PUBLIC HEARING DRAFT
AMENDMENT 18
TO THE FISHERY MANAGEMENT PLAN
FOR COASTAL MIGRATORY PELAGIC RESOURCES
IN THE ATLANTIC AND GULF OF MEXICO
INCLUDING ENVIRONMENTAL ASSESSMENT, REGULATORY IMPACT REVIEW, AND REGULATORY FLEXIBILITY ACT ANALYSIS

JUNE 2011

Gulf of Mexico Fishery Management Council
2203 North Lois Avenue
Suite 1100
Tampa, FL 33607
813-348-1630 Phone
813-348-1711 Fax
www.gulfcouncil.org

South Atlantic Fishery Management Council
4055 Faber Place Drive
Suite 201
North Charleston, SC 29405
843-571-4366 Phone
843-769-4520 Fax
www.safmc.net

Mid-Atlantic Fishery Management Council
Suite 2115 Federal Bldg.
300 S. New St
Dover, DE 19904-6726
302-674-2331 Phone
302-674-5399 Fax
www.mafmc.org

National Oceanic & Atmospheric Administration
National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701
727-824-5305
727-824-5308 (fax)
http://sero.nmfs.noaa.gov

This is a publication of the Gulf of Mexico Fishery Management Council Pursuant to National Oceanic and Atmospheric Administration Award No. NA10NMF4410011

This page intentionally blank

ABBREVIATIONS USED IN THE DOCUMENT

ABC	Acceptable Biological Catch
ACCSP	Atlantic Coast Cooperative Statistics Program
ACL	Annual Catch Limits
ACT	Annual Catch Targets
ALS	Accumulative Landings System
AM	Accountability Measures
ASMFC	Atlantic States Marine Fisheries Commission
B_{MSY}	Stock biomass level capable of producing an equilibrium yield of MSY
CFL	Coastal Fisheries Logbook
CMP	Coastal Migratory Pelagics
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
F	Instantaneous rate of fishing mortality
FDEP	Florida Department of Environmental Protection
FL	Fork Length
F_{MSY}	Fishing mortality rate corresponding to an equilibrium yield of MSY
F_{OY}	Fishing mortality rate corresponding to an equilibrium yield of OY
FMP	Fishery Management Plan
GMFMC	Gulf of Mexico Fishery Management Council
GSMFC	Gulf States Marine Fisheries Commission
HBS	Headboat Survey
MAFMC	Mid-Atlantic Fishery Management Council
MFMT	Maximum Fishing Mortality Threshold
mp	million pounds
MSAP	Mackerel Stock Assessment Panel
MRFSS	Marine Recreational Fisheries Survey and Statistics
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MSST	Minimum Stock Size Threshold
MSY	Maximum Sustainable Yield
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	NOAA's National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NS1	National Standard 1
OFL	Over Fishing Limit
OY	Optimum Yield
SAFMC	South Atlantic Fishery Management Council
SEDAR	Southeast Data, Assessment and Review
SEFSC	Southeast Fisheries Science Center
SSC	Scientific and Statistical Committee
SSB	Spawning Stock Biomass
SPR	Spawning Potential Ratio
TAC	Total Allowable Catch
TL	Total Length
TPWD	Texas Parks and Wildlife Department

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF MACKEREL AMENDMENT 18 PREFERRED ALTERNATIVES

ACTION 1: Modifications to the Fishery Management Unit
Preferred Alternative 3: Remove the following species from the Fishery Management Plan:
- **Option a:** Cero
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option b:** Little tunny
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option c:** Dolphin
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option d:** Bluefish (In the Gulf of Mexico region only)

ACTION 2: Modify the Framework Procedure
Alternative 3. Revise the framework procedure to incorporate the SEDAR process and adjustments to ACLs, and expand the procedure to allow adjustments of greater range of management measures under specific procedural guidelines.
Preferred Option 1: Adopt the base Framework Procedure (Appendix B)

ACTION 3: Establish Separate Atlantic and Gulf Migratory Groups of Cobia
Preferred Alternative 3. Separate the two migratory groups at the SAFMC/GMFMC boundary.

ACTIONS 4-12 address Gulf Council Actions that are currently being finalized. The Gulf Council will conduct separate public hearings on the 3 joint actions and their Gulf only actions (Actions 4-12) prior to June. The South Atlantic Council is conducting public hearings on the 3 joint actions and their South Atlantic only actions (Actions 13-21).

ACTION 13: Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL (TAC), and ACT levels for Atlantic Migratory Group King Mackerel

Action 13.1: Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST) and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory Group King Mackerel
MSY = 9.357-12.836 million pounds whole weight
MSST = 1,827.5 billion hydrated eggs
MFMT = F_{MSY} = $F_{30\%SPR}$ = 0.256

Action 13.2: Overfishing Level (OFL) for Atlantic Migratory Group King Mackerel
The OFL for king mackerel is 12.8359 million pounds whole weight (corresponds to yield at $F_{30\%SPR}$, the accepted MSY proxy from the last stock assessment).

Action 13.3: Allowable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory Group King Mackerel
Preferred Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as 10.46 million pounds (whole weight, MP).

Action 13.4: Annual Catch Limit (ACL) and Optimum Yield (OY) for Atlantic Migratory Group King Mackerel
Preferred Alternative 2. ACL = OY = ABC = 10.46 million pounds whole weight which is the average of the ABC values for 2011-2013 recommended by the SSC. Note: using the existing allocations (62.9% recreational and 37.1% commercial) results in a recreational ACL of 6.58 million pounds whole weight and a commercial ACL of 3.88 million pounds whole weight.

Action 13.5: Annual Catch Target (ACT) for Atlantic Migratory Group King Mackerel
Action 13.5a. Commercial Sector ACT
Preferred Alternative 1 (No Action). Do not specify commercial sector ACTs for Atlantic migratory group king mackerel.

Action 13.5b. Recreational Sector ACT
Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater]. Note: The recreational ACT = 6.18 million pounds whole weight.

ACTION 14: Specify Accountability Measures (AMs) for Atlantic Migratory Group King Mackerel
Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement AMs for the recreational sector for this stock. If the recreational sector ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011/12, use only 2011/12 landings. For 2012/13, use the average landings of 2011/12 and 2012/13. For 2013/14 and beyond, use the most recent three-year (fishing years) running average.
Preferred Sub-Alternative b. Reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following fishing year.
Alternative 3. Commercial payback of any overage.
    Preferred Sub-Alternative 3a. Payback regardless of stock status.
Alternative 4. Recreational payback of any overage from one year to the next.
    Preferred Sub-Alternative 4a. Payback regardless of stock status.

ACTION 15: Management Measures for Atlantic Migratory Group King Mackerel
Preferred: No changes to existing management measures are being proposed because the ACLs do not appear likely to be exceeded.

ACTION 16: Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL (TAC), and ACT levels for Atlantic Migratory Group Spanish Mackerel

Action 16.1: Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST), and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory Group Spanish Mackerel
Currently MSY = 10.4 million pounds whole weight.
Currently MSST = 0.85(B_{MSY}) with no poundage estimated.
Currently MFMT = F_{MSY} = $F_{30\%SPR}$ with no poundage estimated.

Action 16.2: Overfishing Level (OFL) for Atlantic Migratory Group Spanish Mackerel
The Council is recommending an interim OFL = mean of 10 years landings + (2*Standard Deviation) (OFL=6.14 MP) based on the Gulf Council's ABC Control Rule.

Action 16.3: Allowable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory Group Spanish Mackerel
Preferred Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as 5.29 million pounds (MP).

Action 16.4: Annual Catch Limit (ACL) for Atlantic Migratory Group Spanish Mackerel
Preferred Alternative 2. ACL = OY = ABC = 5.29 million pounds which is the ABC recommended by the SSC. Note: using the existing allocations (45% recreational and 55% commercial) results in a recreational ACL of 2.38 million pounds whole weight and a commercial ACL of 2.91 million pounds whole weight.

Action 16.5: Annual Catch Target (ACT) for Atlantic Migratory Group Spanish Mackerel
Action 16.5a Commercial Sector ACT
Preferred Alternative 1. Do not specify commercial sector ACTs for Atlantic migratory group Spanish mackerel.

Action 16.5b Recreational Sector ACT
Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater]. Note: The recreational ACT = 2.19 million pounds whole weight.

ACTION 17: Specify Accountability Measures (AMs) for Atlantic Migratory Group Spanish Mackerel
Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement AMs for the recreational sector for this stock. If the recreational sector ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011/12, use only 2011/12 landings. For 2012/13, use the average landings of 2011/12 and 2012/13. For 2013/14 and beyond, use the most recent three-year (fishing years) running average.
Preferred Sub-Alternative b. Reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following fishing year.

Alternative 3. Commercial payback of any overage.
Preferred Sub-Alternative 3a. Payback regardless of stock status.

Alternative 4. Recreational payback of any overage from one year to the next.
Preferred Sub-Alternative 4a. Payback regardless of stock status.

ACTION 18: Management Measures for Atlantic Migratory Group Spanish Mackerel
Preferred Alternative 4. Reduce the individual bag limit from 15 to 10 per person.
ACTION 19: Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL (TAC), Allocations, and

ACT levels for Atlantic Migratory Group Cobia

Action 19.1: Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST), and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory Group Cobia
The Council has determined that the value for MSY is the value from the most recent stock assessment. Currently MSY is unknown.

The Council has determined that the value for MSST is the value from the most recent stock assessment based on MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. Currently MSST is unknown.

The Council has determined that the value for MFMT is the value of F_{MSY} or proxy from the most recent stock assessment. Currently MFMT is unknown.

Action 19.2: Overfishing Level (OFL) for Atlantic Migratory Group Cobia
The Council is recommending an interim OFL = mean of 10 years landings + (2*Standard Deviation) (OFL=1.68 MP whole weight) based on the Gulf Council's ABC Control Rule.

Action 19.3: Allowable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory Group Cobia
Alternative 4. Adopt the SAFMC SSC recommended ABC control rule and establish an ABC Control Rule where ABC equals a percentage of OFL.
GMFMC Preferred Sub-Alternative 4b. ABC=75%OFL (977,055 pounds whole weight)
SAFMC Preferred Alternative 5. Adopt the Gulf Council's ABC Control Rule as an interim control rule and establish an ABC equal to the mean plus 1.5 times the standard deviation of the most recent10 years of landings data (ABC = 1,571,399 pounds whole weight).

Action 19.4: Allocations for Atlantic Migratory Group Cobia
Preferred Alternative 3. Define allocations for Atlantic migratory group cobia based upon landings from the ALS, MRFSS, and headboat databases. The allocation would be based on the following formula for each sector:
Sector apportionment = (50% * average of long catch range (lbs) 2000-2008 + (50% * average of recent catch trend (lbs) 2006-2008). The allocation would be 8% commercial and 92% recreational. The commercial and recreational allocation specified for 2011 would remain in effect beyond 2011 until modified.

Action 19.5: Annual Catch Limit (ACL) for Atlantic Migratory Group Cobia
Preferred Alternative 2. ACL = OY = ABC = 977,055 pounds whole weight based on the SSC recommendation. Note: During their March 3, 1011 meeting, the SSC developed a new ABC = median of last 10 years and using the updated ACL data set, ABC = 1,026,079 pounds whole weight. Using the SAFMC's Interim Control Rule, ABC = 1,571,399 pounds whole weight. Note: using the proposed allocations (92% recreational and 8% commercial) results in a recreational ACL of 1,445,687 million pounds whole weight and a commercial ACL of 125,712 pounds whole weight.
Action 19.6 Annual Catch Target (ACT) for Atlantic Migratory Group Cobia

Action 19.6a Commercial Sector ACT

Preferred Alternative 1. Do not specify commercial sector ACTs for Atlantic migratory group cobia.

Action 19.6b Recreational Sector ACT
Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater]. Note: The recreational ACT = 1,199,920 pounds whole weight.

ACTION 20. Specify Accountability Measures (AMs) for Atlantic Migratory Group Cobia
Preferred Alternative 3. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement Accountability Measures (AMs) for the recreational sector for this stock. If the ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011, use only 2011 landings. For 2012, use the average landings of 2011 and 2012. For 2013 and beyond, use three-year running average.
Alternative 4. Commercial payback of any overage.
Preferred Sub-Alternative 4a. Payback regardless of stock status.
Alternative 5. Recreational payback of any overage from one year to the next.
Preferred Sub-Alternative 45a. Payback regardless of stock status.

ACTION 21: Management Measures for Atlantic Migratory Group Cobia
Preferred Alternative 1. No Action. Recreational and commercial fishermen are limited to two cobia per person. This would retain the following regulations that apply to both recreational and commercial fishermen: (a) 33" fork length minimum size limit, (b) 2 per person bag limit (Note: Florida State regulations only allow 1 per person for recreational and 2 per person for commercial), (c) one day possession limit, (d) must be landed with heads and fins intact, and (d) charter/headboats require a permit for Coastal Migratory Pelagics.

1.0 INTRODUCTION

The Magnuson-Stevens Reauthorization Act (Magnuson-Stevens Act) of 2006 established new requirements to end and prevent overfishing through the use of annual catch limits (ACLs) and accountability measures (AMs). Implementation of ACL/AM provisions must begin in 2010 or earlier for stocks subject to overfishing, and in 2011 or earlier for all other stocks under federal management. The final rule to amend the National Standard 1 Guidelines for setting ACLs and AMs also indicates that for species not undergoing overfishing, the mechanisms and values for ACLs and AMs must be specified in FMPs, FMP amendments, implementing regulations, or annual specifications beginning in fishing year 2011 (see Section(2)(A) in the center column on page 3211).

The Gulf of Mexico Fishery Management Council (GMFMC), the South Atlantic Fishery Management Council (SAFMC), and the Mid-Atlantic Fishery Management Council (MAFMC) are preparing to amend the Coastal Migratory Pelagics Fishery Management Plan (CMP FMP) by consideration of actions as stated and discussed below. The primary action under consideration in Amendment 18 would establish ACLs and AMs for the following managed species:

King mackerel, Scomberomorus cavalla
Spanish mackerel, Scomberomorus maculatus
Cobia, Rachycentron canadum

Amendment 18 also considers removal or a change in status of the following species that are currently included in the CMP FMP for data collection purposes:

Bluefish, *Pomatomus saltatrix* (Gulf of Mexico only)
Cero, Scomberomorus regalis
Little tunny, Euthynnus alleteratus
Dolphin*, *Coryphaena hippurus* (Gulf of Mexico only)

*Note: Dolphin in the South Atlantic, Mid-Atlantic, and New England Fishery Management Council's jurisdictions are managed under the Dolphin and Wahoo Fishery Management Plan with the southern boundary at the border between the Gulf and South Atlantic Councils. Bluefish are managed under the MAFMC Bluefish FMP.

In addition to setting ACLs and AMs, Amendment 18 contains alternatives to modify the framework procedure to incorporate the Southeast Data Assessment and Review process (SEDAR); allow for adjustments of the overfishing level (OFL), ACLs, AMs, and possibly annual catch targets (ACTs); defining management units for cobia in the Gulf and Atlantic; and to make other adjustments to bring the CMP FMP into full compliance with the Magnuson-Stevens Act and be consistent with best available science and current management practices.

Stock assessments have been conducted for Atlantic king and Spanish mackerel but not cobia in the Atlantic; the most recent assessments are as follows:

Atlantic Migratory Group King Mackerel – SEDAR 16 (2008) with data thru 2006
Atlantic Migratory Group Spanish Mackerel – SEDAR 17 (2008) with data thru 2007
Atlantic Migratory Group Cobia – no stock assessment in the Atlantic

1.1 Background

In 2006, the Magnuson-Stevens Act was re-authorized and included a number of changes to improve conservation of managed fishery resources. The goals require that conservation and management measures "shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry". Included in these changes are requirements that the Regional Councils must establish both a mechanism for specifying ACLs at a level such that overfishing does not occur in the fishery and AMs to correct if overages occur. Accountability measures are management controls to prevent the annual catch limits from being exceeded and to correct by either in-season or post-season measures if they do occur.

The ACL is set by the Council, but begins with specifying an overfishing limit, which is the yield, above which overfishing occurs. Once an overfishing limit is specified, an acceptable biological catch (ABC) level is recommended by the Council's Scientific and Statistical Committee. The ABC is based on the overfishing limit and takes into consideration scientific uncertainty. The overfishing limit and ABC are set by scientists, whereas the next two reference points, ACL and ACT are set by managers. The ACT is not required to be specified, but if used should be set at a level that takes into account management uncertainty and provides a low probability of the ACL being exceeded. These measures must be implemented by 2010 for all stocks experiencing overfishing and 2011 for all others.

There are some exceptions for the development of ACLs; for example, when a species can be considered an ecosystem component species and species with annual life cycles. Stocks listed in the Fishery Management Unit are classified as either ''in the fishery'' or as an ''ecosystem component''. By default, stocks are considered to be "in the fishery" unless declared ecosystem component species. Ecosystem component species are exempt from the requirement for ACLs. In addition, ecosystem component species may, but are not required to be included in a Fishery Management Plan for any of the following reasons: data collection purposes; ecosystem considerations related to specification of optimum yield for the associated fishery; as considerations in the development of conservation and management measures for the associated fishery; and/or to address other ecosystem issues.

To be considered for possible classification as an ecosystem component species, the species should:
(A) Be a non-target species or non-target stock;
(B) Not subject to overfishing, approaching overfished, or overfished;
(C) Not likely to become subject to overfishing or overfished, according to the best available information, in the absence of conservation and management measures; and
(D) Not generally be retained for sale or personal use.

An ACL for a given stock or migratory group can be established in several ways. It can be a single ACL; it can be divided by sectors based on allocations (i.e., recreational and commercial sectors); or it can be divided by sector and gear types (i.e., recreational, commercial hook-and-line, and commercial gill net. In any of these cases, the sum of the ACLs cannot exceed the ABC.

1.2 Purpose and Need

Revisions to the Magnuson-Stevens Act in 2006 require establishment of a mechanism for specifying ACLs at levels that prevent overfishing and do not exceed the recommendations of the respective Council's Scientific and Statistical Committee (SSC) or other established peer review processes for all managed species. It also requires setting measures to ensure accountability. The AMs are management controls that ensure that the ACLs are not exceeded; or if the ACL is exceeded corrective measures are taken to prevent overfishing. Since none of the managed species under the CMP FMP are considered to be undergoing overfishing or are designated as overfished, the councils have until the 2011 fishing year to implement ACLs and AMs.

The current framework procedure is out-of-date in that it contains procedures and reviews that are no longer being conducted in the manner described, i.e., stock assessments. It also includes a species group that is currently managed by an FMP other than the CMP FMP, i.e., dolphin. Additionally, it indicates that cobia are a unit stock that should be managed throughout its range in the Gulf and Atlantic; however, best available science supports separate management in the Gulf and Atlantic. Other changes are needed to fully comply with the Sustainable Fisheries Act of 1996 and the Magnuson-Stevens Reauthorization Action of 2006. By being able to modify these parameters through framework actions, the Councils can more expeditiously respond to changing scientific advice as may be dictated by future stock assessments.

1.3 Boundaries

The CMP FMP, approved in 1982 and implemented by regulations effective in February of 1983, treated king and Spanish mackerel each as one U.S. stock. The present management regime for mackerel recognizes two migratory groups of king and Spanish mackerel, the Gulf Migratory Group and the Atlantic Migratory Group.

King mackerel: These two migratory groups seasonally mix off the East Coast of Florida and in Monroe County, Florida. For management and assessment purposes, a boundary between these migratory groups of king mackerel was specified as 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).

Spanish mackerel: Although these two migratory groups mix in south Florida, abundance trends along each coast of Florida are different indicating sufficient isolation between the two migratory groups. Consequently, the boundary for Spanish mackerel is fixed at the Miami-Dade/Monroe County border on Florida's southeast coast (Figure 2).

Cobia: Cobia are currently managed as a unit stock with each council establishing management regulations for their respective Council jurisdictions.

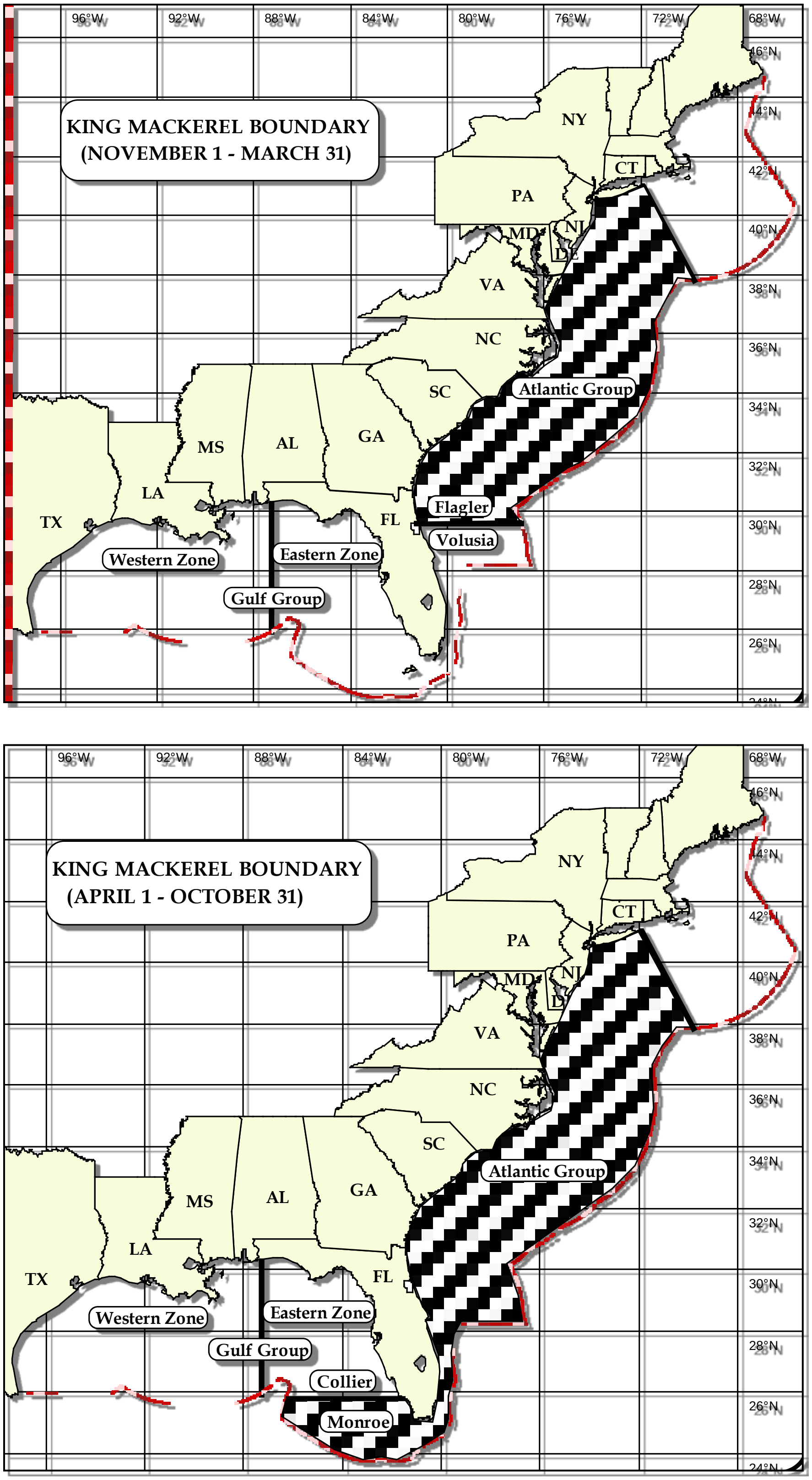


Figure 1.3.1. Seasonal boundary between Atlantic and Gulf Migratory Groups of king mackerel.

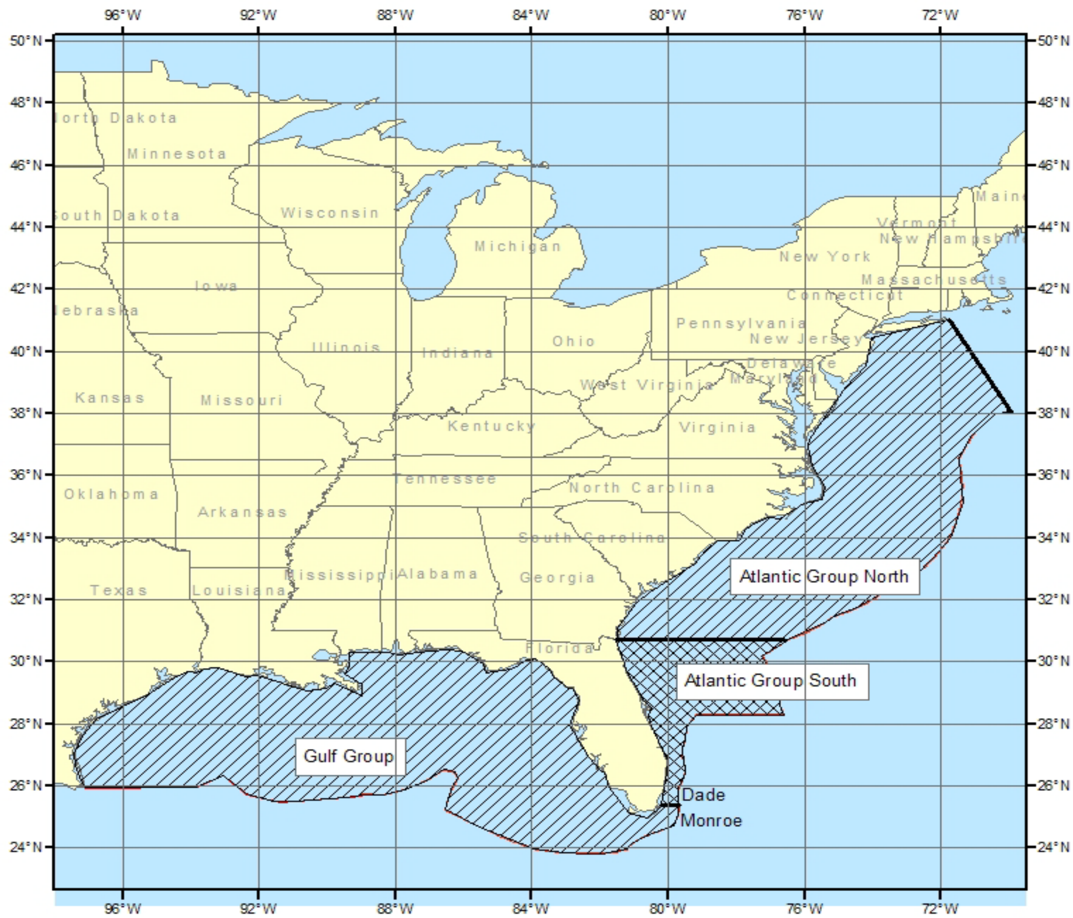


Figure 1.3.2. Fixed boundary between Atlantic and Gulf Migratory Groups of Spanish mackerel.
Source: Council Staff.

1.4 Allocations

For the purpose of allocating a limited resource among users, the management plan has set ratios based on historic unregulated catches. The Atlantic Migratory Group of king mackerel is allocated with 62.9% to recreational fishermen and 37.1% to commercial fishermen. The Atlantic Migratory Group of Spanish mackerel is presently allocated 55% to commercial fishermen and 45% to recreational fishermen. For Gulf Migratory Group king mackerel, the allocation is 68% recreational and 32% commercial. For Gulf Migratory Group Spanish mackerel, the allocation is 57% commercial and 43% recreational. The Councils may establish a Gulf Migratory Group of cobia and an Atlantic Migratory Group of cobia in Amendment 18. The South Atlantic Council is evaluating allocation alternatives for Atlantic Migratory Group cobia; the Gulf Council will consider allocation alternatives in a future amendment.

1.5 Mixing Percentage

When the original boundary between the Gulf migratory group king mackerel and the Atlantic migratory group was set, it was based on tagging data that indicated the mix was approximately 60% Gulf and 40% Atlantic. The Gulf and South Atlantic Councils agreed to count king mackerel in the winter mixing zone (previously discussed) as 100% Gulf migratory group fish to help rebuild the overfished Gulf migratory group. The most recent scientific information used in the SEDAR 16 stock assessment indicated that the mixing rate is probably closer to 50% Atlantic and 50% Gulf. The following analyses, discussions, tables, etc. are based upon this 50/50 mixing rate assumption.

1.6 History of Management

The CMP FMP, with Environmental Impact Statement (EIS), was approved in 1982 and implemented by regulations effective in February of 1983. Managed species included king mackerel, Spanish mackerel, and cobia. The FMP treated king and Spanish mackerel as unit stocks in the Atlantic and Gulf of Mexico. The FMP established allocations for the recreational and commercial sectors harvesting these stocks, and the commercial allocations were divided between net and hook-and-line fishermen.

FMP Amendments

Amendment 1, with EIS, implemented in September of 1985, provided a framework procedure for pre-season adjustment of total allowable catch (TAC), revised the estimate of king mackerel maximum sustainable yield (MSY) downward, recognized separate Atlantic and Gulf migratory groups of king mackerel, and established fishing permits and bag limits for king mackerel. Commercial allocations among gear users, except purse seines that were allowed 6% of the commercial allocation of TAC, were eliminated. The Gulf commercial allocation for king mackerel was divided into Eastern and Western Zones for the purpose of regional allocation, with 69% of the remaining allocation provided to the Eastern Zone and 31% to the Western Zone. Amendment 1 also established minimum size limits for Spanish mackerel at 12 inches fork length (FL) or 14 inches total length (TL) and for cobia at 33 inches FL or 37 inches TL.

Amendment 2, with environmental assessment (EA), implemented in July of 1987, revised

Spanish mackerel MSY downward, recognized two migratory groups, established allocations of TAC for the commercial and recreational sectors, and set commercial quotas and bag limits. Charterboat permits were required, and it was clarified that TAC must be set below the upper range of ABC. The use of purse seines on overfished stocks was prohibited, and their allocation of TAC was redistributed under the 69%/31% split.

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

Amendment 4, with EA, implemented in October 1989, reallocated Atlantic group Spanish mackerel equally between recreational and commercial fishermen.

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

Extended the management area for Atlantic groups of mackerels through the MAFMC's area of jurisdiction;
Revised problems in the fishery and plan objectives;
Revised the fishing year for Gulf Spanish mackerel from July-June to April-March;
Revised the definition of "overfishing";
Added cobia to the annual stock assessment procedure;
Provided that the SAFMC will be responsible for pre-season adjustments of TACs and bag limits for the Atlantic migratory groups of mackerels while the GMFMC will be responsible for Gulf migratory groups;
Continued to manage the two recognized Gulf migratory groups of king mackerel as one until management measures appropriate to the eastern and western groups can be determined;
Re-defined recreational bag limits as daily limits;
Deleted a provision specifying that bag limit catch of mackerel may be sold;
Provided guidelines for corporate commercial vessel permits;
Specified that Gulf group king mackerel may be taken only by hook-and-line and run-around gill nets;
Imposed a bag and possession limit of two cobia per person per day;
Established a minimum size of 12 inches (30.5 cm) FL or 14 inches (35.6 cm) TL for king mackerel and included a definition of "conflict" to provide guidance to the Secretary.

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

Identified additional problems and an objective in the fishery;
Provided for rebuilding overfished stocks of mackerels within specific periods;
Provided for biennial assessments and adjustments;
Provided for more seasonal adjustment actions;
Allowed for Gulf king mackerel stock identification and allocation when appropriate;
Provided for commercial Atlantic Spanish mackerel possession limits;
Changed commercial permit requirements to allow qualification in one of three preceding years;
Discontinued the reversion of the bag limit to zero when the recreational quota is filled;
Modified the recreational fishing year to the calendar year; and

Changed the minimum size limit for king mackerel to 20 inches FL, and changed all size limit measures to fork length only.

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 suballocation 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, made the following changes to the management regime:

Clarified ambiguity about allowable gear specifications for the Gulf group king mackerel fishery by allowing only hook-and-line and run-around gill nets. However, catch by permitted, multi-species vessels and bycatch allowances for purse seines were maintained;
Established allowable gear in the SAFMC and MAFMC areas as well as providing for the RA to authorize the use of experimental gear;
Established the Councils' intent to evaluate the impacts of permanent jurisdictional boundaries between the GMFMC and SAFMC and development of separate FMPs for coastal pelagics in these areas;
Established a moratorium on commercial king mackerel permits until no later than October 15, 2000, with a qualification date for initial participation of October 16, 1995;
Increased the income requirement for a king or Spanish mackerel permit to 25% of earned income or $10,000 from commercial sale of catch or charter or head boat fishing in 1 of the 3 previous calendar years, but allowed for a 1-year grace period to qualify under permits that are transferred;
Legalized retention of up to 5 cut-off (damaged) king mackerel on vessels with commercial trip limits;
Set an optimum yield (OY) target at 30% static spawning potential ratio (SPR) for the Gulf and 40% static SPR for the Atlantic;
Provided the SAFMC with authority to set vessel trip limits, closed seasons or areas, and gear restrictions for Gulf group king mackerel in the North Area of the Eastern Zone (Dade/Monroe to Volusia/Flagler County lines);
Established various data consideration and reporting requirements under the framework procedure;
Modified the seasonal framework adjustment measures and specifications (see Appendix A);
Expanded the management area for cobia through the MAFMC's area of jurisdiction (New York).

Amendment 9, with EA, implemented in April 2000, made the following changes to the management regime:

Reallocated the percentage of the commercial allocation of TAC for the North Area (Florida east coast) and South/West Area (Florida west coast) of the Eastern Zone to 46.15% North and 53.85% South/West and retained the recreational and commercial allocations of TAC at 68% recreational and 32% commercial;
Subdivided the commercial hook-and-line king mackerel allocation for the Gulf group, Eastern Zone, South/West Area (Florida west coast) by establishing 2 subzones with a dividing line

between the 2 subzones at the Collier/Lee County line;
Established regional allocations for the west coast of Florida based on the 2 subzones with 7.5% of the Eastern Zone allocation of TAC being allowed from Subzone 2 and the remaining 92.5% being allocated as follows:
50% - Florida east coast
50% - Florida west coast that is further subdivided:
50% - Net Fishery
50% - Hook-and-Line Fishery
Established a trip limit of 3,000 pounds per vessel per trip for the Western Zone;
Established a moratorium on the issuance of commercial king mackerel gill-net endorsements and allow re-issuance of gill-net endorsements to only those vessels that: (1) had a commercial mackerel permit with a gill-net endorsement on or before the moratorium control date of October 16, 1995 (Amendment 8), and (2) had landings of king mackerel using a gill net in one of the two fishing years 1995-96 or 1996-97 as verified by the National Marine Fisheries Service (NMFS) or trip tickets from the FDEP; allowed transfer of gill-net endorsements to immediate family members (son, daughter, father, mother, or spouse) only; and prohibited the use of gill nets or any other net gear for the harvest of Gulf group king mackerel north of an east/west line at the Collier/Lee County line;
Increased the minimum size limit for Gulf group king mackerel from 20 inches to 24 inches FL
Allowed the retention and sale of cut-off (damaged), legal-sized king and Spanish mackerel within established trip limits.

Amendment 10, with (Supplemental Environmental Impact Statement (SEIS), approved June 1999, incorporated essential fish habitat (EFH) provisions for the SAFMC.

Amendment 11, with SEIS, partially approved in December 1999, included proposals for mackerel in the SAFMC's Comprehensive Amendment Addressing Sustainable Fishery Act Definitions and other Provisions in Fishery Management Plans of the South Atlantic Region.

Amendment 12, with EA, implemented October 2000, extended the commercial king mackerel permit moratorium from its current expiration date of October 15, 2000, to October 15, 2005, or until replaced with a license limitation, limited access, and/or individual fishing quota or individual transferable quota system, whichever occurs earlier.

Amendment 13, with SEIS, implemented August 19, 2002, established two marine reserves in the EEZ of the Gulf in the vicinity of the Dry Tortugas, Florida known as Tortugas North and Tortugas South in which fishing for coastal migratory pelagic species is prohibited. This action complements previous actions taken under the National Marine Sanctuaries Act.

Amendment 14, with EA, implemented July 29, 2002, established a three-year moratorium on the issuance of charter vessel and head boat Gulf group king mackerel permits in the Gulf unless sooner replaced by a comprehensive effort limitation system. The control date for eligibility was established as March 29, 2001. Also includes other provisions for eligibility, application, appeals, and transferability.

Amendment 15, with EA, implemented August 8, 2005, established an indefinite limited access program for the commercial king mackerel fishery in the exclusive economic zone under the jurisdiction of the Gulf of Mexico, South Atlantic, and Mid-Atlantic Fishery Management Councils. It also changed the fishing season to March 1 through February 28/29 for the Atlantic groups of king and Spanish mackerel.

Amendment 16, was not developed.

Amendment 17, with SEIS, implemented June 15, 2006, established a limited access system on for-hire reef fish and CMP permits. Permits are renewable and transferable in the same manner as currently prescribed for such permits. There will be a periodic review at least every 10 years on the effectiveness of the limited access system.

1.7 Description of the Fishery and Status of the Stocks

Two migratory groups, Gulf of Mexico and South Atlantic, are recognized for king and Spanish mackerel, and are proposed for cobia. Commercial landings data come from the Southeast Fisheries Science Center (SEFSC) Accumulated Landings System (ALS), the Northeast Fisheries Science Center (NEFSC) Commercial Fisheries Data Base System (CFDBS), and SEFSC Coastal Fisheries Logbook (CFL) database. Recreational data come from the Marine Recreational Fisheries Statistics Survey (MRFSS), the Headboat Survey (HBS), and the Texas Parks and Wildlife Department (TPWD).

1.7.1 Description of the Fishery

Note: A more detailed description of the economic and social aspects of the CMP fishery is provided in Section 3.4 herein.

1.7.1.1 King Mackerel

A king mackerel vessel permit is required to retain king mackerel in excess of the bag limit in the Gulf and South Atlantic. These permits are under limited access. In addition, a limited-access gillnet endorsement is required to use gillnets in south Florida. For-hire vessels must have either a Gulf or South Atlantic charter/headboat CMP vessel permit, depending on where they fish. The Gulf permit is under limited access, but the South Atlantic permit is open access. The commercial permits have an income requirement of 25% of earned income or $10,000 from commercial or charter/headboat fishing activity in one of the previous three calendar years.

Gulf of Mexico

The king mackerel fishers use both hook-and-line and gillnet off the west coast of Florida and hook-and-line only off Alabama, Mississippi, Louisiana, and Texas. Winter trolling occurs along the east and south coast of Florida, and use of run-around gillnets occurs mostly in the Florida Keys (Monroe County) during January. In the Gulf region as a whole, handline gear has been the predominant gear for king mackerel since 1993. Fish must be at least 24 inches FL to be retained.

The gillnet sector has a long history in south Florida, particularly the Florida Keys. However, the use of this gear has been restricted under state and federal regulations, particularly Amendment 9 to the CMP FMP (April 2000). Gillnets used for king mackerel have nylon mesh with a center band of monofilament mesh. The most common mesh size used is 4-3/4 inches stretched, which is also the minimum size allowed. Nets can fish effectively in waters 55 to 60 feet in depth. Gillnet vessels use power rollers for net retrieval, and aircraft are used to spot schools of king mackerel before the nets are struck or set.

For the commercial sector, the area occupied by Gulf migratory group king mackerel is divided into Western and Eastern zones. The Western zone extends from the southern border of Texas to the Alabama/Florida state line. The fishing year for this zone is July 1 through June 30 with a trip limit of 3,000 pounds. The quota is 1.01 million pounds (mp). In general, the quota in this zone is met in September to November of each year, and fishing is closed; in 2008-2009, the zone remained open until March.

The Eastern zone, which includes only waters off of Florida, is divided into the East Coast and West Coast subzones (Figure 1.7.1.1.1A). The East Coast subzone is from the Flagler/Volusia county line south to the Miami-Dade/Monroe county line and only exists from November 1 through March 31 when Gulf group king mackerel migrate into that area. During the rest of the year, king mackerel in that area are considered part of the Atlantic migratory group (Figure 1.7.1.1.1B). The quota for the East Coast subzone is 1,040,625 pounds with a trip limit of 50 fish until February 1. After February 1, the trip limit changes to 75 fish if 75% of the quota has not been taken. This zone has closed in February or March since 2007-2008.

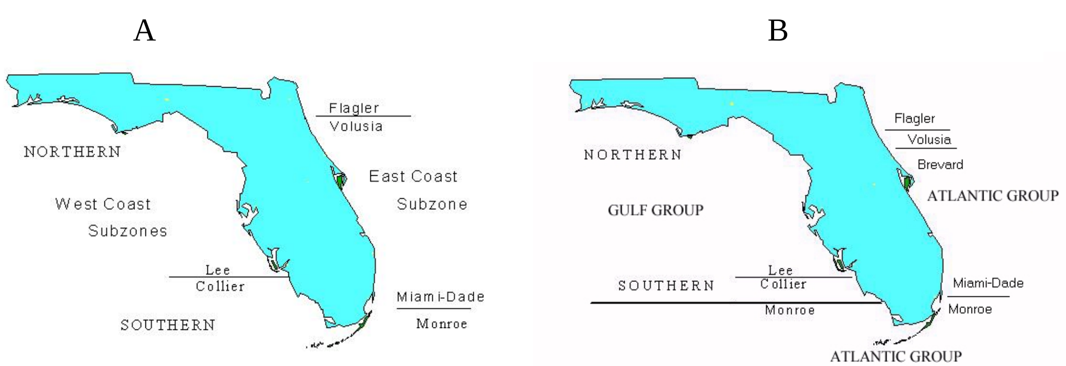


Figure 1.7.1.1.1. Gulf group king mackerel Eastern zone subzones for A) November 1 – March 31 and B) April 1- October 31.

The West Coast subzone, from the Alabama/Florida state line to the Monroe/Miami-Dade county line, is further divided into North and South regions at the Lee/Collier county line. The quota is 168,750 pounds in the North region and approximately 1.04 mp in the South region (divided equally between the hook-and-line and gillnet sectors). The fishing year for the hook-and-line sector in both regions runs July 1 through June 30 with a 1,250-pound trip limit until 75% of the quota is reached, and then the trip limit is 500 pounds until the quota is taken, or the end of the fishing year. The North region closed in October 2009, but previously had not closed since 2003-2004. The 520,312-lb quota for the South region for hook-and-line generally is met in March or April, but occasionally the quota is not filled before the end of the fishing year. In the South region, the gillnet season opens on the day after the Martin Luther King, Jr. holiday (January 18 for 2011). Fishing is allowed during the first weekend thereafter, but not on subsequent weekends. The gillnet quota is equal to the hook-and-line quota at 520,312 pounds with a trip limit of 25,000 pounds. The fishing year ends June 30, but the quota is usually reached within one to two weeks after opening. Vessels with a commercial king mackerel permit and a commercial king mackerel gillnet endorsement may not harvest king mackerel with gear other than a run-around gill net; therefore, the gillnet fishing sector cannot also harvest fish using hook-and-line after the gillnet season is closed.

Commercial landings of Gulf group king mackerel increased as the total quota for the Gulf increased until 1997-1998 when the quota was set at 3.39 mp. After that, landings have been relatively steady at around 3.3 mp (Table 1.7.1.1.1). The quota was decreased to 3.26 mp starting with the 2000-2001 season.

Table 1.7.1.1.1. Annual commercial landings of Gulf group king mackerel. The East Coast subzone has Gulf group king mackerel from November-March each year.

Fishing Year	Gulf (pounds x1,000)	East Coast subzone	Total Gulf Landings
1997-1998	1,518	1,894	3,412
1998-1999	1,452	2,454	3,906
1999-2000	1,656	1,416	3,072
2000-2001	1,388	1,691	3,079
2001-2002	1,273	1,660	2,933
2002-2003	1,277	1,951	3,228
2003-2004	1,400	1,784	3,183
2004-2005	1,339	1,889	3,229
2005-2006	1,182	1,840	3,021
2006-2007	1,599	1,633	3,232
2007-2008	1,622	1,867	3,489
2008-2009	1,647	2,208	3,855
2009-2010	1,690	1,709	3,399

Source: SEFSC, ALS database
Note: 2009-2010 data as of June 25, 2010 and may not be fully complete.

Most of the commercial landings for king mackerel in the Gulf occur off Florida, particularly south Florida (Figure 1.7.1.1.2). Highest landings are in January when the gillnet sector opens (Figure 1.7.1.1.3).

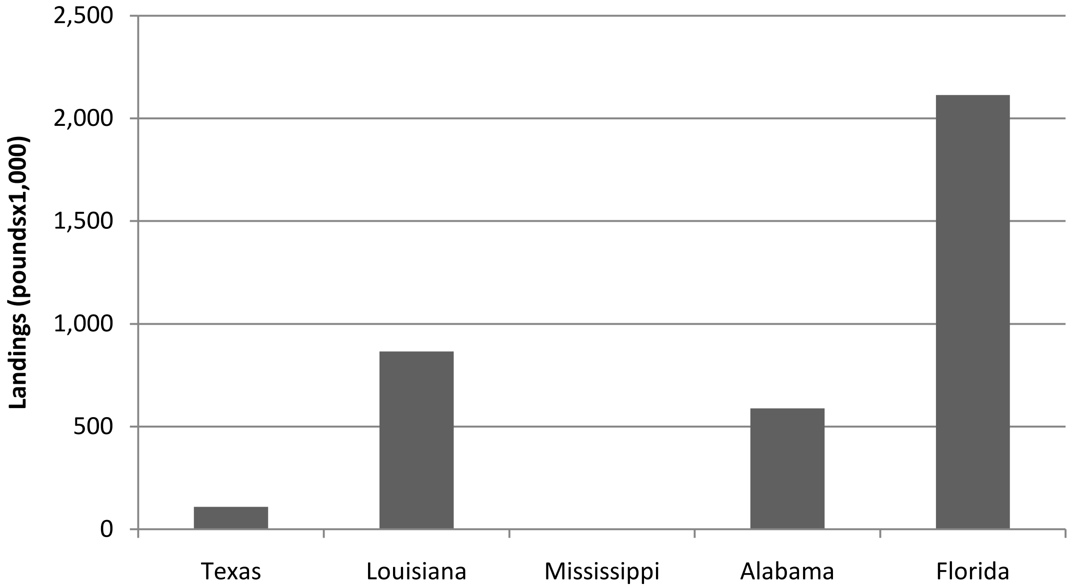


Figure 1.7.1.1.2. Average commercial landings of Gulf group king mackerel by state for 1997-2009.

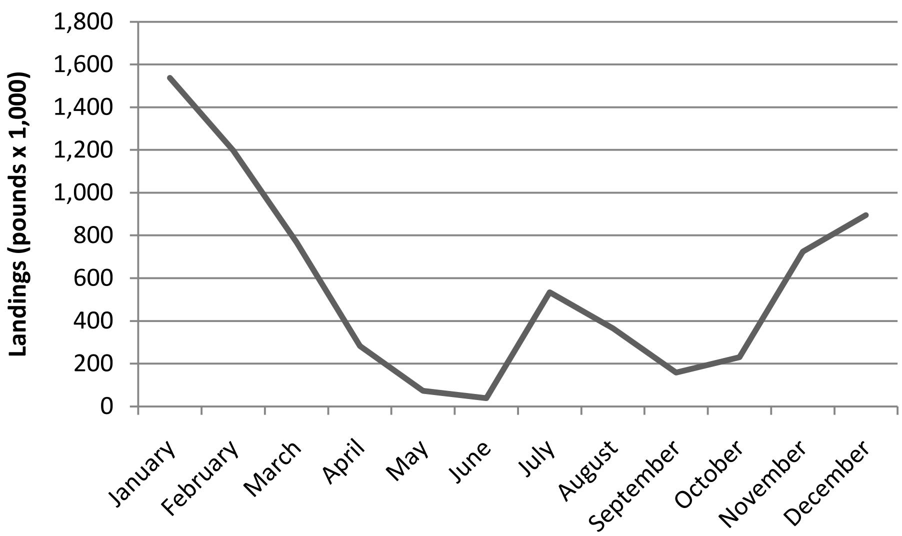


Figure 1.7.1.1.3. Average commercial landings of Gulf group king mackerel by month for 1997-2009.

King mackerel have been a popular target for recreational fishermen throughout the Gulf, for many years. Sixty-eight percent of the TAC is allocated to the recreational sector. From the late 1980s to the late 1990s, landings averaged about 4.9 mp per year, and a zero bag limit (i.e., closing the recreational sector to harvest) was implemented four times between 1987 and 1992. In the most recent ten years, average annual landings have been about 3.7 mp (Table 1.7.1.1.2). Highest landings were on the Florida west coast (Figure 1.7.1.1.4), and were landed during late summer (Figure 1.7.1.1.5). The bag limit is two per person per day (including captain and crew) and the minimum size is 24 inches FL.

Table 1.7.1.1.2. Annual recreational landings of Gulf group king mackerel.

Year	Landings (pounds x 1,000)
2000-2001	3,617
2001-2002	4,197
2002-2003	4,554
2003-2004	3,881
2004-2005	3,213
2005-2006	3,944
2006-2007	4,459
2007-2008	3,471
2008-2009	3,146
2009-2010	2,391

Source: SEFSC; MRFSS, HBS, and TPW databases.
Note: 2009-2010 data as of June 25, 2010 and may not be fully complete.

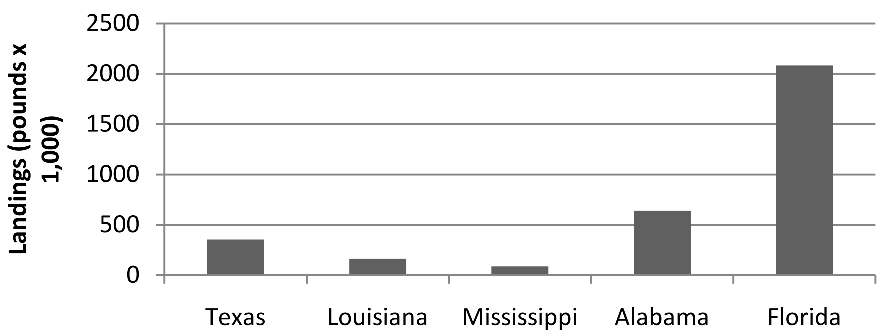


Figure 1.7.1.1.4. Average recreational landings of Gulf group king mackerel by state for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases.

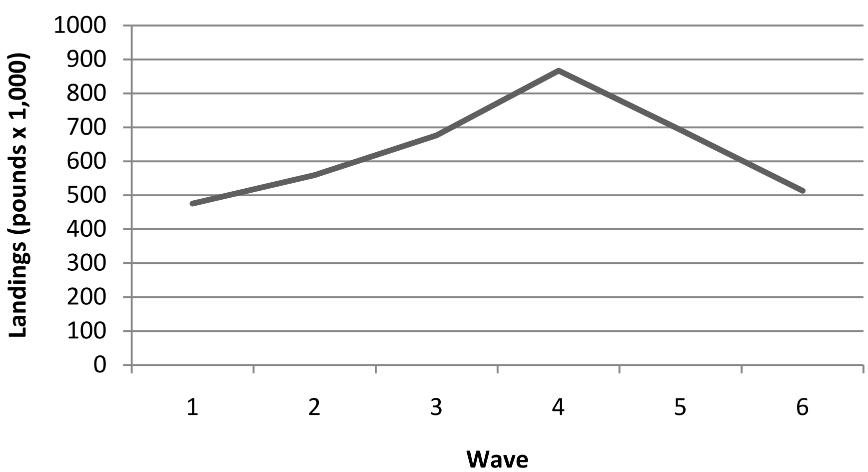


Figure 1.7.1.1.5. Average recreational landings of Gulf group king mackerel by wave for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

Atlantic

Management measures for the South Atlantic apply to king mackerel from New York to Florida. King mackerel are a major commercial target species in Florida and North Carolina, as well as a major target species for the private boat and charter boat recreational sector throughout the South Atlantic region. The minimum size limit for both sectors is 24 inches FL.

