alt 1 33 inch FL	**Sub-alt 2a** 34 inch FL	**Sub-alt 2b** 35 inch FL	**Sub-alt 2c** 36 inch FL	**Sub-alt 2d** 37 inch FL	**Sub-alt 2e** 38 inch FL	**Sub-alt 2f** 39 inch FL	**Sub-alt 2g** 45 inch FL	**Sub-alt 2h** 50 inch FL
Action 1-1 Harvest Limits	Bag Limit								
Sub-alt 2a 1 per Person	2.0	4.9	8.1	12.7	16.7	21.3	23.8	59.5	73.7
Sub-alt 2b 2 per Person	0	2.9	6.1	10.7	14.7	19.3	21.8	57.5	71.7
Vessel Limit									
Sub-alt 3a 1 per Vessel	20.4	23.3	26.5	31.1	35.1	39.7	42.2	77.9	92.1
Sub-alt 3b 2 per Vessel	8.8	11.7	14.9	19.5	23.5	28.1	30.6	66.3	80.5
Sub-alt 3c 3 per Vessel	4.4	7.3	10.5	15.1	19.1	23.7	26.2	61.9	76.1
Sub-alt 3d 4 per Vessel	2.7	5.6	8.8	13.4	17.4	22.0	24.5	60.2	74.4
Sub-alt 3e 5 per Vessel	2.1	5.0	8.2	12.8	16.8	21.4	23.9	59.6	73.8
Sub-alt 3f 6 per Vessel	0.9	3.8	7.0	11.6	15.6	20.2	22.7	58.4	72.6

In **Action 1-1**, **Preferred Alternative 2**, **Preferred Sub-alternative 2a,** and **Sub-alternative 2b** would establish a recreational bag limit of 1 or 2 fish per person per day, respectively. Under a 1 fish per person per day recreational bag limit, with the current size limit of 33 inches FL (**Preferred Alternative 2, Preferred Sub-alternative 2a**), a 2% reduction in harvest would be realized in the landings of Atlantic cobia. **Sub-alternative 2b**, which would continue the 2 fish per person per day bag limit, would not result in a reduction of landings.

Action 1-1/Preferred Alternative 3 and associated sub-options would implement a vessel limit of 1 to 6 fish per vessel per day. **Preferred Alternative 3, Preferred Sub-alternative 3f** would implement a 6 fish per vessel per day harvest limit. This harvest limit alone would result

in a 0.9% reduction in Atlantic cobia landings (**Table 4.1.1.2)**. All of the other sub-alternatives under **Preferred Alternative 3** would result in a reduction of landings, with the highest reduction being a 1 fish per vessel per day limit, at 20.4% (**Preferred Alternative 3, Sub-alternative 3a**) and the lowest reduction with a 6 fish per vessel per day limit at 0.9% (**Preferred Alternative 3, Preferred Sub-alternative 3f)**. As the harvest limit per vessel increases, the length of the fishing season would decrease. However, the biological effects of alternatives in **Action 1-1** would be expected to be neutral because the ACL and AMs limit the harvest amount, and take action if the ACL is exceeded to prevent overfishing. Furthermore, SEDAR 28 indicates that release mortality of cobia is very low for hook and line gear (less than 1%). Thus, bag or vessel limits that increase discarding of cobia would not be expected to have negative effects on the stock.

Action 1-2 proposes minimum size limits for Atlantic cobia and includes alternatives to keep the minimum size limit at 33 inches FL (**Alternative 1**) or sub-alternatives under **Preferred Alternative 2** to increase it to 34 inches FL (**Sub-alternative 2a**), 35 inches FL (**Sub-alternative 2b**), 36 inches FL (**Preferred Sub-alternative 2c**), 37 inches FL (**Sub-alternative 2d**), 38 inches FL (**Sub-alternative 2e**), 39 inches FL (**Sub-alternative 2f**), 45 inches FL (**Sub-alternative 2g**), and 50 inches FL (**Sub-alternative 2h**). As shown in **Table 4.1.1.2**, the greatest reduction in harvest is seen with the highest minimum size limits. The effect of the harvest reductions associated with the minimum size limits would be expected to extend the fishing season. Larger minimum size limits would be expected to increase discarding of cobia, but since release mortality is very low, an increase in discards would not be expected to negatively affect the stock. SEDAR 28 indicates that cobia females greater than 800 mm FL (31.5 inches FL) are sexually mature. In addition, fecundity and egg viability increases as females attain larger sizes. Thus, larger minimum size limits would be expected to provide biological benefits to the stock by providing greater spawning opportunities and enhanced fecundity for females over a longer life span.

Table 4.1.1.3. Commercial and Recreational Landings for Cobia in the Atlantic 2005-2015

Year	Recreational Landings	Commercial landings	Total Landings
2005	915,300	29,290	944,590
2006	980,071	31,990	1,012,061
2007	745,776	32,037	777,813
2008	537,767	33,739	571,506
2009	760,841	42,385	803,226
2010	938,527	56,393	994,920
2011	347,527	33,963	381,490
2012	496,173	42,176	538,349
2013	895,925	53,108	949,033
2014	544,952	69,197	614,149
2015	1,565,186	71,790	1,636,976

Source: Recreational Data from Marine Recreational Information Program (MRIP), 2005-2014 ACL database, 2015 landings from SEFSC

In 2015, harvest of Atlantic cobia exceeded the recreational ACL by 245% (**Table 4.1.1.3**). Alternatives under **Action 1-1** and **Action 1-2** would slow this harvest rate by implementing possession limits and size limits. By slowing the harvest rate, managers may be able to account for landings better to ensure that the ACL is not exceeded, resulting in biological benefits to the stock and the ecosystem. **Table 4.1.1.4** shows the estimated dates when recreational landings would reach the recreational ACL for a combination of minimum size limits, bag limits, and vessel limits as proposed by **Action 1-1** and **Action 1-2**. The results in **Table 4.1.1.4** are based on cobia landings from 2013-2015, which includes the unusually high 2015 landings. Based on the analysis in **Table 4.1.1.4**, under the preferred alternatives of **Action 1-1** and **Action 1-2**, and the landings remaining as they were between 2013 and 2015, the recreational sector would be expected to remain open until mid-July.

Table 4.1.1.4 Estimated dates when Atlantic cobia recreational landings would meet the recreational ACL (620,000 lbs ww for 2016 and subsequent years) under the range of minimum size limits, bag limits, and vessel limits based on recreational landings from 2013-2015. Highlighted cells are the preferred sub-alternatives in Action 1.

	Minimum Size Limit (inches FL)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per person	2-Jul	5-Jul	10-Jul	17-Jul	23-Jul	31-Jul	5-Aug	None	None
2 per person	30-Jun	3-Jul	7-Jul	14-Jul	20-Jul	28-Jul	1-Aug	None	None
Vessel Limit									
1	30-Jul	4-Aug	11-Aug	22-Aug	22-Sep	None	None	None	None
2	11-Jul	15-Jul	20-Jul	28-Jul	5-Aug	15-Aug	21-Aug	None	None
3	5-Jul	9-Jul	13-Jul	20-Jul	27-Jul	5-Aug	10-Aug	None	None
4	3-Jul	6-Jul	11-Jul	18-Jul	24-Jul	2-Aug	7-Aug	None	None
5	2-Jul	6-Jul	10-Jul	17-Jul	23-Jul	1-Aug	6-Aug	None	None
6	30-Jun	4-Jul	8-Jul	15-Jul	21-Jul	29-Jul	3-Aug	None	None

Note: This analysis assumed that the recreational bag limit, vessel limit, and minimum size limit would be consistent in state and federal waters for the South Atlantic and Mid-Atlantic regions. Additionally, the estimated dates were generated based on recreational landings from 2013-2015.

Table 4.1.1.5 shows the outcome of the same analysis, except the analysis uses recreational data from 2005 through 2014. Public comment indicated that many fishermen were concerned with the 2015 landings, and suggested that analysis of the actions should also consider the longer time period (2005-2014) without the 2015 landings, which were much higher than any other year from 2005-2015. Under the preferred sub-alternatives for **Action 1** (highlighted), in years with landings closer to those during 2005-2014, recreational landings would be expected to reach the recreational ACL in October. **Tables 4.1.1.4** and **4.1.1.5** suggest that if recreational landings are higher (such as in 2015) than those during 2005-2014, the bag/vessel limit and the increased minimum size limit may still not slow the rate of harvest and the recreational ACL would be met in the summer months. However, if recreational landings for a given year are similar to those in

2005-2014, it is likely that the bag/vessel limit and increased minimum size limit would extend the recreational fishing season into the fall months.

Table 4.1.1.5. Estimated dates when Atlantic cobia recreational landings would meet the recreational ACL (620,000 lbs ww for 2016 and subsequent years) under the range of minimum size limits, bag limits, and vessel limits based on recreational landings from 2005-2014. Highlighted cells are the preferred sub-alternatives in Action 1.

	Minimum Size Limit (inches FL)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per person	21-Aug	26-Aug	5-Sep	23-Oct	None	None	None	None	None
2 per person	17-Aug	23-Aug	28-Aug	2-Oct	None	None	None	None	None
Vessel Limit									
1	None	None	None	None	None	None	None	None	None
2	12-Sep	12-Oct	None	None	None	None	None	None	None
3	25-Aug	31-Aug	29-Sep	None	None	None	None	None	None
4	22-Aug	27-Aug	12-Sep	31-Oct	None	None	None	None	None
5	21-Aug	26-Aug	6-Sep	25-Oct	None	None	None	None	None
6	19-Aug	24-Aug	30-Aug	11-Oct	None	None	None	None	None

Note: This analysis assumed that the recreational bag limit, vessel limit, and minimum size limit would be consistent in state and federal waters for the South Atlantic and Mid-Atlantic regions. Additionally, the estimated dates were generated based on recreational landings from 2005-2014.

The South Atlantic Council has currently selected **Preferred Alternative 2, Preferred Sub-alternative 2c** under **Action 1-2**, which is a minimum size limit of 36 inches FL. Combined with the preferred alternatives under **Action 1-1**, the predicted closure date for the recreational sector would be July 15th or October 11th, depending on whether or not harvest levels continue at the pace they were in 2015 or if they are a more average landings scenario as was typical between 2005-2014.

None of the alternatives considered under this action would significantly alter the way in which the cobia portion of the coastal migratory pelagics fishery is prosecuted in the U.S. EEZ. No significant adverse impacts on endangered or threatened species are anticipated because of this action; nor are any adverse impacts on essential fish habitats (EFH) or habitat areas of particular concern (HAPC) including corals, sea grasses, or other habitat types expected because of this action. None of the alternatives under this action would result in an increase in bycatch of any species.

4.1.2 Economic Effects

Action 1-1

The current recreational possession limit for Atlantic cobia in federal waters is 2 fish per person per day with no vessel limit and a minimum size limit of 33 inches FL. However, in 2016, the states of South Carolina, North Carolina, and Virginia implemented various cobia regulations specifying alternative size limits, vessel limits, harvest days and/or harvest seasons for state waters (**Tables 2.1.3** and **2.1.4**). Given the varying cobia regulations that are in place, it is difficult to estimate the economic effects, but assuming the South Atlantic Council's selected management options for cobia are also adopted in state waters, the anticipated economic effects are as follows.

Preferred Alternative 2 establishes the definition of a recreational bag limit. **Sub-alternative 2b** (2 fish per person per day bag limit) is equivalent to **Alternative 1 (No Action)** for the recreational sector (2 fish per person per day possession limit for Atlantic cobia that are not sold), therefore there are no anticipated direct economic effects of either alternative/sub-alternative. **Preferred Sub-alternative 2a** would limit the possession of cobia to 1 fish per person per day. MRIP estimates indicate that on most trips where cobia were landed, there was not more than 1 cobia harvested per person. Based on these data, is not likely that lowering the bag limit to 1 fish per person per day would impact most recreational cobia trips. In relation to overall harvest, the projected marginal decrease from the reduced bag limit is approximately 2% (**Table 4.1.1.2** in **Section 4.1.1**), signaling a likely minimal impact on consumer surplus (CS) in the recreational sector. While the overall economic effect is expected to be minor, some CS may be lost on trips when more than 1 fish per person per day could be kept and the angler desires to do so. Additionally, some for-hire operations and other fishing-related businesses may be negatively affected should anglers decide to forgo taking, or take fewer, trips for cobia due to the lowered bag limit. The extent to which angling effort would be impacted is unknown and would be variable, but this may especially be a concern for anglers and fishing related businesses at times when substitute fish species are not readily available.

Alternative 3, **Sub-alternatives 3a** through **Preferred Sub-alternative 3f** establish vessel limits that range from 1 to 6 fish per vessel per day in 1-fish increments, with **Preferred Sub-alternative 3f** (6 fish per vessel per day) being least restrictive compared to **Sub-alternative 3a** (1 fish per vessel per day). The economic effects of a vessel limit are similar to those described under a reduced bag limit, but these effects would be more pronounced on trips where the vessel limit is more restrictive than the bag limit. **Preferred Sub-alternative 3f** is expected to reduce cobia harvest by approximately 1%, signaling some but likely minimal negative economic effects (**Table 4.1.1.2**). It is unknown how this option would impact overall fishing effort and thus for-hire net operating revenue (NOR) or revenue for other fishing-related businesses, but the lower vessel limit options are more likely to create heightened negative economic effects.

Action 1-2

In general, increasing the size limit for a species typically has little long-term economic effect unless the larger size limit is set so high that it negatively impacts long-term effort or it results in greater numbers of fish reaching spawning size and/or fish have higher fecundity prior to being harvested. Size limits that result in more spawning and/or higher fecundity would result

in more direct, long-term, positive economic effects presumably through the availability of increased numbers of fish in the future. However, there can be some direct, short-term negative economic effects as fewer fish would be available to harvest until the current population grows into the new minimum size and/or the biomass of harvestable fish increases. The further that the increase in size limit differs from **Alternative 1 (No Action)**, the greater the probability for lengthened short-term negative economic effects, but this action could also eventually result in greater long-term positive economic outcomes as long as the increased minimum size limit may result in a larger spawning biomass that would create additional fishing and harvest opportunities.

Minimum size limits set towards the upper typical biological limits of cobia length have the potential to discourage fishing effort in the short and long-term if the probability of a successful fishing trip that involves harvesting cobia is not likely. In this case, it can be expected that negative economic effects would occur as fishery participants reduce effort or switch to substitute species that may exhibit a lower CS or may reduce expenditures, thereby negatively effecting for-hire and fishing related businesses as well as the economies of coastal communities. **Preferred Sub-alternative 2c** sets the minimum size limit at 36 inches FL and is expected to initially decrease harvest by 10.7% **(Table 4.1.1.2)**, showing that the majority of cobia kept are at or above this minimum size limit and most trips would not be negatively affected. It is unknown at this time how many trips this minimum size limit would impact directly as it would be dependent on how long the harvest season remains open, but given the relatively fast growth of cobia and how close this minimum size limit is to the current size limit of 33 inches FL, short-term negative economic effects are expected to be minimal. There may be some positive economic benefits from this size limit change should it help maintain or increase the overall cobia stock biomass in the long-term as well as prevent closures or prolong the fishing season.

Vessel limits, reduced bag limits, and increased minimum size limits may lengthen the harvest season. Should a harvest closure occur, there might be loss of CS and anglers may decide to forgo some fishing trips due to the closure, depending on the closure timing. While some economic benefits would still be realized from catch and release fishing during a harvest closure, anglers often value being able to harvest cobia, resulting in a decrease in overall recreational effort. As a consequence, there would be negative economic effects to for-hire operators and other fishing related businesses due to the reduced recreational fishing activity and the reduction in angler expenditures on durable and non-durable goods that go along with this activity. The extent to which these negative economic effects may occur and the distribution of the effects would be highly dependent on the timing of the harvest closure. The earlier the harvest closure, the greater the likely overall negative economic effects, and the more concentrated these effects would be in states residing in the northern range of the typical cobia spawning migration in the Atlantic, namely North Carolina and Virginia.

Assuming the ACL is equally met under the different alternatives, there are potential economic benefits of prolonging the time that harvest is open with measures that decrease the number of fish landed per trip, but maintain or increase the number of trips taken. While there is no specific CS value available for recreationally caught Atlantic cobia, proxy values are available for dolphin and king mackerel, and are included in **Section 3.3.2**. These values show a

diminishing marginal value per fish as more fish are kept on a trip. Under this scenario, keeping harvest per trip at a lower level via a combination of bag limits, trip limits, and/or size limits while maximizing fishing effort would help increase overall CS in the recreational sector. Additionally, the higher levels of effort would help maintain NOR for charter and head boat operators.

Table 4.1.2.1 shows the estimated number of cobia landed per state from 2013-2015. Average total landings over the time series were used to calculate the estimated change in CS under a range of size limits, bag limits, and vessel limits in relation to the reductions specified in **Table 4.1.1.2 (Section 4.1.1**). Estimated values of CS for king mackerel as found in **Section 3.3.2** were used as a proxy for cobia, as recreational bag limits and minimum size limits are more similar for these two species than for dolphin. Given the range of CS estimates per fish based on how many fish are kept on a trip, the value for the second kept fish ($100) and the sixth kept fish ($32) were used to provide an upper bound **(Table 4.1.2.1)** and lower bound **(Table 4.1.2.2)** estimate of overall CS for recreational cobia landings under the different regulatory scenarios. Depending on the marginal CS estimate that is used, the total short-term reduction in CS resulting from harvesting cobia recreationally is between $127,549 and $398,590 under **Preferred Sub-alternative 2a** and **Preferred Sub-alternative 3f** of **Action 1-1** and **Preferred Sub-alternative 2c** of **Action 1-2**. It is important to note that these CS estimates are for harvest only and do not include economic benefits that may be derived from catch and release fishing or the economic effects of varying projected closure dates.

Table 4.1.2.1. Annual recreational landings (numbers of fish) of Atlantic cobia, by state/region, 2013-2015.

Year	GA	SC	NC	Mid-Atlantic	Total
2013	1,189	634	19,224	10,586	31,633
2014	792	1,137	9,804	6,404	18,137
2015	2,282	4,182	16,166	21,755	44,385
Average	1,421	1,984	15,065	12,915	31,385

Source: http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/queries/index.

Table 4.1.2.2. Upper bound estimate of change in consumer surplus (2014 $) for Atlantic cobia landings under a combination of minimum size limits, bag limits, and vessel limits.

	Minimum Size Limit (FL)								
	33”	34”	35”	36”	37”	38”	39”	45”	50”
Bag Limit									
1 per Person	-$62,770	-$153,787	-$254,219	-$398,590	-$524,130	-$668,501	-$746,963	-$1,867,408	-$2,313,075
2 per Person	$0	-$91,017	-$191,449	-$335,820	-$461,360	-$605,731	-$684,193	-$1,804,638	-$2,250,305
Vessel Limit									
1 per Vessel	-$640,254	-$731,271	-$831,703	-$976,074	-$1,101,614	-$1,245,985	-$1,324,447	-$2,444,892	-$2,890,559
2 per Vessel	-$276,188	-$367,205	-$467,637	-$612,008	-$737,548	-$881,919	-$960,381	-$2,080,826	-$2,526,493
3 per Vessel	-$138,094	-$229,111	-$329,543	-$473,914	-$599,454	-$743,825	-$822,287	-$1,942,732	-$2,388,399
4 per Vessel	-$84,740	-$175,756	-$276,188	-$420,559	-$546,099	-$690,470	-$768,933	-$1,889,377	-$2,335,044
5 per Vessel	-$65,909	-$156,925	-$257,357	-$401,728	-$527,268	-$671,639	-$750,102	-$1,870,546	-$2,316,213
6 per Vessel	-$28,247	-$119,263	-$219,695	-$364,066	-$489,606	-$633,977	-$712,440	-$1,832,884	-$2,278,551

Table 4.1.2.3. Lower bound estimate of change in consumer surplus (2014 $) for Atlantic cobia landings under a combination of minimum size limits, bag limits, and vessel limits.

