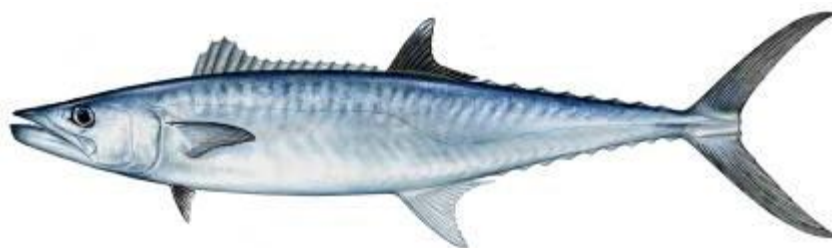


# Changes in Allocations, Stock Boundaries and Sale Provisions for Gulf of Mexico and Atlantic Migratory Groups of King Mackerel

AP



## Draft Amendment 26 to the Fishery Management Plan for the Coastal Migratory Pelagics Fishery of the Gulf of Mexico and South Atlantic Region

August 24, 2015



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# CHANGES IN ALLOCATIONS, STOCK BOUNDARIES AND SALE PROVISIONS FOR GULF OF MEXICO AND ATLANTIC MIGRATORY GROUPS OF KING MACKEREL

Draft Amendment 26 to Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and South Atlantic Region addressing modifications to the management of king mackerel within the coastal migratory pelagic zones, including Environmental Assessment, Fishery Impact Statement, Regulatory Impact Review, and Regulatory Flexibility Act Analysis.

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## Type of Action

☐ Administrative  
☒ Draft

☐ Legislative  
☐ Final

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## ABBREVIATIONS USED IN THIS DOCUMENT

ABC	acceptable biological catch
ACL	annual catch limit
ACT	annual catch target
ALS	Accumulated Landings System
AMs	accountability measures
AP	Advisory Panel
APA	Administrative Procedures Act
B	biomass
B <sub>MSY</sub>	stock biomass level capable of producing an equilibrium yield of MSY
CFDBS	Commercial Fisheries Data Base System
CFL	coastal fisheries logbook
CLM	commercial landings monitoring system
CMP	coastal migratory pelagics
Council	Gulf of Mexico and South Atlantic Fishery Management Councils
CZMA	Coastal Zone Management Act
DQA	Data Quality Act
EA	environmental assessment
EEZ	exclusive economic zone
EFH	essential fish habitat
EIS	environmental impact statement
EJ	environmental justice
ESA	Endangered Species Act
F	instantaneous rate of fishing mortality
F <sub>Current</sub>	current fishing mortality
FL	fork length
FLS	federal logbook system
F <sub>MSY</sub>	fishing mortality rate corresponding to an equilibrium yield of MSY
F <sub>OY</sub>	fishing mortality rate corresponding to an equilibrium yield of OY
FMP	Fishery Management Plan
Gulf	Gulf of Mexico
Gulf Council	Gulf of Mexico Fishery Management Council
GMFMC	Gulf of Mexico Fishery Management Council
HAPC	habitat area of particular concern
HBS	NMFS Headboat Survey
IFQ	individual fishing quota
M	mortality
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MFMT	maximum fishing mortality threshold
Mid-Atlantic Council	Mid-Atlantic Fishery Management Council
MMPA	Marine Mammal Protection Act
mp	million pounds
MRFSS	Marine Recreational Fisheries Survey and Statistics
MRIP	Marine Recreational Information Program
MSST	minimum stock size threshold

MSY	maximum sustainable yield
NEFSC	New England Fisheries Science Center
NEPA	National Environmental Policy Act
nm	nautical mile
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOR	net operating revenue
NOS	National Ocean Service
OFL	overfishing level
OY	optimum yield
RA	Regional Administrator
RFA	Regulatory Flexibility Act of 1980
RIR	Regulatory Impact Review
RQ	regional quotient
SAFMC	South Atlantic Fishery Management Council
SBA	Small Business Administration
Secretary	Secretary of Commerce
SEDAR	Southeast Data, Assessment, and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
South Atlantic Council	South Atlantic Fishery Management Council
SRD	Science and Research Director
SSB <sub>Current</sub>	current spawning stock biomass
SSC	Scientific and Statistical Committee
TAC	total allowable catch
TLR	trip limit reduction
TPWD	Texas Parks and Wildlife Department
USCG	United States Coast Guard
VMS	vessel monitoring system
ww	whole weight

# TABLE OF CONTENTS

Abbreviations Used In This Document .....	2
List of Tables .....	7
List of Figures .....	8
Chapter 1. Introduction.....	9
1.1 Background.....	10
1.2 Purpose and Need .....	13
1.3 History of Management.....	13
Chapter 2. Management Alternatives.....	16
2.1 Action 1 – Adjust the Management Boundary for Gulf and Atlantic Migratory Groups of King Mackerel .....	16
2.2 Action 2 - Update Reference Points (MSY, MSST, MFMT/OFL), and Revise the Annual Catch Limit (ACL) and Recreational Annual Catch Target (ACT) for Atlantic Migratory Group King Mackerel .....	21
2.2.1 Action 2-1 – Revise the Acceptable Biological Catch (ABC) for Atlantic Migratory Group King Mackerel.....	22
2.2.2 Action 2-2 – Revise ACLs, Commercial Quotas, and Recreational ACT for Atlantic Migratory Group King Mackerel .....	24
2.3 Action 3 – Sale of Incidental Catch of Atlantic Migratory Group King Mackerel Caught in the Shark Drift Gillnet Fishery .....	29
2.4 Action 4 - Establish a Florida East Coast Subzone and Commercial Quota.....	31
2.4.1 Action 4-1. Establish a Florida East Coast Subzone for Atlantic Migratory Group King Mackerel.....	31
2.4.2 Action 4-2. Allocate Quota within the Atlantic Southern Zone for Atlantic Migratory Group King Mackerel .....	34
2.4.3 Action 4-3. Establish Trip Limits for the Florida East Coast Subzone for Atlantic Migratory Group King Mackerel .....	35
2.5 Action 5: Modify the ACL for Gulf Migratory Group King Mackerel .....	38
2.6 Action 6. Revise the Commercial Zone Quotas for Gulf Migratory Group King Mackerel 40	
2.7 Action 7. Revise the Recreational and Commercial Allocations for the Gulf Migratory Group King Mackerel .....	42
2.8 Action 8 - Modify the Recreational Bag Limit for Gulf Migratory Group King Mackerel	48
3.3 Description of the Biological Environment.....	50
3.4 Description of the Economic Environment .....	51
3.5 Description of the Social Environment .....	52

3.6 Description of the Administrative Environment.....	53
Chapter 4. Environmental Consequences.....	54
4.1 Action 1- Adjust the Management Boundary for Gulf and Atlantic Migratory Groups of King Mackerel .....	54
4.2 Action 2 - Update Reference Points (MSY, MSST, MFMT/OFL), and Revise the Annual Catch Limit (ACL) and Recreational Annual Catch Target (ACT) for Atlantic Migratory Group King Mackerel .....	57
4.2.1 Action 2-1 – Revise the Acceptable Biological Catch (ABC) for Atlantic Migratory Group King Mackerel.....	57
4.2.2 Action 2-2 – Revise ACLs, Commercial Quotas, and Recreational ACT for Atlantic Migratory Group King Mackerel .....	59
4.3 Action 3 – Sale of Incidental Catch of Atlantic Migratory Group King Mackerel Caught in the Shark Drift Gillnet Fishery .....	64
4.4 Action 4 - Establish a Florida East Coast Subzone and Commercial Quota.....	65
4.4.1 Action 4-1. Establish a Florida East Coast Subzone for Atlantic Migratory Group King Mackerel.....	65
4.4.2 Action 4-2. Allocate Quota within the Atlantic Southern Zone for Atlantic Migratory Group King Mackerel .....	66
4.4.3 Action 4-3. Establish Trip Limits for the Florida East Coast Subzone for Atlantic Migratory Group King Mackerel .....	67
<b>4.5 Action 5. Modify the ACL for Gulf Migratory Group King Mackerel.....</b>	<b>69</b>
<b>4.6 Action 6. Revise the Commercial Zone Quotas for Gulf Migratory Group King Mackerel.....</b>	<b>70</b>
<b>4.7 Action 7. Revise the Recreational and Commercial Allocations for the Gulf Migratory Group King Mackerel.....</b>	<b>71</b>
<b>4.8 Action 8. Modify the Recreational Bag Limit for Gulf Migratory Group King Mackerel.....</b>	<b>73</b>
4.9 Cumulative Effects Analysis .....	74
Chapter 5. Regulatory Impact Review .....	75
Chapter 6. Regulatory Flexibility Act Analysis.....	76
Chapter 7. List of Agencies, Organizations, and Persons Consulted.....	77
Chapter 8. References to be updated.....	79
Appendix A. Summaries of Public Comments Received.....	85
Gulf of Mexico Scoping Workshop Comments.....	85
South Atlantic Scoping Comments .....	94
Appendix B. ALTERNATIVES CONSIDERED BUT REJECTED .....	95
Appendix C. Recreational King Mackerel Bag Limit Analysis for the Gulf of Mexico .....	96





## LIST OF TABLES

<b>Table 2.2.1.</b> Recommendations from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel.....	21
<b>Table 2.2.2.</b> Recommendation for OFL from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel. ....	21
<b>Table 2.2.3.</b> Recommendations from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel. ABC recommendations are in the shaded columns .....	22
<b>Table 2.2.4.</b> Possible outcomes under <b>Alternative 2</b> based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%.....	24
<b>Table 2.2.5.</b> Possible outcomes under <b>Alternative 5</b> based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%.....	26
<b>Table 2.2.6.</b> Possible outcomes under <b>Alternative 6</b> based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%.....	27
<b>Table 2.5.1.</b> Gulf SSC recommendations for acceptable biological catch for Gulf migratory group king mackerel, using data resultant from SEDAR 38 (2014).....	39
<b>Table 2.6.1.</b> Commercial fishing zone allocations for Gulf migratory group king mackerel. ....	40
<b>Table 2.6.2.</b> Options for redistribution of commercial zone allocation for Gulf migratory group king mackerel.....	41
<b>Table 2.7.1.</b> Gulf of Mexico commercial king mackerel landings by Zone and gear, less those landings attributed to the Florida East Coast Zone (FLEC). Gillnet landings only include the Gulf Southern Zone.....	43
<b>Table 2.7.2.</b> Landings and proportions landed by each sector for Gulf migratory group king mackerel, less those landings attributed to the Florida East Coast Zone (FLEC). ....	44
<b>Table 2.7.3.</b> Proportion of sector ACLs landed and proportion of total ACL landed for Gulf migratory group king mackerel, including those landings attributed to the Florida East Coast Zone (FLEC). The FLEC landings are included here since there is not a recreational allocation specifically for the FLEC Zone. ....	44
<b>Table 2.7.4.</b> Resultant allocations based on options presented in Action 7. Alternative 3 would be dependent upon the landings reported in the year during which the recreational sector landed 80% of its allocation.....	46
<b>Table 2.7.5.</b> Sector allocations based on options presented in <b>Alternative 4</b> of Action 7. Percentages are rounded to the nearest whole number. ....	46
<b>Table 2.8.1.</b> Percent increase in Gulf of Mexico king mackerel recreational landings with an increase in the bag limit (based on 2011-2013 data). ....	49
<b>Table 4.2.1.</b> Recommendations from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel. ABC recommendations are in the shaded columns .....	57
<b>Table 4.2.2.</b> Possible outcomes under <b>Alternative 2</b> based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%.....	59
<b>Table 4.2.3.</b> Possible outcomes under <b>Alternative 5</b> based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%.....	61
<b>Table 4.2.4.</b> Possible outcomes under <b>Alternative 6</b> based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%.....	62

## LIST OF FIGURES

<b>Figure 1.1.1.</b> Seasonal boundary between Atlantic and Gulf migratory groups of king mackerel. ....	11
<b>Figure 2.1.1. Alternative 1:</b> Seasonal management boundaries for Atlantic and Gulf migratory groups of king mackerel. ....	16
<b>Figure 2.1.2. Alternative 2:</b> Proposed management boundary for Atlantic and Gulf migratory groups of king mackerel. ....	17
<b>Figure 2.1.3. Alternative 3:</b> Proposed management boundary for Atlantic and Gulf groups of king mackerel. ....	17
<b>Figure 2.1.4.</b> Areas of Gulf and Atlantic migratory king mackerel and the mixing zone as defined by SEDAR 38. ....	19
<b>Figure 2.7.1.</b> Trends in Gulf migratory group king mackerel landings by sector for 2000-2012 fishing seasons. Landings are in pounds. ....	45
<b>Figure 2.8.1.</b> Distribution of Gulf of Mexico king mackerel harvested per angler by mode from 2011 through 2013. Source: NMFS SERO LAPP/DM Branch. ....	49

# CHAPTER 1. INTRODUCTION

## What Actions Are Being Proposed?

Actions in this amendment address issues associated with the king mackerel stock boundary; updated biological parameters for Gulf and Atlantic migratory groups of king mackerel; acceptable biological catch (ABC) levels for Atlantic migratory group king mackerel; annual catch limits (ACL) for Gulf and Atlantic migratory groups of king mackerel; zone commercial quotas for Gulf migratory group king mackerel; recreational and commercial allocation of Gulf migratory group king mackerel; sale of incidental catch of Atlantic migratory group king mackerel in the small coastal shark drift gillnet fishery; and management measures for commercial harvest of Atlantic migratory group king mackerel on the Florida east coast.

## Who Is Proposing the Action?

The Gulf of Mexico (Gulf) and South Atlantic Fishery Management Councils (Councils) are proposing the actions. The Councils develop the regulations and submit them to the National Marine Fisheries Service (NMFS) who ultimately approves, disapproves, or partially approves the actions in the amendment on behalf of the Secretary of Commerce. NMFS is an agency in the National Oceanic and Atmospheric Administration.

### *Who's Who?*

- ***Gulf of Mexico and South Atlantic Fishery Management Councils*** – Engage in a process to determine a range of actions and alternatives, and recommends action to the National Marine Fisheries Service.
- ***National Marine Fisheries Service and Council staffs*** – Develop alternatives based on guidance from the Council, and analyze the environmental impacts of those alternatives.
- ***Secretary of Commerce*** – Will approve, disapprove, or partially approve the amendment as recommended by the Councils.

## Why Are The Councils Considering Action?

In 2014, a stock assessment of Atlantic and Gulf migratory group king mackerel was completed (SEDAR 38), and indicated that neither migratory group was overfished or experiencing overfishing. In addition to revised yield streams, the stock assessment redefined the spatial and temporal extent of the mixing zone between the migratory groups to be south of the Florida Keys during winter months. The stock assessment also redefined the geographic boundary between the migratory groups to be at the Dade/Monroe County line. These findings eliminate one of the commercial allocation zones for the Gulf migratory group, and will require reallocation of the commercial sector's portion of the annual catch limit (ACL) amongst the remaining Gulf commercial zones.

Historically, the recreational king mackerel fishery in the Gulf has not landed its allocation of the ACL (currently 68%), while the commercial fishery has either met or exceeded its allocation (32%). In an effort to manage the fishery such that the maximum benefit of the resource is extracted without harming the population, the Gulf Council has decided to evaluate reallocation from the recreational sector to the commercial sector in the Gulf.

In addition to ACL and stock boundary issues, the South Atlantic Council is interested in exploring a provision for the small coastal shark drift gillnet fishery for bag limit sales of king mackerel bycatch. Bag limit sales were prohibited in Coastal Migratory Pelagics (CMP) Amendment 20A (implemented July 2014), and allowing such sales for a specific fishery would allow a historic practice to continue.

## 1.1 Background

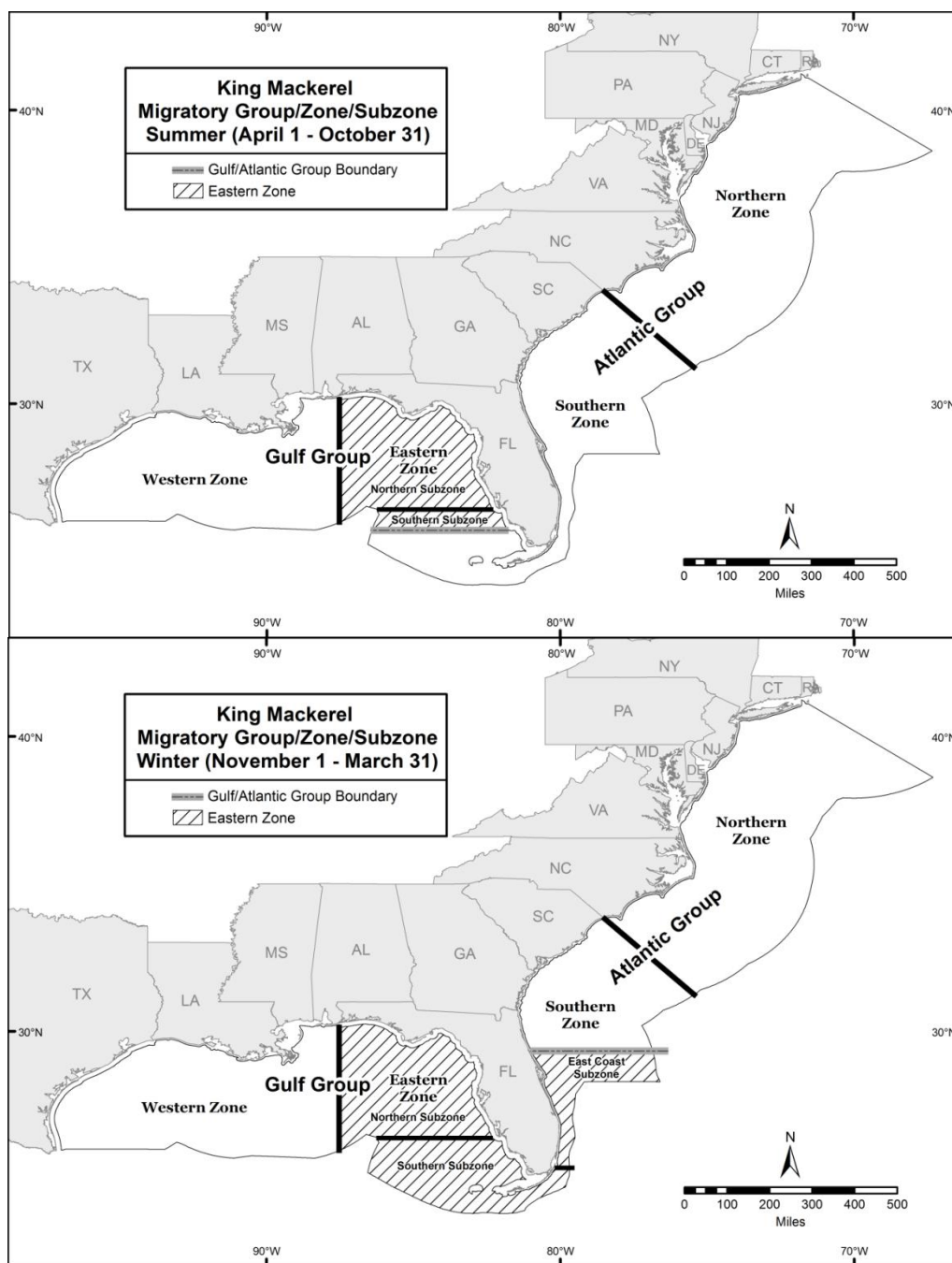
Initially, the Fishery Management Plan (FMP) for the CMP Resources in the Gulf and South Atlantic Region (GMFMC and SAFMC 1982) treated king mackerel as one stock. The present management regime in the FMP recognizes two migratory groups: the Gulf migratory group and the Atlantic migratory group. Each migratory group is managed separately by the respective Councils. Gulf and Atlantic migratory groups of king mackerel are also divided into zones and/or subzones for management purposes. This amendment considers changes to management measures for Gulf and Atlantic migratory groups of king mackerel.

In order to simplify the nomenclature for identifying commercial fishing zones in the Gulf of Mexico, the current names of the zones will be changed to read as follows:

Old Zone Name	New Zone Name
Western Zone	Western Zone
Florida West Coast Northern Subzone	Northern Zone
Florida West Coast Southern Subzone	Southern Zone

**King mackerel:** The two migratory groups are thought to mix seasonally off the east coast of Florida and in Monroe County, Florida. For management and assessment purposes, a boundary between the migratory groups of king mackerel was specified at the Volusia/Flagler County border on the Florida east coast in the winter (November 1 - March 31) and the Monroe/Collier County border on the Florida southwest coast in the summer (April 1 - October 31) (Figure 1.1.1).

In 2014, a stock assessment was completed for Gulf and Atlantic migratory group king mackerel (SEDAR 38 2014). Based on the research highlighted in the assessment, the assessment scientists determined that the mixing zone was substantially smaller than originally thought. The mixing zone is now considered to be only the portion of the exclusive economic zone (EEZ) off Monroe County, Florida, south of the Florida Keys (Keys). The stock assessment also generated updated stock benchmarks and yield projections, which will require the Councils to take action to update said benchmarks (if necessary) and to update annual catch limits (as appropriate).