Allowable gear includes automatic reel, bandit gear, handline, and rod and reel. Gillnets are authorized gear for the directed commercial harvest of king mackerel north of Cape Lookout, North Carolina (34E37.3' N latitude). Off North Carolina, the majority of gillnet effort occurs within state waters. In federal waters, fishermen use mainly sink gillnets although a small proportion use run-around gillnets. For king mackerel, the mesh size averages 5-6 inches (12.7-15.24 cm). Typically, no more than 15 boats participate in this sector though the number can fluctuate. Various federal and state regulations have greatly reduced the use of gillnets for king mackerel, and most fishermen use handline gear.

The Atlantic group of king mackerel has a commercial quota of 3.71 mp and the fishing year is March 1 through end of February. This group is not divided into zones; however, different areas have different trip limits at different times of the year. From the Volusia/Flagler county line north through New York, the trip limit is 3,500 pounds year-round.

From April 1 until November 1, vessels fishing for king mackerel in Volusia County also have a 3,500-pound trip limit. From the Volusia/Brevard county line south to the Miami-Dade/Monroe county line, the trip limit is 75 fish until November 1. On November 1, both of these areas switch to be part of the Gulf group Eastern zone East Coast subzone and are under the trip limits described for that area (see Figure 1.5.1). Monroe County (including the Florida Keys) is also part of the Atlantic group at the beginning of the season until November 1, then that area becomes part of the Gulf group Eastern zone West Coast subzone South region until March 31. The trip limit in Monroe County remains the same throughout the year at 1,250 pounds.

Commercial landings of Atlantic king mackerel have increased in recent years. The recent three-year annual average was 3.1 mp versus 2.4 mp for the previous ten years (Table 1.7.1.1.3).

Table 1.7.1.1.3. Annual commercial landings of Atlantic group king mackerel.

Fishing Year	Landings (pounds x 1,000)
1997-1998	3,002
1998-1999	2,675
1999-2000	2,225
2000-2001	2,150
2001-2002	1,935
2002-2003	1,689
2003-2004	1,861
2004-2005	2,778
2005-2006	2,251
2006-2007	2,994
2007-2008	2,667
2008-2009	3,108
2009-2010	3,559

Source: SEFSC; ALS database
Note: 2009-2010 data as of June 25, 2010 and may not be fully complete.

The peak fishing months for king mackerel are in the spring on the east coast of Florida (Figures 1.7.1.1.6 and 1.7.1.1.7). Landings in North Carolina are more common in the fall.

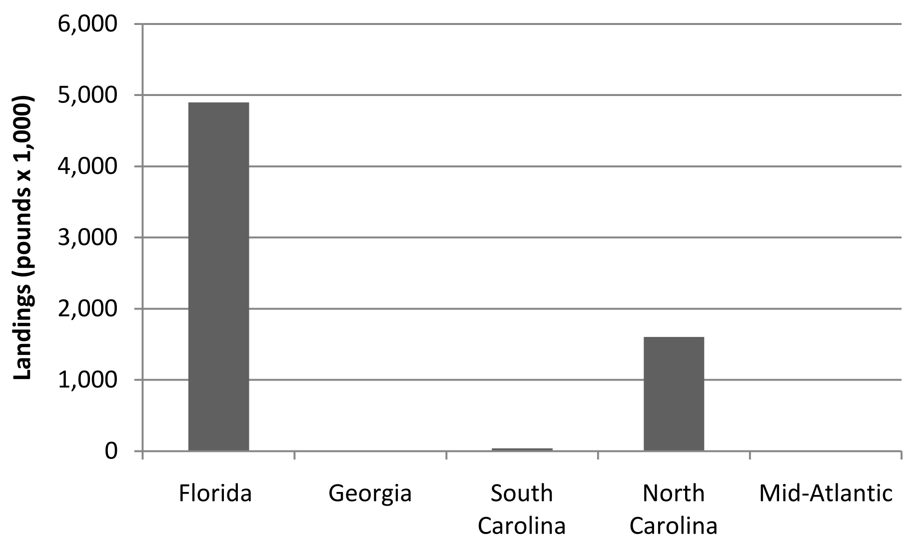


Figure 1.7.1.1.6. Average commercial landings of Atlantic group king mackerel by state for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

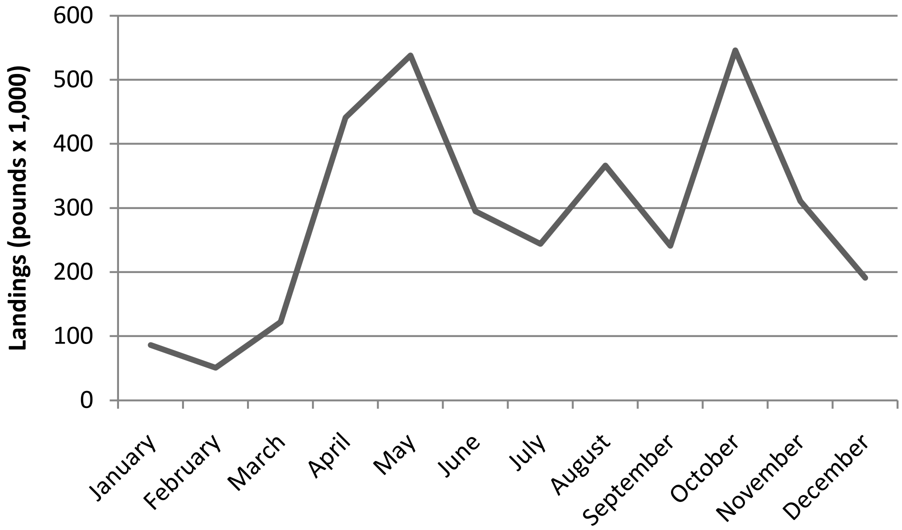


Figure 1.7.1.1.7. Average commercial landings of Atlantic group king mackerel by month for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

The TAC is allocated 63% to the recreational sector. The recent ten-year recreational landings average is 4.2 mp per year (Table 1.7.1.1.4). Highest landings were off the east coast of Florida, followed by North Carolina and South Carolina (Figure 1.7.1.1.8). Landings were highest in summer and lowest in winter (Figure 1.7.1.1.9). The bag limit is two per person per day off Florida and three per person per day off Georgia through New York.

Table 1.7.1.1.4. Annual recreational landings of Atlantic group king mackerel.

Year	Landings (pounds x 1,000)
2000-2001	5,474
2001-2002	4,404
2002-2003	2,761
2003-2004	4,192
2004-2005	4,613
2005-2006	3,485
2006-2007	4,054
2007-2008	6,080
2008-2009	3,487
2009-2010	3,885

Source: SEFSC; MRFSS, HBS, and TPW databases
Note: 2009 data as of June 25, 2010 and may not be fully complete.

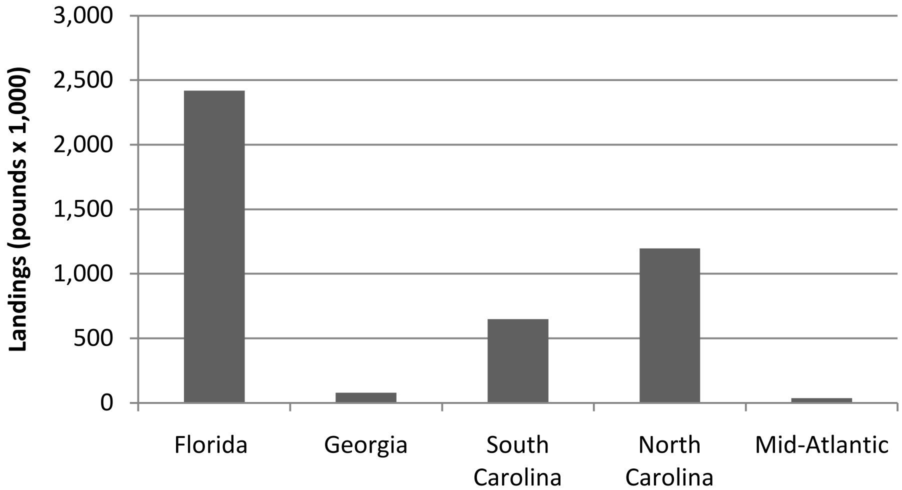


Figure 1.7.1.1.8. Average recreational landings of Atlantic group king mackerel by state for 1980-2009. Mid-Atlantic states include Virginia, Maryland, Delaware, New Jersey, and New York.
Source: SEFSC; MRFSS, HBS, and TPW databases

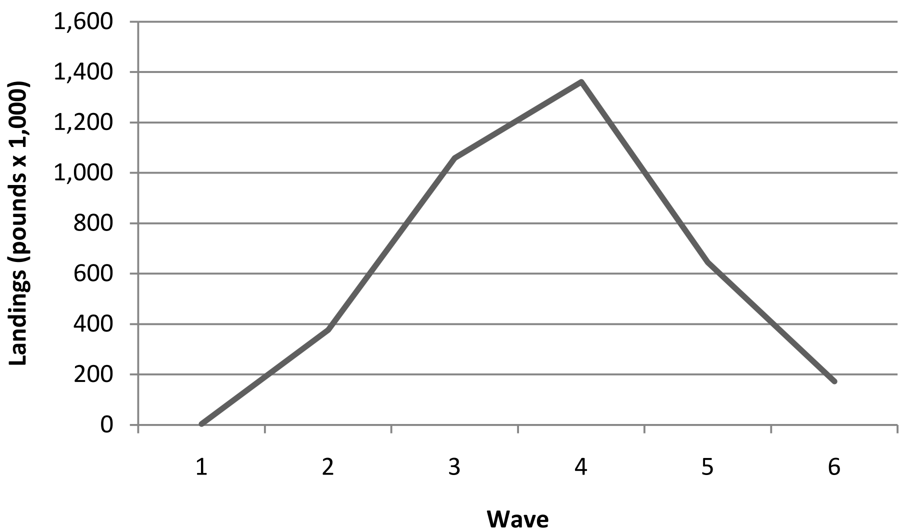


Figure 1.7.1.1.9. Average recreational landings of Atlantic group king mackerel by wave for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

1.7.1.2 Spanish Mackerel

A commercial Spanish mackerel permit is required for vessels fishing in the Gulf or South Atlantic. This permit is open access. For-hire vessels must have a charter/headboat CMP permit. The commercial permit has an income requirement of 25% of earned income or $10,000 from commercial or charter/headboat fishing activity in one of the previous three calendar years.

Gulf of Mexico

Spanish mackerel historically have been a popular commercially and recreationally targeted species, although not as important as king mackerel. Gulf migratory group Spanish mackerel are considered a single stock throughout the Gulf from the southern border of Texas to the Miami-Dade/Monroe county border on the east coast of Florida. The TAC is allocated 57% to the commercial sector and 43% to the recreational sector. The minimum size for both sectors is 12 inches FL.

Historically, the major harvest came from using gillnets in state waters. Following the passage of a constitutional amendment banning gillnets and certain other net gear in Florida state waters in 1995, catches declined significantly. In the Gulf of Mexico, run-around gillnets are still the primary gear used to harvest Spanish mackerel.

The commercial quota has been 5.2 mp since the 1999-2000 fishing year. The fishing year is April 1 through March 31, and there are no trip limits. Commercial landings over the past five years have averaged 1.3 mp annually (Table 1.7.1.2.1). The commercial fishery has not closed early since the 1987-1988 fishing year.

Table 1.7.1.2.1. Annual commercial landings of Gulf group Spanish mackerel.

Fishing Year	Landings (pounds x 1,000)
1999-2000	1,060
2000-2001	1,053
2001-2002	809
2002-2003	1,729
2003-2004	899
2004-2005	1,981
2005-2006	1,124
2006-2007	1479
2007-2008	869
2008-2009	2,284
2009-2010	842

Source: Vondruska, 2010; ALS and CFDBS databases

Recreational catches of Spanish mackerel in the Gulf have remained rather stable since the early 1990's at around 2.0 to 3.0 mp (Table 1.7.1.2.2), despite increases in the bag limit from three fish in 1987 to ten fish in 1992 to 15 fish in 2000. This lack of change is mostly because of the lower popularity of Spanish mackerel as compared with king mackerel and other offshore stocks. Primarily because of the significant decrease in commercial catches, approximately two-thirds of the total catch has come from the recreational sector in recent years. Recreational landings are concentrated in the eastern Gulf (Figure 1.7.1.2.1). Landings were lowest during January-February (Figure 1.7.1.2.2).

Table 1.7.1.2.2. Annual recreational landings of Gulf group Spanish mackerel.

Fishing Year	Landings (pounds x 1,000)
2000-2001	2,782
2001-2002	3,553
2002-2003	3,172
2003-2004	2,738
2004-2005	2,663
2005-2006	1,589
2006-2007	2,837
2007-2008	2,717
2008-2009	2,529
2009-2010	1,890

Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

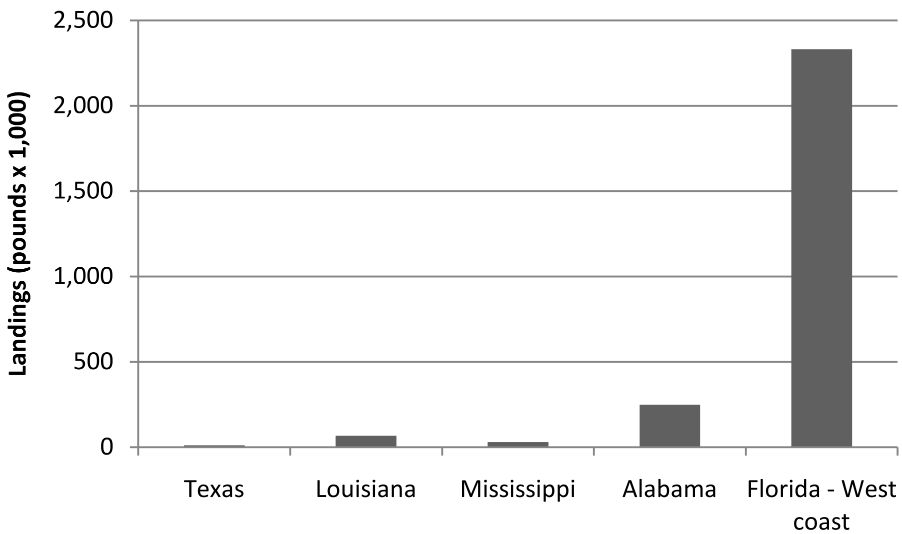


Figure 1.7.1.2.1. Average recreational landings of Gulf group Spanish mackerel by state for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

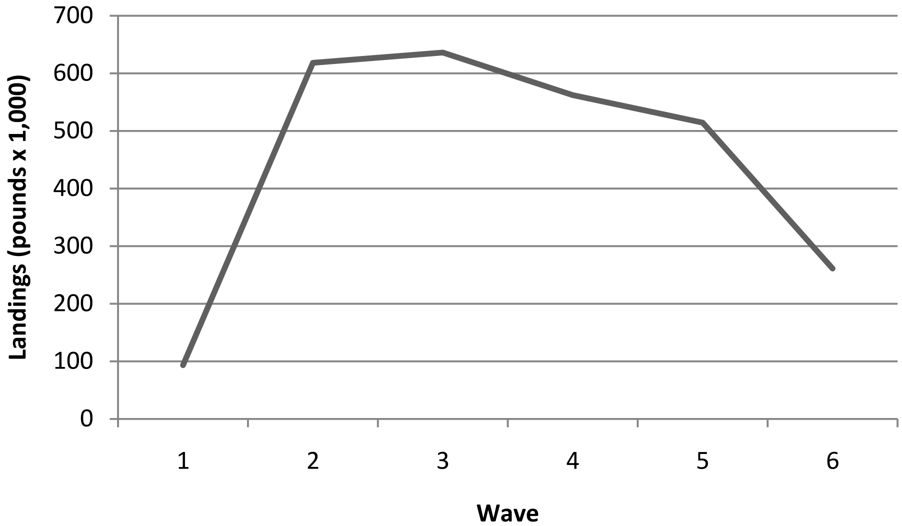


Figure 1.7.1.2.2. Average recreational landings of Gulf group Spanish mackerel by wave for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

Atlantic
Allowed gear include automatic reel, bandit gear, handline, rod and reel, cast net, run-around gillnet, and stab net. In the South Atlantic region, run-around gillnets are an important gear for Spanish mackerel, but other kinds of gillnets, cast nets, and handline gear now account for the majority of the landings. Fishermen usually fish 3.5 inches (8.9 cm) stretched-mesh nets, the minimum mesh size allowed.

In Florida state waters, cast nets have accounted for more of the landings of Spanish mackerel in recent years than gillnets, and the main season occurs in October-March, compared with May-October farther north. Spanish mackerel is the primary species targeted by gillnets off the Florida east coast, and the main season for this activity is September through December. Beginning in January, many of the fishermen using gillnets switch to shark fishing or participate in the cast net fishery that occurs in state waters.

The area of the Atlantic migratory group of Spanish mackerel is divided into two zones: the Northern zone includes waters off New York through Georgia, and the Southern zone includes waters off the east coast of Florida. One quota is set for both zones at 3.87 mp, which is adjusted to 3.62 mp for management purposes. The initial trip limit in both zones is 3,500 pounds; however, in the Southern zone the trip limit is removed beginning December 1 until 75% of the adjusted quota is met, when a trip limit of 1,500 pounds is set. If landings reach 100% of the adjusted quota, the trip limit is reduced to 500 pounds through the rest of the fishing year; there is no complete closure.

Commercial landings of Atlantic group Spanish mackerel fell sharply in 1995 after the State of Florida implemented a constitutional amendment banning certain types of nets, but averages then increased back to near historical levels. Average annual landings over the recent five years were about 3.6 mp (Table 1.7.1.2.3). This group last met its quota in the 1991-1992 fishing year.

Table 1.7.1.2.3. Annual commercial landings of Atlantic group Spanish mackerel.

Fishing Year	Landings (pounds x 1,000)
1999-2000	2,608
2000-2001	3,007
2001-2002	3,329
2002-2003	3,679
2003-2004	4,091
2004-2005	3,761
2005-2006	4,041
2006-2007	4,038
2007-2008	3,500
2008-2009	2,508

Source: Vondruska, 2010; ALS database

Recreational landings have remained fairly steady over time and averaged around 1.6 mp during the recent five years (Table 1.7.1.2.4). The recreational allocation is 45% of the TAC. Landings are primarily from Florida and North Carolina (Figure 1.7.1.2.3). Landings are lowest during spring (Figure 1.7.1.2.4).

Table 1.7.1.2.4. Annual recreational landings of Atlantic group Spanish mackerel.

Fishing Year	Landings (pounds x 1,000)
2000-2001	2,280
2001-2002	2,034
2002-2003	1,605
2003-2004	1,846
2004-2005	1,365
2005-2006	1,649
2006-2007	1,653
2007-2008	1,711
2008-2009	2,047
2009-2010	2,108

Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

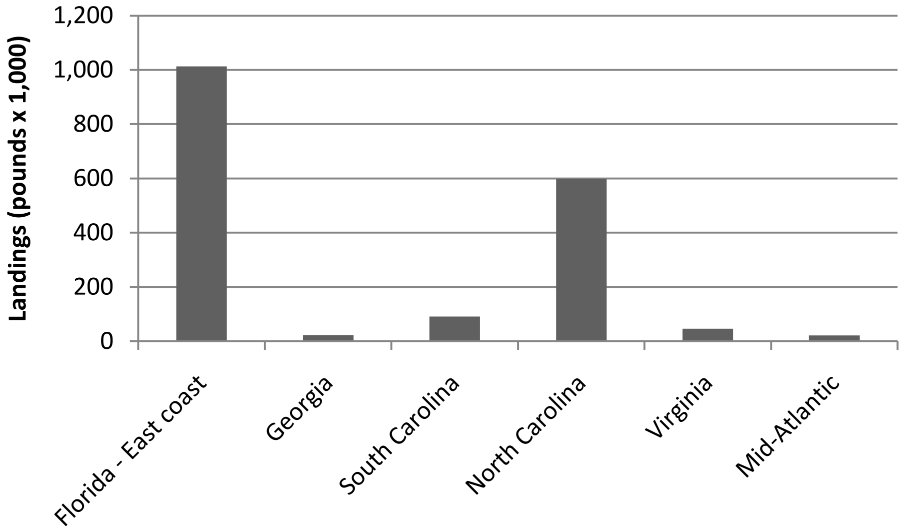


Figure 1.7.1.2.3. Average recreational landings of Atlantic group Spanish mackerel by state for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

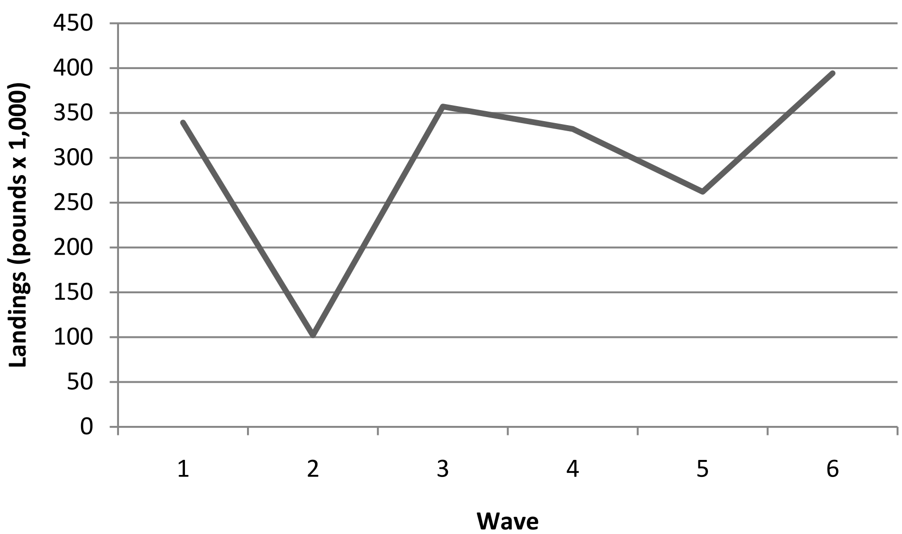


Figure 1.7.1.2.4. Average recreational landings of Atlantic group Spanish mackerel by wave for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

1.7.1.3 Cobia

Currently, the only management measures for cobia in the Gulf and South Atlantic are a catch restriction of two per person per day and a size limit of 33 inches FL for both the recreational and commercial sectors. Drift gillnets are prohibited, but other authorized gear includes automatic reel, bandit gear, hand line, rod and reel, and pelagic longline. Charter/headboats require a charter/headboat CMP permit to land cobia. The regulations in the FMP also apply to cobia in the Mid-Atlantic region.

Commercial landings have declined since the highest landings in 1996 with a steeper decline between 2004 and 2005 (Table 1.7.1.3.1). Over the last five years, annual landings have averaged approximately 175,000 pounds. Most cobia landings are in Florida (Figure 1.7.1.3.1), and landings are highest during summer (Figure 1.7.1.3.2).

Table 1.7.1.3.1. Annual commercial landings of cobia from the Gulf and South Atlantic.

Year	Landings (pounds x 1,000)
2000	254
2001	218
2002	225
2003	230
2004	213
2005	166
2006	182
2007	178
2008	172
2009	178

Source: SEFSC; ALS database

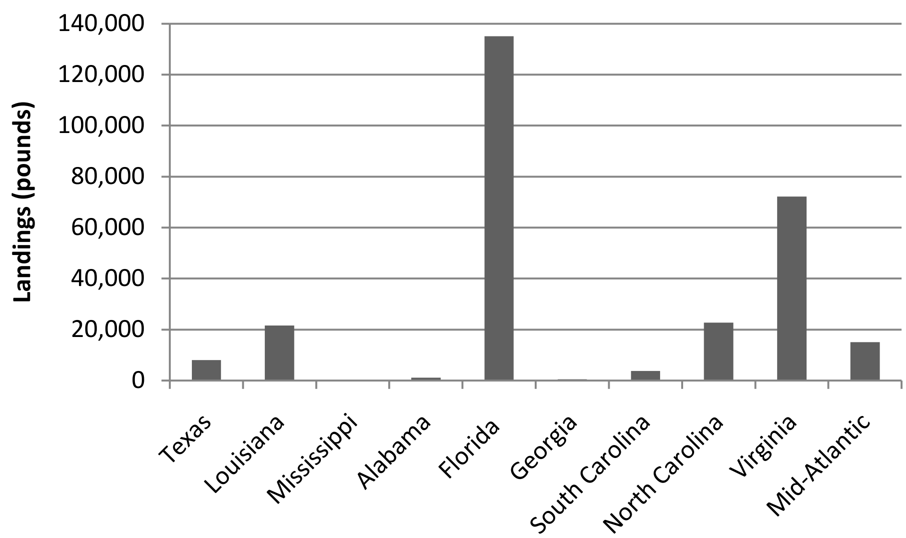


Figure 1.7.1.3.1. Average commercial landings of cobia by state for 2000-2009.

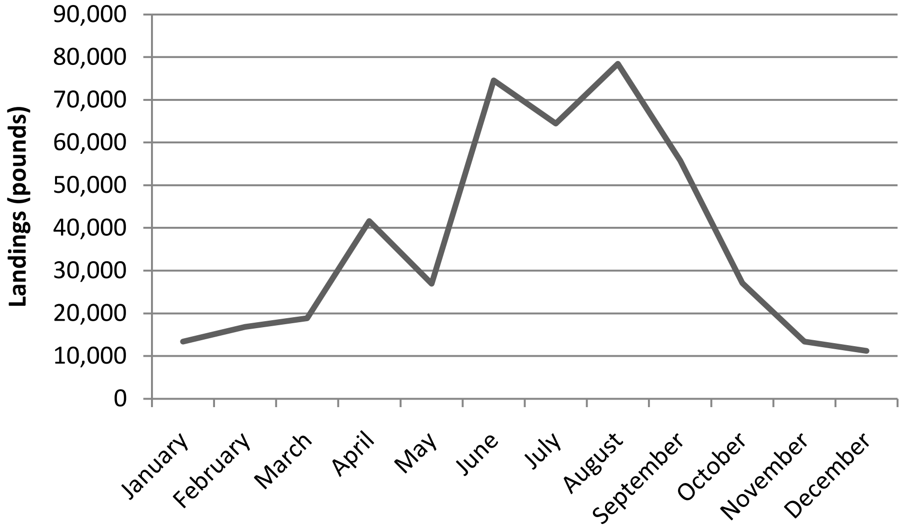


Figure 1.7.1.3.2. Average commercial landings of cobia by month for 2000-2009.

Recreational cobia landings have fluctuated during the past 20 years between 1.5 and 3.5 mp. Over the last ten years, landings averaged 2.2 mp (Table 1.7.1.3.2). Most landings are in Florida (Figure 1.7.1.3.3). Landings peak during May-June (Figure 1.7.1.3.4).

Table 1.7.1.3.2. Annual recreational landings of cobia from the Gulf and Atlantic.

Year	Landings (pounds x 1,000)
2000	1,926
2001	2,065
2002	1,641
2003	2,681
2004	2,502
2005	2,541
2006	2,298
2007	2,322
2008	2,210
2009	1,548

Source: SEFSC; MRFSS, HBS, and TPWD databases
Note: Data from Mid-Atlantic states is not included.

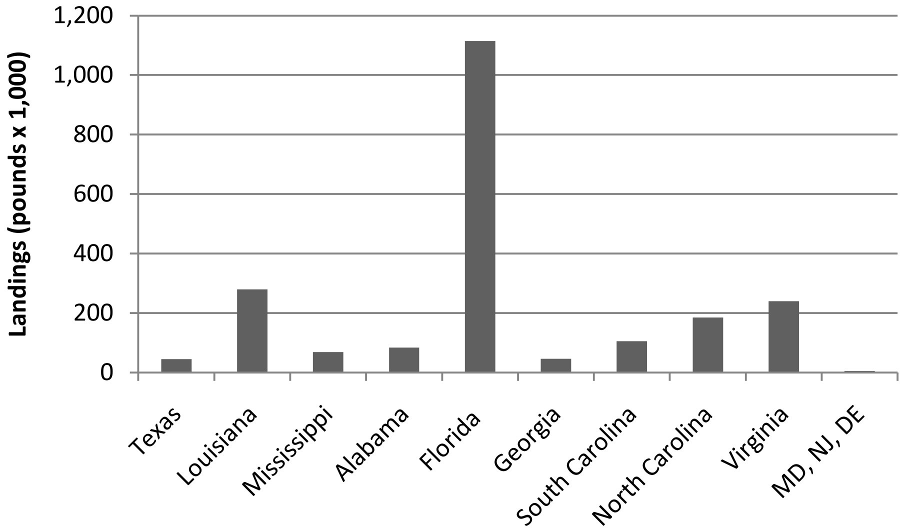


Figure 1.7.1.3.3. Average recreational landings of cobia by state for 2000-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

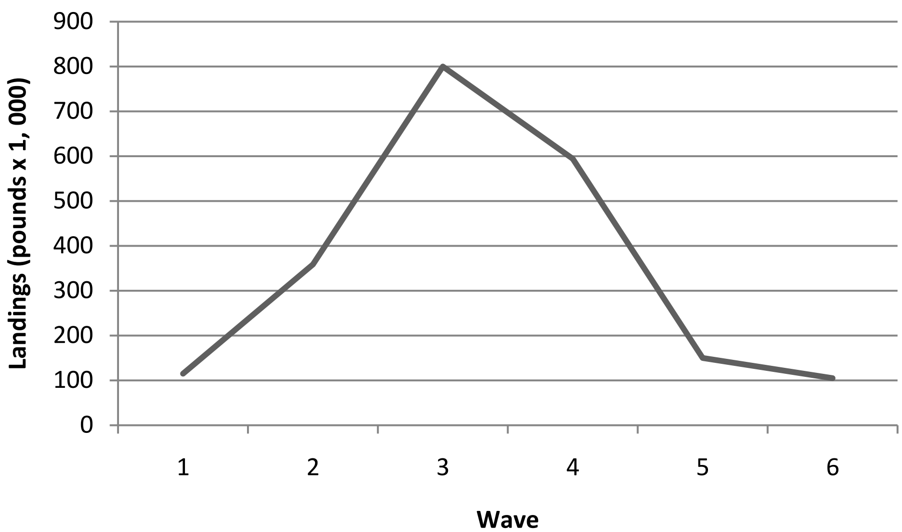


Figure 1.7.1.3.4. Average recreational landings of cobia by wave for 2000-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

1.7.1.4 Cero, Little Tunny, Dolphin, Bluefish

Cero and little tunny are included in the CMP FMP for both the Gulf and Atlantic. Dolphin and bluefish are in the CMP FMP only for the Gulf. Dolphin is managed in the South Atlantic under the Dolphin/Wahoo FMP and bluefish are managed jointly by the Mid-Atlantic Council and the Atlantic States Marine Fisheries Commission (ASMFC) from Maine through the Florida east coast. The CMP FMP has no management measures for any of these four species. All gears are allowed except drift nets and long gillnets.

Cero commercial landings have declined from an average of around 14,000 pounds in 1998-2000 to an average of about 1,500 pounds in the most recent five years (Table 1.7.1.4.1). Recreational landings have varied greatly among years (Table 1.7.1.4.2) and come almost exclusively from Florida. Landings were highest in winter and lowest in summer (Figure 1.7.1.4.1).

Table 1.7.1.4.1. Annual commercial landings of cero from the Gulf and South Atlantic.

Year	Landings (pounds)
2000	13,454
2001	7,834
2002	5,258
2003	8,470
2004	1,125
2005	1,662
2006	1,283
2007	2,061
2008	1,382

Source: Vondruska, 2010; CFL database

Table 1.7.1.4.2. Annual recreational landings of cero from the Gulf and South Atlantic.

Year	Landings (pounds)
2000	35,434
2001	103,602
2002	72,405
2003	96,213
2004	80,203
2005	109,616
2006	99,655
2007	141,817
2008	83,738
2009	124,664

Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

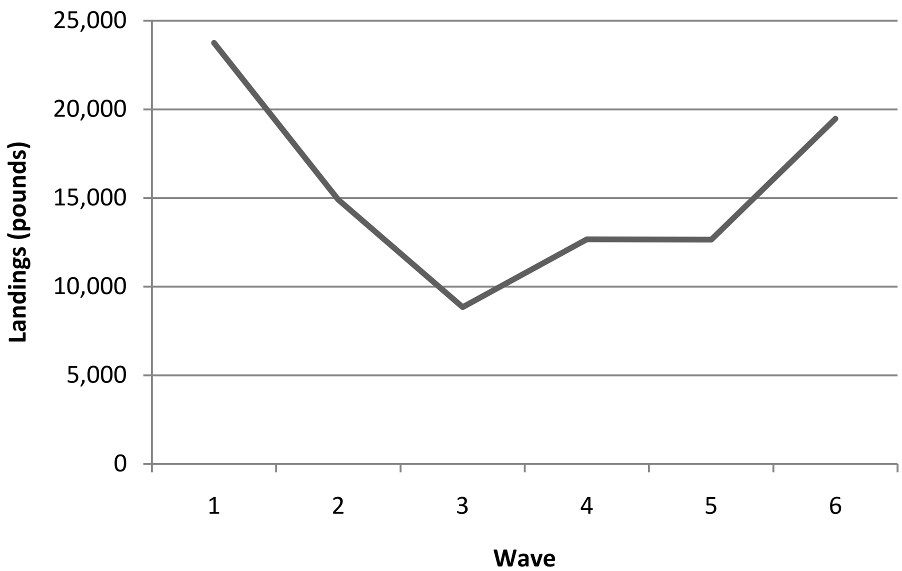


Figure 1.7.1.4.1. Average recreational landings of cero by wave for 2000-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

Little tunny commercial landings are variable, but the recent five-year annual average was 610,000 pounds per year (Table 1.7.1.4.3). Highest landings were from Florida (Figure 1.7.1.4.2). Lowest landings are during winter and early spring (Figure 1.7.1.4.3)

Table 1.7.1.4.3. Annual commercial landings of little tunny from the Gulf, South Atlantic, and Mid-Atlantic.

Year	Landings (pounds x 1,000)
2000	480
2001	771
2002	804
2003	1,398
2004	489
2005	507
2006	672
2007	673
2008	443
2009	753

Source: SEFSC; ALS and CFDBS databases

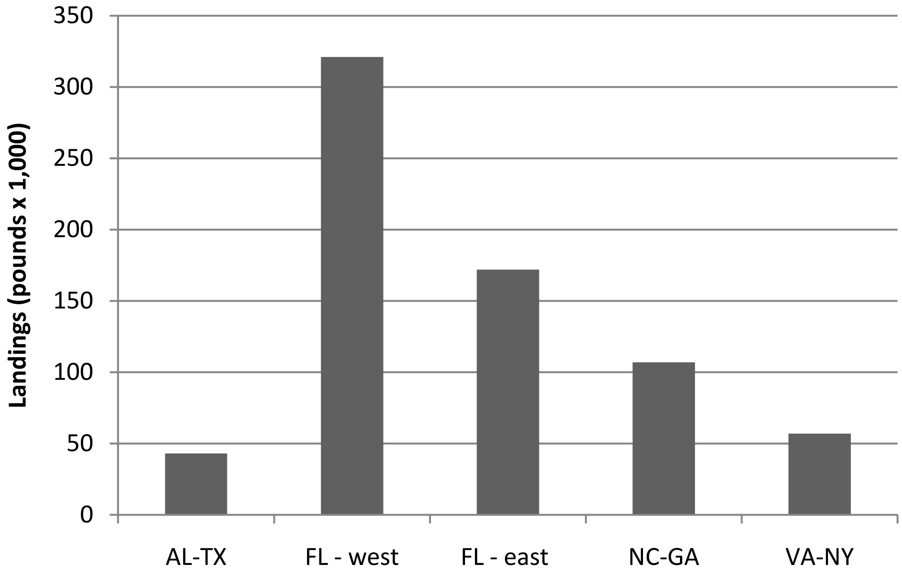


Figure 1.7.1.4.2. Average commercial landings of little tunny by region for 2000-2009. Source: SEFSC, ACL and CFDBS data sets.

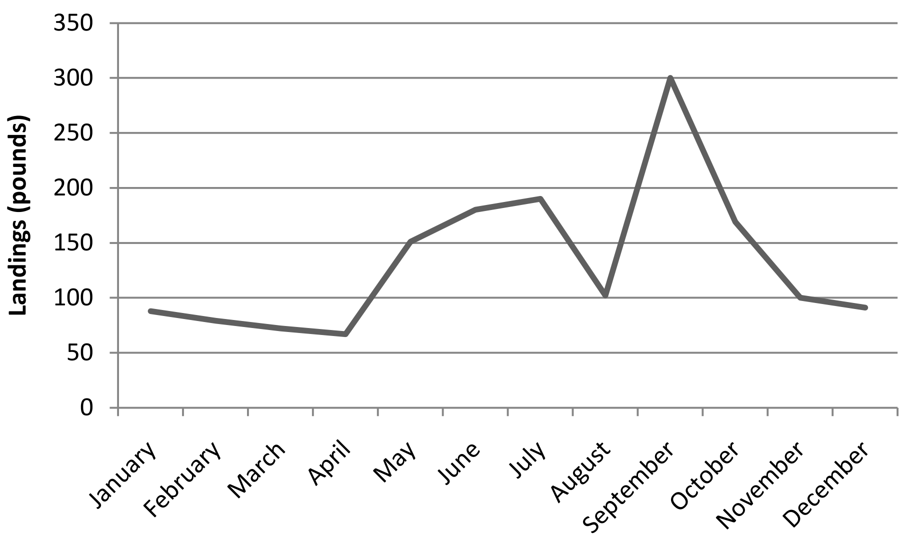


Figure 1.7.1.4.3. Average commercial landings of little tunny by month for 2000-2009. Source: SEFSC, ACL and CFDBS data sets.

Recreational landings averaged 1.9 mp annually over the recent five years (Table 1.7.1.4.4). Landings in Florida accounted for 82% of total average annual landings, with landings on the east coast twice as high as landings on the west coast (Figure 1.7.1.4.4). Landings were highest in summer and lowest in winter (Figure 1.7.1.4.5)

Table 1.7.1.4.4. Annual recreational landings of little tunny from the Gulf, South Atlantic, and Mid-Atlantic.

Year	Landings (pounds x 1,000)
2000	2,461
2001	2,182
2002	1,969
2003	1,673
2004	2,467
2005	1,497
2006	2,187
2007	2,411
2008	1,454
2009	1,865

Source: SEFSC, January 2011 data set; MRFSS, HBS, TPWD

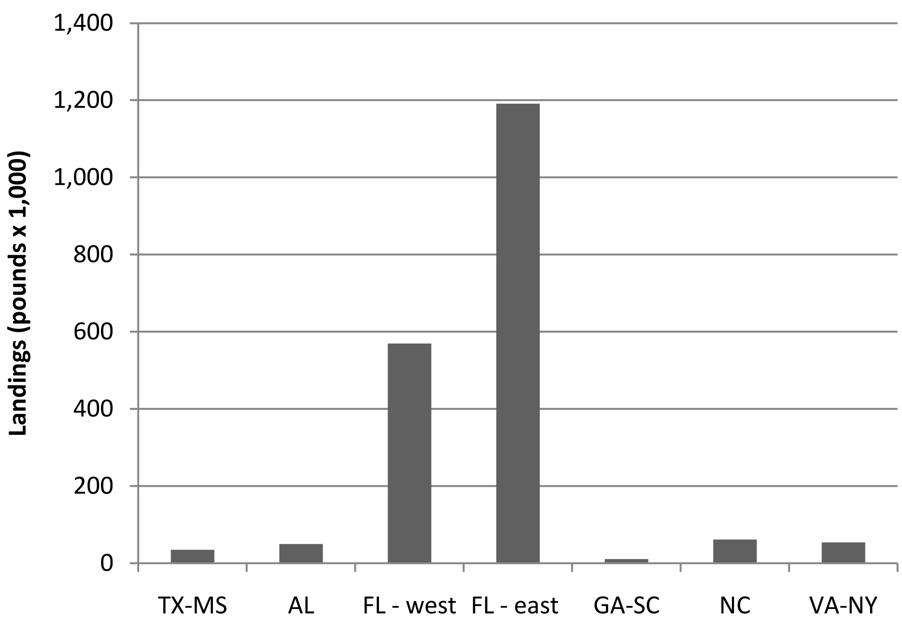


Figure 1.7.1.4.4. Average recreational landings of little tunny by region for 2000-2009.
Source: SEFSC, January 2011 data set; MRFSS, HBS, TPWD

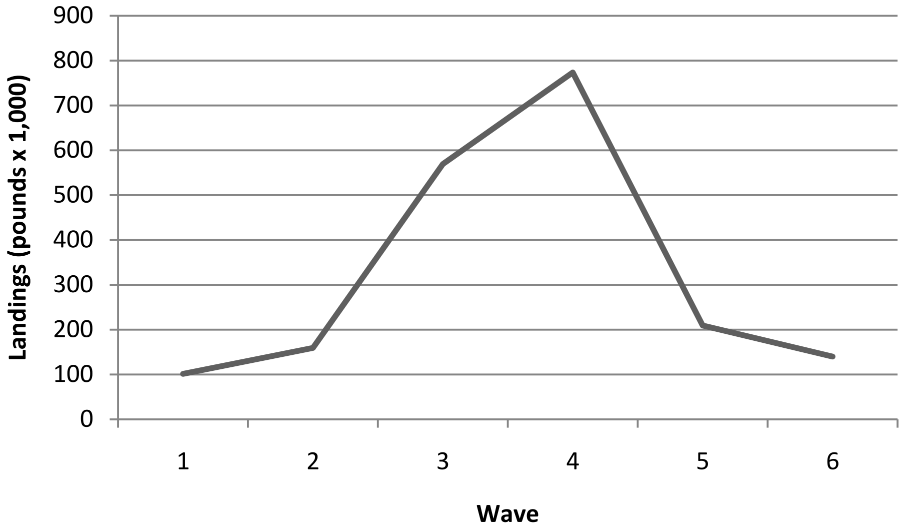


Figure 1.7.1.4.5. Average recreational landings of little tunny by wave for 2000-2009.
Source: SEFSC, January 2011 data set; MRFSS, HBS, TPWD

Table 1.7.1.4.5. Annual commercial landings of bluefish from the Gulf.

Year	Landings (pounds x 1,000)
2000	94
2001	102
2002	123
2003	111
2004	124
2005	127
2006	136
2007	152
2008	181

Source: Vondruska, 2010; ALS database

Table 1.7.1.4.6. Annual recreational landings of bluefish from the Gulf.

Year	Landings (pounds x 1,000)
2000	340
2001	703
2002	382
2003	399
2004	607
2005	306
2006	381
2007	398
2008	319
2009	287

Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

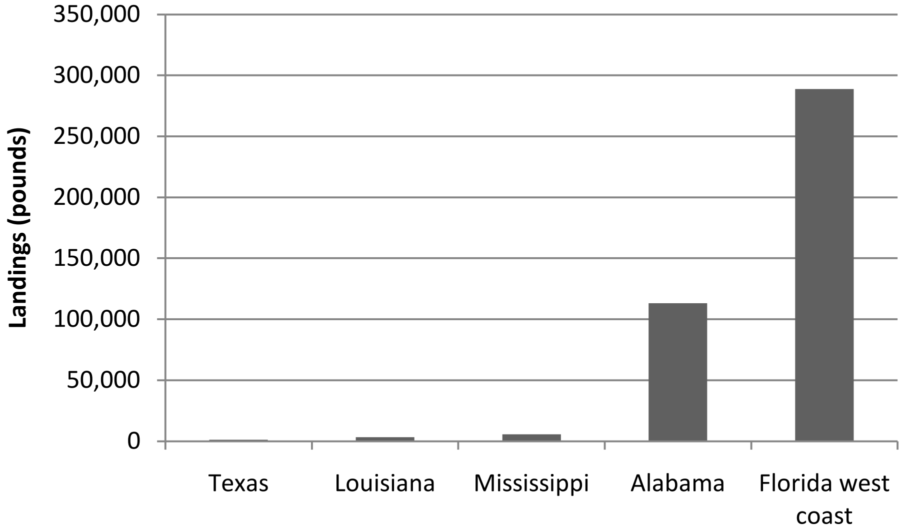


Figure 1.7.1.4.6. Average recreational landings of bluefish by Gulf state for 2000-2008. Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

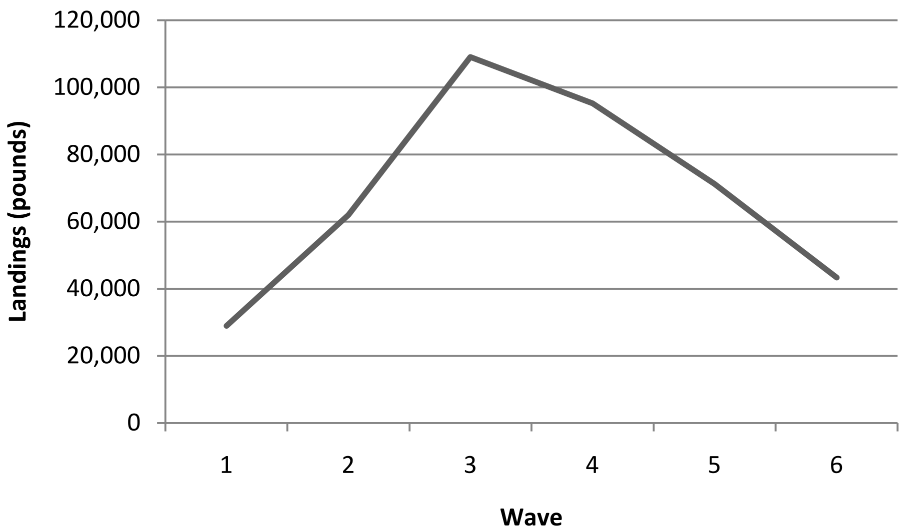


Figure 1.7.1.4.7. Average recreational landings of bluefish by wave for 2000-2008. Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

The Mid-Atlantic Bluefish FMP was developed jointly by the MAFMC and the ASMFC and implemented in 1990. In the Atlantic, bluefish are found from Maine to Florida and migrate seasonally along the coast. Management measures in the Mid-Atlantic Bluefish FMP apply throughout this range. Since 1996 the commercial sector has been allocated 17% of the TAC, with separate quotas for each state. The highest percentage of the commercial quota goes to North Carolina (32%). The average annual landings in the Atlantic over the last five years were just over 9.5 mp. Bluefish are caught recreationally mostly in New York through Virginia.

Bluefish are caught primarily with gillnets, but also hook and line, pound nets, seines, and trawls. Under the Bluefish FMP, the recreational sector allocation is 83% of the total allowable landings and has a bag limit of 15 fish.

In the Gulf, commercial dolphin landings averaged around 325,000 pounds over the recent five years (Table 1.7.1.4.7). The Florida west coast accounted for approximately 92% of those landings. Recreational landings over the recent five years averaged 1.59 mp per year (Table 1.7.1.4.8) and were primarily from the Florida west coast (Figure 1.7.1.4.6). Highest landings were in May-June (Figure 1.7.1.4.7).

Table 1.7.1.4.7. Annual commercial landings of dolphin from the Gulf.

Year	Landings (pounds x 1,000)
2000	583
2001	369
2002	291
2003	311
2004	437
2005	208
2006	225
2007	371
2008	384

Source: Vondruska, 2010; ALS database

Table 1.7.1.4.8. Annual recreational landings of dolphin from the Gulf.

Year	Landings (pounds x 1,000)
2000	2,387
2001	2,533
2002	2,255
2003	2,546
2004	2,047
2005	1,247
2006	1,221
2007	2,058
2008	1,363
2009	1,385

Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

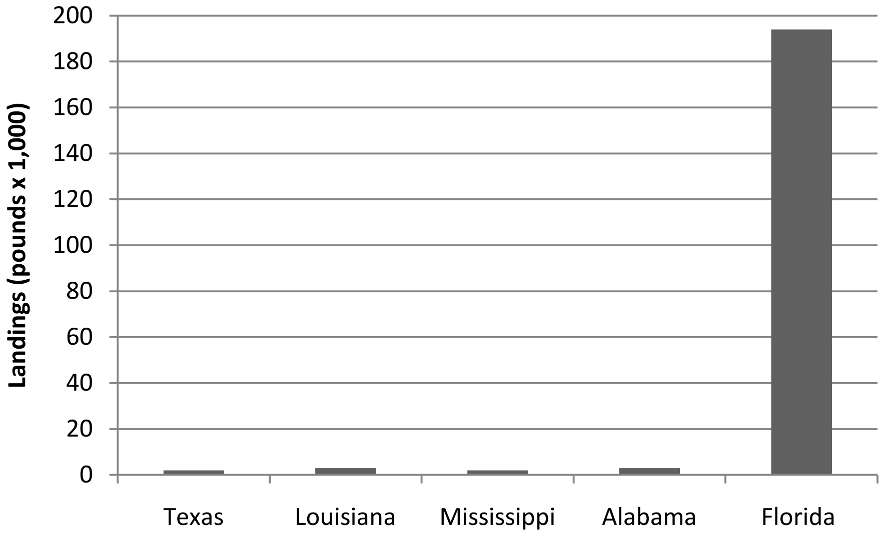


Figure 1.7.1.4.8. Average recreational landings of dolphin by state for 2000-2008.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

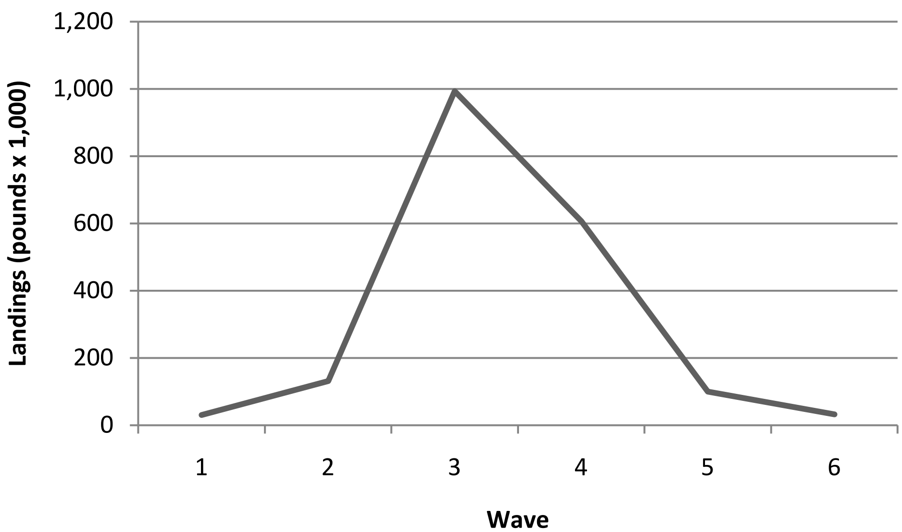


Figure 1.7.1.4.9. Average recreational landings of dolphin by wave for 2000-2008.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

The South Atlantic Dolphin/Wahoo FMP set a non-binding 1.5-mp cap on commercial landings in the Atlantic (Florida through Maine). The minimum size limit for both the commercial and recreational sectors is 20 inches FL off the coasts of Georgia and Florida with no size restrictions elsewhere. Allowable gear includes hook-and-line gear including manual, electric, and hydraulic rods and reels; bandit gear; handlines; longlines; and spearfishing (including powerheads) gear. Owners of commercial vessels and/or charter vessels/headboats must have vessel permits and also operator permits. For a commercially permitted vessel fishing north of 39^{o} N latitude that does not have a federal commercial vessel permit for dolphin or wahoo, the trip limit is 200 pounds of dolphin and wahoo combined. The recreational bag limit is 10 dolphin per person per day, with a limit of 60 dolphin per boat per day (headboats are excluded from the boat limit). No sale of dolphin caught under the bag limit is allowed unless the seller holds the necessary commercial permits. Average annual landings in the South Atlantic over the recent five years were about 834,000 pounds for the commercial sector and about 9.9 mp for the recreational sector.