	Minimum Size Limit (FL)								
	33”	34”	35”	36”	37”	38”	39”	45”	50”
Bag Limit									
1 per Person	-$20,086	-$49,212	-$81,350	-$127,549	-$167,721	-$213,920	-$239,028	-$597,570	-$740,184
2 per Person	$0	-$29,125	-$61,264	-$107,462	-$147,635	-$193,834	-$218,942	-$577,484	-$720,097
Vessel Limit									
1 per Vessel	-$204,881	-$234,007	-$266,145	-$312,344	-$352,516	-$398,715	-$423,823	-$782,365	-$924,979
2 per Vessel	-$88,380	-$117,505	-$149,644	-$195,842	-$236,015	-$282,214	-$307,322	-$665,864	-$808,478
3 per Vessel	-$44,190	-$73,315	-$105,454	-$151,652	-$191,825	-$238,024	-$263,132	-$621,674	-$764,288
4 per Vessel	-$27,117	-$56,242	-$88,380	-$134,579	-$174,752	-$220,950	-$246,058	-$604,601	-$747,214
5 per Vessel	-$21,091	-$50,216	-$82,354	-$128,553	-$168,726	-$214,924	-$240,032	-$598,575	-$741,188
6 per Vessel	-$9,039	-$38,164	-$70,302	-$116,501	-$156,674	-$202,873	-$227,981	-$586,523	-$729,136

The estimated average number of targeted charter angler trips (primary or secondary target) for Atlantic cobia per day by wave as well as the estimated net operating revenue (NOR) generated from these trips is shown in **Table 4.1.2.4** using data from 2013-2015 and in **Table 4.1.2.5** using data from 2005-2014**.** NOR estimates were based on a value of $153.45 (2014 $) per trip as found in **Section 3.3.2** and paired with the average targeted charter angler trips for Atlantic cobia. Average trips per day were estimated by dividing the total average targeted charter angler trips for Atlantic cobia for the timeframes of 2013-2015 and 2005-2014 in 2-month waves by the number of days in the wave. The average number of trips per day in a wave were used to estimate the number of targeted charter angler trips and associated NOR that may

be impacted by the seasonal closure dates for Atlantic cobia that are presented in **Table 4.1.1.4** and **Table 4.1.1.5** of **Section 4.1.1** (**Table 4.1.2.6** through **Table 4.1.2.9).** The timeframe from 2013-2015 tended to exhibit higher levels of directed effort for cobia on charter trips, therefore using this time period leads to earlier projected closures of the fishery and thus a larger number of trips and subsequent NOR that may be affected compared to the same analysis using data from 2005-2014. Under a combination of **Preferred Sub-alternative 2a** and **Preferred Sub-alternative 3f** of **Action 1-1** and **Preferred Sub-alternative 2c** of **Action 1-2**, between 5 and 729 charter angler trips representing $767 to $111,865 in NOR are estimated to be affected by a closure in recreational cobia harvest once the recreational ACL has been met.

Table 4.1.2.4. Average estimated daily target charter angler trips for Atlantic cobia and net operating revenue (NOR; 2014 $) by wave, 2013-2015.

Wave	Average Trips Per Day	Average NOR Per Day
May/June	54.17	$8,313
July/August	15.34	$2,355
September/October	0.13	$20

Source: http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/queries/index.

Table 4.1.2.5. Average estimated daily target charter angler trips for Atlantic cobia and net operating revenue (NOR; 2014 $) by wave, 2005-2014.

Wave	Average Trips per day	Average NOR per day
May/June	38.58	$5,919
July/August	16.10	$2,470
September/October	0.25	$38

Source: http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/queries/index.

Table 4.1.2.6 Estimated annual number of targeted charter angler trips for Atlantic cobia that may be impacted by seasonal closure dates under a combination of minimum size limits, bag limits, and vessel limits based on data from 2013-2015.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per person	929	883	806	698	606	484	407	0	0
2 per person	959	913	852	745	652	530	468	0	0
Vessel Limit									
1	499	422	315	146	5	0	0	0	0
2	791	729	652	530	407	254	161	0	0
3	883	821	760	652	545	407	330	0	0
4	913	867	791	683	591	453	376	0	0
5	929	867	806	698	606	468	392	0	0
6	959	898	837	729	637	514	438	0	0

Table 4.1.2.7 Estimated annual number of targeted charter angler trips for Atlantic cobia that may be impacted by seasonal closure dates under a combination of minimum size limits, bag limits, and vessel limits based on data from 2005-2014.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per person	176	96	14	2	0	0	0	0	0
2 per person	240	144	63	7	0	0	0	0	0
Vessel Limit									
1	0	0	0	0	0	0	0	0	0
2	12	5	0	0	0	0	0	0	0
3	112	15	8	0	0	0	0	0	0
4	160	79	12	0	0	0	0	0	0
5	176	96	14	1	0	0	0	0	0
6	208	128	31	5	0	0	0	0	0

Table 4.1.2.8 Estimated annual net operating revenue from targeted charter angler trips for Atlantic cobia that may be impacted by seasonal closures under a combination of minimum size limits, bag limits, and vessel limits based on data from 2013-2015.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per person	$142,555	$135,496	$123,681	$107,108	$92,991	$74,270	$62,454	$0	$0
2 per person	$147,159	$140,100	$130,739	$114,320	$100,049	$81,329	$71,815	$0	$0
Vessel Limit									
1	$76,572	$64,756	$48,337	$22,404	$767	$0	$0	$0	$0
2	$121,379	$111,865	$100,049	$81,329	$62,454	$38,976	$24,705	$0	$0
3	$135,496	$125,982	$116,622	$100,049	$83,630	$62,454	$50,639	$0	$0
4	$140,100	$133,041	$121,379	$104,806	$90,689	$69,513	$57,697	$0	$0
5	$142,555	$133,041	$123,681	$107,108	$92,991	$71,815	$60,152	$0	$0
6	$147,159	$137,798	$128,438	$111,865	$97,748	$78,873	$67,211	$0	$0

Table 4.1.2.9 Estimated annual net operating revenue from targeted charter angler trips for Atlantic cobia that may be impacted by seasonal closures under a combination of minimum size limits, bag limits, and vessel limits based on data from 2005-2014.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per person	$27,007	$14,731	$2,148	$307	$0	$0	$0	$0	$0
2 per person	$36,828	$22,097	$9,667	$1,074	$0	$0	$0	$0	$0
Vessel Limit									
1	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	$1,841	$767	$0	$0	$0	$0	$0	$0	$0
3	$17,186	$2,302	$1,228	$0	$0	$0	$0	$0	$0
4	$24,552	$12,123	$1,841	$0	$0	$0	$0	$0	$0
5	$27,007	$14,731	$2,148	$153	$0	$0	$0	$0	$0
6	$31,918	$19,642	$4,757	$767	$0	$0	$0	$0	$0

4.1.3 Social Effects

In general for **Action 1-1**, the social effects of modifying the recreational harvest limits would be associated with the biological costs of each alternative (see **Section 4.1.1**), as well as the effects on current recreational fishing opportunities. While **Preferred Alternatives 2** and **3** could restrict recreational fishing opportunities for Atlantic cobia, the harvest limits could help to extend the recreational fishing season by slowing the rate of harvest.

Different levels of recreational fishing opportunities under each alternative could affect recreational anglers and for-hire businesses targeting Atlantic cobia, particularly in North Carolina and Virginia (see **Sections 3.2** and **3.3**). In general, benefits to the recreational sector would result from harvest limits that do not result in restricted access to cobia (i.e., because an accountability measure (AM) is triggered) but still maintain harvest limits large enough to have minimum effect on recreational trip satisfaction.

The social effects of the potential harvest limits would depend on the trade-off between restrictive measures that may affect trip satisfaction or triggering the AMs because harvest exceeds the ACL in a short period of time (summer months), and would depend on if recreational effort and landings in that year are higher than the average landings in recent years. **Table 4.1.1.4** (**Section 4.1.1**) shows the estimated date when recreational landings would reach the current recreational ACL (620,000 lbs ww) under the combination of the harvest limits in Action 1, incorporating recreational landings from 2013-2015. Using this time period for the analysis shows the potential outcome if landings are higher than average. The estimated dates in **Table 4.1.1.4** indicate how each combination can slow the rate of harvest, which would be expected to not trigger any current or future AMs for recreational harvest of Atlantic cobia.

Table 4.1.1.5 (in **Section 4.1.1**) presents estimated dates when recreational landings would reach the recreational ACL under the combinations of the bag/vessel limits and minimum size limits, incorporating recreational landings data from 2005-2014. This analysis shows how the proposed management measures would slow the rate of harvest if recreational effort and catch were closer to the average landings from 2005-2014, which were lower than the high landings in 2015. Overall, the higher minimum size limits and lower bag and vessel limits would be more likely to slow the rate of harvest.

In general, measures that reduce the number of fish that a recreational angler can keep may negatively affect trip satisfaction. Under alternatives that would maintain the current measures (**Alternative 1 (No Action)** and **Sub-alternative 2b** in **Action 1-1**, and **Alternative 1 (No Action)** in **Action 1-2)** would have identical effects on recreational fishermen, which would be minimal at the individual level when considering trip satisfaction. However, no changes to the harvest limits would likely result in recreational landings reaching the recreational ACL earlier in the year, which could trigger recreational AMs or require additional measures to be implemented in the future.

The trade-off of effects on recreational fishermen, for-hire businesses and their associated communities must balance the restrictions on harvest with the benefits of slowing the rate of harvest (so as not to exceed the ACL and triggering AMs). As measures are more restrictive,

there could be more expected negative effects on trip satisfaction for recreational fishermen. Additionally, lower vessel limits would have more negative effects on boats and trips with more fishermen on board, such as on headboat trips. However, more restrictive measures are also expected to benefit participants in the recreational sector by slowing harvest to not reach the ACL until later in the year.

Negative short-term effects due to potential decreased trip satisfaction resulting from restrictive harvest measures would be expected under **Action 1-1**/**Preferred Sub-alternative 2a** than under **Action 1-1**/**Sub-alternative 2b** and under lower vessel limits, with **Action 1-1**/**Sub-alternative 3a** resulting in the most negative effects, followed by **Sub-alternative 3b**, **Sub-alternative 3c**, **Sub-alternative 3d**, **Sub-alternative 3e**, and then **Preferred Sub-alternative 3f.** When considering the minimum size limit in **Action 1-2**, the most negative effects on trip satisfaction and recreational fishermen would be expected under **Sub-alternative 2h**, followed by **Sub-alternative 2h, Sub-alternative 2g, Sub-alternative 2f, Sub-alternative 2e, Sub-alternative 2d, Preferred Sub-alternative 2c, Sub-alternative 2b,** and then **Sub-alternative 2a**.

When considering the potential benefits from slowing the rate of harvest and avoiding reaching the ACL until later in the year, the alternatives would have the opposite effect on potential impacts for the recreational sector. Benefits would be particularly apparent in years with high recreational effort and catch (see **Table 4.1.1.4**), because more restrictive measures for recreational harvest could help keep the ACL from being met until later in the summer. This could benefit areas that have higher proportions of their cobia harvest later in the year. **Figure 4.1.3.1** shows recreational harvest by state, and indicates how landings are higher in Georgia and South Carolina earlier in the year (April/ May) and higher later in the year for North Carolina and Virginia (June/July).

The bag and vessel limits in **Action 1-1**/**Preferred Alternatives 2** and **3,** combined with an increased minimum size limit **Action 1-2**/**Preferred Alternative 2** would be expected to allow the more northern areas, in particular northern North Carolina and Virginia, to still have access to cobia during the usual time of year when cobia fishing is popular and profitable.

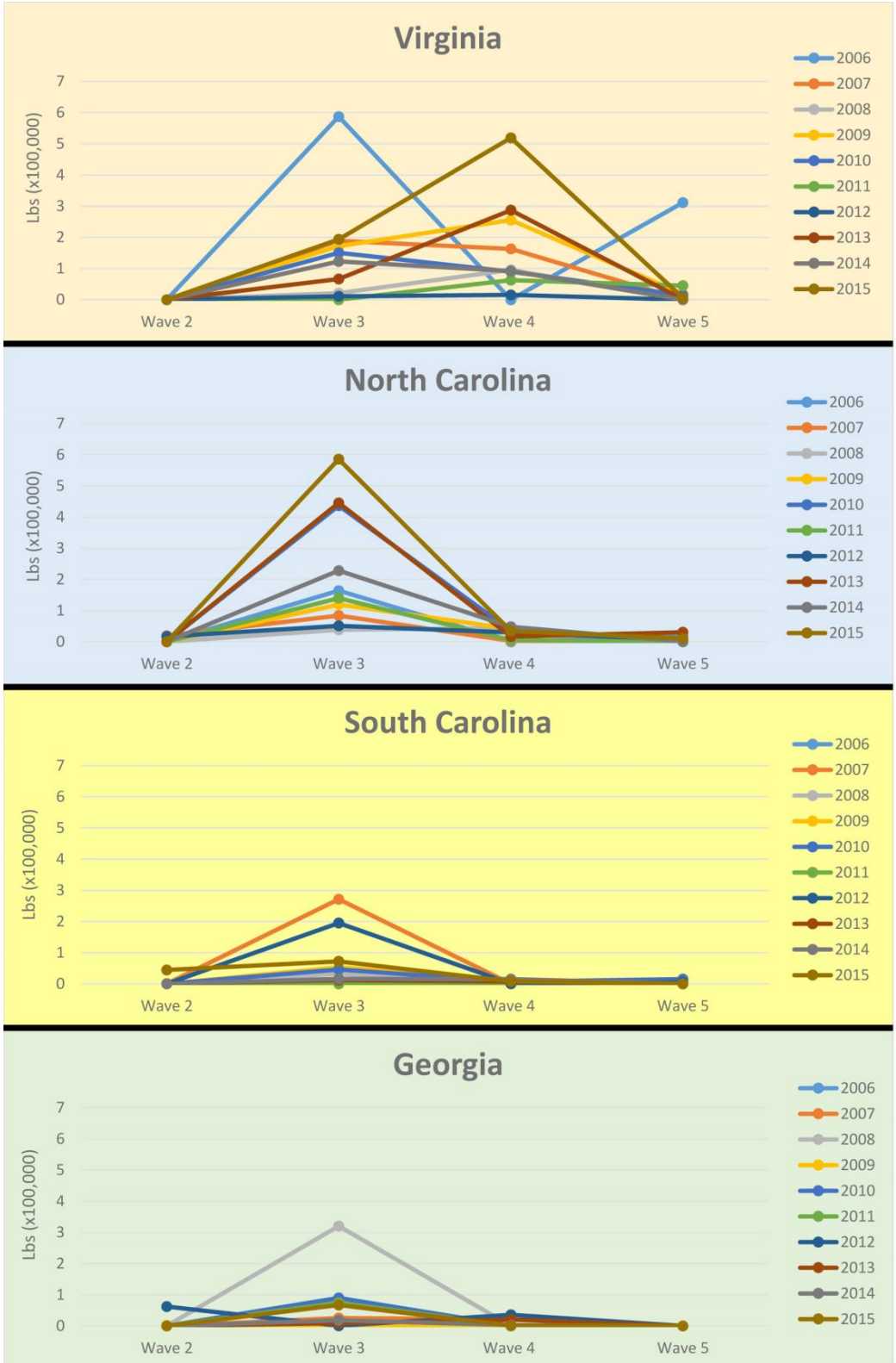

Figure 4.1.3.1. Recreational catch of Atlantic cobia by wave from 2006-2015 for Waves 2-5. Data source: SERO and MRIP database

4.1.4 Administrative Effects

Establishing bag limits, vessel limits and size limits would result in minimal administrative burden associated with rulemaking, outreach, education, and enforcement. However, the impact is expected to be minimal based on the alternatives proposed in this amendment as possession limits are already in place (**Action 1-1, Alternative 1)** and revising these would not be administratively difficult. The action alternatives under **Action 1-2** would have a higher administrative burden than the no action (**Alternative 1**) but this burden is expected to be minimal and mostly associated with rulemaking, outreach, and enforcement.

4.2 Action 2: Modify the recreational accountability measures for Atlantic cobia

Alternative 1 (No Action): Do not revise the recreational accountability measures (AMs) for Atlantic cobia as established in Amendment 18 (GMFMC/SAFMC 2011).

Recreational

- If recreational landings exceed the recreational annual catch limit (ACL), the stock ACL is exceeded *and* the stock is overfished, then the following year's recreational ACL will be reduced by the amount of the overage.
- If recreational landings exceed the recreational ACL, the Regional Administrator (RA) will evaluate the overage based on the most recent three years of landings under the current ACL. The length of the following fishing year will be reduced so that landings meet the recreational annual catch target (ACT) but not exceed the ACL. The recreational ACT = recreational ACL [(1-PSE) or 0.5, whichever is greater]. The recreational ACT for 2016 and subsequent fishing years is 500,000 lbs ww.

Preferred Alternative 2. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, recreational landings will be monitored for a persistence in increased landings. If necessary, the Regional Administrator shall publish a notice to reduce the length of the following fishing season to ensure that recreational landings meet the recreational annual catch target (ACT) but do not exceed the recreational ACL, based on the recreational landings in the previous year. The length of the recreational season will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 2a. The Regional Administrator will reduce the length of the following fishing year only if the species is overfished.

Preferred Sub-alternative 2b. The Regional Administrator will reduce the length of the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Sub-alternative 2c. The Regional Administrator will reduce the length of the following fishing year only if the species is overfished **and** the stock ACL (commercial ACL and recreational ACL) is exceeded.

Alternative 3. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, the Regional Administrator shall publish a notice to reduce the recreational ACL in the following fishing year by the amount of the recreational overage. The recreational ACL will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 3a. The Regional Administrator will reduce the recreational ACL and ACT of the following fishing year only if the species is overfished.

Sub-alternative 3b. The Regional Administrator will reduce the recreational ACL and ACT of the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Sub-alternative 3c. The Regional Administrator will reduce the recreational ACL and ACT of the following fishing year only if the species is overfished **and** the stock ACL (commercial ACL and recreational ACL) is exceeded.

Alternative 4. If recreational landings reach or are projected to reach the recreational ACL, the Regional Administrator shall publish a notice to close the recreational sector for the remainder of the fishing year, unless, using the best scientific information available, the Regional Administrator determines that a closure is unnecessary.

Sub-alternative 4a. If the species is overfished.

Sub-alternative 4b. Regardless of the overfished status of the species.

Preferred Alternative 5. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, recreational landings will be monitored for a persistence in increased landings. If necessary, the Regional Administrator shall publish a notice to reduce the recreational vessel limit for the following fishing year to ensure that recreational landings meet the recreational ACT but do not exceed the recreational ACL, based on the recreational landings in the previous year. The recreational vessel limit will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 5a. The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the species is overfished.

Preferred Sub-alternative 5b. The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Sub-alternative 5c. The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the species is overfished **and** the stock ACL (commercial ACL and recreational ACL) is exceeded.

4.2.1 Biological Effects

The current AM for the recreational sector is triggered if the sum of the recreational and commercial landings exceed the stock ACL (recreational ACL plus commercial ACL). In this case, NMFS must file a notice at or near the beginning of the following fishing year to reduce the length of the recreational season by the amount necessary to ensure recreational landings may achieve the recreational ACT, but do not exceed the recreational ACL. To determine whether an ACL has been exceeded, Amendment 18 (GMFMC/SAFMC 2011) required using 2011 landings in the first year, then the average of 2011/12 in the second year and then a three-year average of landings in the third year onwards, unless an ACL changed, in which case the first single year of landings will be compared to the ACL. Because Amendment 20B (GMFMC/SAFMC 2014) changed the ACL beginning in 2015 (based on the stock assessment), only the 2015 landings were used to determine whether the recreational or stock ACL was exceeded such that the AM is triggered. For 2015, both the recreational ACL and the stock ACL were exceeded, and thus, the length of the 2016 recreational fishing season was reduced.

Preferred Alternative 2, **Alternative 3**, **Alternative 4,** and **Preferred Alternative 5** would remove the three-year average of landings to determine if the AM has been triggered. Cobia landings can be variable and capturing very high or very low landings into a three-year average can result in an artificial shortening or lengthening of the recreational fishing season,

respectively. Thus, using just one year of landings in the action alternatives could have positive or negative biological effects relative to **Alternative 1 (No Action)**. The action alternatives would be expected to have positive biological effects relative to the no action alternative, if one year of high landings triggered an AM sooner than a three-year average of landings, and thereby reduced fishing effort on the stock. Alternatively, the action alternatives would be expected to have negative biological effects relative to the no action if low landings resulted in a lengthening of the fishing season relative to the no action.

Preferred Alternative 2 would function similar to **Alternative 1 (No Action)** in that if the ACL was met, the landings would be monitored for a persistence in an increase of landings. If deemed necessary, the Regional Administrator would publish a notice to reduce the length of the following fishing season and this evaluation would be based only on that year's recreational landings. **Alternative 3** and its sub-alternatives would require the Regional Administrator to publish a notice to reduce the recreational ACL and ACT in the following fishing year if the recreational ACL is exceeded. Like **Preferred Alternative 2, Alternative 4,** and **Preferred Alternative 5**, this evaluation would only be based on that year's recreational landings. This alternative is similar to the **Preferred Alternative 2** except that instead of publishing a set closure date for the recreational sector, a revised ACL and ACT would be set for the next fishing year. **Alternative 3** and its sub-alternatives could have greater positive biological impacts than **Alternative 2** due a reduction in the ACL that accounts for the overage of the ACL in the previous fishing year. However, if the reduction in harvest is small and is greater than the ACT of 500,000 lbs ww specified in **Preferred Alternative 2**, then **Preferred Alternative 2** and its sub-alternatives would have a greater biological benefit.