**Figure 1.1.1.** Seasonal boundary between Atlantic and Gulf migratory groups of king mackerel.

The Florida East Coast (FLEC) Subzone is currently included in the Gulf migratory group king mackerel commercial management zones, with king mackerel taken from this area counting against the Gulf commercial ACL. However, because of new stock and management boundaries recommended in the stock assessment (SEDAR 38 2014), the Councils are considering establishing a FLEC subzone for Atlantic king mackerel which would include this area while the respective landings would count against the Atlantic migratory group king mackerel ACL. In the Gulf of Mexico, the commercial zone allocations will need to be re-evaluated with the potential

removal of the Florida East Coast Subzone from the Gulf migratory group ACL. This will require reallocation amongst the three remaining Gulf commercial fishing zones (Western Zone, Northern Zone, and Southern Zone).

Prior to CMP Amendment 20A (2014), fishermen with both federal commercial shark and king mackerel permits could sell the bag limit of king mackerel incidentally caught on shark gillnet trips. CMP Amendment 20A prohibited this practice in South Atlantic Council jurisdictional waters, and the prohibition of gillnet gear for harvesting king mackerel in the South Atlantic currently prevents incidentally harvested king mackerel from being sold.

The Councils are considering modifying the sector allocations for Gulf migratory group king mackerel. Over the past decade, the commercial sector has regularly met or exceeded the commercial ACL while the recreational sector has landed decreasingly lower proportions of the recreational ACL. At the March 2015 Gulf CMP Advisory Panel (AP) meeting, members recommended that the Council abstain from reallocating any king mackerel from the recreational sector to the commercial sector. The Gulf CMP AP subsequently recommended an increase to three fish per person per day for the Gulf recreational bag limit as a way to potentially increase utilization of the recreational ACL.

## 1.2 Purpose and Need

### *Purpose for Action*

The purpose of this amendment is to modify the stock boundary and revise the ACLs for Atlantic and Gulf migratory group king mackerel; to modify the commercial zone quotas for Gulf migratory king mackerel; to revise recreational and commercial allocations for Gulf migratory king mackerel; to create an incidental catch allowance of Atlantic migratory king mackerel for the shark gillnet fishery; and to revise or create management measures for Atlantic migratory group king mackerel in the Florida East Coast Subzone.

### *Need for Action*

The need for this amendment is to ensure annual catch limits are based on the best scientific information available and to ensure overfishing does not occur in the coastal migratory pelagics (CMP) fishery, while increasing social and economic benefits of the CMP fishery through sustainable and profitable harvest of Gulf and Atlantic migratory groups of king mackerel in accordance with provisions set forth in Magnuson-Stevens Conservation and Management Act.

## 1.3 History of Management

The CMP FMP, with Environmental Impact Statement (EIS), was approved in 1982 and implemented by regulations effective in February 1983 (GMFMC and SAFMC 1982). The management unit includes king mackerel, Spanish mackerel, and cobia. The FMP treated king and Spanish mackerel as unit stocks in the Atlantic and Gulf. The FMP established allocations for the recreational (68%) and commercial (32%) sectors harvesting these stocks, and the commercial allocations were divided between net and hook-and-line fishermen. The following is a list of management changes relevant to CMP zonal issues. A full history of CMP management can be found in Amendment 18 (GMFMC and SAFMC 2011), and is incorporated here by reference.

**Amendment 1**, with EIS, implemented in September 1985, recognized separate Atlantic and Gulf migratory groups of king mackerel. The Gulf commercial allocation for king mackerel was divided into Eastern and Western Zones for the purpose of regional allocation, with 69% of the allocation provided to the Eastern Zone and 31% to the Western Zone.

**Amendment 5**, with EA, implemented in August 1990, extended the management area for Atlantic migratory groups of mackerels through the Mid-Atlantic Council's area of jurisdiction; provided that the South Atlantic Council will be responsible for pre-season adjustments of TACs and bag limits for the Atlantic migratory groups of mackerels while the Gulf Council will be responsible for Gulf migratory groups; and continued to manage the two recognized Gulf migratory groups of king mackerel as one until management measures appropriate to the eastern and western migratory groups could be determined.



**Amendment 6**, with EA, implemented in November 1992, allowed for Gulf migratory group king mackerel stock identification and allocation when appropriate.

**Amendment 7**, with EA, implemented in November 1994, equally divided the Gulf commercial allocation in the Eastern Zone at the Dade-Monroe County line in Florida. The sub-allocation for the area from Monroe County through Western Florida is equally divided between commercial hook-and-line and net gear users.

**Amendment 8**, with EA, implemented March 1998, provided the South Atlantic Council with authority to set vessel trip limits, closed seasons or areas, and gear restrictions for Gulf migratory group king mackerel in the North Area of the Eastern Zone (Dade/Monroe to Volusia/Flagler County lines); modified the seasonal framework adjustment measures; and expanded the management area for cobia through the Mid-Atlantic Council's area of jurisdiction (to New York).

**Amendment 9**, with EA, implemented in April 2000, established a trip limit of 3,000 lbs per vessel per trip for the Western Zone.

**Amendment 18**, with EA, implemented in January 2012, established ACLs and accountability measures for Gulf and Atlantic migratory groups of cobia, king mackerel, and Spanish mackerel. The ACLs for the Gulf and South Atlantic migratory groups of king mackerel were 10.8 million pounds and 10.46 million pounds, respectively.

**Amendment 19**, with EIS, implemented in July 2010, was part of the South Atlantic Comprehensive Ecosystem-based Amendment 2 and established Coral Habitat Areas of Particular Concern (CHAPCs).

**Amendment 20A**, with EA, implemented in July 2014, prohibited sale of recreationally caught king mackerel and Spanish mackerel, with an exception for sale of fish caught on for-hire trips on dually permitted vessels in the Gulf region, and an exception for sale of fish caught in state-permitted tournaments in both regions, and removed the income requirements for federal CMP permits.

**Amendment 20B**, with EA, implemented in March 2015, revised Gulf king mackerel hook and line trip limits in the Florida West Coast zone Northern and Southern subzones and modified the Northern subzone fishing year; created a transit provision for areas closed to king mackerel; established Northern and Southern zones with commercial quotas for Atlantic king mackerel.

**Amendment 21**, with EA, implemented in January 2012, was part of the South Atlantic Comprehensive Ecosystem-based Amendment 2 and modified regulations for harvest in the special management zones (SMZs) in South Carolina waters.

**Amendment 22**, with EA, implemented in January 2014, was part of the joint Gulf/ South Atlantic Headboat Reporting Amendment. This amendment requires weekly electronic reporting on headboats fishing for coastal migratory pelagics.



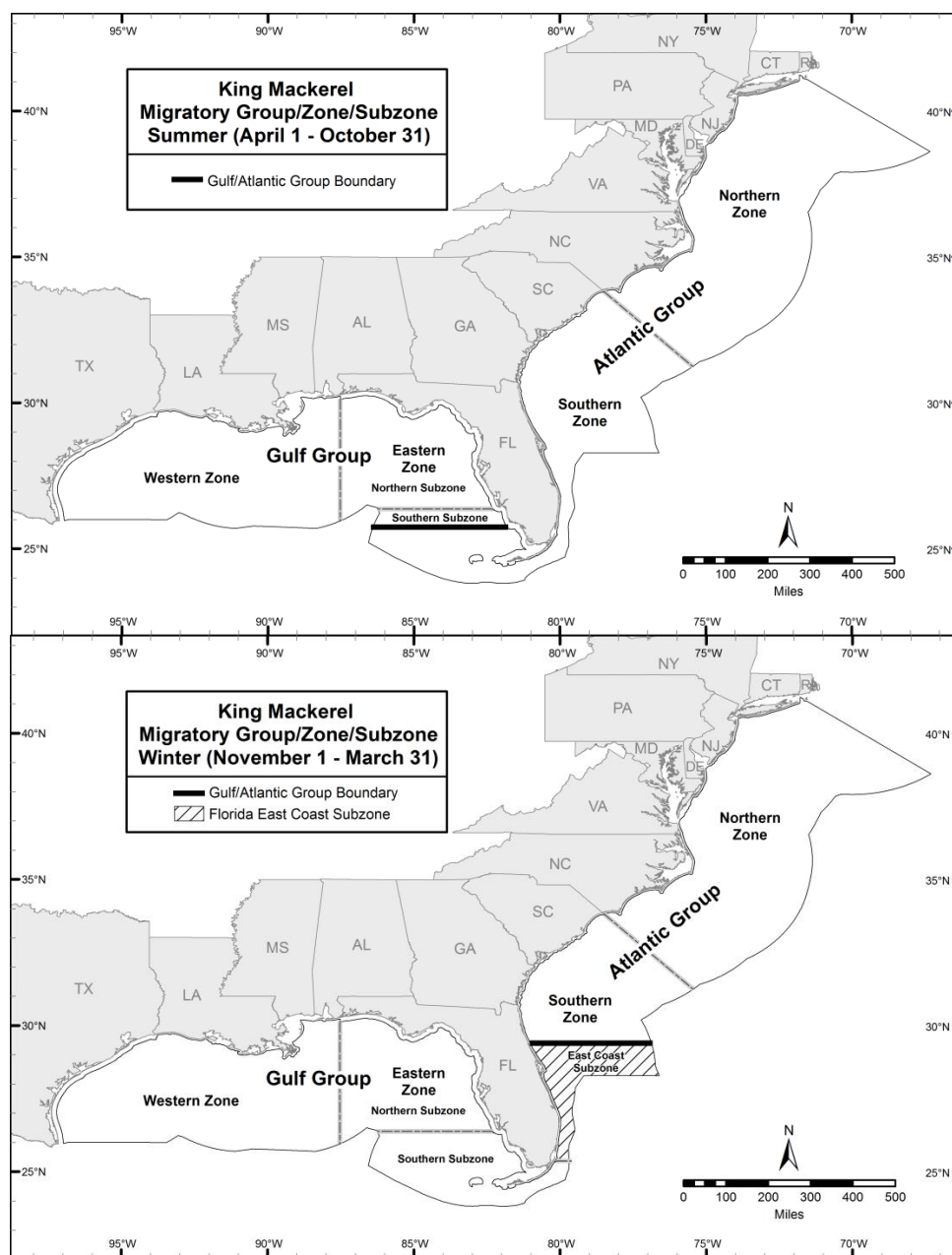
**Amendment 23**, with EA, implemented in August 2014, was part of the joint Gulf/ South Atlantic Dealer Amendment, and requires CMP fishermen to sell to a federally permitted dealer, along with weekly electronic reporting requirements for federal dealers.

**South Atlantic CMP Framework Action 2013** with EA, implemented in December 2014, modified king mackerel trip limits in the Florida East Coast subzone.

## CHAPTER 2. MANAGEMENT ALTERNATIVES

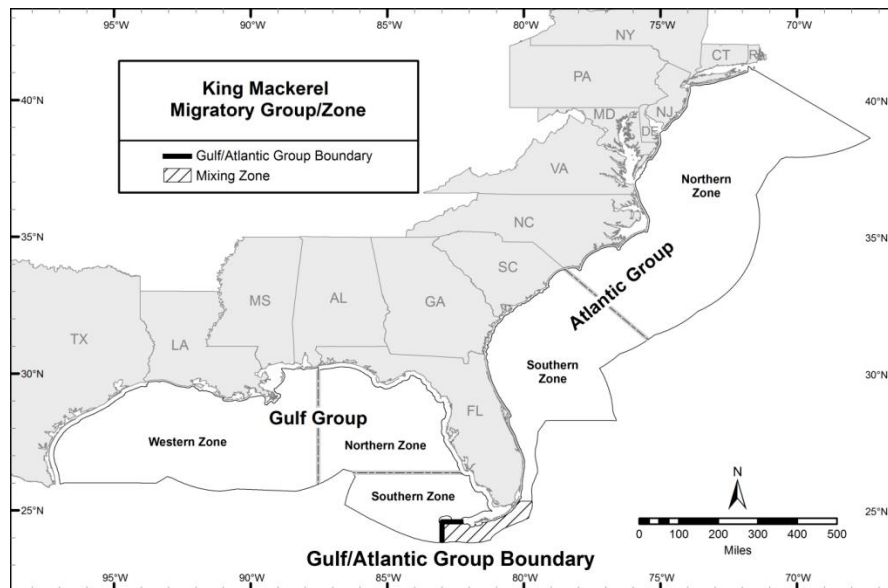
### 2.1 Action 1 – Adjust the Management Boundary for Gulf and Atlantic Migratory Groups of King Mackerel

**Alternative 1:** No action - Maintain the current shifting management boundary between the Gulf and Atlantic migratory groups of king mackerel (**Figure 2.1.1**).



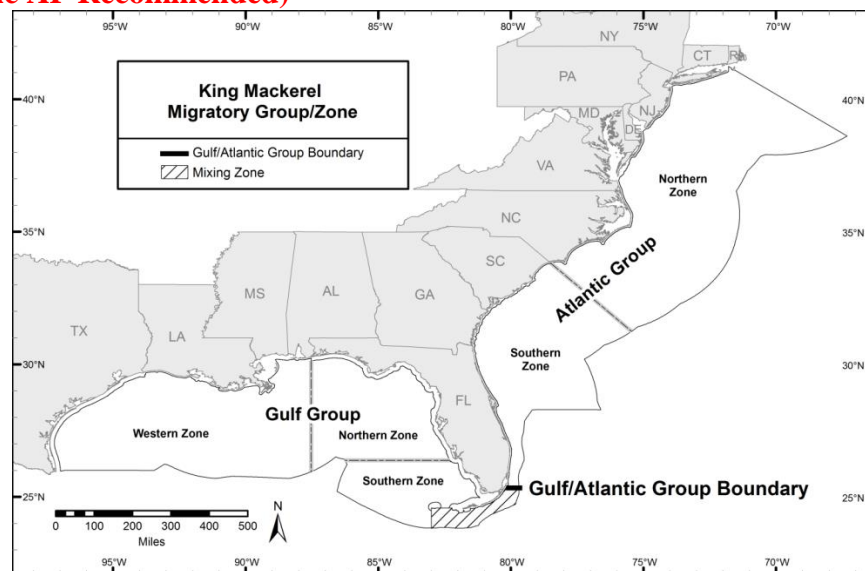
**Figure 2.1.1. Alternative 1:** Seasonal management boundaries for Atlantic and Gulf migratory groups of king mackerel.

**Alternative 2:** Establish a single year-round boundary for separating management of the Gulf and Atlantic migratory groups of king mackerel at the Gulf/South Atlantic Council boundary (Figure 2.1.2). The South Atlantic Council would be responsible for management measures in the mixing zone.



**Figure 2.1.2. Alternative 2:** Proposed management boundary for Atlantic and Gulf migratory groups of king mackerel.

**Alternative 3:** Establish a single year-round boundary for separating the Gulf and Atlantic migratory groups of king mackerel at the Miami-Dade/Monroe county line (Figure 2.1.3). The Gulf Council would be responsible for management measures in the mixing zone. **(Gulf and South Atlantic AP Recommended)**

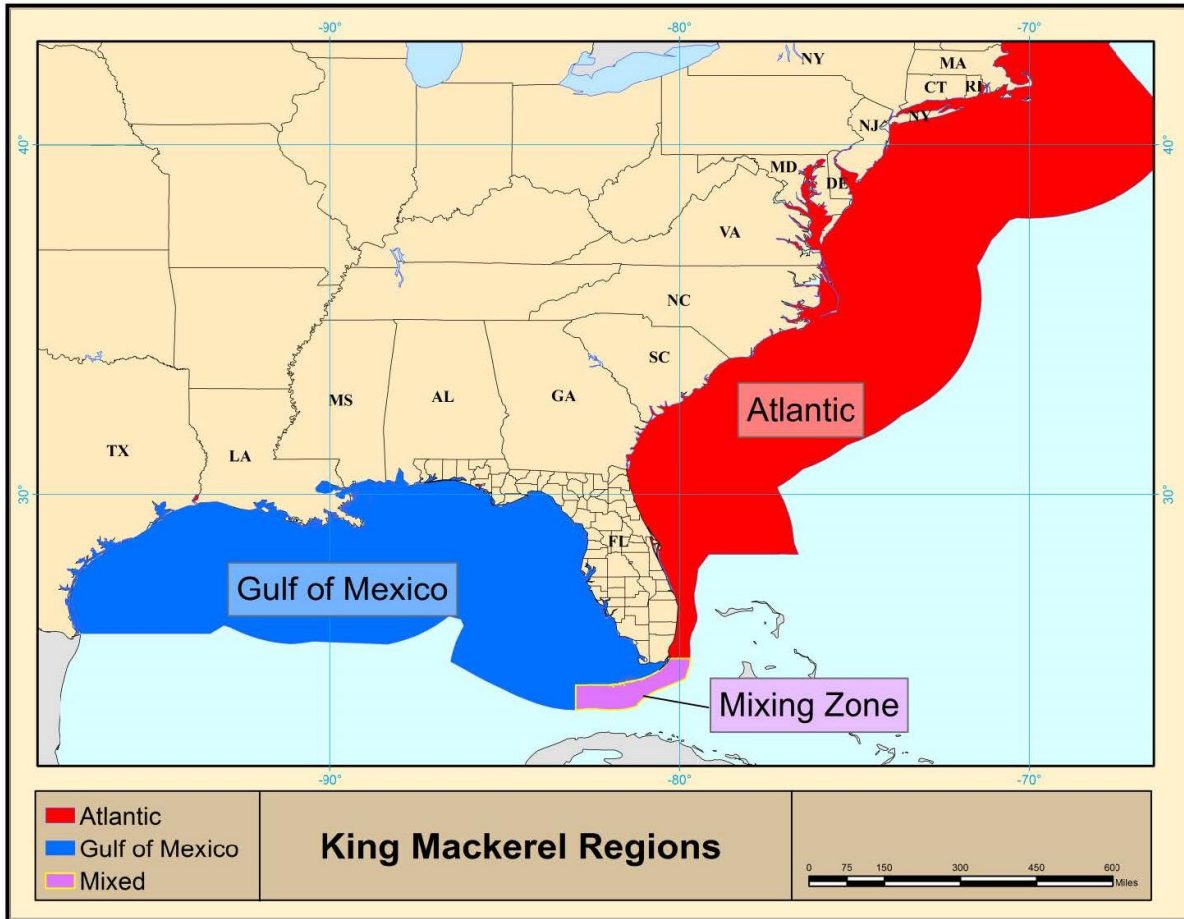


**Figure 2.1.3. Alternative 3:** Proposed management boundary for Atlantic and Gulf groups of king mackerel.

## **Discussion:**

Separate Gulf of Mexico (Gulf) and Atlantic migratory groups of king mackerel were first recognized in Amendment 1 to the Fishery Management Plan (FMP) for Coastal Migratory Pelagic Resources (CMP) in the Gulf of Mexico and Atlantic Region (GMFMC/SAFMC 1985). The shifting management boundary was established to account for winter mixing between the two migratory groups. The mixing zone designation was supported at the time by tag-recapture data. Amendment 7 to the CMP FMP (GMFMC/SAFMC 1994) established a separate quota for the mixing zone, then called the North Area of the Gulf migratory group, and CMP Amendment 8 (GMFMC/SAFMC 1996) provided the South Atlantic Fishery Management Council (South Atlantic Council) with authority to set management measures for Gulf migratory group king mackerel in that area. The Gulf of Mexico Fishery Management Council (Gulf Council) established the current Gulf migratory group zones and subzones in CMP Amendment 9 (GMFMC/SAFMC 2000). The East Coast Subzone was designed to encompass the area believed to be the mixing zone.

In 2014, a stock assessment was completed for Gulf and Atlantic migratory group king mackerel (SEDAR 38 2014). Based on tagging, population demographics, population genetics, and otolith shape and chemistry, plus the temporal progression of king mackerel recreational landings along the east coast of Florida, the assessment scientists determined that the mixing zone was substantially smaller than originally thought. The mixing zone is now considered to be only the portion of the exclusive economic zone (EEZ) off Monroe County, Florida, south of the Florida Keys (Keys). This area is demarcated in the west by a line west from Key West to the Dry Tortugas at 24°35' North latitude, then south at 83° West longitude from the Dry Tortugas (the Gulf of Mexico/South Atlantic Fishery Management Council boundary) to the shelf edge. The area is demarcated in the east by a line east from the Miami-Dade/Monroe county line at 25°20'24" North latitude to the shelf edge (Figure 2.1.4).



**Figure 2.1.4.** Areas of Gulf and Atlantic migratory king mackerel and the mixing zone as defined by SEDAR 38.

**Alternative 1** would maintain the current shifting management boundary. From April 1 through October 31, the boundary is at the Collier/Monroe county line and all king mackerel along the east coast of Florida and the Keys are considered to be part of the Atlantic migratory group. Beginning November 1 through March 31, the boundary shifts to the Volusia/Flagler county line, and all king mackerel from that boundary south are considered to be part of the Gulf migratory group (**Figure 2.1.1**). This is in conflict with the new information from SEDAR 38 that king mackerel off the east coast of Florida to the Dade/Monroe county line are Atlantic migratory group fish year-round. Only the area south of the Keys (in Monroe County) contains 50% Gulf migratory group king mackerel in winter.