1.7.2 Status of Stocks

King and Spanish mackerel updates are scheduled for 2012. Cobia, little tunny, cero, and Gulf Spanish mackerel are scheduled for SEDAR 28 in 2012.

1.7.2.1 King Mackerel

Both the Gulf and Atlantic migratory groups of king mackerel were assessed by SEDAR in 2008 (SEDAR 16). The results of that assessment determined the Gulf migratory group of king mackerel was not overfished and was uncertain whether the Gulf group was experiencing overfishing. Subsequent analyses showed that $F_{current}/F_{MSY}$ has been below 1.0 since 2002. Consequently, the most likely conclusion is that the Gulf group king mackerel stock is not undergoing overfishing. Atlantic migratory group king mackerel was also determined not overfished however, it was uncertain whether overfishing is occurring, and thought to be a low level if it is occurring.

1.7.2.2 Spanish Mackerel

The latest assessment for Gulf migratory group Spanish mackerel was conducted in 2003 (SEDAR 5), and for Atlantic migratory group Spanish mackerel in 2008 (SEDAR 17). In the Atlantic, estimates of stock biomass have more than doubled since 1995. In the Gulf of Mexico, biomass has also continued to increase. The 2003 assessment determined Gulf migratory group Spanish mackerel were not overfished or undergoing overfishing. Gulf migratory group Spanish mackerel has been added to the SEDAR assessment schedule tentatively for 2012. The 2008 assessment determined Atlantic migratory group Spanish mackerel was not undergoing overfishing, but the overfished status could not be determined.

1.7.2.3 Cobia

The status of Gulf cobia was assessed in 2001 (Williams 2001). The assessment was somewhat inconclusive in determining the status of the Gulf cobia stock; however Williams (2001) stated that “fishing mortality in the last few years has decreased slightly with all the point estimates of F_{2000}/F_{MSY} falling below 1.0.” Although the MSAP (2001) concluded that the Gulf cobia stock was undergoing overfishing, this conclusion was based on the assumption of a natural mortality value of 0.3 and a percentage probability of $F_{2000}>F_{MSY}$ of no more than 30%. The natural mortality rate for cobia is unknown, and the choice of natural mortality rate greatly affected the outcome of the assessment (Williams 2001 assessed values of 0.2, 0.3, and 0.4). Also the Council’s approved definition of overfishing is a probability that $F_{current}/F_{MSY}$ is greater than 50%. Consequently, the most likely conclusion is that the stock is not undergoing overfishing.

The assessment was able to conclude with some certainty that the cobia population had increased in abundance since the 1980s (Williams 2001). Furthermore, the MSAP (2001) noted that there was only a 30% probability that $B_{2000}<B_{MSY}$. Consequently, the most likely conclusion is that the stock is not overfished.

1.7.2.4 Cero, Little Tunny, Dolphin, Bluefish

The status of other CMP species is either unknown or considered preliminary. A 2002 assessment of cero in the Gulf of Mexico and the South Atlantic was unable to determine the overfished and overfishing status (Turner and Brooks, 2002). An assessment of little tunny in the Gulf of Mexico determined that the stock was not overfished or undergoing overfishing (Brooks, 2001). Little information exists on the status of little tunny in the South Atlantic. These species have never been the subject of a SEDAR assessment and their overfished and overfishing status is unknown. An exploratory assessment of dolphin indicated the status of dolphin in the Gulf of Mexico was unknown (Prager 2000). A preliminary assessment of bluefish suggested Gulf bluefish might have been overfished since the 1980s (Heinemann 2002).

2.0 MANAGEMENT ALTERNATIVES

2.1 ACTION 1: Modifications to the Fishery Management Unit

Alternative 1: No Action – Retain the following species in the Fishery Management Plan for data collection purposes only, but do not add them to the Fishery Management Unit: cero, little tunny, dolphin (Gulf only), and bluefish (Gulf only).

Alternative 2: Add the following species to the Fishery Management Unit and set annual catch limits and accountability measures:

- **Option a:** Cero
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option b:** Little tunny
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option c:** Dolphin (In the Gulf of Mexico region only)
- **Option d:** Bluefish (In the Gulf of Mexico region only)

Preferred Alternative 3: Remove the following species from the Fishery Management Plan:

- **Option a:** Cero
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option b:** Little tunny
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option c:** Dolphin
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option d:** Bluefish (In the Gulf of Mexico region only)

Discussion: The councils have never managed bluefish, cero, little tunny, or dolphin under the CMP FMP; however, they were originally included for data collection purposes in order to determine whether future management was warranted. After over 20 years, the councils have not seen the need to add these stocks to the management unit; however, the SAFMC elected to manage dolphin and wahoo in the Atlantic via a separate FMP and will develop measures for Little Tunny in the Atlantic in a future amendment to the CMP FMP. Consequently, the councils concluded it is not necessary to set ACLs and AMs for these stocks. **Alternative 1** would retain these stocks in the fishery management plan which would require the setting of ACLs and AMs. As discussed and shown in Section 1.7.1.4 landings for all of these stocks, with the possible exception of dolphin (Gulf), have been very low in recent years, and the majority is from the recreational sector. Additionally, dolphin in the Gulf are almost exclusively caught off Florida under regulations of a minimum size of 20 inches fork length and a 10-fish bag limit. Furthermore, landings of any of these stocks have never been constrained by any federal management measures in the past, with the exception of dolphin in the Atlantic which are regulated by the Dolphin and Wahoo FMP. As noted in Section 1.7.2.4, previous attempts to assess these stocks have resulted in a status determination of either unknown or preliminary.

Consequently, the establishment of justifiable ACLs and AMs would be very difficult.

Alternative 2 would add bluefish (in the Gulf), cero, little tunny, and dolphin (in the Gulf) to the FMU and the councils would be required to specify ACLs and AMs which would be difficult with the data available. **Alternative 3** would simply remove these species from the CMP FMP, which is justified based on the discussions above and those provided in the Environmental Consequences section for Action 1.

2.2 ACTION 2: Modify the Framework Procedure

Alternative 1. No Action **–** Do not modify the framework procedure.

Alternative 2. Update the framework procedure to incorporate the SEDAR process and adjustments to ACLs (Appendix A).

Alternative 3. Revise the framework procedure to incorporate the SEDAR process and adjustments to ACLs, and expand the procedure to allow adjustments of greater range of management measures under specific procedural guidelines.
Preferred Option 1: Adopt the base Framework Procedure (Appendix B)
Option 2: Adopt the more broad Framework Procedure (Appendix C)
Option 3: Adopt the more narrow Framework Procedure (Appendix D)

Discussion:
The Councils currently have three different regulatory vehicles for addressing fishery management issues. First, a full amendment may be developed to implement management measures. The amendment process can take one to three years depending on the type of NEPA document needed to support the amendment actions. Second, the Council may vote to request an interim or emergency rule that could remain effective for 180 days with the option to extend it for an additional 186 days. Interim and emergency rules are only meant as short-term management tools while permanent regulations are developed through an FMP amendment. Third, the Councils may prepare a regulatory amendment (hereafter called a framework action) based on the framework procedure, previously included through an amendment, which allows changes in specific management measures and parameters. Typically, framework actions take less than a year to implement, and are effective until amended.

In 2002 the Councils adopted the Southeast Data Assessment and Review (SEDAR) as its preferred method of assessing the status of stocks and determining allowable catch levels. Benchmark assessments under SEDAR are completed using a series of 3 workshops: Data Workshop, Assessment Workshop/Webinars and possibly meetings, and Review Workshop. Update assessments are also conducted under SEDAR. Assessment updates typically use the same data sets and assessment techniques used in an earlier benchmark assessment with succeeding year's data being added. Prior to 2002, the Southeast Fisheries Science Center (SEFSC) developed stock assessments that were in turn reviewed by the Councils' stock assessment panels for the various species or species groups being assessed, and the Councils' SSCs. The current language in the CMP Framework Procedure describes this outdated process. **Alternative 1** would retain the current procedure, which does not include the SEDAR process or allow for adjustments of annual catch limits (ACLs).

Under **Alternatives 2** and **3**, adjustments to ACLs, annual catch targets (ACTs), accountability measures (AMs), and other management measures could be made relatively quickly as new fishery and stock abundance information becomes available. Alternatives that would update or revise the current procedure would likely be biologically beneficial for coastal migratory pelagic species because they would allow periodic adjustments to National Standard 1 guideline harvest parameters, and management measures could be altered in a timely manner in response to stock assessment or survey results.

Alternative 2 and **3** would be expected to increase the efficiency and effectiveness of management change, potentially allowing less severe corrective action when necessary, or the quicker receipt of social and economic benefits associated with less restrictive management. In the long term, positive social and economic effects, relative to the status quo, would be expected from more timely management adjustments.

Alternative 2 would update language to incorporate the SEDAR process, as well as allow adjustments to ACLs, ACTs, and accountability measures. When the procedure was originally developed, these parameters were not in use. The updates would streamline the process for making these changes if a new stock assessment indicates their necessity. However, the procedure remains fairly restrictive both substantively and procedurally.

The Council is also considering revisions that incorporate the SEDAR process as well as provide a more generic framework procedure (**Alternative 3**). Generic frameworks as described in **Alternative 3, Options 1-3** have both open and closed components. The open components provide more policy discretion, whereas the closed components address more specific, factual circumstances. **Option 1** is a base procedure, **Option 2** has a broad focus, and **Option 3** has a narrow focus. The options in **Alternative 3** would increase the flexibility of the Councils and NOAA Fisheries Service by identifying additional measures that could be changed under the procedure. In addition, these framework options would clarify the appropriate process needed for each type of change. The major differences among the options are highlighted in Table 2.2.1.

Table 2.2.1. Comparison of Alternative 3, Options 1-3 for a framework procedure.

	Option 1 (Base) (**Preferred**)	Option 2 (Broad)	Option 3 (Narrow)
Types of framework processes	Open abbreviated Open standard Closed	Open Closed	Open Closed
When open framework can be used	New stock assessment New information or circumstances When changes are required to comply with applicable law or a court order	In response to any new information or changed circumstances	Only when there is a new stock assessment
Actions that can be taken	Abbreviated Open framework can be used for actions that are considered minor and insignificant Standard Open framework used for all others Lists of actions that can be taken under Abbreviated and Standard Open framework are given. Closed framework can be used for a specific list of actions	Open framework can be used for a representative list of actions, plus other measures deemed appropriate by the Councils Closed framework can be used for a specific list of actions, plus any other immediate action specified in the regulations	Open framework can only be used for specific listed actions Closed framework can only be used for a specific list of actions
Public input	Requires public discussion at one meeting for each Council	Requires public discussion at one meeting for each Council	Requires public discussion during at least three meetings for each Council, and discussion at separate public hearings within the areas most affected by the proposed measures.
AP/SSC participation	Each Council may convene their SSC, SEP, or AP, as appropriate	Convening the SSC, SEP, or AP, prior to final action is not required	Each Council shall convene their SSC, SEP, and AP
How a request of action is made	Abbreviated requires a letter or memo from the Councils with supporting analyses Standard requires a completed framework document with supporting analyses	Via letter, memo, or the completed framework document with supporting analyses.	Via letter, memo, or completed framework document with supporting analyses.

2.3 ACTION 3: Establish Separate Atlantic and Gulf Migratory Groups of Cobia

Alternative 1. No action - Maintain one group of cobia.

Alternative 2. Separate the two migratory groups at the Miami-Dade/Monroe County line.

Preferred Alternative 3. Separate the two migratory groups at the SAFMC/GMFMC boundary.

Discussion: Currently, the CMP FMP considers that there is only one stock of cobia that includes the Gulf and Atlantic. Although Franks *et al.* (1992), Franks and McBee (1994), Franks and Moxey (1996), and Burns *et al.* (1998) observed migrations of cobia from wintering grounds in the Florida Keys up the Atlantic and Gulf coasts, they also noted that some portion of the cobia stock remained in the Atlantic and the Gulf year-round. Burns *et al.* (1998) and Franks *et al.* (1999) also found distinct differences in life history parameters such as maximum age and growth rates for fish in the Atlantic and Gulf. Consequently, despite the evidence of mixing and genetic similarity, Thompson (1993) suggested that cobia be managed based on a two stock hypothesis (Thompson 1996). Williams (2001) recognized the evidence of mixing; however, came to the same conclusion as Thompson and used the two stock hypothesis in a 2001 assessment that was done for the Gulf component with a split at the Miami-Dade/Monroe County line. The following is taken directly from the "Assessment of cobia, *Rachycentron canadum*, in the waters of the U.S. Gulf of Mexico by Erik H. Williams (NOAA TECHNICAL MEMORANDUM NMFS-SEFSC-469, November 2001)":

"This assessment applies to cobia (*Rachycentron canadum*) located in the territorial waters of the U.S. Gulf of Mexico. Separation of the Gulf of Mexico and Atlantic Ocean is defined by the seaward extension of the Dade/Monroe county line in south Florida. Mixing of fish between the Atlantic and Gulf of Mexico occurs in the Florida Keys during winter months. Cobia annually migrate north in early spring in the Gulf to spawning grounds in the northern Gulf of Mexico, returning to the Florida Keys by winter.

Cobia (*Rachycentron canadum*), the only member of the family Rachycentridae in North America, is a widely distributed species of pelagic fish found worldwide, except the Eastern Pacific; in tropical, subtropical, and warm temperate waters (Shaffer and Nakamura 1989). In the U.S., cobia are found in the Atlantic Ocean from the Florida Keys to Massachusetts and throughout the Gulf of Mexico. Cobia exhibit seasonal migrations in the Atlantic and Gulf of Mexico. In the Atlantic Ocean cobia begin their spring migration north from wintering grounds in the Florida Keys, generally appearing by late spring and early summer in the poly/mesohaline areas of coastal Virginia and the Carolinas (Schwartz *et al*. 1981, Smith 1995). In the Gulf of Mexico, cobia migrate in early spring from their wintering grounds in the Florida Keys to the northeastern Gulf where they occur in the nearshore and coastal waters off northwestern Florida to Texas from March through October (Biesiot *et al*. 1994, Franks *et al*. 1999). In the Atlantic and Gulf of Mexico there is evidence of some cobia overwintering in deeper waters (100-125 m) off the Carolinas and northern Gulf (Franks *et al*. 1999, Joseph W. Smith personal communication).

Tagging studies have revealed migrations of fish in both directions between the northern Gulf of Mexico and the Carolinas, indicating some level of exchange of fish from the Gulf of Mexico and Atlantic Ocean (Franks *et al*. 1992, Franks and McBee 1994, Franks and Moxey 1996). A genetics study of mtDNA of cobia samples from the Atlantic and Gulf of Mexico did not reveal differences (Hrincevich 1993). Despite the evidence of mixing and genetic similarity, Thompson (1993) suggested that cobia be managed based on a two stock hypothesis (Thompson 1996). The two stock approach was endorsed by the Mackerel Stock Assessment Panel in 1993 and is used for this analysis."

More recent unpublished data from research conducted by South Carolina DNR (Dr. Michael Denson, Dr. Tanya Darden, J. Yost, K. Brenkert, M. Walker, M. Perkinson, L. Lefevbre, B. McAbee, A. Cammarano, A. Stokes, B. Cushman, M. Jamison, J. Richardson, C. Tarpey, and D. Farrae; Cobia Research in SC and Beyond, PowerPoint presentation at a Cobia meeting on March 15, 2011) examined a suite of microsatellite loci. Atlantic samples were collected during April – July in 2008 and 2009. Results indicate a homogenous offshore group, including the Florida Panhandle area, with distinct inshore aggregations (Figure 2.2.1).

Figure 2.3.1. Population structure of cobia based on recent genetic work.
Source: SCDNR; Dr. Michael Denson, *et al*. 2011.

Alternative 1 would maintain the one stock hypothesis, but it is not supported by the assessment scientists in the past. **Alternative 2** would separate the migratory groups at the previously assessed Miami-Dade/Monroe County line. This line is consistent with the current separation of the Gulf and Atlantic migratory groups of Spanish mackerel for assessment and management purposes but not the king mackerel boundary which switches based on movement of fish. **Alternative 3** would separate the groups at the jurisdictional boundary between the Gulf and South Atlantic Councils similar to the boundary being proposed by the two councils for black grouper. Although it is not possible at this time to evaluate biological, economic, and social differences in impacts of the choice of either **Alternative 2** or **Alternative 3**, there could be differences in the assignment of ACLs and any subsequent AMs. As shown in Tables 1.7.1.3.1 and 1.7.1.3.2 approximately 90% of the cobia harvest comes from the recreational sector. Landings for the recreational sector are determined from the MRFSS/MRIP program which defines landings to the "by-county" level. These data can be stratified to provide separations on a finer scale that could be used to separate catches at the Council boundary. This has been done for other species but would require additional work to produce the required data. The choice of **Alternative 3** would result in having to assign a portion of the ACL for the Atlantic and a portion to the Gulf based on additional analyses (in the case of Table 2.3.2 a 50/50 split was assumed). As shown in Table 2.3.1 for the commercial sector catches, there could be distinct differences from the 50/50 assumption. On the other hand, the choice of **Alternative 2** would eliminate the need to assign a percentage split of the recreational catch data.

Table 2.3.1. Cobia Commercial Landings (pounds) by Region (2000-09).

Year	South Atlantic only	Gulf only	Monroe County			Alternative 1	Alternative 2		Preferred Alternative 3	
			S. Atlantic	Gulf	Total	Monroe County Gulf & S. Atlantic	S. Atlantic only	Gulf and All Monroe County	Monroe County and S. Atlantic	Monroe County and Gulf
2000	91,269	126,604	23,076	3,286	26,362	244,235	91,269	152,966	114,345	129,890
2001	95,435	89,760	19,707	2,348	22,055	207,250	95,435	111,815	115,142	92,108
2002	88,767	103,113	16,836	2,109	18,945	210,825	88,767	122,058	105,603	105,222
2003	80,665	108,886	29,535	2,580	32,115	221,666	80,665	141,001	110,200	111,466
2004	89,200	97,460	14,363	3,733	18,096	204,756	89,200	115,556	103,563	101,193
2005	59,513	84,377	12,372	3,104	15,476	159,366	59,513	99,853	71,885	87,481
2006	81,013	76,714	11,644	4,842	16,486	174,213	81,013	93,200	92,657	81,556
2007	83,918	68,932	13,359	4,220	17,579	170,429	83,918	86,511	97,277	73,152
2008	82,764	65,220	14,393	2,430	16,823	164,807	82,764	82,043	97,157	67,650
2009	99,475	60,424	9,608	1,120	10,728	170,627	99,475	71,152	109,083	61,544

Table 2.3.2. Cobia Recreational Landings (pounds) by Region (2000-09).

Year	South Atlantic only	Gulf only	Monroe County	Alternative 1	Alternative 2		Preferred Alternative 3	
				Monroe County Gulf & S. Atlantic	S. Atlantic only	Gulf and All Monroe County	S. Atlantic and 50% Monroe County	Gulf and 50% Monroe County
2000	1,017,028	880,413	27,070	1,924,511	1,017,028	907,483	1,030,563	893,948
2001	849,194	1,165,227	47,868	2,062,289	849,194	1,213,095	873,128	1,189,161
2002	771,362	851,683	14,908	1,637,953	771,362	866,591	778,816	859,137
2003	1,509,248	1,098,724	70,593	2,678,566	1,509,248	1,169,317	1,544,545	1,134,021
2004	1,184,435	1,270,392	46,270	2,501,097	1,184,435	1,316,662	1,207,570	1,293,527
2005	1,274,058	1,222,264	35,963	2,532,285	1,274,058	1,258,227	1,292,040	1,240,246
2006	1,150,144	1,043,001	103,093	2,296,238	1,150,144	1,146,094	1,201,690	1,094,547
2007	1,246,670	1,056,228	17,076	2,319,974	1,246,670	1,073,304	1,255,208	1,064,766
2008	1,220,307	981,149	6,479	2,207,935	1,220,307	987,628	1,223,547	984,388
2009	946,037	594,786	4,493	1,545,317	946,037	599,280	948,284	597,033

2.4 ACTION 4: Set Acceptable Biological Catch (ABC) and Annual Catch Target (ACT) for Gulf Group Cobia

Alternative 1. No Action – do not establish an ABC Control Rule.

Preferred **Alternative 2.** Adopt the Gulf Council's ABC Control Rule. [[Note: the SSC used Tier 3a to set ABC at1.46 mp]

Alternative 3. Adopt a control rule that sets ABC = yield corresponding 0.75*FMSY when the stock is at equilibrium for Gulf group cobia [currently estimated at 1.45 MP] (This is the current definition of OY.)

Discussion: Alternative 1, the no action alternative, does not specify an ABC control rule. The SSC would set ABC for the stock using their best judgment. The National Standard 1 guidelines require that fishery management plans contain an ABC control rule, defined as " a specified approach to setting the ABC for a stock or stock complex as a function of the scientific uncertainty in the estimate of OFL and any other scientific uncertainty" (600.310(f)(2)(iii)). Because this alternative does not provide a specified approach, it is not viable under the guidelines.

Preferred Alternative 2 uses the ABC control rule developed by the Gulf SSC (Table 2.4.1) to set ABC for Gulf group cobia. This ABC control rule determines the appropriate level of risk and/or buffer to set between the overfishing limit (OFL) and ABC. The ABC control rule offers three tiers of guidance for setting ABC based on the amount of information for a given stock. With less information there is generally greater scientific uncertainty, and therefore the buffer between the OFL and ABC will be greater in most cases.

Table 2.4.1. Gulf Acceptable Biological Catch Control Rule.

Tier 1 Acceptable Biological Catch Control Rule	
Condition for Use	A quantitative assessment provides both an estimate of overfishing limit based on maximum sustainable yield or its proxy and a probability density function of overfishing limit that reflects scientific uncertainty. Specific components of scientific uncertainty can be evaluated through a risk determination table.
OFL	OFL = yield resulting from applying F_{MSY} or its proxy to estimated biomass.
ABC	The Council with advice from the SSC will set an appropriate level of risk (P*) using a risk determination table that calculates a P* based on the level of information and uncertainty in the stock assessment. ABC = yield at P*.
Tier 2 Acceptable Biological Catch Control Rule	
Condition for Use*	An assessment exists but does not provide an estimate of MSY or its proxy. Instead, the assessment provides a measure of overfishing limit based on alternative methodology. Additionally, a probability density function can be calculated to estimate scientific uncertainty in the model-derived overfishing limit measure. This density function can be used to approximate the probability of exceeding the overfishing limit, thus providing a buffer between the overfishing limit and acceptable biological catch.

OFL	An overfishing limit measure is available from alternative methodology.
ABC	Calculate a probability density function around the overfishing limit measure that accounts for scientific uncertainty. The buffer between the overfishing limit and acceptable biological catch will be based on that probability density function and the level of risk of exceeding the overfishing limit selected by the Council. a. Risk of exceeding OFL = 45% b. Risk of exceeding OFL = 35% c. Risk of exceeding OFL = 25% (default level for unassigned stocks) d. Risk of exceeding OFL = 15% Set ABC = OFL – buffer at risk of exceeding OFL
Tier 3a Acceptable Biological Catch Control Rule	
Condition for Use*	No assessment is available, but landings data exist. The probability of exceeding the overfishing limit in a given year can be approximated from the variance about the mean of recent landings to produce a buffer between the overfishing limit and acceptable biological catch. Based on expert evaluation of the best scientific information available, recent historical landings are without trend, landings are small relative to stock biomass, or the stock is unlikely to undergo overfishing if future landings are equal to or moderately higher than the mean of recent landings. For stock complexes, the determination of whether a stock complex is in Tier 3a or 3b will be made using all the information available, including stock specific catch trends.
OFL	Set the overfishing limit equal to the mean of recent landings plus two standard deviations. A time series of at least ten years is recommended to compute the mean of recent landings, but a different number of years may be used to attain a representative level of variance in the landings.
ABC	Set acceptable biological catch using a buffer from the overfishing limit that represents an acceptable level of risk due to scientific uncertainty. The buffer will be predetermined for each stock or stock complex by the Council with advice from the SSC as: a. ABC = mean of the landings plus 1.5 * standard deviation (risk of exceeding OFL = 31%) b. ABC = mean of the landings plus 1.0 * standard deviation (default) (risk of exceeding OFL = 16%) c. ABC = mean of the landings plus 0.5 * standard deviation (risk of exceeding OFL = 7%) d. ABC = mean of the landings (risk of exceeding OFL = 2.3%)
Tier 3b Acceptable Biological Catch Control Rule	
Condition for Use[Note 1]	No assessment is available, but landings data exist. Based on expert evaluation of the best scientific information available, recent landings may be unsustainable.
OFL	Set the overfishing limit equal to the mean of landings. A time series of at least ten years is recommended to compute the mean of recent landings, but a different number of years may be used to attain a representative level of variance

	in the landings.
ABC	Set acceptable biological catch using a buffer from the overfishing limit that represents an acceptable level of risk due to scientific uncertainty. The buffer will be predetermined for each stock or stock complex by the Council with advice from its SSC as: e. ABC = 100% of OFL f. ABC = 85% of OFL g. ABC = 75% of OFL (default level for unassigned stocks) h. ABC = 65% of OFL

Note 1: Changes in the trend of a stock's landings or a stock complex's landings in three consecutive years shall trigger a reevaluation of their acceptable biological catch control rule determination under Tiers 2, 3a, or 3b.
Note 2: There may be situations in which reliable landings estimates do not exist for a given data-poor stock. The approach and methodology for setting OFL and ABC will be determined on a case-by-case basis, based on expert opinion and the best scientific information available.

Tier 1 is for stocks that have undergone a quantitative assessment that has produced an estimate of maximum sustainable yield (MSY) and a probability distribution around the estimate. Tier 2 is for stocks that have not had a quantitative assessment that produces an estimate of MSY or MSY proxy. Tier 3a is for stocks that have not been assessed, but are stable over time or, in the judgment of the SSC, the stock or stock complex is unlikely to undergo overfishing at current average levels or at levels moderately higher than current average levels. Tier 3b is for stocks that do not meet the requirements of either Tier 1 or Tier 2 and, in the judgment of the SSC, the current fishing levels may not be sustainable over time.

There may be situations when a stock does not fit in any of the tiers. Therefore, Note 2 was added to the control rule, which states that in situations where reliable landings estimates do not exist, the approach and methodology for setting OFL and ABC will be determined on a case-by-case basis, based on expert opinion and the best scientific information available. This was the case for Gulf group cobia when the SSC addressed that species during their March 2011 meeting.

In May 2011 the SSC revisited its recommendations regarding ABC for Gulf group cobia and Spanish mackerel. At this meeting the SSC decided that OFL and ABC for both stocks would more appropriately be addressed via the Tier 3a control rule. The strict application of the ABC control rule yielded an OFL recommendation of 1.57 mp and an ABC of 1.46 mp for Gulf group cobia. As noted, these numbers are only slightly higher than those previously recommended, and the SSC felt that there was little risk of overfishing occurring because biomass was likely higher than the equilibrium level.

Alternative 3 establishes a simplified control rule which sets the buffer equal to the yield at 75% of F_{MSY}. Based on the 2001 cobia stock assessment (Table 2.4.2), the median value is 659 mt or 1.45 mp. As stated above, the SSC rejected this method in favor of consistency with other CMP species, i.e., the use of the ABC control rule. Although **Alternative 3** eliminates the subjective evaluation required under **Preferred Alternative 2**, it would lock in a static definition of ABC even if a new stock assessment showed use of a higher level of risk was acceptable.

Table 2.4.2. Summary of Recommendations from the Report of the Mackerel Stock Assessment Panel on the 2001 Cobia Stock Assessment.

GROUP	Description	Value	Stock Status
Gulf of Mexico Cobia	MSY^a	682 mt (590 - 802)	
	Yield @ $75F_{MSY}{}^b$	659 mt (587 – 767)	
	$B_{MSY}{}^c$	1,370 mt (-1,264 – 3,983)	
	$F_{MSY}{}^d$	0.34 (0.06 - 0.65)	
	Percentage of $F_{2000}/F_{MSY}{}^e$ > MFMT	40%	Overfishing
	Percentage of $B_{2000}/B_{MSY}{}^f$ < MSST	30%	Not Overfished
	ABC^g	Should not exceed 659 mt	

a. Maximum sustainable yield is the maximum long-term yield when a given stock is at equilibrium. MSY was computed for Gulf Cobia from the stock-recruit function within the ADMB model building framework for each of the three assumed levels of M (M = 0.2, 0.3, and 0.4) (Williams 2001); the variance of MSY was estimated with the Delta-method normal approximation. Estimates of MSY were weighted probabilistically *a posteriori* to reflect the MSAP=s belief that natural mortality for Gulf cobia most likely centers on 0.3 (50% probability), but that values of 0.2 and 0.4 (each weighted at 25% probability) are still possible based on the biology of the species. The value given is the median of the cumulative weighted probability distribution, while the upper and lower values of the range are the 25^{th} and 75^{th} percentiles, respectively.
b. The GMFMC has not specified an OY for Gulf cobia. The default scenario under SFA when OY is not specified is to set OY equal to MSY; however, the MSAP recommends that OY be established as the equilibrium yield at 75% of F_{MSY} (see text) which is presented here as Yield @ $75F_{MSY}$. This parameter was computed for Gulf Cobia from the stock-recruit function within the ADMB model building framework for each of the three assumed levels of M (M = 0.2, 0.3, and 0.4) (Williams 2001); the variance of Yield @ $75F_{MSY}$ was estimated with the Delta-method normal approximation. Estimates of Yield @ $75F_{MSY}$ were weighted probabilistically *a posteriori* to reflect the MSAP=s belief that natural mortality for Gulf cobia most likely centers on 0.3 (50% probability), but that values of 0.2 and 0.4 (each weighted at 25% probability) are still possible based on the biology of the species. The value given is the median of the cumulative weighted probability distribution, while the upper and lower values of the range are the 25^{th} and 75^{th} percentiles, respectively.
c. B_{MSY} was computed for Gulf Cobia from the stock-recruit function within the ADMB model building framework for each of the three assumed levels of M (M = 0.2, 0.3, and 0.4) (Williams 2001); the variance of B_{MSY} was estimated with the Delta-method normal approximation. Estimates of B_{MSY} were weighted probabilistically *a posteriori* to reflect the MSAP=s belief that natural mortality for Gulf cobia most likely centers on 0.3 (50% probability), but that values of 0.2 and 0.4 (each weighted at 25% probability) are still possible based on the biology of the species. The value given is the median of the cumulative weighted probability distribution, while the upper and lower values of the range are the 25^{th} and 75^{th} percentiles, respectively.
d. F_{MSY} was computed for Gulf Cobia from the stock-recruit function within the ADMB model building framework for each of the three assumed levels of M (M = 0.2, 0.3, and 0.4) (Williams 2001); the variance of F_{MSY} was estimated with the Delta-method normal approximation. Estimates of F_{MSY} were weighted probabilistically *a posteriori* to reflect the MSAP=s belief that natural mortality for Gulf cobia most likely centers on 0.3 (50% probability), but that values of 0.2 and 0.4 (each weighted at 25% probability) are still possible based on the biology of the species. The value given is the median of the cumulative weighted probability distribution, while the upper and lower values of the range are the 25^{th} and 75^{th} percentiles, respectively.
e. F_{2000} was estimated with the Delta-method normal approximation. Estimates of F_{2000} were weighted probabilistically *a posteriori* to reflect the MSAP=s belief that natural mortality for Gulf cobia most likely centers on 0.3 (50% probability), but that values of 0.2 and 0.4 (each weighted at 25% probability) are still possible based on the biology of the species. The value given is the median of the cumulative weighted probability distribution, while the upper and lower values of the range are the 25^{th} and 75^{th} percentiles, respectively.
f. B_{2000} was estimated with the Delta-method normal approximation. Estimates of B_{2000} were weighted

probabilistically *a posteriori* to reflect the MSAP=s belief that natural mortality for Gulf cobia most likely centers on 0.3 (50% probability), but that values of 0.2 and 0.4 (each weighted at 25% probability) are still possible based on the biology of the species. The value given is the median of the cumulative weighted probability distribution, while the upper and lower values of the range are the 25th and 75th percentiles, respectively.
g. It is recommended that ABC not exceed the median estimated Yield @ $75F_{MSY}$.

2.5 ACTION 5: Set Annual Catch Limit (ACL) and Annual Catch Target (ACT) for Gulf Group Cobia

2.5.1 ACTION 5.1: Annual Catch Limit (ACL) for Gulf Group Cobia

Alternative 1. No action – do not set an ACL for Gulf group cobia

Preferred Alternative 2. Set ACL = ABC for Gulf group cobia [1.46 mp based on preferred ABC]

> **Preferred** Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

Alternative 3: Set ACL = 90% of ABC for Gulf group cobia [1.31 mp based on preferred ABC]

> Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

Alternative 4: Set ACL = 85% of ABC for Gulf group cobia [1.24 based on preferred ABC]

> Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

Alternative 5: Set ACL = 80% of ABC for Gulf group cobia [1.17 mp based on preferred ABC]

> Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

Alternative 6: Set ACL = 75% of ABC for Gulf group cobia [1.10 mp based on preferred ABC]

> Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

<u>Discussion</u>: ACLs are set by the Councils and should take into account management uncertainty. Management uncertainty may occur because sufficient catch information is lacking, and may include late catch reporting, misreporting, and underreporting of catches. Management uncertainty is affected by the ability to control actual catch in the fishery. For example, a fishery with in-season catch data and in-season closure authority has better management control than a fishery without these features. Annual catch limits, in coordination with AMs, must prevent overfishing.

Gulf group cobia have not been assessed since 2000; however this stock is managed by a two-fish per person per day possession limit for the commercial and recreational fisheries. Additionally, approximately 90% of the landings are recreational. The stock assessment concluded that there was only a 30% chance that the stock was overfished and only a 40% chance of overfishing occurring in 2000. Although the Gulf stock is healthy according to the last assessment, the MSAP (2001) recommended that the ABC should not exceed the equilibrium yield when fishing at 75% F_{MSY} (OY) which was estimated at 1.45 mp **(**Action 4, Alternative 3**)**.

Alternative 1 is not feasible unless cobia were removed from the fishery since the setting of ACL is a requirement of the law. As shown in Tables 2.3.1 and 2.3.2, ACL set equal to ABC at 1.46 MP as with **Preferred Alternative 2** would not have resulted in the ACL being exceeded in past years; consequently, any AM would not have been invoked. However, setting an ACL, as with **Alternative 3** at 1.31 mp, the ACL would have been exceeded in 2004 and 2005, which would present a small possibility of AMs being implemented. Selection of **Alternative 3** is perhaps overly conservative in that the stock is not overfished or undergoing overfishing; regulations for both the commercial and recreational fisheries have been consistent for over 20 years. In addition, **Preferred Alternative 2** provides a buffer of 107,000 pounds (approximately 7%) below the estimated OFL level from the ABC control rule and **Alternative 3** would provide a buffer of approximately 16% below the estimated OFL. **Alternatives 4, 5,** and **6** offer increasingly conservative choices of ACLs at 85%, 80%, and 75% of ABC, respectively. Although these are viable alternatives, they would appear to curtail the fishery excessively. Because the stock assessment is outdated, it is still very precautionary to select **Preferred Alternative 2** until a new assessment for both Gulf and Atlantic groups of cobia is completed (currently scheduled for 2012). Furthermore, the stock is not overfished and is not undergoing overfishing, and it is unlikely that it ever has been in either of these states due to the stability of management measures and the landings history.

Another factor to be considered is that the stock assessment for Gulf group cobia (Williams 2000) was done under the assumption that the boundary between the two stocks would be the Miami-Dade/Monroe County line. In Action 3, the Councils' preferred alternative is for a boundary at the jurisdictional line between the Gulf and South Atlantic Councils. Consequently, landings for Monroe County must be divided. As shown in Table 2.3.1 commercial catches for Monroe County are divided based on reported landings. On the other hand, recreational catches recorded from the MRFSS survey cannot be separated to a lower level than for the entire county. Therefore, a 50/50 split of recreational landings was used (Table 2.3.2). Although this assumption is arbitrary and could have impacts to the levels of ABC and ACL selected, such impacts should be very minor because total recreational catches for Monroe County have been historically very low (less than 2% of the total recreational landings), particularly in recent years (Table 2.3.2). (Note: Recreational landings for 2006 were not included when looking at average catches because they appear to be an outlier at more than 3 times the average from 2000 – 2009).

Preferred Alternative 2 and **Alternatives 3, 4, 5,** and **6** also offer the options of having a single ACL for the Gulf stock or setting separate ACLs for the commercial and recreational sectors using catch data for different periods. While setting separate ACLs is typically preferable, particularly for stocks that have separate allocations for the commercial and recreational sectors, such is not the case with Gulf group cobia. On the other hand, choosing **Option b** under any of these alternatives would have the effect of setting allocations, and could invoke separate sets of accountability measures if either was exceeded. For Gulf cobia, such a separation would not seem to be necessary because both sectors are, and have been, managed by exactly the same regulations, namely a two-fish per person per day possession bag limit and a 33-inch FL minimum size limit. The 33-inch FL regulation has been in effect since 1985 and the two-fish possession limit since August 1990. Because catch has been managed at a level below that which would be expected to result in overfishing, both sectors are managed by the exact same regulations, and commercial sector catches have consistently been only approximately 10% of the total, the simplest choice would be **Preferred Option a.**

2.5.2 ACTION 5.2: Set Annual Catch Target (ACT) for Gulf Group Cobia

Alternative 1. No action – do not set ACT for Gulf group cobia

Preferred Alternative 2. Set ACT = 90% of ACL for Gulf group cobia

Preferred Option a. Set a single stock ACT

Option b. Set separate commercial and recreational ACTs based on current average percent of catches for the period 2000 through 2009

Alternative 3. Set ACT = 85% of ACL for Gulf group cobia

Option a. Set a single stock ACT

Option b. Set separate commercial and recreational ACTs based on current average percent of catches for the period 2000 through 2009

	Action 5.1 ACL =				
Action 5.2	Alt 2 [1.46]	Alt 3 [1.31]	Alt 4 [1.24]	Alt 5 [1.17]	Alt 6 [1.10]
Preferred Alt 2 90% ACL	1.31	1.18	1.12	1.05	0.99
Alt 3 85% ACL	1.24	1.11	1.05	0.99	0.93

Discussion: The ACT is the amount of annual catch of a stock that is the management target of the fishery, and accounts for further management uncertainty in controlling the actual catch at or below the ACL. An ACT set less than the ACL provides a buffer so the risk of exceeding the ACL is reduced and, therefore, the likelihood of triggering accountability measures is reduced. An ACT lowers the allowed catch below the ACL, but provides stability for fisheries that are apt to fluctuate around a target catch rate.

Alternative 1 (no action) would not establish an ACT, thereby not creating a buffer target less than the preferred alternative of ACL = 1.46 mp in Action 5-1. This would result in either in-season or post-season AMs if the stock ACL were exceeded during a specific fishing year.

For the 2000 through 2009 fishing years, the combined recreational and commercial landings (see Tables 2.3.1 and 2.3.2) did not exceed 1.46 mp (**Alternative 1**). The 1.31 mp ACT of the Council's **Preferred Alternative 2** was exceeded in 2004 and 2005. However, the most recent year the 1.31 mp ACT of **Preferred Alternative 2** was exceeded was 2005, and then by only 17,000 lb. Landings exceeded the 1.24 mp ACT in **Alternative 3** in 2003, 2004, and 2005. During peak landing periods of 2003 through 2005, landings exceeded the 1.24 mp ACT of **Alternative 3** by as much as 11%.

Option b for **Alternatives 2** and **3** would establish sector specific ACTs. Given the catch is as much as 90% recreational, and the overall catch is rather low (less than the estimated ABC at 1.46 mp annually), this option does not appear necessary. As discussed in Action 6, this might also require more detailed in-season monitoring that may be difficult to meet.

2.6 ACTION 6: Set Accountability Measures (AMs) for Gulf Group Cobia

Alternative 1. No Action

Option a. Commercial – none

Option b. Recreational - The Regional Administrator has authority via the framework to revert the possession limit to zero if fishermen have achieved or are expected to achieve their allocation

Preferred Alternative 2. Set in-season AMs for Gulf group cobia

Option a. If the ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to close the fishery for the remainder of the fishing year

Option b. If 90% of stock ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the possession limit to one fish person per day

Preferred Option c. When the 90% annual catch target is reached, that the possession limit be reduced to one fish per person per day until the annual catch limit (ACL) is reached. Once the ACL is reached, the fishery would be closed.

Note: this wording is from the motion during the April Council meeting; the IPT suggests changing to the following for consistency:

Preferred Option c. When the ACT is reached or projected to be reached, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the possession limit to one fish per person per day until the ACL is reached. When the ACL is reached or projected to be reached, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to close the fishery (commercial and recreational)

Alternative 3. Set post-season AMs for Gulf group cobia

Option a. Payback - If the ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 5.

Option b. Possession limit reduction - If the ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the possession limit to one fish per person per day in the following year

Option c. Shorten season - If the ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement temporary regulations for the following year to close the stock at a date when the stock is projected to meet its ACT

Option d. Trigger (can be chosen in addition to other options) - Post-season accountability measures will be triggered in 2012 if the 2011 landings exceed the ACL, in 2013 if the 2011-2012 average landings exceed the ACL, or in 2011-2013 average landings exceed the ACL, and thereafter if average landings exceed the equivalent three-year ACL. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter.

Note: The Council can choose more than one alternative or option

Discussion: Accountability measures are designed to provoke an action when either the ACL or ACT is reached during the course of a fishing season to reduce the risk overfishing will occur. However, depending on how timely the data are, it might not be realized that either the ACL and/or ACT has been reached until after a season has ended.

In-season AMs are those that are triggered during the fishing season and are typically before an ACL is exceeded. If an ACT is set, this is generally the trigger for implementation of in-season AMs. Some examples of in-season AMs include quota closures, trip or bag limit reductions, gear restrictions, or catch shares. Post-season AMs would be triggered if the ACL is exceeded and would typically be implemented the following fishing season. Post-season AMs could include seasonal closures, reduced trip limits, bag limits, and quotas, or shortening of the fishing season implemented in the subsequent year.

Current regulations for cobia include a two-fish per person possession limit that applies to both the commercial and recreational harvesters. These regulations have been in effect since 1990, and MSAP (2001) indicated that the stock was not overfished or undergoing overfishing. Additionally, landings have been relatively stable over the last 10 years. With regard to in-season AMs, **Option a** would allow for an in-season closure to the harvest of cobia and **Option b** would allow for an in-season reduction in the possession limit. Because current regulations already provide authority to the Regional Administrator to revert the possession limit to one fish or zero fish, these options would only clarify that these actions would take place when the ACT is reached or projected to be reached. **Preferred Alternative 2, Option c** is a slightly different in-season closure in that it establishes a step-down mechanism. In this case, the two-fish possession limit remains in place until the Council's preferred ACT is reached or is projected to be reached. At such time, and if it occurs, the possession limit is reduced to one fish per person until the ACL is reached or projected to be reached, at which time the possession limit reverts to zero and harvest would be prohibited. **Preferred Option c** is based on the Council's choice of a single ACL and ACT as opposed to a separate ACLs and ACTs for the commercial and recreational sectors, as would occur under **Options a and b**. In-season AMs are difficult to implement because they require in-season tracking. They are particularly difficult for species like cobia where the vast majority of the catch is from the recreational sector, which is much more difficult to monitor in a real-time manner because of the way the data are collected through the current Marine Recreational Fisheries Statistics Survey.

Post-season AMs do not currently exist for the harvest of cobia. Again, based on recent year's landings, post-season AMs are not likely to be needed. Paybacks of overages to reduce the next year's ACL (**Option a**) would probably not be necessary because catches have been below the estimated OFL and also below the estimated ABC. For **Option b** the Regional Administrator already has the authority to reduce the possession limit. Providing the Regional Administrator with authority to shorten the fishing season in the following year as with **Option c** is a viable alternative; however, as previously discussed, it would probably not be needed and should not be invoked for a one-year overage.

The National Standard 1 guidance includes a caveat allowing post-season accountability measure triggers to be based on multiyear averaging for stocks with variable annual catches or a lack of reliable catch data (50 CFR 600.310(g)(4)). This type of accountability measure trigger has been used for the recreational sector to manage gray triggerfish and shallow-water groupers. The justification for using averages for these species is that it reduces the probability the annual catch limit will be exceeded because of year-to-year fluctuations in landings resulting from recruitment variability, uncertainty in estimates of recreational landings, regulatory restrictions on other species, prevailing economic conditions, or other factors. **Option d** provides a stepwise comparison of the three-year running average of landings to the ACL before AMs would be triggered.

2.7 ACTION 7: Acceptable Biological Catch (ABC) Control Rule for Gulf Group King Mackerel

Alternative 1: No Action – Do not establish an ABC Control Rule.

Preferred Alternative 2: Adopt the Gulf Council's ABC Control rule. [Note: the SSC used Tier 1 to set ABC through 2013]

Alternative 3: Adopt a control rule that sets ABC = yield at F 85% at SPR30%

Discussion: **Alternative 1,** no action, does not specify an ABC control rule. The SSC would set ABC for the stock using their best judgment. The National Standard 1 guidelines require that fishery management plans contain an ABC control rule, defined as " a specified approach to setting the ABC for a stock or stock complex as a function of the scientific uncertainty in the estimate of OFL and any other scientific uncertainty" (600.310(f)(2)(iii)). Because this alternative does not provide a specified approach, it is not viable under the guidelines.

Preferred Alternative 2 uses the ABC control rule developed by the Gulf SSC (Table 2.4.1) to set ABC for Gulf group king mackerel. This ABC control rule determines the appropriate level of risk and/or buffer to set between the OFL and ABC. The ABC control rule offers three tiers of guidance for setting ABC based on the amount of information for a given stock. With less information there is generally greater scientific uncertainty, and therefore the buffer between the OFL and ABC will be greater in most cases.

Tier 1 is for stocks that have undergone a quantitative assessment that has produced an estimate of maximum sustainable yield (MSY) and a probability distribution around the estimate. Tier 2 is for stocks that have not had a quantitative assessment that produces an estimate of MSY or MSY proxy. Tier 3a is for stocks that have not been assessed, but are stable over time, or in the judgment of the SSC the stock or stock complex is unlikely to undergo overfishing at current average levels or at levels moderately higher than current average levels. Tier 3b is for stocks that do not meet the requirements of either Tier 1 or Tier 2, and in the judgment of the SSC, the current fishing levels may not be sustainable over time.

At their March 2011 meeting, the SSC determined Tier 1 was appropriate for Gulf group king mackerel. For this tier, specific factors related to uncertainty in the assessment can be evaluated through the use of a risk determination table, and converted into an appropriate level of risk, or P*. For king mackerel, the yields at $F_{30\%SPR}$ (proxy for F_{MSY}) were used by the SSC to set OFL. When the P* value of 0.410 was applied to the probability density functions, it produced the ABC levels in Table 2.7.1. Although projections were available to 2016, a SEDAR stock assessment is scheduled in 2012. Due to increased uncertainty with longer range projections, the SSC chose to recommend OFL and ABC only to 2013 to allow time for the new assessment. After the assessment, the SSC may chose to reset OFL and ABC using the same ABC control rule.

Table 2.7.1. ABC levels for king mackerel for 2012 and 2013 developed by the Gulf SSC.

Year	OFL	ABC
2012	12.4 mp	11.9 mp
2013	11.3 mp	10.8 mp

Alternative 3 establishes a simplified control rule which sets the ABC equal to the yield at 85% $F_{30\%\ SPR}$. SEDAR 16 in 2008 developed deterministic estimates of yields at various benchmarks (Table 2.7.2). At that time, the SSC reviewed these estimates and concluded that the OFL estimate from the assessment of 14.2 mp represented the best available scientific information. Additionally, they recommended ABC in 2011 at 13.215 mp (**Alternative 3)** which is the estimated yield when fishing at 85%*$F_{30\%SPR}$ (OY). The SSC also noted that the estimate of biomass/MSST in 2006 was 1.471, and the estimate of F/MFMT was 0.828. Consequently, the stock was not overfished and not undergoing overfishing. Although **Alternative 3** eliminates the subjective evaluation required under **Preferred Alternative 2**, it would lock in a definition of ABC even if a new stock assessment showed use of a different level of risk was appropriate.

Table 2.7.2 (Table A2.4.2 from SEDAR 16). Deterministic yield projections for Gulf king mackerel at various fishing mortality rates.

Year	F30%SPR	F40%SPR	F85%SPR	F75%SPR	F65%SPR	Fcurrent
2007	11.81	11.81	11.81	11.81	11.81	11.81
2008	17.13	12.61	14.778	13.162	11.513	14.394
2009	17.491	13.543	15.496	14.05	12.513	15.157
2010	16.286	13.223	14.791	13.64	12.357	14.526
2011	14.24	12.046	13.215	12.366	11.369	13.023
2012	12.432	10.834	11.715	11.08	10.3	11.576
2013	11.277	10.018	10.732	10.221	9.568	10.622
2014	10.503	9.438	10.053	9.614	9.041	9.958
2015	10.148	9.2	9.755	9.361	8.834	9.672
2016	9.886	9.015	9.533	9.165	8.669	9.456

2.8 ACTION 8 Set Annual Catch Limit (ACL) and Annual Catch Target (ACT) for Gulf Group King Mackerel

2.8.1 ACTION 8.1: Set Annual Catch Limit (ACL) for Gulf Group King Mackerel

Alternative 1. No Action - maintain ACL at the current TAC for Gulf group king mackerel [10.2 mp]

Preferred Alternative 2. Set ACL = ABC for Gulf group king mackerel [11.9 mp for 2012]
Option a. Set a single ACL
Preferred Option b. Set separate commercial and recreational ACLs based on current allocations (recreational 8.092 mp, commercial 3.808 mp)
Preferred Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets (hook and line: 3,200,386 lb; gillnet 607,614 lb)

Alternative 3. Set ACL = 90% of ABC for Gulf group king mackerel [10.7 mp for 2012]
Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations
Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

Alternative 4. Set ACL = 85% of ABC for Gulf group king mackerel [10.1 mp for 2012]
Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations
Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

Alternative 5. Set ACL = 80% of ABC for Gulf group king mackerel [9.5 mp for 2012]
Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations
Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

Alternative 6. Set ACL = 75% of ABC for Gulf group king mackerel [8.9 mp for 2012]
Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations
Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

Table 2.8.1.1. ACLs for Gulf group king mackerel under the status quo (Alternative 1) and the Preferred Alternative 2.