Alternative 4 would require the Regional Administrator to publish a notice to close the recreational sector in season, if it is deemed necessary. Although minimizing ACL overages would have a greater biological benefit than reducing them in the following fishing year, the nature of the reporting in the South Atlantic may make it unlikely to get landings information in time to avoid ACL overages. **Sub-alternative 4a** is associated with only one criterion for triggering implementation of an in season closure, and it would ensure that paybacks are triggered when they are most needed, i.e., when a species is overfished. However, if a species is not overfished and the recreational ACL is exceeded, no in season closure would occur. Thus, **Sub-alternative 4a** would only result in biological benefits if the species is overfished. **Sub-alternative 4b** is likely to have similar or greater beneficial biological impacts than **Sub-alternative 4a**, as the AM would be triggered when the recreational ACL has been exceeded regardless of overfished status. It is likely that **Sub-alternative 4b** would be triggered more often than **Sub-alternative 4a**, because the stock is not overfished yet the recreational ACL has been exceeded in recent years. **Sub-alternative 4a** would provide greater biological benefits to the stock than **Sub-alternative 4b**.

Preferred Alternative 5 is similar to **Preferred Alternative 2**, but allows the Regional Administrator to implement reduced recreational vessel limits in a year following an ACL overage to ensure that recreational landings meet the recreational ACT. After the year with the reduced vessel limit, the vessel limit would return to the previous limit as determined in Action 1-1, unless recreational landings continue to exceed the recreational AM. If this occurs for more

than one year, there could be multiple years with a lower vessel limit. If the South Atlantic Council does not select a preferred alternative in Action 1-1 to establish a vessel limit, the AM in **Preferred Alternative 5** would not be viable. The biological effects of **Preferred Alternative 5** would be expected to be the same as **Preferred Alternative 2** since the reduction in the vessel limit would be reduced to a level that would result in meeting the recreational ACT.

The sub-alternatives under **Preferred Alternative 2, Alternative 3,** and **Preferred Alternative 5** are identical. **Sub-alternatives 2a, 3a,** and **5a** are associated with only one criterion for triggering implementation of a reduction of the following fishing year, and it would ensure that the fishing year reduction is triggered when they are most needed, i.e., when a species is overfished. However, if a species is not overfished and the recreational ACL is exceeded, the following length of the fishing year would not be reduced. Thus, **Sub-alternatives 2a, 3a,** and **5a** would only result in biological benefits if the species is overfished. **Preferred Sub-alternative 2b**, and **Sub-alternative 3** and **Preferred Sub-alternative 5b** are likely to have similar or greater beneficial biological impacts than **Sub-alternatives 2a, 3a,** and **5a**, as the AM would be triggered when the stock ACL (both the recreational and commercial) have been exceeded regardless of overfished status. It is difficult to predict how often this AM would be triggered compared to **Sub-alternatives 2a, 3a,** and **5a**; however, it is likely that overages of the total combined ACL may happen more frequently than exceeding the recreational ACL when a species is overfished. **Sub-Alternatives 2c, 3c,** and **5c** would be triggered the least frequently of all the sub-alternatives under consideration, because the payback would only be required if two criteria are met, cobia is overfished and the total ACL has been exceeded. The likelihood of both of these scenarios taking place at the same time is small. **Sub-Alternatives 2c, 3c,** and **5c** may implement a recreational payback under such infrequently encountered simultaneous events that it may lead to a payback provision not being triggered when it is actually biologically necessary. Therefore, **Sub-Alternatives 2c, 3c,** and **5c** may be associated with the lowest level of biological benefits compared to **Sub-alternatives 2a, 3a,** and **5a** and **Preferred Sub-alternative 2b** and **Sub-alternatives 3** and **Preferred Sub-alternative 5b**. Among the sub-alternatives, **Preferred Sub-alternative 2b**, **Sub-alternative 3b** and **Preferred Sub-alternative 5b** would be expected to have the greatest biological benefits among the sub-alternatives since they would have the greatest chance of being triggered.

None of the alternatives considered under this action would significantly alter the way in which the cobia fishery is prosecuted in the U.S. EEZ. No significant adverse impacts on endangered or threatened species are anticipated because of this action; nor are any adverse impacts on EFH or HAPCs including corals, sea grasses, or other habitat types expected because of this action. None of the alternatives under this action would result in an increase in bycatch of any species.

4.2.2 Economic Effects

Alternative 1 (No Action) maintains the use of a three year running average of recreational landings for evaluating an overage and whether the AM will be triggered. The removal of the three-year average for determining if a recreational AM is triggered in **Preferred Alternative 2** would potentially make the proposed AM for Atlantic cobia similar to those set by the South

Atlantic Council for other species. **Preferred Alternative 2** is potentially less restrictive than **Alternative 3**, as **Preferred Alternative 2** would monitor landings for a persistence in increased landings, and would result in a reduced length of following season, if necessary. **Alternative 3** would automatically reduce the recreational sector ACL in the next season by the amount of overage. If the recreational ACL is exceeded, greater short-term negative economic effects would be expected from **Alternative 3** sub-alternatives than from **Preferred Alternative 2** sub-alternatives. However, if the ACL is not exceeded in any given season, there would be no differences between **Action 2** alternatives.

Alternative 4 gives the Regional Administrator authority to implement in season closures for cobia in case the ACL is met or project to be met. If the ACL is exceeded, the Regional Administrator could close the recreational cobia to limit the magnitude of the overage. **Sub-alternative 4a** would allow the Regional Administrator to implement an in season recreational closure only if the species is overfished. **Sub-alternative 4b** would allow the closure regardless of stock status, therefore the potential economic effects of Sub-alternative 4b are greater than Sub-Alternative 4a.

Preferred Alternative 5 and **Preferred Sub-Alternative 5b** is similar to **Preferred Alternative 2 and Preferred Sub-alternative 2b**, but allows the Regional Administrator to implement reduced recreational vessel limits for cobia in case the ACL is consistently exceeded after being monitored for persistence. The overall economic effects would vary based on the severity of the vessel limit reduction, with lower vessel limits likely leading to increased negative economic effects.

The sub-alternatives under **Preferred Alternative 2, Alternative 3,** and **Preferred Alternative 5** are the same in each alternative. **Sub-alternatives 2a, 3a,** and **5a** would only be triggered if the stock is overfished, which is currently not the case with the cobia stock, therefore no economic effects would occur unless the stock status for cobia changes. **Preferred Sub-alternative 2b**, and **Sub-alternative 3** and **Preferred Sub-alternative 5b** are triggered if the stock ACL is exceeded. This scenario is likely to occur more frequently, therefore the possibility of economic effects are greater than any of the other sub-alternatives. **Sub-alternatives 2c, 3c,** and **5c** would trigger a reduction for the recreational fishery only if the cobia stock is designated as overfished and the stock ACL is exceeded. This scenario is the least likely to occur, since two events must occur at the same time, therefore the possibility of negative economic effects due to AMs is less than any of the other sub-alternatives.

Preferred Alternative 2, **Alternative 3**, **Alternative 4,** and **Preferred Alternative 5** all remove the three-year average of landings qualification to determine if the AM is triggered, as is found in **Alternative 1 (No Action)**. It can be problematic if a single year of unusually high or low landings is observed, which may be artificially inflated or deflated by the three-year average, thereby negatively or positively effecting fishermen in the subsequent years through a shortened or lengthened fishing seasons that would not occur under the other alternatives. Removing the three-year average provision found in **Alternative 1 (No Action)** would have variable economic effects in comparison to the other alternatives, depending on how or if the three-year average is skewed by unusally high or low landings.

4.2.3 Social Effects

AMs can have direct and indirect social effects because, when triggered, can restrict harvest in the current season or subsequent seasons. 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 effects. Some of those effects are similar to other thresholds being met and may involve switching to other species or discontinuing fishing altogether. Those restrictions usually translate into reduced opportunity for harvest, which in turn can change fishing behaviors through species switching if the opportunity exists. That behavior can increase pressure on other stocks or amplify conflict. If there are no opportunities to switch species then losses of income or fishing opportunities may occur, which can act like any downturn in an economy for fishing communities affected. If there is a substantial downturn then increased unemployment and other disruptions to the social fabric may occur. While these negative effects are usually short term, they may at times induce other indirect effects through the loss of fishing infrastructure that can have a lasting effect on a community.

In general, the most beneficial in the long term for the stock and for sustainable fishing opportunities a combination of an in-season closure and a payback provision. However, some flexibility in how these AMs are triggered, such as conditions of the stock being overfished or the stock ACL being exceeded, can help to mitigate the negative short-term impacts on fishermen and associated businesses and communities.

Alternative 1 (No Action) would not modify the current recreational AMs for Atlantic cobia, including the use of the three-year rolling average in the evaluation of an overage. The rolling average may penalize the recreational sector by incorporating one year of very high landings into the evaluation of recreational landings for the next three years. **Preferred Alternative 2** would remove the rolling average and use only the most recent year's landings to evaluate the overage, and this would likely be more beneficial to recreational fishermen because one year of high landings would not result in multiple years with shortened seasons. The conditions to trigger the AM in **Sub-alternative 2a**, **Preferred Sub-alternative 2b**, and **Sub-alternative 2c** help to reduce the likelihood that the AM would be triggered, and only if it is necessary to minimize negative biological effects on the Atlantic cobia resource.

Alternative 3 would implement a reduction in the subsequent year's recreational ACL if there is an overage, which could negatively affect the season length and recreational fishing opportunities. However, the conditions under **Sub-alternatives 3a-3c** would help to only implement the AM when necessary to minimize negative effects on the Atlantic cobia resource. **Alternative 4** would modify the AMs to include an in-season closure if the recreational ACL is expected to be met, which could help to avoid exceeding the ACL and post-season AMs to be triggered, but could also shorten the current year's fishing season. It would be less likely that an in-season closure would be triggered under **Sub-alternative 4a** than under **Sub-alternative 4b**.

Implementing a lower vessel limit as the AM in **Preferred Alternative 5**, particularly as the first measure in a series of potential post-season AMs, would be expected to have less negative effects on recreational fishermen than a post-season that would shorten the season. The conditions to trigger the AM in **Sub-alternatives 5a-5c**, including **Preferred Alternative 5b**,

help to reduce the likelihood that the AM would be triggered, and only if it is necessary to minimize biological negative effects on the Atlantic cobia resource.

4.2.4 Administrative Effects

Any increase or decrease in administrative burden associated with **Alternatives 2 (Preferred) - 5 (Preferred)** would be caused by more or less frequently implemented AMs. **Preferred Alternative 2** would continue the reduction in the following fishing year AM already included under **Alternative 1 (No Action).** The administrative impacts associated with **Preferred Alternative 2** are largely the same as those under **Alternative 1 (No Action),** with the addition of continued monitoring for persistence of increased landings when a species' recreational ACL has been exceeded. **Preferred Alternative 2** sub-alternatives may be associated with slight changes to the administrative environment based on the frequency with which each of the AM options would be triggered. **Preferred Sub-alternative 2b** is likely to be triggered the most often; and therefore, would be associated with the highest level of administrative impacts in the form of document preparation and notifications sent to the recreational sector participants informing them that the ACL the following year would be reduced. **Sub-alternative 2a** is likely to follow **Preferred Sub-alternative 2b** in frequency of implementation, and **Sub-alternative 2c** would be triggered less frequently, resulting in the lowest direct effects on the administrative environment. However, if AMs are not implemented when they are biologically necessary, the risk of overfishing increases and the administrative burden associated with having to curtail overfishing are much greater than those associated with implementing an effective AM. Overall, the potential impacts on the administrative environment under **Preferred Alternative 2** are likely to be minor and would not be considered significant.

The administrative impacts associated with **Alternative 3**, **Alternative 4,** and **Preferred Alternative 5** are largely the same as those under **Preferred Alternative 2**, because landings are already closely monitored and recreational AMs are in place. Preferred Alternative 5 would slightly increase the administrative burden associated with enforcement because it would be slightly more difficult to enforce the vessel limit rather than a shortened fishing year. The triggering of an AM (either revising vessel limits or shortening the fishing year) would not result in a great administrative burden. Therefore, compared to **Alternative 1 (No Action),** none of the action alternatives would constitute a significant increase in the need for increased staff time or agency funds.

As with **Preferred Alternative 2**, the sub-alternatives under **Alternative 3**, **Alternative 4,** and **Preferred Alternative 5** would be associated with different administrative burdens based on the frequency with which they are triggered. **Sub-alternatives 3b**, **4b**, or **5b (Preferred)** would be the most likely to be triggered, and **Sub-alternative 3c, 4c**, or **5c** would be the least likely to be triggered. **Sub-alternative 3a** represents a mid-point of potential administrative impacts that may result from any of the three sub-alternatives considered under **Alternatives 3, Alternative 4,** and **Preferred Alternative 5**.

Overall, the administrative impacts of all the alternatives considered under this action, compared to **Alternative 1 (No Action),** are expected to be minimal.

4.3 Action 3: Establish a commercial trip limit for Atlantic cobia

Alternative 1 (No Action). Do not modify the possession limit of 2 fish per person per day.

Alternative 2. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day. The trip limit will decrease to 1 fish per person per day when 75% of the commercial ACL has been met.

Alternative 3. Establish a commercial trip limit for Atlantic cobia of 6 fish per vessel per day. The trip limit will decrease to 3 fish per vessel per day when 75% of the commercial ACL has been met.

Alternative 4. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day, with no more than 6 fish per vessel per day. The trip limit will decrease to 1 fish per person per day, with no more than 3 per vessel per day when 75% of the commercial ACL has been met.

Preferred Alternative 5. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day or 6 fish per vessel per day, whichever is more restrictive.

4.3.1 Biological Effects

Cobia are unique among federally managed species in the southeast region, in that no federal commercial vessel fishing permit is required to commercially harvest cobia in federal waters. In federal waters there is a daily possession limit of 2 cobia per person per day that applies to both recreational and commercial catch. Although a federal commercial permit is not required to fish for and sell cobia, federally permitted dealers can only buy cobia harvested from federally permitted fishing vessels; therefore, cobia harvested from a vessel fishing without any federal vessel fishing permit may only be sold to a dealer that has a state license but not a federal dealer permit. Dealers that only have a state license do not report commercial landings of cobia to NMFS on a weekly basis. In 2016, the ACL for commercial cobia from Georgia to New York is 50,000 pounds, landed weight (combination of both gutted and whole weight).

Table 4.3.1.1 shows the historic cobia commercial landings from 2005-2015 and the dates in when landings reached the current ACL. Commercial cobia landings by trip were explored to determine the number of trips impacted by the closures from the ACL being met. Essentially, if the commercial sector was closed when the ACL was met the table shows how many trips and pounds would have been lost due to the closure.

Table 4.3.1.1. Historic Atlantic (Georgia-New York) cobia landings from 2005-2015 and the predicted dates when the Atlantic cobia ACL (50,000 lbs) was met for each year. Cobia is measured in landed weight, which is a combination of both gutted and whole weight.

Year	Total Annual Landings	Date ACL was met	Number of Trips Impacted from Closure	Pounds (lbs ww) from Impacted Trips
2005	29,290	None	None	0
2006	31,990	None	None	0
2007	32,037	None	None	0
2008	33,739	None	None	0
2009	42,385	None	None	0
2010	56,393	9-Nov	145	6,393
2011	33,963	None	None	0
2012	42,176	None	None	0
2013	53,108	22-Nov	67	3,108
2014	69,197	11-Sep	111	19,197
2015	71,790	17-Oct	93	21,939

The original ACL for cobia was established in 2012 through Amendment 18 (GMFMC/SAFMC 2011) but was revised in 2015 through Amendment 20B (GMFMC/SAFMC 2014) to 60,000 lbs landed weight in 2015 and 50,000 lbs landed weight for 2016 and subsequent years. Except for a brief period in December 2014, the commercial cobia sector has not faced a closure. In 2015, commercial landings exceeded the commercial ACL for Atlantic cobia.

As shown in **Table 4.3.1.2,** comparing historic landings to the 2016 ACL of 50,000 lbs landed weight, the reduced trip limit would not go into effect in many of the years examined. However, if landings continue as they have in recent years, reducing the trip limit when 75% of the ACL was met (**Alternative 2**, **Alternative 3** and **Alternative 4**) would likely have extended the season and prevented potential closures of the commercial sector.

Table 4.3.1.2. Predicted dates when 75% of the ACL (37,500 lbs) and the ACL (50,000 lbs) were met with the historic Atlantic cobia commercial landings for 2005 through 2015. The Atlantic cobia stock is defined from the waters of New York through Georgia.

Year	Total Annual Landings	Date 75% of ACL was met	Date ACL was met
2005	29,290	None	None
2006	31,990	None	None
2007	32,037	None	None
2008	33,739	None	None
2009	42,385	3-Nov	None
2010	56,393	19-Sep	9-Nov
2011	33,963	None	None
2012	42,176	25-Oct	None
2013	53,108	28-Aug	22-Nov
2014	69,197	6-Aug	11-Sep
2015	71,790	14-Aug	17-Oct

Based on the landings, a trip limit would slow the rate of harvest and would lengthen the fishing season. **Alternative 1** (**No Action**) would not implement a commercial trip limit and it is likely that commercial closures will continue. **Alternative 2**, **Alternative 3**, **Alternative 4** would implement a commercial trip limit once 75% of the ACL is reached. These alternatives would slow the rate of harvest once 75% of the ACL is reached and would potentially lengthen the fishing season and prevent the ACL from being exceeded. **Preferred Alternative 5** would implement a commercial trip limit, year-round. The proposed trip limit would align with the recreational trip limit in **Action 1** and would serve to reduce the rate of harvest throughout the fishing year rather than after 75% of the ACL is reached. **Alternative 4** would be the most restrictive of the proposed alternatives because it would implement a year round trip limit, which would be further reduced once 75% of the ACL is reached.

More restrictive trip limits can result in increased discards of cobia that are incidentally caught. However, release mortality is estimated to be less than 1% by hook and line fishermen (SEDAR 28). Thus, no negative biological effects are expected from alternatives that would result in increased discards of cobia. The biological effects of the different trip limits is expected to be neutral because harvest closures occur for cobia when the commercial ACL is met or is expected to be met. The effect of the trip limit would be to slow the rate of harvest and lengthen a fishing season.

None of the alternatives considered under this action would significantly alter the way in which the cobia portion of the coastal migratory pelagics fishery is prosecuted in the U.S. EEZ. 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. None of the alternatives under this action would result in an increase in bycatch of any species.

4.3.2 Economic Effects

Generally, trip limits are not considered to be economically efficient because they can reduce the amount of catch, revenues and profits per trip, and require an increase in the number of trips as well as associated trip costs to land the same amount of fish. However, the negative economic effects of this inefficiency can be offset by price support resulting from the supply limitations and the lengthening of seasons. Given the relatively restrictive current commercial limit on cobia of 2 fish per person per day, the direct negative economic effect would be decreased by reducing the number of trips that are prohibited from retaining cobia, assuming the ACL is not met and the season does not close. There are no specific trip costs available for trips landing cobia, therefore specific values associated with trip costs cannot be estimated.

Alternative 2 would potentially be more restrictive than **Alternative 1 (No Action)** because it would reduce the daily commercial trip limit to 1 fish per person per day when 75% of the commercial ACL is reached, thereby potentially reducing revenue received from cobia landed on commercial trips. The realized economic effect of a 1 fish per person per day trip limit is not expected to be restrictive on most commercial cobia trips, as the majority of sampled commercial trips harvested 1 cobia per person per day (**Figure 4.3.2.1**), however, this trip limit would likely hinder the revenue received from cobia on some commercial trips.