**Alternative 2** would establish a year-round (non-shifting) management boundary at the Gulf/South Atlantic Council boundary off the western end of the Keys and Dry Tortugas (**Figure 2.1.2**). This alternative would designate the area of the EEZ north of the Keys in the Gulf Council's jurisdiction and the area of the EEZ south of the Keys in the South Atlantic Council's jurisdiction; therefore, the entire mixing zone would be in the South Atlantic Council's jurisdiction year-round. The current management for the Atlantic Southern Zone (seasons, quotas, trip/bag limits, and accountability measures) would apply to the mixing zone.

Establishing a permanent management boundary would simplify regulations as they would stay the same throughout the region all year; however, splitting management between the Councils in the Keys would create additional complications. In particular, management of the king mackerel gillnet component of the fishery, which primarily occurs west and northwest of Monroe County, would be split between the Councils. This small group of fishermen (21 permits total) would be more efficiently managed as a single group. Further, run-around gillnets are not legal gear for king mackerel in the South Atlantic, so gear regulations would need to be changed to accommodate this component of the fishery. At their March 2015 meeting, the South Atlantic Council acknowledged these issues, and difficulties with enforcement relative to **Alternative 2**.

**Alternative 3 (Gulf and South Atlantic AP Recommended)** would also establish a year-round management boundary, but at the Dade/Monroe County line (**Figure 2.1.3**). This alternative would put the entire EEZ off the Keys in the Gulf Council's jurisdiction as part of the Gulf Southern Zone. Currently, the Keys are part of the Gulf Southern Zone in the winter and management for the gillnet and hook-and-line components is well established; this management could be extended throughout the year without additional action. Also, the management boundary for Spanish mackerel is at the Miami-Dade/Monroe county line, so enforcement would be simplified.

With either **Alternative 2** or **3**, the East Coast Subzone for the Gulf migratory group would no longer exist. That area would be completely within the range of the Atlantic migratory group, and would be managed year-round by the South Atlantic Council. As such, the highlighted language below would be unnecessary and removed from the framework procedure:

*Responsibilities of Each Council:*

1. *Recommendations with respect to the Atlantic migratory groups of king mackerel, Spanish mackerel, and cobia will be the responsibility of the South Atlantic Council, and those for the Gulf migratory groups of king mackerel, Spanish mackerel, and cobia will be the responsibility of the Gulf Council, with the following exceptions: The South Atlantic Council will have responsibility to set vessel trip limits, closed seasons or areas, or gear restrictions for:*
  - a. *The Eastern Zone - East Coast Subzone for Gulf migratory group king mackerel*
  - b. *The east coast of Florida including the Atlantic side of the Florida Keys for Gulf migratory group cobia.*

## 2.2 Action 2 - Update Reference Points (MSY, MSST, MFMT/OFL), and Revise the Annual Catch Limit (ACL) and Recreational Annual Catch Target (ACT) for Atlantic Migratory Group King Mackerel

The South Atlantic Council has determined that the value for MSY is the value of yield at  $F_{MSY}$  from the most recent stock assessment. Currently  $MSY = 10.4$  million pounds (mp) (SEDAR 16). In October 2014, the SSC recommended a proxy for MSY at 30% SPR (spawning potential ratio), which is 12.7 mp.

The South Atlantic Council has determined that the value for MSST is the value from the most recent stock assessment. Currently  $MSST = 1,827.5$  million hydrated eggs (SEDAR 16). Based on the SEDAR 38 assessment,  $MSST = 1,991$  million hydrated eggs. The South Atlantic Council has determined that the value for MFMT is the value of  $F_{MSY}$  or proxy from the most recent stock assessment. Currently  $MFMT = F_{MSY} = F_{30\%SPR} = 0.256$  (SEDAR 16). Based on the SEDAR 38 assessment,  $MFMT = F_{MSY} = F_{30\%SPR} = 0.157$ .

**Table 2.2.1.** Recommendations from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel.

Criteria	Deterministic
Overfished evaluation	No, $SSB/SSB_{30\%SPR} = 1.86$
Overfishing evaluation	No, $F/F_{30\%SPR} = 0.17$
MFMT	$F_{30\%SPR} = 0.157$
$SSB_{30\%SPR}$ (unit)	2,372 million eggs
MSST (unit)	1,991 million eggs
MSY (1000 lb)	12.7 mp
Y at 75% $F_{30\%SPR}$ (1000 lb)	Not recommended
ABC Control Rule Adjustment	17.5%
P-Star	32.5%
OFL (1000 lb)	See Table 2

The SSC provided the following OFLs at their October 2014 meeting (**Table 2.2.2**).

**Table 2.2.2.** Recommendation for OFL from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel.

Fishing year	OFL (million pounds whole weight)
2016/17	19.8
2017/18	18.3
2018/19	16.7
2019/20	15.2



## 2.2.1 Action 2-1 – Revise the Acceptable Biological Catch (ABC) for Atlantic Migratory Group King Mackerel

**Alternative 1:** No action - Retain the current ABC for Atlantic Migratory Group King Mackerel (10.46 mp).

**Alternative 2:** Revise the ABC for Atlantic Migratory Group King Mackerel for 2016/17 through 2019/20 based on the ABC levels recommended by the SSC for ABC under a high recruitment scenario. **(South Atlantic AP Recommended)**

**Alternative 3:** Revise the ABC for Atlantic Migratory Group King Mackerel for 2016/17 through 2019/20 based on the ABC levels recommended by the SSC for ABC under a medium recruitment scenario.

**Alternative 4:** Revise the ABC for Atlantic Migratory Group King Mackerel for 2016/17 through 2019/20 based on the ABC levels recommended by the SSC for ABC under a low recruitment scenario.

**Table 2.2.3.** Recommendations from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel. ABC recommendations are in the shaded columns.

P star= 0.325	ABC HIGH	ABC MED	ABC LOW	Buffer between ABC and OFL		
Fishing year	Alt 2	Alt 3	Alt 4	HI	MED	LO
2016/17	17.4	16.5	15.4	12%	16%	22%
2017/18	15.8	14.3	12.9	14%	22%	29%
2018/19	14.1	12.9	11.9	15%	23%	28%
2019/20	12.7	12.1	11.6	17%	21%	24%

### Discussion

Amendment 18 (GMFMC and SAFMC 2011) established ABC control rule for Atlantic group king mackerel, which set the ABC at 10.46 mp. The South Atlantic SSC reviewed the results of SEDAR 38 in October 2014 and provided the following recommendations for the ABC:

*The SSC recommends short-term projections (given the high uncertainty in recruitment, even in the short-term) of no longer than 5-years at  $P^*=50\%$  for OFL and at  $P^*=32.5\%$  for ABC. Further, given the considerable uncertainty associated with recruitment in this assessment, the SSC recommended the Council consider a range of alternative projection scenarios for OFL and ABC:*



*1. Three sets of projections as specified in the paragraph above but with each considering one of the 3 recruitment scenarios described in the assessment report (i.e., high, medium, and low recruitment). The Committee also recommends the Council be provided a summary of the 2013 and, if possible, 2014 SEAMAP juvenile index data to assist in evaluating which recruitment scenario is the most appropriate for projections.*

*2. The SSC recommends the Council use a projection at the long-term, equilibrium yield at  $F_{30\%SPR}$  as the ACL to reduce the risk of overfishing given the high uncertainty in future recruitment.*

*The SSC recommends a review of updated indices and input data sources every 3 years in order to track the progress of the stock and help identify any potential red flags regarding future recruitment or stock biomass.*

*The SSC recommended that the next assessment be conducted as an update, ideally before the end of the 5-year projections.*

**Alternatives 2-4** allows the Councils to consider additional information about recruitment when setting the ABC for Atlantic king mackerel. Public comment during scoping meetings and the South Atlantic Mackerel Advisory Panel (AP) recommended the ABC under the high recruitment scenario (**Alternative 2**). Information on trip data after the cut-off dates for SEDAR 38 suggest recruitment may be more substantial than the SEDAR 38 models indicate. Additionally, there have been no hurricanes in recent years, and fishermen report seeing large numbers of smaller fish. The South Atlantic Mackerel AP also recommended reviewing landings after two years to evaluate if the high recruitment scenario was appropriate.

## 2.2.2 Action 2-2 – Revise ACLs, Commercial Quotas, and Recreational ACT for Atlantic Migratory Group King Mackerel

**Alternative 1:** No action - Retain the ACL and ACT for Atlantic Migratory Group King Mackerel based on the previous ABC. ACL = OY = ABC.

**Alternative 2:** Revise the ACL based on the ABC levels selected under Action 2-1. ACL = OY = ABC. **(South Atlantic AP Recommended)**

**Table 2.2.4.** Possible outcomes under **Alternative 2** based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%. The Northern Zone quota will be 23.04% and the Southern Zone quota allocation is 79.96% (see Appendix F for details on how the Northern and Southern Zone quota allocations were recalculated using the SEDAR 38 boundary). ACT values are calculated based on formula from CMP Amendment 18 using the average PSE from 2005-2009.

ACL = ABC HIGH Recruitment Scenario <b>Action 2-1, Alt 2</b>						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	17.4 mp	6.5 mp	1,497,600	5,197,400	10.9 mp	10.1 mp
2017/18	15.8 mp	5.9 mp	1,359,360	4,717,640	9.9 mp	9.2 mp
2018/19	14.1 mp	5.2 mp	1,198,080	4,157,920	8.9 mp	8.3 mp
2019/20	12.7 mp	4.7 mp	1,082,880	3,758,120	8.0 mp	7.4 mp
ACL = ABC MEDIUM Recruitment Scenario <b>Action 2-1, Alt 3</b>						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	16.5 mp	6.1 mp	1,405,440	4,877,560	10.4 mp	9.7 mp
2017/18	14.3 mp	5.3 mp	1,221,120	4,237,880	9.0 mp	8.4 mp
2018/19	12.9 mp	4.8 mp	1,105,920	3,838,080	8.1 mp	7.5 mp
2019/20	12.1 mp	4.5 mp	1,036,800	3,598,200	7.6 mp	7.1 mp
Table 2.2.4 continued on the next page						

Table 2.2.4 continued						
ACL = ABC LOW Recruitment Scenario <b>Action 2-1, Alt 4</b>						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	15.4 mp	5.7 mp	1,313,280	4,557,720	9.7 mp	9.0 mp
2017/18	12.9 mp	4.8 mp	1,105,920	3,838,080	8.1 mp	7.5 mp
2018/19	11.9 mp	4.4 mp	1,013,760	3,518,240	7.5 mp	7.0 mp
2019/20	11.6 mp	4.3 mp	990,720	3,438,280	7.3 mp	6.8 mp

**Alternative 3:** Establish ACL = OY = Deterministic equilibrium yield at  $F_{30\%SPR} = 12.7$  mp for fishing years 2016/17 through 2019/20. **(Recommended by the South Atlantic SSC)**

Alternative 3	
<b>Atlantic King Mackerel ACL</b>	12.7 mp
Commercial ACL	4.7 mp
Northern Zone Quota	1,082,880 lbs
Southern Zone Quota	3,758,120 lbs
Recreational ACL	8.0 mp
Recreational ACT*	7.4 mp

\*ACT value calculated based on formula from CMP Amendment 18, using the average PSE from 2005-2009.

**Alternative 4:** Establish ACL = OY = Deterministic equilibrium yield at 75%  $F_{30\%SPR} = 11.6$  mp for fishing years 2016/17 through 2019/20.

*Note: 75% of  $F_{MSY}$  (which is the same as 75%  $F_{30\%SPR}$  because 30% SPR is the proxy for  $MSY$ ) is usually in the terms of reference (TORs) of all assessments. 75%  $F_{MSY}$  was the old OY, as yield at the long term  $F_{MSY}$  ( $MSY$ ) was the old OFL. It is still part of the TORs in case the South Atlantic Council wants to choose that strategy to have stable catches rather than following the  $P^*$  recommendation and have changing catch levels each year.*

Alternative 4	
<b>Atlantic King Mackerel ACL</b>	11.6 mp
Commercial ACL	4.3 mp
Northern Zone Quota	990,720 lbs
Southern Zone Quota	3,438,280 lbs
Recreational ACL	7.3 mp
Recreational ACT*	6.8 mp

\*ACT value calculated based on formula from CMP Amendment 18, using the average PSE from 2005-2009.

**Alternative 5:** Establish ACL = OY = 90% ABC based on the ABC levels selected under Action 2-1.

**Table 2.2.5.** Possible outcomes under **Alternative 5** based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%. The Northern Zone quota will be 23.04% and the Southern Zone quota allocation is 79.96% (see Appendix F for details on how the Northern and Southern Zone quota allocations were recalculated using the SEDAR 38 boundary). ACT values are calculated based on formula from CMP Amendment 18 using the average PSE from 2005-2009.

ACL = 90% ABC HIGH Recruitment Scenario Action 2-1, Alt 2						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	15.7 mp	5.8 mp	1,336,320	4,637,680	9.9 mp	9.2 mp
2017/18	14.2 mp	5.3 mp	1,221,120	4,237,880	8.9 mp	8.3 mp
2018/19	12.7 mp	4.7 mp	1,082,880	3,758,120	8.0 mp	7.4 mp
2019/20	11.4 mp	4.2 mp	967,680	3,358,320	7.2 mp	6.7 mp
ACL = 90% ABC MEDIUM Recruitment Scenario Action 2-1, Alt 3						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	14.9 mp	5.5 mp	1,267,200	4,397,800	9.4 mp	8.7 mp
2017/18	12.9 mp	4.8 mp	1,105,920	3,838,080	8.1 mp	7.5 mp
2018/19	11.6 mp	4.3 mp	990,720	3,438,280	7.3 mp	6.8 mp
2019/20	10.9 mp	4.0 mp	921,600	3,198,400	6.9 mp	6.4 mp
ACL = 90% ABC LOW Recruitment Scenario Action 2-1, Alt 4						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	13.9 mp	5.2 mp	1,198,080	4,157,920	8.7 mp	8.1 mp
2017/18	11.6 mp	4.3 mp	990,720	3,438,280	7.3 mp	6.8 mp
2018/19	10.7 mp	4 mp	921,600	3,198,400	6.7 mp	6.2 mp
2019/20	10.4 mp	3.9 mp	898,560	3,118,440	6.5 mp	6.0 mp

**Alternative 6:** Establish ACL = OY = 80% ABC based on the ABC levels selected under Action 2-1.

**Table 2.2.6.** Possible outcomes under **Alternative 6** based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%. The Northern Zone quota will be 23.04% and the Southern Zone quota allocation is 79.96% (see Appendix A for details on how the Northern and Southern Zone quota allocations were recalculated using the SEDAR 38 boundary). ACT values are calculated based on formula from CMP Amendment 18 using the average PSE from 2005-2009.

ACL = 80% ABC HIGH Recruitment Scenario Action 2-1, Alt 2						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	13.9 mp	5.2 mp	1,198,080	4,157,920	8.7 mp	8.1 mp
2017/18	12.6 mp	4.7 mp	1,082,880	3,758,120	7.9 mp	7.3 mp
2018/19	11.3 mp	4.2 mp	967,680	3,358,320	7.1 mp	6.6 mp
2019/20	10.3 mp	3.8 mp	875,520	3,038,480	6.5 mp	6.0 mp
ACL = 80% ABC MEDIUM Recruitment Scenario Action 2-1, Alt 3						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	13.2 mp	4.9 mp	1,128,960	3,918,040	8.3 mp	7.7 mp
2017/18	11.4 mp	4.2 mp	967,680	3,358,320	7.2 mp	6.7 mp
2018/19	10.3 mp	3.8 mp	875,520	3,038,480	6.5 mp	6.0 mp
2019/20	9.7 mp	3.6 mp	829,440	2,878,560	6.1 mp	5.7 mp
ACL = 80% ABC LOW Recruitment Scenario Action 2-1, Alt 4						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	12.3 mp	4.6 mp	1,059,840	3,678,160	7.7 mp	7.2 mp
2017/18	10.3 mp	3.8 mp	875,520	3,038,480	6.5 mp	6.0 mp
2018/19	9.5 mp	3.5 mp	806,400	2,798,600	6.0 mp	5.6 mp
2019/20	9.3 mp	3.5 mp	806,400	2,798,600	5.8 mp	5.4 mp

### **Discussion:**

In this action, the Councils may decide to set the ACL for Atlantic king mackerel based on the ABC selected in **Action 2-1** or to set the ACL based on the following recommendation from the South Atlantic SSC:

*2. The SSC recommends the Council use a projection at the long-term, equilibrium yield at  $F_{30\%SPR}$  as the ACL to reduce the risk of overfishing given the high uncertainty in future recruitment.*

**Alternatives 2, 5, and 6** would set the ACL based on the ABC in **Action 2-1**. The ACL would be set equal to the ABC (**Alternative 2**), or at a percentage of the ABC (**Alternatives 5-6**) to provide an additional buffer. **Alternatives 3 and 4** are based on the SSC recommendation to use the long-term equilibrium yield  $F_{30\%SPR}$ , and **Alternative 4** includes an additional buffer by setting the ACL at 75% of the long-term equilibrium yield.

Public input during scoping meetings and the South Atlantic Mackerel AP recommended setting the ACL equal to the high recruitment ABC (**Alternative 2**).

### **Council Conclusions:**

## 2.3 Action 3 – Sale of Incidental Catch of Atlantic Migratory Group King Mackerel Caught in the Shark Drift Gillnet Fishery

**Alternative 1:** No action - Retention and sale of Atlantic migratory group king mackerel caught with drift gillnet as incidental catch in the gillnet portion of the commercial shark fishery remains prohibited.

**Alternative 2:** Allow retention and sale of Atlantic migratory group king mackerel caught with drift gillnet as incidental catch in the gillnet portion of the commercial shark fishery for any vessel with a valid shark directed commercial permit AND valid federal king mackerel commercial permit. The king mackerel must be sold to a dealer with the Southeast federal dealer permit. For shark gillnet trips in the EEZ off Florida, no more than 2 king mackerel per crew member can be on board, and no more than 2 king mackerel per crew member can be sold from the trip. For shark gillnet trips in the EEZ north of the GA/FL line, no more than 3 king mackerel per crew member can be on board, and no more than 3 king mackerel per crew member can be sold from the trip.

**Alternative 3:** Allow retention and sale of Atlantic migratory group king mackerel caught with drift gillnet as incidental catch in the gillnet portion of the commercial shark fishery for any vessel with a valid shark directed commercial permit AND valid federal king mackerel commercial permit. The king mackerel must be sold to a dealer with the Southeast federal dealer permit. For shark gillnet trips in the Southern Zone, no more than 2 king mackerel per crew member can be on board, and no more than 2 king mackerel per crew member can be sold from the trip. For shark gillnet trips in the Northern Zone, no more than 3 king mackerel per crew member can be on board, and no more than 3 king mackerel per crew member can be sold from the trip.

### Discussion:

Prior to CMP Amendment 20A (2014), fishermen with federal commercial shark permits and federal commercial king mackerel permits could sell the bag limit of king mackerel incidentally caught on shark gillnet trips. However, CMP Amendment 20A prohibited bag limit sales of incidentally caught king mackerel in South Atlantic Council jurisdictional waters. Gillnet gear is not an authorized gear type for king mackerel in the South Atlantic, further precluding those incidentally harvested king mackerel from being sold. Under **Alternative 1** (No Action), incidentally harvested king mackerel are currently discarded. Due to the mesh size and the nature of the small coastal shark drift gillnet fishery, most of the king mackerel are already dead when the gillnets are retrieved. The South Atlantic Council is considering a bycatch allowance to retain and sell king mackerel that may be caught incidentally in small coastal shark drift gillnet gear. The South Atlantic and Gulf CMP APs were supportive of allowing small coastal shark drift gillnet fishermen to retain and sell king mackerel caught on shark gillnet trips.

**Alternatives 2 and 3** would establish a bycatch allowance and would allow the retention and sale of Atlantic migratory group king mackerel caught with drift gillnets in the small coastal shark drift gillnet fishery for any vessel that holds both a valid shark directed commercial permit and a valid federal king mackerel commercial permit. Under **Alternatives 2 and 3**, the king mackerel could be sold to a dealer operating with a southeast federal seafood dealer permit.

Under **Alternative 2**, the bycatch allowance would be limited to two king mackerel per crew member to be retained and sold only for trips off Florida. For shark gillnet trips in the EEZ north of the Georgia/Florida state line, no more than three king mackerel per crew member would be allowed to be retained or sold from a trip. This is consistent with current recreational king mackerel bag limits in those areas.

Under **Alternative 3**, the bycatch allowance would be limited to two king mackerel per crew member to be retained and sold only for trips in the Atlantic Southern Zone. For shark gillnet trips in the Atlantic Northern Zone, no more than three king mackerel per crew member would be allowed to be retained or sold from a trip. This would allow consistent regulations within each Zone.



## 2.4 Action 4 - Establish a Florida East Coast Subzone and Commercial Quota

In April 2015, the South Atlantic Mackerel AP recommended the following options for Florida east coast management, which are incorporated into the alternatives in Actions 4-1, 4-2 and 4-3.