Action 8.1	**Western**	**Northern**	**Southern Hook-line**	**Southern Gillnet**	**FL E. Coast**
Alt. 1 No Action (3.26)	**1,010,000**	**168,750**	**520,312**	**520,312**	**1,040,625**
Preferred Alt 2, option c ACL 11.9	1,180,480	197,064	607,614	607,614	1,215,228

Discussion: **Alternative 1** would set an ACL equal to the current TAC. This alternative does not consider the results of the most recent stock assessment, which recommended harvest can be increased. Therefore, **Alternative 1** does not include the most recent scientific information, nor does it provide allowable social and economic benefits to be accrued.

Preferred Alternative 2 would set ACL equal to the ABC. It is highly improbable that a stock ACL (**Option a**) would be met. Under **Option b**, a recreational ACL would not likely be reached; on the other hand, the commercial sector has typically caught its share of the TAC/ACL. **Preferred Option c** would maintain the current percentages of the TAC/ACL for the commercial sector by gear, zone and subzone as established in Amendment 9 (See History of Management), as well as for the recreational sector. Although **Preferred Alternative 2** would present the greatest risk, it would also provide the commercial sector with the greatest opportunity to increase their catch with the associated benefits because the commercial sector is currently catching its allocation in most years.

Alternative 3 would be only slightly more conservative than **Alternative 2** and **Alternatives 4, 5, and 6** would provide increasingly conservative ACLs. None of the alternatives are likely to trigger accountability measures for the recreational sector under the preferred alternative for Action 7 because their catches have been well below their allocation (Table 1.7.1.1.2) even under **Alternative 6**. On the other hand, the commercial sector typically has been able to harvest its allocation of TAC prior to the end of the season and probably could do so under any of the choices for ACL. Therefore, it may be preferable to have an ACT that provides a buffer that would prevent exceeding the ACL.

2.8.2 ACTION 8.2: Set Annual Catch Target (ACT) for Gulf Migratory Group King Mackerel

Alternative 1. No Action - do not set an ACT for Gulf group king mackerel

Alternative 2. Set ACT = 90% of ACL for Gulf group king mackerel
Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations
Option c. For the commercial sector, set separate ACTs by zone, subzone, and gear

Alternative 3. Set ACT = 85% of ACL for Gulf group king mackerel
Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations
Option c. For the commercial sector, set separate ACTs by zone, subzone, and gear

Table 2.8.2.1. Recreational allocations and commercial quotas for Action 8.1 alternatives for ACL, and Action 8.2 alternatives for ACT for 2012.

	Action 8.1 ACL =				
Action 8.2 **Alt. 1** Rec./Comm.	Preferred Alt 2 [11.9] (8.092/3.808)	Alt 3 [10.7] 7.276/3.4.24	Alt 4 [10.1] 6.868/3.232	Alt 5 [9.5] 6.46/3.04	Alt 6 [8.9] 6.052/2.848
Alt 2 90% ACL Rec./Comm.	10.7 (7.28/3.42)	9.6 (6.53/3.07)	9.1 (6.19/2.91)	8.6 (5.85/2.75)	8.0 (5.44/2.56)
Alt 3 85% ACL Rec./Comm.	10.1 (6.87/3.23)	9.1 (6.19/2.91)	8.6 (5.85/2.75)	8.1 (5.51/2.59)	7.6 (5.17/2.43)

Table 2.8.2.2. Commercial quotas under the preferred alternative in Action 8.1 for ACL and the various alternatives in Action 8.2 for ACT

Action 8.1 and 8.2 Resulting Comm. quotas in parentheses	**Western**	**Northern**	**Southern Hook-line**	**Southern Gillnet**	**FL E. Coast**
Alt. 1 No Action; manage to the **Pref. Alt 2 (ACL 11.9)** (3.808 mp)	**1,180,480**	**197,064**	**607,614**	**607,614**	**1,215,228**
Action 8-1 Preferred Alt 2 (ACL 11.9) ACT 90% (3.42 mp) ACT 85% (3.23 mp)	1,060,200 1,001,300	176,985 167,153	545,704 515,387	545,704 515,387	1,091,408 1,030,774
Alt 3 ACL 10.7 mp ACT 90% (3.07 mp) ACT 85% (2.91 mp)	951,700 902,100	158,873 150,593	489,857 464,327	489,857 464,327	979,714 928,654
Alt 4 ACL 10.0 mp ACT 90% (2.91 mp) ACT 85% (2.75 mp)	902,100 852,500	150,593 142,313	464,327 438,797	464,327 438,797	928,654 877,594
Alt 5 ACL 9.5 mp ACT 90% (2.75 mp) ACT 85% (2.59 mp)	852,500 802,900	142,313 134,033	438,797 413,267	438,797 413,267	877,594 826,534
Alt 6 ACL 8.9 mp ACT 90% (2.56 mp) ACT 85% (2.43 mp)	793,600 753,300	132,480 125,753	408,480 387,737	408,480 387,737	816,960 775,474

<u>Discussion</u>: As noted in the discussion under Action 8.1, average catches of Gulf group king mackerel over the past ten years have been approximately 2 mp below the most conservative alternative considered for the ACL, and approximately 5 mp below the Council's preferred ACL alternative. Not setting an ACT (**Alternative 1**) and using only the ACL to constrain harvest, would depend on being able to continue adequately monitoring commercial quotas and depend on recreational bag limits to constrain recreational harvest. This would provide the greatest economic and social benefits to this sector and to the Nation with few biological consequences.

Alternative 2 would not provide significant benefits to the commercial sector because this catch level is only 500,000 lbs greater than the current TAC, and represents only a 160,000-lb increase in the commercial quota. After being divided among sub-zones, this increase to each sub-zone would be minimal. **Alternative 3** would reduce the TAC by 100,000 lbs resulting in a slight loss of benefits.

There are three options for each alternative. **Option a** would set a stock ACT. Because recreational harvest is less than its allocation and commercial harvest is controlled by quotas and harvest is prohibited when the various sub-zone quotas are met, a stock ACL would likely never be met. **Option b** would set a single ACT for the recreational sector and a single ACT for the commercial sector. A recreational ACT would likely never be met, given current harvest levels; however, the commercial sector harvests its various sub-zone quotas each year, and the gillnet segment, which as the capacity to harvest its allocation in a few days, often exceeds its allocation. Thus, a commercial ACT is likely to be met annually; therefore, should Option b be selected, **Alternative 2** or **Alternative 3**, providing a buffer between the ACT and the ACL would be preferable. **Option c** would provide separate ACTs for each zone and sub-zone, as well as between the hook-and-line segment and the gillnet segment. This option would provide individual accountability to specific sub-zones and gear segments, and would not penalize those sub-zones that did not exceed their specific ACT. However, this could be overly restrictive if the entire segment did not exceed the summed ACT, and would not trigger AMs. Again, this option would be best matched to **Alternative 2** or **Alternative 3** to better ensure a buffer between the ACT and the ACL.

2.9 ACTION 9: Set Accountability Measures (AMs) for Gulf Migratory Group King Mackerel

Alternative 1. No Action - retain current in-season accountability measures (AMs) for Gulf group king mackerel. [Note: IPT recommends this as a preferred alternative.]

Option a. Commercial

Supoption i. If the quota (=ACT) for a zone, subzone, or gear is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to close that zone, subzone, or gear for the remainder of the fishing year

Suboption ii. If 75% of quota (=ACT) is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to reduce the trip limit to 500 lbs per day for the northern and southern west coast Florida subzones

Option b. Recreational - The Regional Administrator has authority via the framework to revert the bag limit to zero if fishermen have achieved or are expected to achieve their allocation

Alternative 2. Change in-season AMs for Gulf group king mackerel

Option a. Commercial – If the commercial ACT for a zone, subzone, or gear is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to reduce the trip limit by 50% for any zone, subzone, or gear when 75/85% of its commercial ACT is reached or projected to be reached

Option b. Recreational - If 75/85% of the recreational ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to reduce the bag limit to one

Alternative 3. Set post-season AMs for Gulf group king mackerel

Option a. Commercial

Suboption i. Payback - If the total commercial ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 8.

Suboption ii. Payback - If the commercial ACL for a gear is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the ACL for that gear in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 8.

Option b. Recreational

Suboption i. Payback - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the recreational ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 8.

Suboption ii. Trip limit reduction - If the ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the trip limit to one fish per person per day in the following year

Suboption iii. Shorten season - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement temporary regulations for the following year to close the recreational sector at a date when the recreational sector is projected to meet its ACT

Note: The Council may choose more than one preferred alternative.

Discussion: AMs are management controls that ensure ACLs are not exceeded or provide corrective measures if overages occur. According to NS1 guidance, AMs can be in-season actions that prevent overages during the current fishing season, or post-season actions that "correct the operational issue that caused the ACL overage, as well as any biological consequences to the stock or stock complex resulting from the overage."

The current AMs for Gulf group king mackerel **(Alternative 1)** have been effective in constraining catches to levels at or below the TAC/ACL since the 1997/1998 fishing year (MSAP 2002). Because the Regional Administrator already has authority to close each sector, options under **Alternative 2** could be chosen in conjunction with closure options in **Alternative 1**. **Alternative 2, Option a** is not significantly different from **Alternative 1, Option a, Suboption ii** for the west coast Florida subzones, and some in the industry have indicated problems with this step-down approach. After trip limits are reduced, and with increasing fuel costs, it is not possible for large vessels to make a profitable trip for 500 lbs. The same argument would likely be made for a 650-lb trip limit. Also, for the western zone, which currently has a 3,000-lb trip limit with no in-season reduction, the Mackerel AP argued in 1998 for this trip limit as opposed to a lower limit similar to that off Florida due to their need to run as much as 100 miles from south Louisiana to waters off Texas to encounter significant quantities of fish. In-season recreational AMs are difficult to implement because they require in-season tracking of the recreational catch. However, it has been done; in 1988, 1989, 1990, and 1992, the recreational bag limit was reduced to zero during the fishing year. **Alternative 1, Option b** already gives the Regional Administrator authority to reduce the recreational bag limit as was done in the past; **Alternative 2, Option b** would only clarify when these actions would take place.

Existing in-season AMs (**Alternative 1)** have been mostly effective at controlling overall harvest, so there may not be a need for post-season AMs at this time. On the other hand, some of the zones and subzones of the hook and line fishery, as well as the gillnet fishery have exceeded their allocations in some years. **Alternative 3, Option a, Suboption i** would institute an immediate post-season payback via a quota reduction for the entire commercial ACL. **Alternative 3, Option a, Suboption ii** would implement post-season AMs through quota reductions for the commercial sector for the offending gear component. Options for the recreational sector under **Alternative 3, Option b** would also impose payback of any overage and/or allow the RA to adjust the bag limit or season to constrain catch to the ACL in the year following the overage.

2.10 ACTION 10: Acceptable Biological Catch (ABC) Control Rule for Gulf Group Spanish Mackerel

Alternative 1: No Action – Do not establish an ABC Control Rule.

Preferred Alternative 2: Adopt the Gulf Council's ABC Control rule. [[Note: the SSC used Tier 3a to set ABC at 5.15 mp]

Alternative 3. Adopt a control rule that sets ABC = yield corresponding $0.75*F_{MSY}$ when the stock is at equilibrium for Gulf group Spanish mackerel (This is the current definition of OY.)

<u>Discussion</u>: **Alternative 1**, no action, does not specify an ABC control rule. The SSC would set the ABC for each stock or stock assemblage using their best judgment. The National Standard 1 guidelines require that fishery management plans contain an ABC control rule, defined as " a specified approach to setting the ABC for a stock or stock complex as a function of the scientific uncertainty in the estimate of OFL and any other scientific uncertainty" (600.310(f)(2)(iii)). Since this alternative does not provide a specified approach, it is not viable under the guidelines.

Preferred Alternative 2 uses the ABC control rule developed by the Gulf SSC (Table 2.4.1) to set ABC for Gulf group Spanish mackerel. This ABC control rule determines the appropriate level of risk and/or buffer to set between the overfishing limit (OFL) and ABC. The ABC control rule offers three tiers of guidance for setting ABC based on the amount of information for a given stock. With less information there is greater scientific uncertainty, and therefore the buffer between the OFL and ABC will be greater.

Tier 1 is for stocks that have undergone a quantitative assessment that has produced an estimate of maximum sustainable yield (MSY) and a probability distribution around the estimate. Tier 2 is for stocks that have not had a quantitative assessment that produces an estimate of MSY or MSY proxy. Tier 3a is for stocks that have not been assessed, but are stable over time, or in the judgment of the SSC the stock or stock complex is unlikely to undergo overfishing at current average levels or at levels moderately higher than current average levels. Tier 3b is for stocks that do not meet the requirements of either Tier 1 or Tier 2, and in the judgment of the SSC, the current fishing levels may not be sustainable over time.

There may be situations when a stock does not fit in any of the tiers. Therefore, Note 2 was added to the control rule, which states that in situations where reliable landings estimates do not exist, the approach and methodology for setting OFL and ABC will be determined on a case-by-case basis, based on expert opinion and the best scientific information available.

The most recent Spanish mackerel stock assessment reviewed by the SSC was completed in 2001 (Table 2.10.1). At its May 2011 meeting, the SSC expressed concern that they may not have reviewed the more recent 2003 stock assessment results, and therefore did not want to use the 2003 assessment results for consideration of use in establishing an ABC. Nevertheless, the Council last adjusted TAC for Spanish mackerel based on the 2003 assessment outcomes. In any event, at its May 2011 meeting, the SSC determined the 2001 stock assessment was too outdated to provide adequate scientific advice. Therefore, the SSC used its control rule to establish OFL and ABC for Spanish mackerel. The SSC selected Tier 3a of the ABC control rule, and selected an OFL based on mean average landings for the years 2001 through 2008, plus two standard deviations, resulting in an OFL of 5.54 mp. Subsequently, following the control rule, the SSC recommended an ABC of 5.15 mp (mean landings for 2001-2008 plus 1.5 standard deviations).

A new stock assessment for all CMP species is scheduled for 2012; after that the SSC may choose a different tier from the control rule and reset ABC.

Table 2.10.1. Summary of Recommendations from the Report of the Mackerel Stock Assessment Panel on the 2001 Spanish Mackerel Stock Assessment.

GROUP	Description	Value	Projected Status
Spanish mackerel: Gulf migratory group	ABC @ F_{OY}[a]	9.2 (7.2 – 11.3) mp	
	ABC (Range) @ $F_{30\%SPR}$	Should not exceed 14.4 mp	
	MSY[b](Range)	8.5 (7.1 – 9.7) mp	
	Percentage of $F_{2000/01}/F_{MSY}$ > MFMT	1%	Not overfishing[c]
	Percentage of B_{2001}/B_{MSY} < MSST	< 1%	Not overfished[d]

a. Acceptable biological catch (ABC) is recommended as the median probability of achieving the management target (yield at F_{OY}). The range given is yield corresponding to between the 25% and 75% probabilities of achieving $F_{OY.}$ The GMFMC has not specified OY for this migratory group; however, it has expressed intent to establish OY as the yield at $F_{40\%SPR}$. Therefore, this MSAP makes its ABC recommendation for this stock based on F_{OY} equal to $F_{40\%SPR.}$

Alternative 3 establishes a simplified control rule which sets the buffer equal to the yield at 75% of F_{MSY}. This is equal to yield at F_{OY} and was meant to be the ABC set in the 2001 assessment. However, the median value for F_{OY} in Table 2.10.1 is incorrect because it was set equal to $F_{40\%SPR}$; the correct F_{OY} for the Gulf is 75% $F_{MSY,}$ which would result in a yield higher than the SSCs recommendation for MSY. The yield at $F_{30\%SPR}$ was higher than equilibrium MSY because the stock biomass was above the MSY level. If the OFL is set above equilibrium MSY and the stock is not monitored with periodic assessments, overfishing could occur if the stock biomass drops below the equilibrium MSY level. Although **Alternative 3** eliminates the subjective evaluation required under **Preferred Alternative 2**, it would lock in a definition of ABC even if a new stock assessment showed use of a different level of risk was appropriate.

2.11 ACTION 11: Set Annual Catch Limit (ACL) and Annual Catch Target (ACT) for Gulf Group Spanish Mackerel

2.11.1 ACTION 11.1: Set Annual Catch Limit (ACL) for Gulf Group Spanish Mackerel

Alternative 1. No Action - maintain ACL at current TAC for Gulf group Spanish mackerel [9.1 mp based on preferred ABC]

Alternative 2. Set ACL = ABC for Gulf group Spanish mackerel [5.15 mp based on preferred ABC]]

Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational: 2,935,500 lb – 2,214,500 lb)
Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 3. Set ACL = 90% of ABC for Gulf group Spanish mackerel [4.635 mp based on preferred ABC]]

Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations

(57% commercial, 43% recreational: 2,641,950 lb – 1,993,050 lb)
Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 4. Set ACL = 85% of ABC for Gulf group Spanish mackerel [4.3775 mp based on preferred ABC]]
Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational: 2,495,175 lb – 1,882,325 lb)
Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 5. Set ACL = 80% of ABC for Gulf group Spanish mackerel [4.12 mp based on preferred ABC]]
Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational: 2,348,400 lb – 1,771,600 lb)
Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 6. Set ACL = 75% of ABC for Gulf group Spanish mackerel [3.8625 mp based on preferred ABC]]
Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational: 2,201,625 lb – 1,660,875 lb)
Option c. Set separate commercial and recreational ACLs based on recent landings

Discussion: Gulf group Spanish mackerel were last assessed in 2003, and based on the 2003 assessment, the Council set TAC at 9.1 mp. Additionally, there was only a 3% probability that SSB_{2003}<MSST and only a 9% probability that F_{2003}>MFMT. Consequently, the stock was neither overfishing nor overfished. The recent 10-year landings have not exceeded 4.9 mp (Table 1.7.1.2.1 and Table 1.7.1.2.2) except for 2002-2003, and those landings totaled 4.901 mp.

Alternative 1 is not a viable alternative because it is above the SSC's recommendation of ABC at 5.15 mp. **Alternative 2** would set the ACL equal to ABC at 5.15 mp. This alternative would provide the greatest benefit to the industry. Furthermore, this level of harvest has not been exceeded since the 1993/1994 fishing year (see Table 1.7.1.2.1 and Table 1.7.1.2.2 and MSAP 2003). **Alternative 3** would be the next most conservative alternative, and it has not been exceeded since the 1993/1994 fishing year. **Alternatives 4, 5,** and **6** offer increasingly conservative choices of ACLs at 85%, 80%, and 75% of ABC, respectively, but they would have an increasing likelihood of triggering AMs that would further restrict harvest. Although these are viable alternatives, they would appear to curtail the fishery excessively because as previously discussed, the stock is not overfished or undergoing overfishing.

Under **Alternatives 2-6**, **Option a** would set a single ACL for both the commercial and recreational sectors. It is unlikely that either sector would be subject to AMs under either **Alternative 2** or **Alternative 3** because total catches have been below the choice of ACL under either of these alternatives in recent years. The choice of **Alternatives 4, 5,** or **6** would have an increasing likelihood of triggering AMs, respectively under **Option a**. **Option b** would set separate commercial and recreational ACLs based on current allocations (57% commercial, 43%

recreational). The choice of **Option b** would most likely trigger AMs for the recreational sector as even under the least conservative **Alternative 2**, the recreational allocation of TAC would have been exceeded eight of the last 10 years (Table 1.7.1.2.2); these likelihoods only increase under **Alternatives 3-6**.

Option c under **Alternatives 2-6** would set ACL based on some measure of recent landings. Average catches from the 2000/2001 to the 2009/2010 fishing year have been approximately 67% recreational and 33% commercial. This timeframe and allocation percentages could be used, as well as some other range. The choice of **Option c**, with **Alternatives 2-4,** might not trigger AMs, but the likelihood increases with **Alternatives 5-6**.

2.11.2 ACTION 11.2: Set Annual Catch Target (ACT) for Gulf Migratory Group Spanish Mackerel

Alternative 1. No Action – do not set an ACT for Gulf group Spanish mackerel

Alternative 2. Set ACT = 90% of ACL for Gulf group Spanish mackerel
Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations (57% commercial, 43% recreational)
Option c. Set separate commercial and recreational ACTs based on recent landings

Alternative 3. Set ACT = 85% of ACL for Gulf group Spanish mackerel
Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations (57% commercial, 43% recreational)
Option c. Set separate commercial and recreational ACTs based on recent landings

Alternative 4. Set ACT = OY at 75% F_{MSY}

Table 2.11.2.1 Resulting ACTs (millions of pounds) by stock and by sector based on various ACL and ACT alternatives (Values rounded to 2 significant digits).

	Action 11.1 ACL =				
Action 11.2	Alt 2 [5.15]	Alt 3 [4.64]	Alt 4 [4.38]	Alt 5 [4.12]	Alt 6 [3.86]
Alt 2 90% ACL	4.64	4.17	3.94	3.71	3.47
Rec./Comm.					
option b	2.00/2.64	1.79/2.38	1.69/2.25	1.60/2.11	1.49/1.98
option c	3.11/1.53	2.79/1.38	2.64/1.30	2.49/1.22	2.33/1.14
Alt 3 85% ACL	4.38	3.94	3.72	3.50	3.28
Rec./Comm.					
option b	1.88/2.50	1.69/2.25	1.60/2.12	1.51/1.99	1.41/1.87
option c	2.94/1.44	2.64/1.30	2.49/1.23	2.35/1.15	2.20/1.08

Discussion: **Alternative 1** (no action) would not establish an ACT, thereby not creating a buffer target less than the ACL to be selected in Action 11.1. This would result in either in-season or post-season accountability measures if the stock or sector-specific ACL were exceeded during a specific fishing year. If the Council chooses to set a stock ACL, the combined recreational and commercial landings (see Tables 1.7.1.2.1 and 1.7.1.2.2) for the 2000-2001 through 2009-2010 fishing years have not exceeded the ACL of Action 11.1 Alternatives 2 (5.15 mp), and only exceeded the ACL of Action 11.1 Alternative 3 (4.635 mp) in three of the last ten fishing years. Under the most restrictive ACL (Action 11.1 Alternative 6 (3.8625 mp)) the ACL would only have been exceeded in five of the ten fishing years.

For a Stock ACL (Option a for Alternatives 2 and 3),**Alternative 2** would set ACT at 90% of the ACL selected in Action 11.1. This would establish a stock ACT ranging from 4.64 mp to 3.47 mp, depending on the Alternative chosen in Action 11.1. For the least conservative ACT (Action 11.1, Alternative 2 combined with Action 11.2, Alternative 2) combined landings during the previous 10 fishing seasons exceeded 4.64 mp in only two fishing years. Under the most conservative alternative for ACT (Action 11.1 Alternative 6, 3.47 mp), combined landings exceed the ACT in all but two years.

Alternative 3 would set ACT at 85% of the ACL selected in Action 11.1. This would establish a stock ACT ranging from 4.38 mp to 3.28 mp, depending on the alternative chosen in Action 11.1. As with **Alternative 2**, combined landings during the previous 10 fishing seasons exceeded the least conservative option for an ACL (Action 11.1, Alternative 2) of 4.38 mp only three times, and one year would be very close, with landings at 3.67 mp. Under the most conservative alternative for ACT (Action 11.1 Alternative 6: 3.28 mp), combined landings exceed the ACT in all but two years.

For Sector-Specific ACTs based on current allocations (Option b for Alternatives 2 and 3),**Alternative 2** would set the sector-specific ACTs at 90% of the ACL selected in Action 11.1. This would establish a recreational ACT ranging from 2.00 mp to 1.49 mp, and a commercial ACT ranging from 2.64 mp to 1.98 mp. For the recreational sector, any ACL alternative from Action 11.1 creates an ACT that has been exceeded in all but three of the most recent fishing years. For the commercial sector, even the most conservative Action 11.1 Alternative 6 creates an ACT that has only been exceeded one fishing year.

Alternative 3 would set ACT at 85% of the ACL selected in Action 11.1. This would establish a recreational ACT ranging from 1.88 mp to 1.41 mp, depending on the Alternative chosen in Action 11.1. ACL alternatives from Action 11.1 create a recreational ACT that has been exceeded in all but one of the last ten fishing years, until you reach the more conservative ACTs of Alternatives 5-6. For the commercial sector, under ACTs created under Action 11.1 Alternatives 2 and 3 have not been exceeded in the last 10 years, and ACTs created from Action 11.1 Alternatives 4, 5, and 6 (2.12 mp to 1.87 mp), have only been exceeded in one fishing year.

If the Council determines there is a need to establish an ACT below ACL, the choice of **Alternative 4** could have less potential impacts; however, the value would need to be calculated from this formula, and cannot be done prior to a new stock assessment, as F_{MSY} is most likely different than that calculated in 2003.

Sector-Specific ACTs based on current landings (Option c under Alternatives 2 and 3), would re-allocate the allowable catch for each fishing sector. Currently, Spanish mackerel are allocated

43% to the recreational sector and 57% to the commercial sector. The use of average landings over the last 10 fishing seasons (2000-2001 through 2009-2010) to revise the allocations for each sector would result in 67% allocated to the recreational sector and 33% to the commercial sector. The least restrictive alternative (Action 11.1, Alternative 2 combined with Action 11.2, **Alternative 2**) might not impact either sector. Recreational catches have only exceeded the resulting 3.11-mp allocation in two of the last 10 years, and commercial catches have exceeded the resulting 1.53-mp quota in only three of the last 10 years. By contrast, under the most restrictive option (Action 11.1, Alternative 6 combined with Action 11.2, **Alternative 3**) the recreational sector would have exceeded the 2.20-mp ACT in eight of the 10 years, and the commercial sector would have exceeded the 1.08-mp ACT in five of the ten years.

2.12 ACTION 12: Set Accountability Measures (AMs) for Gulf Migratory Group Spanish Mackerel

Alternative 1. No Action - retain current in-season accountability measures (AMs) for Gulf group Spanish mackerel.

Option a. Commercial – If the quota (=ACT) is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to close the commercial sector for the remainder of the fishing year

Option b. Recreational - The Regional Administrator has authority via the framework to revert the bag limit to zero if fishermen have achieved or are expected to achieve their allocation

Alternative 2. In-season AMs for Gulf group Spanish mackerel.

Option a. Commercial – If 75/85% of the commercial ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement a 3,500-lb trip limit

Option b. Recreational - If 75/85% of the recreational ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the bag limit to xx fish per person per day

Alternative 3. Set post-season AMs for Gulf group Spanish mackerel.

Option a. Commercial

Suboption i. Payback - If the commercial ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial ACL in the following year by the amount of the overage. The commercial ACT would also be adjusted according to the ACT formula in Action 11

Suboption ii. Trip limit reduction - If the commercial ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement a 3,500-lb trip limit in the following year

Suboption iii. Shorten season - If the commercial ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the

Federal Register to implement temporary regulations for the following year to close the commercial sector at a date when the commercial sector is projected to meet its ACT

Option b. Recreational

Suboption i. Payback - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the recreational ACL in the following year by the amount of the overage. The recreational ACT would also be adjusted according to the ACT formula in Action 11

Suboption ii. Bag limit reduction - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the bag limit to xx fish per person per day in the following year

Suboption iii. Shorten season - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement temporary regulations for the following year to close the recreational sector at a date when the recreational sector is projected to meet its ACT

Option c. Trigger (can be chosen in addition to other options) - Post-season accountability measures will be triggered in 2012 if the 2011 landings exceed the ACL, in 2013 if the 2011-2012 average landings exceed the ACL, or 2014 if the 2011-2013 average landings exceed the ACL, and thereafter if average landings exceed the equivalent three-year ACL. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter.

Note: The Council can choose more than one alternative or option

Note: If the Council chooses to set a single stock ACL and ACT, the IPT recommends the alternatives be changed as follows:

Alternative 2. In-season AMs for Gulf group Spanish mackerel.

Option a. If the stock ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to close the fishery for the remainder of the fishing year

Option b. If 75/85% of the stock ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement a 3,500-lb commercial trip limit and reduce the recreational bag limit to xx fish per person per day

Option c. If the stock ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to implement a 3,500-lb commercial trip limit and reduce the recreational bag limit to xx fish per person per day until the ACL is reached or projected to be reached within a fishing year, at which time the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to close the fishery for the remainder of the fishing year

Alternative 3. Set post-season AMs for Gulf group Spanish mackerel.

Option a. Payback - If the stock ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the stock ACL in the following year by the amount of the overage. The stock ACT would also be adjusted according to the ACT formula in Action 11

Option b. Trip/bag limit reduction - If the stock ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement a 3,500-lb commercial trip limit and reduce the recreational bag limit to xx fish per person per day in the following year

Option c. Shorten season - If the stock ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement temporary regulations for the following year to close the fishery at a date when the stock is projected to meet its ACT

Option d. Trigger (can be chosen in addition to other options) - Post-season accountability measures will be triggered in 2012 if the 2011 landings exceed the ACL, in 2013 if the 2011-2012 average landings exceed the ACL, or in 2011-2013 average landings exceed the ACL, and thereafter if average landings exceed the equivalent three-year ACL. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter.

Discussion: **Alternative 1** would continue the current in-season closures of the commercial fishery when its share of TAC/ACL is projected to be taken **(Option a)** and revert the bag limit to zero when the recreational sector's share is projected to be taken **(Option b).** Although these actions are available, the recreational allocation has never been reached and the commercial sector has not exceeded its allocation since the 1988/1989 fishing year, primarily because TAC has previously been set at or very near the MSY. With ACL=ABC it is very likely that the recreational sector would reach its allocation.

Under **Alternative 2** slightly different in-season options are offered. **Option a** would establish a trip limit when some percentage (75%, 80%, 85%) of the total ACL/ACT (or the commercial sector's share) is reached or projected to be reached. Based on the most recent 10-year landings, this measure would probably not be invoked based on the commercial sector's landings alone. As a whole, if ACL is set equal to ABC at 5.5 mp or at 90% of ABC at 4.95 mp, ACL would probably not be caught. However, with ACL set at 85%, 80%, or 75%, there would be an increasing likelihood of the total ACL being exceeded, but it would not be the result of the commercial sector exceeding its allocation of 57%. Based on the past 10-year landings, recreational catches now account for approximately 67% of the total TAC/ACL, under the current 43% allocation recreational catch would probably exceed its allocation for any choice of ACL under **Option b.** On the other hand, the choice of the ACL as a whole would not likely trigger AMs under **Option b** for the same reasons and conditions as discussed above for **Option a. Alternative 1, Option b** reflects the Regional Administrator's current authority to reduce the recreational bag limit; **Alternative 2, Option b** would only clarify when these actions would take place.

Alternative 3 would set post-season AMs for Gulf group Spanish mackerel. As previously stated it is unlikely that the commercial sector would exceed its current allocation under any of the choices for ACL. Consequently, under the existing allocation, it is unlikely that a payback provision as with **Option a, Suboption i** or the implementation of a trip limit the following year as with **Option a, Suboption ii** would be needed. Under the existing allocation for the recreational sector, there would almost assuredly be a need for AMs as with **Option b.** Furthermore, any one or all of the **Suboptions i, ii, and iii** could be chosen to reduce harvest. On the other hand, if a single ACL is selected or the percentages of ACL are reassigned as with **Options a** and **c**, respectively under **Alternatives 2-6** of Action 11.1, there may not be a need for post-season AMs unless the ACL is set below the 4.95 mp level. **Alternative 3, Option b, Suboption ii** reflects the Regional Administrator's current authority to reduce the recreational bag limit as was done in the past, and only clarifies when these actions would take place.

The National Standard 1 guidance includes a caveat allowing post-season accountability measure triggers to be based on multiyear averaging for stocks with variable annual catches or a lack of reliable catch data (50 CFR 600.310(g)(4)). This type of accountability measure trigger has been used for the recreational sector to manage gray triggerfish and shallow-water groupers. The justification for using averages for these species is that it reduces chance the annual catch limit will be exceeded due to the year-to-year fluctuations in landings resulting from recruitment variability, uncertainty in estimates of recreational landings, regulatory restrictions on other species, and prevailing economic conditions. **Option d** provides a stepwise comparison of the three-year running average of landings to the ACL before AMs would be triggered.

2.13 ACTION 13: Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL (TAC), and ACT levels for Atlantic Migratory Group King Mackerel

Atlantic migratory group king mackerel were last assessed in SEDAR 16 (2008) with data through 2006. The fishing mortality and biomass parameters were accepted by the SEDAR Review Panel and the Councils Scientific and Statistical Committee.

2.13.1 Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST) and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory Group King Mackerel

The 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. Based on the SEDAR 16 assessment, MSY = 8.964 million pounds (Table 2.13.2.1). Based on updated projections, MSY = 9.357-12.836 million pounds (Table 2.13.3.3).

The Council has determined that the value for MSST is the value from the most recent stock assessment based on MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. Currently MSST = 0.85(B_{MSY}) with no poundage estimated. Based on the SEDAR 16 assessment, MSST = 1,827.5 billion hydrated eggs (Table 2.13.2.1).

The 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} = $F_{30\%SPR}$ with no poundage estimated. Based on the SEDAR 16 assessment, MFMT = F_{MSY} = $F_{30\%SPR}$ = 0.256 (Table 2.13.2.1).

2.13.2 Overfishing Level (OFL) for Atlantic Migratory Group King Mackerel

The Scientific and Statistical Committee provided the following OFL at their April 2010 meeting: "The OFL for king mackerel is 12.8359 million pounds (corresponds to yield at $F_{30\%SPR}$, the accepted MSY proxy from the last stock assessment)." Note: This is the expected yield in 2011 (Table 2.13.3.3).

Table 2.13.2.1. Specific management criteria for Atlantic Migratory Group King Mackerel.
Source: Table 4 from SEDAR 16.

Specific Management Criteria for Atlantic Migratory Group King Mackerel from SEDAR 16				
	Current		**Proposed**	
Criteria	**Definition**	**Value**	**Definition**	**Value**
M (natural mortality rate)		0.15	Base of Lorenzen M	0.1603
Biomass References				
MSY (Maximum Sustainable Yield)	Yield at F_{MSY}	10.4 MP	Yield at F_{MSY}	8.964 MP
OY (Optimum Yield)	Yield at $F_{40\%SPR}$	unknown	Yield at F_{OY}	OY (65%$F_{30\%SPR}$)=7.70 MP
				OY (75%$F_{30\%SPR}$)=8.38 MP
				OY (85%$F_{30\%SPR}$)=8.67 MP
MSST (Minimum Stock Size Threshold)+	0.85(B_{MSY})	unknown	=[(1-M) or 0.5 whichever is greater]*BMSY	1827.5
SSB_{MSY} = $SSB_{F30\%SPR}$				2175.0
$SSB_{CURRENT}$ = SSB_{2006}				2433.0
Fishing Mortality Rate References				
F_{MSY}*		unknown	F_{MSY}	unknown
$F_{30\%SPR}$			$F_{30\%SPR}$	0.256
MFMT (Maximum Fishing Mortality Threshold)	F_{MSY} = $F_{30\%SPR}$	unknown	F_{MSY} = $F_{30\%SPR}$	0.256
F_{OY}	$F_{40\%SPR}$		65%, 75% OR 85% F_{MSY}	65%$F_{30\%SPR}$=0.17
				75%$F_{30\%SPR}$=0.19
				85%$F_{30\%SPR}$=0.22
$F_{CURRENT}$			Fishing mortality rate in 2006=F_{2006}	0.258
Probability value for evaluating stock status				
Fishing Mortality Rate References	50% Fcurr>Fmsy=overfishing			
Biomass References	50% Bcurr<MSST=overfished			
Overfishing Ratio				
$F_{CURRENT}$/MFMT			$F_{CURRENT}$/MFMT = F_{2006}/$F_{30\%SPR}$=0.258/0.256	1.01
Overfished Ratio				
$SSB_{CURRENT}$/MSST			$SSB_{CURRENT}$/MSST=SSB_{2006}/MSST	1.331
$SSB_{CURRENT}$/SSB_{MSY}			$SSB_{CURRENT}$/SSB_{MSY}=SSB_{2006}/$SSB_{F30\%SPR}$	1.119
Projections				
Average yields 2011-2016			Based on 65%$F_{30\%SPR}$ =	7.426
			Based on 75%$F_{30\%SPR}$ =	7.939
			Based on 85%$F_{30\%SPR}$ =	8.356

2.13.3 Allowable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory Group King Mackerel

The Magnuson-Stevens Reauthorization Act (Magnuson-Stevens Act) in 2006 required specification of additional management criteria in federal fisheries management plans. These criteria include an Overfishing Limit (OFL), an Annual Catch Limit (ACL), an Annual Catch Target (ACT), and appropriate Accountability Measures (AM). The Act also stated that Council Scientific and Statistical Committees (SSCs) should specify an Acceptable Biological Catch (ABC) that is reduced from the OFL to address assessment uncertainty. Guidance in National Standard 1 (NS1) of the Magnuson-Stevens Act suggests that the Council should establish a process for developing ABC control rules and to establish ABC control rules based on scientific advice from the SSC. ABC control rules should specify a level of separation between OFL and ABC that is based on scientific uncertainty in the estimate of OFL and the level of scientific knowledge about the stock. The SSC is charged with recommending an ABC to the Council based on the control rule while also having a role in advising the Council on establishing the initial control rule.

The following NS1 excerpts describe the process:

Specification of ABC. ABC may not exceed OFL. Councils should develop a process for receiving scientific information and advice used to establish ABC. This process should: Identify the body that will apply the ABC control rule (i.e., calculates the ABC), and identify the review process that will evaluate the resulting ABC. The SSC must recommend the ABC to the Council. An SSC may recommend an ABC that differs from the result of the ABC control rule calculation, based on factors such as data uncertainty, recruitment variability, declining trends in population variables, and other factors, but must explain why. While the ABC is allowed to equal OFL, NMFS expects that in most cases ABC will be reduced from OFL to reduce the probability that overfishing might occur in a year.

Expression of ABC. ABC should be expressed in terms of catch, but may be expressed in terms of landings as long as estimates of bycatch and any other fishing mortality not accounted for in the landings are incorporated into the determination of ABC.

ABC for overfished stocks. For overfished stocks and stock complexes, a rebuilding ABC must be set to reflect the annual catch that is consistent with the schedule of fishing mortality rates in the rebuilding plan.

ABC control rule. For stocks and stock complexes required to have an ABC, each Council must establish an ABC control rule based on scientific advice from its SSC. The determination of ABC should be based, when possible, on the probability that an actual catch equal to the stock's ABC would result in overfishing. This probability that overfishing will occur cannot exceed 50 percent and should be a lower value. The ABC control rule should consider reducing fishing mortality as stock size declines and may establish a stock abundance level below which fishing would not be allowed. The process of establishing an ABC control rule could also involve science advisors or the peer review process established under Magnuson Stevens Act section 302(g)(1)(E). The ABC control rule must articulate how ABC will be set compared to the OFL based on the scientific knowledge about the stock or stock complex and the scientific uncertainty in the estimate of OFL and any other scientific uncertainty. The ABC control rule should consider uncertainty in factors such as stock assessment results, time lags in updating assessments, the degree of retrospective revision of assessment results, and projections. The control rule may be used in a tiered approach to address different levels of scientific uncertainty.

The SAMFC SSC first discussed ABC control rules in June 2008. An issue paper outlining various alternative approaches to establishing ABC was provided to the Council in September 2008. The intent was to obtain initial feedback on control rules and the level of overfishing risk that the Council considered appropriate for various likely stock information levels. Control rule options were therefore presented in general terms rather than as specific alternatives and sub-alternatives. The Council supported further developing a control rule approach which specified ABC as a function of yield at maximum sustainable yield (MSY) and assessment uncertainty. <u>The Council further specified that ABC should be set at a level providing a 25% chance of overfishing, with a range of values corresponding to 10 to 40% chance of overfishing</u>.

While the approach suggested in September 2008 provided general guidance for assessed stocks for which the probability of overfishing can be provided in terms of yield, it did not address those stocks that lack assessments and it did not explicitly account for varying levels of uncertainty in assessments. Therefore, the SSC requested a special meeting for March 2009 devoted solely to developing an ABC control rule that could be applied to all managed stocks and which would provide an objective means to evaluate levels of uncertainty. During that meeting the SSC decided on general characteristics and components of the rule and developed a framework of dimensions and tiers. The SSC agreed that the ABC control rule should provide an objective means of determining the buffer between the overfishing level (typically MSY) and the ABC. The resulting approach, however, was only applicable when the OFL could be stated in fish weight and some measure of statistical uncertainty about the OFL could be estimated. Adjustments to the level of buffer are based on the probability of overfishing, which can be reflected in yield through frequency distributions or a "P*" analysis.

Discussion of the general concept and approach led to creation of a system of dimensions composed of multiple tiers that are scored to provide a value that can be used to select the appropriate probability of overfishing for each stock. Each stock evaluated receives a single "adjustment factor", which is the sum of tier scores across dimensions and which ultimately determines the amount of buffer or separation between OFL and ABC. Adjustment factors are subtracted from the "base probability of overfishing" to provide the "critical probability". The base probability of overfishing is the value used to determine OFL. The critical probability is a probability of overfishing that is used to determine ABC in the same manner that the base probability is used to determine MSY and OFL. Through this process, tier scores equate to an adjustment in the probability of overfishing occurring, and do not represent, or necessarily correspond to, a specific poundage or percentage of the OFL. Recommended ABC values are derived from probability density functions that provide the probability of overfishing occurring for any particular yield.

The SSC met again in April 2010 to further develop the ABC control rule for stocks which are unassessed and for which no P* analyses are available. An alternative control rule was developed and presented to the Council in June 2010. However, some aspects of the proposed rule and its criteria were considered inappropriate considering guidance that the rule should account for scientific uncertainty. The Council ultimately rejected the unassessed stocks control rule as put forth by the SSC, and provided specific recommendations and guidance for further consideration. The SSC met again in August 2010 to reconsider the control rule for unassessed stocks. During this meeting they developed a rule incorporating several tiers reflecting varying levels of data availability for the unassessed stocks. This approach was presented to the Council in September 2010. The final proposed ABC Control rule is included as **Alternative 2** in the ABC control rule alternatives of this amendment and included below:

Level 1: Assessed Stocks

Apply the assessed stocks control rule to determine ABC.

The SSC recommended assessed stocks control rule. The rule provides a hierarchy of dimensions and tiers within dimensions used to characterize uncertainty associated with stock assessments in the South Atlantic. Parenthetical values indicate (1) the maximum adjustment value for a dimension; and (2) the adjustment values for each tier within a dimension.

Assessment Information (10%)

Quantitative assessment provides estimates of exploitation and biomass; includes MSY-derived benchmarks. (0%)

Reliable measures of exploitation or biomass; no MSY benchmarks, proxy reference points. (2.5%)

Relative measures of exploitation or biomass, absolute measures of status unavailable. Proxy reference points. (5%)

Reliable catch history. (7.5%)

Scarce or unreliable catch records. (10%)

Uncertainty Characterization (10%)

Complete. Key Determinant – uncertainty in both assessment inputs and environmental conditions are included. (0%)

High. Key Determinant – reflects more than just uncertainty in future recruitment. (2.5%)

Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections. (5%)

Low. Distributions of Fmsy and MSY are lacking. (7.5%)

None. Only single point estimates; no sensitivities or uncertainty evaluations. (10%)

Stock Status (10%)

Neither overfished nor overfishing. Stock is at high biomass and low exploitation relative to benchmark values. (0%)

Neither overfished nor overfishing. Stock may be in close proximity to benchmark values. (2.5%)

Stock is either overfished or overfishing. (5%)

Stock is both overfished and overfishing. (7.5%)

Either status criterion is unknown. (10%)

Productivity and Susceptibility – Risk Analysis (10%)

Low risk. High productivity, low vulnerability, low susceptibility. (0%)

Medium risk. Moderate productivity, moderate vulnerability, moderate susceptibility. (5%)

High risk. Low productivity, high vulnerability, high susceptibility.   (10%)

Level 2: Unassessed Stocks. Reliable landings and life history information available.

OFL derived from "Depletion-Based Stock Reduction Analysis" (DBSRA).

ABC derived from applying the assessed stocks rule to determine adjustment factor if possible, or from expert judgment if not possible.

Level 3: Unassessed Stocks. Inadequate data to support DBSRA.

ABC derived directly, from "Depletion-Corrected Average Catch" (DCAC).

Level 4: Unassessed Stocks. Inadequate data to support DCAC or DBSRA.

OFL and ABC derived on a case by case basis.

The SSC is still in the process of evaluating alternative approaches for stocks in the fourth level. For the time being, the SSC recommends using the Methot framework for stocks whose catch fits into Methot's categories of "nil" or "small" (Table 2.13.3.1).

Table 2.13.3.1. Approach for incorporating information on historical catch in ABC decisions for species where only catch data exist.
Source: Dr. Rick Methot (NMFS).

Historical Catch	Expert Judgment	Possible Action
Nil, not targeted	Inconceivable that catch could be affecting stock	Not in fishery; Ecosystem Component; SDC not required
Small	Catch is enough to warrant including stock in the fishery and tracking, but not enough to be of concern	Set ABC and ACL above historical catch; Set ACT at historical catch level. Allow increase in ACT if accompanied by cooperative research and close monitoring.
Moderate	Possible that any increase in catch could be overfishing	ABC/ACL = f(catch, vulnerability) So caps current fishery
Moderately high	Overfishing or overfished may already be occurring, but no assessment to quantify	Set provisional OFL = f(catch, vulnerability); Set ABC/ACL below OFL to begin stock rebuilding

ABC is recommended by the SSC and specified by the Council. The SSC provided an ABC Control Rule and value at their April 2010 meeting. Prior to the April 2010 meeting, the Council was using the projections averaged over 2011-2016 for $F_{65\%SPR30}$ and $F_{85\%SPR30}$ as a potential ABC range (Table 2.13.3.2). This would have resulted in ABC = 7.426 – 8.356 million pounds. The current ABC = 8.9 – 13.3 million pounds.

Table 2.13.3.2. Projected yields (landings in million pounds) under different fishing mortality rate (F) strategies.
Source: Table 5a SEDAR 16.

Projected yields (landings in million pounds) under different F strategies (SEDAR 16).						
Atlantic Migratory Group King Mackerel						
Year	F30%SPR	F40%SPR	Fcurrent	F 65% SPR30	F 75% SPR30	F 85% SPR30
2007	9.277	9.277	9.277	9.277	9.277	9.277
2008	9.453	6.669	9.504	6.391	7.291	8.17
2009	9.248	6.956	9.288	6.706	7.498	8.236
2010	9.154	7.24	9.184	7.017	7.718	8.344
2011	9.132	7.522	9.156	7.319	7.943	8.477
2012	8.86	7.476	8.88	7.295	7.851	8.314
2013	8.788	7.549	8.805	7.379	7.893	8.309
2014	8.794	7.665	8.81	7.507	7.985	8.369
2015	8.737	7.672	8.75	7.52	7.979	8.338
2016	8.704	7.685	8.717	7.538	7.981	8.327
Avg 2011-2016	8.836	7.595	8.853	7.426	7.939	8.356

New projections, provided on March 16, 2010, provide updated estimated yield streams as follows:

Table 2.13.3.3. Projected yields (landings in million pounds) under different fishing mortality rate (F) strategies.
Source: Table 5b SEFSC Updated Projections, March 2010.

Fcte	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
$F_{30\%SPR}$	12.8359	11.64758	10.88326	10.28744	9.942731	9.727974	9.672907	9.531938	9.493392	9.436123	9.356828
$F_{40\%SPR}$	9.200441	8.89978	8.730176	8.564978	8.452643	8.418502	8.429515	8.420705	8.426211	8.404185	8.395374
$F_{current}$	13.46586	12.03855	11.14868	10.42401	10.08921	9.867841	9.774229	9.623348	9.538546	9.480176	9.374449
F_{max}	24.91189	17.63877	14.03524	12.00881	11.03744	10.52093	10.25771	10.09031	9.959251	9.805066	9.654185
$F_{O.1}$	11.62445	10.75441	10.22577	9.754405	9.536344	9.374449	9.338106	9.246696	9.183921	9.138767	9.124449
$0.85F_{30\%SPR}$	10.45925	9.852423	9.562775	9.232379	9.085903	8.973568	8.937225	8.914097	8.907489	8.865639	8.803965
$0.75F_{30\%SPR}$	9.373348	9.014317	8.875551	8.674009	8.564978	8.508811	8.504405	8.492291	8.512115	8.491189	8.462555
$0.65F_{30\%SPR}$	8.360132	8.1663	8.150881	8.01652	7.968062	7.952643	7.996696	7.984581	8.015419	8.013216	7.959251

Alternative 1. No Action. Do not establish an ABC Control Rule for Atlantic migratory group king mackerel.

Preferred Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as 10.46 million pounds (MP).

Alternative 3. Establish an ABC Control Rule where ABC equals OFL (12.8359 million pounds).

Alternative 4. Establish an ABC Control Rule where ABC equals a percentage of OFL.
Alternative 4a. ABC = 65%OFL (8.3433 million pounds)
Alternative 4b. ABC = 75%OFL (9.6269 million pounds)
Alternative 4c. ABC = 85%OFL (10.9105 million pounds)

The South Atlantic Council's SSC developed an ABC Control rule for assessed stocks based on the guidance provided by the Council on the level of risk (10-40%)(**Alternative 2**). The ABC values for the years 2011, 2012 and 2013, as recommended by the SSC based on the SSC control rule, are shown in Table 2.13.3.4. An average value has been added for discussion purposes. The SSC expects to receive an updated assessment prior to providing an ABC for 2014 onwards. SEDAR 33 (SAFMC & GMFMC King, Spanish, & Cobia) is scheduled to begin in 2012 and the Councils will have the results in 2013; this assessment will provide new values for Atlantic migratory group king mackerel.

Table 2.13.3.4. Atlantic Migratory Group King Mackerel ABC recommendations from the Scientific and Statistical Committee and current allocations.

Year	ABC	Recreational (62.9%)	Commercial (37.1%)
2011	10.95	6.89	4.06
2012	10.36	6.52	3.84
2013	10.06	6.33	3.73
Average	10.46	6.58	3.88

Under **Alternative 3** ABC = OFL = 12.8359 million pounds which corresponds to the yield at $F_{30\%SPR}$, the accepted MSY proxy from the last stock assessment. **Alternative 4** would set the ABC as 65%, 75% or 85% of the OFL.

2.13.4 Annual Catch Limit (ACL) and Optimum Yield (OY) for Atlantic Migratory Group King Mackerel

The ACL is equivalent to Total Allowable Catch (TAC) as used in the past. Based on projections provided by the Southeast Fisheries Science Center after the SEDAR assessment (Table 2.13.3.2), the updated projections (Table 2.13.3.3), and the SSC recommendations (Table 2.13.3.4), the Council is considering the following options. Landings data are provided in Table 2.13.4.1 to assist in choosing ACL.

The Council is not considering changes to the existing allocations for king mackerel. Applying the existing allocations results in sector-specific ACLs as discussed below.

The Mackerel Advisory Panel considered state by state quotas but instead recommended that the commercial quota be allocated into two regions: NC/SC and GA/FL. The Mackerel Advisory Panel recommended an ACL = 8.356 million pounds based on the values in Table 2.13.3.2.

Alternative 1. No action. Currently TAC or ACL =10.0 million pounds based on an ABC of 8.9 - 13.3 million pounds.

Preferred Alternative 2. ACL = OY = ABC = 10.46 million pounds which is the average of the ABC values for 2011-2013 recommended by the SSC.

Alternative 3. ACL = OY = ABC = 10.06 million pounds which is the lowest value within the 2011-2013 recommendations (10.06 – 10.95 million pounds).