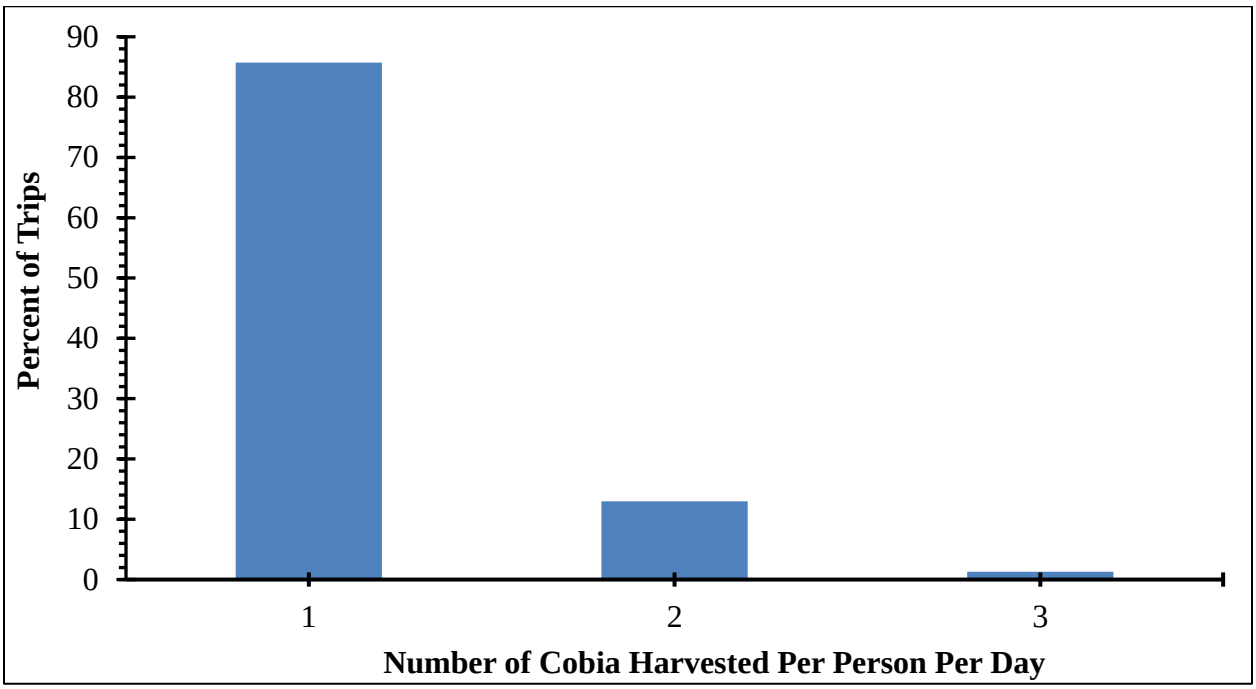

Figure 4.3.2.1. Percent of trips with 1, 2 or 3 cobia harvested per person per day, based on data from 2010-2015. Data source: SEFSC Trip Intercept Program.

Alternative 3 would establish a vessel limit of 6 fish per vessel per day that would decrease to 3 fish per vessel per day when 75% of the commercial ACL is reached. The effects of a vessel limit in comparison to **Alternative 1 (No Action)** would be dependent on the number of people onboard that could legally harvest cobia commercially, the crew's ability to harvest the daily

limit, and whether or not a decrease in the vessel limit is triggered. A vessel limit of 6 fish per day would represent an increase in the daily commercial trip limit if there were less than 3 people that can legally harvest cobia commercially onboard, would have no effect if there were 3 people onboard, and would represent a decrease in the daily commercial trip limit if more than 3 people were onboard. If the limit were decreased to 3 fish per vessel, then this scenario would be more restrictive than the current possession limit of 2 fish per person on all commercial trips with 2 or more people onboard. **Alternative 4** maintains the same daily commercial trip limit of 2 fish per person per day as **Alternative 1 (No Action)**, but also includes the same daily vessel limit and step down provision as **Alternative 3**. The economic effects of the vessel limit would similarly vary based on how many people are onboard a vessel who can legally harvest cobia commercially as well as whether or not the decreased trip limit of 3 fish per vessel had been triggered. Vessels commercially harvesting cobia with 3 or fewer crew members would not be restricted by the vessel limit of 6 fish. Should the reduced trip limit go into place, then vessels with 2 or more crew could be affected. Presumably, the step down in trip limits present in **Alternative 2** through **Alternative 4** would allow the commercial cobia sector to remain open longer, which may help offset the negative economic effects of the reduced trip limit.

Preferred Alternative 5 maintains a commercial cobia trip limit of 2 fish per person per day but also implements a 6 fish per vessel per day, whichever is more restrictive. Much like **Alternatives 3** and **4**, the economic effects in comparison to **Alternative 1 (No Action)** would be dependent on the number of people onboard that can legally harvest cobia commercially. If 3 or fewer such crew members are onboard, there would be no economic effect, however, the vessel limit would cap the maximum number of cobia that could be commercially harvested on a vessel with a crew of more than 3 people and potentially limit the revenue received from cobia on a commercial trip.

Comparing historic landings from 2005-2015 to the current commercial ACL of 50,000 lbs, the reduced trip limit would not go into effect for many of the years examined (**Table 4.3.1.2)**. Except for a brief closure in December 2014, the commercial cobia sector has not faced a closure, but the ACL was exceeded in 2015, and would have also been exceeded in 2010 and 2013 if the current ACL of 50,000 lbs ww had been in effect for those years. However, based on **Table 4.3.1.2**, in recent years, reducing the trip limit when 75% of the ACL was met would likely have extended the season and prevented potential closures of the commercial sector in these years. There are long- term economic benefits to not exceeding the ACL and actions that prevent or delay closures would allow commercial participants to continue to produce income from cobia incidentally caught later in the year.

4.3.3 Social Effects

In general, a commercial trip limit may help slow the rate of harvest, lengthen a season, and prevent the ACL from being exceeded, but trip limits that are too low may make fishing trips inefficient and too costly if fishing grounds are too far away. Additionally, if the trip limit is too low, the commercial ACL may not be met.

Commercial harvest of Atlantic cobia is restricted by the bag limit and likely comes from incidental catch on trips targeting other species. Additionally, the commercial limit is already very low as applied at the crewmember level or the vessel level. In most years, it unlikely that the step-down in **Alternatives 2-4** at 75% of the commercial ACL would be implemented (see **Table 4.3.1.2**) and the effects of **Alternative 1 (No Action)** through **Alternative 4** would be minimal for the commercial sector. However, in years with higher levels of commercial landings, the lower commercial limit in **Alternatives 2-4** may help slow the rate of harvest and reduce the likelihood of an early in-season closure or an overage.

Preferred Alternative 5 would implement a vessel limit along with the current commercial harvest limit of 2 per person, but would not include a step-down as in **Alternatives 2-4**. The vessel limit may have some negative effects on trips with more than 3 crewmembers on board, but it is likely that most commercial trips have 3 or fewer crew on board. By not having a step-down when 75% of the ACL is met, **Preferred Alternative 5** would not slow the rate of harvest and extend the fishing season. This may benefit fishermen who sell cobia by allowing the full potential to meet the commercial ACL, but may also result in landings exceeding the commercial ACL. Under **Preferred Alternative 5**, the vessel limit may have some negative effects on trips with more than 3 crewmembers on board, but it is likely that most commercial trips have 3 or fewer crew on board. By not having a step-down when 75% of the ACL is met, **Preferred Alternative 5** will not slow the rate of harvest later in the year. This may benefit fishermen who sell cobia by allowing the full potential to meet the commercial ACL, but may also result in landings exceeding the commercial ACL.

4.3.4 Administrative Effects

Alternative 2, **Alternative 3,** and **Alternative 4** would have a slightly higher administrative burden than **Preferred Alternative 5** in that they require a step-down when 75% of the ACL is reached. This requires fisheries managers to monitor the ACL landings and issue rule-making and outreach materials both when the step down goes into effect and when harvest closes due to reaching the ACL, if necessary. Compared to **Alternative 1 (No Action),** the administrative impacts of any of the proposed alternatives is slightly higher. All impacts would be associated with rule making, quota monitoring, outreach and education and enforcement.

Chapter 5. Council's Choice for the Preferred Alternatives

5.1 Modify the recreational management measures for Atlantic cobia

Action 1-1: Modify the recreational harvest limits for Atlantic cobia

Alternative 1 (No Action). Do not modify the possession limit of 2 fish per person per day for Atlantic cobia that are not sold.

Preferred Alternative 2. Establish a recreational bag limit for Atlantic cobia.

- **Preferred Sub-alternative 2a**. 1 fish per person per day
- **Sub-alternative 2b**. 2 fish per person per day

Preferred Alternative 3. Establish a recreational vessel limit for Atlantic cobia.

- **Sub-alternative 3a**. 1 fish per vessel per day
- **Sub-alternative 3b**. 2 fish per vessel per day
- **Sub-alternative 3c**. 3 fish per vessel per day
- **Sub-alternative 3d**. 4 fish per vessel per day
- **Sub-alternative 3e**. 5 fish per vessel per day
- **Preferred Sub-alternative 3f**. 6 fish per vessel per day

Action 1-2: Modify the minimum size limit for recreational harvest of Atlantic cobia

Alternative 1 (No Action). Do not modify the minimum size limit of 33 inches fork length (FL) for recreational harvest of Atlantic cobia.

Preferred Alternative 2. Modify the minimum size limit for Atlantic cobia for recreational harvest of Atlantic cobia.

- **Sub-alternative 2a**. 34 inches FL
- **Sub-alternative 2b**. 35 inches FL
- **Preferred Sub-alternative 2c**. 36 inches FL
- **Sub-alternative 2d**. 37 inches FL
- **Sub-alternative 2e**. 38 inches FL
- **Sub-alternative 2f**. 39 inches FL
- **Sub-alternative 2g**. 45 inches FL
- **Sub-alternative 2h**. 50 inches FL

5.1.1 Public Comments and Recommendations

- Most commenters support 1 fish per person bag limit and a minimum size limit of 36 inches fork length (FL) or 37 inches FL.
- There was not much support for a vessel limit, although some commenters support vessel limits of 2, 3, 4, and 6 fish per vessel per day.
- Some commenters do not recommend changing the current bag limit and minimum size limit.
- Some commenters recommended a vessel limit for fish over a certain length (e.g., no more than 1 fish per vessel over 50 inches total length)
- Support for different regulations for shore-based recreational fishermen.

Virginia Marine Resources Commission (VMRC) supports 1 fish person per day and 3 fish per vessel per day (**Preferred Sub-alternatives 2a** and **Sub-alternative 3c**), or at least no more than 4/vessel. The VRMC also supports a minimum size limit of 36 inches FL in **Preferred Sub-alternative 2c**.

5.1.2 South Atlantic Council's Choice for Preferred Alternatives

Bag, vessel and minimum size limits are effective measures to slow the rate of harvest to keep landings from exceeding an annual catch limit (ACL) and triggering an accountability measure (AM) that would restrict or prohibit access. However, measures that are too restrictive may negatively affect trip satisfaction. In particular, lower vessel limits for cobia would likely negatively affect the for-hire sector, because there are multiple paying passengers on board that may want to keep a fish. Therefore, the South Atlantic Fishery Management Council (South Atlantic Council) chose a vessel limit of 6 fish per vessel per day **(Action 1-1/Preferred Sub-alternative 3f**), a reduced bag limit of 1 fish per person per day (**Action 1-1/Preferred Sub-alternative 2a**), along with an increased minimum size limit of 36 inches FL **(Action 1-2/Preferred Sub-alternative 2c)**. These proposed measures are expected to balance the potential negative effects of fewer fish that can be kept by recreational fishermen, with the benefits of slowing the rate of harvest.

The South Atlantic Council concluded that **Action 1-1/Preferred Sub-alternative 2a, Action 1-1/Preferred Sub-alternative 3f,** and **Action 1-2/Preferred Sub-alternative 2c** best meet the purpose and need to ensure consistent, stable, and equitable fishing opportunities for all participants in the Atlantic cobia portion of the coastal migratory pelagics (CMP) fishery and respond to changing fishery characteristics for Atlantic cobia, while increasing social and economic benefits of the CMP fishery through sustainable fishing opportunities and harvest of Atlantic cobia. The preferred alternatives also best meet the objectives of the CMP FMP, as amended, while complying with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and other applicable law.

5.2 Modify the recreational accountability measures for Atlantic cobia

Alternative 1 (No Action): Do not revise the recreational accountability measures (AMs) for Atlantic cobia as established in Amendment 18 (GMFMC/SAFMC 2011).

Recreational

- If recreational landings exceed the recreational annual catch limit (ACL), the stock ACL is exceeded *and* the stock is overfished, then the following year's recreational ACL will be reduced by the amount of the overage.
- If recreational landings exceed the recreational ACL, the Regional Administrator (RA) will evaluate the overage based on the most recent three years of landings under the current ACL. The length of the following fishing year will be reduced so that landings meet the recreational annual catch target (ACT) but not exceed the ACL. The recreational ACT = recreational ACL [(1-PSE) or 0.5, whichever is greater]. The recreational ACT for 2016 and subsequent fishing years is 500,000 lbs ww.

Preferred Alternative 2. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, recreational landings will be monitored for a persistence in increased landings. If necessary, the Regional Administrator shall publish a notice to reduce the length of the following fishing season to ensure that recreational landings meet the recreational annual catch target (ACT) but do not exceed the recreational ACL, based on the recreational landings in the previous year. The length of the recreational season will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 2a. The Regional Administrator will reduce the length of the following fishing year only if the species is overfished.

Preferred Sub-alternative 2b. The Regional Administrator will reduce the length of the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Sub-alternative 2c. The Regional Administrator will reduce the length of the following fishing year only if the species is overfished **and** the stock ACL (commercial ACL and recreational ACL) is exceeded.

Alternative 3. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, the Regional Administrator shall publish a notice to reduce the recreational ACL in the following fishing year by the amount of the recreational overage. The recreational ACL will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 3a. The Regional Administrator will reduce the recreational ACL and ACT of the following fishing year only if the species is overfished.

Sub-alternative 3b. The Regional Administrator will reduce the recreational ACL and ACT of the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Sub-alternative 3c. The Regional Administrator will reduce the recreational ACL and ACT of the following fishing year only if the species is overfished **and** the stock ACL (commercial ACL and recreational ACL) is exceeded.

Alternative 4. If recreational landings reach or are projected to reach the recreational ACL, the Regional Administrator shall publish a notice to close the recreational sector for the remainder of the fishing year, unless, using the best scientific information available, the Regional Administrator determines that a closure is unnecessary.

Sub-alternative 4a. If the species is overfished.

Sub-alternative 4b. Regardless of the overfished status of the species.

Preferred Alternative 5. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, recreational landings will be monitored for a persistence in increased landings. If necessary, the Regional Administrator shall publish a notice to reduce the recreational vessel limit for the following fishing year to ensure that recreational landings meet the recreational ACT but do not exceed the recreational ACL, based on the recreational landings in the previous year. The recreational vessel limit will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 5a. The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the species is overfished.

Preferred Sub-alternative 5b. The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the stock ACL (commercial ACL and recreational ACL) is exceeded.

Sub-alternative 5c. The Regional Administrator will reduce the recreational vessel limit for the following fishing year only if the species is overfished **and** the stock ACL (commercial ACL and recreational ACL) is exceeded.

5.2.1 Public Comments and Recommendations

- Support for modifying the AMs to remove the use of the 3-year average in evaluating an overage.
- Opposition to any closed season for recreational harvest.
- Recommendations that recreational harvest always be open at least May through September or October.
- Concern about the Marine Recreational Information Program data, and that the 2015 landings were an outlier.

The VMRC recommended these sub-alternatives as AMs to be applied in the following specific order:
1) **Sub-alternative 5b** (reduced vessel limit)
2) **Sub-alternative 3b** (reduced ACL)
3) Preferred **Sub-alternative 2b** (reduced season length)

5.2.2 South Atlantic Council's Choice for Preferred Alternatives

AMs are required for each managed stock, but can be modified to achieve the same outcome (reducing the risk of overfishing) while minimizing negative social and economic impacts on fishermen. The South Atlantic Council is proposing to revise the current system for recreational AMs for Atlantic cobia with a reduction in the vessel limit of no less than 2 fish per vessel per day (**Preferred Alternative 5**) in the subsequent fishing year when the recreational ACL and stock ACL are both exceeded (**Preferred Sub-alternative 5**). If the reduced vessel limit is not sufficient to mitigate the overage and reduce the risk that landings would again exceed the ACL, then the following year's fishing season would be reduced if both the recreational and stock ACLs are exceeded (**Preferred Alternative 2/Preferred Sub-alternative 2b**). Although it is possible that both AMs could be implemented, the Council expects that in most years with an overage, a reduced vessel limit will be sufficient to mitigate the overage and not allow landings to exceed the ACL in the following year. The Council is confident that the proposed AM system would result in the more restrictive AM (reduced season length) only being implemented if absolutely necessary, and would be triggered only after a period of high landings that could negatively affect the cobia stock. The Council determined that applying the AMs in this manner addresses the concern that a closure has greater negative effects than a temporary reduction in the vessel limit on recreational fishermen, for-hire businesses, other recreational businesses, and associated communities, and a reduced season length should only be implemented if other measures cannot reduce the recreational harvest.

The South Atlantic Council concluded that **Preferred Alternative 2/ Preferred Sub-alternative 2b** and **Preferred Alternative 5/ Preferred Sub-alternative 5b** best meet the purpose and need to ensure consistent, stable, and equitable fishing opportunities for all participants in the Atlantic cobia portion of the CMP fishery and respond to changing fishery characteristics for Atlantic cobia, while increasing social and economic benefits of the CMP fishery through sustainable fishing opportunities and harvest of Atlantic cobia. The preferred alternatives also best meet the objectives of the CMP FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

5.3 Establish a commercial trip limit for Atlantic cobia

Alternative 1 (No Action). Do not modify the possession limit of 2 fish per person per day.

Alternative 2. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day. The trip limit will decrease to 1 fish per person per day when 75% of the commercial ACL has been met.

Alternative 3. Establish a commercial trip limit for Atlantic cobia of 6 fish per vessel per day. The trip limit will decrease to 3 fish per vessel per day when 75% of the commercial ACL has been met.

Alternative 4. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day, with no more than 6 fish per vessel per day. The trip limit will decrease to 1 fish per person per day, with no more than 3 per vessel per day when 75% of the commercial ACL has been met.

Preferred Alternative 5. Establish a commercial trip limit for Atlantic cobia of 2 fish per person per day or 6 fish per vessel per day, whichever is more restrictive.

5.3.1 Public Comments and Recommendations

- There were not many comments on this action, but two people supported commercial vessel limits of 2 fish per vessel, and 6 per vessel.

5.3.2 South Atlantic Council's Choice for Preferred Alternative

The South Atlantic Council considered a reduced trip limit for commercial harvest of cobia when 75% of the commercial ACL had been met, but chose as their preferred alternative a per-person and a vessel limit with no step-down (2/person or 6/vessel, whichever is more restrictive; **Preferred Alternative 5**). Commercial landings in 2015 exceeded the commercial ACL, primarily due to an increase in landings in November and December. Although a step-down is effective in slowing the rate of harvest, it may also limit the ability of vessels participating in the commercial harvest of Atlantic cobia from reaching the commercial ACL.

The South Atlantic Council concluded that **Preferred Alternative 5** best meets the purpose and need to ensure consistent, stable, and equitable fishing opportunities for all participants in the Atlantic cobia portion of the CMP fishery and respond to changing fishery characteristics for Atlantic cobia, while increasing social and economic benefits of the CMP fishery through sustainable fishing opportunities and harvest of Atlantic cobia. The preferred alternatives also best meet the objectives of the CMP FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

Chapter 6. Cumulative Effects

As directed by the National Environmental Policy Act (NEPA), federal agencies are mandated to assess not only the indirect and direct effects, but cumulative effects of actions as well. NEPA defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). Cumulative effects can either be additive or synergistic. A synergistic effect occurs when the combined effects are greater than the sum of the individual effects. The following are some past, present, and future actions that could impact the environment in the area where the CMP fishery is prosecuted.

1. Affected Area

The South Atlantic Fishery Management Council (South Atlantic Council) in cooperation with the Gulf of Mexico Fishery Management Council (Gulf Council) is responsible for the Coastal Migratory Pelagic (CMP) Resources in the Gulf of Mexico and the Atlantic Region. The immediate impact area for this amendment, which includes actions only for Atlantic cobia, is the federal 200-mile exclusive economic zone (EEZ) of the Atlantic off the coasts of New York, New Jersey, Maryland, Delaware, Pennsylvania, Virginia, North Carolina, South Carolina, and Georgia. **Section 3.1** describes the essential fish habitat designation and requirements for CMP species. The range of the affected stock is described in **Section 3.2.**

2. Past, Present, and Reasonably Foreseeable Actions Impacting the Affected Area

For this action, the cumulative effects analysis (CEA) includes an analysis of actions and events dating back to when the original CMP FMP was implemented, and through what is expected to take place approximately before or within 2016-2017. Refer to **Appendix C** for a comprehensive list of past regulatory activity for the CMP FMP. For the purposes of this discussion the past, present and foreseeable actions listed below are those related to data collection in the CMP Fishery.

Past Actions

CMP Fishery

The following amendments to the CMP FMP contained actions that pertained to the cobia sector of the CMP Fishery.

- The CMP FMP (1982) established the management unit for cobia, specified biological parameters and harvest limits.
- Amendment 1 (1985) specified the minimum size limit as 33 inches fork length or 37 inches total length for cobia.