### South Atlantic AP recommendations:

The Southern Zone quota would have seasonal allocations. The first season would be March 1 – September 30 and would be allocated 60% of the Southern Zone quota. The second season would be October 1- February 28 and would be allocated 40% of the Southern Zone quota plus any unused quota from the first season. There would be no sub-quota for the FLEC subzone. Quota transfers between the Northern Zone and Southern Zone would still be allowed.

#### *March 1 through September 30*

- The FLEC subzone would be from the Volusia/Brevard county line to the Dade/Monroe county line.
- The commercial trip limit in the FLEC subzone would be 75 fish with a possible step-down to 50 fish on May 1. The step-down could apply for only the month of May or through the summer.
- The commercial trip limit north of the Volusia/Brevard county line could be 3,500 lbs.

#### *October 1 through February 28/29*

- The FLEC subzone would be from the Flagler/Volusia county line to the Dade/Monroe county line.
- The commercial trip limit in the FLEC subzone would be 50 fish with a possible increase to 75% if X% of the quota has not been met by [date].
- The commercial trip limit north of the Flagler/Volusia county line could be 3,500 lbs.

### 2.4.1 Action 4-1. Establish a Florida East Coast Subzone for Atlantic Migratory Group King Mackerel

**Alternative 1:** No action - Do not establish a Florida East Coast Subzone.

**Alternative 2:** Establish a Florida East Coast Subzone that exists year-round with boundaries at:

- Option a:** Flagler/Volusia county line and Dade/Monroe county line (**Figure 2.4.1.**)
- Option b:** Volusia/Brevard county line and Dade/Monroe county line (**Figure 2.4.2.**)
- Option c:** Volusia/Brevard county line and the Council jurisdictional boundary (as designated Action 1) (**Figures 2.4.2. and 2.4.3.**)

**Alternative 3:** Establish a Florida East Coast Subzone that exists March 1 through September 30 with boundaries at:

- Option a:** Flagler/Volusia county line and Dade/Monroe county line (**Figure 2.4.1.**)
- Option b:** Volusia/Brevard county line and Dade/Monroe county line (**Figure 2.4.2.**) (**South Atlantic AP Recommended**)
- Option c:** Volusia/Brevard county line and the Council jurisdictional boundary (as designated in Action 1) (**Figures 2.4.2. and 2.4.3.**)

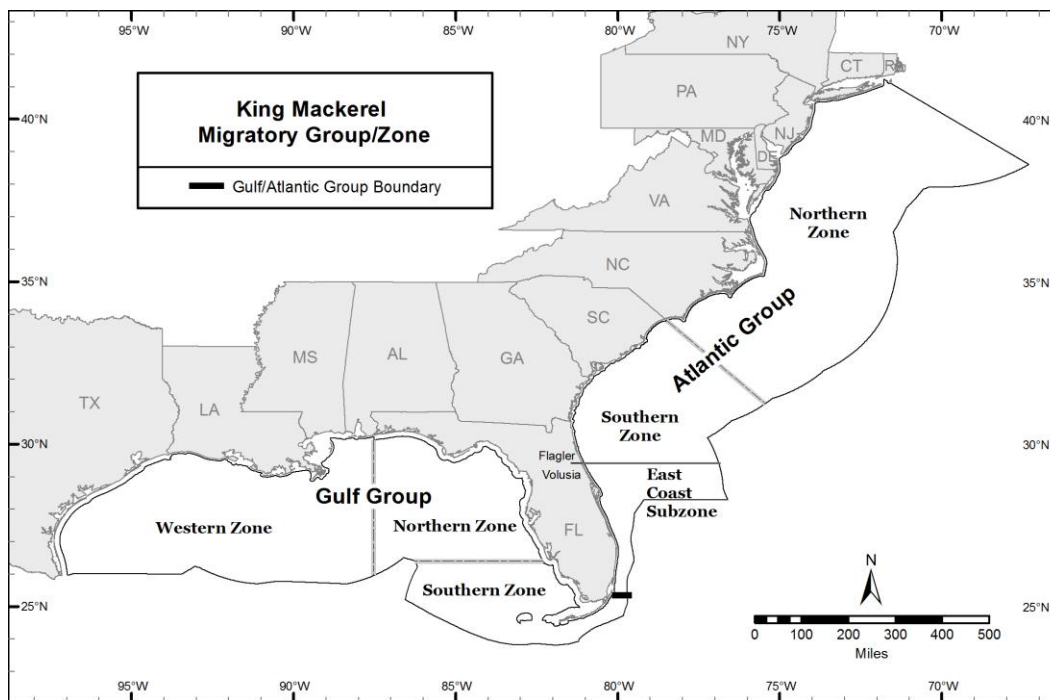
**Alternative 4:** Establish a Florida East Coast Subzone that exists October 1 through end of February with boundaries at:

**Option a:** Flagler/Volusia county line and Dade/Monroe county line (**Figure 2.4.1.**)

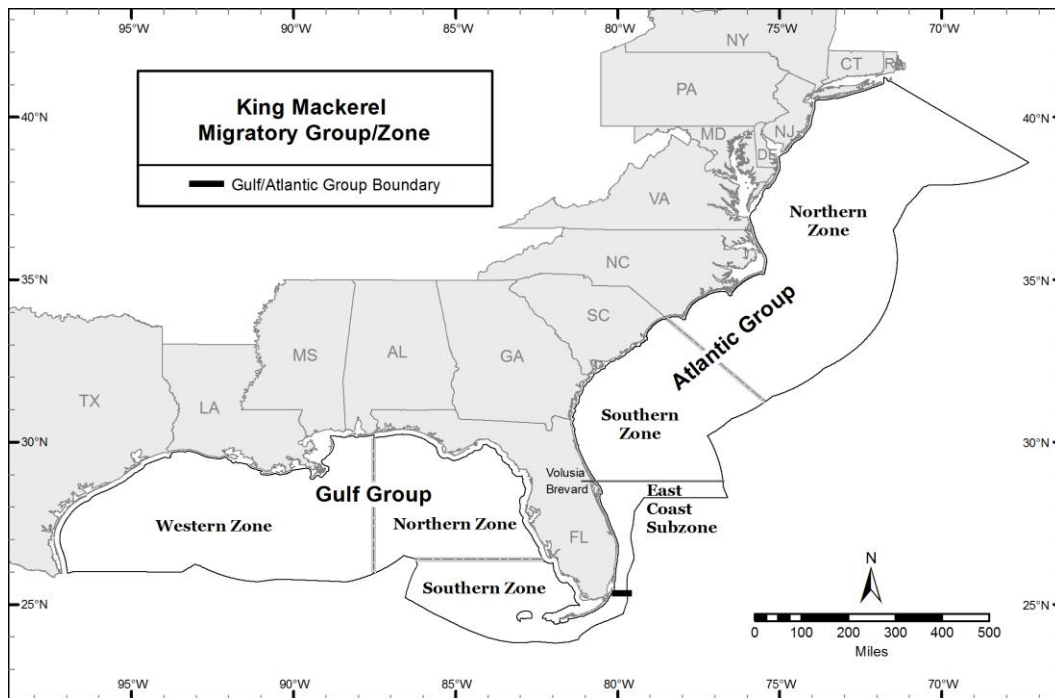
**(South Atlantic AP Recommended)**

**Option b:** Volusia/Brevard county line and Dade/Monroe county line (**Figure 2.4.2.**)

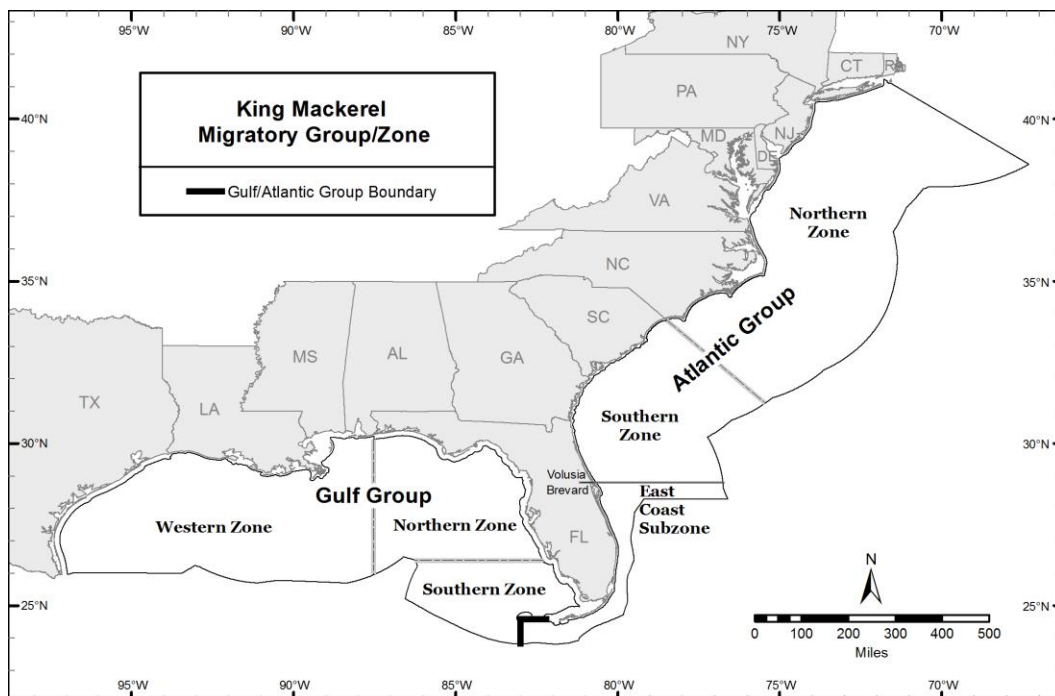
**Option c:** Volusia/Brevard county line and the Council jurisdictional boundary (as designated in Action 1) (**Figures 2.4.2. and 2.4.3.**)



**Figure 2.4.1.** Boundaries for the Florida East Coast Subzone under **Options 2a, 3a, and 4a** (Flagler/Volusia county line and Dade/Monroe county line)



**Figure 2.4.2.** Boundaries for the Florida East Coast Subzone under **Options 2b, 3b, and 4b**; or under **Options 2c, 3c, and 4c** if **Action 1/Alternative 3** is selected (Volusia/Brevard county line and Dade/Monroe county line).



**Figure 2.4.3.** Boundaries for the Florida East Coast Subzone under **Options 2c, 3c, and 4c** or if **Action 1/Alternative 2** is selected (Volusia/Brevard county line and Gulf/South Atlantic Council boundary).

## **2.4.2 Action 4-2. Allocate Quota within the Atlantic Southern Zone for Atlantic Migratory Group King Mackerel**

**Alternative 1:** No action - Do not allocate quota among areas or seasons.

**Alternative 2:** Allocate a proportion of the Southern Zone quota to the Florida East Coast (FLEC) Subzone. Commercial harvest of king mackerel in the area designated as the FLEC Subzone in Action 4-1 will be counted towards the FLEC Subzone sub-quota. When the sub-quota for the season is met or expected to be met, commercial harvest of king mackerel in the FLEC Subzone will be prohibited for the remainder of the fishing year for the FLEC Subzone.

**Option 2a:** Use historic landings in the Southern Zone from the 2009/10 through the 2013/14 fishing seasons (last five years) to calculate the FLEC Subzone quota.

*Expected Allocation to FLEC: 93% FLEC Subzone*

**Option 2b:** Use historic landings in the Southern Zone from the 2004/05 through the 2013/14 fishing seasons (last ten years) to calculate the FLEC Subzone quota.

*Expected: 92.3% FLEC Subzone*

**Option 2c:** Use historic landings in the Southern Zone from the 1999/00 through the 2013/14 fishing seasons (last fifteen years) to calculate the FLEC Subzone quota.

*Expected: 90.5% FLEC Subzone*

**Alternative 3:** Allocate quota for the Southern Zone Atlantic Migratory Group King Mackerel using split fishing seasons, in which 60% of the Southern Zone quota will be allocated to March 1- September 30 and 40% of the Southern Zone quota would be allocated October 1- end of February. When the Southern Zone quota for the season is met or expected to be met, commercial harvest of king mackerel in the Southern Zone will be prohibited for the remainder of the season. **(South Atlantic AP Recommended)**

### 2.4.3 Action 4-3. Establish Trip Limits for the Florida East Coast Subzone for Atlantic Migratory Group King Mackerel

*Note: Action 4-3 will only apply if a Florida East Coast Subzone is created in Action 4-1.*

**Alternative 1:** No action - Do not establish trip limits for the Florida East Coast Subzone for Atlantic Migratory Group King Mackerel. The trip limit will remain: from April 1 through October 31

In the area between the Flagler/ Volusia county line and the Volusia/Brevard county line, the trip limit is 3,500 lbs from April 1 through October 31.

In the area from the Volusia/Brevard county line to the Miami-Dade/Monroe county line, the trip limit is 75 fish. ;

From November 1 through March 31, no trip limit is in place for Atlantic migratory group king mackerel.

**Alternative 2:** The commercial trip limit in the FLEC Subzone as established in Action 4-1 is 75 fish. The commercial trip limit north of the FLEC Subzone northern boundary is 3,500 lbs.

**Alternative 3:** The commercial trip limit in the Florida East Coast (FLEC) Subzone as established in Action 4-1 is 75 fish with a step-down to 50 fish. The commercial trip limit north of the Florida East Coast Subzone northern boundary is 3,500 lbs.

**Option 3a:** The step-down applies for only the month of May.

**Option 3b:** The step-down applies from May-August.

**Option 3c:** The step-down applies from April 15- May 15.

**Alternative 4:** The commercial trip limit in the FLEC Subzone as established in Action 4-1 in summer is 75 fish and in winter) is 50 fish.

**Option 4a.** Beginning on February 1 and continuing through the end of February--

(1) If 70 % or more of the quota or sub-quota has been taken the trip limit is 50 fish.

(2) If less than 70 % of the quota or sub-quota has been taken the trip limit is 75 fish.

**Option 4b.** Beginning on January 1 and continuing through the end of February--

(1) If 70 % or more of the quota or sub-quota has been taken the trip limit is 50 fish.

(2) If less than 70 % of the quota or sub-quota has been taken the trip limit is 75 fish.

**Option 4c.** Beginning on February 1 and continuing through the end of February--

(1) If 80 % or more of the quota or sub-quota has been taken the trip limit is 50 fish.

(2) If less than 80 % of the quota or sub-quota has been taken the trip limit is 75 fish.

## **Discussion:**

Actions 4-1, 4-2, and 4-3 will be constrained by the Councils' decisions on Action 1 and would only be relevant if the Councils choose one of the action alternatives in Action 1. Actions 4-1, 4-2, and 4-3 would establish a Florida East Coast Subzone, provide alternatives for the subzone boundaries, and determine split seasons and trip limits for this proposed subzone. Actions 4-2 and 4-3 will be constrained by the Councils' decisions in Action 4-1.

Currently the Florida East Coast (FLEC) Subzone is included in the Gulf migratory group king mackerel commercial management zones, and any king mackerel taken from this area counts against the Gulf of Mexico commercial ACL. However, because of the new stock and management boundaries recommended in the stock assessment results (SEDAR 38 2014), the Councils are considering establishing a FLEC subzone for Atlantic king mackerel which would include this area while the respective landings would count against the Atlantic migratory group king mackerel ACL.

The present FLEC Subzone is split between two seasons and separated by different county lines and different trip limits, and commercial sub-quotas. From November 1 - March 31, the FLEC Subzone extends from the Flagler/Volusia county line to the Dade/Monroe county line and has a commercial sub-quota of the Gulf Commercial ACL (1,102,896 lbs).

Gulf FLEC Sub-zone trip limits run from April 1 - October 31, and change based on county. The trip limit is 3,500 lbs for Volusia County, 75 fish from Volusia/Brevard county line to Dade/Monroe county line, and a 1,250-lb trip limit from the Dade/Monroe county line to the Council jurisdictional boundary. During this time, commercial harvest is counted under the Atlantic Southern Zone king mackerel quota. The current commercial trip limit north of the Flagler/Volusia county line is 3,500 lbs year round which is also counted towards the Atlantic Southern Zone quota.

Under Action 4-1, **Alternative 1** (No action), the Atlantic FLEC Subzone would not be established and the FLEC Subzone would continue to be included within the Gulf Council's king mackerel management system. Action 4-1 provides alternatives to the boundaries of the FLEC Subzone.

At the South Atlantic CMP AP meeting, South Atlantic Council staff provided possible actions and alternatives for management in the FLEC Subzone including boundaries, when the subzone exists (year-round or during a sub-season), sub-quota, and trip limits. The AP members recommended a seasonal allocation of the Southern Zone quota with 60% of the quota allocated for March 1 – September 30 and 40% allocated for October 1- the end of February. Any unused quota from the first season would carry over to the second season. Quota transfers between the Atlantic Northern Zone and Atlantic Southern Zone would still be allowed. The South Atlantic CMP AP recommended that during March 1 - September 30, the FLEC Subzone would extend from the Volusia/Brevard county line to the Dade/Monroe county line and the commercial trip limit would be 75 fish with a possible step-down to 50 fish on May 1. The step-down could apply for only the month of May or throughout the summer months. The South Atlantic CMP AP recommended that the commercial trip limit north of the Volusia/Brevard county line remain at 3,500 lbs. From October 1 – the end of February, the South Atlantic CMP AP recommended

that the FLEC Subzone boundaries be from the Flagler/Volusia county line to the Dade/Monroe county line. The South Atlantic CMP AP recommended a commercial trip limit in the FLEC subzone of 50 fish with a possible increase to 75 fish if a certain percentage of the quota had not been met by a specified date. During this time period, the commercial trip limit north of the Flagler/Volusia county line would be 3,500 lbs.

The South Atlantic CMP AP also suggested exploring the trip limit for the FLEC Subzone in pounds, as well as in numbers of fish.



## 2.5 Action 5: Modify the ACL for Gulf Migratory Group King Mackerel

**Alternative 1:** No action – Do not modify the ACL for Gulf migratory group king mackerel. The ACL of 10.8 million pounds will remain.

**Alternative 2:** Set the Gulf migratory group king mackerel ACL equal to the ABC recommended by the Gulf Scientific and Statistical Committee for 2015-2019. ABC values are in millions of pounds, whole weight:

Year	ABC (mp ww)
2015	9.62
2016	9.21
2017	8.88
2018	8.71
2019	8.55

**Alternative 3:** Establish a constant catch scenario for the Gulf migratory group king mackerel ACL for one of the following time periods. The ACL during the selected time period may not exceed the ABC recommended by the Gulf SSC for any year during the selected time period.

**Option a:** A three-year period (2015-2017)

**Option b:** A five-year period (2015-2019)

### **Discussion:**

SEDAR 38 (2014) was completed in August 2014 and included assessments for Gulf and Atlantic king mackerel. The Gulf SSC reviewed the Gulf migratory group king mackerel stock assessment during its January 2015 meeting, and accepted the assessment for management advice. The assessment used fishery-independent and fishery-dependent indices of abundance spanning from 1930 to 2012. The spawning stock biomass at MSY ( $SSB_{MSY}$ ) is approximately 1120 metric tons (mt), and the current spawning stock biomass ( $SSB_{2012}$ ) is 2353 mt. Since the Gulf migratory group of king mackerel is not thought to be either overfished ( $SSB_{2012}/SSB_{MSY} = 2.1$ ) or experiencing overfishing ( $F_{2012}/F_{MSY} = 0.507$ ), the Gulf SSC recommended a  $P^*$  value of 0.50 for the OFL at  $F_{30\%SPR}$ , and a  $P^*$  value of 0.43 for the ABC, based on the uncertainty characterized in the model. The Gulf SSC then recommended the following OFL and ABC values in millions of pounds (mp) whole weight (ww):



**Table 2.5.1.** Gulf SSC recommendations for acceptable biological catch for Gulf migratory group king mackerel, using data resultant from SEDAR 38 (2014). OFL and ABC values are in millions of pounds (mp) whole weight (ww).

<b>Gulf SSC OFL/ABC Recommendations: Gulf Migratory Group King Mackerel</b>		
<b>Year</b>	<b>OFL</b>	<b>ABC</b>
	<i>P* = 0.50</i>	<i>P* = 0.43</i>
<b>2015</b>	10.11	9.62
<b>2016</b>	9.61	9.21
<b>2017</b>	9.27	8.88
<b>2018</b>	9.11	8.71
<b>2019</b>	8.95	8.55

The Gulf Council may consider setting the Gulf king mackerel ACL at the same level as the ABC recommended by the SSC in Table 2.5.1 above (**Alternative 2**). Such an approach was used in CMP Amendment 18 (2011), when the Gulf migratory group of king mackerel was determined to be healthy (SEDAR 16 2008). Alternatively, the Council may consider a constant catch scenario for the ACL (**Alternative 3**), whereby the ACL would be set to some level below the ABC for a predetermined time period (**Option a** or **b**). An important caveat is that the ACL cannot exceed the ABC recommendation from the Gulf SSC for any year in the time period selected.

It is important to remember that the area attributed to the Gulf migratory group of king mackerel is thought to be smaller than previously described in past stock assessments (see Action 1). Even though the OFL and ABC projections are lower than the current ACL, the amount of area for which the *new* OFL and ABC recommendations applies is in fact smaller than the area for which the *old* ACL applies.