Alternative 4. ACL = OY = ABC = 10.95 million pounds which is the highest value within the 2011-2013 recommendations (10.06 – 10.95 million pounds).

Alternative 5. ACL = OY = X% of ABC = ______ million pounds.

- **Sub-Alternative 5a.** ACL = 65%ABC = 65%(10.46) = 6.799 million pounds.
- **Sub-Alternative 5b.** ACL = 75%ABC = 75%(10.46) = 7.845 million pounds.
- **Sub-Alternative 5c.** ACL = 85%ABC = 85%(10.46) = 8.891 million pounds.
- **Sub-Alternative 5d.** ACL = 80%ABC = 80%(10.46) = 8.368 million pounds.
- **Sub-Alternative 5e.** ACL = 90%ABC = 90%(10.46) = 9.414 million pounds.

Under **Alternative 1** the recreational allocation (62.9%) is 6.30 million pounds (recreational sector ACL) and the commercial allocation (37.1%) is 3.71 million pounds (commercial sector ACL). The recreational allocation has not been exceeded since 1997/98 (Table 2.13.4.1). This contributed to the TAC being exceeded in the 1997/98 fishing year. The commercial allocation has not been exceeded since 1997/98 and contributed to the TAC being exceeded in the 1997/98 fishing year.

Under **Alternative 2** the recreational allocation (62.9%) would be 6.58 million pounds (recreational sector ACL) and the commercial allocation (37.1%) would be 3.88 million pounds (commercial sector ACL). The recreational allocation would not have been exceeded and is not expected to be exceeded (Table 2.13.4.1). The commercial allocation would not have been exceeded but did come close in 2009/10 with landings of 3.559 million pounds versus the potential allocation of 3.88 million pounds. The NMFS SEFSC Quota Monitoring Program shows preliminary commercial landings of 2.69 million pounds for the 2010/11 fishing year (reported through 2/28/11, updated on 3/18/11; Source: Memo Crabtree to Mahood dated 3/22/11). The commercial ACL under **Alternative 2** would not have been exceeded.

Under **Alternative 3** the recreational allocation (62.9%) would be 6.33 million pounds (recreational sector ACL) and the commercial allocation (37.1%) would be 3.73 million pounds (commercial sector ACL). The recreational allocation would not have been exceeded and is not expected to be exceeded (Table 2.13.4.1). The commercial allocation would not have been exceeded but did come close in 2009/10 with landings of 3.559 million pounds versus the potential allocation of 3.73 million pounds. The NMFS SEFSC Quota Monitoring Program shows preliminary commercial landings of 2.69 million pounds for the 2010/11 fishing year (reported through 2/28/11, updated on 3/18/11; Source: Memo Crabtree to Mahood dated 3/22/11). The commercial ACL under **Alternative 3** would not have been exceeded.

Under **Alternative 4** the recreational allocation (62.9%) would be 6.89 million pounds (recreational sector ACL) and the commercial allocation (37.1%) would be 4.06 million pounds (commercial sector ACL). The recreational allocation would not have been exceeded and is not expected to be exceeded (Table 2.13.4.1). The commercial allocation would not have been exceeded but did come close in 2009/10 with landings of 3.559 million pounds versus the potential allocation of 4.06 million pounds. The NMFS SEFSC Quota Monitoring Program shows preliminary commercial landings of 2.69 million pounds for the 2010/11 fishing year (reported through 2/28/11, updated on 3/18/11; Source: Memo Crabtree to Mahood dated 3/22/11). The commercial ACL under **Alternative 4** would not have been exceeded.

Under **Alternative 5** the Council would need to provide guidance on what ABC to use.

Table 2.13.4.1. Summary of quota management and harvest for Atlantic Migratory Group King Mackerel.

					Annual Harvest Levels		
Fishing Year	ABC Range[1] (lbs)	TAC (lbs)	Recreational Allocation/Quota[2] (lbs. /numbers)	Commercial Quota	Com	Rec	Total[3]
1986/87	6.9-15.4	9.68		3.59 (PS=0.40)	2.84	5.98	8.82
1987/88	6.9-15.4	9.68	6.09	3.59 (PS=0.40)	3.453	3.905	7.358
1988/89	5.5-10.7	7	4.4	2.6 (PS=0.40)	3.091	4.881	7.972
1989/90	6.9-15.4	9	5.66/666,000	3.34	2.635	3.4	6.035
1990/91	6.5-15.7	8.3	5.22/601,000	3.08	2.676	3.718	6.394
1991/92	9.6-15.5	10.5	6.60/735,000	3.9	2.516	5.822	8.338
1992/93	8.6-12.0	10.5	6.60/834,000	3.9	2.227	6.251	8.478
1993/94	9.9-14.6	10.5	6.60/854,000	3.9	2.018	4.438	6.456
1994/95	7.6-10.3	10	6.29/709,000	3.71	2.197	3.728	5.925
1995/96	7.3-15.5	7.3	4.60/454,000	2.7	1.87	4.153	6.023
1996/97	4.1-6.8	6.8	4.28/438,525	2.52	2.702	3.99	6.692
1997/98	4.1-6.8	6.8	4.28/438,525	2.52	3.002	5.158	8.16
1998/99	8.4-11.9	8.4	5.28/504,780	3.12	2.675	4.268	6.943
1999/00	8.9-13.3	10	6.30/601,338	3.71	2.225	3.424	5.649
2000/01	8.9-13.3	10	6.30/601,338	3.71	2.15	5.474	7.624
2001/02	8.9-13.3	10	6.30/601,338	3.71	1.935	4.404	6.339
2002/03	8.9-13.3	10	6.30/601,338	3.71	1.689	2.761	4.45
2003/04	8.9-13.3	10	6.30/601,338	3.71	1.861	4.192	6.053
2004/05	8.9-13.3	10	6.30/601,338	3.71	2.778	4.613	7.391
2005/06	8.9-13.3	10	6.30/601,338	3.71	2.251	3.485	5.736
2006/07	8.9-13.3	10	6.30/601,338	3.71	2.994	4.054	7.048
2007/08	8.9-13.3	10	6.30/601,338	3.71	2.667	6.08	8.747
2008/09	8.9-13.3	10	6.30/601,338	3.71	3.108	3.487	6.595
2009/10	8.9-13.3	10	6.30/601,338	3.71	3.559	3.885	7.444

Notes & Sources:

[1]The range has been defined in terms of acceptable risk of achieving the FMP's fishing mortality rate target: the Panel's best estimate of ABC has been intermediate to the end-point of this range

[2]Recreational quota in numbers is the allocation divided by an estimate of annual average weight.

[3]Sums within rows may not appear to equal the total value shown due to rounding of numbers before printing.

Source: Data from 1986/87 - 2005/06 from Table 2.5.4 in SEDAR 16 updated as follows: Commercial 1997-98 onwards from SEFSC, ALS database as shown in Table 1.7.1.1.3.

Recreational 2000-01 onwards from SEFSC, MRFSS, HBS, and TPW databases as shown in Table 1.7.1.1.4.

2.13.5 Annual Catch Target (ACT) for Atlantic Migratory Group King Mackerel

Action 2.13.5a. Commercial Sector ACT

Preferred Alternative 1 (No Action). Do not specify commercial sector ACTs for Atlantic migratory group king mackerel.

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL.

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL.

Table 2.13.5.1. The commercial sector ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Commercial ACL	Commercial Sector ACT	
		ACT Alt. 2; ACT=90%(ACL)	ACT Alt. 3; ACT=80%(ACL)
Atlantic migratory group king mackerel	3.88	3.49	3.10

Reducing the commercial quota will increase the likelihood that the season will be closed early. **Alternative 3** has the greatest potential to shorten the season and **Alternative 1** the least.

Action 2.13.5b. Recreational Sector ACT

Alternative 1 (No Action). Do not specify recreational sector ACTs for Atlantic migratory group king mackerel.

Alternative 2. The recreational sector ACT equals 85% of the recreational sector ACL.

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL.

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater].

Table 2.13.5.2. Proportional Standard Errors (PSEs) for Atlantic migratory group king mackerel from numbers estimates (A+B1) for all modes.
Source: Obtained from http://www.st.nmfs.noaa.gov on May 12, 2010.

Species	2003	2004	2005	2006	2007	2008	2009	3 year average (2007-09)	5 year average (2005-09)
Atlantic migratory group king mackerel	5.6	5.8	6.1	5.6	5.8	6.3	6.5	6.2	6.1

The Council decided to use the 5-year average PSE because this better represented recent catches than the 3 year average.

Table 2.13.5.3. The recreational ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Private Recreational Sector ACL	Recreational Sector ACT		
		ACT Alt. 2; ACT=85%(ACL)	ACT Alt. 3; ACT=75%(ACL)	Preferred ACT Alt. 4; ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater]
Atlantic migratory group king mackerel	6.58	5.59	4.94	6.18

Reducing the recreational allocation will increase the likelihood that the recreational catch will exceed their allocation. **Alternative 3** has the greatest potential and **Alternative 1** the least. None of these ACTs would have been exceeded based on catches (Table 2.13.4.1).

2.14 ACTION 14: Specify Accountability Measures (AMs) for Atlantic Migratory Group King Mackerel

Note: Accountability Measures (AMs) include in-season measures that are intended to limit each sector to their ACL/ACT and post-season measures to make adjustments if the ACL/ACT is exceeded. In-season measures are equivalent to management measures (regulations) that have been set in the past.

The Councils may specify multiple preferred from among the following:

Alternative 1 (No Action). The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met. All purchase and sale is prohibited when the quota is met. Do not implement ACLs or AMs for the recreational sector.

Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement AMs for the recreational sector for this stock. If the recreational sector ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011/12, use only 2011/12 landings. For 2012/13, use the average landings of 2011/12 and 2012/13. For 2013/14 and beyond, use the most recent three-year (fishing years) running average.
Sub-Alternative a. Reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year.
Preferred Sub-Alternative b. Reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following fishing year.

Alternative 3. Commercial payback of any overage.
- **Preferred Sub-Alternative 3a.** Payback regardless of stock status.
- **Sub-Alternative 3b.** Payback only if overfished.

Alternative 4. Recreational payback of any overage from one year to the next.
- **Preferred Sub-Alternative 4a.** Payback regardless of stock status.
- **Sub-Alternative 4b.** Payback only if overfished.

Alternative 1 would not meet the new MSA requirements for the recreational sector. **Alternative 2** and **Sub-Alternative 2a** would specify AMs and reduce the length of the following year whereas **Alternative 2** and **Sub-Alternative 2b** would specify AMs and reduce the bag limit the following year which would be more effective in preventing the recreational ACL from being exceeded. **Alternatives 3 and 4** address payback of overages and **Sub-Alternatives 3a and 4a** would payback regardless of stock status which is more conservative than a payback only if overfished (**Sub-Alternatives 3b and 4b**).

2.15 ACTION 15: Management Measures for Atlantic Migratory Group King Mackerel

Preferred: No changes to existing management measures are being proposed because the ACLs do not appear likely to be exceeded.

2.16 ACTION 16: Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL (TAC), and ACT levels for Atlantic Migratory Group Spanish Mackerel

Atlantic migratory group Spanish mackerel were last assessed in SEDAR 17 (2008) with data through 2007. The fishing mortality parameters were accepted by the SEDAR Review Panel and the Councils Scientific and Statistical Committee, however, the biomass parameters were not accepted.

Stock Status (SSC Review of SEDAR 17 at their December 2008 meeting)
There was significant discussion about the review of the Spanish mackerel assessment. The two major sources of uncertainty in the assessment are the historical recreational catches and the amount of mackerel bycatch in the shrimp fishery. Unfortunately, the uncertainty in these data cannot be decreased with additional research. The models must simply deal with this uncertainty. One way to assess the impact of some of this uncertainty is to conduct sensitivity runs. The point estimates for fishing mortality, biomass, F_{MSY}, and B_{MSY} were quite sensitive to the assumptions being examined via the sensitivity runs. However, the ratio of current fishing mortality to F_{MSY} appeared to be robust to the sensitivity runs performed in the Review Workshop and was in agreement with the results of the ASPIC biomass dynamic model. As such, it was determined that the stock was **not experiencing overfishing**. There was some question as to whether this robustness would hold over a wider range of sensitivity runs. The ratio of current biomass to B_{MSY}, however, was quite sensitive to the various runs, and as such, the **model could not reliably determine whether the stock was overfished or not. There was some discussion as to the overall robustness of the ratios, but the SSC consensus was to agree with the findings of the Review Panel.**

It was noted that even though the model could estimate the steepness parameter for the stock-recruit curve, the Review Panel expressed concern over its uncertainty. The SSC noted that we will likely never have precise estimates of such parameters and must make decisions despite this uncertainty.

The SSC briefly discussed research recommendations arising from the SEDAR process and found them to be well-documented. In particular, the SSC believes that stronger fishery-independent abundance indices are needed to improve future assessments.

The MSY, OFL, and ABC will come from each SEDAR assessment and the recommendations of the SSC as they review each assessment. The SSC has approved the SEDAR assessment and has provided MSY, OFL, and ABC recommendations. Information from the SEDAR assessment concerning MSY, OFL, and ABC is shown in Table 2.16.2.1.

2.16.1 Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST), and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory Group Spanish Mackerel

The Council has determined that the value for MSY is the value from the most recent stock assessment. Currently MSY = 10.4 million pounds. Based on the SEDAR 17 assessment, MSY = 11.461 million pounds (Table 2.16.2.1). The SSC has recommended this value not be used and so the Council is not proposing to change the existing value. This will be reexamined when the next SEDAR assessment is completed.

The Council has determined that the value for MSST is the value from the most recent stock assessment based on MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. Currently MSST = 0.85(B_{MSY}) with no poundage estimated. Based on the SEDAR 17 assessment, MSST = 8,085 metric tons (Table 2.16.2.1). The SSC has recommended this value not be used and so the Council is not proposing to change the existing value. This will be reexamined when the next SEDAR assessment is completed.

The 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} = $F_{30\%SPR}$ with no poundage estimated. Based on the SEDAR 17 assessment, MFMT = F_{MSY} = 0.371 (Table 2.16.2.1). The SSC has recommended this value not be used and so the Council is not proposing to change the existing value. This will be reexamined when the next SEDAR assessment is completed.

2.16.2 Overfishing Level (OFL) for Atlantic Migratory Group Spanish Mackerel

The Scientific and Statistical Committee (SSC) provided the following OFL recommendation at their April 2010 meeting: Since no estimate of MSY is available for Spanish mackerel, the SSC decided to develop ABC recommendations based on landings data. Based on the SEDAR 17 review panel recommendation that overfishing was not occurring, the SSC decided to bypass the OFL estimate and recommend ABC as the median of landings over the last 10 years.

The SSC recommendation is that OFL is unknown.

The Council was advised by NOAA GC at the March 2011 meeting that if the SSC did not provide a recommended OFL, then the Council would need to specify OFL. The Council is recommending an interim OFL = mean of 10 years landings + (2*Standard Deviation) (OFL=6.14 MP) based on the Gulf Council’s ABC Control Rule. The SAFMC’s SSC is meeting in April, and the Council has requested they review this interim OFL.

Table 2.16.2.1. Spanish mackerel status determination criteria.

Spanish Mackerel Status Determination Criteria (SEDAR 17; Addendum T1.16)*				
Quantity	**Estimate**			
F_{MSY}	0.371			
$F_{30\%}$	0.54			
$F_{40\%}$	0.38			
B_{MSY} (MT)	33743			
SSB_{MSY} (MT)	12438			
MSST (MT)	8085			
MSY (MP)	11.461			
Overfishing Ratio				
F_{2007}/F_{MSY}	0.872			
Overfished Ratio				
SSB_{2007}/MSST	0.701			
SSB_{2007}/SSB_{MSY}	0.456		**Allocations (45%Rec:55%Com)**	
Projections			**Rec**	**Com**
Yield @ 65%F_{MSY} (MP)	10.608		4.774	5.834
Yield @ 75%F_{MSY} (MP)	11.051		4.973	6.078
Yield @ 85%F_{MSY} (MP)	11.320		5.094	6.226

*The Review Panel did not accept the base assessment model as appropriate for making biomass determinations and did not accept estimates of stock abundance, biomass, and exploitation rates, due to concerns about robustness of the assessment to uncertainty in inputs and model assumptions. Conclusions about biomass benchmarks are largely uncertain and should be viewed with extreme caution.

In light of the uncertainty in the assessment results, the Review Panel suggests that the Spanish mackerel assessment be re-evaluated within a timeframe which allows for necessary management advice.

2.16.3 Allowable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory Group Spanish Mackerel

General discussion about the ABC control rule is contained in Section 2.13.3 and is incorporated by reference.

ABC is recommended by the SSC and specified by the Council. The SSC provided an ABC Control Rule and value at their April 2010 meeting. Prior to the April 2010 meeting, the Council was using the projections of yield at various portions of the yield at MSY as the ABC range (Table 2.16.2.1). This results in ABC = 10.608 – 11.320 million pounds. The current ABC = 5.7 – 9.0 million pounds.

Alternative 1. No Action. Do not establish an ABC Control Rule for Atlantic migratory group Spanish mackerel.

Preferred Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as 5.29 million pounds (MP).

Discussion: See Section 2.13.3 for discussion of the SSC's ABC Control Rule. This material is incorporated by reference. Since no estimate of MSY is available for Spanish mackerel, the SSC decided to develop ABC recommendations based on landings data. Based on the SEDAR 17 review panel recommendation that overfishing was not occurring, the SSC decided to bypass the OFL estimate and recommend ABC as the median of landings over the last 10 years. Therefore, ABC for Spanish mackerel = 5.29 million pounds.

Table 2.16.3.1. Atlantic Migratory Group Spanish Mackerel ABC recommendation from the Scientific and Statistical Committee and current allocations.

Year	ABC	Recreational (45%)	Commercial (55%)	Source
2011	4.91	2.21	2.70	**SSC**
2011	5.29	2.38	2.91	**SSC & Updated Landings**

Alternative 1 would not meet the new MSA requirements. **Alternative 2** adopts the ABC control rule developed by the Councils SSC and would meet the new MSA requirements.

2.16.4 Annual Catch Limit (ACL) for Atlantic Migratory Group Spanish Mackerel

The ACL is equivalent to Total Allowable Catch (TAC) as used in the past. Based on projections from SEDAR 17 (Table 2.16.2.1) and the SSC recommendations (Table 2.16.3.1), the Council is considering the following options:

Alternative 1. No action. Currently TAC or ACL =7.04 million pounds based on an ABC of 5.7 – 9.0 million pounds.

Preferred Alternative 2. ACL = OY = ABC = 5.29 million pounds which is the ABC recommended by the SSC.

Alternative 3. ACL = OY = X% of ABC = ________ million pounds.

- **Sub-Alternative 3a.** ACL = 75%ABC = 3.97 million pounds.
- **Sub-Alternative 3b.** ACL = 85%ABC = 4.50 million pounds.
- **Sub-Alternative 3c.** ACL = 95%ABC = 5.03 million pounds.
- **Sub-Alternative 3d.** ACL = 80%ABC = 4.23 million pounds.
- **Sub-Alternative 3e.** ACL = 90%ABC = 4.76 million pounds.

Under **Alternative 1** the recreational allocation (45%) would be 3.17 million pounds (recreational sector ACL) and the commercial allocation (55%) is 3.87 million pounds (commercial sector ACL). The commercial quota was exceeded in 3 of the last 7 years by approximately 200,000 pounds (Table 2.16.4.1). The recreational allocation was not exceeded and the TAC was not exceeded.

Under **Alternative 2** the Council used the SSC's methodology (median of 10 years of landings) and updated landings to recalculate the value. The old value was 4.91 million pounds and the new value is 5.29 million pounds. Based on the new value, the recreational allocation (45%) would be 2.38 million pounds (recreational sector ACL) and the commercial allocation (55%) would be 2.91 million pounds (commercial sector ACL). The commercial quota would have been exceeded in 3 of the last 7 years by approximately 100,000 pounds (Table 2.16.4.1). The recreational allocation would not have been exceeded and the total would not have been exceeded.

Under **Alternative 3** the recreational allocation (45%) would range from a low of 1.79 (Subalternative 3a.) to a high of 2.26 million pounds (Subalternative 3c.). These alternatives would have a greater chance of the recreational allocation being exceeded (Table 2.16.4.1). The commercial allocation (55%) would range from a low of 2.18 (Subalternative 3a.) to a high of 2.77 million pounds (Subalternative 3c.). These alternatives would have a greater chance of the commercial quota being exceeded (Table 2.16.4.1).

Table 2.16.4.1. Summary of quota management and harvest (million pounds) for Atlantic Migratory Group Spanish Mackerel.

						Annual Harvest Levels		
Fishing Year	ABC Range[1] (lbs)	TAC (M lbs)	Recreational Allocation/Quota[2] (lbs. /numbers)	Rec. Bag Limit	Commercial Quota	Com	Rec	Total[3]
1987/88	1.7 - 3.1	3.1	0.74	4 in FL, 10 GA-NC	2.36	3.475	1.474	4.949
1988/89	1.3 - 5.5	4	0.96	4 in FL, 10 GA-NC	3.04	3.521	2.74	6.261
1989/90	4.1 - 7.4	6	2.76 / 1,725,000	4 in FL, 10 GA-NC	3.24	3.941	1.569	5.51
1990/91	4.2 - 6.6	5	1.86 / 1,216,000	4 in FL, 10 GA-NC	3.14	3.535	2.075	5.61
1991/92	5.5 - 13.5	7	3.50 / 2,778,000	5 in FL, 10 GA-NC	3.5	4.707	2.287	6.994
1992/93	4.9 - 7.9	7	3.50 / 2,536,000	10 FL - NY	3.5	3.727	1.995	5.722
1993/94	7.3 - 13.0	9	4.50 / 3,214,000	10 FL - NY	4.5	4.811	1.493	6.304
1994/95	4.1 - 9.2	9.2	4.60 / 3,262,000	10 FL - NY	4.6	5.254	1.378	6.632
1995/96	4.9 - 14.7	9.4	4.70 / 3,113,000	10 FL - NY	4.7	1.834	1.089	2.923
1996/97	5.0 - 7.0	7	3.50 / 2,713,000	10 FL - NY	3.5	3.098	0.849	3.947
1997/98	5.8 - 9.4	8	4.00 / 2,564,000	10 FL - NY	4	3.057	1.66	4.717
1998/99	5.4 - 8.2	8	4.00 / 2,564,000	10 FL - NY	4	3.272	0.817	4.089
1999/00	5.7 - 9.0	7.04	3.17 / 2,032,000	10 FL - NY	3.52	2.608	1.505	4.113
2000/01	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.007	2.28	5.287
2001/02	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.329	2.034	5.363
2002/03	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.679	1.605	5.284
2003/04	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	4.091	1.846	5.937
2004/05	5.7 -	7.04	3.17 / 2,032,000	15 FL -	3.87	3.761	1.365	5.126

	9.0			NY				
2005/06	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	4.041	1.649	5.69
2006/07	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	4.038	1.653	5.691
2007/08	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.5	1.711	5.211
2008/09	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	2.508	2.047	4.555
2009/10	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	2.633	2.108	4.741

Notes: 1) The range has been defined in terms of acceptable risk of achieving the FMP's fishing mortality rate target; the Panel's best estimate of ABC has been intermediate to the end-points of this range; 2) Recreational allocation in numbers is the allocation divided by an estimate of annual average weight (not used prior to fishing year 1989); 3) Sums within rows may not appear to equal the total value shown due to rounding of numbers before printing; 4) Allocations and rec. quota are as revised October 14, 1989; 5) Bag limit not be reduced to zero when allocation reached, beginning fishing year 1992; and 6) Season is April through March for 2001/02 through 2004/05 and March through the end of February for 2005/06 onwards.
Source: ALS data, MRFSS, HBS, TPWD as shown in Table 1.7.1.2.3 for commercial and Table 1.7.1.2.4 for recreational; 2009/10 commercial from NMFS Quota Report dated March 18, 2010 (#11 Report, 2008/2009).

2.16.5 Annual Catch Target (ACT) for Atlantic Migratory Group Spanish Mackerel

Action 2.16.5a Commercial Sector ACT

Preferred Alternative 1. Do not specify commercial sector ACTs for Atlantic migratory group Spanish mackerel.

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL.

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL.

Reducing the commercial quota will increase the likelihood that the season will be closed early. **Alternative 3** has the greatest potential to shorten the season and **Alternative 1** the least.

Table 2.16.5.1. Commercial sector ACT (pounds whole weight) for each of the alternatives.

Species	Preferred Commercial ACL	Commercial Sector ACT	
		ACT Alt. 2; ACT=90%(ACL)	ACT Alt. 3; ACT=80%(ACL)
Atlantic migratory group Spanish mackerel	2.91	2.62	2.33

Action 2.16.5b Recreational Sector ACT

Alternative 1 (no action). Do not specify recreational sector ACTs for Atlantic migratory group Spanish mackerel.

Alternative 2. The recreational sector ACT equals 85% of the recreational sector ACL.

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL.

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater].

Reducing the recreational ACT will increase the likelihood that recreational catches will exceed their allocation. **Alternative 3** has the greatest potential and **Alternative 1** the least. **Alternative 4** uses the variability in estimates of the recreational catches from the MRFSS/MRIP program to calculate the recreational ACT (Table 2.16.5.3).

Table 2.16.5.2. Proportional Standard Errors (PSEs) for Atlantic migratory group Spanish mackerel from numbers estimates (A+B1) for all modes.
Source: Obtained from http://www.st.nmfs.noaa.gov on May 12, 2010.

Species	2003	2004	2005	2006	2007	2008	2009	3 year average (2007-09)	5 year average (2005-09)
Atlantic migratory group king mackerel	7.4	8.7	8.2	8.9	8.1	7.7	8.1	8.0	8.2

The Council decided to use the 5-year average PSE because this better represented recent catches than the 3 year average.

Table 2.16.5.3. The recreational ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Recreational Sector ACL	Recreational Sector ACT		
		ACT Alt. 2; ACT=85%(ACL)	ACT Alt. 3; ACT=75%(ACL)	ACT Alt. 4; ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater]
Atlantic migratory group Spanish mackerel	2.38	2.02	1.79	2.19

2.17 ACTION 17: Specify Accountability Measures (AMs) for Atlantic Migratory Group Spanish Mackerel

Note: Accountability Measures (AMs) include in-season measures that are intended to limit each sector to their ACL/ACT and post-season measures to make adjustments if the ACL/ACT is exceeded. In-season measures are equivalent to management measures (regulations) that have been set in the past.

Alternative 1 (Status Quo). The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met. All purchase and sale is prohibited when the quota is met. Do not implement ACLs or AMs for the recreational sector.

Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement AMs for the recreational sector for this stock. If the recreational sector ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011/12, use only 2011/12 landings. For 2012/13, use the average landings of 2011/12 and 2012/13. For 2013/14 and beyond, use the most recent three-year (fishing years) running average.
Sub-Alternative a. Reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year.
Preferred Sub-Alternative b. Reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following fishing year.

Alternative 3. Commercial payback of any overage.
Preferred Sub-Alternative 3a. Payback regardless of stock status.
Sub-Alternative 3b. Payback only if overfished.

Alternative 4. Recreational payback of any overage from one year to the next.
Preferred Sub-Alternative 4a. Payback regardless of stock status.
Sub-Alternative 4b. Payback only if overfished.

Alternative 1 would not meet the new MSA requirements for the recreational sector. **Alternative 2** and **Sub-Alternative 2a** would specify AMs and reduce the length of the following year whereas **Alternative 2** and **Sub-Alternative 2b** would specify AMs and reduce the bag limit the following year which would be more effective in preventing the recreational ACL from being exceeded. **Alternatives 3 and 4** address payback of overages and **Sub-Alternatives 3a and 4a** would payback regardless of stock status which is more conservative than a payback only if overfished (**Sub-Alternatives 3b and 4b**).

2.18 ACTION 18: Management Measures for Atlantic Migratory Group Spanish Mackerel

[Note: More than one alternative may be selected as preferred.]

Alternative 1 (No Action). Individual recreational bag limit is 15 NY-FL. Bag limit sales are allowed consistent with state regulations. The commercial possession limits are as follows:

1. **April 1 - November 30 -- 3,500 pounds per vessel per day.**
2. December 1 until 75% of the adjusted allocation is taken:
   Monday - Friday Unlimited
   Other days 1,500 pounds

(Vessel fishing days begin at 6:00 a.m. and extend until 6:00 a.m. the following day, and vessels must be unloaded by 6:00 p.m. of that following day.)

3. After 75% of the adjusted allocation is taken 1,500 pounds per vessel per day for all days.
4. When 100% of the adjusted allocation is reached: 500 pounds per vessel per day to the end of the fishing year (March 31). Adjusted allocation compensates for estimated catches of 500 pounds per vessel per day to the end of the season.

Alternative 2. Set a maximum bag limit of 60 Spanish mackerel per boat for charter boats.

Alternative 3. Set a maximum bag limit of 60 Spanish mackerel per boat for private recreational boats.

Preferred Alternative 4. Reduce the individual bag limit from 15 to 10 per person.

Discussion:
Reducing the individual bag limit from 15 to 10 per person will not impact catches in the Mid-Atlantic other than Virginia where the reduction was 36% based off of 2008 catches (Table 2.18.1). On average (2005-2009), catches would be reduced by 13% in Florida, 11% in Georgia, 3% in South Carolina, 17% in North Carolina, and 7% in Virginia (Table 2.18.1).

Table 2.18.1. Atlantic migratory group Spanish mackerel percentage reductions by reducing the bag limit from 15 to 10.
Source: ACCSP.

Year	Florida	Georgia	South Carolina	North Carolina	Virginia
2009	0%	0%	13%	17%	0%
2008	14%	0%	0%	17%	36%
2007	20%	0%	0%	19%	0%
2006	6%	0%	0%	16%	0%
2005	27%	53%	0%	15%	0%
Range	0-27%	0-53%	0-13%	15-19%	0-36%
Average	13%	11%	3%	17%	7%

2.19 ACTION 19: Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL (TAC), Allocations, and ACT levels for Atlantic Migratory Group Cobia

Atlantic migratory group cobia have never been assessed by the NMFS Southeast Fisheries Science Center or through SEDAR.

The MSY, MSST, OFL and ABC will come from each SEDAR assessment and the recommendations of the SSC as they review each assessment. Cobia has not been assessed but is scheduled to be assessed in SEDAR 28 which begins in 2012. The SAFMC SSC has developed a data-poor control rule that can be used for cobia.

2.19.1 Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST), and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory Group Cobia

The Council has determined that the value for MSY is the value from the most recent stock assessment. Currently MSY is unknown.

The Council has determined that the value for MSST is the value from the most recent stock assessment based on MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. Currently MSST is unknown.

The Council has determined that the value for MFMT is the value of F_{MSY} or proxy from the most recent stock assessment. Currently MFMT is unknown.

2.19.2 Overfishing Level (OFL) for Atlantic Migratory Group Cobia

The Scientific and Statistical Committee provided the following OFL at their April 2010 meeting: "Since no estimate of MSY is available for cobia the SSC decided to estimate OFL as the median of landings data for the period 1986-2008. Therefore, OFL = 857,714 pounds."

The Council used the SSC methodology (median of 10 years of landings) and updated landings data to calculate a new OFL = 1,302,740 pounds.

The SSC provided the following OFL at their March 3, 2011 meeting: OFL = unknown.

The Council was advised by NOAA GC at the March 2011 meeting that if the SSC did not provide a recommended OFL, then the Council would need to specify OFL. The Council is recommending an interim OFL = mean of 10 years landings + (2*Standard Deviation) (OFL=1.68 MP) based on the Gulf Council's ABC Control Rule. The SAFMC's SSC is meeting in April and the Council has requested they review this interim OFL.

2.19.3 Allowable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory Group Cobia

General discussion about the ABC control rule is contained in Section 2.13.3 and is incorporated by reference.

ABC is recommended by the SSC and specified by the Council.

Alternative 1. No Action. Do not establish an ABC Control Rule for Atlantic migratory group cobia.

Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as xxxx pounds. Note: During their March 3, 1011 meeting, the SSC developed a new ABC = median of last 10 years and using the updated ACL data set, ABC = 1,026,079 pounds.

Alternative 3. Adopt the SAFMC SSC recommended ABC control rule and establish an ABC Control Rule where ABC equals OFL (1,302,740 pounds).

Alternative 4. Adopt the SAFMC SSC recommended ABC control rule and establish an ABC Control Rule where ABC equals a percentage of OFL.
Sub-Alternative 4a. ABC=65%OFL. (846,781 pounds)
GMFMC Preferred Sub-Alternative 4b. ABC=75%OFL (977,055 pounds)
Sub-Alternative 4c. ABC=85%OFL (1,107,329 pounds)

SAFMC Preferred Alternative 5. Adopt the Gulf Council's ABC Control Rule as an interim control rule and establish an ABC equal to the mean plus 1.5 times the standard deviation of the most recent10 years of landings data (ABC = 1,571,399 pounds).

The Council requests that the SSC review this interim control rule at their April 2011 meeting.

Alternative 1 would not meet the new requirements of the MSA. **Alternative 2** would adopt the control rule and the resulting ABC value recommended by the Council's SSC. **Alternative 3** would set the ABC = OFL which implies there is no assessment uncertainty. **Alternative 4** would adopt the control rule recommended by the Council's SSC and the **Sub-Alternatives 4a-4c** would set the ABC below the OFL to address assessment uncertainty. **Alternative 5** would adopt the Gulf Council's ABC Control Rule as the South Atlantic Council's Interim Control Rule until results are available from the SEDAR assessment scheduled to begin in 2012.

2.19.4 Allocations for Atlantic Migratory Group Cobia

Alternative 1. No action. Currently there are no allocations for cobia.

Alternative 2. Define allocations for Atlantic migratory group cobia based upon landings from the ALS, MRFSS, and headboat databases. The allocation would be based on landings from the years 2006-2008. The allocation would be 8% commercial and 92% recreational. The commercial and recreational allocation specified for 2011 would remain in effect beyond 2011 until modified.

Preferred Alternative 3. Define allocations for Atlantic migratory group cobia based upon landings from the ALS, MRFSS, and headboat databases. The allocation would be based on the following formula for each sector:
Sector apportionment = (50% * average of long catch range (lbs) 2000-2008 + (50% * average of recent catch trend (lbs) 2006-2008). The allocation would be 8% commercial and 92% recreational. The commercial and recreational allocation specified for 2011 would remain in effect beyond 2011 until modified.

__**Discussion**__**:** Cobia catch by recreational and commercial sectors is shown using two sources in Tables 2.19.5.1 and 2.19.5.2.

Table 2.19.4.1. Atlantic Migratory Group Cobia ABC recommendation from the Scientific and Statistical Committee and proposed allocations.

		Allocation Alt.2		Allocation Alt.3		Source
Year	**ABC**	**Rec (92%)**	**Com (8%)**	**Rec (92%)**	**Com (8%)**	
2011	643,286	591,823	51,463	591,823	51,463	**SSC**
2011	977,055	898,891	78,164	898,891	78,164	**SSC's method & updated landings**
2011	1,571,399	1,445,687	125,712	1,445,687	125,712	SAFMC's Interim Control Rule

Alternative 1 would not set allocations and there would be one ACL including both recreational and commercial catches. This would make ensuring the ACL is not exceeded more difficult and could result in one sector being responsible for increased restrictions, due to ACL overages, on the other sector. **Alternatives 2** bases the allocation on the recreational and commercial catches from 2006-2008. **Alternative 3** uses the Council's allocation formula which balances historical catches (2000-2008) with more recent landings (2006-2008). Prior to the NMFS updating commercial and recreational catches the allocations were different between **Alternatives 2 and 3**; however, the updated landings results in the same allocation (92% recreational and 8% commercial).

2.19.5 Annual Catch Limit (ACL) for Atlantic Migratory Group Cobia

The ACL is equivalent to TAC as used in the past.

Alternative 1. No action. Currently there is no TAC or ACL for cobia.

Preferred Alternative 2. ACL = OY = ABC = 977,055 pounds based on the SSC recommendation. Note: During their March 3, 1011 meeting, the SSC developed a new ABC = median of last 10 years and using the updated ACL data set, ABC = 1,026,079 pounds. Using the SAFMC's Interim Control Rule, ABC = 1,571,399 pounds.

Alternative 3. ACL = X% of ABC = ???? thousand pounds.
Sub-Alternative 3a. ACL = 65%ABC = 635,086 pounds = 1,021,409 pounds.
Sub-Alternative 3b. ACL = 75%ABC = 732,791 pounds = 1,178,549 pounds.
Sub-Alternative 3c. ACL = 85%ABC = 830,497 pounds = 1,335,689 pounds.
Sub-Alternative 3d. ACL = 80%ABC = 781,644 pounds = 1,257,119 pounds.
Sub-Alternative 3e. ACL = 90%ABC = 879,350 pounds = 1,414,259 pounds.

Alternative 1 would not meet the new requirements of the MSA. **Alternative 2** would set the ACL equal to the Optimum Yield (OY) equal to the ABC which implies no implementation uncertainty. **Alternative 3 and Sub-Alternatives 3a-3e** would set the ACL below the ABC to address implementation uncertainty.

Table 2.19.5.1. Recreational and commercial landing of Atlantic cobia by year and area.

COBIA TOTAL LBS LANDED					
Year	Commercial	%Comm	Recreational	%Rec	Total
1986	60,000	11.4%	466,635	88.6%	526,635
1987	99,000	12.4%	701,676	87.6%	800,676
1988	101,000	13.9%	627,182	86.1%	728,182
1989	127,000	8.9%	1,294,243	91.1%	1,421,243
1990	123,000	17.3%	589,042	82.7%	712,042
1991	141,000	19.7%	576,207	80.3%	717,207
1992	145,000	11.8%	1,087,402	88.2%	1,232,402
1993	126,000	16.9%	619,512	83.1%	745,512
1994	135,000	19.9%	542,924	80.1%	677,924
1995	158,000	24.0%	499,624	76.0%	657,624
1996	166,000	19.4%	691,714	80.6%	857,714
1997	169,000	15.3%	934,042	84.7%	1,103,042
1998	137,000	13.9%	850,925	86.1%	987,925
1999	124,000	11.0%	1,004,885	89.0%	1,128,885
2000	115,000	14.1%	700,309	85.9%	815,309
2001	119,000	19.5%	490,001	80.5%	609,001
2002	114,000	15.2%	637,943	84.8%	751,943
2003	97,000	6.2%	1,457,935	93.8%	1,554,935
2004	104,000	8.5%	1,121,571	91.5%	1,225,571
2005	74,000	8.5%	797,172	91.5%	871,172
2006	99,000	10.1%	879,657	89.9%	978,657
2007	103,000	9.6%	965,996	90.4%	1,068,996
2008	103,000	8.9%	1,053,825	91.1%	1,156,825

Source: Commercial data from Vondruska (2010). Total landings from SEFSC data provided to SSC April 2010 meeting. Recreational = Total – Commercial.
Note: Atlantic does not include Monroe County, Florida.

Table 2.19.5.2. Recreational and commercial landing of Atlantic cobia by year and area.

	Commercial					Recreational			South Atlantic				
Year	South Atlantic only	Gulf only	Monroe County S. Atlantic	Gulf	Total	South Atlantic only	Gulf only	Monroe County	South Atlantic Com.	% Com.	South Atlantic Rec.	% Rec.	South Atlantic Total
2000	91,269	126,604	23,076	3,286	26,362	1,017,028	880,413	27,070	114,345	10%	1,030,563	90%	1,144,908
2001	95,435	89,760	19,707	2,348	22,055	849,194	1,165,227	47,868	115,142	12%	873,128	88%	988,270
2002	88,767	103,113	16,836	2,109	18,945	771,362	851,683	14,908	105,603	12%	778,816	88%	884,419
2003	80,665	108,886	29,535	2,580	32,115	1,509,248	1,098,724	70,593	110,200	7%	1,544,545	93%	1,654,745
2004	89,200	97,460	14,363	3,733	18,096	1,184,435	1,270,392	46,270	103,563	8%	1,207,570	92%	1,311,133
2005	59,513	84,377	12,372	3,104	15,476	1,274,058	1,222,264	35,963	71,885	5%	1,292,040	95%	1,363,925
2006	81,013	76,714	11,644	4,842	16,486	1,150,144	1,043,001	103,093	92,657	7%	1,201,690	93%	1,294,347
2007	83,918	68,932	13,359	4,220	17,579	1,246,670	1,056,228	17,076	97,277	7%	1,255,208	93%	1,352,485
2008	82,764	65,220	14,393	2,430	16,823	1,220,307	981,149	6,479	97,157	7%	1,223,547	93%	1,320,704
2009	99,475	60,424	9,608	1,120	10,728	946,037	594,786	4,493	109,083	10%	948,284	90%	1,057,367

Source: SEFSC ALS, MRFSS, HBS, and TPW databases.

2.19.6 Annual Catch Target (ACT) for Atlantic Migratory Group Cobia

Action 2.19.6a Commercial Sector ACT

Preferred Alternative 1. Do not specify commercial sector ACTs for Atlantic migratory group cobia.

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL.

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL.

Table 2.19.6.1. The commercial sector ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Commercial ACL	Commercial Sector ACT	
		ACT Alt. 2; ACT=90%(ACL)	ACT Alt. 3; ACT=80%(ACL)
Atlantic migratory group cobia	125,712	113,141	100,570

Alternative 1 would not specify an ACT for the commercial sector. All commercial fishermen are permitted and complete logbooks. When fish are sold, the fishermen and dealer are required to complete a trip ticket. The NMFS SEFSC Quota Monitoring Program should be able to accurately track commercial landings to ensure the commercial ACL is not exceeded. **Alternative 2** would reduce the commercial quota by 10% to account for problems with the quota monitoring program, and **Alternative 3** would reduce the commercial quota by 20% to address these problems.

Action 2.19.6b Recreational Sector ACT

Alternative 1 (no action). Do not specify recreational sector ACTs for Atlantic migratory group cobia.

Alternative 2. The recreational sector ACT equals 85% of the recreational sector ACL.

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL.

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater].

Table 2.19.6.2. Proportional Standard Errors (PSEs) for Atlantic migratory group cobia from numbers estimates (A+B1) for all modes.
Source: Obtained from http://www.st.nmfs.noaa.gov on May 12, 2010.

Species	2003	2004	2005	2006	2007	2008	2009	3 year average (2007-09)	5 year average (2005-09)
Atlantic migratory group cobia	15.0	20.2	21.4	14.7	15.2	18.9	14.8	16.3	17.0

The Council decided to use the 5-year average PSE because this better represented recent catches than the 3 year average.

Table 2.19.6.3. The recreational ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Recreational Sector ACL	Recreational Sector ACT		
		ACT Alt. 2; ACT=85%(ACL)	ACT Alt. 3; ACT=75%(ACL)	ACT Alt. 4; ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater]
Atlantic migratory group cobia	1,445,687	1,228,834	1,084,265	1,199,920

Reducing the recreational ACT will increase the likelihood that recreational catches will exceed their allocation. **Alternative 3** has the greatest potential and **Alternative 1** the least. **Alternative 4** uses the variability in estimates of the recreational catches from the MRFSS/MRIP program to calculate the recreational ACT (Table 2.19.6.2).

2.20 ACTION 20. Specify Accountability Measures (AMs) for Atlantic Migratory Group Cobia

Note: Accountability Measures (AMs) include in-season measures that are intended to limit each sector to their ACL/ACT and post-season measures to make adjustments if the ACL/ACT is exceeded. In-season measures are equivalent to management measures (regulations) that have been set in the past.

Alternative 1 (No Action). There is no quota for cobia and there are no AMs in place for cobia.

Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Do not implement ACLs or AMs for the recreational sector.

Preferred Alternative 3. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement Accountability Measures (AMs) for the recreational sector for this stock. If the ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011, use only 2011 landings. For 2012, use the average landings of 2011 and 2012. For 2013 and beyond, use three-year running average.

Alternative 4. Commercial payback of any overage.
Preferred Sub-Alternative 4a. Payback regardless of stock status.
Sub-Alternative 4b. Payback only if overfished.

Alternative 5. Recreational payback of any overage from one year to the next.
Preferred Sub-Alternative 5a. Payback regardless of stock status.
Sub-Alternative 5b. Payback only if overfished.

Alternative 1 would not meet the new MSA requirements for the recreational and commercial sectors. **Alternative 2** would specify commercial but not recreational AMs, and would not meet the new MSA requirements for the recreational sector. **Alternative 3** would establish commercial AMs and recreational AMs; the recreational season would be shortened if necessary to prevent exceeding the recreational ACL. **Alternatives 4 and 5** address payback of overages and Sub-Alternatives 4a and 5a would payback regardless of stock status which is more conservative than a payback only if overfished (Sub-Alternatives 4b and 5b).

2.21 ACTION 21: Management Measures for Atlantic Migratory Group Cobia

[Note: More than one alternative may be selected as preferred.]

Preferred Alternative 1 (No Action). Recreational and commercial fishermen are limited to two cobia per person. This would retain the following regulations that apply to both recreational and commercial fishermen: (a) 33" fork length minimum size limit, (b) 2 per person bag limit (Note: Florida State regulations only allow 1 per person for recreational and 2 per person for commercial), (c) one day possession limit, (d) must be landed with heads and fins intact, and (d) charter/headboats require a permit for Coastal Migratory Pelagics. Note: The fishing year is January 1 through December 31.

Alternative 2. Specify a commercial trip limit:
Sub-Alternative 2a. Two cobia per person.
Sub-Alternative 2b. One cobia per person.

Alternative 3. Reduce the recreational bag limit from 2 to 1 cobia per person.

Alternative 4. Reduce the recreational bag limit from 2 to 1 cobia per boat per day.

Alternative 5. Establish a closed season for the recreational fishery.

Alternative 6. Reduce the recreational bag limit from 2 to 1 cobia per person per day during the spawning season.
Note: There was some discussion during the March 2011 Council meeting of using April, May, and June.

Reducing the recreational bag limit from 2 to 1 per person (**Alternative 3**) will not impact catches in the Mid-Atlantic except for Virginia where the reduction would be 10% based on 2007 catches (Table 2.21.1). Catches, based on 2005-2009 data, would be reduced on average by 6% in Florida, 64% in Georgia, 16% in South Carolina, and 13% in North Carolina (Table 2.21.1). The bag limit reduction (**Alternative 3**) would help prevent the recreational ACL from being exceeded, if the Council's Interim Control Rule is not accepted, whereas **Alternative 1** would not reduce catches and would likely result in the recreational ACL being met.

Table 2.21.1. Summary of percentage reduction in the cobia catch by reducing the bag limit from 2 to 1 per person per day.
Source: ACCSP.

Year	Florida	Georgia	South Carolina	North Carolina	Virginia
2009	8%	100%	37%	0%	0%
2008	0%	22%	42%	0%	0%
2007	10%	0%	0%	0%	10%
2006	11%	100%	0%	10%	0%
2005	0%	100%	0%	56%	0%
Range	0-11%	0-100%	0-42%	0-56%	0-10%
Average	6%	64%	16%	13%	2%

3.0 AFFECTED ENVIRONMENT

Section 1502.15 of the CEQ regulations states “environmental impact statements shall succinctly describe the area(s) to be affected or created by the alternatives under consideration.” A detailed description of the physical, biological, social, economic, and administrative environments related to the coastal migratory pelagic (CMP) fishery is provided in the Final EIS for the Gulf Council’s Generic Essential Fish Habitat Amendment (GMFMC 2004) and the South Atlantic Council’s Comprehensive Amendment for Addressing Essential Fish Habitat (SAFMC 1998). That information is incorporated here by reference and summarized below.

3.1 Physical Environment

3.1.1 Gulf of Mexico

The Gulf of Mexico (Gulf) has a total area of approximately 600,000 square miles (1.5 million km^2), including state waters (Gore 1992). It is a semi-enclosed, oceanic basin connected to the Atlantic Ocean by the Straits of Florida and to the Caribbean Sea by the Yucatan Channel. Oceanic conditions are primarily affected by the Loop Current, the discharge of freshwater into the Northern Gulf, and a semi-permanent, anticyclonic gyre in the western Gulf. Gulf water temperatures range from 12º C to 29º C (54º F to 84º F) depending on time of year and depth of water.

The Deepwater Horizon MC252 oil spill has affected more than one-third of the Gulf area from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. The impacts of the Deepwater Horizon MC252 oil spill on the physical environment are expected to be significant and may be long-term. Oil is dispersed on the surface, and because of the heavy use of dispersants, oil is also documented as being suspended within the water column, some even deeper than the location of the broken well head. Researchers have discovered the presence of distinct layers of degraded oil as much as half a mile deep in the northern Gulf of Mexico many miles from the Deepwater Horizon site. Floating and suspended oil is washing onto shore in several areas of the Gulf as are non-floating tar balls. Whereas suspended and floating oil degrades over time, tar balls are persistent in the environment and can be transported hundreds of miles. Oil on the surface of the water could restrict the normal process of atmospheric oxygen mixing into and replenishing oxygen concentrations in the water column. In addition, microbes in the water that break down oil and dispersant also consume oxygen; this could lead to further oxygen depletion. It is also possible that zooplankton that feed on algae could be negatively impacted, thus allowing more of the hypoxia-fueling algae to grow.

Environmental Sites of Special Interest Relevant to CMP Species (Figure 3.1.1.1)
Madison/Swanson and Steamboat Lumps Marine Reserves - No-take marine reserves where all fishing except for surface trolling during May through October is prohibited (219 square nautical miles).

Tortugas North and South Marine Reserves - No-take marine reserves cooperatively implemented by the state of Florida, NOAA’s National Ocean Service (NOS), the Council, and the National Park Service (see jurisdiction on chart) (185 square nautical miles). In addition, Generic Amendment 3 for addressing EFH requirements, Habitat Areas of Particular Concern

(HAPC), and adverse effects of fishing prohibited the use of anchors in these HAPCs in the following FMPs of the Gulf: Shrimp, Red Drum, Reef Fish, Stone Crab, Coral and Coral Reefs in the Gulf, and Spiny Lobster and the Coastal Migratory Pelagic resources of the Gulf and South Atlantic (GMFMC 2005a).

Individual reef areas and bank HAPCs of the northwestern Gulf containing pristine coral areas are protected by preventing use of some fishing gear that interacts with the bottom. These areas are: East and West Flower Garden Banks, Stetson Bank, Sonnier Bank, MacNeil Bank, 29 Fathom, Rankin Bright Bank, Geyer Bank, McGrail Bank, Bouma Bank, Rezak Sidner Bank, Alderice Bank, and Jakkula Bank (263.2 square nautical miles). Some of these areas were made marine sanctuaries by NOS and these marine sanctuaries are currently being revised. Bottom anchoring and the use of trawling gear, bottom longlines, buoy gear, and all traps/pots on coral reefs are prohibited in the East and West Flower Garden Banks, McGrail Bank, and on the significant coral resources on Stetson Bank.

Florida Middle Grounds HAPC - Pristine soft coral area protected from use of any fishing gear interfacing with bottom (348 square nautical miles).

Pulley Ridge HAPC - A portion of the HAPC where deepwater hermatypic coral reefs are found is closed to anchoring and the use of trawling gear, bottom longlines, buoy gear, and all traps/pots (2,300 square nautical miles).

Alabama SMZ - In the Alabama SMZ, fishing by a vessel operating as a charter vessel or headboat, a vessel that does not have a commercial permit for Gulf reef fish, or a vessel with such a permit fishing for Gulf reef fish, is limited to hook-and-line gear with no more than three hooks. Nonconforming gear is restricted to bag limits, or for reef fish without a bag limit, to 5% by weight of all fish aboard.