- Amendment 2 (1987) to the CMP FMP (implemented in 1987) required that charter vessels and headboats fishing in the EEZ of the Gulf of Mexico or Atlantic for CMP species have permits.
- Amendment 3 (1990) prohibited drift gillnets for CMP species.
- Amendment 5 (1990) modified the biological parameters, provided guidance on assessments and review, and specified that the possession limit was a 1-day possession limit.
- Amendment 8 (1998) extended management through the Mid-Atlantic region, established allowable gear, revised the biological parameters, and modified the framework procedure.
- Amendment 11 (1999) modified the biological parameters for the CMP fishery as a whole.
- Amendment 13 (2002) established prohibitions on CMP harvest in the Dry Tortugas.
- Amendment 18 (2012) established the Gulf and Atlantic stocks of cobia, established the biological parameters, annual catch limits, and accountability measures for each stock.
- Amendment 22 (SAFMC 2013) required electronic logbook reporting for headboat vessels fishing for snapper grouper, dolphin wahoo, and CMP species.
- Amendment 20B (2014) revised the framework procedure for the FMP to allow modification to management measures under the standard documentation process of the open framework procedure, including accountability measures; created a Florida East Coast Subzone for cobia to adjust for a difference between the Councils' jurisdictional areas and modified management of the portion of the Gulf migratory group annual catch limit attributable to the Florida East Coast Subzone was assigned to the South Atlantic Council.

Present Actions

In September 2016, the South Atlantic Council removed an action to change the recreational fishing year from Framework Amendment 4 because the fishing year cannot be modified through a framework, according to the current Framework Procedure for the CMP FMP. The South Atlantic Council directed staff to start work on Amendment 30 CMP FMP, which includes only the action to change the recreational fishing year for Atlantic cobia. The Gulf Council will review Amendment 30, select a preferred alternative, and consider final action at their October 2016 meeting. The South Atlantic Council is expected to approve Amendment 30 for formal review at their December 2016 meeting.

The South Atlantic Council is also considering actions to require weekly electronic reporting from charterboat and headboats with the federal Atlantic CMP for-hire permit, which is required to harvest cobia on for-hire trips in the South Atlantic and Mid-Atlantic EEZ. The South Atlantic Council will consider final approval of this amendment in December 2016. Because this amendment would amend the CMP FMP, the Gulf Council will also need to approve the amendment for formal review at their January/February 2017 meeting.

There are other amendments in development with actions that are specific to the king mackerel or Spanish mackerel components of the CMP fishery. They include:

- Amendment 26 to the CMP FMP (under Secretarial review), which proposes a revision of the king mackerel stock boundary; updates biological parameters, acceptable biological catch (ABC) levels and annual catch limits (ACL) for Gulf of Mexico (Gulf) and Atlantic king mackerel; updates ABC levels for Atlantic king mackerel; establishes zone commercial quotas for Gulf king mackerel; allows for the sale of incidental catch of Atlantic king mackerel in the small coastal shark gillnet sector; and revises management measures for commercial harvest of Atlantic king mackerel on the Florida east coast.
- Amendment 27 to the CMP FMP (under development) modifies the electronic reporting for headboats and establishes an electronic reporting program for charter vessels in the snapper grouper, dolphin wahoo, and coastal migratory pelagics fisheries.
- Amendment 29 to the CMP FMP (under development) includes actions to establish an allocation sharing system for Gulf king mackerel.
- CMP Framework Amendment 5 (under development) which includes an action to modify restrictions on commercial permits to allow fishing for and retention of bag limit king mackerel and Spanish mackerel.

Reasonably Foreseeable Actions

The Joint Commercial Logbook Reporting Amendment would require electronic reporting of landings information by federally permitted commercial vessels, which would increase the timeliness and accuracy of landings data. Currently, fishermen report using paper logbooks.

The South Atlantic Council is considering limited entry for federal charterboat/headboat permits in the Snapper Grouper, Dolphin Wahoo, and CMP fisheries.

Additionally, the Atlantic States Marine Fisheries Commission (ASMFC) is developing a fishery management plan for cobia harvest in state waters. The ASFMC will coordinate with the South Atlantic Council for complementary regulations in state and federal waters. The South Atlantic State/Federal Fisheries Management Board of the ASMFC will review and approve the public information document at their October 2016 meeting.

3. Consideration of Climate Change and Other Non-Fishery Related Issues

Climate Change

Global climate changes could have significant effects on Atlantic fisheries. However, the extent of these effects is not known at this time. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and 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 influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (Link et al, 2015).

It is unclear how climate change would affect fish species in the Atlantic. Climate change can affect factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. 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. Climate change may significantly impact species in the future, but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts will occur.

The National Marine Fisheries Service (NMFS) the Southeast Fisheries Science Center and the Southeast Regional Office are developing a Climate Change Regional Action Plan for the South Atlantic, Gulf, and Caribbean to identify action items that can be undertaken to better understand the impacts climate change will have on the Southeast region.

Weather Variables

Hurricane season is from June 1 to November 30, and accounts for 97% of all tropical activity affecting the Atlantic basin. These storms, although unpredictable in their annual occurrence, can devastate areas when they occur. Although these effects may be temporary, those fishing-related businesses whose profitability is marginal may go out of business if a hurricane strikes.

Deepwater-Horizon Oil Spill

On April 20, 2010, an explosion occurred on the Deepwater Horizon MC252 oilrig, resulting in the release of an estimated 4.9 million barrels of oil into the Gulf. In addition, 1.84 million gallons of Corexit 9500A dispersant were applied as part of the effort to constrain the spill. The cumulative effects from the oil spill and response may not be known for several years. The oil spill affected more than one-third of the Gulf area from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. The impacts of the Deepwater Horizon MC252 oil spill on the physical environment are expected to be significant and may be long-term. Oil is dispersed on the surface, and because of the heavy use of dispersants, oil is also documented as being suspended within the water column, some even deeper than the location of the broken wellhead. Floating and suspended oil washed onto shore in several areas of the Gulf, as well as non-floating tar balls. Whereas suspended and floating oil degrades over time, tar balls are more persistent in the environment and can be transported hundreds of miles. Oil on the surface of the water could restrict the normal process of atmospheric oxygen mixing into and replenishing oxygen concentrations in the water column. In addition, microbes in the water that break down oil and dispersant also consume oxygen; this could lead to further oxygen depletion. Zooplankton that feed on algae could also be negatively impacted, thus allowing more of the hypoxia-fueling algae to grow. The highest concern is that the oil spill may have impacted spawning success of species that spawn in the summer months, either by reducing spawning activity or by reducing survival of the eggs and larvae. Effects on the physical environment, such as low oxygen, could lead to impacts on the ability of larvae and post-larvae to survive, even if they never encounter oil. In addition, effects of oil exposure may create sub-lethal effects on the eggs, larva, and early life stages. The stressors could potentially be additive, and each stressor may increase the susceptibility to the harmful effects of the other. The oil from the spill site was not detected in the South Atlantic region, and does not likely pose a threat to the South

Atlantic species addressed in this amendment. However, the effects of the oil spill on fish species would be taken into consideration in future Southeast Data Assessment and Review assessments. Indirect and inter-related effects on the biological and ecological environment of the fisheries in concert with the Deepwater Horizon MC252 oil spill are not well understood. Changes in the population size structure could result from shifting fishing effort to specific geographic segments of populations, combined with any anthropogenically induced natural mortality that may occur from the impacts of the oil spill. The impacts on the food web from phytoplankton, to zooplankton, to mollusks, to top predators may be significant in the future.

4. Overall Impacts Expected from Past, Present, and Future Actions

This amendment proposes management measures for the Atlantic cobia sector of the CMP fishery in the form of recreational bag limits (**Action 1-1**), changes in recreational minimum size limits (**Action 1-2**), and commercial trip limits (**Action 2**) with the intent of slowing the rate of harvest without exceeding the ACL, but also allowing fair access for participants in all states. **Chapters 2** and **4** of this document describe in detail the magnitude and significance of effects of the alternatives for these actions for the recreational and commercial cobia sectors, and none of the impacts have been determined to be significant.

The cumulative effects of the actions proposed in combined with effects of other past, present, and future actions, are not expected to affect the magnitude of bycatch, diversity, and ecosystem structure of fish communities, or safety at sea of fishermen. The actions in this amendment combined with past, present and foreseeable actions would not cause significant impacts to the resource or to the fishery participants.

This action is not likely to result in direct, indirect, or cumulative effects to unique areas, such as significant scientific cultural or historical resources, park land, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas as the proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort within the Atlantic region. The Stellwagen Bank off the Northeastern U.S., USS Monitor, Gray's Reef, and Florida Keys National Marine Sanctuaries are within the boundaries of the Atlantic EEZ.

5. Monitoring and Mitigation

The effects of the proposed actions are, and will continue to be, monitored through collection of landings data by NMFS, stock assessments and stock assessment updates, life history studies, economic and social analyses, and other scientific observations. The proposed actions do not itself introduce non-indigenous species such as lionfish, and is not reasonably expected to facilitate the spread of such species through depressing the populations of native species. Additionally, the actions in the amendment do not propose any activity, such as increased ballast water discharge from foreign vessels, which is associated with the introduction or spread on nonindigenous species.

None of the beneficial or adverse impacts from the proposed management actions (as summarized in **Chapter 2** of this document) have been determined to be significant. See **Chapter 4** for the detailed discussions of the magnitude of the impacts of the preferred

alternatives on the human environment. The actions in the Framework Amendment 4 would not have significant biological, social, or economic effects because the actions are intended to slow the rate of harvest to ensure that the ACL is not exceeded and overfishing does not occur. Therefore, the cumulative effects of the action proposed in the Framework Amendment 4 are not expected to affect the magnitude bycatch, diversity, and ecosystem structure of fish communities, or safety at sea of fishermen targeting cobia. Based on the cumulative effects analysis presented herein, the proposed action would not have any significant adverse cumulative impacts compared to, or combined with, other past, present, and foreseeable future actions.

Chapter 7. List of Interdisciplinary Plan Team (IPT) Members

Name	Agency/Division	Title
Kari MacLauchlin	SAFMC	IPT Lead/Fishery Social Scientist
Karla Gore	SERO /SF	IPT Lead/Fishery Biologist
David Carter	SEFSC	Economist
Brian Cheuvront	SAFMC	Deputy Executive Director for Management
Rick DeVictor	SERO/SF	South Atlantic Branch Chief
John Hadley	SAFMC	Fishery Economist
Stephen Holiman	SERO/SF	Economist
Michael Jepson	SERO/SF	Fishery Social Scientist
Michael Larkin	SERO/LAPP	Biologist
Tony Lamberte	SERO/SF	Economist
Jennifer Lee	SERO/PR	Protected Resources
Scott Sandorf	SERO	Technical Writer
Noah Silverman	SERO	NEPA Specialist
Monica Smit-Brunello	NOAA GC	General Counsel
Iris Lowery	NOAA GC	General Counsel
Jocelyn D'Ambrosio	NOAA GC	General Counsel

NMFS = National Marine Fisheries Service, GMFMC = Gulf of Mexico Fishery Management Council, SAFMC = South Atlantic Fishery Management Council, SF = Sustainable Fisheries Division, PR = Protected Resources Division, SERO = Southeast Regional Office, HC = Habitat Conservation Division, GC = General Counsel, OLE= Office of Law Enforcement

Chapter 8. Agencies Consulted

Responsible Agencies
South Atlantic Fishery Management Council (Administrative Lead)
4055 Faber Place Drive, Suite 201
N. Charleston, South Carolina 29405
843-571-4366/ 866-SAFMC-10 (TEL)
843-769-4520 (FAX)
www.safmc.net

Environmental Assessment:
NMFS, Southeast Region
263 13th Avenue South
St. Petersburg, Florida 33701
727- 824-5301 (TEL)
727-824-5320 (FAX)

List of Agencies, Organizations, and Persons Consulted
SAFMC Law Enforcement Advisory Panel
SAFMC King and Spanish Mackerel Advisory Panel
SAFMC Scientific and Statistical Committee
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Georgia Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Fish and Wildlife Conservation Commission
Georgia Department of Natural Resources
South Carolina Department of Natural Resources
North Carolina Division of Marine Fisheries
Virginia Marine Resources Commission
Mid-Atlantic Fishery Management Council
Atlantic States Marine Fisheries Commission
National Marine Fisheries Service
- Washington Office
- Office of Ecology and Conservation
- Southeast Regional Office
- Southeast Fisheries Science Center

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Appendix A. Glossary

Allowable Biological Catch (ABC): Maximum amount of fish stock than can be harvested without adversely affecting recruitment of other components of the stock. The ABC level is typically higher than the total allowable catch, leaving a buffer between the two.

Bycatch: Fish harvested in a fishery, but not sold or kept for personal use. Bycatch includes economic discards and regulatory discards, but not fish released alive under a recreational catch and release fishery management program.

Charter Boat: A fishing boat available for hire by recreational anglers, normally by a group of anglers for a short time period.

Directed Fishery: Fishing directed at a certain species or species group.

Discards: Fish captured, but released at sea.

Effort: The amount of time and fishing power (i.e., gear size, boat size, horsepower) used to harvest fish.

Exclusive Economic Zone (EEZ): Zone extending from the shoreline out to 200 nautical miles in which the country owning the shoreline has the exclusive right to conduct certain activities such as fishing. In the United States, the EEZ is split into state waters (typically from the shoreline out to 3 nautical miles) and federal waters (typically from 3 to 200 nautical miles).

Fishery Dependent Data: Fishery data collected and reported by fishermen and dealers.

Fishery Independent Data: Fishery data collected and reported by scientists who catch the fish themselves.

Fishery Management Plan: Management plan for fisheries operating in the federal produced by regional fishery management councils and submitted to the Secretary of Commerce for approval.

Fishing Effort: Usually refers to the amount of fishing. May refer to the number of fishing vessels, amount of fishing gear (nets, traps, hooks), or total amount of time vessels and gear are actively engaged in fishing.

Fork Length (FL): The length of a fish as measured from the tip of its snout to the fork in its tail.

Framework: An established procedure within a fishery management plan that has been approved and implemented by NMFS, which allows specific management measures to be modified via regulatory amendment.

Gear restrictions: Limits placed on the type, amount, number, or techniques allowed for a given type of fishing gear.

Gulf of Mexico Fishery Management Council (GMFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The GMFMC develops fishery management plans for fisheries off the coast of Texas, Louisiana, Mississippi, Alabama, and the west coast of Florida.

Head Boat: A fishing boat that charges individual fees per recreational angler onboard.

Highgrading: Form of selective sorting of fishes in which higher value, more marketable fishes are retained, and less marketable fishes, which could legally be retained are discarded.

Magnuson-Stevens Fishery Conservation and Management Act: Federal legislation responsible for establishing the fishery management councils and the mandatory and discretionary guidelines for federal fishery management plans.

Marine Recreational Information Program (MRIP): Survey operated by NMFS in cooperation with states that collects marine recreational data.

Multispecies fishery: Fishery in which more than one species is caught at the same time and location with a particular gear type.

National Marine Fisheries Service (NMFS): Federal agency within NOAA responsible for overseeing fisheries science and regulation.

National Oceanic and Atmospheric Administration: Agency within the Department of Commerce responsible for ocean and coastal management.

Overfished: A stock or stock complex is considered overfished when stock biomass falls below the minimum stock size threshold (MSST) (e.g., current biomass < MSST = overfished).

Overfishing: Overfishing occurs when a stock or stock complex is subjected to a rate of fishing mortality that exceeds the maximum fishing mortality threshold (e.g., current fishing mortality rate > MFMT = overfishing).
Quota: % or annual amount of fish that can be harvested.

Scientific and Statistical Committee (SSC): Fishery management advisory body composed of federal, state, and academic scientists, which provides scientific advice to a fishery management council.

South Atlantic Fisheries Management Council (SAFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The SAFMC develops fishery management plans for fisheries off North Carolina, South Carolina, Georgia, and the east coast of Florida.

Total Length (TL): The length of a fish as measured from the tip of the snout to the tip of the tail.

Appendix B. Alternatives Considered but Rejected

Action 2: Modify the recreational fishing year for Atlantic cobia

Alternative 1 (No Action). Do not modify the current recreational fishing year of January 1 through December 31.

Preferred Alternative 2. Modify the recreational fishing year for Atlantic cobia to be May 1 through April 30.

Alternative 3. Modify the recreational fishing year for Atlantic cobia to be June 1 through May 31.

Alternative 4. Modify the recreational fishing year for Atlantic cobia to be April 1 through March 31.

At their September 2016 meeting, the South Atlantic Fishery Management Council (South Atlantic Council) removed **Action 2** from Framework Amendment 4. Changes to the fishing year are not included as a framework action under the current Framework Procedure for the CMP FMP. The South Atlantic Council directed staff to move the action to change the recreational fishing year to Amendment 30 to the CMP FMP. The Gulf of Mexico Fishery Management Council will review the amendment and consider final action at their October 2016 meeting, and the South Atlantic Council will consider final action in December 2016.

Appendix C. History of Management

The Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and South Atlantic Region (CMP FMP; 1982), with an environmental impact statement (EIS), was approved in 1982 and implemented by regulations effective in February 1983. Managed species included king mackerel, Spanish mackerel, and cobia. The CMP FMP treated cobia as one stock in the Atlantic and Gulf of Mexico (Gulf) and established the maximum sustainable yield (MSY) at 1.057 million pounds (mp). The optimum yield (OY) was defined as all cobia equal to or larger than 33 inches fork length (FL) that can be harvested by U.S. fishermen under current fishery conditions, and possession of cobia less than at 33 inches FL was prohibited. The management objective for cobia was to institute management measures necessary to increase yield per recruit and average size and to prevent overfishing.

CMP FMP Amendments

Amendment 1, with EIS, implemented in September 1985, provided a framework procedure for pre-season adjustment of total allowable catch (TAC) and established the fishing year as January 1 through December 31. The minimum size limit was designated as 33 inches FL or 37 inches total length (TL). Additionally, the Councils designated Problem #5 for the CMP FMP to address as: Cobia are presently harvested at a size below that necessary for maximum yield and may be overfished in some areas beyond the management area; most southeastern states have not yet adopted the recommended minimum size limit; no management action has been taken by states which have jurisdiction over cobia populations in Chesapeake Bay, which appear to have been overfished; and federal enforcement capability is limited and not believed to be very effective in this case.

Amendment 2, with an environmental assessment (EA), implemented in July 1987, except for the charter vessel permit requirements that became effective in August 1987. The amendment established federal permit requirements for for-hire vessels fishing for coastal migratory pelagics in the EEZ. For-hire vessels would comply with bag limits but could fish under a commercial quota with a commercial permit when not on under charter.

Amendment 3, with EA, was partially approved in August 1989, revised, resubmitted, and approved in April 1990. It prohibited drift gillnets for coastal pelagic species and purse seines for the overfished migratory groups of mackerels.

Amendment 5, with EA, implemented in August 1990, made the following changes in the management regime:

- Revised a specified problem that the condition of the cobia stock is unknown and increased landings over the last ten years have prompted concern about overfishing. The MSY is set at 1 mp.
- Specified parameters for ‘overfishing’ and ‘overfished’ designations
- Added cobia to the annual stock assessment procedure;
- Cobia possession limit is 2 fish per person per day with a 1-day possession limit.

Amendment 6, with EA, implemented in November of 1992, made the following changes:

- Identified additional problems and an objective in the fishery;
- Provided for rebuilding overfished stocks of mackerels within specific periods;
- Provided for biennial assessments and adjustments;
- Specified the minimum size limit 33 inches FL (remove reference to 37 inches TL).
- MSY set at 2.2 mp based on the 1992 Report of the Mackerel Stock Assessment Panel.

Amendment 8, with EA, implemented in March 1998, made the following changes to the management regime:

- Extend the management area for cobia through New York, i.e., through the jurisdiction of the Mid-Atlantic Fishery Management Council. Note: This action extended the 2 fish bag limit and 33"FL minimum size limit through the Mid-Atlantic Council's area.
- Established allowable gear in the South Atlantic and Mid-Atlantic areas as well as providing for the Regional Administrator to authorize the use of experimental gear;
- Overfishing: For species like cobia, when there is insufficient information to determine whether the stock or migratory group is overfished (transitional SPR), overfishing is defined as a fishing mortality rate in excess of the fishing mortality rate corresponding to a default threshold static SPR of 30 percent. If overfishing is occurring, a program to reduce fishing mortality rates to at least the level corresponding to management target levels will be implemented.
- Modified the Stock Assessment Panel process.
- Optimum Yield (OY) for cobia is set at MSY, currently 2.2 million pounds, in accord with the recommendation of the SPRMSC that, because of limited data, SPR not be used for cobia.
- Established various data consideration and reporting requirements under the framework procedure;
- Modified the seasonal framework adjustment measures and specifications; and revised specified problems in the fishery for the FMP

Amendment 11, with SEIS, partially approved in December 1999, included Maximum sustainable yield for species in the coastal migratory pelagic management unit is unknown. The Council reviewed alternatives and concluded the best available data supports using 30% Static SPR as a proxy for MSY. Note: This was not approved.