### **Council Conclusions:**

## 2.6 Action 6. Revise the Commercial Zone Quotas for Gulf Migratory Group King Mackerel

**Alternative 1:** No action – Maintain the current commercial zone quotas for Gulf migratory group king mackerel (Western Zone: 31%; Northern Zone: 5.17%; Southern Zone Handline: 15.96%; Southern Zone Gillnet: 15.96%; Florida East Coast Zone: 31.91%).

**Alternative 2:** Revise the commercial zone quotas for Gulf migratory group king mackerel by dividing the Florida East Coast Zone’s quota into four equal parts, to be added to each of the remaining Gulf commercial zones.

**Alternative 3:** Revise the commercial zone quotas for Gulf migratory group king mackerel by dividing each individual zone’s quota percentage by the sum of the quota percentages for all Gulf commercial zones *except* the Florida East Coast Zone, with each resultant percentage becoming that respective zone’s new commercial quota.

**Alternative 4:** Revise the commercial zone quotas for Gulf migratory group king mackerel as follows: 40% for the Western Zone; 18% for the Northern Zone; 21% for the Southern Zone Handline component; and 21% for the Southern Zone Gillnet component. **(Gulf CMP AP Recommended)**

### Discussion:

In keeping with the aforementioned changes in the stock boundaries identified in SEDAR 38 (2014), the Gulf Council will need to reallocate the commercial ACL amongst the three remaining fishing zones in the Gulf (Western Zone, Northern Zone, and Southern Zone). The current allocations are shown in Table 2.6.1 below.

**Table 2.6.1.** Commercial fishing zone allocations for Gulf migratory group king mackerel.

<b>Gulf King Mackerel: Commercial Zone Allocations</b>	
<b>Zone</b>	<b>Percent of Comm Allocation</b>
Western	31%
Northern	5.17%
Southern: Handline	15.96%
Southern: Gillnet	15.96%
FL East Coast	31.91%

The Florida East Coast Zone would be integrated into the proposed Atlantic Southern Zone (CMP Amendment 20B) if the change to the stock boundary is adopted by the Councils. This integration would result in an imbalance in the distribution of quota for the Gulf commercial sector of the king mackerel fishery (i.e., the remaining commercial zone allocations would not

sum to 100%), and thus necessitates reallocation. Options for reallocation might include equal (**Alternative 2**), proportional (**Alternative 3**), or some other distribution (**Alternative 4**) of the 31.91% void, as demonstrated in Table 2.6.2. Each of the presented reallocation options would result in additional fish for each of the Gulf commercial zones.

**Table 2.6.2.** Options for redistribution of commercial zone allocation for Gulf migratory group king mackerel.

Zone	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Western	31%	38.98%	45.53%	40%
Northern	5.17%	13.15%	7.61%	18%
Southern: H/L	15.96%	23.93%	23.43%	21%
Southern: Gillnet	15.96%	23.93%	23.43%	21%
FL East Coast	31.91%			

**Alternative 4 (Gulf CMP AP Preferred)** has been proposed by the Gulf Council’s CMP AP. The AP noted the low current commercial allocation for the Northern Zone (5.17%, **Alternative 1**, Table 2.6.2), and the new season opening date for that zone (October 1, CMP Amendment 20A). The AP determined that increasing the quota for the Northern Zone would allow permit holders in that region who have not had landings in several years the opportunity to fish commercially for king mackerel. Permit holders in the Northern Zone include both dually-permitted charter-for-hire and commercial participants. These permit holders have historically remarked that fishermen traveling from the east coast of Florida have often landed the Northern Zone’s quota before the charter fleet concludes the tourist season (usually by October 1) and/or before king mackerel migrate far enough east and south along the western Florida coastline to make fishing profitable.

### **Council Conclusions:**

## 2.7 Action 7. Revise the Recreational and Commercial Allocations for the Gulf Migratory Group King Mackerel

**Alternative 1:** No action – Maintain the current recreational and commercial allocations for Gulf migratory group king mackerel (68% recreational, 32% commercial). **(Gulf CMP AP Recommended)**

**Alternative 2:** Revise the recreational and commercial allocations for Gulf migratory group king mackerel by transferring a percentage of the recreational allocation to the commercial sector.

**Option a:** Transfer 5% of the recreational allocation to the commercial sector.

**Option b:** Transfer 10% of the recreational allocation to the commercial sector.

**Option c:** Transfer 20% of the recreational allocation to the commercial sector.

**Alternative 3:** Revise the recreational and commercial allocations for Gulf migratory group king mackerel by transferring a percentage of the recreational allocation to the commercial allocation annually until such a time that the recreational sector lands 80% of its allocation, after which no additional allocation will be transferred from the recreational allocation to the commercial allocation.

**Option a:** Transfer 2% of the recreational allocation annually to the commercial allocation.

**Option b:** Transfer 5% of the recreational allocation annually to the commercial allocation.

**Alternative 4:** Conditionally transfer a certain percentage (*Options a-c*) of the recreational allocation to the commercial sector until such a time that recreational landings reach a predetermined threshold (*Options d-f*). If this threshold is met, the recreational and commercial allocations will revert to 68% for the recreational sector and 32% for the commercial sector.

*Conditional Quota Transfer (MUST CHOOSE ONE):*

**Option a:** Transfer 5% of the recreational allocation to the commercial sector.

**Option b:** Transfer 10% of the recreational allocation to the commercial sector.

**Option c:** Transfer 20% of the recreational allocation to the commercial sector.

*Recreational ACL Threshold (MUST CHOOSE ONE):*

**Option d:** Revert to the status quo sector allocations if 80% of the adjusted recreational sector ACL is landed.

**Option e:** Revert to the status quo sector allocations if 90% of the adjusted recreational sector ACL is landed.

**Option f:** Revert to the status quo sector allocations if 100% of the adjusted recreational sector ACL is landed.

**Alternative 5:** Establish a sunset provision for any change in the status quo sector allocations for Gulf migratory group king mackerel (68% for the recreational sector and 32% for the commercial sector). After the predetermined time period, any change in sector allocations would revert back to the allocations specified in the original Coastal Migratory Pelagics Fishery Management Plan for the Gulf of Mexico.

**Option a:** Sunset any change in sector allocations after a five year period (2016-2020).

**Option b:** Sunset any change in sector allocations after a ten year period (2016-2025).

**Option c:** Sunset any change in sector allocations after a fifteen year period (2016-2030).

### **Discussion:**

The Gulf Council is considering modifying the sector allocations for Gulf migratory group king mackerel. In multiple fishing seasons over the past ten years, the commercial sector has exceeded the commercial ACL while the recreational sector has landed decreasingly lower proportions of the recreational ACL. The Gulf Council has requested economic analyses to explore the effects of reallocating up to 10 percent of the Gulf recreational sector's ACL to the commercial sector. Recent landings of Gulf migratory group king mackerel are shown in Tables 2.7.1 - 2.7.3, and Figure 2.7.1. The fishing year for the time series presented is July1 – June 30.

**Table 2.7.1.** Gulf of Mexico commercial king mackerel landings by Zone and gear, less those landings attributed to the Florida East Coast Zone (FLEC). Gillnet landings only include the Gulf Southern Zone.

Fishing Year	Gulf Western Zone	Gulf Northern Zone	Gulf Southern Handline	Gulf Southern Gillnet	Grand Total	H&L TAC/ACL	Gill TAC/ACL	% HL	% Gill
2001-02	912,809	241,727	696,045	329,490	2,180,071	1,865,454	520,312	99.2%	63.3%
2002-03	1,007,483	172,821	707,888	389,504	2,277,696	1,865,454	520,312	101.2%	74.9%
2003-04	1,009,462	205,899	609,113	475,908	2,300,382	1,865,454	520,312	97.8%	91.5%
2004-05	1,071,603	127,653	595,291	680,869	2,475,416	1,865,454	520,312	96.2%	130.9%
2005-06	942,902	124,871	686,900	510,691	2,265,364	1,865,454	520,312	94.1%	98.2%
2006-07	1,054,992	172,270	605,566	486,766	2,319,594	1,865,454	520,312	98.3%	93.6%
2007-08	1,002,337	217,879	553,092	610,271	2,383,579	1,865,454	520,312	95.1%	117.3%
2008-09	923,877	183,645	736,988	878,821	2,723,331	1,865,454	520,312	98.9%	168.9%
2009-10	1,047,792	361,217	638,886	613,039	2,660,934	1,865,454	520,312	109.8%	117.8%
2010-11	976,113	228,385	651,079	543,157	2,398,734	1,865,454	520,312	99.5%	104.4%
2011-12	1,016,886	253,326	639,308	454,521	2,364,041	1,865,454	520,312	102.4%	87.4%
2012-13	1,163,731	330,989	703,067	500,426	2,698,213	2,179,143	607,614	100.9%	82.4%
2013-14	934,646	255,747	608,053	620,825	2,419,271	1,977,709	551,448	90.9%	112.6%
Average								98.8%	102.1%

Source: SEFSC/SERO/MRIP

**Table 2.7.2.** Landings and proportions landed by each sector for Gulf migratory group king mackerel, less those landings attributed to the Florida East Coast Zone (FLEC).

Fishing Year	Total Gulf king mackerel Landings	Sector Landings (less FLEC)		% of Total Landings by each sector	
		Comm	Rec	Comm	Rec
2001-02	4,150,189	2,180,071	3,404,409	52.5%	47.5%
2002-03	4,583,200	1,990,053	2,593,147	43.4%	56.6%
2003-04	5,051,033	2,067,028	2,984,005	40.9%	59.1%
2004-05	4,492,842	2,115,184	2,377,659	47.1%	52.9%
2005-06	4,795,257	1,956,005	2,839,253	40.8%	59.2%
2006-07	5,412,306	2,204,924	3,207,382	40.7%	59.3%
2007-08	4,735,460	2,299,832	2,435,628	48.6%	51.4%
2008-09	4,808,181	2,638,490	2,169,691	54.9%	45.1%
2009-10	6,104,556	2,642,137	3,462,419	43.3%	56.7%
2010-11	4,319,497	2,218,858	2,100,639	51.4%	48.6%
2011-12	4,616,615	2,260,442	2,356,173	49.0%	51.0%
2012-13	5,923,021	2,145,257	3,777,764	36.2%	63.8%
2013-14	5,334,839	2,419,271	2,915,568	45.3%	54.7%

Source: SEFSC/SERO/MRIP

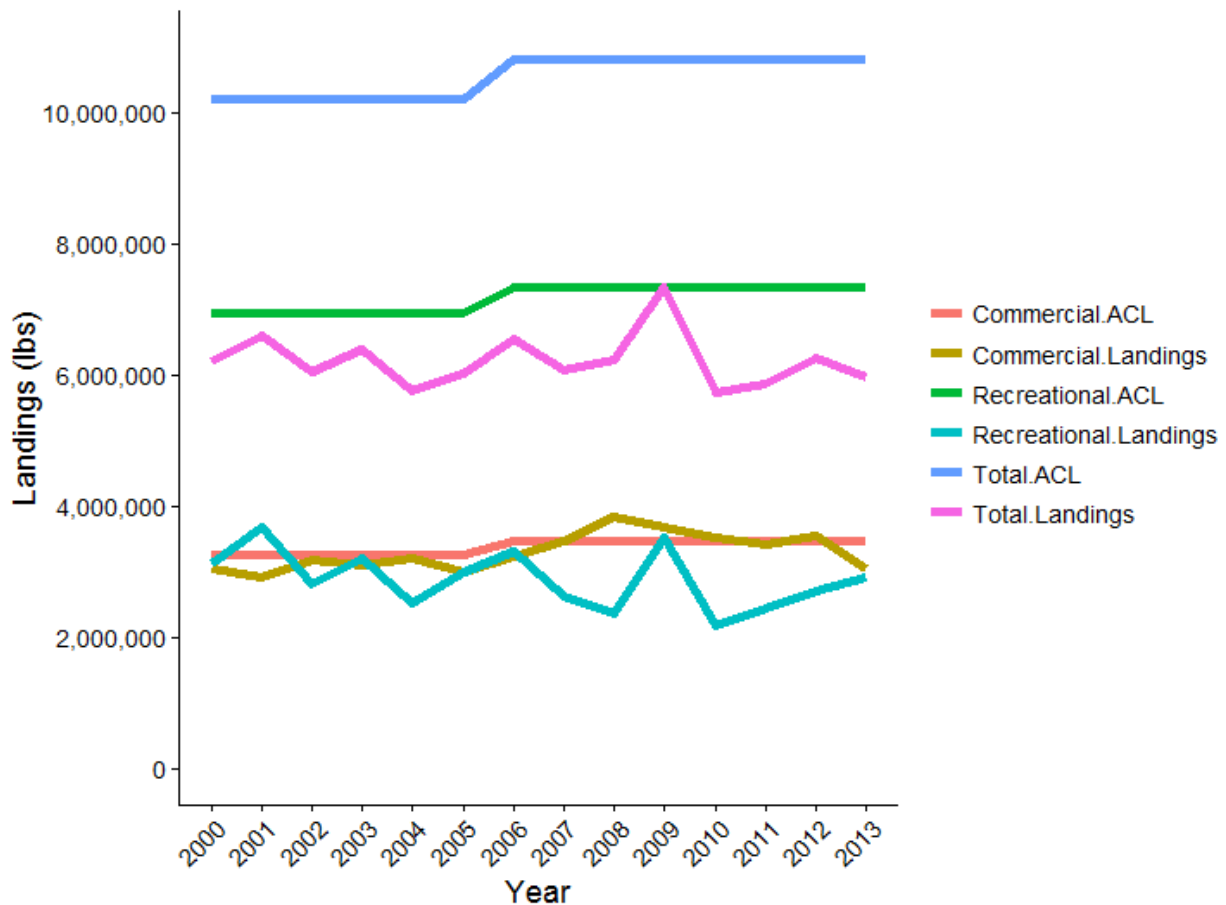
**Table 2.7.3.** Proportion of sector ACLs landed and proportion of total ACL landed for Gulf migratory group king mackerel, including those landings attributed to the Florida East Coast Zone (FLEC). The FLEC landings are included here since there is not a recreational allocation specifically for the FLEC Zone.

Fishing Year	Total TAC/ACL	% of Sector ACL Landed		Total ACL Landed
		Comm <sup>1</sup>	Rec <sup>2</sup>	
2001-02	10.2 MP	88.9%	52.9%	64.7%
2002-03	10.2 MP	97.6%	40.6%	59.3%
2003-04	10.2 MP	94.8%	46.3%	62.7%
2004-05	10.2 MP	98.5%	36.5%	56.4%
2005-06	10.2 MP	91.4%	43.2%	58.9%
2006-07	10.8 MP	93.5%	45.0%	60.5%
2007-08	10.8 MP	100.1%	35.8%	56.3%
2008-09	10.8 MP	110.9%	32.0%	57.6%
2009-10	10.8 MP	106.3%	48.0%	68.0%
2010-11	10.8 MP	101.9%	29.7%	53.0%
2011-12	10.8 MP	99.2%	33.2%	54.3%
2012-13	10.8 MP	102.4%	36.9%	57.9%
2013-14	10.8 MP	88.4%	39.7%	55.3%

<sup>1</sup>Commercial allocation = 32%      <sup>2</sup>Recreational allocation = 68%

Source: SERO

## Gulf King Mackerel Landings and ACLs: 2000-2013



**Figure 2.7.1.** Trends in Gulf migratory group king mackerel landings by sector for 2000-2012 fishing seasons. Landings are in pounds.

**Alternative 1 (Gulf CMP AP Recommended)** would maintain the current recreational and commercial allocations of 68% and 32% respectively, which were established in the original CMP FMP in February of 1983. Over the last decade, the recreational sector has not landed its allocation, while the commercial sector has typically met or exceeded its allocation. Closure of the commercial sector is facilitated by the National Marine Fisheries Service (NMFS), which provides notice to fishermen prior to closing each commercial zone to fishing when that zone's ACL is projected to be reached. This trend would be expected to continue, at least in the short term, if **Alternative 1** is preferred.

**Alternative 2** would revise the recreational and commercial allocations for Gulf migratory group king mackerel by shifting some percentage of the recreational allocation to the commercial sector. Options for such a shift in allocation include 5% (**Option a**), 10% (**Option b**), and 20% (**Option c**). Shifting allocation from the recreational sector to the commercial sector could increase the likelihood of an overage in the recreational sector if effort increases in the future. Likewise, increasing the commercial sector's allocation will likely result in those additional fish allocated to the commercial sector being landed, in addition to those fish landed by the

recreational sector, thereby increasing the overall combined amount of Gulf migratory group king mackerel landed annually. Increased landings should not have an adverse effect on the health of Gulf migratory group king mackerel, so long as the ABC is not exceeded. Table 2.7.4 shows the resultant allocations based on the options presented in this action.

**Table 2.7.4.** Resultant allocations based on options presented in Action 7. Alternative 3 would be dependent upon the landings reported in the year during which the recreational sector landed 80% of its allocation.

Option	Commercial Allocation	Recreational Allocation
Alternative 1	32%	68%
Alternative 2, Option a	37%	63%
Alternative 2, Option b	42%	58%
Alternative 2, Option c	52%	48%
Alternative 3		

**Alternative 3** would revise the recreational and commercial allocations for Gulf migratory group king mackerel by shifting a percentage of the recreational allocation to the commercial allocation annually until such a time that the recreational sector lands 80% of its allocation, after which no additional allocation would be shifted from the recreational allocation to the commercial allocation. These annual percentage shifts could amount to 2% of the recreational allocation (**Option a**) or 5% (**Option b**). The actual resultant sector allocations would depend on the landings reported in the year during which the recreational sector landed 80% of its allocation.

**Alternative 4** would conditionally transfer a certain percentage of the recreational allocation to the commercial sector until such a time that the recreational ACL is met. If the recreational ACL is met, then the recreational and commercial allocations will revert to 68% for the recreational sector and 32% for the commercial sector. The Councils proposed three options for transferring quota from the recreational sector to the commercial sector: 5% (**Option a**), 10% (**Option b**), and 20% (**Option c**). The resultant allocations for each sector under each option are shown in Table 2.7.5.

**Table 2.7.5.** Sector allocations based on options presented in **Alternative 4** of Action 7. Percentages are rounded to the nearest whole number.

	Recreational	Commercial
Status quo	68%	32%
Option a	65%	35%
Option b	61%	39%
Option c	54%	46%



**Council Conclusions:**

## 2.8 Action 8 - Modify the Recreational Bag Limit for Gulf Migratory Group King Mackerel

**Alternative 1:** No action - Maintain the current recreational bag limit of two fish per person per day.

**Alternative 2:** Increase the bag limit to three fish per person per day. **(Gulf CMP AP Recommended)**

**Alternative 3:** Increase the bag limit to four fish per person per day.

### Discussion:

At the March 2015 Gulf CMP Advisory Panel (AP) meeting, members discussed reallocating from the recreational ACL to the commercial ACL (Action 7). The recreational sector has landed less than half of the recreational ACL in recent years (Table 2.7.3), and landings have marginally decreased since the mid-1990s. The AP recommended that the Council abstain from reallocating any king mackerel from the recreational sector to the commercial sector until after additional options for utilizing excess quota are explored for the recreational sector.

Some AP members thought the initial decrease of the bag limit to two fish per person per day in the mid-1990s may have been partly to blame for the decrease in recreational effort. Additionally, recent short recreational seasons for popular reef fish species may result in more effort shifting to king mackerel in the near future. Decreased fuel prices and a general improvement in the economy may also encourage greater recreational effort for king mackerel. The AP recommended an increase to three fish per person per day for the Gulf recreational bag limit as a way to potentially increase utilization of the recreational ACL.