Additionally, Generic Amendment 3 for addressing EFH requirements (GMFMC 2005a) established an education program on the protection of coral reefs when using various fishing gears in coral reef areas for recreational and commercial fishermen.

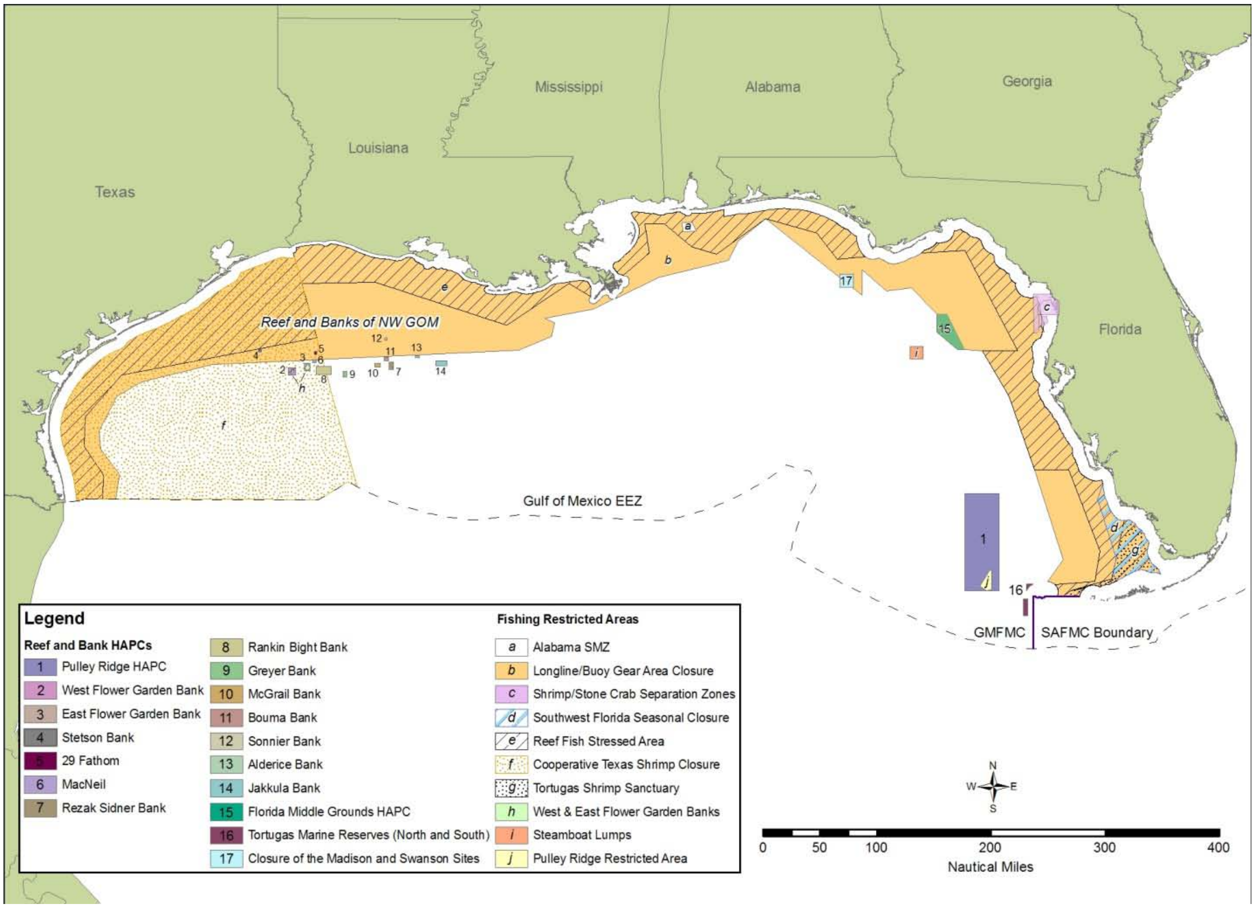


Figure 3.1.1.1 Environmental Sites of Special Interest Relevant to CMP Species in the Gulf of Mexico.

3.1.2 South Atlantic

The South Atlantic Fishery Management Council has management jurisdiction of the Federal waters (3-200 nm) offshore of North Carolina, South Carolina, Georgia, and Florida. The continental shelf off the southeastern U.S., extending from the Dry Tortugas to Cape Hatteras, encompasses an area in excess of 100,000 square km (Menzel, 1993). Based on physical oceanography and geomorphology, this environment can be divided into two regions: Dry Tortugas to Cape Canaveral and Cape Canaveral to Cape Hatteras. The break between these two regions is not precise and ranges from West Palm Beach to the Florida-Georgia border depending on the specific data considered. The shelf from the Dry Tortugas to Miami is approximately 25 km wide and narrows to approximately 5 km off Palm Beach. The shelf then broadens to approximately 120 km off of Georgia and South Carolina before narrowing to 30 km off Cape Hatteras. The Florida Current/Gulf Stream flows along the shelf edge throughout the region. In the southern region, this boundary current dominates the physics of the entire shelf (Lee *et al*., 1992, 1994).

In the northern region, additional physical processes are important and the shelf environment can be subdivided into three oceanographic zones (Atkinson *et al*., 1985; Menzel, 1993). The outer shelf (40-75 m) is influenced primarily by the Gulf Stream and secondarily by winds and tides. On the mid-shelf (20-40 m), the water column is almost equally affected by the Gulf Stream, winds, and tides. Inner shelf waters (0-20 m) are influenced by freshwater runoff, winds, tides, and bottom friction. Several water masses are present in the region. From the Dry Tortugas to Cape Canaveral, the three water types are: Florida Current Water (FCW), waters originating in Florida Bay, and shelf water. Shelf water off the Florida Keys is a mixture of FCW and waters from Florida Bay. From Cape Canaveral to Cape Hatteras, four water masses are found: Gulf Stream Water (GSW), Carolina Capes Water (CCW), Georgia Water (GW), and Virginia Coastal Water (VCW). Virginia Coastal Water enters the region from north of Cape Hatteras. Carolina Capes Water and GW are mixtures of freshwater runoff and GSW (Pietrafesa *et al*., 1985 and 1994).

Spatial and temporal variation in the position of the western boundary current has dramatic affects on water column habitats. Variation in the path of the Florida Current near the Dry Tortugas induces formation of the Tortugas Gyre (Lee *et al*., 1992 and 1994). This cyclonic eddy has horizontal dimensions on the order of 100 km and may persist in the vicinity of the Florida Keys for several months. The Pourtales Gyre, which has been found to the east, is formed when the Tortugas Gyres moves eastward along the shelf. Upwelling occurs in the center of these gyres, thereby adding nutrients to the near surface (<100 m) water column. Wind and input of Florida Bay water also influence the water column structure on the shelf off the Florida Keys (Smith, 1994; Wang *et al*., 1994). Similarly, further downstream, the Gulf Stream encounters the "Charleston Bump", a topographic rise on the upper Blake Ridge. Here the current is often deflected offshore, again resulting in the formation of a cold, quasi-permanent cyclonic gyre and associated upwelling (Brooks and Bane, 1978). Along the entire length of the Florida Current and Gulf Stream, cold cyclonic eddies are imbedded in meanders along the western front. Three areas of eddy amplification are known: Downstream of Dry Tortugas, downstream of Jupiter Inlet (27°N to 30°N latitude), and downstream of the "Charleston Bump" (32°N to 34°N latitude). Meanders propagate northward (i.e., downstream) as waves. The crests and troughs represent the onshore and offshore positions of the Gulf Stream front. Cross-shelf amplitudes of these waves are on the order 10 to 100 km. Upwelling within meander troughs is the dominant source of "new" nutrients to the southeastern U.S. shelf and supports primary, secondary, and ultimately fisheries production (Yoder, 1985; Menzel 1993). Off Cape Hatteras, the Gulf Stream turns offshore to the northeast. Here, the confluence of the Gulf Stream, the Western Boundary Under Current (WBUC), Mid-Atlantic Shelf Water (MASW), Slope Sea Water (SSW), CCW, and VCW create a dynamic and highly productive environment known as the "Hatteras Corner" or "The Point" (Figure 3.1.2.1).

On the continental shelf, offshore projecting shoals at Cape Fear, Cape Lookout, and Cape Hatteras affect longshore coastal currents and interact with Gulf Stream intrusions to produce local upwelling (Blanton *et al*., 1981; Janowitz and Pietrafesa, 1982). Shoreward of the Gulf Stream, seasonal horizontal temperature and salinity gradients define the mid-shelf and inner-shelf fronts. In coastal waters, river discharge and estuarine tidal plumes contribute to the water column structure.

The water column from Dry Tortugas to Cape Hatteras serves as habitat for many marine fish and shellfish. Most marine fish and shellfish release pelagic eggs when spawning and thus, most species utilize the water column during some portion of their early life history (e.g., egg, larvae, and juvenile stages). Larvae of shrimp, lobsters, and crabs, and larvae of reef, demersal, and pelagic fishes are found in the water column (e.g., Fahay, 1975; Powels and Stender, 1976; Leis, 1991; Yeung and McGowan, 1991; Criales and McGowan, 1994). Problems with species level identification prohibits an exact accounting of the number of fishes whose larvae inhabit the water column, but the number of families represented in ichthyoplankton collections ranges from 40 to 91 depending on location, season, and sampling method.

There are a large number of fishes that inhabit the water column as adults. Pelagic fishes include numerous Clupeoids, Exocoetids, Carangids, *Rachycentron*, *Pomatomus*, Coryphaenids, Sphyraenids, and the Scombroids (Schwartz, 1989). Some pelagic species are associated with particular benthic habitats (e.g., *Seriola* and *Sphyraena*), while other species are truly pelagic (e.g., *Thunnus* and *Makaira*).

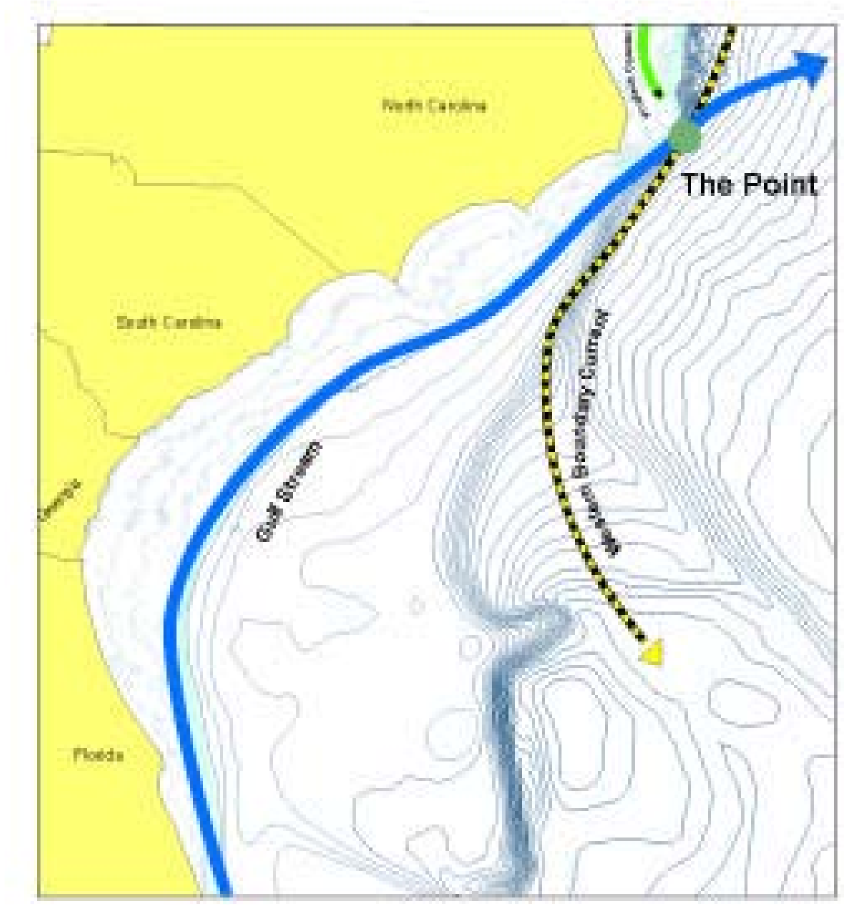


Figure 3.1.2.1. Water masses off Cape Hatteras, North Carolina.
Source: Roger Pugliese, SAFMC; Adapted from Shepard and Hulbert, 1994.

3.2 Biological Environment

On April 20, 2010, an explosion occurred on the Deepwater Horizon MC252 oil rig, resulting in the release of an estimated 4.9 million barrels of oil into the Gulf. In addition, 1.84 million gallons of Corexit 9500A dispersant were applied as part of the effort to constrain the spill. The cumulative effects from the oil spill and response may not be known for several years. There have been no observed fish kills from the oil spill in federal waters. The highest concern is that the oil spill may have impacted spawning success of species that spawn in the summer months, either by reducing spawning activity or by reducing survival of the eggs and larvae. The oil spill occurred during spawning months for every species in the CMP FMP; however, most species have a protracted spawning period that extends beyond the months of the oil spill.

Species in this FMP are migratory and move into specific areas to spawn. King mackerel, for example, move from the southern portion of their range to more northern areas for the spawning season. In the Gulf, that movement is from Mexico and south Florida to the northern Gulf (Godcharles and Murphy 1986). However, environmental factors, such as temperature can change the timing and extent of their migratory patterns (Williams and Taylor 1980). The possibility exists that mackerel would be able to detect environmental cues when moving toward the area of the oil spill that would prevent them from entering the area. These fish might then remain outside the area where oil was in high concentrations, but still spawn.

If eggs and larvae were affected, impacts on harvestable-size coastal migratory pelagic fish will begin to be seen when the 2010 year class becomes large enough to enter the fishery and be retained. King mackerel and cobia mature at 2-3 years and Spanish mackerel mature at 1-2 years; therefore a year class failure in 2010 may be felt by the fishery as early as 2011. The impacts would be felt as reduced fishing success and reduced spawning potential, and would need to be taken into consideration in the next SEDAR assessment.

The oil and dispersant from the spill may have direct negative impacts on egg and larval stages. Oil present in surface waters could affect the survival of eggs and larvae, affecting future recruitment. Effects on the physical environment such as low oxygen and the inter-related effects that culminate and magnify through the food web could lead to impacts on the ability of larvae and post-larvae to survive, even if they never encounter oil. In addition, effects of oil exposure may not always be lethal, but can create sub-lethal effects on the eggs, larva, and early life stages of fish. There is the potential that the stressors can be additive, and each stressor may increase the susceptibility to the harmful effects of the other.

The oil spill resulted in the development of major monitoring programs by NOAA Fisheries Service and other agencies, as well as by numerous research institutions. Of particular concern was the potential health hazard to humans from consumption of contaminated fish and shellfish. NOAA, the Food and Drug Administration, the Environmental Protection Agency, and the Gulf States implemented a comprehensive, coordinated, multi-agency program to ensure that seafood from the Gulf of Mexico is safe to eat. In response to the expanding area of the Gulf surface waters covered by the spill, NOAA Fisheries Service issued an emergency rule to temporarily close a portion of the Gulf of Mexico EEZ to all fishing [75 FR 24822] to ensure seafood safety. The initial closed area (May 2, 2010) extended from approximately the mouth of the Mississippi River to south of Pensacola, Florida and covered an area of 6,817 square statute miles. The coordinates of the closed area were subsequently modified periodically in response to changes in the size and location of the area affected by the spill. At its largest size on June 2, 2010, the closed area covered 88,522 square statute miles, or approximately 37% of the Gulf of Mexico EEZ. As of the writing of this description (January 3, 2010), 1,041 square statute miles immediately surrounding the wellhead, or about 0.4% of the Gulf EEZ surface waters, remained closed. However, an additional 4,213 square statute miles of bottom were closed to royal red shrimp fishing on November 24, 2010, after tar balls were found in a shrimp fisherman's net.

Prior to reopening an area, protocol requires NOAA to demonstrate the area is oil free and has little risk of being re-exposed to oil. Seafood tissue samples of the species taken from the waters must successfully pass both a sensory examination and chemical analysis in an approved laboratory. The protocol involves sensory testing for polycyclic aromatic hydrocarbon (PAH) components of the oil and dispersant, and chemical-based testing for PAH as a confirmatory measure. Testing has been and will continue to be performed on finfish, shrimp, crabs, and mollusks (e.g. oysters/mussels) from closed areas, areas that were closed but reopened, and nearby areas that were never closed. The protocol and other information about the oil spill and NOAA Fisheries Service's response can be found at the Southeast Regional Office website at http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm.

The mackerels in this management unit are often referred to as ―scombrids. The family Scombridae includes tunas, mackerels and bonitos. They are among the most important commercial and sport fishes. The habitat of adults in the coastal pelagic management unit is the coastal waters out to the edge of the continental shelf in the Atlantic Ocean. Within the area, the occurrence of coastal migratory pelagic species is governed by temperature and salinity. All species are seldom found in water temperatures less than 20°C. Salinity preference varies, but these species generally prefer high salinity, less than 36 ppt. Salinity preference of little tunny and cobia is not well defined. The larval habitat of all species in the coastal pelagic management unit is the water column. Within the spawning area, eggs and larvae are concentrated in the surface waters.

King Mackerel
King mackerel is a marine pelagic species that is found throughout the Gulf of Mexico and Caribbean Sea and along the western Atlantic from the Gulf of Maine to Brazil and from the shore to 200 meter depths. Adults are known to spawn in areas of low turbidity, with salinity and temperatures of approximately 30 ppt and 27°C, respectively. There are major spawning areas off Louisiana and Texas in the Gulf (McEachran and Finucane 1979); and off the Carolinas, Cape Canaveral, and Miami in the western Atlantic (Wollam 1970; Schekter 1971; Mayo 1973).

Spanish Mackerel
Spanish mackerel is also a pelagic species, occurring over depths to 75 meters throughout the coastal zones of the western Atlantic from southern New England to the Florida Keys and throughout the Gulf of Mexico (Collette and Russo 1979). Adults usually are found in neritic waters (area of ocean from the low-tide line to the edge of the continental shelf) and along coastal areas. They inhabit estuarine areas, especially the higher salinity areas, during seasonal migrations, but are considered rare and infrequent in many Gulf estuaries.

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

The body is dark brown to silver, paler on the sides and grayish white to silvery below, with two narrow dark bands extending from the snout to base of caudal fin. These dark bands are bordered above and below by paler bands. Young cobia have pronounced dark lateral bands, which tend to become obscured in the adult fish. Most fins are deep brown, with gray markings on the anal and pelvic fins. The body is elongate and torpedo-shaped with a long, depressed head. The eyes are small and the snout is broad. The lower jaw projects past the upper jaw. The skin looks smooth with very small embedded scales.

Cero

The elongate, streamlined body of the cero mackerel is well-adapted for swimming at speeds up to 30 mph (48 kph). The body is covered with small scales, with the lateral line sloping downwards toward the caudal peduncle. Another similar fish, the king mackerel, can be distinguished from the cero mackerel as it has a lateral line that curves downward below the second dorsal fin. The caudal fin is lunate and the pelvic fins are relatively long. Scales extend out onto the pectoral fins. This characteristic distinguishes it from the king mackerel and the Spanish mackerel, two scombrids lacking scales on the pectoral fins.

The range of the cero mackerel is limited to the western Atlantic Ocean, from Massachusetts south to Brazil, including the Bahamas and West Indies. It is common in the Caribbean, Bahamas, and Florida. Usually solitary, the cero mackerel occasionally forms schools over coral reefs, wrecks, and along ledges at depths ranging from 3.3 to 66 feet (1-20 m). It is usually seen in mid-water and near the water's surface.

Little Tunny

The little tunny is a member of the family Scombridae. It is steel blue with 3-5 broken, dark wavy lines, not extending below the lateral line. The belly is white and lacks stripes. There are 3-7 dark spots between the pelvic and pectoral fins. Spots below the pectoral fin are dusky. The little tunny has a robust, torpedo-shaped body built for powerful swimming. The mouth is large, slightly curved, and terminal with rigid jaws with the lower jaw slightly protruding past the upper jaw. Scales are lacking on the body except for the corselet and the lateral line. The corselet is a band of large, thick scales forming a circle around the body behind the head, extending backwards along the lateral line. The lateral line is slightly undulate with a slight arch below the front of the dorsal fin, then straight to the caudal keel. The caudal fin is deeply lunate, with a slender caudal peduncle including one short keel on each side.

The little tunny is found worldwide in tropical to temperate waters, between 56°N-30°S. In the western Atlantic Ocean, it ranges from Massachusetts south to Brazil, including the Gulf of Mexico, Caribbean Sea, and Bermuda. It is the most common scombrid in the western north Atlantic. This fish is typically found in nearshore waters, inshore over the continental shelf in turbid, brackish waters. Adult little tunny school according to size with other scombrid species at depths ranging from 1-150 m (3-490 feet). However, during certain times of the year the schools break apart with individuals scattering throughout the habitat. Juveniles form compact schools offshore.

Dolphin

The common dolphin (*Coryphaena hippurus)* is an oceanic pelagic fish found worldwide in tropical and subtropical waters. The range for dolphin in the western Atlantic is from George's Bank, Nova Scotia to Rio de Janeiro, Brazil. They are also found throughout the Caribbean Sea and the Gulf of Mexico, and they are generally restricted to waters warmer than 20°C (Oxenford, 1997).

The dolphin fish has bright turquoise, green and yellow patterns, which fade almost immediately upon death. This species may be distinguished from the pompano dolphin by its 55-66 dorsal fin rays, and a very wide and square tooth patch on the tongue.

Bluefish

Bluefish are a migratory, pelagic species generally found in shelf waters in temperate and semi-tropical oceans around the world, with the exception of the north and central Pacific. In North

America, bluefish range from Nova Scotia to Florida in the northwestern Atlantic and from Florida to Texas in the Gulf. Temperature is probably the single most important environmental parameter determining distribution and migration. Juveniles inhabit water at temperatures between 64-79^{o}F in summer, but are found 59-6^{o}F in fall. Adults are found at temperatures of 64-74^{o}F but have been caught in water temperatures as low as 48^{o}F and as high as 86^{o}F. Bluefish can withstand a high range of salinity.

The bluefish body is elongate and moderately compressed. The coloration is bluish or greenish above and silvery below with a blackish blotch at the base of the pectoral fin.

3.2.1 Reproduction

King Mackerel
Spawning occurs generally from May through October with peak spawning in September (McEachran and Finucane 1979). Eggs are believed to be released and fertilized continuously during these months, with a peak between late May and early July with another between late July and early August. Maturity may first occur when the females are 450 to 499 mm (17.7 to 19.6 in) in length and usually occurs by the time they are 800 mm (35.4 in) in length. Stage five ovaries, which are the most mature, are found in females by about age 4 years. Males are usually sexually mature at age 3, at a length of 718 mm (28.3 in). Females in U.S. waters, between the sizes of 446-1,489 mm (17.6 to 58.6 in) released 69,000-12,200,000 eggs. Because both the Atlantic and Gulf populations spawn while in the northernmost parts of their ranges, there is some thought that they are reproductively isolated groups.

Larvae of the king mackerel have been found in waters with temperatures between 26-31°C (79-88°F). This stage of development does not last very long. Larva of the king mackerel can grow up to 0.02 to 0.05 inches (0.54-1.33 mm) per day. This shortened larval stage decreases the vulnerability of the larva, and is related to the increased metabolism of this fast-swimming species.

Spanish Mackerel
Spawning occurs along the inner continental shelf from April to September (Powell 1975). Eggs and larvae occur most frequently offshore over the inner continental shelf at temperatures between 20°C to 32°C and salinities between 28 ppt and 37 ppt. They are also most frequently found in water depths from 9 to about 84 meters, but are most common in < 50 meters.

Cobia
Cobia form large aggregations, spawning during daylight hours between June and August in the Atlantic Ocean near the Chesapeake Bay, off North Carolina in May and June, and in the Gulf of Mexico during April through September. Spawning frequency is once every 9-12 days, spawning 15-20 times during the season. During spawning, cobia undergo changes in body coloration from brown to a light horizontal-striped pattern, releasing eggs and sperm into offshore open water. Cobia have also been observed to spawn in estuaries and shallow bays with the young heading offshore soon after hatching. Cobia eggs are spherical, averaging 1.24mm in diameter. Larvae are released approximately 24-36 hours after fertilization.

Cero
Spawning occurs offshore during April through October off Jamaica, and year round off the coast of Florida, Puerto Rico, and Venezuela. Females between 15-31 inches (38-80 cm) release from

160,000 to 2.23 million eggs each. This species has oviparous, buoyant eggs and pelagic larva. The eggs are usually 0.046-.048 inches (1.16-1.22 mm) in diameter and hatch at 0.013-0.014 inches (0.34-0.36 mm)

Little Tunny

"Spawning occurs in April through November in the eastern and western Atlantic Ocean while in the Mediterranean Sea spawning takes place from late spring through summer. Little tunny spawn outside the continental shelf region in water of at least 77°F (25°C), where females release as many as 1,750,000 eggs in multiple batches. The males release sperm, fertilizing the eggs in the water column. These fertilized eggs are pelagic, spherical, and transparent, with a diameter of 0.8-1.1 mm. The yolk is rich in black pigment and the egg is a light amber color overall. There is a single droplet of oil within the egg, adding to its buoyancy. Larvae, approximately 3 mm in size, are released 24 hours after fertilization, with the yolk being completely absorbed within the first 48-66 hours of life. The eyes are unpigmented at hatching, with pigmentation appearing 48 hours later. A small caudal spot is present. At sizes of 3.7-14mm, the teeth develop, the head becomes large, the snout long, and the fins develop. Juveniles from 14mm-174mm in length take on the adult appearance with the body becoming more fusiform and elongate." Taken directly from the Florida Museum of Natural history web site: http://www.flmnh.ufl.edu/fish/gallery/descript/littletunny/littletunny.html

Dolphin

The spawning season varies with latitude. Dolphin collected in the Florida Current spawned from November through July, and those collected from the Gulf Stream near North Carolina were reproductively active during June and July. Small females may spawn 240 thousand pelagic eggs, and fish larger than 43 inches may spawn several million. Size at first maturity ranges from 350 mm fork length (FL) (Florida) to 530 mm FL (Gulf of Mexico) for sexes combined. The sex ratios in the catch tend to be female-biased although they vary with size of fish captured.

Bluefish

Most bluefish are sexually mature by age 2. Spawning occurs spring through summer in the Atlantic and a single female can hold up to 1.4 million eggs.

3.2.2 Development, Growth and Movement Patterns

King Mackerel

Juveniles are generally found closer to shore at inshore to mid-shelf depths (to < 9 m) and occasionally in estuaries. Adults are migratory, and the CMP FMP recognizes two migratory groups (Gulf and Atlantic) that are shown in Figure 4.1-7. Typically, adult king mackerel are found in the southern climates (south Florida and extreme south Texas/Mexico) in the winter and in the northern Gulf in the summer. Food availability and water temperature are likely causes of these migratory patterns. King mackerel mature at approximately age 2 to 3 and have longevities of 24 to 26 years for females and 23 years for males (GMFMC/SAFMC 1985; MSAP 1996; Brooks and Ortiz 2004).

Spanish Mackerel

Juveniles are most often found in coastal and estuarine habitats and at temperatures >25°C and salinities >10 ppt. Although they occur in waters of varying salinity, juveniles appear to prefer marine salinity levels and generally are not considered estuarine dependent. Like king mackerel, adult Spanish mackerel are migratory, generally moving from wintering areas of south Florida and

Mexico to more northern latitudes in spring and summer. Spanish mackerel generally mature at age 1 to 2 and have a maximum age of approximately 11 years (Powell 1975).

Cobia

Newly hatched larvae are 2.5 mm long and lack pigmentation. Five days after hatching, the mouth and eyes develop, allowing for active feeding. A pale yellow streak is visible, extending the length of the body. By day 30, the juvenile takes on the appearance of the adult cobia with two color bands running from the head to the posterior end of the juvenile.

Weighing up to a record 61 kg (135 lbs), cobia are more common at weights of up to 23 kg (50 lbs). They reach lengths of 50-120 cm (20-47 in), with a maximum of 200 cm (79 in). Cobia grow quickly and have a moderately long life span. Maximum ages observed for cobia in the Gulf of Mexico were 9 and 11 years for males and females respectively while off the North Carolina coast maximum ages were 14 and 13 years. Females reach sexual maturity at 3 years of age and males at 2 years in the Chesapeake Bay region.

During autumn and winter months, cobia migrate south and offshore to warmer waters. In early spring, migration occurs northward along the Atlantic coast.

Cero

The cero mackerel grows to a maximum size of 72 inches (183 cm) in length and 17 pounds (7.76 kg) in weight. The record in Florida waters is 15.5 pounds (7 kg), although the fish commonly weighs up to 8 pounds (3.6 kg). Males reach maturity at lengths between 12.8-13.4 inches (32.5-34 cm), and females at lengths of approximately 15 inches (38 cm).

Little Tunny

The average size of the little tunny is up to 81 cm (32 in) in length, weighing up to 9.1 kg (20 lbs). The maximum recorded size is 122 cm (48 in) and 16 kg (35.3 lbs). The little tunny may live to 10 years of age. Females reach maturity at 27-37 cm (10.6-14.6 in) in length while males mature at approximately 40 cm (15.7 in).

Dolphin

Dolphin are fast growing, prolific and have a short life span - an average of 5 years. Average fork lengths for males and females range from 34 to 55 inches. Males grow faster and usually live longer than females.

The best available scientific information indicates there is one stock of common dolphin in the Atlantic, U.S. Caribbean, and Gulf of Mexico.

Bluefish

Young bluefish enter shelf waters and estuaries as waters warm, remain in estuaries during the summer, and migrate south along the coast in early fall. Blue fish may attain ages of 11-12 years and can exceed three feet in length.

In general, adult bluefish travel northward in spring and summer, and southward in fall and winter. Bluefish migrate in groups of like-sized fish which in turn form loose aggregations which may extend over large areas.

3.2.3 Ecological Relationships

Indirect and inter-related effects of the actions in this amendment, especially in concert with the Deepwater Horizon MC252 oil spill, on the biological and ecological environment are not well understood. Changes in the population size structure as a result of shifting fishing effort to specific geographic segments of CMP populations, combined with any anthropogenically-induced natural mortality that may occur from the impacts of the oil spill, could lead to changes in the distribution and abundance of these throughout the Gulf. The impacts on the food web from phytoplankton, to zooplankton, to baitfish, to top predators may be significant in the future. Impacts to CMP species from the oil spill will similarly impact other species that may be preyed upon by those species, or that might benefit from a reduced stock.

King Mackerel

Like other members of this genus, king mackerel feed primarily on fishes. They prefer to feed on schooling fish, but also eat crustaceans and occasionally mollusks. Some of the fish they eat include jack mackerels, snappers, grunts, and halfbeaks. They also eat penaeid shrimp and squid at all life stages (larvae to adult). Adult king mackerels mainly eat fish between the sizes of 3.9-5.9 inches (100-150 mm). Juveniles eat small fish and invertebrates, especially anchovies. The Atlantic and Gulf of Mexico populations differ significantly in their feeding habits. The Atlantic stock consumed 58% engraulids, 1% clupeids, and 3.1% squid, the Gulf stock consumed 21.4% engraulids, 4.3% clupeids, and 7.1% squid. The Gulf population also showed more diversity in its feeding habits. In south Florida, the king mackerel's food of choice is the ballyhoo. On the east coast of Florida, the king mackerel prefers Spanish sardines, anchovies, mullet, flying fish, drums, and jacks. Larval and juvenile king mackerel fall prey to little tunny and dolphins. Adult king mackerel are consumed by pelagic sharks, little tunny, and dolphins. Bottlenosed dolphins have been known to steal king mackerel from commercial fishing nets.

Spanish Mackerel

Like Gulf group king mackerel, Spanish mackerel primarily eat other fish species (herring, sardines, and menhaden) and to a lesser extent crustaceans and squid at all life stages (larvae to adult). They are eaten primarily by larger pelagic predators like sharks, tunas, and bottlenose dolphin.

Cobia

Cobia are voracious feeders often engulfing their prey whole. Their diet includes crustaceans, cephalopods, and small fishes such as mullet, eels, jacks, snappers, pinfish, croakers, grunts, and herring. A favorite food is crabs, hence the common name of ―crabeater. Cobia often cruise in packs of 3-100 fish, hunting for food during migrations in shallow water along the shoreline. They are also known to feed in a manner similar to remoras. Cobia will follow rays, turtles, and sharks; sneaking in to scavenge whatever is left behind. Little is known about the feeding habits of larvae and juvenile cobia.

Not much is known regarding the predators of cobia, however they are presumably eaten by larger pelagic fishes. Dolphin (*Coryphaena hippurus*) have been reported to feed on small cobia.

Cero

This swift, shallow water predator feeds primarily on clupeioid fish including herrings as well as silversides of the genus *Allanetta*. The diet of the cero mackerel also includes squid and shrimp. Predators of the cero mackerel include wahoo (*Acanthocybium solandri*), sharks, dolphins, and diving sea birds.

Little Tunny
Little tunny is an opportunistic predator, feeding on crustaceans, clupeid fishes, squids, and tunicates. It often feeds on herring and sardines at the surface of the water. Predators of little tunny include other tunas, including conspecifics and yellowfin tuna (*Thynnus albacares*). Fishes such as dolphin fish (*Coryphaena hippurus*), wahoo (*Acanthocybium solandri*), Atlantic sailfish (*Istiophorus albicans*), swordfish (*Xiphias gladius*), and various sharks as well as other large carnivorous fish all prey on the little tunny. Seabirds also prey on small little tunny.

Dolphin
Dolphin are attracted to *Sargassum*, a floating brown alga, which serves as a hiding place and source of food. Other sources of food associated with the *Sargassum* include small fish, crabs, and shrimp. Dolphin may also pursue fast -swimming fish, such as flying fish or mackerels.

The diets of other oceanic pelagic species indicate that dolphin, particularly juveniles, serve as prey for many oceanic fish.

Bluefish
Migration of young-of-the-year bluefish into estuaries facilitates predation on local inshore fishes, largely juvenile anadromous fish, including striped bass, blueback herring, and American shad.

3.2.4 Species Protected Under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA)

There are 28 different species of marine mammals that may occur in the Gulf and South Atlantic. All 28 species are protected under the MMPA and six are also listed as endangered under the ESA (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). Other species protected under the ESA occurring in the Gulf and South Atlantic include five sea turtle species (Kemp's ridley, loggerhead, green, leatherback, and hawksbill); two fish species (Gulf sturgeon and smalltooth sawfish); and two coral species (elkhorn, *Acropora palmata* and staghorn, *A. cervicornis*). Information on the distribution, biology, and abundance of these protected species in the Gulf are included in the final EIS to the Council's Generic EFH amendment (GMFMC, 2004a), the August 2007 ESA Biological Opinion on the CMP fishery (NMFS 2005) and the *Acropora* Status Review (*Acropora* Biological Review Team 2005). Marine Mammal Stock Assessment Reports and additional species information is also available on the NMFS Office of Protected Species website: http://www.nmfs.noaa.gov/pr/species/.

The Gulf and South Atlantic coastal migratory pelagic hook and line fishery is classified in the 2010 MMPA List of Fisheries as Category III fishery (74 FR 58859). This classification indicates a remote likelihood of mortality or serious injury of a marine mammal stock resulting from the fishery (less than or equal to 1% annually of the potential biological removal[1]). The

---

[1]The potential biological removal is the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population

Gulf and South Atlantic coastal migratory pelagic gillnet fishery is classified in the 2010 MMPA List of Fisheries as Category II fishery (74 FR 58859). This classification indicates an occasional incidental mortality or serious injury of a marine mammal stock resulting from the fishery (1-50% annually of the potential biological removal[1]). The fishery has no documented interaction with marine mammals; NOAA Fisheries Service classifies this fishery as Category II based on analogy (is., similar risk to marine mammals) with other gillnet fisheries. Bottlenose dolphins are the only species documented as interacting with this fishery. Bottlenose dolphins may predate and depredate on the bait, catch, and/or released discards.

Blue, sei, and sperm whales are not likely to be adversely affected by the proposed action. Although these species may be present within the action area, they are not expected to overlap with fishing activities authorized under the CMP FMP. These whales are all typically found seaward of the continental shelf, well beyond the depths at which CMP species are targeted in the action area.

Northern right, fin, and humpback whales are considered coastal whale species. In the Gulf portion of the action area, they are extremely rare. Individuals observed in the Gulf have likely been inexperienced juveniles straying from the normal range of these stocks or occasional transients (Mullin *et al*. 1994, Wursig *et al*. 2000). In the South Atlantic portion of the action area, these species are more common, and may be present in the vicinity of CMP fishing activities. These species are sighted most frequently in the South Atlantic along the southeastern United States from November through April during their annual migration. Hook-and-line fishing is not likely to adversely affect Northern right, fin, and humpback whales. There are no reported interactions between CMP hook-and-line gear and these species. Longline gear is the only type of hook-and-line gear for which there are documented interactions with large whales, and this gear is not used to target CMP species. The gillnet gear components of the CMP fishery pose entanglement risks to Northern right, fin, and humpback whales. However, there are also no documented interactions between CMP gillnets (or any Gulf of Mexico gillnet fishery) and large whales. Large whale entanglements have been documented in other gillnet fisheries.

North Atlantic right whale critical habitat has been designated in the U.S. Southeast Atlantic from the mouth of the Altamaha River, Georgia, to Jacksonville, Florida, out 27 kilometers (15 nautical miles) and from Jacksonville, Florida, to Sebastian Inlet, Florida, out 9 kilometers (5 nautical miles). A portion of this area lies within the EEZ.

Sea turtles and smalltooth sawfish are not likely to be adversely affected by CMP hook-and-line fishing. The hook-and-line gear used by both commercial and recreational fishers to target CMP species is limited to trolled or, to a lesser degree, jigged handline, bandit, and rod-and-reel gear. The same logic also applies to why we believe effects on smalltooth sawfish are extremely unlikely and discountable. Sea turtles and smalltooth sawfish are both vulnerable to capture on hook-and-line gear, but the techniques commonly used to target CMP species makes effects on these listed species extremely unlikely and, therefore, discountable.

Gillnets can adversely affect sea turtles via entanglement and forced submergence. Captured sea turtles can be released alive or can be found dead upon retrieval of the gear as a result of forced submergence. Sea turtles released alive may later succumb to injuries sustained at the time of capture or from exacerbated trauma from netting that was still attached when they were released.

Entangled sea turtles that do not die from their wounds may suffer impaired swimming or foraging abilities, altered migratory behavior, and altered breeding or reproductive patterns. The 2007 Biological Opinion (NMFS 2007) determined the continued operation of the Gulf of Mexico and South Atlantic CMP fishery is not likely to jeopardize the continued existence of green, hawksbill, Kemp's ridley, leatherback, or loggerhead sea turtles.

Smalltooth sawfish are particularly vulnerable to entanglement in gillnets. Their frequent catch in this gear type are believed to be one of the primary causes for the species decline. The long, toothed rostrum of the smalltooth sawfish easily penetrates netting, causing entanglement when the animal attempts to escape. The monofilament mesh can inflict abrasions and cuts, cause bleeding, and hinder feeding behavior. The 2007 Biological Opinion (NMFS 2007) determined the continued operation of the CMP fishery is not likely to jeopardize the continued existence of smalltooth sawfish.

The Gulf sturgeon is an anadromous, benthic species. It inhabits coastal rivers from Louisiana to Florida during the warmer months and over-winters in estuaries, bays, and the Gulf of Mexico. CMPR are targeted at or near the surface of deeper federal waters, where Gulf sturgeon would not be present.

The CMP fishery is not likely to adversely affect elkhorn and staghorn corals. These species are found in the action area, but typically only in waters 15 m or less in the Florida Keys and in the Atlantic, north to West Palm Beach, Florida (Acropora Biological Review Team 2005). Potential routes of effect on coral from fishing activities stem from physical contact by fishing vessels and gear, leading to coral breakage. The pelagic nature of the CMP fishery means the gears used to target those species are typically deployed in the water column or at the surface, where corals are not present. Fishers also typical troll or drift when targeting these species, thus potential damage from anchoring by these fishers is also unlikely.

3.3 Social Environment

A portion of the demographic description of the social environment is presented at the county level and will include a brief discussion of the communities within in each county that are most reliant upon the various species, both commercially and recreationally. Utilizing demographic data at the county level will allow for updated statistics from the Census Bureau which produces estimates for geographies (counties; minor civil divisions; census designated places, etc.) that are larger than 20,000 prior to the decennial census.[2] Estimates for smaller geographies are not available at this time. Because employment opportunities often occur within a wider geographic boundary than just the community level, tables with the number of persons employed in marine related businesses will also be provided at the county level. A discussion of various demographics within the county will be used to address environmental justice concerns as there are no data available at the community level at this time. A more detailed description of environmental justice concerns will be included under Other Applicable Law Section 7.0, E.O. 12898.

Here a brief discussion is provided of coastal growth and development that seems to affect many coastal communities, especially those with either or both commercial and recreational working waterfronts. The rapid disappearance of these types of waterfronts has important implications as the disruption of various types of fishing-related businesses and employment. The process of "gentrification," which tends to push those of a lower socio-economic class out of traditional communities as property values and taxes rise has become common along coastal areas of the U.S. and around the world. Working waterfronts tend to be displaced with development that is often stated as the "highest and best" use of waterfront property, but often is not associated with water-dependent occupations. However, with the continued removal of these types of businesses over time the local economy becomes less diverse and more reliant on the service sector and recreational tourism. As home values increase, people within lower socio-economic strata find it difficult to live within these communities and eventually must move. Consequently they spend more time and expense commuting to work, if jobs continue to be available. Newer residents often have no association with the water-dependent employment and may see that type of work and its associated infrastructure as unappealing. They often do not see the linkage between those occupations and the aesthetics of the community that produced the initial appeal for many migrants. The demographic trends within counties can provide some indication as to whether these types of coastal change may be occurring if an unusually high rate of growth or change in the demographic character of the population is present. A rise in education levels, property values, fewer owner occupied properties and an increase in the median age can at times indicate a growing process of gentrification.

Although the most recent estimates of census data have been used here, many of the statistics related to the economic condition of counties or communities do not capture the recent downturn in the economy which may have significant impacts on current employment opportunities and business operations. Therefore, in the demographic descriptions of both counties and

[2] American Community Survey estimates are based on data collected over a three year time period. The estimates represent the average characteristics of population and housing between January 2006 and December 2008 and do not represent a single point in time. Because these data are collected over three years, they include estimates for geographic areas with populations of 20,000 or more.

communities, it should be understood that in terms of unemployment, the current conditions could be worse than indicated by the estimates used here. To be consistent, census data are used for the various demographic characteristics and as noted earlier are limited to the most recent estimates which are an average for 2006 - 2008. Other aspects of trade and market forces as a result of the economic downturn could also affect the business operations of vessels, dealers, wholesalers and retail seafood businesses for the commercial sector and charter services and other support services for the recreational fishery. These may not be reflected in the demographic profile provided here.

3.3.1 Fishing Communities

The communities displayed in the maps below represent a categorization of communities based upon their overall value of local commercial landings divided by the overall value of commercial landings referred to as a "regional quotient." These data were assembled from the accumulated landings system which includes all species from both state and federal waters landed in 2008. All communities were ranked on this "regional quotient" and divided by those who were above the mean and those below. Those above the mean were then divided into thirds with the top tier classified as Primarily Involved in fishing; the second tier classified as Secondarily Involved; and the third classified as being Tangentially Involved. The communities included within the maps below were only those communities that were categorized as primarily or secondarily involved. This breakdown of fisheries involvement is similar to the how communities were categorized in the community profiling of South Atlantic fishing communities (Jepson *et al*. 2005). However, the categorization within the community profiles included other aspects associated with fishing such as infrastructure and other measures to determine a community's status with regard to reliance upon fishing. While these communities represent all fishing, communities those that are more involved in the spiny lobster fishery are represented in more depth within their respective county descriptions.

3.3.2 Coastal Pelagic Fishing Communities

The figures below present the top fifteen communities based upon a regional quotient of commercial landings and value for coastal migratory pelagic species (Figures 3.3.2.1 – 3.3.2.6). The regional quotient is the proportion of landings and value out of the total landings and value of that species for that region. The Keys communities were placed within the Gulf landings for convenience. In Figure 3.3.2.1, Cocoa, Florida lands over 35% of all king mackerel for South Atlantic fishing communities and those landings represent 35% of the value. Fort Pierce, Florida is next in landings and value while Hatteras, North Carolina is third for the South Atlantic region.
Those communities that are categorized within the top fifteen for regional quota are profiled under their county description which includes the top fifteen species landed within each community by local quotient (lq) and represents those species ranked according to their contribution to landings and value out of total landings and value for each community. Only those communities that have landings or landed value of 3% or more will be profiled under a county description.

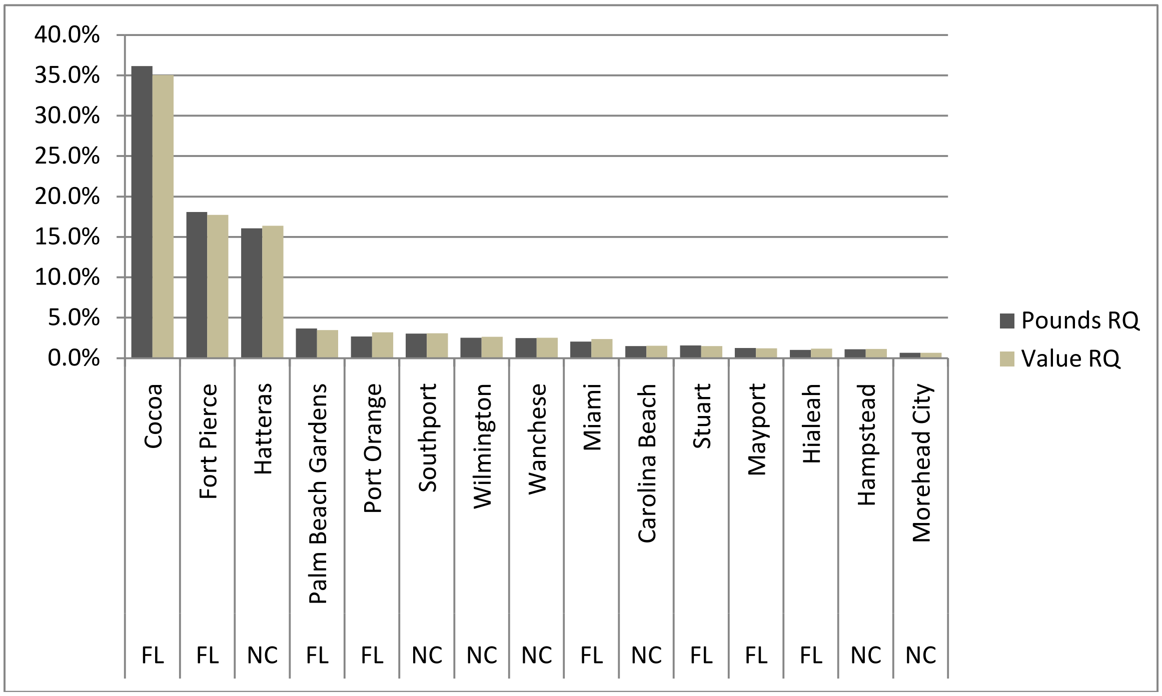


Figure 3.3.2.1. Top Fifteen South Atlantic Communities Ranked by Pounds and Value Regional Quotient of King Mackerel.
Source: ALS 2008

Top landings of king mackerel for Gulf communities (Figure 3.3.2.2), which include the Florida Keys for convenience sake, has Destin with just over 30% of the landings and almost 40% of the value for the region. Key West is next with just over 20% of landings and 15% of the value of king mackerel with Golden Meadow, Louisiana third with just over 10%.

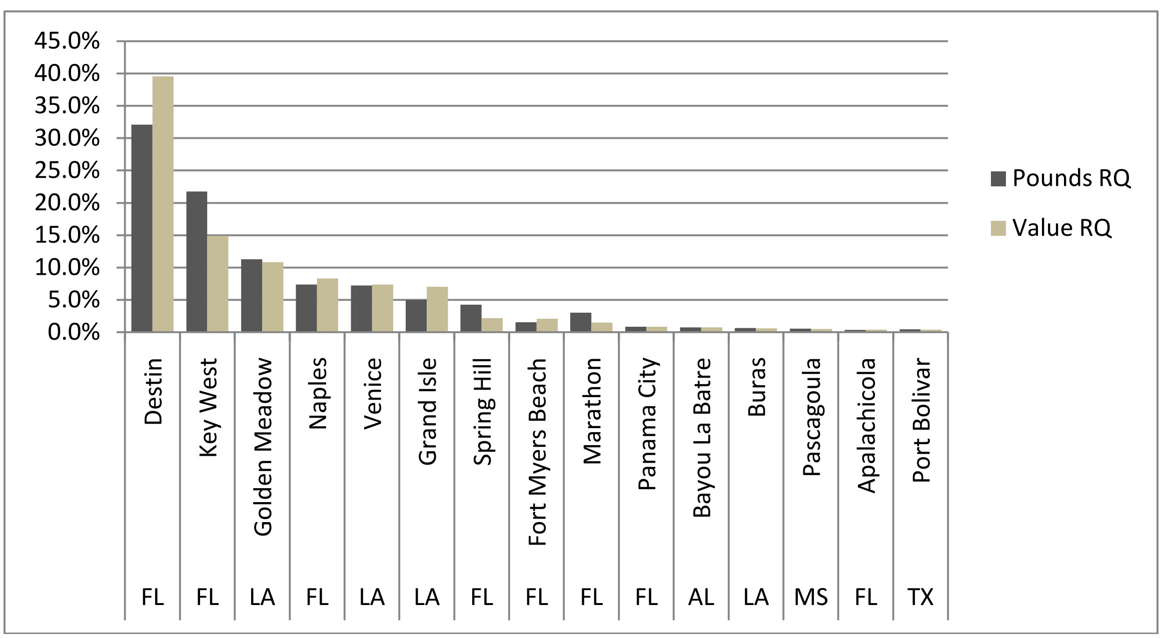


Figure 3.3.2.2. Top Fifteen Gulf Communities Ranked by Pounds and Value of Regional Quotient of King Mackerel.