- Optimum Yield (OY) for the coastal migratory pelagic fishery is the amount of harvest that can be taken by U.S. fishermen while maintaining the Spawning Potential Ration (SPR) at or above 40% Static SPR.
- Overfishing for all species in the coastal migratory pelagics management unit is defined as a fishing mortality rate (F) in excess of the fishing mortality rate at 30% Static SPR (F30%Static SPR) which is the coastal migratory pelagics MSY proxy. The "threshold level" for all species in the coastal migratory pelagic management unit is defined as 10% Static SPR.

Amendment 13, with SEIS, implemented August 2002, established two marine reserves in the EEZ of the Gulf in the vicinity of the Dry Tortugas, Florida known as Tortugas North and Tortugas South in which fishing for coastal migratory pelagic species is prohibited. This action complements previous actions taken under the National Marine Sanctuaries Act.

Amendment 18, with EA, implemented in January 2012 established ACLs, ACTs, and AMs for cobia. The amendment established Atlantic and Gulf migratory groups for cobia with the stock

boundary set at the management boundary between the councils, and also modified the framework procedures.

Amendment 20B, with EA, implemented in March 2015 revised the ACLs and ACTs for Atlantic and Gulf cobia based on the recent stock assessment (SEDAR 28). The amendment also modified the boundary between Atlantic and Gulf cobia to be at the Georgia/Florida state line, to align with the stock boundary used in SEDAR 28.

Appendix D. Bycatch Practicability Analysis

Background

In the Gulf of Mexico (Gulf) and Atlantic (Florida through New York) regions, most king mackerel and cobia are harvested with hook and line gear; however, gillnets and castnets are the predominant gear type used to harvest Spanish mackerel.

Commercial Sector

Currently, discard data are collected using a supplemental form that is sent to a 20% stratified random sample of the active permit holders in coastal migratory pelagics (CMP) fishery. However, in the absence of any observer data, there are concerns about the accuracy of logbook data in collecting bycatch information. Biases associated with logbooks primarily result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest (particularly of bycatch species), and from low compliance rates. During 2010 – 2014, the commercial sector for CMP species in both the Gulf and Atlantic landed 226,411 pounds (lbs) and had no reported discards (**Table D-1**) per year. The commercial sector predominantly harvested king and Spanish mackerel, with relatively few cobia (**Table D-1**). Both the king mackerel and Spanish mackerel commercial sectors have very low discards.

Recreational Sector

For the recreational sector, during 2010 – 2014, estimates of the number of recreational discards were available from Marine Recreational Information Program (MRIP) and the National Marine Fisheries Service (NMFS) headboat survey. The MRIP system classifies recreational catch into three categories:

- Type A - Fishes that were caught, landed whole, and available for identification and enumeration by the interviewers.
- Type B - Fishes that were caught but were either not kept or not available for identification:
    - Type B1 - Fishes that were caught and filleted, released dead, given away, or disposed of in some way other than Types A or B2.
    - Type B2 - Fishes that were caught and released alive.

During 2010 – 2014, the private recreational landings and discards for all three CMP species were higher than for either the headboat or charter boat category (**Table D-1**). Spanish and king mackerel had the highest landings and cobia had the highest discards (58%) relative to the landings. For the headboat sector, cobia had 37% discards relative to total catch of 3,795. King and Spanish mackerel had considerably higher landings but lower discards compared to those of cobia.

During 2010 – 2014, information for charter trips came from two sources. Charter vessels for the CMP fishery were selected to report by the Science and Research Director (SRD) to maintain a fishing record for each trip, or a portion of such trips as specified by the SRD, and on

forms provided by the SRD. Harvest and bycatch information was monitored by MRIP. Since 2000, a 10% sample of charter vessel captains were called weekly to obtain trip level information, such as date, fishing location, target species, etc. In addition, the standard dockside intercept data were collected from charter vessels and charter vessel clients were sampled through the standard random digital dialing of coastal households. Precision of charter vessel effort estimates has improved by more than 50% due to these changes (Van Voorhees et al. 2000).

Harvest from headboats were monitored by NMFS at the Southeast Fisheries Science Center's (SEFSC) Beaufort Laboratory. Collection of discard data began in 2004. Daily catch records (trip records) were filled out by the headboat operators, or in some cases by NMFS-approved headboat samplers based on personal communication with the captain or crew. Headboat trips were subsampled for data on species lengths and weights. Biological samples (scales, otoliths, spines, reproductive tissues, and stomachs) were obtained as time allowed. Lengths of discarded fish were occasionally obtained but these data were not part of the headboat database.

Recent improvements have been made to the recreational survey of MRIP, formerly called Marine Recreational Fisheries Statistics Survey. Beginning in 2013, samples were drawn from a known universe of fishermen rather than randomly dialing coastal households. Other improvements have been and will be made that should result in better estimating recreational catches and the variances around those catch estimates.

Table D-1. Annual mean Headboat, MRIP, and commercial estimates of landings and discards in the Gulf of Mexico and U.S. Atlantic Ocean (Florida to New York) during 2010 – 2014. Headboat, MRIP (charter and private) landings are in numbers of fish (N); commercial landings are in pounds (lbs). Discards represent numbers of fish that were caught and released alive (B2).

	HEADBOAT				MRIP CHARTER				MRIP PRIVATE				COMMERCIAL		
	Catch (N)	Landings (N)	Discards (N)	Percent Discards	Catch (N)	Landings (N)	Discards (N)	Percent Discards	Catch (N)	Landings (N)	Discards (N)	Percent Discards	Landings (lbs ww)	Discards (N)	Percent Discards
Cobia	3,795	2,404	1,391	37%	17,666	10,150	7,516	43%	157,814	66,291	91,523	58%	226,411	0	0%
King Mackerel	27,141	25,498	1,643	6%	150,869	131,008	19,861	13%	348,595	239,425	109,170	31%	5,445,986	7,945	<1
Spanish Mackerel	12,611	11,500	1,111	9%	384,353	282,737	101,616	26%	2,069,184	1,095,230	973,954	47%	5,013,350	1,162	<1%
Total	**43,548**	**39,402**	**4,146**		**552,888**	**423,895**	**128,993**		**2,575,593**	**1,400,946**	**1,174,647**		**10,685,747**	**9,107**	

Sources: MRIP data from SEFSC Recreational ACL Dataset (March 2016); Headboat data from SEFSC Headboat Logbook CRNF files (expanded; March 2016);
Commercial landings data from SEFSC Commercial ACL Dataset (December 2015) with discard estimates from expanded SEFSC Commercial Discard Logbook (April 2016);
Notes: Commercial discard estimates are for vertical line gear only. Commercial king mackerel includes "king and cero mackerel" category;
Estimates of commercial discards are highly uncertain; No reported discards for Commercial and Headboat Cobia;
King mackerel, cobia, and Spanish mackerel data include both Atlantic coast and Gulf of Mexico. Note that discard estimates for commercial and headboat include only the Gulf of Mexico and SAFMC jurisdiction; discards from the Mid-Atlantic would likely be relatively low, but are not reported here

Bycatch Mortality

For cobia, SEDAR 28 (2013a and 2013b) used a discard mortality rate of 5% for the hook-and-line gear (both commercial and recreational sectors), and 51% for gillnets. SEDAR 38 provided estimates of release mortality for king mackerel of 20% for the private and charter sectors, 22% release mortality for the headboat sector, 25% release mortality for commercial hooked gear fisheries, and 100% for trawl by-catch for both the Gulf and Atlantic. For Spanish mackerel, SEDAR 17 (2008) used the following discard mortality rates: gillnets 100%, shrimp trawls 100%, trolling 98%, hook-and-line 80%, and trolling/hook-and-line combined 88%. SEDAR 28 (2013c, 2013d) recommended identical discard mortality for Spanish mackerel as 100% for gillnets and shrimp trawls, but recommended a 10% discard mortality rate for commercial handlines, and 20% for recreational handlines. Most king mackerel and cobia are harvested using hook-and-line gear, and gillnets are the primary gear for Spanish mackerel. As shown in **Table D-1**, discards in the commercial sector are relatively low for all three CMP species, 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, 2013a and 2013b).

<u>Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality</u>

According to the bycatch information for mackerel gillnets, menhaden, smooth dogfish sharks, and spiny dogfish sharks were the three most frequently discarded species (SAFMC 2004). There were no interactions of sea turtles or marine mammals reported (Poffenberger 2004). The Southeast Region Current Bycatch Priorities and Implementation Plan FY04 and FY05 reported that 26 species of fish are caught as bycatch in the Gulf king mackerel gillnet sector. Of these, 34% are reported to be released dead, 59% released alive, and 6% undetermined. Bycatch was not reported for the Gulf Spanish mackerel sector. The Atlantic Spanish mackerel portion of the CMP fishery has 51 species reported as bycatch with approximately 81% reported as released alive. For the South Atlantic king mackerel portion of the CMP fishery 92.7% are reported as released alive with 6% undetermined. Bycatch was not reported separately for gillnets and hook-and-line gear. Additionally, the supplementary discard program to the logbook reporting requirement shows no interactions of gillnet gear with marine mammals or birds.

Table D-2 lists the species most often caught with cobia in the Gulf and South Atlantic from SEFSC commercial logbook data. Cobia is not included in the top three caught species on trips with at least one pound of cobia. The harvest of cobia is incidental to harvest of red grouper, red snapper and king mackerel.

Table D-2. Top three species caught on trips where at least one pound of cobia was caught with all gear types in the Gulf of Mexico and South Atlantic from 2010-2014. Cobia were not listed in the top three species by harvest on these trips. Cobia contributed only 7% of harvest on these trips.

Species	% of Harvest (All Gear Types)
Red Grouper	35.4%
Red Snapper	15.9%
King mackerel & Cero	9.0%

Source: Southeast Fisheries Science Center Commercial Logbook (April 2016)

Ecological Effects Due to Changes in the Bycatch

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 Gulf Council, South Atlantic Council, and NMFS are in the process of developing actions that would improve bycatch monitoring in all fisheries including the CMP fishery. For example, the Joint South Atlantic/Gulf of Mexico Generic Charter/Headboat Reporting in the South Atlantic Amendment, which became effective on January 7, 2014, requires weekly electronic reporting of landings and bycatch data for headboats in the South Atlantic. A similar framework action to require electronic reporting of landings and bycatch by headboats in the Gulf became effective on March 5, 2014. A generic amendment that requires weekly electronic reporting of commercial landings by dealers in the Gulf and South Atlantic became effective on August 7, 2014. The Gulf and South Atlantic Councils are developing amendments that would require electronic reporting of charter vessels, which would include landed and discarded fish. Better 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 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 CMP species in the marine environment are poorly known. The three species are 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 interactions, or the ecosystem impacts from the limited mortality estimated to occur from mackerel fishing effort. However, there is very little bycatch in the commercial cobia portion of the CMP fishery. There is high bycatch in the private recreational (58%), charter (43%) and headboat (37%) but these are caught using hook and line gear and the release mortality is low. Framework Amendment 4 would not modify the gear types or fishing techniques in the CMP fishery. Therefore, ecological effects due to changes in bycatch in the CMP fishery are likely to remain very low if implemented. For more details on ecological effects, see Chapters 3 and 4 of the amendment.

Effects on Marine Mammals and Birds

The Gulf and South Atlantic CMP hook-and-line fishery is classified in the 2017 Marine Mammal Protection Act List of Fisheries as a Category III fishery (81 FR 54019, August 25, 2016), 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 moralities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.

The Gulf and South Atlantic CMP gillnet sector is classified as a Category II fishery. This classification indicates an occasional incidental mortality or serious injury of a marine mammal stock resulting from the fishery (1-50% annually of the potential biological removal). The fishery has no documented interaction with marine mammals; NMFS classifies this fishery as Category II based on analogy (i.e., similar risk to marine mammals) with other gillnet fisheries.

The Bermuda petrel and roseate tern occur within the action area. Bermuda petrels are occasionally seen in the waters of the Gulf Stream off the coasts of North Carolina and South Carolina during the summer. Sightings are considered rare and only occurring in low numbers (Alsop 2001). Roseate terns occur widely along the Atlantic coast during the summer but in the southeast region, they are found mainly off the Florida Keys (unpublished USFWS data). Interaction with fisheries has not been reported as a concern for either of these species.

Fishing effort reductions have the potential to reduce the amount of interactions between the fishery and marine mammals and birds. Although, the Bermuda petrel and roseate tern occur within the action area, these species are not commonly found and neither has been described as associating with vessels or having had interactions with the CMP fishery. Thus, it is believed that the CMP fishery is not likely to negatively affect the Bermuda petrel and the roseate tern.

Changes in Research, Administration, and Enforcement Costs and Management Effectiveness

Research and monitoring is ongoing to understand the effectiveness of proposed management measures and their effect on bycatch. In 1990, the SEFSC initiated a logbook program for commercial snapper – grouper vessels in the Gulf and South Atlantic. In 1999, logbook reporting was initiated for vessels catching king and Spanish mackerel. The Dolphin and Wahoo FMP required logbook reporting by fishermen with Commercial Atlantic Dolphin/Wahoo Permits. Approximately 20% of commercial fishermen from snapper grouper, dolphin wahoo, and CMP fisheries are asked to fill out discard information in logbooks. Recreational discards are obtained from the MRIP and logbooks from the NMFS headboat program.

Stranding networks have been established in the Southeast Region. The NMFS SEFSC is the base for the Southeast United States Marine Mammal Stranding Program (http://sero.nmfs.noaa.gov/pr/strandings.htm). NMFS authorizes organizations and volunteers under the MMPA to respond to marine mammal stranding events throughout the United States. These organizations form the stranding network whose participants are trained to respond to, and collect samples from live and dead marine mammals that strand along southeastern United State

beaches. The SEFSC is responsible for: coordinating stranding events; monitoring stranding rates; monitoring human caused mortalities; maintaining a stranding database for the southeast region; and conducting investigations to determine the cause of unusual stranding events including mass stranding events and mass mortalities (http://www.sefsc.noaa.gov/species/mammals/strandings.htm).

The Southeast Regional Office (SERO) and the SEFSC participate in a wide range of training and outreach activities to communicate bycatch related issues. The NMFS SERO issues public announcements, Southeast Fishery Bulletins, or News Releases on different topics, including use of turtle exclusion devices, bycatch reduction devices, use of methods and devices to minimize harm to turtles and sawfish, information intended to reduce harm and interactions with marine mammals, and other methods to reduce bycatch for the convenience of constituents in the southern United States. These are mailed out to various organizations, government entities, commercial interests and recreational groups. This information is also included in newsletters and publications that are produced by NMFS and the various regional fishery management councils. Announcements and news releases are also available on the internet and broadcasted over NOAA weather radio.

Appendix E. Regulatory Impact Review

Introduction

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: 1) It provides a comprehensive review of the level and incidence of impacts associated with a regulatory action; 2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives which could be used to solve the problem; and 3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way. The RIR also serves as the basis for determining whether any proposed regulations are a "significant regulatory action" under certain criteria provided in Executive Order 12866 (E.O. 12866) and whether the approved regulations will have a "significant economic impact on a substantial number of small business entities" in compliance with the Regulatory Flexibility Act of 1980.

Problems and Objectives

The purpose and need, issues, problems, and objectives of this action are presented in Chapter 1 of this amendment and are incorporated herein by reference.

Description of Fisheries

A description of the cobia portion of the coastal migratory pelagics fishery of the Atlantic region is provided in Chapter 3 of this Amendment and is incorporated herein by reference.

Effects of Management Measures

A detailed analysis and discussion of the expected economic effects of each alternative for all proposed actions is included in Chapter 4. The following discussion summarizes the expected economic effects of the preferred alternatives for each action.

Action 1: Modify the recreational management measures for Atlantic cobia

Action 1-1: Modify the recreational harvest limits for Atlantic cobia

Preferred Alternative 2 sets a daily possession limit for cobia. **Preferred Sub-alternative 2a** would limit the possession of cobia to 1 fish per person per day. MRIP estimates indicate that on most trips where cobia were landed in recent years, there was not more than one cobia harvested per person per day. Based on these data, is not likely that lowering the bag limit to 1 fish per person per day would impact most recreational cobia trips. In relation to overall harvest,

the projected marginal decrease from the reduced bag limit is approximately 2%, signaling a likely minimal impact on consumer surplus (CS) in the recreational sector (**Table 4.1.1.2**). While the overall economic effect is expected to be minor, some CS may be lost on trips when more than 1 fish per person per day could be kept and the angler desires to do so. Additionally, some for-hire operations and other fishing-related businesses may be negatively affected should anglers decide to forgo taking, or take fewer, trips for cobia due to the lowered bag limit. The extent to which angling effort would be impacted is unknown and would be variable, but this may especially be a concern for anglers and fishing related businesses at times when substitute fish species are not readily available.

Preferred Alternative 3 establishes a recreational vessel limit for cobia**. Preferred Sub-alternative 3f** sets a daily vessel limit of 6 fish and is expected to reduce cobia harvest by approximately 1%, signaling some but likely minimal negative economic effect. It is unknown how this option would impact overall fishing effort and thus for-hire net operating revenue (NOR) or revenue for other fishing-related businesses.

Action 1-2: Modify the minimum size limit for recreational harvest of Atlantic cobia

Preferred Alternative 2 modifies the recreational size limit for cobia**. Preferred Sub-alternative 2c** sets the minimum size limit at 36 inches fork length (FL) and is expected to initially decrease harvest by 10.7%, reflecting that the majority of cobia kept recreationally are at or above this limit and most trips would not be negatively affected. It is unknown at this time how many trips this size limit would impact directly as it would be dependent on how long the harvest season remains open, but given the relatively fast growth of cobia and how close this minimum size limit is to the current minimum size limit of 33 inches FL, negative economic effects are expected to be minimal. There may be some economic benefits from this size limit change should it help maintain or increase the overall cobia stock biomass in the long-term as well as prevent closures or prolong the fishing season.

Action 2: Modify the recreational accountability measures for Atlantic cobia

The removal of the three-year average for determining if a recreational AM is triggered in **Preferred Alternative 2** would make the proposed AM for Atlantic cobia similar to those set by the South Atlantic Council for other species. **Preferred Sub-alterntative 2b** would monitor landings for a persistence in increased landings and would result in a reduced length of following season, only if the stock ACL is exceeded. If the AM was triggered by **Preferred Sub-alterntative 2b**, short-term negative economic effects would be expected. However, if the stock ACL is not exceeded in any given season, there are no anticpated economic effects.

Preferred Alternative 5 and **Preferred Sub-Alternative 5b** allows the Regional Administrator to implement reduced recreational vessel limits as an accountability measure for cobia if the annual catch limit (ACL) is consistently exceeded after being monitored for persistence. The overall economic effects would vary based on the severity of the vessel limit reduction, with lower vessel limits likely leading to increased negative economic effects. Additionally, the removal of the three-year average for determining if a recreational

accountability measure (AM) is triggered in **Preferred Alternative 5** would potentially make the proposed AM for Atlantic cobia similar to those set by the South Atlantic Fishery Management Council for other species.

Action 3: Establish a commercial trip limit for Atlantic cobia

In 2015, the ex-vessel value of the commercial cobia fishery was $233,672 (2014 $) **(Table 3.3.1.1)**. **Preferred Alternative 5** maintains a commercial cobia trip limit of 2 fish per person per day but also implements a limit of 6 fish per vessel per day, whichever is more restrictive. The economic effects in comparison to **Alternative 1 (No Action)** will be dependent on the number of people onboard that can legally harvest cobia commercially. If 3 or fewer such crew members are onboard, there will be no economic effects, however the vessel limit will cap the maximum number of cobia that can be commercially harvested daily on a vessel with a crew of more than 3 people and thereby potentially limit the revenue received from cobia on such a commercial trip.