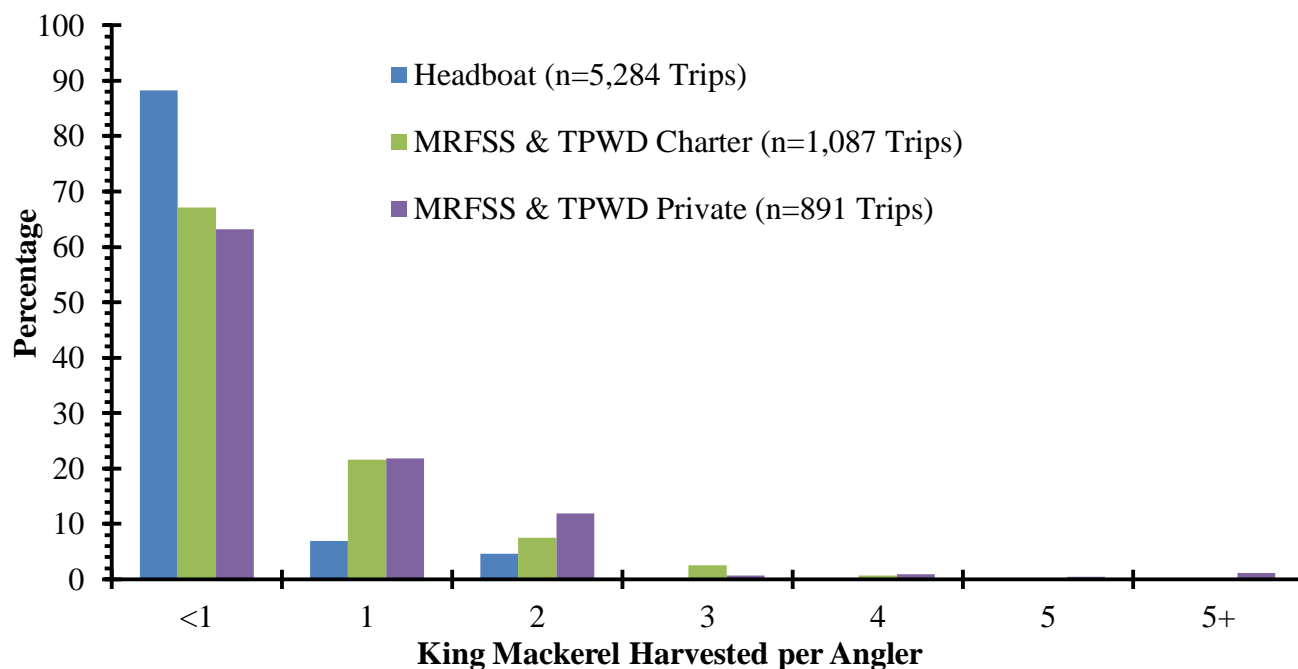
**Alternative 1** would maintain a two-fish bag limit. During 2011-2013, only 7% of anglers landed two or more fish and only 11% of anglers landed one fish. Most trips (82%) reported less than one fish per angler<sup>1</sup>. From this one could infer that the majority of anglers would not catch more fish if allowed. However, anglers may currently stop fishing after landing one or two fish, but would continue if they were allowed to catch more fish.

Estimations of how landings might increase if bag limits were higher are difficult because they involve speculation about how many anglers would, in fact, catch more fish if allowed. Two methods were used for this action: Method 1 assumed all anglers currently catching two fish would catch the maximum allowed and Method 2 assumed all anglers currently catching two fish would retain any discards to meet the increased bag limit (see Bag Limit Analysis documentation for more details). Method 1 produces the high end of the range; probably not all anglers that currently catch two fish would keep more. Method 2 produces the low end of the range, although some discards may be due to not meeting the minimum size limit rather than exceeding the bag limit. In either case, angler behavior cannot be predicted. Uncertainty also exists in the

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<sup>1</sup> Landings are reported by vessel, and the number of fish landed is divided by the number of anglers. If not all anglers land a fish, the number of fish per angler will be less than one.

projections due to economic conditions, weather events, changes in catch-per-unit effort, and a variety of other factors.



**Figure 2.8.1.** Distribution of Gulf of Mexico king mackerel harvested per angler by mode from 2011 through 2013. Source: NMFS SERO LAPP/DM Branch.

Based on the two methods described above, a three-fish bag limit (**Alternative 2, (Gulf CMP AP Recommended)**) would increase landings by an estimated 1-10% (weighted by mode) and a four-fish bag limit (**Alternative 3**) would increase landings by an estimated 3-21% (weighted by mode). If the higher ends of the estimates are used, the recreational sector would still be expected to leave 37% of the recreational ACL with **Alternative 2** and 26% with **Alternative 3** based on the highest year of landings (2001) in Table 2.7.3. Thus the Council could choose alternatives in both Action 7 and Action 8 and the recreational landings would still not be expected to reach the ACL.

**Table 2.8.1.** Percent increase in Gulf of Mexico king mackerel recreational landings with an increase in the bag limit (based on 2011-2013 data). Estimates were weighted based on the percentage of landings each mode contributed to the overall landings during 2011-2013. See Bag Limit Analysis document for more details.

Bag Limit	Method 1	Method 2
3 fish per person per day	10.1%	0.9%
4 fish per person per day	21.1%	3.1%

Source: NMFS SERO LAPP/DM Branch

### **3.3 Description of the Biological Environment**

## 3.4 Description of the Economic Environment

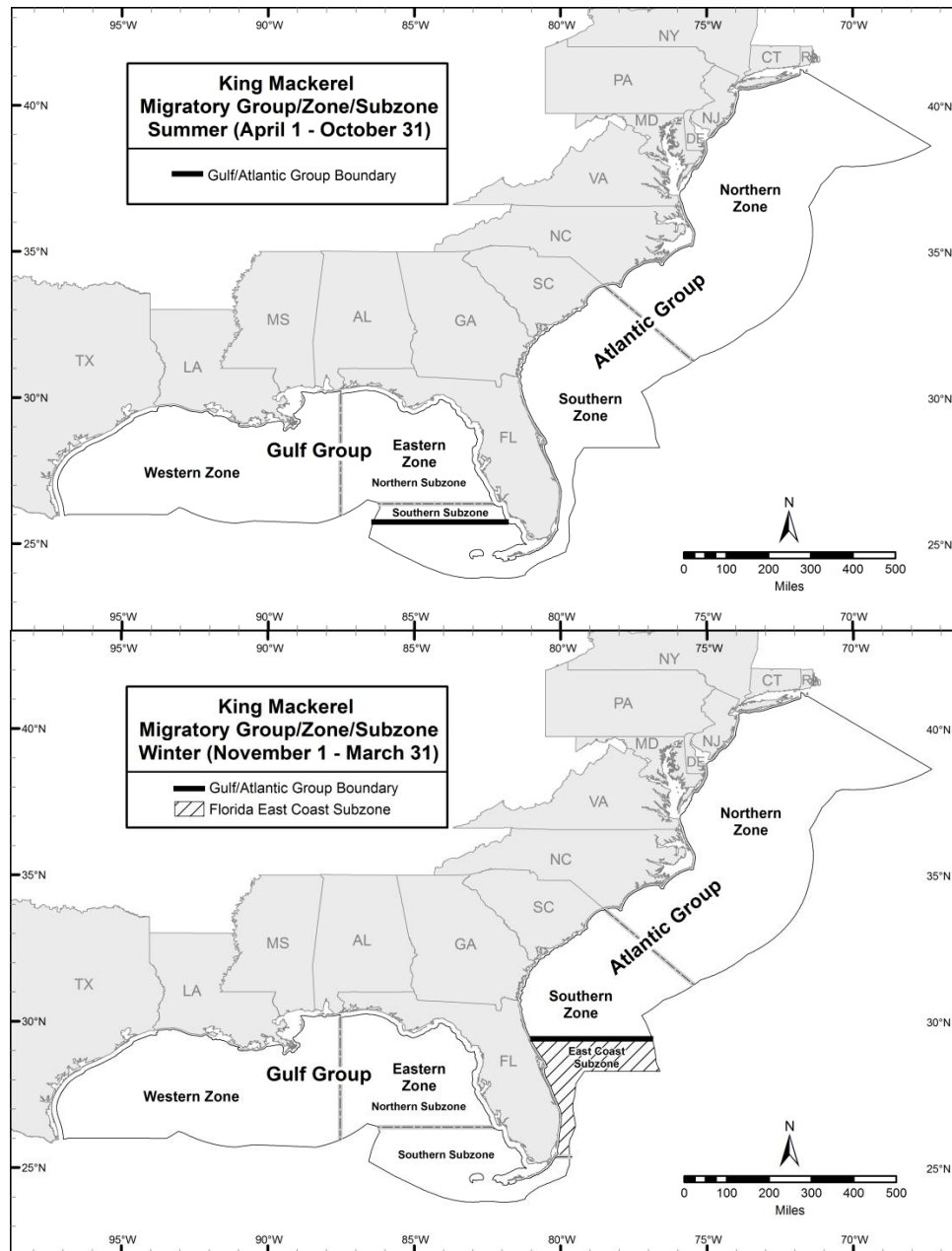
## 3.5 Description of the Social Environment

## 3.6 Description of the Administrative Environment

## CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

### 4.1 Action 1- Adjust the Management Boundary for Gulf and Atlantic Migratory Groups of King Mackerel

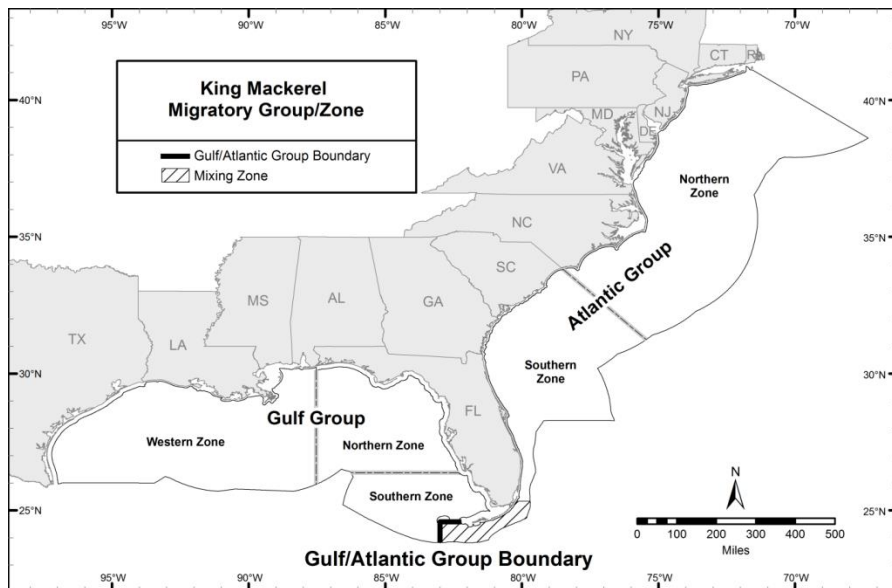
**Alternative 1:** No action - Maintain the current shifting management boundary between the Gulf and Atlantic migratory groups of king mackerel (**Figure 4.1.1**).



**Figure 4.1.1. Alternative 1:** Seasonal management boundaries for Atlantic and Gulf migratory groups of king mackerel.

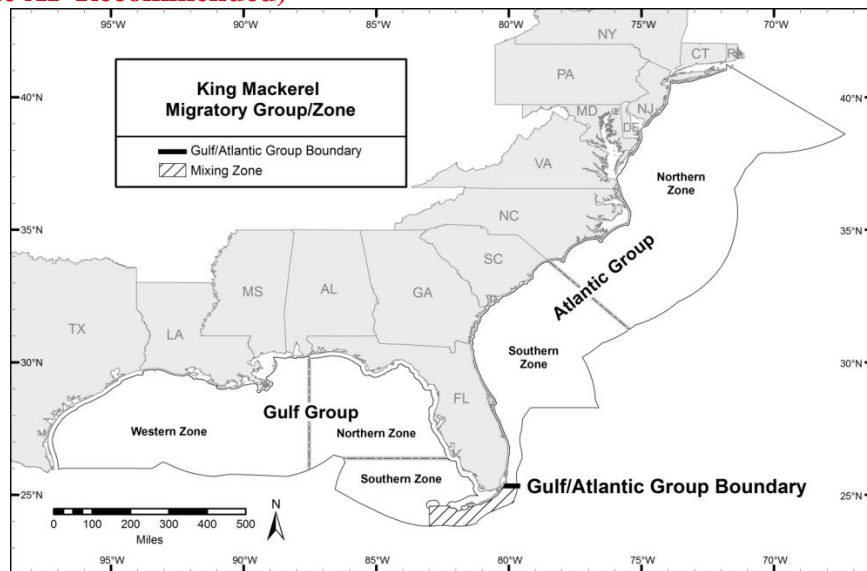


**Alternative 2:** Establish a single year-round boundary for separating management of the Gulf and Atlantic migratory groups of king mackerel at the Gulf/South Atlantic Council boundary (Figure 4.1.2). The South Atlantic Council would be responsible for management measures in the mixing zone.



**Figure 4.1.2. Alternative 2:** Proposed management boundary for Atlantic and Gulf migratory groups of king mackerel.

**Alternative 3:** Establish a single year-round boundary for separating the Gulf and Atlantic migratory groups of king mackerel at the Miami-Dade/Monroe county line (Figure 4.1.3). The Gulf Council would be responsible for management measures in the mixing zone. **(Gulf and South Atlantic AP Recommended)**



**Figure 4.1.3. Alternative 3:** Proposed management boundary for Atlantic and Gulf groups of king mackerel.

#### **4.1.1 Description of the Physical and Biological Environments**

#### **4.1.2 Description of the Economic Environment**

#### **4.1.3 Description of the Social Environment**

#### **4.1.4 Description of the Administrative Environment**

## 4.2 Action 2 - Update Reference Points (MSY, MSST, MFMT/OFL), and Revise the Annual Catch Limit (ACL) and Recreational Annual Catch Target (ACT) for Atlantic Migratory Group King Mackerel

### 4.2.1 Action 2-1 – Revise the Acceptable Biological Catch (ABC) for Atlantic Migratory Group King Mackerel

**Alternative 1:** No action - Retain the current ABC for Atlantic Migratory Group King Mackerel (10.46 mp).

**Alternative 2:** Revise the ABC for Atlantic Migratory Group King Mackerel for 2016/17 through 2019/20 based on the ABC levels recommended by the SSC for ABC under a high recruitment scenario. **(South Atlantic AP Recommended)**

**Alternative 3:** Revise the ABC for Atlantic Migratory Group King Mackerel for 2016/17 through 2019/20 based on the ABC levels recommended by the SSC for ABC under a medium recruitment scenario.

**Alternative 4:** Revise the ABC for Atlantic Migratory Group King Mackerel for 2016/17 through 2019/20 based on the ABC levels recommended by the SSC for ABC under a low recruitment scenario.

**Table 4.2.1.** Recommendations from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel. ABC recommendations are in the shaded columns.

P star= 0.325	ABC HIGH	ABC MED	ABC LOW	Buffer between ABC and OFL		
Fishing year				HI	MED	LO
	<b>Alt 2</b>	<b>Alt 3</b>	<b>Alt 4</b>			
2016/17	17.4	16.5	15.4	12%	16%	22%
2017/18	15.8	14.3	12.9	14%	22%	29%
2018/19	14.1	12.9	11.9	15%	23%	28%
2019/20	12.7	12.1	11.6	17%	21%	24%

#### 4.2.1.1 Description of the Physical and Biological Environments

#### 4.2.1.2 Description of the Economic Environment

#### **4.2.1.3 Description of the Social Environment**

#### **4.2.1.4 Description of the Administrative Environment**

## 4.2.2 Action 2-2 – Revise ACLs, Commercial Quotas, and Recreational ACT for Atlantic Migratory Group King Mackerel

**Alternative 1:** No action - Retain the ACL and ACT for Atlantic Migratory Group King Mackerel based on the previous ABC. ACL = OY = ABC.

**Alternative 2:** Revise the ACL based on the ABC levels selected under Action 2-1. ACL = OY = ABC. **(South Atlantic AP Recommended)**

**Table 4.2.2.** Possible outcomes under **Alternative 2** based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%. The Northern Zone quota will be 23.04% and the Southern Zone quota allocation is 79.96% (see Appendix F for details on how the Northern and Southern Zone quota allocations were recalculated using the SEDAR 38 boundary). ACT values are calculated based on formula from CMP Amendment 18 using the average PSE from 2005-2009.

ACL = ABC - HIGH Recruitment Scenario						
Action 2-1, Alt 2						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	17.4 mp	6.5 mp	1,497,600	5,197,400	10.9 mp	10.1 mp
2017/18	15.8 mp	5.9 mp	1,359,360	4,717,640	9.9 mp	9.2 mp
2018/19	14.1 mp	5.2 mp	1,198,080	4,157,920	8.9 mp	8.3 mp
2019/20	12.7 mp	4.7 mp	1,082,880	3,758,120	8.0 mp	7.4 mp
ACL = ABC - MEDIUM Recruitment Scenario						
Action 2-1, Alt 3						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	16.5 mp	6.1 mp	1,405,440	4,877,560	10.4 mp	9.7 mp
2017/18	14.3 mp	5.3 mp	1,221,120	4,237,880	9.0 mp	8.4 mp
2018/19	12.9 mp	4.8 mp	1,105,920	3,838,080	8.1 mp	7.5 mp
2019/20	12.1 mp	4.5 mp	1,036,800	3,598,200	7.6 mp	7.1 mp
ACL = ABC - LOW Recruitment Scenario						
Action 2-1, Alt 4						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	15.4 mp	5.7 mp	1,313,280	4,557,720	9.7 mp	9.0 mp
2017/18	12.9 mp	4.8 mp	1,105,920	3,838,080	8.1 mp	7.5 mp
2018/19	11.9 mp	4.4 mp	1,013,760	3,518,240	7.5 mp	7.0 mp
2019/20	11.6 mp	4.3 mp	990,720	3,438,280	7.3 mp	6.8 mp

**Alternative 3:** Establish ACL = OY = Deterministic equilibrium yield at  $F_{30\%SPR} = 12.7$  mp for fishing years 2016/17 through 2019/20. **(Recommended by the South Atlantic SSC)**

Alternative 3	
<b>Atlantic King Mackerel ACL</b>	12.7 mp
Commercial ACL	4.7 mp
Northern Zone Quota	1,082,880 lbs
Southern Zone Quota	3,758,120 lbs
Recreational ACL	8.0 mp
Recreational ACT*	7.4 mp

\*ACT value calculated based on formula from CMP Amendment 18, using the average PSE from 2005-2009.

**Alternative 4:** Establish ACL = OY = Deterministic equilibrium yield at 75%  $F_{30\%SPR} = 11.6$  mp for fishing years 2016/17 through 2019/20.

*Note: 75% of  $F_{MSY}$  (which is the same as 75%  $F_{30\%SPR}$  because 30% SPR is the proxy for MSY) is usually in the terms of reference (TORs) of all assessments. 75%  $F_{MSY}$  was the old OY, as yield at the long term  $F_{MSY}$  (MSY) was the old OFL. It is still part of the TORs in case the South Atlantic Council wants to choose that strategy to have stable catches rather than following the  $P^*$  recommendation and have changing catch levels each year.*

Alternative 4	
<b>Atlantic King Mackerel ACL</b>	11.6 mp
Commercial ACL	4.3 mp
Northern Zone Quota	990,720 lbs
Southern Zone Quota	3,438,280 lbs
Recreational ACL	7.3 mp
Recreational ACT*	6.8 mp

\*ACT value calculated based on formula from CMP Amendment 18, using the average PSE from 2005-2009.

**Alternative 5:** Establish ACL = OY = 90% ABC based on the ABC levels selected under Action 2-1.

**Table 4.2.3.** Possible outcomes under **Alternative 5** based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%. The Northern Zone quota will be 23.04% and the Southern Zone quota allocation is 79.96% (see Appendix F for details on how the Northern and Southern Zone quota allocations were recalculated using the SEDAR 38 boundary). ACT values are calculated based on formula from CMP Amendment 18 using the average PSE from 2005-2009.

ACL = 90% ABC - HIGH Recruitment Scenario <b>Action 2-1, Alt 2</b>						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	15.7 mp	5.8 mp	1,336,320	4,637,680	9.9 mp	9.2 mp
2017/18	14.2 mp	5.3 mp	1,221,120	4,237,880	8.9 mp	8.3 mp
2018/19	12.7 mp	4.7 mp	1,082,880	3,758,120	8.0 mp	7.4 mp
2019/20	11.4 mp	4.2 mp	967,680	3,358,320	7.2 mp	6.7 mp
ACL = 90% ABC - MEDIUM Recruitment Scenario <b>Action 2-1, Alt 3</b>						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	14.9 mp	5.5 mp	1,267,200	4,397,800	9.4 mp	8.7 mp
2017/18	12.9 mp	4.8 mp	1,105,920	3,838,080	8.1 mp	7.5 mp
2018/19	11.6 mp	4.3 mp	990,720	3,438,280	7.3 mp	6.8 mp
2019/20	10.9 mp	4.0 mp	921,600	3,198,400	6.9 mp	6.4 mp
ACL = 90% ABC - LOW Recruitment Scenario <b>Action 2-1, Alt 4</b>						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	13.9 mp	5.2 mp	1,198,080	4,157,920	8.7 mp	8.1 mp
2017/18	11.6 mp	4.3 mp	990,720	3,438,280	7.3 mp	6.8 mp
2018/19	10.7 mp	4 mp	921,600	3,198,400	6.7 mp	6.2 mp
2019/20	10.4 mp	3.9 mp	898,560	3,118,440	6.5 mp	6.0 mp

**Alternative 6:** Establish ACL = OY = 80% ABC based on the ABC levels selected under Action 2-1.

**Table 4.2.4.** Possible outcomes under **Alternative 6** based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%. The Northern Zone quota will be 23.04% and the Southern Zone quota allocation is 79.96% (see Appendix A for details on how the Northern and Southern Zone quota allocations were recalculated using the SEDAR 38 boundary). ACT values are calculated based on formula from CMP Amendment 18 using the average PSE from 2005-2009.