Source ALS 2008

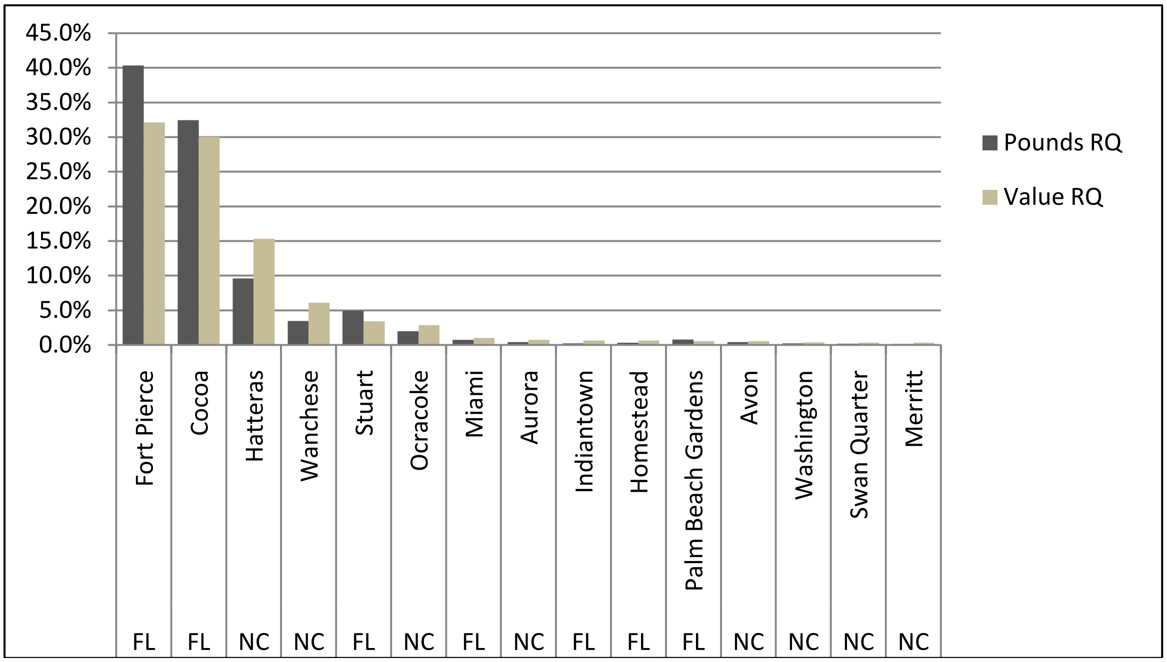


Figure 3.3.2.3. Top Fifteen South Atlantic Communities Ranked by Pounds and Value of Regional Quotient of Spanish Mackerel.
Source: ALS 2008

For Spanish mackerel in the Atlantic (Figure 3.3.2.3), Fort Pierce has 40% of the landings and just over 30% of the value. Cocoa is second with just over 30% of landings and 30% of value. Hatteras, North Carolina is third with just less than 10% of landings, yet 15% of the value of all landed Spanish mackerel in the region.

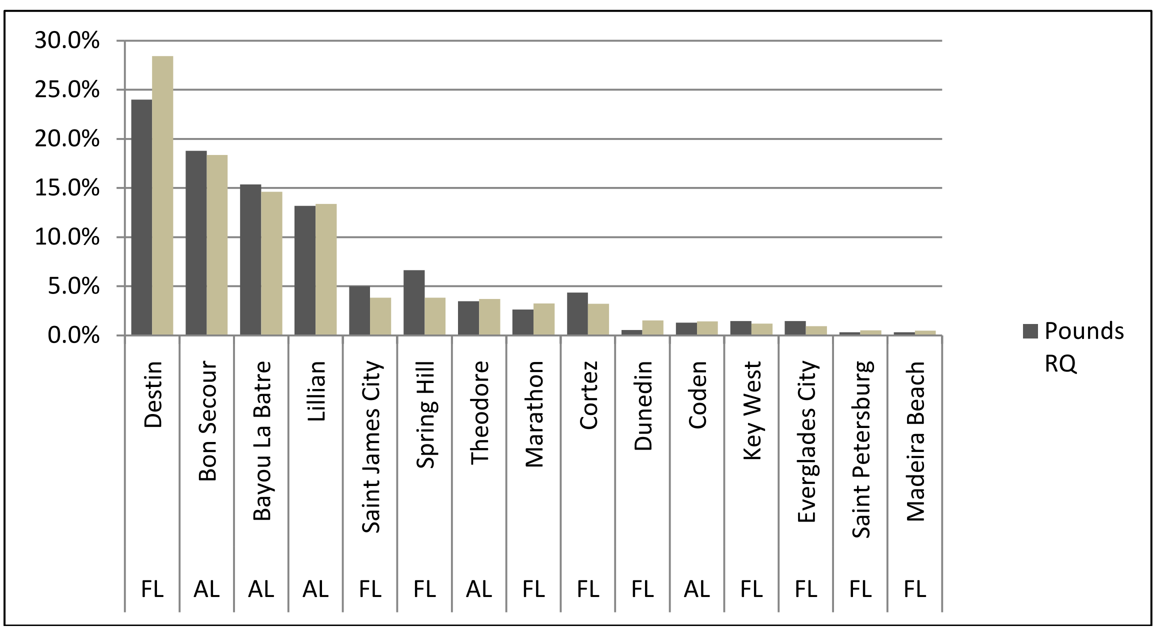


Figure 3.3.2.4. Top Fifteen Gulf Communities Ranked by Pounds and Value of Regional Quotient of Spanish Mackerel.

Source: ALS 2008

Cocoa, Florida was also tops in pounds and value for cobia landed in the South Atlantic with over 20% of the value and over 15% of the landings (Figure 3.3.2.5). Mayport was second and Jupiter third as the first five communities were all located in Florida. Hatteras, North Carolina ranked sixth with almost 10% of landings and just under 5% of the value.

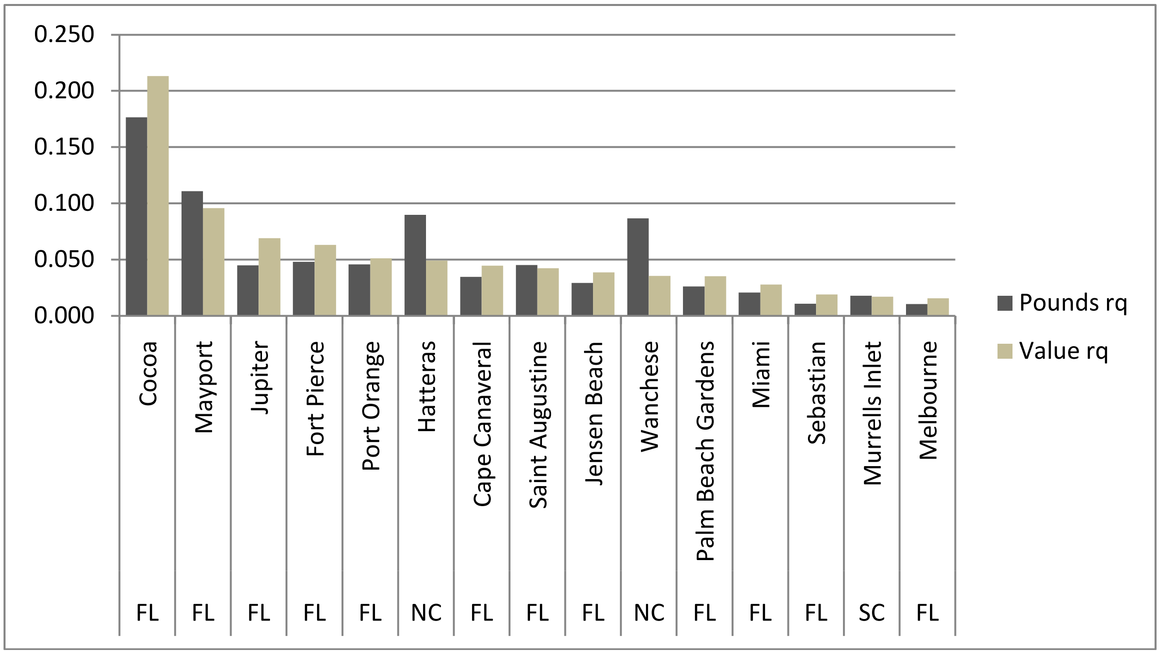


Figure 3.3.2.5. Top Fifteen Atlantic Communities Ranked by Pounds and Value Regional Quotient (rq) of Cobia.

Source ALS 2008.

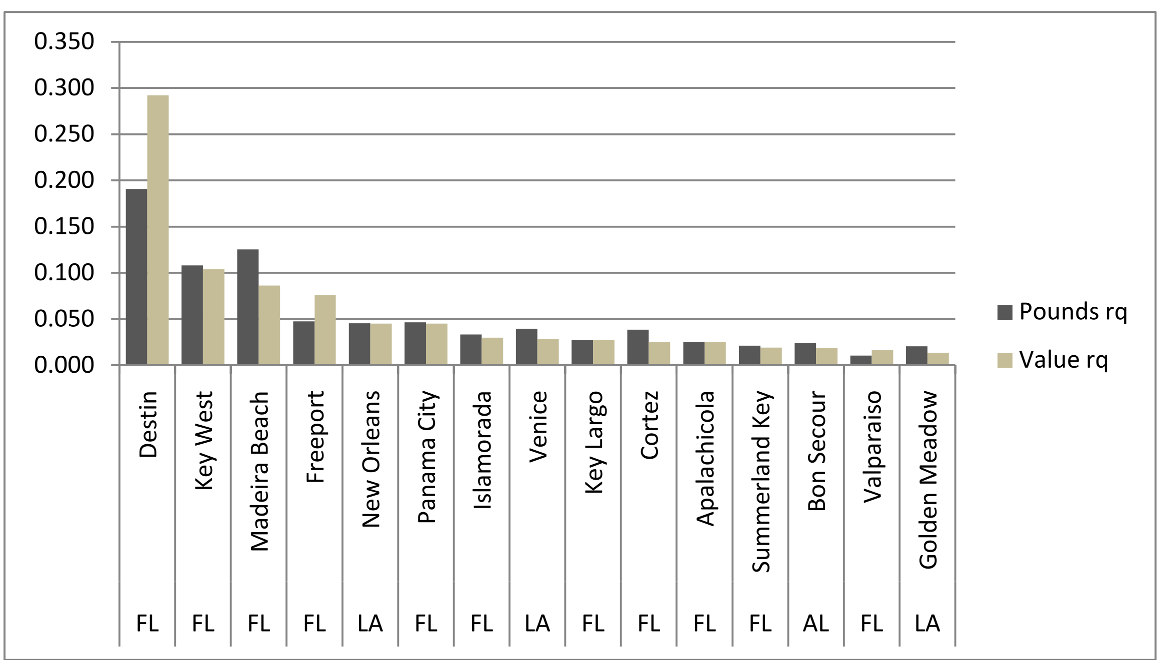


Figure 3.3.2.6. Top Fifteen Gulf Communities Ranked by Pounds and Value Regional Quotient (rq) of Cobia.

Source ALS 2008.

The top Gulf community in terms of Spanish mackerel landings was Destin (Figure 3.3.2.4) and for cobia landings it was also Destin (Figure 3.3.2.6) with almost 30% of value and just under 20% of landings. Key West was second with slightly over 10% landings and value. Madeira Beach was third

Recreational Fishing Communities

Recreational fishing communities in the South Atlantic are listed in Table 3.3.2.1 and those in the Gulf in Table 3.3.2.2. These communities were selected by their ranking on a number of criteria including number of charter permits per thousand population and recreational fishing infrastructure as listed under the MRIP survey identified within each community.

Table 3.3.2.1. South Atlantic Recreational Fishing Communities.

Community	State	Community	State
Jekyll Island	GA	Cape Carteret	NC
Hatteras	NC	Kill Devil Hill	NC
Manns Harbor	NC	Murrells Inlet	SC
Manteo	NC	Little River	SC
Atlantic Beach	NC	Georgetown	SC
Wanchese	NC	Islamorada	FL
Salter Path	NC	Cudjoe Key	FL
Holden Beach	NC	Key West	FL
Ocean Isle	NC	Tavernier	FL
Southport	NC	Little Torch Key	FL
Wrightsville Beach	NC	Ponce Inlet	FL
Marshallberg	NC	Marathon	FL
Carolina Beach	NC	Sugarloaf Key	FL
Oriental	NC	Palm Beach Shores	FL
Topsail Beach	NC	Big Pine Key	FL
Swansboro	NC	Saint Augustine	FL
Nags Head	NC	Key Largo	FL
Harkers Island	NC	Summerland Key	FL
Calabash	NC	Sebastian	FL
Morehead City	NC	Cape Canaveral	FL

Table 3.3.2.2. Gulf Recreational Fishing Communities.

Community	State	Community	State
Orange Beach	AL	Marco Island	FL
Dauphin Island	AL	Redington Shores	FL
Saint Marks	FL	Gulf Breeze	FL
Steinhatchee	FL	Homosassa	FL
Chokoloskee	FL	Fernandina Beach	FL
Carrabelle	FL	New Port Richey	FL
Apalachicola	FL	Venice	LA
Destin	FL	Grand Isle	LA
Cedar Key	FL	Chauvin	LA
Suwannee	FL	Grand Chenier	LA
Yankeetown	FL	Empire	LA
Horseshoe Beach	FL	Port O'Connor	TX
Panacea	FL	Port Aransas	TX
Hernando Beach	FL	Matagorda	TX
Port Saint Joe	FL	South Padre Island	TX
Anna Maria	FL	Freeport	TX
Madeira Beach	FL	Port Mansfield	TX
Nokomis	FL	Sabine Pass	TX
Port Richey	FL		
Panama City Beach	FL		

3.3.3 Social Vulnerability

In the map below (Figure 3.3.5.1), the counties in Florida's Atlantic coast are shown with fishing communities identified in each. Each county has also been geocoded with regard to social vulnerability as measured by Social Vulnerability Index (SoVI). Those counties most vulnerable are shaded with light and darker red tones while those least vulnerable are shaded in lighter and darker blue tones. The yellow shading represents medium vulnerability. The Index was created by the Hazards Research Lab at the University of South Carolina to understand how places that are susceptible to coastal hazards might also exhibit vulnerabilities to social change or disruptions (http://webra.cas.sc.edu/hvri/products/sovi.aspx#). These vulnerabilities may come in the form of high unemployment, high poverty rates, low education and other demographic characteristics. In fact, the SoVI is an index that consists of 32 different variables combined into one comprehensive index to measure social vulnerability. Although the SoVI was created to understand social vulnerability to coastal environmental hazards, it can also be interpreted as a general measure of vulnerability to other social disruptions, such as adverse regulatory change or manmade hazards. This does not mean that there will be adverse effects, only that there may be a potential for adverse effects under the right circumstances. Fishing communities in these counties may have more difficulty adjusting to regulatory changes if those impacts affect employment or other critical social capital. At present, a social vulnerability index is being created for fishing communities in the Southeast region with more timely data (the SoVI uses 2000 census data). Until that index is completed, the SoVI will substitute at the county level for a measure of vulnerability for those communities that are within the boundaries of a particular coastal county. This concept is closely tied to environmental justice and the thresholds that are addressed with regard to that concept.

The communities displayed in Figure 3.3.5.1 and other maps below are based upon the communities that were categorized as primarily or secondarily involved with fishing. This map provides an indication of those fishing communities that reside in counties that are considered vulnerable. This does not mean that these communities will be adversely affected, only that based upon the vulnerabilities that exist within the county there may be the possibility that these communities may have difficulty recovering from social disruptions.

3.3.4 Marine Related Employment

Within each state description there are also tables that provide summaries of marine related employment within the coastal counties of the Southeastern states. These estimates provide the number of sole proprietors (# Prop) and the number of employed persons (# Emp) for various sectors associated with employment in the marine environment. These categories were chosen because the occupations that are represented within each sector often include fishing related activities or fishing related support activities. For instance, the sector entitled Scenic Water includes charter fishermen within its estimate. The sector Shipping includes various shipping containers that would be used by fish houses and others to handle seafood. While these estimates do not encompass all employment related to fishing and its support activities, it does provide some approximation of the amount of activity associated with employment related to both recreational and commercial fishing.

3.3.5 South Atlantic Communities

Florida Counties

Figure 3.3.5.1. The Social Vulnerability Index applied to South Atlantic Florida Counties.

A good portion of Florida's east coast (Figure 3.3.5.1) is considered either medium high or highly vulnerable in terms of social vulnerability. In fact, the only counties not included in those two categories are Nassau, St. John's and Monroe. Those counties with communities with significant landings of coastal pelagics are profiled below, including marine related employment in Table 3.3.5.1.

Table 3.3.5.1. Marine Related Employment for 2007 in Florida East Coast Counties.
Source: Census Bureau 2010.

County	Duval		Flagler		Volusia		Brevard	
Sector	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp
Boat Dealers	19	.	7	.	11	.	26	.
Seafood Dealers	.	92	.	14	.	16	.	75
Seafood Harvesters	199	.	17	.	183	.	282	.
Seafood Retail	20	60	0	2	.	.	0	7
Marinas	.	216	.	21	.	137	.	223
Processors	12	210	0	.	.	.	0	27
Scenic Water	.	27	.	1	.	50	.	22
Ship Boat Builders	.	827	.	692	.	758	.	846
Shipping Support	.	1598	.	1	.	38	.	193
Shipping	.	1522	.	1	.	15	.	137

Duval County
Duval County had a total population of 778,866 in 2000 that is estimated to have grown to 846,237 by 2007. Population density was 1022 persons per square mile in 2000 and has grown to 1114 persons in 2007. The majority of county residents were White (65.0) and the Hispanic population was 6.1 % in 2007. The percent of population that identified themselves as White alone was 59.5% and 29.9% Black. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for the state was estimated to be 60.7% and 16.0% Black in 2007. The median age for residents of Duval County was estimated to have been 36.3, so Duval County's median age is younger than the state's 40.1 as a whole. Median household income for 2007 was estimated to be $50,301, higher than that for the state which was $48,637. There was an estimated 6.5 % of the population in the civilian force that was estimated to be unemployed in Duval County, which was slightly higher the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 12.7% which was almost equal to the 12.6% for the state as a whole during 2007. Duval County had a lower owner occupied housing rate higher than the state with 64.1% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

Mayport has just over 3% of landings consisting of coastal migratory pelagic with king mackerel contributing the most in Figure 3.3.5.2.

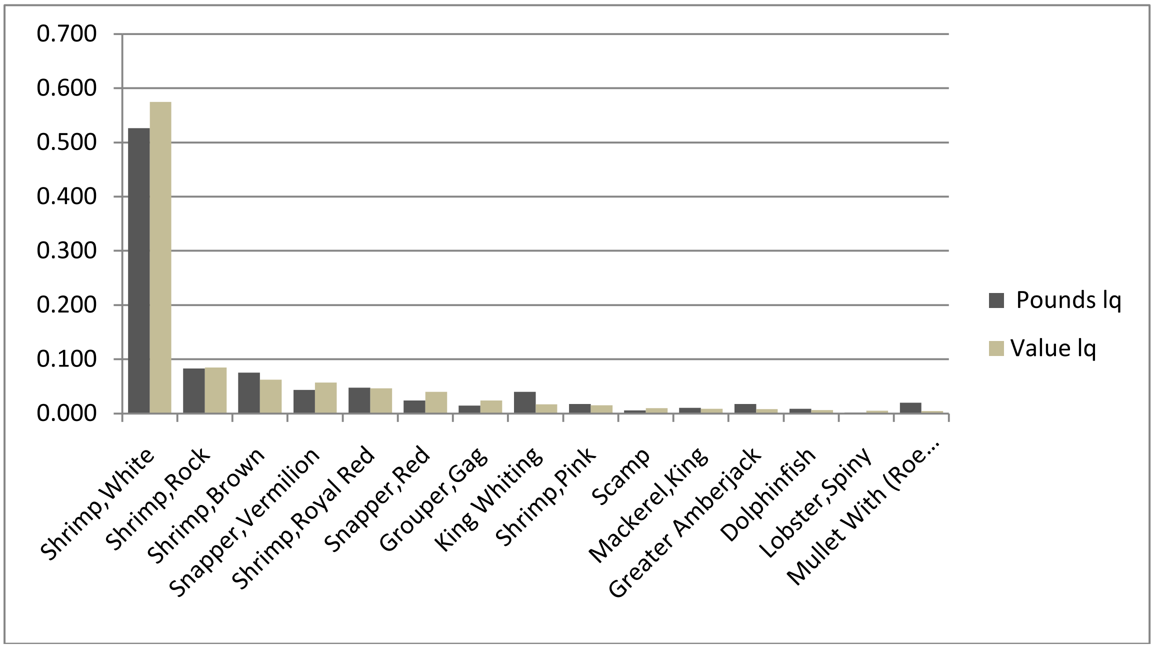


Figure 3.3.5.2. The top fifteen species in terms of proportion (lq) of total landings and value for Mayport, Florida.
Source: ALS 2008

Volusia County
Volusia County had a total population of 443,343 in 2000 that is estimated to have grown to 497,597 by 2007. Population density was 402 persons per square mile in 2000 and has grown to 454 persons in 2007. The majority of county residents were White (85.6) and the Hispanic population was 10.2 % in 2007. The percent of population that identified themselves as White alone was 76.8%. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Volusia County was estimated to have been 42.5, so Volusia County's median age is slightly older than the state's 40.1 as a whole. Median household income for 2007 was estimated to be $44,304, lower than that for the state which was $48,637. There was an estimated 5.5 % of the population in the civilian force that was estimated to be unemployed in Volusia County, which was below the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 13.1% which was higher than the 12.6% for the state as a whole during 2007. Volusia County had a higher owner occupied housing rate higher than the state with 75.9% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

In Volusia County, Port Orange in Figure 3.3.5.3 derives over 10% of its landed value from king mackerel and almost 8% of landings. Dolphinfish make up just over 2% of both landings and value for the community. No other coastal pelagic fall within the top fifteen species for this community.

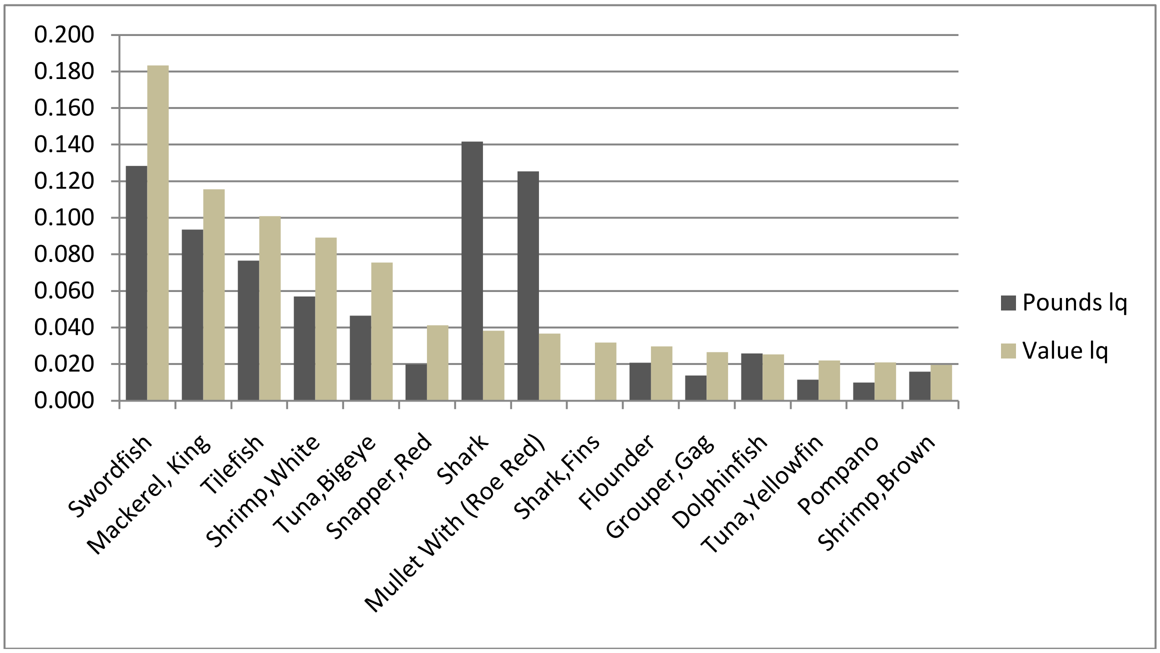


Figure 3.3.5.3. The top fifteen species in terms of proportion (lq) of total landings and value for Port Orange, Florida.
Source: ALS 2008

Brevard County

Brevard County had a total population of 476,230 in 2000 that is estimated to have grown to 534,165 by 2007. Population density was 467 persons per square mile in 2000 and has grown to 527 persons in 2007. The majority of residents (86.0%) were identified a White in 2007 and the Hispanic population was 6.9% in 2007, while Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for Brevard County was 79.5% with a Black population of 10.4%, while the state was estimated to be 60.7% White alone with 16.0% of the population Black in 2007. The median age for residents of Brevard County was estimated to have been 43.6 while the median age for the State of Florida was 40.1 by 2007 so Brevard County's median age is older than the state as a whole. Median household income for 2007 was estimated to be $50,080, higher than that for the state which was $48,637. There was an estimated 6.3 % of the population in the civilian force that was estimated to be unemployed in Brevard County, which was almost equal to the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 9.6% which was below the 12.6% for the state as a whole during 2007. Brevard County had a higher owner occupied housing rate than the state with over 76.9% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

Landings of coastal migratory pelagics contribute a considerable amount to the total landings and value for Cocoa, Florida in Brevard County. As shown in Figure 3.3.5.4 King Mackerel make up over 45% of the value and over 35% of the landings. Spanish mackerel are over 20% of the overall landings with just under 15% of the overall value for the community.

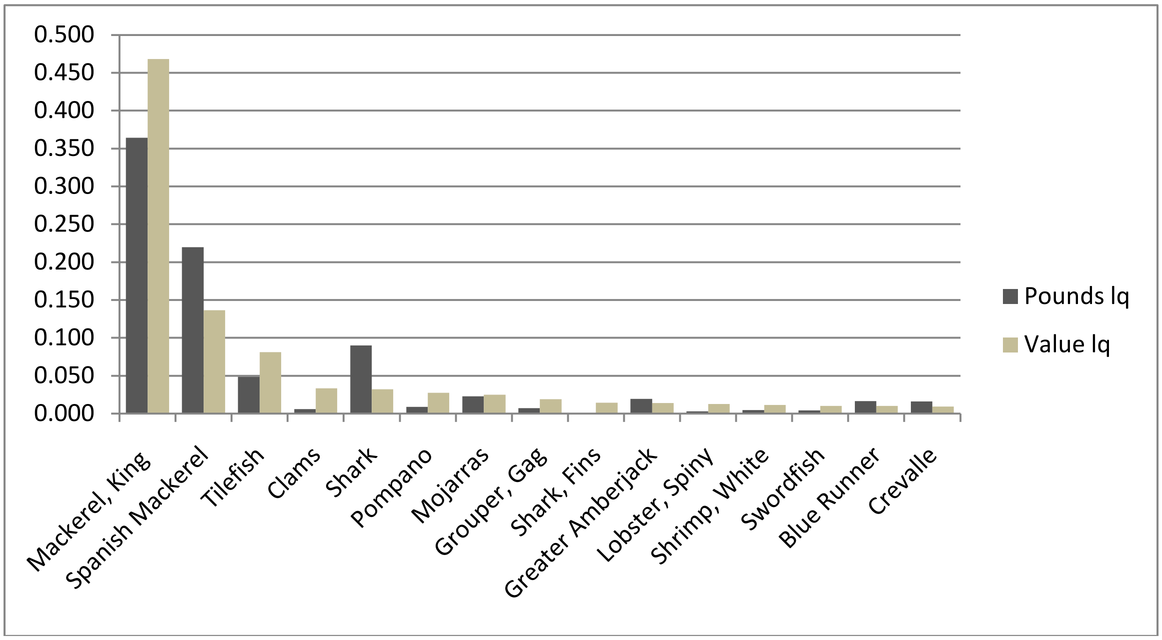


Figure 3.3.5.4. The top fifteen species in terms of proportion (lq) of total landings and value for Cocoa, Florida.
Source: ALS 2008

Table 3.3.5.2 describes the marine related employment for the southern tier of Florida's Atlantic coastal counties with coastal migratory pelagic landings. All counties except for St. Lucie have numerous sole proprietors in seafood harvesting with Monroe county having the most with 934. All counties, except Miami-Dade have persons employed in the scenic water category which includes charter fishing with Broward and Monroe having over 300.

Table 3.3.5.2. Marine Related Employment for 2007 in Florida Southeast Coast Counties.
Source: Census Bureau 2010.

Florida County	St. Lucie		Martin		Palm Beach		Broward		Miami-Dade		Monroe	
Sector	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp
Boat Dealers	16	.	60	.	108	.	253	.	108	.		
Seafood Dealers	136	.	.	9	.	46	.	406	.	.	.	112
Seafood Harvesters	0	.	128	.	287	.	228	.	287	.	934	.
Seafood Retail	.	2	0	93	18	57	28	291	18	.	7	7
Marinas	.	49	.	113	10	887	.	707	10	.	.	191
Processors	.	.	0	.	.	176	0	142	.	.	0	.
Scenic Water	.	9	.	42	.	94	.	313	.	.	.	315
Ship Boat Builders	.	502	.	340	.	100	.	776	.	.	.	17
Shipping Support	.	7	.	13	.	756	.	1557	.	.	.	67
Shipping	.	38	.	2		69		995	.	.	.	35

St. Lucie County

St. Lucie County had a total population of 192,695 in 2000 that is estimated to have grown to 258,272 by 2007. Population density was 336 persons per square mile in 2000 and has grown to 456 persons in 2007. The majority of residents (77.5%) were identified a White in 2007 and the Hispanic population was 14.9% in 2007, while Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for St. Lucie County was 65.2% with a Black population of 18.1%, while the state was estimated to be 60.7% White alone with 16.0% of the population Black in 2007. The median age for residents of St. Lucie County was estimated to have been 40.1 while the median age for the State of Florida was 40.1 by 2007 so St. Lucie County's median age is equal to the state as a whole. Median household income for 2007 was estimated to be $46,829, lower than that for the state which was $48,637. There was an estimated 8.7 % of the population in the civilian force that was estimated to be unemployed in St. Lucie County, which was higher than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 11.6% which was below the 12.6% for the state as a whole during 2007. St. Lucie County had a higher owner occupied housing rate than the state with over 76.0% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

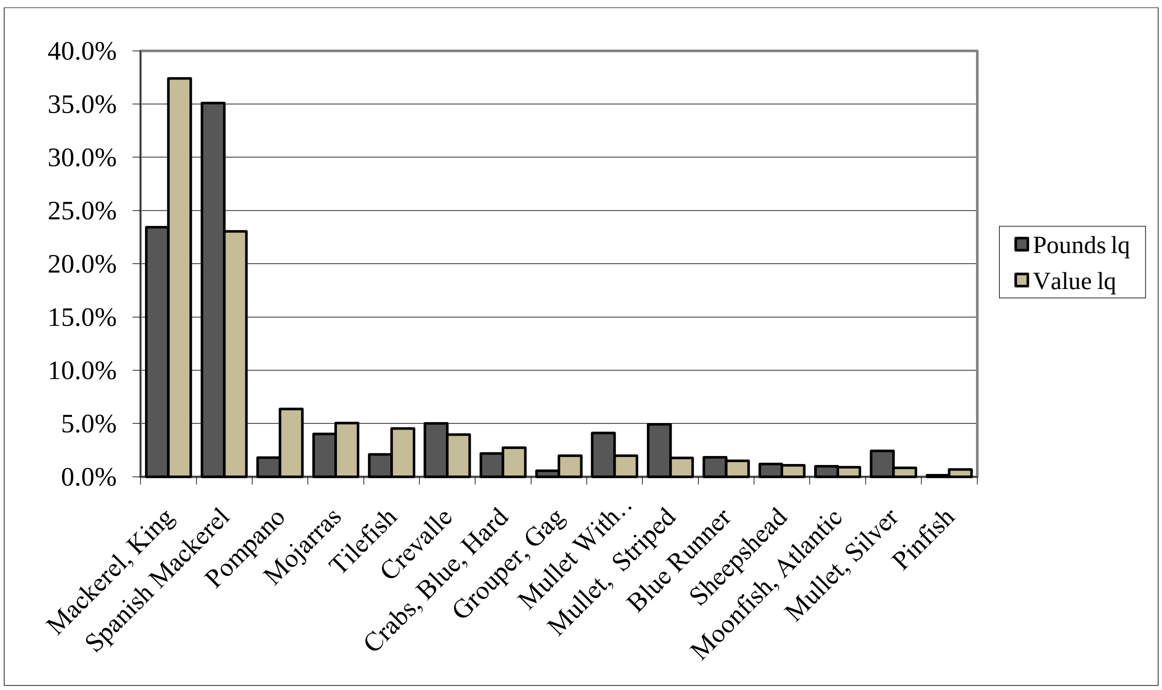


Figure 3.3.5.5. The top fifteen species in terms of proportion (lq) of total landings and value for Fort Pierce, Florida.
Source: ALS 2008

The community of Fort Pierce had substantial landings and value from coastal migratory pelagic with over 35% of its total landings value coming from king mackerel. It also had 35% of its landings in Spanish mackerel which had almost 25% of total value for the community. Landings of coastal pelagic were by far the most landed and valued by constituting over half of both for all landings in Figure 3.3.5.5.

Martin County

Martin County had a total population of 126,731 in 2000 that is estimated to have grown to 138,495 by 2007. The majority of residents (88.2%) were identified a White in 2007 and the Hispanic population was 10.1% in 2007, while Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for Martin County was 81.6% with a Black population of 6.8%, while the state was estimated to be 60.7% White alone with 16.0% of the population Black in 2007. The median age for residents of Martin County was estimated to have been 47.1 while the median age for the State of Florida was 40.1 by 2007 so Martin County's median age is higher than the state as a whole. Median household income for 2007 was estimated to be $54,182, higher than that for the state which was $48,637. There was an estimated 6.9 % of the population in the civilian force that was estimated to be unemployed in Martin County, which was slightly higher than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 9.3% which was below the 12.6% for the state as a whole during 2007. Martin County had a higher owner occupied housing rate than the state with over 79.1% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

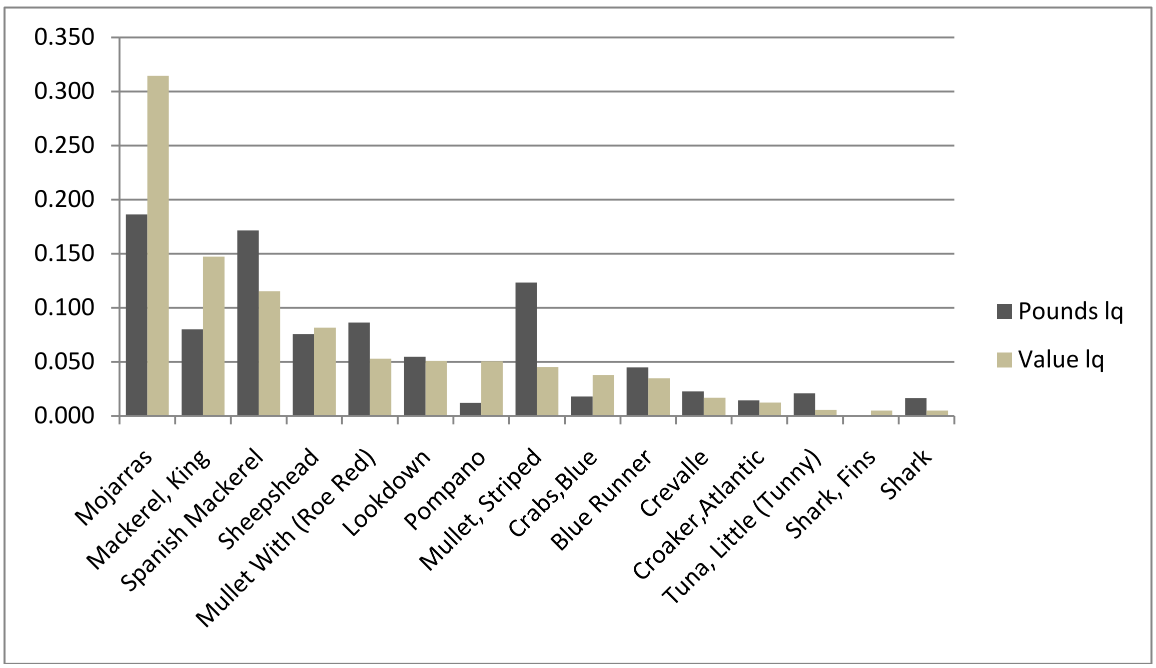


Figure 3.3.5.6. The top fifteen species in terms of proportion (lq) of total landings and value for Stuart, Florida.
Source: ALS 2008

Stuart, Florida derives almost 15% of landed value from king mackerel and just over 10% from Spanish mackerel. Spanish mackerel makes up over 15% of landings for the community while king mackerel is only 10% according to Figure 3.3.5.6.

Palm Beach County

Palm Beach County had a total population of 1,131,191 in 2000 that is estimated to have grown to 1,754,846 by 2007. The majority of residents (75.6%) were identified a White in 2007 and the Hispanic population was 17.3% in 2007, while Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Palm Beach County was estimated to have been 43.0 while the median age for the State of Florida was 40.1 by 2007 so Palm Beach County's median age is higher than the state as a whole. There was an estimated 6.3 % of the population in the civilian force that was estimated to be unemployed in Palm Beach County, which was almost the same as the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 11.5% which was below the 12.6% for the state as a whole during 2007. Palm Beach County had a higher owner occupied housing rate than the state with over 74.3% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

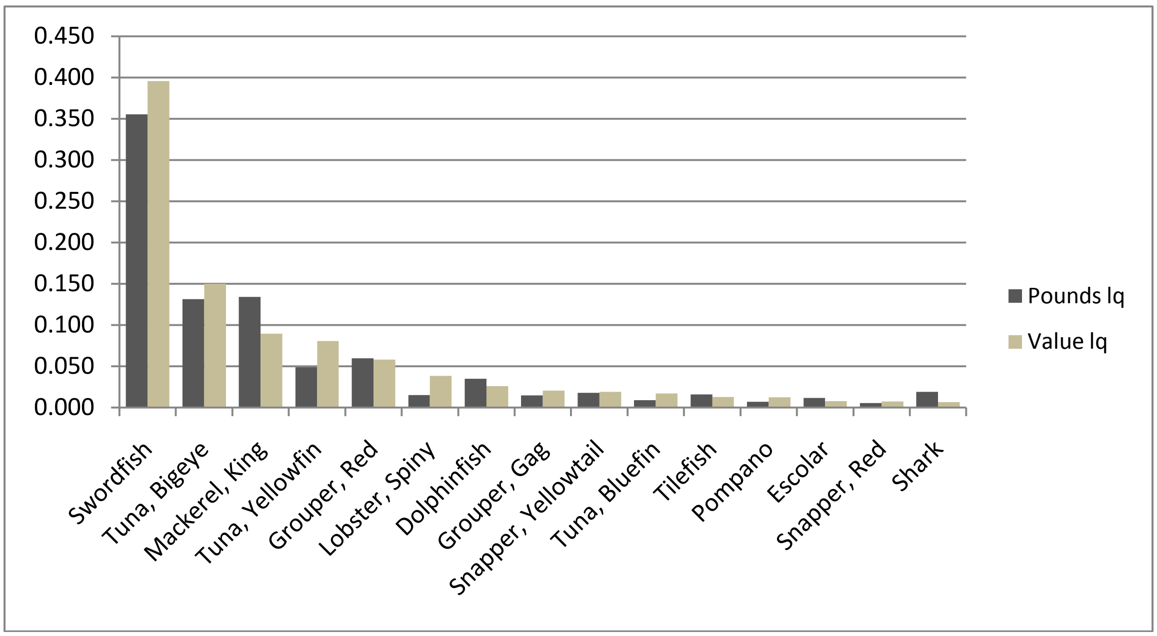


Figure 3.3.5.7. The top fifteen species in terms of proportion (lq) of total landings and value for Palm Beach Gardens, Florida.
Source: ALS 2008

King mackerel is over 10% of landings for Palm Beach Gardens and just under 10% of landed value in Figure 3.3.5.7. Dolphinfish consists of just less than 5% of landings and value.

Miami-Dade County

Miami-Dade County had a total population of 2,253,779 in 2000 that is estimated to have grown to 2,387,170 by 2007. The majority of residents were identified a White (74.4%) in 2007 and the Hispanic population was 61.7%, the largest in the state. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Miami-Dade County was estimated to have been 38.7 while the median age for the State of Florida was 40.1.7 by 2007 so Miami-Dade County's median age is slightly younger than the state as a whole. There was an estimated 5.9 % of the population in the civilian force that was estimated to be unemployed in Miami-Dade County, which was somewhat lower than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 16.1% which was above the 12.6% for the state as a whole during 2007. Miami-Dade County had a lower owner occupied housing rate than the state with over 60.1% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

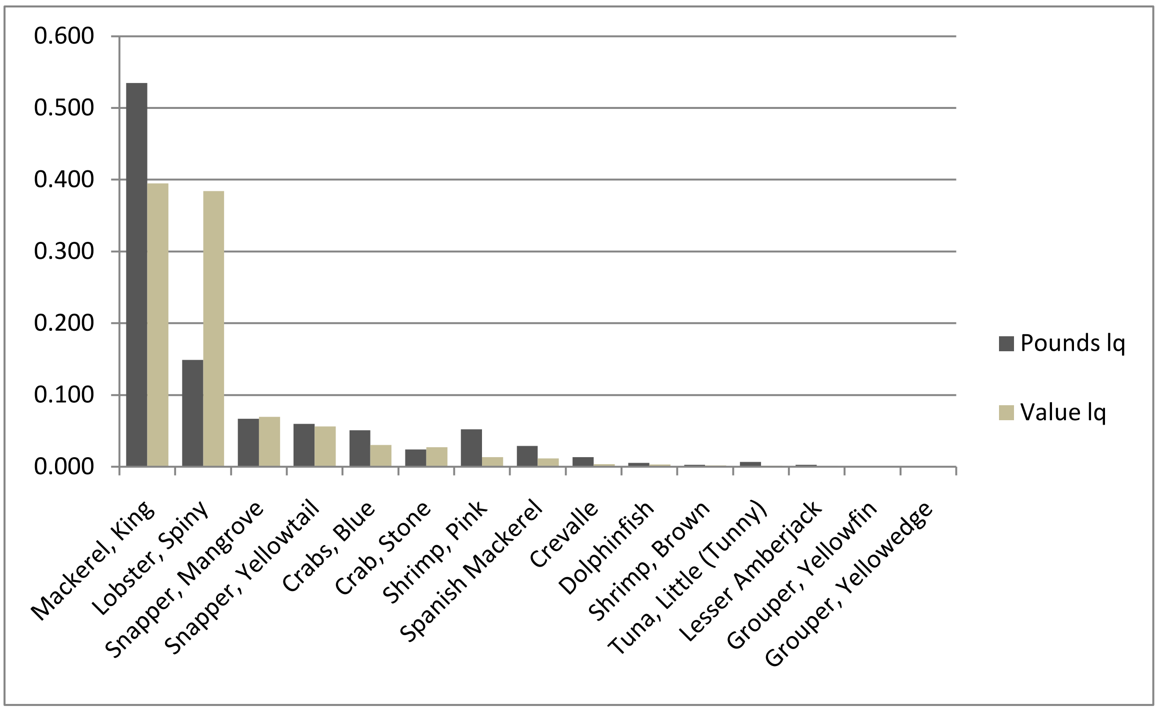


Figure 3.3.5.8. The top fifteen species in terms of proportion (lq) of total landings and value for Hialeah, Florida.
Source: ALS 2008

King Mackerel leads all species with over 50% of landed value and near 40% of landings in Hialeah in Figure 3.3.5.8. Spanish mackerel is well back with less than 5% of landings and value within the community.

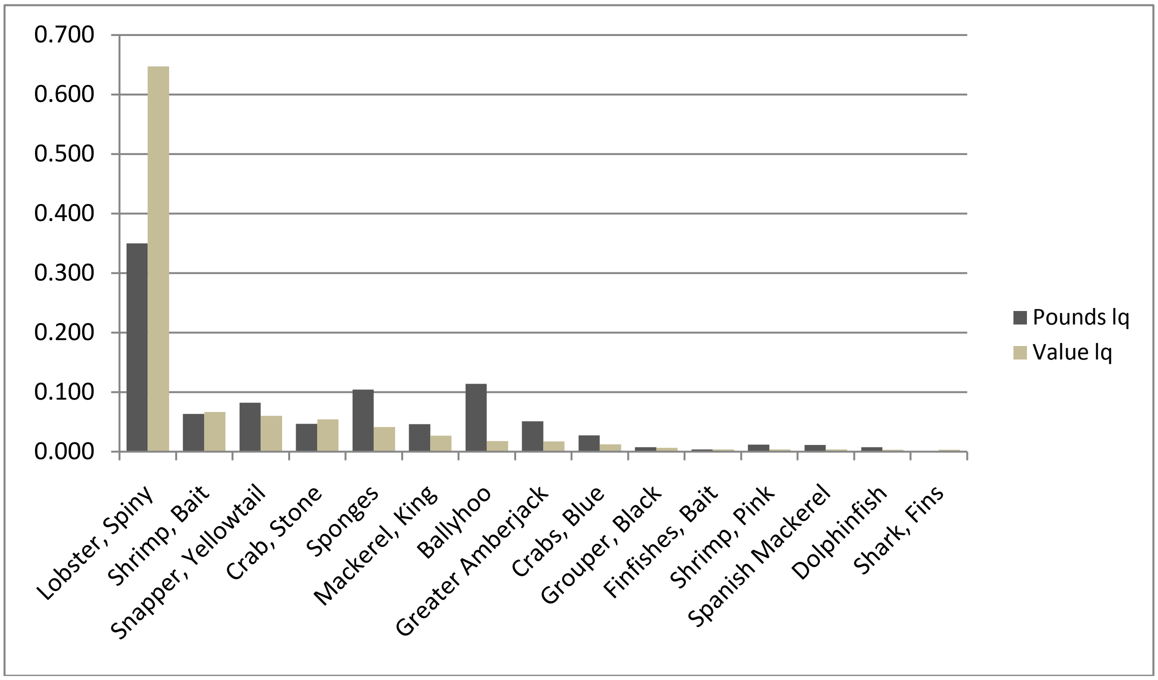


Figure 3.3.5.9. The top fifteen species in terms of proportion (lq) of total landings and value for Miami, Florida.
Source: ALS 2008.

King mackerel landings for Miami are just below 5% as is the value for the species in Figure 3.3.5.9. Spanish mackerel are below 3% in terms of overall landings and value for the community.

Georgia Counties

Figure 3.3.5.10. The Social Vulnerability Index applied to Georgia Coastal Counties.

There were two counties in Georgia with medium high vulnerability and those were Liberty and Chatham (Figure 3.3.5.10). The fishing communities located in those counties are Savannah, Thunderbolt, Tybee Island and Skidaway Island in Chatham and Midway in Liberty County.

Georgia had no communities with landings or value over 3% for any coastal pelagic. While there were no substantial commercial landings within the state, the recreational fishery may be important. However, it is unfeasible to place recreational landings at the community level. Recreational fishing communities in the state are listed above in Table 3.3.2.1.

South Carolina Counties

Coastal South Carolina had no counties that were either medium or highly vulnerable (Figure 3.3.5.11). This does not mean that communities could not be vulnerable to adverse impacts because of regulatory action. It may suggest that coastal South Carolina is more resilient and capable of absorbing such impacts without substantial social disruption. South Carolina had no communities with landings or value over 3% for any coastal pelagic. While there were no substantial commercial landings within the state, the recreational fishery may be important. However, it is unfeasible to place recreational landings at the community level. Recreational fishing communities in the state are listed above in Table 3.3.2.1.

Figure 3.3.5.11. The Social Vulnerability Index applied to South Carolina Coastal Counties.

Murrells Inlet, South Carolina had landings of less than 5% of cobia landings and value and was listed as one of the top fifteen communities, yet cobia was less than 1% of total landings or value for the

North Carolina Counties

There are a number of North Carolina counties classified as being either medium high or high on the social vulnerability scale and within those counties there are numerous fishing communities (Figure 3.3.5.12). Those counties that are considered to be either medium high or high on the SoVI are: New Hanover, Onslow, Carteret, Washington, Bertie, Chowan, Pasquotank, Perquimans.

Figure 3.3.5.12. The Social Vulnerability Index applied to North Carolina Coastal Counties.

Table 3.3.5.3. Marine Related Employment for 2007 in North Carolina Coastal Counties. Source: Census Bureau 2010.

County	Brunswick		Dare		Hyde		New Hanover		Pamlico		Pender	
Sector	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp
Boat Dealers	7	.	3	.	.	.	19	.	.	.	.	.
Seafood Dealers	.	28	.	.	.	.	.	.	.	.	.	.
Seafood Harvesters	240	.	488	.	136	.	151	.	130	.	67	.
Seafood Retail	12	12	9	14	.	5	.	34	.	.	3	3
Marinas	.	24	.	37	.	3	.	74	.	12	.	4
Processors	.	29	.	.	.	56	.	.	.	55	.	.
Scenic Water	.	13	.	31	.	2	.	28	.	.	.	.
Ship Boat Builders	.	295	.	392	.	.	.	43	.	14	.	16
Shipping Support	.	11	.	2	.	.	.	367	.	15	.	15
Shipping	.	67	.	.	.	.	.	6	.	.	.	.

Table 3.3.5.3 shows the marine related employment for those counties with substantial commercial landings of coastal pelagics in North Carolina. All of the counties below have seafood harvesters listed as sole proprietors, all but Pender with over one hundred. Dare County has the most with close to 500 seafood harvesters. Brunswick, Dare, Hyde and New Hanover all have employment in scenic water category which includes charter fishing.

Brunswick County

Brunswick County had a total population of 73,141 in 2000 that is estimated to have grown to 98,667 by 2007. Population density was 86 persons per square mile in 2000 and has grown to 117 persons in 2007. The majority of county residents were White (71.6%) and the Hispanic population was 3.8% in 2007. The percent of population that identified themselves as White alone was 82.1% with 12.7% of the population Black. North Carolina as a state had an estimated 71.6% White population and Hispanics made up 7.0% of its total population and 22% of persons were Black. The White alone population for the state was estimated to be 67.5% in 2007. The median age for residents of Brunswick County was estimated to have been 41.0, so Brunswick County’s median age is older than the State’s 36.8. Median household income for 2007 was estimated to be $45,596, lower than that for the state which was $46,107. There was an estimated 4.9% of the population in the civilian force that was estimated to be unemployed in Brunswick County, which was just slightly higher than the State’s unemployment rate of 4.3%. The percentage of persons below the poverty level was estimated at 12.4% which was lower than the 14.6% for the state as a whole during 2007. Brunswick County had a lower owner occupied housing rate than the state with 60.1% compared to the State’s 85.5% estimated for 2007 (U.S. Census Bureau).

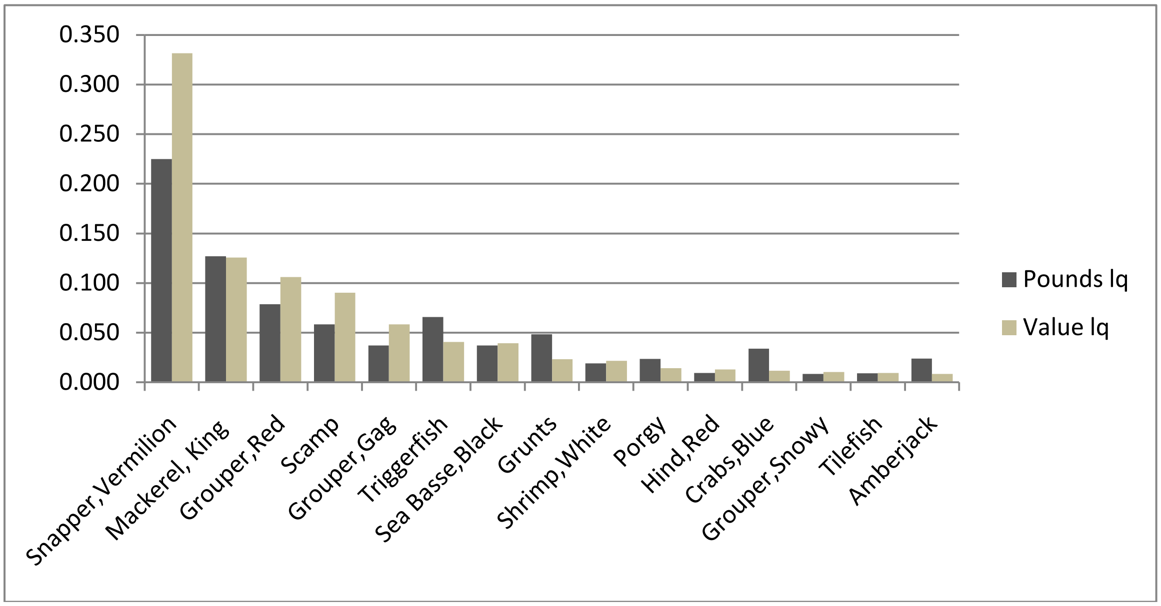


Figure 3.3.5.13. The top fifteen species in terms of proportion (lq) of total landings and value for Southport, North Carolina.