Cumulative Economic Effects Summary

When the implementation of recreational vessel limits, reduced bag limits, and increased minimum size limits are taken into the account, they are anticipated to prolonging the harvest season. Should a harvest closure occur, there may be loss of CS and anglers may decide to forgo some fishing trips due to the closure, depending on the closure timing. While some economic benefits will still be realized from catch and release fishing during a harvest closure, anglers often value being able to harvest cobia, resulting in a decrease in overall recreational effort. As a consequence, there would be negative economic effects to for-hire operators and other fishing related businesses due to the reduced recreational fishing activity and the reduction in angler expenditures on durable and non-durable goods that goes along with this activity. The extent to which these negative economic effects may occur and the distribution of the effects would be highly dependent on the timing of the harvest closure. The earlier the harvest closure, the greater the likely overall negative economic effects, and the more concentrated these effects would be in states residing in the northern range of the typical cobia spawning migration in the Atlantic, namely North Carolina and Virginia. For charter boats targeting cobia, the estimated number of charter angler trips and subsequent NOR impacted by projected closure dates varies greatly depending on the timeframe that is analyzed. Under a combination of **Preferred Sub-alternative 2a** and **Preferred Sub-alternative 3f** of **Action 1-1** and **Preferred Sub-alternative 2c** of **Action 1-2**, between 5 and 729 charter angler trips representing $767 to $111,865 in NOR are estimated to be affected by a closure in recreational cobia harvest once the recreational ACL has been met.

Additionally, the combination of recreational vessel limits, reduced bag limits, and increased size limits is expected to reduce overall recreational cobia harvest and thus the CS derived from this harvest. Depending on the marginal CS estimate that is used, the total short-term reduction in CS resulting from harvesting cobia recreationally is between $127,549 and $398,590 under **Preferred Sub-alternative 2a** and **Preferred Sub-alternative 3f** of **Action 1-1** and **Preferred Sub-alternative 2c** of **Action 1-2**. It is important to note that these CS estimates are for harvest

only and do not include economic benefits that may be derived from catch and release fishing or the economic effects of varying projected closure dates. Additionally, there are long-term benefits to not exceeding the ACL.

The effects of **Action 2 Preferred Sub-alternative 2b and Preferred Sub-alternative 5b** as well as **Action 3 Preferred Alternative 5** could not be quantified due to variability in how or if the actions will impact the cobia fishery. These action are expected to improve the ability of the cobia fishery to remain within the ACL, thereby reducing or preventing overfishing. Preventing overfishing creates long-term positive economic effects through maintaining the sustainability of the stock and thus the viability of the recreational and commercial fisheries for that stock.

Appendix F. Regulatory Flexibility Analysis

Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to establish a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their rules to assure that such proposals are given serious consideration. The RFA does not contain any decision criteria; instead, the purpose of the RFA is to inform the agency, as well as the public, of the expected economic impacts of various alternatives contained in the fishery management plan or amendment (including framework management measures and other regulatory rules). The RFA is also intended to ensure that the agency considers alternatives that minimize the expected impacts while meeting the goals and objectives of the FMP and applicable statutes.

With certain exceptions, the RFA requires agencies to conduct a regulatory flexibility analysis for each proposed rule. The regulatory flexibility analysis is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. In addition to analyses conducted for the RIR, the regulatory flexibility analysis provides: 1) A statement of the reasons why rule by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for the proposed rule; 3) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; 4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; 5) an identification, to the extent practical, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; and, 6) a description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities.

Additional information on the description of affected entities may be found in **Chapter 3,** and additional information on the expected economic effects of the proposed action may be found in **Chapter 4**.

Statement of Need for, Objectives of, and Legal Basis for the Action

The purpose and need of the proposed action are presented in **Chapter 1**. The purpose of this proposed action is to revise the management measures for Atlantic migratory group cobia to ensure consistent, stable, and equitable fishing opportunities for all participants in the Atlantic

cobia component of the coastal migratory pelagics fishery. The need for this amendment is to respond to changing fishery characteristics for Atlantic migratory group cobia, while increasing social and economic benefits of the coastal migratory pelagics fishery through sustainable fishing opportunities and harvest of Atlantic cobia.

The Magnuson-Stevens Fishery Conservation and Management Act provides the statutory basis for this proposed action.

Identification of All Relevant Federal Rules Which May Duplicate, Overlap or Conflict with the Proposed Action

No duplicative, overlapping, or conflicting Federal rules have been identified with this proposed action.

Description and Estimate of the Number of Small Entities to Which the Proposed Action Will Apply

This proposed action is expected to directly affect federally permitted commercial fishermen fishing for Atlantic cobia. Recreational anglers fishing for Atlantic cobia would also be directly affected by the proposed action, but they are not considered business entities under the RFA. Charterboat and headboat operations are business entities but they are only indirectly affected by the proposed action. For RFA purposes only, the National Marine Fisheries Service has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (see 50 CFR § 200.2). A business primarily engaged in commercial fishing (NAICS code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including affiliates), and has combined annual receipts not in excess of $11 million for all its affiliated operations worldwide.

From 2010 through 2015, excluding the Mid-Atlantic States, an annual average of 98 vessels took 318 commercial trips that combined landed an average of 13,469 lbs gutted weight (gw) of cobia annually with a dockside value (2014 dollars) of $31,115. Average annual dockside revenue from Atlantic cobia represented approximately 3.6% of total dockside revenues from trips that landed Atlantic cobia from 2010 through 2015. For the Mid-Atlantic States, an annual average of 24 vessels took 178 commercial trips that combined landed an average of 14,732 lbs landed weight of Atlantic cobia annually with a dockside value (2014 dollars) of $39,227. For these vessels, per vessel revenue (2014 dollars) from Atlantic cobia was approximately $1,644. On average, the vessels that harvested Atlantic cobia also took 2,338 trips per year without cobia landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed Atlantic cobia was $74,066 (2014 dollars). Annual dockside revenue from Atlantic cobia landings represented, on average, approximately 0.4% of the total dockside revenue from all commercial landings from 2010 through 2015. On average, the crew size per trip, including captains, was about 1.8 persons for hook and line vessels, 2.0 persons for gillnet vessels, and 2.4 persons for vessels using other gear types. The overall average crew size per trip for all vessels landing Atlantic cobia was less than 2. Vessels that caught and landed Atlantic cobia may also operate in other fisheries, the revenues of which are not known and are not reflected in these

totals. Based on revenue information, all commercial vessels affected by the proposed action may be assumed to be small entities.

Description of the projected reporting, record-keeping and other compliance requirements of the proposed action, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for the preparation of the report or records

In general, the proposed action would not introduce any changes to reporting and record-keeping and other compliance requirements which are currently required.

Substantial Number of Small Entities Criterion

All directly affected entities have been determined, for the purpose of this analysis, to be small entities. Therefore, the proposed action would affect a substantial number of small entities.

Significant Economic Impact Criterion

The outcome of "significant economic impact" can be ascertained by examining two issues: disproportionality and profitability.

Disproportionality: Do the regulations place a substantial number of small entities at a significant competitive disadvantage to large entities?

All entities that are expected to be affected by this proposed action are considered small entities, so the issue of disproportional effects on small versus large entities does not presently arise.

Profitability: Do the regulations significantly reduce profit for a substantial number of small entities?

Of the three actions proposed under the amendment, only one has the potential to affect business entities under the RFA. The action would maintain a commercial cobia trip limit of 2 fish per person per day but also implement a limit of 6 fish per vessel per day, whichever is more restrictive. This action would affect only those vessels with a crew of more than 3 persons. Noting that the 2010-2015 average crew size for vessels landing Atlantic cobia is less than 2 persons per trip, it is likely that this action would have only minor effects on vessel revenues. It is, therefore, expected that this proposed action would not have significant economic impacts on a substantial number of small entities.

Description of Significant Alternatives

Five alternatives, including the preferred alternative, were considered for establishing a commercial trip limit for Atlantic cobia. The first alternative, the no action alternative, would

maintain the trip limit of 2 fish per person per day. This alternative would maintain the same level of vessel revenues per trip but would not likely differ significantly from the potential lower revenues under the preferred alternative. The second alternative would establish a commercial trip limit for Atlantic cobia of 2 fish per person per day, with the trip limit decreasing to 1 fish per person per day when 75% of the commercial ACL has been met. The third alternative would establish a commercial trip limit for Atlantic cobia of 6 fish per vessel per day, with the trip limit decreasing to 3 fish per vessel per day when 75% of the commercial ACL has been met. The fourth alternative would establish a commercial trip limit for Atlantic cobia of 2 fish per person per day, with no more than 6 fish per vessel per day and the trip limit would decrease to 1 fish per person per day, with no more than 3 per vessel per day, when 75% of the commercial ACL has been met. All these other alternatives are likely to result in lower vessel revenues per day than the preferred alternative, although the differences in vessel revenues would likely be minimal.

Appendix G. Other Applicable Law

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.) provides the authority for fishery management in federal waters of the Exclusive Economic Zone. However, fishery management decision-making is also affected by a number of other federal statutes designed to protect the biological and human components of U.S. fisheries, as well as the ecosystems that support those fisheries. Major laws affecting federal fishery management decision-making are summarized below.

Administrative Procedures Act

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (APA) (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider, and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day waiting period from the time a final rule is published until it takes effect.

The proposed rule associated with this amendment will include a request for public comment, and if approved, upon publication of the final rule, there will be a 30-day wait period before the regulations are effective in compliance with the APA.

Coastal Zone Management Act

Section 307(c)(1) of the federal Coastal Zone Management Act of 1972 (CZMA), as amended, requires federal activities that directly affect any land or water use or natural resource of a state's coastal zone be conducted in a manner consistent, to the maximum extent practicable, with approved state coastal management programs. The requirements for such a consistency determination are set forth in NOAA regulations at 15 C.F.R. part 930, subpart C. According to these regulations and CZMA Section 307(c)(1), when taking an action that affects any land or water use or natural resource of a state's coastal zone, NMFS is required to provide a consistency determination to the relevant state agency at least 90 days before taking final action.

Upon submission to the Secretary of Commerce, NMFS will determine if this framework amendment is consistent with the Coastal Zone Management programs of the states of Florida, Georgia, South Carolina, to the maximum extent possible. Their determination will then be submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management programs for these states.

Information Quality Act

The Information Quality Act (IQA) (Public Law 106-443) effective October 1, 2002, requires the government to set standards for the quality of scientific information and statistics used and disseminated by federal agencies. Information includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical,

cartographic, narrative, or audiovisual forms (includes web dissemination, but not hyperlinks to information that others disseminate; does not include clearly stated opinions).

Specifically, the IQA directs the Office of Management and Budget (OMB) to issue government wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies." Such guidelines have been issued, directing all federal agencies to create and disseminate agency-specific standards to: 1) ensure information quality and develop a pre-dissemination review process; 2) establish administrative mechanisms allowing affected persons to seek and obtain correction of information; and 3) report periodically to OMB on the number and nature of complaints received.

Scientific information and data are key components of fishery management plans (FMPs) and amendments and the use of best available information is the second national standard under the Magnuson-Stevens Act. To be consistent with the IQA, FMPs and amendments must be based on the best information available. They should also properly reference all supporting materials and data, and be reviewed by technically competent individuals. With respect to original data generated for FMPs and amendments, it is important to ensure that the data are collected according to documented procedures or in a manner that reflects standard practices accepted by the relevant scientific and technical communities. Data will also undergo quality control prior to being used by the agency and a pre-dissemination review.

Endangered Species Act (ESA)

The ESA of 1973 (16 U.S.C. Section 1531 et seq.) requires that federal agencies must ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or the habitat designated as critical to their survival and recovery. The ESA requires NMFS to consult with the appropriate administrative agency (itself for most marine species, and the U.S. Fish and Wildlife Service for all remaining species) when proposing an action that may affect threatened or endangered species or adversely modify critical habitat. Consultations are necessary to determine the potential impacts of the proposed action. They conclude informally when proposed actions may affect but are "not likely to adversely affect" threatened or endangered species or designated critical habitat. Formal consultations, resulting in a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" threatened or endangered species or adversely modify designated critical habitat.

National Marine Fisheries Service completed a biological opinion on June 18, 2015, evaluating the impacts of the CMP fishery on ESA-listed species. In the biological opinion, NMFS determined that the proposed continued authorization of the CMP Fishery, is not likely to adversely affect any listed whales (i.e., blue, sei, sperm, fin, humpack, or North Atlantic right whales), Gulf sturgeon, or elkhorn and staghorn corals. NMFS also determined that CMP Fishery is not likely to adversely affect designated critical habitats for elkhorn and staghorn corals or loggerhead sea turtles, and will have no effect on designated critical habitat for North Atlantic right whale.

According to the 2015 Biological Opinion on CMP fisheries, green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles, Atlantic sturgeon, and the smalltooth sawfish are all likely to be adversely affected by the CMP fishery. Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles area all highly migratory, travel widely throughout the GOM and South Atlantic, and are known to occur in area of the fishery. The distribution of Atlantic sturgeon and smalltooth sawfish within the action area is more limited, but all of these species do overlap in certain regions of the action area and these species have the potential to be been incidentally captured in CMP fisheries.

An incidental take statement for sea turtles, smalltooth sawfish, and Atlantic sturgeon was issued for incidental take coverage in the federal CMP fisheries throughout the action area. Reasonable and prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them.

On March 23, 2015, NMFS published a proposed rule (80 FR 15271) listing 11 distinct population segments (DPSs) for green sea turtles; the proposed North Atlantic DPS for green sea turtles is listed as threatened, and is the only DPS whose individuals can be expected to be encountered in the action area. The listing of the DPSs of green turtles triggers reinitiation of consultation under Section 7 of the ESA because the previous opinion did not consider what effects the CMP fishery is likely to have on this species, therefore NMFS Protected Resources must analyze the impacts of these potential interactions.

On June 29, 2016, NMFS published a Final Rule in the Federal Register listing Nassau grouper as a threatened species under the ESA, effective July 29, 2016. Reinitiation of Section 7 consultation on the FMP for SA/Gulf of Mexico Coastal Migratory Pelagics is needed to address newly listed species/DPSs. SERO is currently prioritizing completion of the consultation along with other consultations required after recent listings.

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas. It also prohibits the importing of marine mammals and marine mammal products into the United States. Under the MMPA, the Secretary of Commerce (authority delegated to NMFS) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea otters, polar bears, manatees, and dugongs.

Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted." A conservation plan is then developed to guide research and management actions to restore the population to healthy levels.

In 1994, Congress amended the MMPA, to govern the taking of marine mammals incidental to commercial fishing operations. This amendment required the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; development and implementation of take-reduction plans for stocks that may be reduced or are being maintained

below their optimum sustainable population levels due to interactions with commercial fisheries; and studies of pinniped-fishery interactions. The MMPA requires a commercial fishery to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; and Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities.

Under the MMPA, to legally fish in a Category I and/or II fishery, a fisherman must take certain steps. For example, owners of vessels or gear engaging in a Category I or II fishery, are required to obtain a marine mammal authorization by registering with the Marine Mammal Authorization Program (50 CFR 229.4). They are also required to accommodate an observer if requested (50 CFR 229.7(c)) and they must comply with any applicable take reduction plans.

The Gulf and South Atlantic CMP hook-and-line fishery is classified in the 2017 Marine Mammal Protection Act List of Fisheries as a Category III fishery (81 FR 54019), 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 moralities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.

The Gulf and South Atlantic CMP gillnet fishery is classified as Category II fishery in the 2017 Marine Mammal Protection Act List of Fisheries. This classification indicates an occasional incidental mortality or serious injury of a marine mammal stock resulting from the fishery (1-50% annually of the potential biological removal). The fishery has no documented interaction with marine mammals; NMFS classifies this fishery as Category II based on analogy (i.e., similar risk to marine mammals) with other gillnet fisheries.

Because of the nature of this fishery, the actions in this framework amendment are not expected to negatively impact marine mammals.

Essential Fish Habitat

The amended Magnuson-Stevens Act included a new habitat conservation provision known as Essential Fish Habitat (EFH) that requires each existing and any new FMPs to describe and identify EFH for each federally managed species, minimize to the extent practicable impacts from fishing activities on EFH that are more than minimal and not temporary in nature, and identify other actions to encourage the conservation and enhancement of that EFH. To address these requirements, the South Atlantic Fishery Management Council has, under separate action, approved an environmental impact statement (SAFMC 1998) to address the new EFH requirements contained within the Magnuson-Stevens Act. Section 305(b)(2) requires federal agencies to obtain a consultation for any action that may adversely affect EFH.

Executive Orders

E.O. 12630: Takings

The Executive Order on Government Actions and Interference with Constitutionally Protected Property Rights that became effective March 18, 1988, requires each federal agency prepare a Takings Implication Assessment for any of its administrative, regulatory, and legislative policies and actions that affect, or may affect, the use of any real or personal property. Clearance of a regulatory action must include a takings statement and, if appropriate, a Takings Implication Assessment. The NOAA Office of General Counsel will determine whether a Taking Implication Assessment is necessary for this amendment.

E.O. 12866: Regulatory Planning and Review

Executive Order 12866: Regulatory Planning and Review, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NMFS prepares a Regulatory Impact Review (RIR) for all fishery regulatory actions that either implement a new fishery management plan or significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society of proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations would have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act.

On July 1, 2016, the Small Business Administration final rule revising the small business size standards for several industries became effective (79 FR 33647). The rule increased the size standard for Finfish Fishing from $19.0 to $20.5 million, Shellfish Fishing from $5.0 to $5.5 million, and Other Marine Fishing from $7.0 to $7.5 million.

In light of these standards, NMFS has preliminarily determined that the proposed actions would not have a significant economic impact on a substantial number of small entities.

E.O. 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations

This Executive Order mandates that each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, 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 and possessions. Federal agency responsibilities under this Executive Order include conducting their programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons from participation in, denying persons the benefit of, or subjecting persons to discrimination under, such, programs policies, and activities, because of their race, color, or national origin. Furthermore, each federal agency responsibility set forth under this Executive

Order shall apply equally to Native American programs. Environmental justice considerations are discussed in detail in **Section 3.4**.

The actions in this framework amendment are not expected to negatively impact minority or low-income populations.

E.O. 12962: Recreational Fisheries

This Executive Order requires federal agencies, in cooperation with states and tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods including, but not limited to, developing joint partnerships; promoting the restoration of recreational fishing areas that are limited by water quality and habitat degradation; fostering sound aquatic conservation and restoration endeavors; and evaluating the effects of federally-funded, permitted, or authorized actions on aquatic systems and recreational fisheries, and documenting those effects. Additionally, it establishes a seven-member National Recreational Fisheries Coordination Council (Council) responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The Council also is responsible for developing, in cooperation with federal agencies, states and tribes, a Recreational Fishery Resource Conservation Plan - to include a five-year agenda. Finally, the Order requires NMFS and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

The actions in this framework are intended to improve recreational fishing opportunities in the CMP Fishery and are consistent with the provisions of E.O. 12962.

E.O. 13132: Federalism

The Executive Order on Federalism requires agencies in formulating and implementing policies, to be guided by the fundamental federalism principles. The Order serves to guarantee the division of governmental responsibilities between the national government and the states that was intended by the framers of the Constitution. Federalism is rooted in the belief that issues not national in scope or significance are most appropriately addressed by the level of government closest to the people. This Order is relevant to FMPs and amendments given the overlapping authorities of NMFS, the states, and local authorities in managing coastal resources, including fisheries, and the need for a clear definition of responsibilities. It is important to recognize those components of the ecosystem over which fishery managers have no direct control and to develop strategies to address them in conjunction with appropriate state, tribes and local entities (international too).

No federalism issues have been identified relative to the actions proposed in this amendment.

References

National Marine Fisheries Service (NMFS). 2015. Biological Opinion, ESA Section 7 Consultation for the Continued Authorization of Fishing under the Fishery Management Plan (FMP) for Coastal Migratory Pelagic Resources in the Atlantic and Gulf of Mexico (CMPR FMP). NMFS Southeast Regional Office Protected Resources Division: St. Petersburg, FL.

South Atlantic Fishery Management Council (SAFMC). 1998. Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans in the South Atlantic Region, including environmental assessment, regulatory impact review, and fishery impact statement. South Atlantic Fishery Management Council, Charleston, South Carolina. Available at: http://ocean.floridamarine.org/efh_coral/pdfs/Comp_Amend/EFHAmendCovTOC.pdf.

Appendix H. Analysis for Action 1

Prepared June 2016 and August 2016, SERO LAPP

I. Predicted Atlantic cobia recreational ACL overage dates for South Atlantic Framework Amendment 4 (using recreational data from 2013-2015)

Predicted dates when the ACL will be exceeded in 2017 were generated with the average Atlantic (New York through Georgia) cobia recreational landings from 2013 through 2015 (Figure 1). These landings came from the SEFSC recreational ACL dataset (MRIPACLspec_rec81_15wv5_2013Jan16) which is complete for 2013 through 2015 but the 2015 landings are still preliminary at this time. These are the same recreational landings that were used to predict the 2016 recreational closure date of June 20.