ACL = 80% ABC - HIGH Recruitment Scenario Action 2-1, Alt 2						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	13.9 mp	5.2 mp	1,198,080	4,157,920	8.7 mp	8.1 mp
2017/18	12.6 mp	4.7 mp	1,082,880	3,758,120	7.9 mp	7.3 mp
2018/19	11.3 mp	4.2 mp	967,680	3,358,320	7.1 mp	6.6 mp
2019/20	10.3 mp	3.8 mp	875,520	3,038,480	6.5 mp	6.0 mp
ACL = 80% ABC - MEDIUM Recruitment Scenario Action 2-1, Alt 3						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	13.2 mp	4.9 mp	1,128,960	3,918,040	8.3 mp	7.7 mp
2017/18	11.4 mp	4.2 mp	967,680	3,358,320	7.2 mp	6.7 mp
2018/19	10.3 mp	3.8 mp	875,520	3,038,480	6.5 mp	6.0 mp
2019/20	9.7 mp	3.6 mp	829,440	2,878,560	6.1 mp	5.7 mp
ACL = 80% ABC - LOW Recruitment Scenario Action 2-1, Alt 4						
Fishing year	Total Atl KM ACL	Commercial			Recreational	
		Comm ACL	Northern Zone Quota (lbs)	Southern Zone Quota (lbs)	Rec ACL	Rec ACT
2016/17	12.3 mp	4.6 mp	1,059,840	3,678,160	7.7 mp	7.2 mp
2017/18	10.3 mp	3.8 mp	875,520	3,038,480	6.5 mp	6.0 mp
2018/19	9.5 mp	3.5 mp	806,400	2,798,600	6.0 mp	5.6 mp
2019/20	9.3 mp	3.5 mp	806,400	2,798,600	5.8 mp	5.4 mp

#### 4.2.2.1 Description of the Physical and Biological Environments



#### **4.2.2.2 Description of the Economic Environment**

#### **4.2.2.3 Description of the Social Environment**

#### **4.2.2.4 Description of the Administrative Environment**

### **4.3 Action 3 – Sale of Incidental Catch of Atlantic Migratory Group King Mackerel Caught in the Shark Drift Gillnet Fishery**

**Alternative 1:** No action - Retention and sale of Atlantic migratory group king mackerel caught with drift gillnet as incidental catch in the gillnet portion of the commercial shark fishery remains prohibited.

**Alternative 2:** Allow retention and sale of Atlantic migratory group king mackerel caught with drift gillnet as incidental catch in the gillnet portion of the commercial shark fishery for any vessel with a valid shark directed commercial permit AND valid federal king mackerel commercial permit. The king mackerel must be sold to a dealer with the Southeast federal dealer permit. For shark gillnet trips in the EEZ off Florida, no more than 2 king mackerel per crew member can be on board, and no more than 2 king mackerel per crew member can be sold from the trip. For shark gillnet trips in the EEZ north of the GA/FL line, no more than 3 king mackerel per crew member can be on board, and no more than 3 king mackerel per crew member can be sold from the trip.

**Alternative 3:** Allow retention and sale of Atlantic migratory group king mackerel caught with drift gillnet as incidental catch in the gillnet portion of the commercial shark fishery for any vessel with a valid shark directed commercial permit AND valid federal king mackerel commercial permit. The king mackerel must be sold to a dealer with the Southeast federal dealer permit. For shark gillnet trips in the Southern Zone, no more than 2 king mackerel per crew member can be on board, and no more than 2 king mackerel per crew member can be sold from the trip. For shark gillnet trips in the Northern Zone, no more than 3 king mackerel per crew member can be on board, and no more than 3 king mackerel per crew member can be sold from the trip.

#### **4.3.1 Description of the Physical and Biological Environments**

#### **4.3.2 Description of the Economic Environment**

#### **4.3.3 Description of the Social Environment**

#### **4.3.4 Description of the Administrative Environment**

## **4.4 Action 4 - Establish a Florida East Coast Subzone and Commercial Quota**

### **4.4.1 Action 4-1. Establish a Florida East Coast Subzone for Atlantic Migratory Group King Mackerel**

**Alternative 1:** No action - Do not establish a Florida East Coast Subzone.

**Alternative 2:** Establish a Florida East Coast Subzone that exists year-round with boundaries at:

**Option a:** Flagler/Volusia county line and Dade/Monroe county line.

**Option b:** Volusia/Brevard county line and Dade/Monroe county line.

**Option c:** Volusia/Brevard county line and the Council jurisdictional boundary (as designated Action 1).

**Alternative 3:** Establish a Florida East Coast Subzone that exists March 1 through September 30 with boundaries at:

**Option a:** Flagler/Volusia county line and Dade/Monroe county line.

**Option b:** Volusia/Brevard county line and Dade/Monroe county line. **(South Atlantic AP Recommended)**

**Option c:** Volusia/Brevard county line and the Council jurisdictional boundary (as designated in Action 1).

**Alternative 4:** Establish a Florida East Coast Subzone that exists October 1 through end of February with boundaries at:

**Option a:** Flagler/Volusia county line and Dade/Monroe county line. **(South Atlantic AP Recommended)**

**Option b:** Volusia/Brevard county line and Dade/Monroe county line.

**Option c:** Volusia/Brevard county line and the Council jurisdictional boundary (as designated in Action 1).

#### **4.4.1.1 Description of the Physical and Biological Environments**

#### **4.4.1.2 Description of the Economic Environment**

#### **4.4.1.3 Description of the Social Environment**

#### **4.4.1.4 Description of the Administrative Environment**

#### **4.4.2 Action 4-2. Allocate Quota within the Atlantic Southern Zone for Atlantic Migratory Group King Mackerel**

**Alternative 1:** No action - Do not allocate quota among areas or seasons.

**Alternative 2:** Allocate a proportion of the Southern Zone quota to the Florida East Coast (FLEC) Subzone. Commercial harvest of king mackerel in the area designated as the FLEC Subzone in Action 4-1 will be counted towards the FLEC Subzone sub-quota. When the sub-quota for the season is met or expected to be met, commercial harvest of king mackerel in the FLEC Subzone will be prohibited for the remainder of the fishing year for the FLEC Subzone.

**Option 2a:** Use historic landings in the Southern Zone from the 2009/10 through the 2013/14 fishing seasons (last five years) to calculate the FLEC Subzone quota.

*Expected Allocation to FLEC: 93% FLEC Subzone*

**Option 2b:** Use historic landings in the Southern Zone from the 2004/05 through the 2013/14 fishing seasons (last ten years) to calculate the FLEC Subzone quota.

*Expected: 92.3% FLEC Subzone*

**Option 2c:** Use historic landings in the Southern Zone from the 1999/00 through the 2013/14 fishing seasons (last fifteen years) to calculate the FLEC Subzone quota.

*Expected: 90.5% FLEC Subzone*

**Alternative 3:** Allocate quota for the Southern Zone Atlantic Migratory Group King Mackerel using split fishing seasons, in which 60% of the Southern Zone quota will be allocated to March 1- September 30 and 40% of the Southern Zone quota would be allocated October 1- end of February. When the Southern Zone quota for the season is met or expected to be met, commercial harvest of king mackerel in the Southern Zone will be prohibited for the remainder of the season. **(South Atlantic AP Recommended)**

##### **4.4.2.1 Description of the Physical and Biological Environments**

##### **4.4.2.2 Description of the Economic Environment**

##### **4.4.2.3 Description of the Social Environment**

##### **4.4.2.4 Description of the Administrative Environment**

### 4.4.3 Action 4-3. Establish Trip Limits for the Florida East Coast Subzone for Atlantic Migratory Group King Mackerel

*Note: Action 4-3 will only apply if a Florida East Coast Subzone is created in Action 4-1.*

**Alternative 1:** No action - Do not establish trip limits for the Florida East Coast Subzone for Atlantic Migratory Group King Mackerel. The trip limit will remain: from April 1 through October 31

In the area between the Flagler/ Volusia county line and the Volusia/Brevard county line, the trip limit is 3,500 lbs from April 1 through October 31.

In the area from the Volusia/Brevard county line to the Miami-Dade/Monroe county line, the trip limit is 75 fish. ;

From November 1 through March 31, no trip limit is in place for Atlantic migratory group king mackerel.

**Alternative 2:** The commercial trip limit in the FLEC Subzone as established in Action 4-1 is 75 fish. The commercial trip limit north of the FLEC Subzone northern boundary is 3,500 lbs.

**Alternative 3:** The commercial trip limit in the Florida East Coast (FLEC) Subzone as established in Action 4-1 is 75 fish with a step-down to 50 fish. The commercial trip limit north of the Florida East Coast Subzone northern boundary is 3,500 lbs.

**Option 3a:** The step-down applies for only the month of May.

**Option 3b:** The step-down applies from May-August.

**Option 3c:** The step-down applies from April 15- May 15.

**Alternative 4:** The commercial trip limit in the FLEC Subzone as established in Action 4-1 in summer is 75 fish and in winter) is 50 fish.

**Option 4a.** Beginning on February 1 and continuing through the end of February--

(1) If 70 % or more of the quota or sub-quota has been taken the trip limit is 50 fish.

(2) If less than 70 % of the quota or sub-quota has been taken the trip limit is 75 fish.

**Option 4b.** Beginning on January 1 and continuing through the end of February--

(1) If 70 % or more of the quota or sub-quota has been taken the trip limit is 50 fish.

(2) If less than 70 % of the quota or sub-quota has been taken the trip limit is 75 fish.

**Option 4c.** Beginning on February 1 and continuing through the end of February--

(1) If 80 % or more of the quota or sub-quota has been taken the trip limit is 50 fish.

(2) If less than 80 % of the quota or sub-quota has been taken the trip limit is 75 fish.

#### 4.4.3.1 Description of the Physical and Biological Environments

#### **4.4.3.2 Description of the Economic Environment**

#### **4.4.3.3 Description of the Social Environment**

#### **4.4.3.4 Description of the Administrative Environment**

## 4.5 Action 5. Modify the ACL for Gulf Migratory Group King Mackerel

**Alternative 1:** No action – Do not modify the ACL for Gulf migratory group king mackerel. The ACL of 10.8 million pounds will remain.

**Alternative 2:** Set the Gulf migratory group king mackerel ACL equal to the ABC recommended by the Gulf Scientific and Statistical Committee for 2015-2019. ABC values are in millions of pounds, whole weight:

Year	ABC (mp ww)
2015	9.62
2016	9.21
2017	8.88
2018	8.71
2019	8.55

**Alternative 3:** Establish a constant catch scenario for the Gulf migratory group king mackerel ACL for one of the following time periods. The ACL during the selected time period may not exceed the ABC recommended by the Gulf SSC for any year during the selected time period.

**Option a:** A three-year period (2015-2017)

**Option b:** A five-year period (2015-2019)

### 4.5.1 Description of the Physical and Biological Environments

### 4.5.2 Description of the Economic Environment

### 4.5.3 Description of the Social Environment

### 4.5.4 Description of the Administrative Environment

## 4.6 Action 6. Revise the Commercial Zone Quotas for Gulf Migratory Group King Mackerel

**Alternative 1:** No action – Maintain the current commercial zone quotas for Gulf migratory group king mackerel (Western Zone: 31%; Northern Zone: 5.17%; Southern Zone Handline: 15.96%; Southern Zone Gillnet: 15.96%; Florida East Coast Zone: 31.91%).

**Alternative 2:** Revise the commercial zone quotas for Gulf migratory group king mackerel by dividing the Florida East Coast Zone’s quota into four equal parts, to be added to each of the remaining Gulf commercial zones.

**Alternative 3:** Revise the commercial zone quotas for Gulf migratory group king mackerel by dividing each individual zone’s quota percentage by the sum of the quota percentages for all Gulf commercial zones *except* the Florida East Coast Zone, with each resultant percentage becoming that respective zone’s new commercial quota.

**Alternative 4:** Revise the commercial zone quotas for Gulf migratory group king mackerel as follows: 40% for the Western Zone; 18% for the Northern Zone; 21% for the Southern Zone Handline component; and 21% for the Southern Zone Gillnet component. **(Gulf CMP AP Recommended)**

### 4.6.1 Description of the Physical and Biological Environments

### 4.6.2 Description of the Economic Environment

### 4.6.3 Description of the Social Environment

### 4.6.4 Description of the Administrative Environment



## 4.7 Action 7. Revise the Recreational and Commercial Allocations for the Gulf Migratory Group King Mackerel

**Alternative 1:** No action – Maintain the current recreational and commercial allocations for Gulf migratory group king mackerel (68% recreational, 32% commercial). **(Gulf CMP AP Recommended)**

**Alternative 2:** Revise the recreational and commercial allocations for Gulf migratory group king mackerel by transferring a percentage of the recreational allocation to the commercial sector.

**Option a:** Transfer 5% of the recreational allocation to the commercial sector.

**Option b:** Transfer 10% of the recreational allocation to the commercial sector.

**Option c:** Transfer 20% of the recreational allocation to the commercial sector.

**Alternative 3:** Revise the recreational and commercial allocations for Gulf migratory group king mackerel by transferring a percentage of the recreational allocation to the commercial allocation annually until such a time that the recreational sector lands 80% of its allocation, after which no additional allocation will be transferred from the recreational allocation to the commercial allocation.

**Option a:** Transfer 2% of the recreational allocation annually to the commercial allocation.

**Option b:** Transfer 5% of the recreational allocation annually to the commercial allocation.

**Alternative 4:** Conditionally transfer a certain percentage (*Options a-c*) of the recreational allocation to the commercial sector until such a time that recreational landings reach a predetermined threshold (*Options d-f*). If this threshold is met, the recreational and commercial allocations will revert to 68% for the recreational sector and 32% for the commercial sector.

*Conditional Quota Transfer (MUST CHOOSE ONE):*

**Option a:** Transfer 5% of the recreational allocation to the commercial sector.

**Option b:** Transfer 10% of the recreational allocation to the commercial sector.

**Option c:** Transfer 20% of the recreational allocation to the commercial sector.

*Recreational ACL Threshold (MUST CHOOSE ONE):*

**Option d:** Revert to the status quo sector allocations if 80% of the adjusted recreational sector ACL is landed.

**Option e:** Revert to the status quo sector allocations if 90% of the adjusted recreational sector ACL is landed.

**Option f:** Revert to the status quo sector allocations if 100% of the adjusted recreational sector ACL is landed.

**Alternative 5:** Establish a sunset provision for any change in the status quo sector allocations for Gulf migratory group king mackerel (68% for the recreational sector and 32% for the commercial sector). After the predetermined time period, any change in sector

allocations would revert back to the allocations specified in the original Coastal Migratory Pelagics Fishery Management Plan for the Gulf of Mexico.

**Option a:** Sunset any change in sector allocations after a five year period (2016-2020).

**Option b:** Sunset any change in sector allocations after a ten year period (2016-2025).

**Option c:** Sunset any change in sector allocations after a fifteen year period (2016-2030).

#### **4.7.1 Description of the Physical and Biological Environments**

#### **4.7.2 Description of the Economic Environment**

#### **4.7.3 Description of the Social Environment**

#### **4.7.4 Description of the Administrative Environment**

## **4.8 Action 8. Modify the Recreational Bag Limit for Gulf Migratory Group King Mackerel**

**Alternative 1:** No action - Maintain the current recreational bag limit of two fish per person per day.

**Alternative 2:** Increase the bag limit to three fish per person per day. **(Gulf CMP AP Recommended)**

**Alternative 3:** Increase the bag limit to four fish per person per day.

### **4.8.1 Description of the Physical and Biological Environments**

### **4.8.2 Description of the Economic Environment**

### **4.8.3 Description of the Social Environment**

### **4.8.4 Description of the Administrative Environment**

## 4.9 Cumulative Effects Analysis

## CHAPTER 5. REGULATORY IMPACT REVIEW

## **CHAPTER 6. REGULATORY FLEXIBILITY ACT ANALYSIS**

## CHAPTER 7. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS CONSULTED

### **Preparers:**

Name	Expertise	Responsibility
Ryan Rindone, GMFMC	Fishery Biologist	Co-Team Lead – amendment development, introduction, biological and administrative impacts
Kari MacLauchlin, SAFMC	Fishery Social Scientist	Co-Team Lead – amendment development, introduction, social environment and impacts
Susan Gerhart, NMFS	Fishery Biologist	Co-Team Lead – amendment development, introduction, biological, administrative and cumulative impacts
Karla Gore, NMFS/SF	Fishery Biologist	Co-Team Lead – amendment development, biological environments
Assane Diagne, GMFMC	Economist	Economic impacts
Brian Cheuvront, SAFMC	Economist	Economic impacts, regulatory impact review
Ava Lasseter, GMFMC	Anthropologist	Social impacts
Stephen Holiman, NMFS/SF	Economist	Economic environment and impacts, Regulatory Flexibility Act analysis
Christina Package, NMFS/SF	Anthropologist	Social environment
Mike Larkin, NMFS/SF	Data Analyst	Data analysis, Bycatch practicability analysis
Chip Collier, SAFMC	Biologist	Biological impacts

### **Reviewers:**

Name	Discipline/Expertise	Role in EA Preparation
Mara Levy, NOAA GC	Attorney	Legal review
Monica Smit-Brunello, NOAA GC	Attorney	Legal review
Noah Silverman, NMFS	Natural Resource Management Specialist	NEPA review
David Dale, NMFS/HC	EFH Specialist	Habitat review
Jennifer Lee, NMFS/PR	Protected Resources Specialist	Protected resources review
Christopher Liese	Economist	Social/economic review

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

The following have or will be consulted:

National Marine Fisheries Service

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

NOAA General Counsel

Environmental Protection Agency

United States Coast Guard

Texas Parks and Wildlife Department

Alabama Department of Conservation and Natural Resources/Marine Resources Division

Louisiana Department of Wildlife and Fisheries

Mississippi Department of Marine Resources

Florida Fish and Wildlife Conservation Commission



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# APPENDIX A. SUMMARIES OF PUBLIC COMMENTS RECEIVED

## Gulf of Mexico Scoping Workshop Comments

### SCOPING WORKSHOPS

Coastal Migratory Pelagics

Amendment 26

King Mackerel Allocations & Mixing Zone Delineation

Biloxi, Mississippi

March 31, 2015

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Meeting Attendees:

Rufus Young

#### King Mackerel Annual Catch Limit

How should the Councils adjust the king mackerel annual catch limits in light of the recent adjustment to acceptable biological catch?

- The Council should raise the annual catch limit along with the acceptable biological catch. Anything to get a little back.

Should a constant catch scenario be considered in the Gulf?

- A declining trend is fine. The constant catch scenario not preferable because it doesn't allow for the most fish to be harvested.

#### Gulf King Mackerel Commercial Zone Allocations

How should the Gulf annual catch limit be allocated to the commercial zones?

- The Gulf CMP Advisory Panel suggestions are fine. 40% to the Western Zone, 18% to the Northern Zone, and 21% each to the Southern Zone components. The Northern Zone guys need to fish too.

#### Gulf King Mackerel Sector Allocation

Should the Gulf Council adjust the commercial and recreational allocations for king mackerel?



- There should be a hard shift of 10% of the allocation from the recreational to commercial sector. Anything to give the commercial side more and keep the season open longer.

#### Sale of King Mackerel Bycatch in the South Atlantic Shark Gillnet Fishery

Should the South Atlantic Council allow bag limit sale of king mackerel caught while shark gillnetting?

- Yes, let them sell the bag limit. No sense in throwing dead fish away.

How would allowing bag limit sale of king mackerel change fishing behavior?

- There shouldn't be any change in fishing behavior.

#### Recreational Bag Limit for King Mackerel

Should the Gulf Council consider increasing the recreational bag limit for king mackerel?

- No, and it will cause recreational fishermen to fish hard if they can get three fish.

Saint Petersburg, Florida  
April 13, 2015

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Meeting Attendees:  
Richard Sergent  
Stewart Hehenberger

#### King Mackerel Stock Boundary

How would adjustments to the stock boundary effect the fishery?

- The opening dates for the new zones would have to change to ensure the fish are in those areas when they're open.
- There are not a whole lot of fish caught during the winter in the east/north end of that mixing zone. Fish are mostly to the west and northeast at that time.
- The suggested boundary change seems reasonable.

#### Gulf King Mackerel Commercial Zone Allocations

How should the Gulf annual catch limit be allocated to the commercial zones?



- The increase should be spread it out evenly.
- Consider giving more quota to the panhandle area (Northern subzone of the Eastern zone) which doesn't have enough fish. Currently that area has such a small portion of the fish that you can't even fish for king mackerel off of the St. Petersburg area because the panhandle fishermen catch the zone allocation up before the fish get there.
- Consider making a new fishing zone off St. Petersburg so the season can be open when the fish are around. Make the season for the Tampa zone open in March-May and maybe again in the fall.

#### Gulf King Mackerel Sector Allocation

Should the Gulf Council adjust the commercial and recreational allocations for king mackerel?

- The fish that are under harvested by the recreational sector should be given to the commercial sector.

#### Sale of King Mackerel Bycatch in the South Atlantic Shark Gillnet Fishery

Should the South Atlantic Council allow bag limit sale of king mackerel caught while shark gillnetting?

- No, those fishermen are shark fishing. Gillnets were banned off the Atlantic coast for a reason and harvest of king mackerel with that gear type should not be encouraged.

#### Florida East Coast Subzone Management

Should the South Atlantic consider creating a sub-quota or endorsement for king mackerel fishing in the Florida East Coast Subzone?

- Effort increase is a concern in that area but limiting entry in some way could be bad. There is fear that a qualifying year or number of landings will be chosen and fishermen currently fishing in that area will be excluded.
- There should not be an endorsement required to fish in the Florida East Coast subzone.

#### Recreational Bag Limit for King Mackerel

Should the Gulf Council consider increasing the recreational bag limit for king mackerel?

- The recreational bag limit should not increase. A 2-fish per person bag limit is plenty of meat.

Key West, Florida  
April 19, 2015

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Meeting Attendees:

George Niles  
Daniel Padron  
Bill Kelly

King Mackerel Annual Catch Limit

How should the Councils adjust the king mackerel annual catch limits in light of the recent adjustment to acceptable biological catch?

- Council's should evaluate the ABC annually.
- The Gulf Council should have more authority over the fishery than the South Atlantic Council.
- The SSC should reevaluate the ABC.

King Mackerel Stock Boundary

How would adjustments to the stock boundary effect the fishery?

- The proposed mixing zone is fine.

Gulf King Mackerel Sector Allocation

Should the Gulf Council adjust the commercial and recreational allocations for king mackerel?

- There has to be some way to use the fish that aren't being harvested.
- Recreational fish already go against commercial quota because they can sell the fish they catch.
- Give the commercial fishermen quota from the recreational sector until the recreational sector is landing 80% of its quota.
- The three million pounds of fish being left in the water by the recreational sector is not being caught, and using a "use it or lose it" for a million of those pounds over 5 years doesn't make sense.

How should the king mackerel annual catch limit be allocated?

- The recreational sector should lend portion of their quota to commercial sector because they're not using it and fish are being wasted. Try lending program for a year and see how it works.
- Attendees in favor of proportional allocation, where the Western Zone would get 45.53%; the Northern Zone, 7.61%; and each component of the Southern Zone, 23.43%.
- The allocation in the northern areas doesn't make sense. Those areas were never where the heart of the fishery was.

#### Sale of King Mackerel Bycatch in the South Atlantic Shark Gillnet Fishery

How would allowing bag limit sale of king mackerel change fishing behavior?

- It will not change the way people fish.
- A three fish limit will benefit those who are able to sell the incidentally caught fish.

#### Florida East coast Subzone Management

Should the South Atlantic consider creating a sub-quota or endorsement for king mackerel fishing in the Florida East Coast Subzone?

- There is not a lot of support for this idea, the system already too complicated.
- This may cause more people would jump into fishery.
- If it's done the Councils need to build in a sunset provision.
- The two-for-one provision that was brought up at South Atlantic AP was brought up, however, not much support from attendees.
- A sub-quota may affect the after-market in a negative way.

#### Recreational Bag Limit for King Mackerel

Should the Gulf Council consider increasing the recreational bag limit for king mackerel?

- The recreational sector does not need a three fish bag limit.
- Try a recreational bag limit increase for 1-2 years.
- Give an extra 2,000,000 pounds to the commercial sector instead.
- Rather than decreasing the recreational allocation, the Council needs to make it feasible for people to fish.

How would increasing the recreational bag limit for king mackerel change fishing behavior?

- Behavior will change if recreational fishermen are allowed to sell their fish. Charter boats will definitely fish for kingfish more in this case.

Meeting Attendees:  
Shane Cantrell

#### King Mackerel Annual Catch Limit

How should the Councils adjust the king mackerel annual catch limits in light of the recent adjustment to acceptable biological catch?

- Since the annual catch limit has not been harvested in recent years there is no need to raise it now.
- Keep status quo for three years to see how it works, reconsider an adjustment if we begin see a change in landings.

Should a constant catch scenario be considered in the Gulf?

- Yes. This would provide predictability in season length for the commercial zones.

#### King Mackerel Stock Boundary

What should the Councils do regarding the stock assessment recommendation on creating a mixing zone?

- The Council should follow the scientific advice and create a mixing zone.

How would adjustments to the stock boundary effect the fishery?

- Adjustments will have no effect.

#### Gulf King Mackerel Commercial Zone Allocations

How should the Gulf annual catch limit be allocated to the commercial zones?

- The Council should follow the Gulf CMP advisory panel recommendation. 40% for the Western Zone, 18% for the Northern Zone, and 21% each for the Southern Zone handline and gillnet components.

#### Gulf King Mackerel Sector Allocation

Should the Gulf Council adjust the commercial and recreational allocations for king mackerel?

- More recreational input is needed before a decision on allocation is made. We should have more information on why the recreational sector isn't harvesting their allocation. They shouldn't necessarily be penalized for under harvesting.

How should the king mackerel annual catch limit be allocated?

- A bag limit analysis and research on mortality rate of king mackerel releases should be performed to inform this decision.

#### Sale of King Mackerel Bycatch in the South Atlantic Shark Gillnet Fishery

Should the South Atlantic Council allow bag limit sale of king mackerel caught while shark gillnetting?

- Yes. There is no reason to discard dead fish, especially if they have dockside value.

How would allowing bag limit sale of king mackerel change fishing behavior?

- There will be no change.

#### Florida East Coast Subzone Management

Should the South Atlantic consider creating a sub-quota or endorsement for king mackerel fishing in the Florida East Coast Subzone?

- There should be a sub-quota rather than an endorsement to fish in the Florida East Coast Subzone.

Should specific accountability measures be established in the Florida East Coast Subzone?

- Yes. Effort over there seems to be an issue for the South Atlantic, so they will probably want to look at specific things over there.

#### Recreational Bag Limit for King Mackerel

Should the Gulf Council consider increasing the recreational bag limit for king mackerel?

- Yes. We need to do everything we can to help the recreational fishermen catch their allocation. Maybe this will help them land more fish.

How would increasing the recreational bag limit for king mackerel change fishing behavior?

- Depends on individual, but generally there will be changes in behavior with a larger bag limit. The for-hire group would keep extra fish.

Grand Isle, Louisiana  
April 28, 2015

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Meeting Attendees:

Dean Blanchard  
Kelty Readenour  
Michael Frazier  
Abigail Frazier  
Brian Hardcastle

King Mackerel Annual Catch Limit

How should the Councils adjust the king mackerel annual catch limits in light of the recent adjustment to acceptable biological catch?

- The maximum possible ACL is preferred as long as it does not cause overfishing.

Should a constant catch scenario be considered in the Gulf?

- Council should follow the advisory panel suggestion and select a constant catch scenario.

King Mackerel Stock Boundary

What should the Councils do regarding the stock assessment recommendation on creating a mixing zone?

- The mixing zone should be created if it makes sense scientifically. There would be no effect on the fishery.

Gulf King Mackerel Zone Allocations

How should the Gulf annual catch limit be allocated to the commercial zones?

- Locals don't have a chance to fish in the Western zone with so many traveling fishermen coming from different areas. The advisory panel's recommendation of 41% allocation for the western Gulf should be considered.

Sector Reallocation of Gulf King Mackerel

Should the Gulf Council adjust the commercial and recreational allocations for king mackerel?

- Do not move recreational allocation to commercial sector. You don't want to mess with those guys, or you'll never hear the end of it.

#### Sale of King Mackerel Bycatch in the Shark Gillnet Fishery

Should the South Atlantic Council allow bag limit sale of king mackerel caught while shark gillnetting?

- Yes, as long as it is monitored.

#### Management for the Florida East Coast Subzone

Should the South Atlantic consider creating a sub-quota or endorsement for king mackerel fishing in the Florida East Coast Subzone?

- Follow the advisory panel recommendation. This is largely a South Atlantic issue, so the South Atlantic Council should decide.

#### Recreational Bag Limit for King Mackerel

Should the Gulf Council consider increasing the recreational bag limit for king mackerel?

- Yes. Do something to see if they can catch their fish. If not, then reallocate fish to the commercial sector.

How would increasing the recreational bag limit for king mackerel change fishing behavior?

- Fishing behavior won't change by a measurable amount.

## South Atlantic Scoping Comments

The South Atlantic Council held scoping for items in Amendment 26 in January 2015. One in-person scoping meeting was held on January 21, 2015, in Cocoa Beach, FL, with 16 individuals providing public comment on the record. A scoping webinar for Amendment 26 was held on February 4, 2015. There were 12 individuals (plus staff) logged onto the webinar but only one individual provided comments on the record. Additionally, three written comments were received.

### Coastal Migratory Pelagics Amendment 26

- Six commenters noted the abundance of small fish and high recruitment, and supported setting the ACL at the highest level possible (high recruitment ABC).
- Two commenters supported the medium recruitment ABC.
- One commenter felt that the OFL should be much higher due to high recruitment during several non-hurricane years.
- One commenter recommended allowing unused quota to be rolled over to the next year.
- One commenter was concerned about how lack of information about the dynamics of stock mixing in SEDAR 38
- Five commenters supported updating the stock boundary and mixing zone.
- Nine commenters and several discussion participants were concerned with how the Northern and Southern Zone quotas (set up in Amendment 20B) would work with the new stock boundary and ACLs for king mackerel. Some individuals did not support a separate Northern Zone quota.
- Several commenters and discussion participants were concerned that the Florida East Coast subzone quota would be moved to the other Gulf zones or be allocated to the Northern Zone quota.
- One commenter felt that the Gulf Eastern Zone/Northern Subzone should have the largest proportion of the Gulf ACL, because it has the largest number of participants and potential new entrants. There should be split seasons with a 500-lb trip limit from Apr 1- Sept 30, and a 1250-lb trip limit with a step-down in November for Oct 1- Mar 31.
- Six commenters supported allowing bag limit sales of king mackerel in the shark gillnet fishery. One commenter recommended that this should only be allowed if it can be strictly enforced so that only a small number (bag limit) can be sold.
- Twelve commenters were opposed to an endorsement to fish king mackerel in the Florida East Coast subzone, because if endorsements are set up in other zones/subzones, this would affect the traveling fishermen. Some commenters also felt that an endorsement would be a step toward catch shares and they were opposed to catch shares.
- One commenter supported a subquota for the Florida East Coast subzone.
- One commenter recommended moving the Florida East Coast subzone boundary south of the Flagler/Volusia line.
- One commenter recommended waiting until the new ACLs are in place before addressing management in the Florida East Coast subzone.
- One commenter recommended changing the fishing year for the Florida East Coast subzone to March 1.



## APPENDIX B. ALTERNATIVES CONSIDERED BUT REJECTED

### **Action 3**

**Alternative 3:** Allow retention and sale of Atlantic migratory group king mackerel caught with gillnet as incidental catch in the drift gillnet portion of the commercial shark fishery for any vessel with a valid shark directed commercial permit AND valid federal king mackerel commercial permit. The king mackerel must be sold to a dealer with the Southeast federal dealer permit.

**Option a:** For shark gillnet trips in the South Atlantic, no more than 100 lbs of king mackerel can be on board, and no more than 100 lbs of king mackerel can be sold from the trip. **(South Atlantic CMP AP Preferred)**

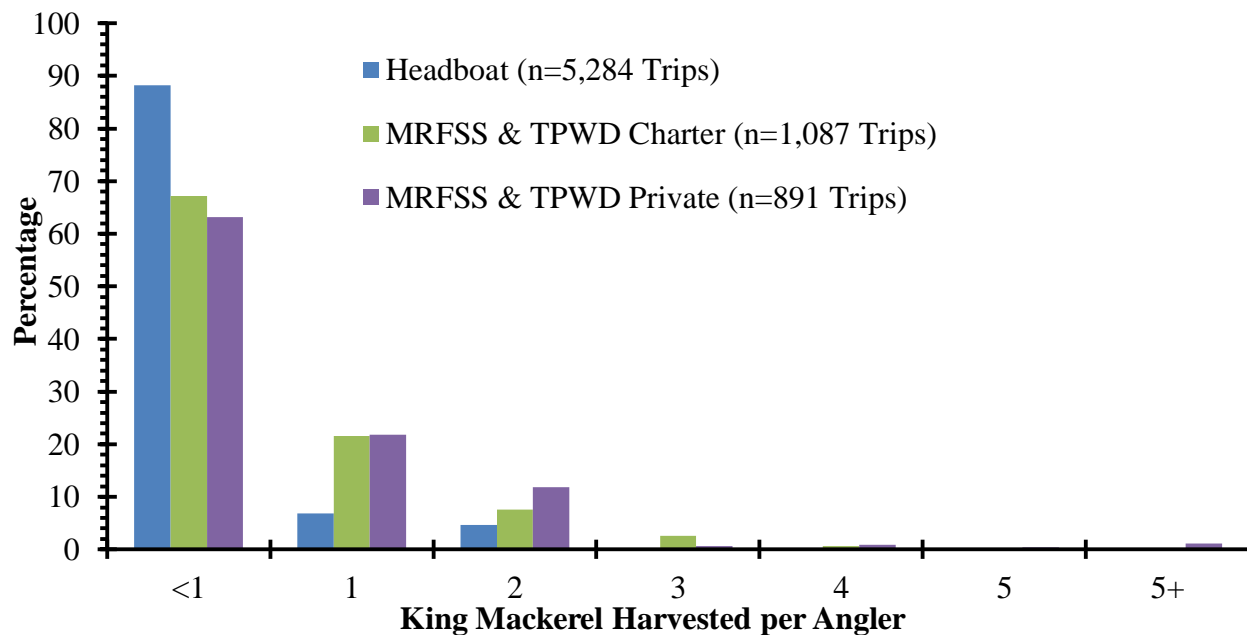
**Option b:** For shark gillnet trips in the South Atlantic, no more than 100 lbs of king mackerel can be on board, and no more than 100 lbs of king mackerel can be sold from the trip.

The Councils removed this alternative from consideration in June 2015. The Councils preferred to have alternatives with numbers of fish instead of pounds of fish because it would help compliance and enforcement. Additionally, depending on the mesh size being used, specification of a maximum poundage that could be on board and sold could vary on each trip.

## APPENDIX C. RECREATIONAL KING MACKEREL BAG LIMIT ANALYSIS FOR THE GULF OF MEXICO

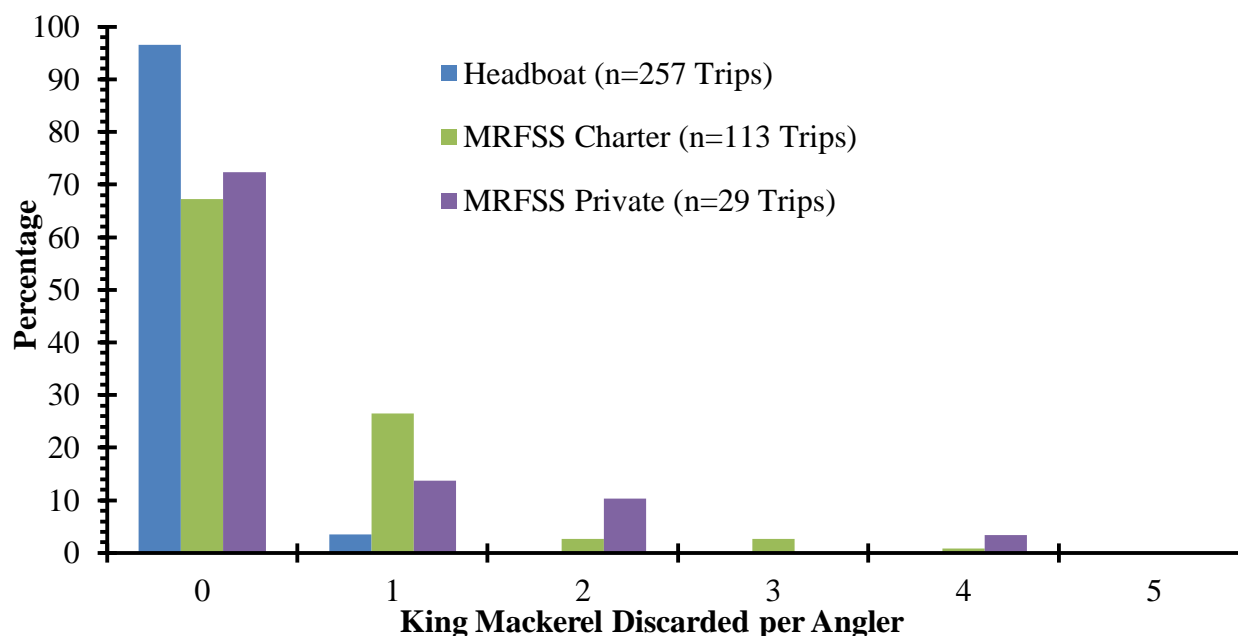
The Gulf of Mexico Fishery Management Council requested analysis of increasing the king mackerel bag limit from 2 to 3 fish per angler at their March 2015 meeting. This analysis also includes an increase to 4 fish per angler, to provide a range of alternatives should this action be added to an amendment. This action may be added to Amendment 26 to the Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and South Atlantic Region or developed as a framework amendment.

First, Gulf of Mexico recreational datasets from Marine Recreational Fisheries Statistical Survey (MRFSS), Headboat, and Texas Parks and Wildlife Department (TPWD) were explored to determine the numbers of king mackerel harvested per angler. Data from the most recent years of complete data (2011-2013) were used. Figure 1 provides the distribution of the number of king mackerel harvested per angler.



**Figure 1.** Distribution of Gulf of Mexico king mackerel harvested per angler by mode from the three recreational datasets (MRFSS, Headboat, and TPWD). The data used are from 2011 through 2013.

Since the current bag limit is two king mackerel per angler, the possibility exists that king mackerel may be discarded after the bag limit is met on a trip. This was explored by first isolating the trips that met or exceeded the bag limit. Only 7% (n=513 trips) of the total trips from 2011-2013 met or exceeded the 2-fish bag limit. The number of discards per angler on trips that met or exceeded the bag limit were plotted in Figure 2. However, discards are not recorded in the TPWD survey so it is unknown how many king mackerel were discarded in Texas waters. TPWD accounted for 22% (n=114 trips) of the 513 trips that met or exceeded the trip limit.



**Figure 2.** Distribution of Gulf of Mexico king mackerel discarded per angler by mode from MRFSS and Headboat data. TPWD data are not included because no discard information is collect in the TPWD survey. The data used are from 2011 through 2013.

Increases from 2 to 3 fish and from 2 to 4 fish were analyzed with two different methods that modified the trips that met the 2 fish per angler bag limit. Trips that harvested less than 2 fish per angler or more than 2 fish per angler were not modified. The first of the two methods assumed that all trips that met the 2 fish per angler bag limit would also meet the 3 and 4 fish per angler bag limit. The second method isolated the trips that met the 2 fish bag limit and assumed they met the 3 and 4 fish bag limit if those trips also had discards of 1 or 2 king mackerel, respectively. For example, a trip that met the 2 fish bag limit and had at least two discarded king mackerel was analyzed by assuming 4 king mackerel (2 harvested fish plus the 2 discarded fish) were harvested for that trip. It must be noted that the second method assumes discarded king mackerel were only discarded because the trip limit was met. However, these discards could have been because these fish were below the minimum size limit of 24 inches fork length. The length of the discarded fish is not available so it is not possible to distinguish if the discards were because the fish was below the minimum size. The calculated percent increase in landings by mode are shown in Table 1.

**Table 1.** Calculated percent increase in Gulf of Mexico king mackerel recreational landings from increasing the bag limit. Percent increase in landings was calculated by mode for two different methods. Method 1 assumes all the trips that met the 2 fish bag limit would also meet the 3 or 4 fish per angler bag limit. Method 2 isolated the trips that met the 2 fish bag limit and allowed them to meet the 3 and 4 fish bag limit if these trips also had discarded king mackerel. Analysis for TPWD was not possible because discards are not recorded in the TPWD survey.

Bag Limit	MRFSS		TPWD		Headboat
	Charter	Private	Charter	Private	
Method 1					
2 to 3 Fish	7%	11%	6%	14%	13%
2 to 4 Fish	17%	22%	11%	28%	27%
Method 2					
2 to 3 Fish	1%	1%	NA	NA	<1%
2 to 4 Fish	2%	4%	NA	NA	<1%

An overall percent increase in recreational landings was calculated by weighting the percent increase for each mode by the percentage of landings that mode contributed to the overall recreational landings. The pounds and percentage of king mackerel recreational landings for each mode from 2011 to 2013 are shown in Table 2. The overall percent increase is shown in Table 3.

**Table 2.** Gulf of Mexico king mackerel landings by mode from 2011 to 2013. The landings are in pounds whole weight (lbs ww) and percent of the total landings.

Mode	Landings (lbs ww)	Percent
MRFSS charter	2,543,217	27%
MRFSS private	6,157,548	64%
TPWD charter	25,797	0%
TPWD private	292,286	3%
Headboat	567,549	6%
Total	9,586,397	100%

**Table 3.** Percent increase in Gulf of Mexico king mackerel recreational landings generated from data for the years 2011 to 2013. The percent increase estimates were calculated by weighting the increase in the bag limit for each mode (Table 1). The weighting was based on the percentage of landings each mode contributed to the overall landings from 2011 to 2013 (Table 2).

Bag Limit	Method 1	Method 2
2 to 3 Fish	10.1%	0.9%
2 to 4 Fish	21.1%	3.1%

This analysis attempted to predict realistic changes to king mackerel recreational landings by applying increases to the current 2-fish bag limit. 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 increase in landings associated with bag limit options assume past performance in the fishery is a good predictor of future dynamics. The analysis constrained the range of data considered to recent years to reduce the unreliability of this assumption.