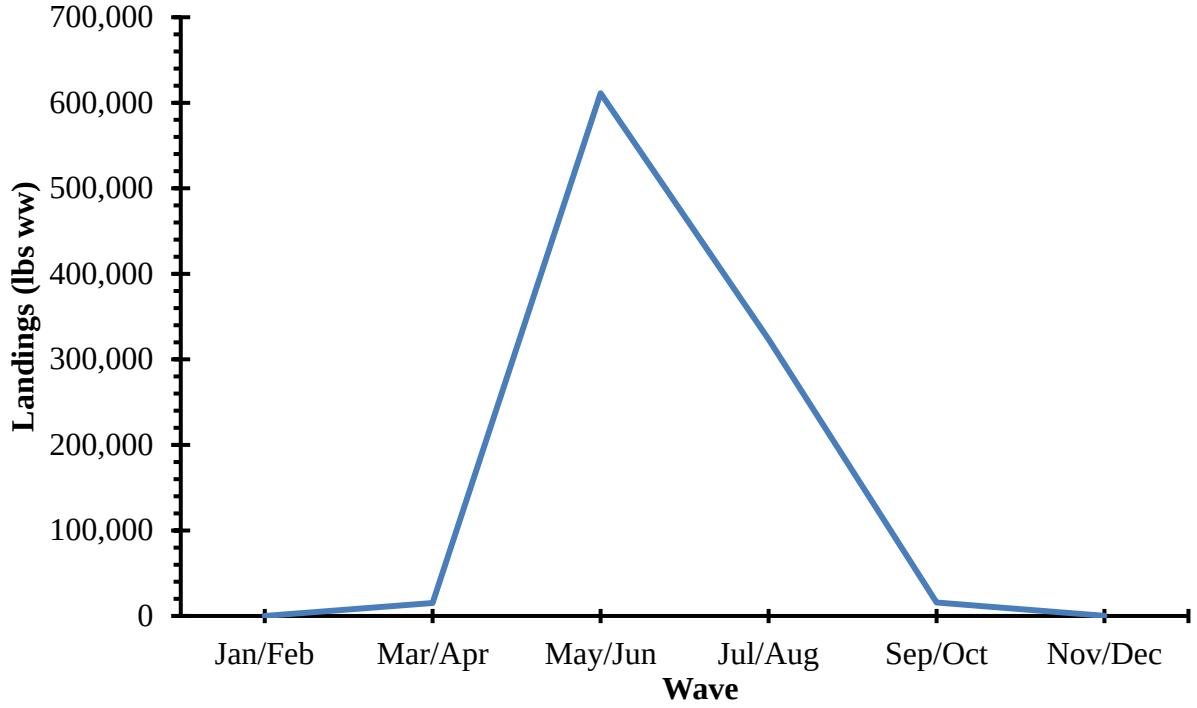

Figure 1.- Average Atlantic cobia recreational landings from 2013 through 2015. The Atlantic cobia stock is defined from the waters of New York through Georgia.

ACL overage dates were determined by evaluating when the landings are predicted to exceed the 2017 ACL of 620,000 pounds whole weight. The closure dates also assume all of the Atlantic cobia states will follow the same regulations that are stated in the amendment. Therefore, the regulations will be consistent for both state and federal waters.

Framework amendment 4 is considering a range of bag limits, vessel limits, and size limits. The ACL overage dates were determined by first calculating percent decrease in landings from the

regulations being considered (bag limits, vessel limits, and size limits) following the methods of SERO-LAPP-2012-03. Table 1 displays the percent decrease in landings. Then the percent decrease in landing estimates were multiplied against the average landings from 2013 through 2015. Since the amendment is considering different fishing years in Action 2 the ACL overage dates were calculated for each fishing year. The fishery years being considered are January 1 through December 31 (Table 2), May 1 through April 30 (Table 3), June 1 through May 31 (Table 4), and April 1 through March 31 (Table 5).

Table 1. Estimated percent decrease in Atlantic cobia landings for a combination of minimum size limits, bag limits, and vessel limits. The reductions assume the regulations are implemented in both state and federal waters.

	Minimum Size Limit (FL)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per Person	2.0	4.9	8.1	12.7	16.7	21.3	23.8	59.5	73.7
2 per Person	0	2.9	6.1	10.7	14.7	19.3	21.8	57.5	71.7
Vessel Limit									
1 per Vessel	20.4	23.3	26.5	31.1	35.1	39.7	42.2	77.9	92.1
2 per Vessel	8.8	11.7	14.9	19.5	23.5	28.1	30.6	66.3	80.5
3 per Vessel	4.4	7.3	10.5	15.1	19.1	23.7	26.2	61.9	76.1
4 per Vessel	2.7	5.6	8.8	13.4	17.4	22.0	24.5	60.2	74.4
5 per Vessel	2.1	5.0	8.2	12.8	16.8	21.4	23.9	59.6	73.8
6 per Vessel	0.9	3.8	7.0	11.6	15.6	20.2	22.7	58.4	72.6

Table 2. Estimated ACL overage dates for Alternative 1 of Action 2 under a range of size limits, bag limits, and vessel limits. Alternative 1 has the current fishing year of January 1 through December 31st.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per person	2-Jul	5-Jul	10-Jul	17-Jul	23-Jul	31-Jul	5-Aug	None	None
2 per person	30-Jun	3-Jul	7-Jul	14-Jul	20-Jul	28-Jul	1-Aug	None	None
Vessel Limit									
1	30-Jul	4-Aug	11-Aug	22-Aug	22-Sep	None	None	None	None
2	11-Jul	15-Jul	20-Jul	28-Jul	5-Aug	15-Aug	21-Aug	None	None
3	5-Jul	9-Jul	13-Jul	20-Jul	27-Jul	5-Aug	10-Aug	None	None
4	3-Jul	6-Jul	11-Jul	18-Jul	24-Jul	2-Aug	7-Aug	None	None
5	2-Jul	6-Jul	10-Jul	17-Jul	23-Jul	1-Aug	6-Aug	None	None

6	30-Jun	4-Jul	8-Jul	15-Jul	21-Jul	29-Jul	3-Aug	None	None

Table 3. Estimated ACL overage dates for Alternative 2 of Action 2 under a range of size limits, bag limits, and vessel limits. Alternative 2 has the current fishing year of May 1 through April 30.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per Person	5-Jul	8-Jul	13-Jul	19-Jul	26-Jul	3-Aug	8-Aug	None	None
2 per Person	2-Jul	6-Jul	10-Jul	16-Jul	23-Jul	31-Jul	4-Aug	None	None
Vessel Limit									
1 per Vessel	2-Aug	7-Aug	14-Aug	25-Aug	20-Mar	None	None	None	None
2 per Vessel	14-Jul	18-Jul	23-Jul	31-Jul	8-Aug	18-Aug	24-Aug	None	None
3 per Vessel	8-Jul	12-Jul	16-Jul	23-Jul	30-Jul	8-Aug	13-Aug	None	None
4 per Vessel	6-Jul	9-Jul	14-Jul	21-Jul	27-Jul	5-Aug	10-Aug	None	None
5 per Vessel	5-Jul	8-Jul	13-Jul	20-Jul	26-Jul	4-Aug	9-Aug	None	None
6 per Vessel	3-Jul	7-Jul	11-Jul	18-Jul	24-Jul	1-Aug	6-Aug	None	None

Table 4. Estimated ACL overage dates for Alternative 3 of Action 2 under a range of size limits, bag limits, and vessel limits. Alternative 3 has the current fishing year of June 1 through May 31.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per Person	4-Oct	18-Apr	19-May	25-May	30-May	14-May	16-May	None	None
2 per Person	31-Aug	27-Oct	1-May	4-May	8-May	12-May	14-May	None	None
Vessel Limit									
1 per Vessel	13-May	16-May	19-May	25-May	30-May	None	None	None	None
2 per Vessel	3-May	5-May	8-May	12-May	16-May	21-May	24-May	None	None
3 per Vessel	4-Apr	2-May	4-May	8-May	12-May	16-May	19-May	None	None
4 per Vessel	22-Oct	1-May	3-May	7-May	10-May	14-May	17-May	None	None
5 per Vessel	7-Oct	21-Apr	3-May	6-May	9-May	14-May	16-May	None	None
6 per Vessel	7-Sep	19-Mar	2-May	5-May	8-May	13-May	15-May	None	None

Table 5. Estimated ACL overage dates for Alternative 4 of Action 2 under a range of size limits, bag limits, and vessel limits. Alternative 4 has the current fishing year of April 1 through March 31.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per Person	3-Jul	7-Jul	11-Jul	18-Jul	25-Jul	2-Aug	7-Aug	None	None
2 per Person	1-Jul	4-Jul	8-Jul	15-Jul	21-Jul	29-Jul	3-Aug	None	None
Vessel Limit									
1 per Vessel	31-Jul	6-Aug	13-Aug	23-Aug	22-Oct	None	None	None	None
2 per Vessel	12-Jul	17-Jul	22-Jul	30-Jul	6-Aug	16-Aug	22-Aug	None	None
3 per Vessel	6-Jul	10-Jul	15-Jul	22-Jul	29-Jul	7-Aug	12-Aug	None	None
4 per Vessel	4-Jul	8-Jul	12-Jul	19-Jul	26-Jul	3-Aug	8-Aug	None	None
5 per Vessel	3-Jul	7-Jul	11-Jul	18-Jul	25-Jul	2-Aug	7-Aug	None	None
6 per Vessel	2-Jul	5-Jul	10-Jul	16-Jul	23-Jul	31-Jul	5-Aug	None	None

References

SERO-LAPP-2012-03. Modeling the combined effects of Gulf reef fish Amendment 37 proposed management measures for gray triggerfish. Southeast Region technical report. http://sero.nmfs.noaa.gov/sustainable_fisheries/lapp_dm/archives/documents/pdfs/2012/sero_lapp_2012_03_gulf_gray_triggerfish_decision_tool_rpt.pdf

II. Predicted Atlantic cobia recreational ACL overage dates for South Atlantic Framework Amendment 4 (using recreational data from 2005-2014)

Predicted dates when the ACL will be exceeded in 2017 were generated with the average Atlantic (New York through Georgia) cobia recreational landings from 2005 through 2014 (Figure 1). These landings came from the Southeast Fisheries Science Center's recreational ACL dataset which was provided in August of 2016.

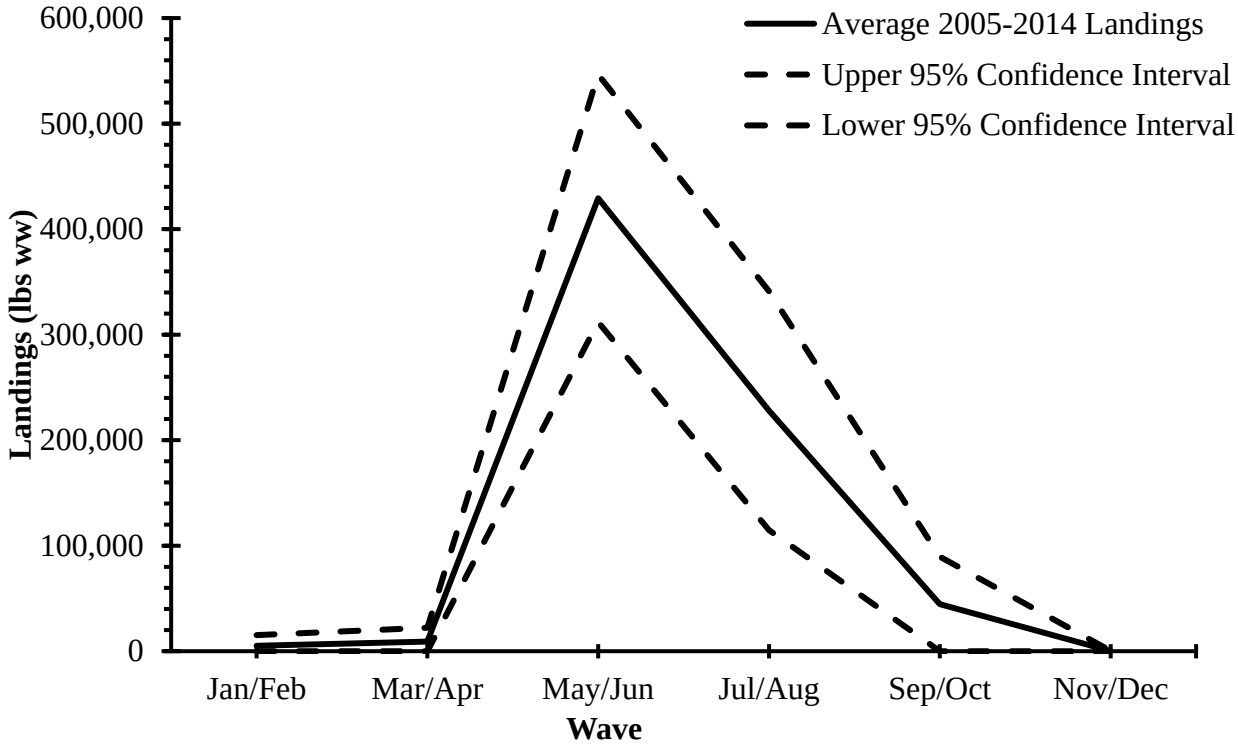

Figure 1.- Average and 95% confidence interval Atlantic cobia recreational landings from 2005 through 2014. The Atlantic cobia stock is defined from the waters of New York through Georgia.

ACL overage dates were determined by evaluating when the landings were predicted to exceed the 2017 ACL of 620,000 pounds whole weight. The closure dates also assume all of the Atlantic cobia states will follow the same regulations. Therefore, the regulations will be consistent for both state and federal waters.

Framework amendment 4 is considering a range of size limits, bag limits, and vessel limits. The ACL overage dates were determined by first calculating percent decrease in landings from the regulations being considered (size limits, bag limits, and vessel limits). Then the reductions were multiplied against the projected monthly recreational landings (RL). This was done with the following equation of:

$$RL_m = AAL_m * \varsigma_m * \beta_m$$

where AAL: average annual landings from 2005-2014, ς: projected size limit reduction, and β: projected bag or vessel limit reduction. The projected recreational landings were calculated for each month (m). Additional details of the method can be found in SERO-LAPP-2012-03 (http://sero.nmfs.noaa.gov/sustainable_fisheries/lapp_dm/archives/documents/pdfs/2012/sero_lapp_2012_03_gulf_gray_triggerfish_decision_tool_rpt.pdf). The landings were summed over time, and closure dates were determined when the landings exceeded the ACL of 620,000 lbs.

The percent decrease in landings from the size limits, bag limits, and vessel limits were determined with dock-side intercept data from 2013 through 2015. Data from the most recent three years (2013-2015) were used because they are likely to reflect current cobia sizes and catch behavior of fishers. Table 1 displays the percent decrease in landings from the size limits, bag limits, and vessel limits being considered in Amendment 4.

Table 1. Estimated percent decrease in Atlantic cobia landings for a combination of minimum size limits, bag limits, and vessel limits. These estimates came from dock-side intercept data from 2013 through 2015. The reductions assume the regulations are implemented in both state and federal waters.

	Minimum Size Limit (FL)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per Person	2.0	4.9	8.1	12.7	16.7	21.3	23.8	59.5	73.7
2 per Person	0	2.9	6.1	10.7	14.7	19.3	21.8	57.5	71.7
Vessel Limit									
1 per Vessel	20.4	23.3	26.5	31.1	35.1	39.7	42.2	77.9	92.1
2 per Vessel	8.8	11.7	14.9	19.5	23.5	28.1	30.6	66.3	80.5
3 per Vessel	4.4	7.3	10.5	15.1	19.1	23.7	26.2	61.9	76.1
4 per Vessel	2.7	5.6	8.8	13.4	17.4	22.0	24.5	60.2	74.4
5 per Vessel	2.1	5.0	8.2	12.8	16.8	21.4	23.9	59.6	73.8
6 per Vessel	0.9	3.8	7.0	11.6	15.6	20.2	22.7	58.4	72.6

Amendment 4 is considering different fishing year start dates in Action 2. ACL overage dates were calculated for each fishing year being considered. The fishery year start dates under consideration are January 1 through December 31 (Table 2), May 1 through April 30 (Table 3), June 1 through May 31 (Table 4), and April 1 through March 31 (Table 5).

Table 2. Estimated ACL overage dates for Alternative 1 of Action 2 under a range of size limits, bag limits, and vessel limits. Alternative 1 has the current fishing year of January 1 through December 31st. The ACL is 620,000 lbs ww.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per Person	21-Aug	26-Aug	5-Sep	23-Oct	None	None	None	None	None
2 per Person	17-Aug	23-Aug	28-Aug	2-Oct	None	None	None	None	None
Vessel Limit									
1 per Vessel	None	None	None	None	None	None	None	None	None
2 per Vessel	12-Sep	12-Oct	None	None	None	None	None	None	None
3 per Vessel	25-Aug	31-Aug	29-Sep	None	None	None	None	None	None
4 per Vessel	22-Aug	27-Aug	12-Sep	31-Oct	None	None	None	None	None
5 per Vessel	21-Aug	26-Aug	6-Sep	25-Oct	None	None	None	None	None
6 per Vessel	19-Aug	24-Aug	30-Aug	11-Oct	None	None	None	None	None

Table 3. Estimated ACL overage dates for Alternative 2 of Action 2 under a range of size limits, bag limits, and vessel limits. Alternative 2 has the current fishing year of May 1 through April 30. The ACL is 620,000 lbs ww.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per Person	25-Aug	30-Aug	24-Sep	21-Mar	None	None	None	None	None
2 per Person	21-Aug	26-Aug	5-Sep	21-Oct	None	None	None	None	None
Vessel Limit									
1 per Vessel	None	None	None	None	None	None	None	None	None
2 per Vessel	1-Oct	3-Jan	None	None	None	None	None	None	None
3 per Vessel	29-Aug	16-Sep	19-Oct	None	None	None	None	None	None
4 per Vessel	26-Aug	31-Aug	1-Oct	28-Apr	None	None	None	None	None
5 per Vessel	25-Aug	30-Aug	25-Sep	26-Mar	None	None	None	None	None
6 per Vessel	23-Aug	28-Aug	13-Sep	31-Oct	None	None	None	None	None

Table 4. Estimated ACL overage dates for Alternative 3 of Action 2 under a range of size limits, bag limits, and vessel limits. Alternative 3 has the current fishing year of June 1 through May 31. The ACL is 620,000 lbs ww.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per Person	20-May	22-May	26-May	31-May	None	None	None	None	None
2 per Person	18-May	20-May	24-May	28-May	None	None	None	None	None
Vessel Limit									
1 per Vessel	None	None	None	None	None	None	None	None	None
2 per Vessel	26-May	29-May	None	None	None	None	None	None	None
3 per Vessel	22-May	25-May	28-May	None	None	None	None	None	None
4 per Vessel	20-May	23-May	26-May	31-May	None	None	None	None	None
5 per Vessel	20-May	22-May	26-May	31-May	None	None	None	None	None
6 per Vessel	19-May	21-May	24-May	29-May	None	None	None	None	None

Table 5. Estimated ACL overage dates for Alternative 4 of Action 2 under a range of size limits, bag limits, and vessel limits. Alternative 4 has the current fishing year of April 1 through March 31. The ACL is 620,000 lbs ww.

	Minimum Size Limit (inches fork length)								
	33	34	35	36	37	38	39	45	50
Bag Limit									
1 per Person	24-Aug	29-Aug	18-Sep	12-Feb	None	None	None	None	None
2 per Person	20-Aug	25-Aug	31-Aug	15-Oct	None	None	None	None	None
Vessel Limit									
1 per Vessel	None	None	None	None	None	None	None	None	None
2 per Vessel	25-Sep	26-Oct	None	None	None	None	None	None	None
3 per Vessel	28-Aug	10-Sep	13-Oct	None	None	None	None	None	None
4 per Vessel	25-Aug	30-Aug	25-Sep	29-Mar	None	None	None	None	None
5 per Vessel	24-Aug	29-Aug	19-Sep	22-Feb	None	None	None	None	None
6 per Vessel	22-Aug	27-Aug	7-Sep	25-Oct	None	None	None	None	None

This analysis attempted to predict realistic changes to cobia recreational landings by estimated decreases in landings from the regulations considered in Amendment 4. Uncertainty exists in these projections, as economic conditions, weather events, changes in catch-per-unit effort, fisher response to management regulations, and a variety of other factors may cause departures from this assumption. The bounds of this uncertainty are not captured by the analysis as currently configured; as such, it should be used with caution as a 'best guess' for future dynamics. In

addition to the aforementioned sources of uncertainty, the predicted change in landings associated with the regulations considered assume past performance in the fishery is a good predictor of future dynamics.

References

SERO-LAPP-2012-03. Modeling the combined effects of Gulf reef fish Amendment 37 proposed management measures for gray triggerfish. Southeast Region technical report. http://sero.nmfs.noaa.gov/sustainable_fisheries/lapp_dm/archives/documents/pdfs/2012/sero_lapp_2012_03_gulf_gray_triggerfish_decision_tool_rpt.pdf