The community of Southport derives over 10% of landings and value from king mackerel out of total landings for the community. There were no other coastal pelagics were in the top fifteen species landed as shown in Figure 3.3.5.13.

Dare County

Dare County had a total population of 29,967 in 2000 that is estimated to have grown to 33,677 by 2007. Population density was 78 persons per square mile in 2000 and has grown to 88 persons in 2007. The majority of county residents were White (95.1%) and the Hispanic population was 0.0% in 2007. The percent of population that identified themselves as White alone was 95.1% with 3.1% of the population Black. North Carolina as a state had an estimated 71.0% White population and Hispanics made up 7.0% of its total population and 22% of persons were Black. The White alone population for the state was estimated to be 67.5% in 2007. The median age for residents of Dare County was estimated to have been 42.4, so Dare County's median age is somewhat older than the State's 36.8. Median household income for 2007 was estimated to be $54,594, higher than that for the state which was $46,107. There was an estimated 3.3% of the population in the civilian force that was estimated to be unemployed in Dare County, which was lower than the State's unemployment rate of 4.3%. The percentage of persons below the poverty level was estimated at 9.2% which was lower than the 14.6% for the state as a whole during 2007. Dare County had a much lower owner occupied housing rate than the state with 48.5% compared to the State's 85.5% estimated for 2007 (U.S. Census Bureau).

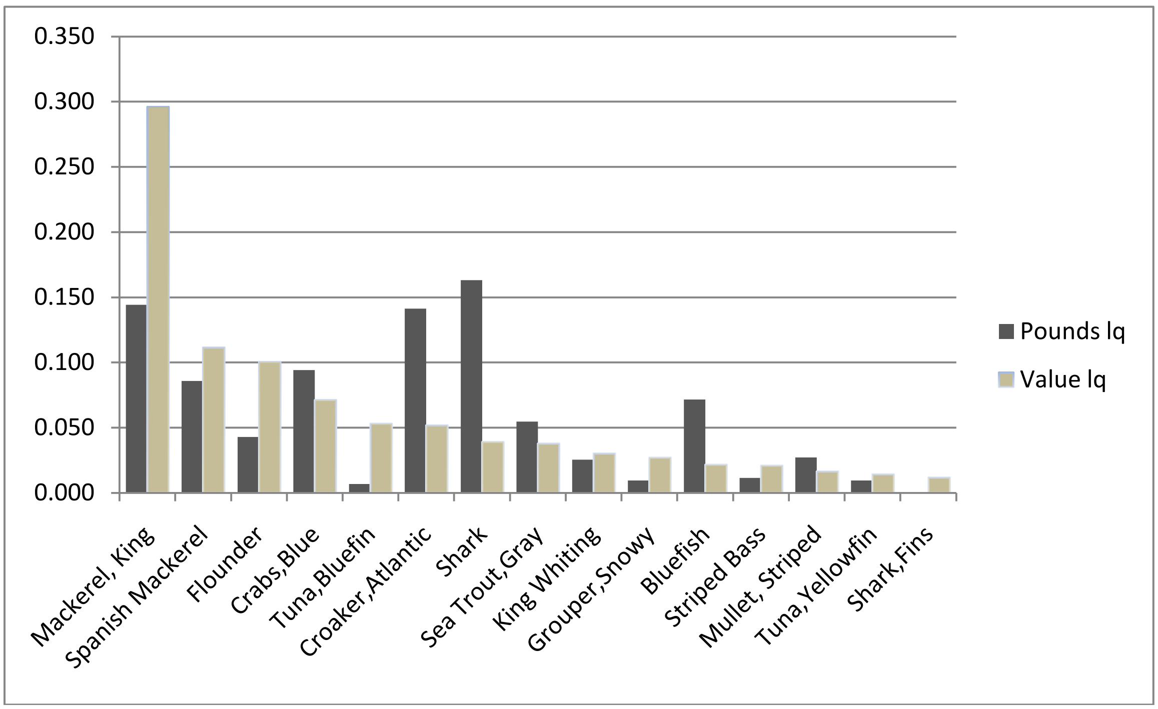


Figure 3.3.5.14. The top fifteen species in terms of proportion (lq) of total landings and value for Hatteras, North Carolina.
Source: ALS 2008.

Hyde County

Hyde County has a smaller population base than the other coastal counties in North Carolina, which prevents the county from census estimated updates as only populations greater than 65,000 are updated at this time. Ocracoke and Swan Quarter were the only communities identified as being either primarily or secondarily involved in fishing within Hyde County.

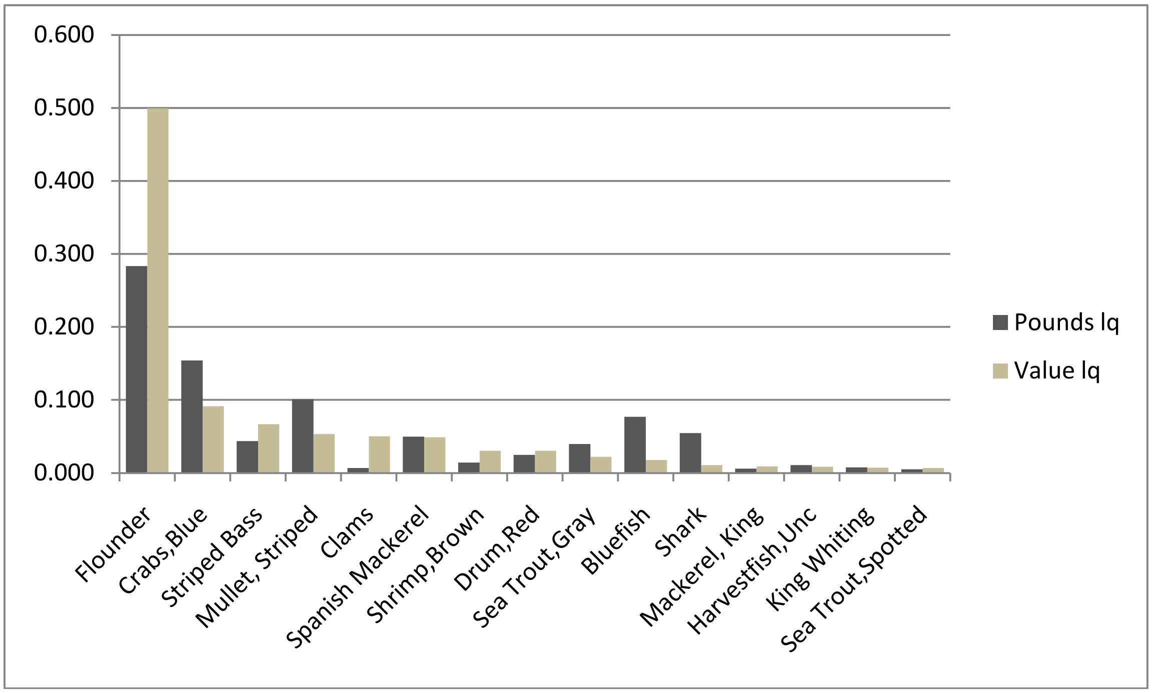


Figure 3.3.5.15. The top fifteen species in terms of proportion (lq) of total landings and value for Ocracoke, North Carolina.
Source: ALS 2008

Ocracoke was the only community in Hyde County with coastal pelagic landings over 3% and that was Spanish mackerel which was close to 5% of total landings and value for the community. King mackerel landings were less than 1% in the community as was landed value as shown in Figure 3.3.5.15.

New Hanover County

New Hanover County had a total population of 160,327 in 2000 that is estimated to have grown to 189,860 by 2007. Population density was 835 persons per square mile in 2000 and has grown to 994 persons in 2007. The majority of county residents were White (80.7%) and the Hispanic population was 3.3% in 2007. The percent of population that identified themselves as White alone was 78.4% with 16.2% of the population Black. North Carolina as a state had an estimated 71.6% White population and Hispanics made up 7.0% of its total population and 22% of persons were Black. The White alone population for the state was estimated to be 67.5% in 2007. The median age for residents of New Hanover County was estimated to have been 37.4, so New Hanover County's median age is just slightly older than the State's 36.8. Median household income for 2007 was estimated to be $49,068, higher than that for the state which was $46,107. There was an estimated 3.6% of the population in the civilian force that was estimated to be unemployed in New Hanover County, which was just lower than the State's unemployment rate of 4.3%. The percentage of persons below the poverty level was estimated at 13.9% which was lower than the 14.6% for the state as a whole during 2007. New Hanover County had a slightly lower owner occupied housing rate than the state with 84.1% compared to the State's 85.5% estimated for 2007 (U.S. Census Bureau).

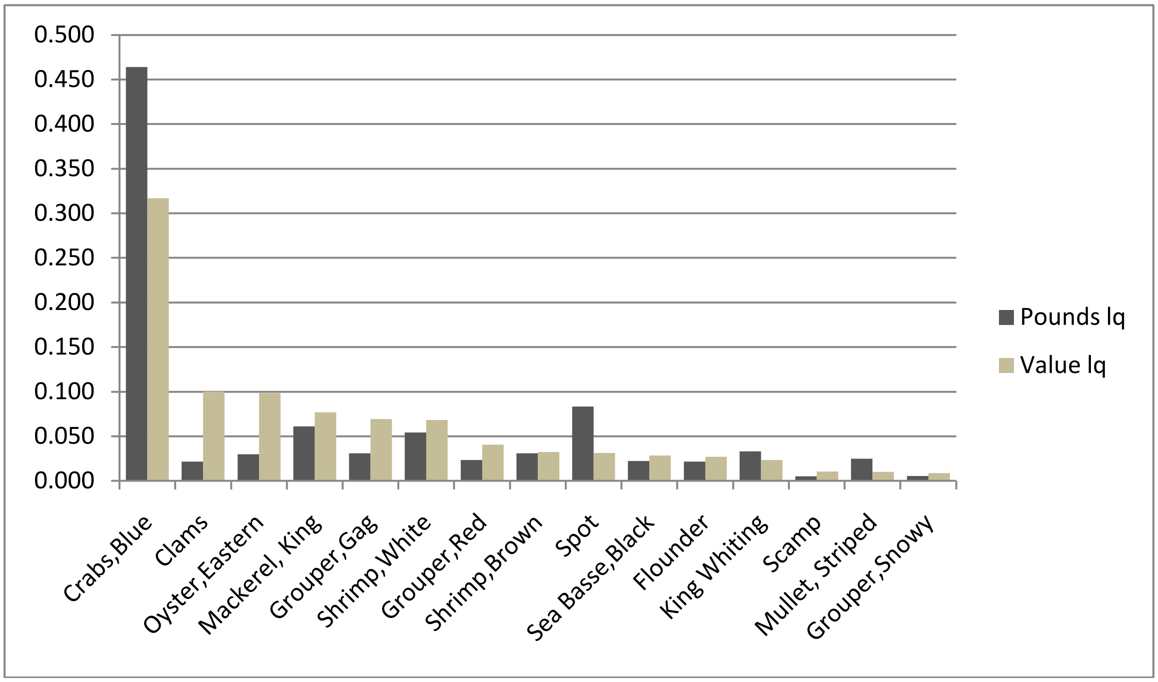


Figure 3.3.5.16. The top fifteen species in terms of proportion (lq) of total landings and value for Wilmington, North Carolina.
Source: ALS 2008

Of those fishing communities in New Hanover County, Wilmington and Carolina Beach were the only communities with coastal pelagic landings and value over 3%. In Figure 3.3.5.16 King mackerel shows over 5% of landings and landed value out of total landings for the Wilmington community. For Carolina Beach, king mackerel represents almost 20% of value of total landings and approximately 18% of landings overall (Figure 3.3.5.17).

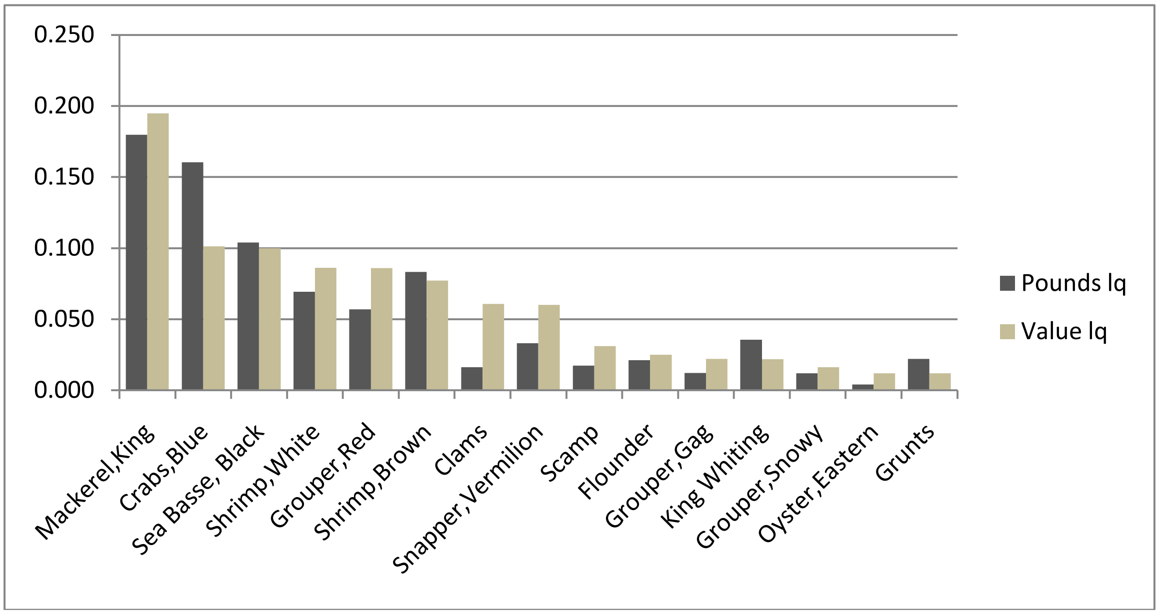


Figure 3.3.5.17. The top fifteen species in terms of proportion (lq) of total landings and value for Carolina Beach, North Carolina.
Source: ALS 2008

Pender County

Pender County had a total population of 41,082 in 2000 that is estimated to have grown to 49,600 by 2007. Population density was 47 persons per square mile in 2000 and has grown to 57 persons in 2007. The majority of county residents were White (77.0%) and the Hispanic population was 5.0% in 2007. The percent of population that identified themselves as White alone was 74.2% with 20.1% of the population Black. North Carolina as a state had an estimated 71.6% White population and Hispanics made up 7.0% of its total population and 22% of persons were Black. The White alone population for the state was estimated to be 67.5% in 2007. The median age for residents of Pender County was estimated to have been 39.3, so Pender County's median age is just older than the State's 36.8. Median household income for 2007 was estimated to be $42,630, lower than that for the state which was $46,107. There was an estimated 3.6% of the population in the civilian force that was estimated to be unemployed in Pender County, which was lower than the State's unemployment rate of 4.3%. The percentage of persons below the poverty level was estimated at 11.4% which was lower than the 14.6% for the state as a whole during 2007. Pender County had a slightly lower owner occupied housing rate than the state with 76.6% compared to the State's 85.5% estimated for 2007 (U.S. Census Bureau).

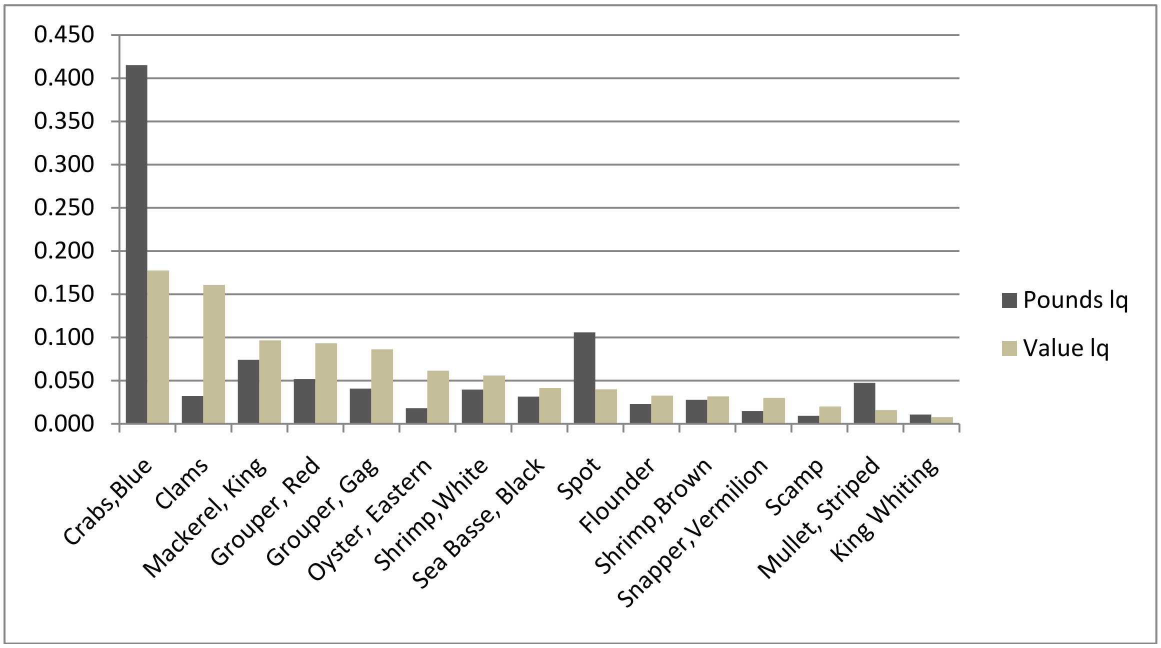


Figure 3.3.5.18. The top fifteen species in terms of proportion (lq) of total landings and value for Hampstead, North Carolina.
Source: ALS 2008.

Hampstead had king mackerel landings close to 7% of total landings and a value close to 10% according to Figure 3.3.5.18. There were no other coastal pelagics within the top fifteen species landed within the community.

3.3.6 Gulf Communities

Florida Gulf Counties

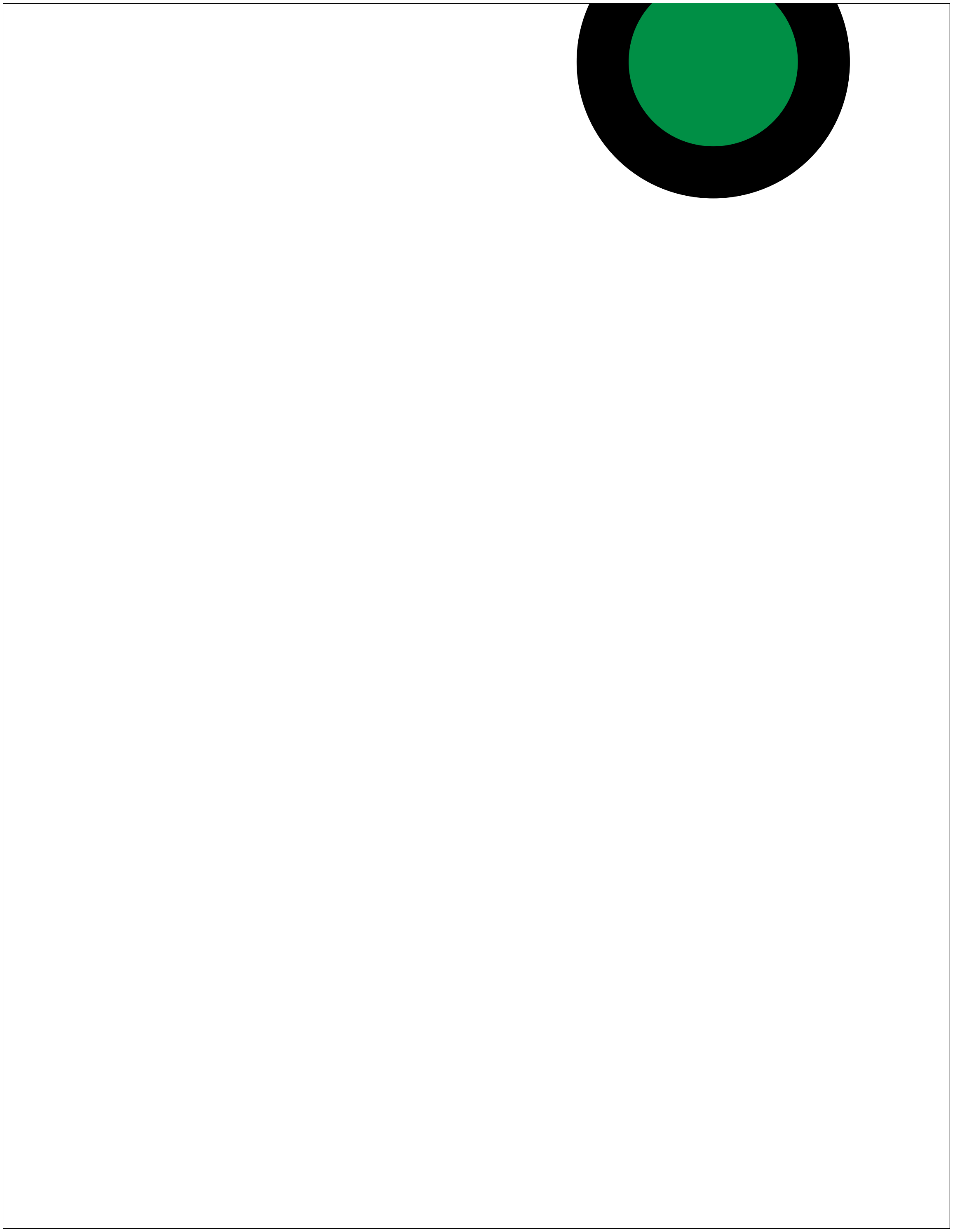


Figure 3.3.6.1. The Social Vulnerability Index applied to Florida Gulf Coastal Counties.

The majority of Florida Gulf coast counties that are classified as being vulnerable in Figure 3.3.6.1 are located along the Central west coast. The counties of Citrus, Pinellas, Hillsborough, Manatee, Sarasota, and Charlotte are all within either the medium high to high vulnerability categories. The fishing communities included within these counties are: Crystal River, Homosassa, Spring Hill, Hudson, Tarpon Springs, Indian Shores, Clearwater, Madeira Beach, Redington Shores, Tampa, Ruskin, Cortez, Englewood, Punta Gorda, Fort Myers, Ft. Myers Beach and Saint James City.

Table 3.3.6.1. Marine Related Employment for 2007 in Florida Gulf Coastal Counties. Source: Census Bureau 2010.

County	Okaloosa County		Bay County		Hernando County		Pinellas County		Lee County		Monroe County	
Sector	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp
Boat Dealers	9	.	6	.	.	.	.	.	62	.	.	.
Seafood Dealers	.	6	.	24	.	2	.	3	.	35	.	112
Seafood Harvesters	146	.	219	.	60	.	104	.	322	.	934	.
Seafood Retail	4	16	9	55	.	7	3	5	8	50	7	7
Marinas	.	103	.	47	.	13	.	31	.	291	.	191
Processors	.	.	5	.	.	.	6	.	.	7	0	.
Scenic Water	.	75	.	70	.	.	.	.	.	154	.	315
Ship Boat Builders	.	2	.	927	.	.	.	.	.	125	.	17
Shipping Support	.	4	.	25	.	.	.	.	.	33	.	67
Shipping	..	3	.	165	.	.	.	.	..	6	.	35

All of the listed counties in Table 3.3.6.1 have substantial employment in the seafood harvester sector. Several also have numerous persons employed in the scenic water sector which includes charter fishing. Monroe County has the most in both categories with over 900 harvesters and over 300 in the scenic water sector.

Okaloosa County

Okaloosa County had a total population of 170,497 in 2000 that is estimated to have grown to 181,205 by 2007. Population density was 163 persons per square mile in 2000 and has grown to 195 persons in 2007. The majority of county residents were White (85.1%) and the Hispanic population was 5.7 % in 2007. The percent of population that identified themselves as White alone was 78.3% with 10.8% of the population Black. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population and 16% of persons were Black. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Okaloosa County was estimated to have been 39.0, so Okaloosa County's median age is slightly younger than the State's 40.1 as a whole. Median household income for

2007 was estimated to be $57,111, greater than that for the state which was $48,637. There was an estimated 4.4% of the population in the civilian force that was estimated to be unemployed in Okaloosa County, which was lower than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 8.9% which was also lower than the 12.6% for the state as a whole during 2007. Okaloosa County had a lower owner occupied housing rate than the state with 67.4% of owner occupied housing compared to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

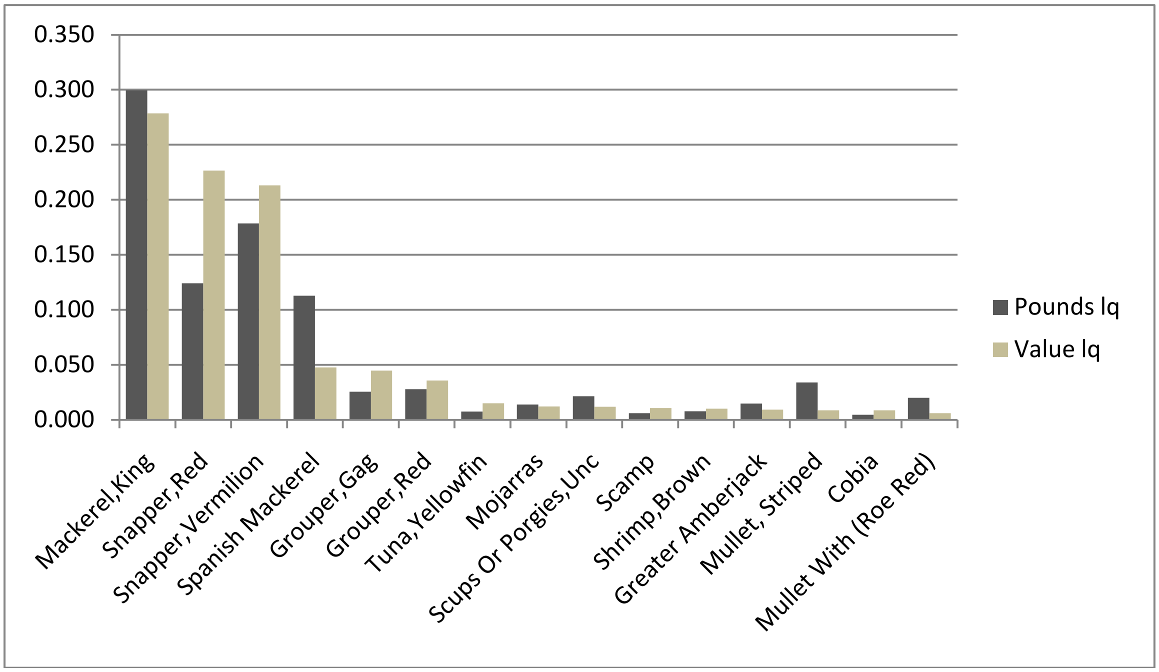


Figure 3.3.6.2. The top fifteen species in terms of proportion (lq) of total landings and value for Destin, Florida.
Source: ALS 2008

The community of Destin is by far the leader in terms of Gulf communities with regard to coastal pelagic landings and value. King mackerel leads all other species landed within the community with 30% of landings and over 27% of landed value for all species. Spanish mackerel is fourth in terms both landings and value making those two species close to 50% of landings overall in Figure 3.3.6.2.

Bay County

Bay County had a total population of 148,218 in 2000 that is estimated to have grown to 163,805 by 2007. Population density was 196 persons per square mile in 2000 and has grown to 216 persons in 2007. The majority of county residents were White (85.4%) and the Hispanic population was 3.5 % in 2007. The percent of population that identified themselves as White alone was 80.4% with 12% of the population Black. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population and 16% of persons were Black. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Bay County was estimated to have been 39.4, so Bay County's median age is slightly younger than the State's 40.1 as a whole. Median household income for 2007 was estimated to be $48,516, almost equal to that for the state which was $48,637. There was an estimated 5.6 % of the population in the civilian force that was estimated to be unemployed in Bay County, which was lower than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 11.7% which was lower than the 12.6% for the state as a whole during 2007. Bay County had a lower owner occupied housing rate than the state with 66.2% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

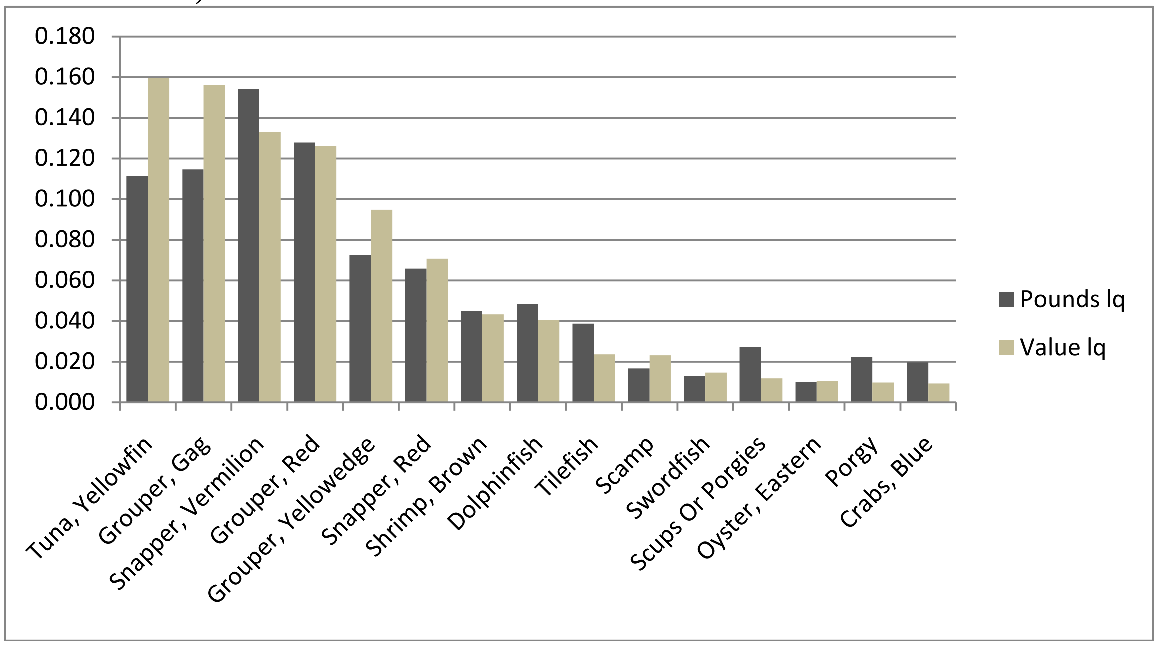


Figure 3.3.6.3. The top fifteen species in terms of proportion (lq) of total landings and value for Panama City, Florida.

Panama City landings and value are not dominated by any particular species as shown in Figure 3.3.6.3, and no coastal pelagic contributes more than 4%. Dolphinfish is the only coastal pelagic that is landed with any substantive number with both landings and value around 4%.

Hernando County

Hernando County had a total population of 130,802 in 2000 that is estimated to have grown to 167,905 by 2007. Population density was 276 persons per square mile in 2000 and has grown to 358 persons in 2007. The majority of county residents were White (92.2%) and the Hispanic population was 8.7 % in 2007. The percent of population that identified themselves as White alone was 83.8% with 5.4% of the population Black. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population and 16% of persons were Black. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Hernando County was estimated to have been 44.8, so Hernando County's median age is older than the State's 40.1 as a whole. Median household income for 2007 was estimated to be $42,206, less than that for the state which was $48,637. There was an estimated 9.3% of the population in the civilian force that was estimated to be unemployed in Hernando County, which was higher than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 11.1% which was lower than the 12.6% for the state as a whole during 2007. Hernando County had a higher owner occupied housing rate than the state with 84.9% compared to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

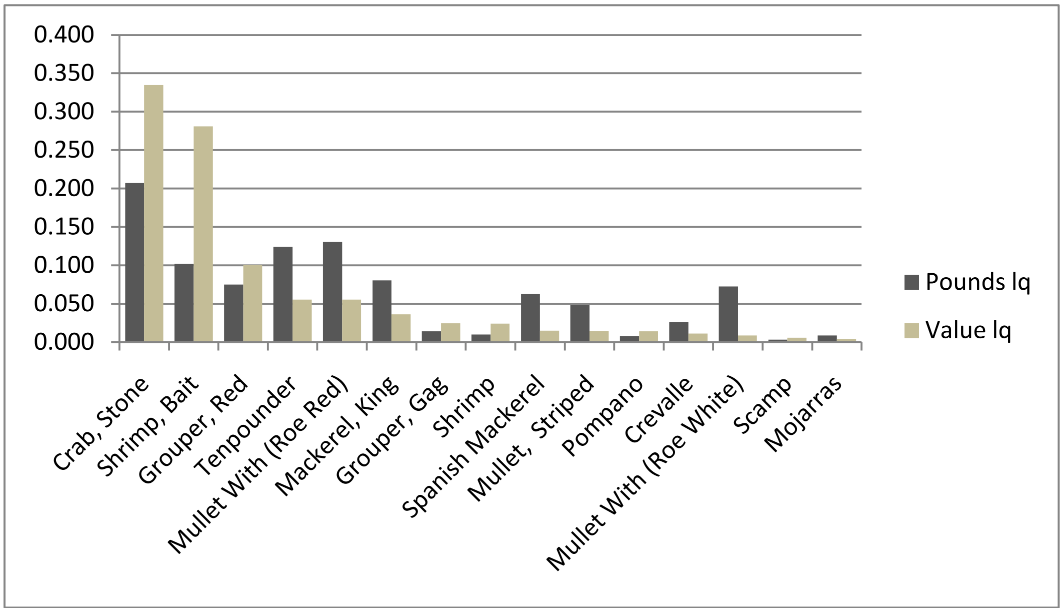


Figure 3.3.6.4. The top fifteen species in terms of proportion of total landings and value (lq) for Spring Hill, Florida.
Source: ALS 2008

Within Hernando County, Spring Hill is the only community with landings of coastal pelagic that are greater than 3%. King mackerel landings are over 7% of total landings for the community, but value is around 4% according to Figure 3.3.6.4.

Pinellas County

Pinellas County had a total population of 921,495 in 2000 that is estimated to have contracted to 915,079 by 2007. Population density was 3363 persons per square mile in 2000 and has lessened to 3350 persons in 2007; still highest density in the state. The majority of county residents were White (85.5%) and the Hispanic population was 6.9 % in 2007. The percent of population that identified themselves as White alone was 78.7% with 10.7% of the population Black. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population and 16% of persons were Black. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Pinellas County was estimated to have been 45.2, so Pinellas County's median age is older than the State's 40.1 as a whole. Median household income for 2007 was estimated to be $45,650, less than that for the state which was $48,637. There was an estimated 5.4% of the population in the civilian force that was estimated to be unemployed in Pinellas County, which was lower than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 11.2% which was lower than the 12.6% for the state as a whole during 2007. Pinellas County had a slightly higher owner occupied housing rate than the state with 71.0% compared to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

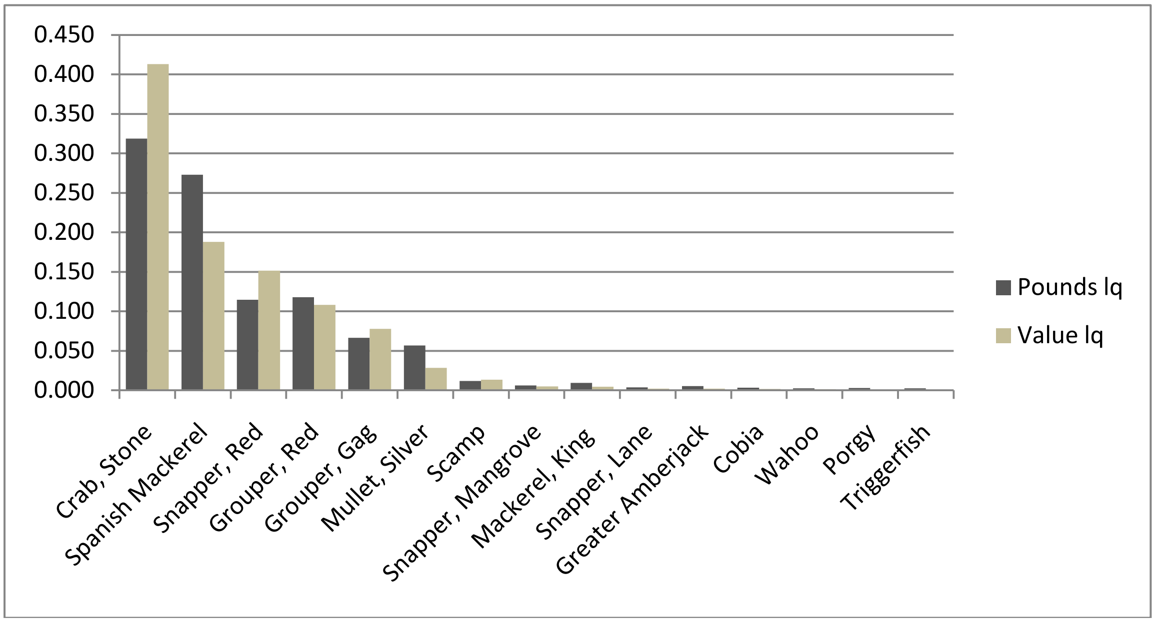


Figure 3.3.6.5. The top fifteen species in terms of proportion of total landings and value (lq) for Dunedin, Florida.
Source: ALS 2008

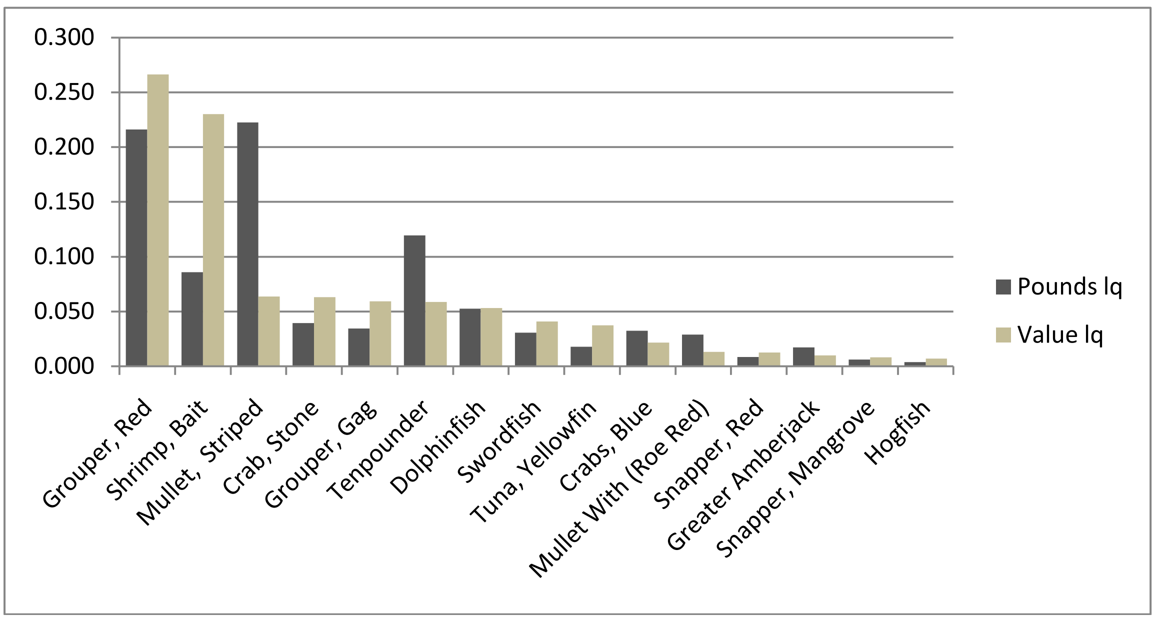


Figure 3.3.6.6. The top fifteen species in terms of proportion of total landings and value (lq) for St. Petersburg, Florida.
Source: ALS 2008

Of the two communities in Pinellas County with substantive landings of coastal pelagics, Dunedin has a much higher percentage with over 25% of its total landings coming from Spanish mackerel with a value of almost 20% out of all landings in Figure 3.3.6.5. King mackerel was well behind in both with less than 1% landings and value. St. Petersburg had landings and value of dolphinfish both at 5% from Figure 3.3.6.6.

Lee County

Lee County had a total population of 440,888 in 2000 that is estimated to have grown to 583,184 by 2007. Population density for the county grew significantly over the past few decades with 127 persons per square mile in 1970 to just over 532 persons per square mile in 2000 (NOAA Spatial Patterns of Socioeconomic Data 1970 to 2000 and the U.S. Census Bureau). Lee County was in the top 60 fastest growing counties last year and has been ranked much higher in terms of growth in the past. The majority of residents were identified a White (91.4%) in 1990 and that percentage was estimated to have dropped to 85.7% in 2007. The Hispanic population has more than tripled from the 1990s with 16.8% of the population in 2007. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Lee County was estimated to have been 42.7, so Lee County's median age is slightly older than the state as a whole. Median household income for 2007 was estimated to be $49,742, higher than that for the state which was $48,637. There was an estimated 6.5 % of the population in the civilian force that was estimated to be unemployed in Lee County, which was almost equal to the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 9.6% which was below the 12.6% for the state as a whole during 2007. Lee County had a slightly higher owner occupied housing rate than the state with 74.9% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

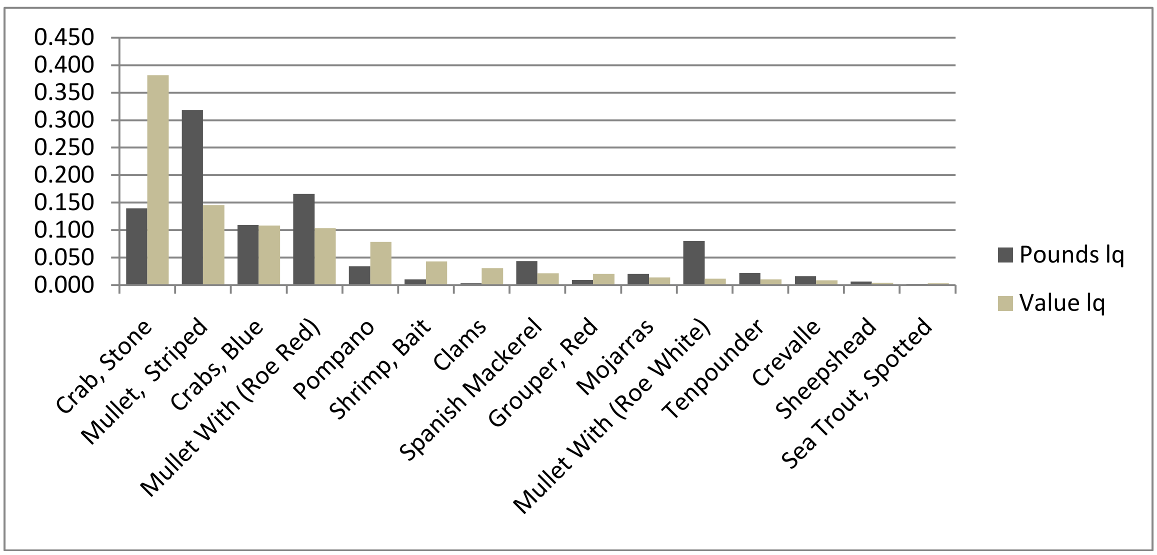


Figure 3.3.6.7. The top fifteen species in terms of proportion of total landings and value (lq) for St. James City, Florida.

Source: ALS 2008

St. James City had Spanish mackerel landings of just under 5% with its value below 3% out of total landings for the community as shown in Figure 3.3.6.7.

Monroe County

Monroe County had a total population of 79,589 in 2000 that is estimated to have fallen to 74,397 by 2007. The majority of residents were identified a White (92.0%) in 2000 and was estimated to have dropped slightly to 90.4% in 2007. The Hispanic population has grown from 16.0 % in 2000 to 18.0% in 2007. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Monroe County was estimated to have been 47.2 which is slightly higher than it was in 2000 when it was 43.0. The median age for the State of Florida was 38.7 in 2000 and was estimated to have increased to 40.1 by 2007 so Monroe County's median age is considerably older than the state as a whole. There was an estimated 2.8 % of the population in the civilian force that was estimated to be unemployed in Monroe County, which was quite a bit lower than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 10.1% which was below the 12.6% for the state as a whole during 2007. Monroe County had a slightly higher owner occupied housing rate than the state with slightly over 71.2% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

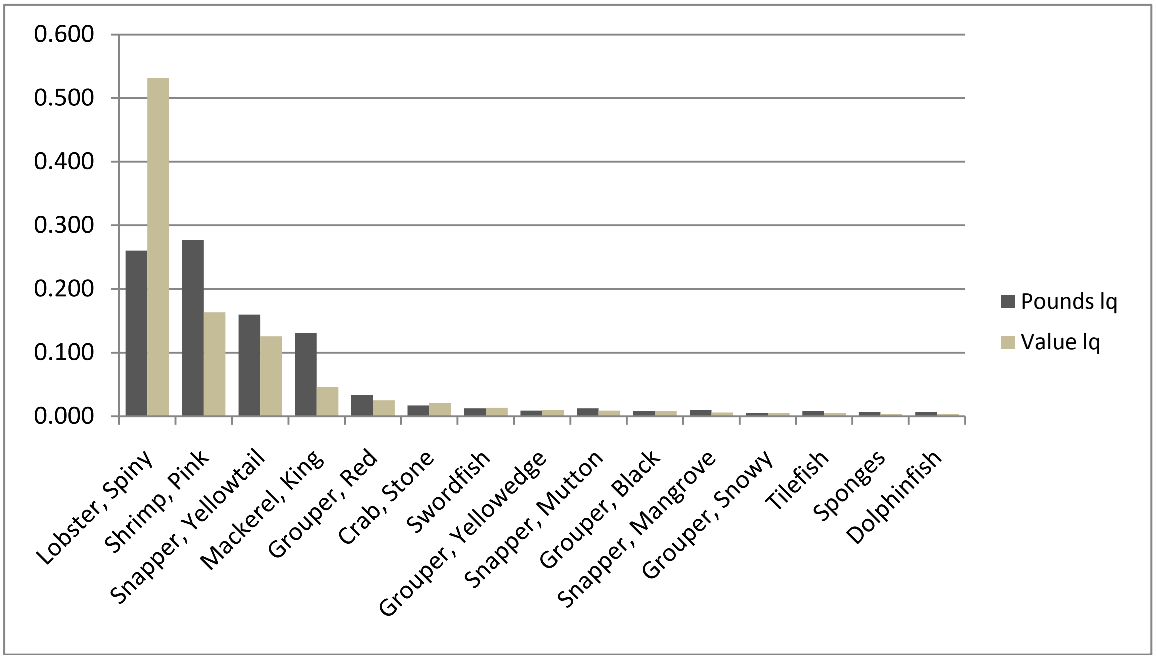


Figure 3.3.6.8. The top fifteen species in terms of proportion of total landings and value (lq) for Key West, Florida.
Source: ALS 2008

Two communities in Monroe County had coastal pelagic landings that made up more than 3% of total landings. Key West had king mackerel landings of over 10% according to Figure 3.3.6.8, but a value of less than 5%. Dolphinfish were less than 1% of both landings and value for Key West. Islamorada had dolphinfish with over 5% of landings and near that for value. King mackerel landings were less than 3% of landings and less than 1% of value for the community in Figure 3.3.6.9.

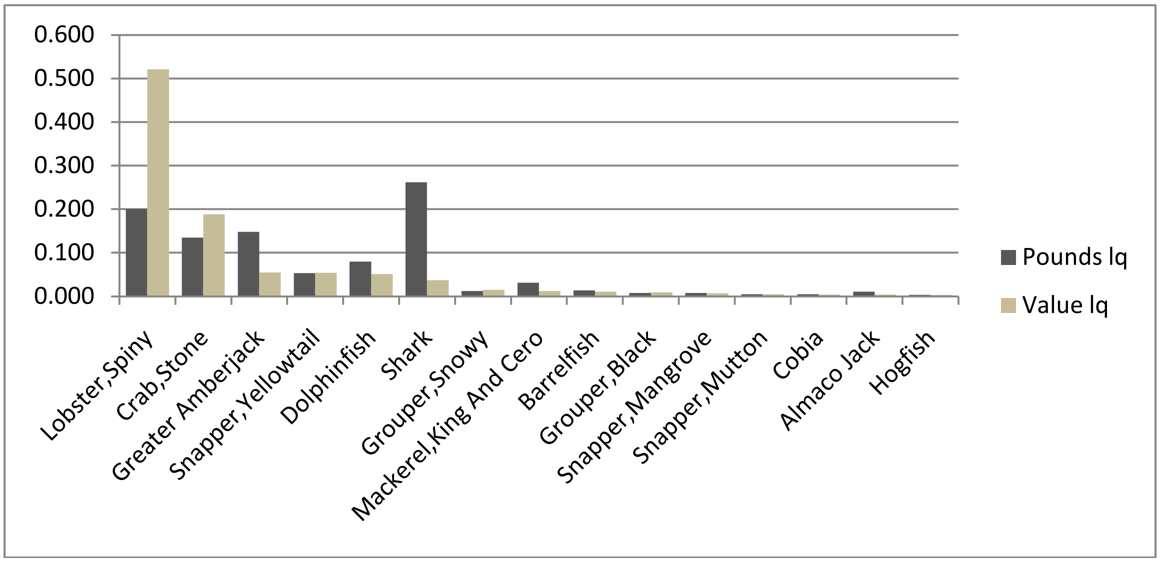


Figure 3.3.6.9. The top fifteen species in terms of proportion of total landings and value (lq) for Islamorada, Florida.
Source: ALS 2008

Mississippi-Alabama Counties

Figure 3.3.6.10. The Social Vulnerability Index applied to Mississippi-Alabama Coastal Counties.

Table 3.3.6.2. Marine Related Employment for 2007 in Alabama Coastal Counties. Source: Census Bureau 2010.

County	Baldwin		Mobile	
Sector	# Prop	# Emp	# Prop	# Emp
Boat Dealers	10		11	
Seafood Dealers		5		338
Seafood Harvesters			500	
Seafood Retail		32		58
Marinas		130		34
Processors		170		407
Scenic Water		42		5
Ship Boat Builders		15		3418
Shipping Support		16		1073
Shipping		3		98

While Mississippi had no counties with medium or high vulnerability, Mobile County in Alabama was rated as having medium high vulnerability (Figure 3.3.6.10). There are several fishing communities located in the county including: Bayou LaBatre, Coden, Grand Bay, Irvington and Theodore. Dauphin Island is also located within the county but is more known for its recreational fishing as it holds a well-known recreational fishing tournament each year.

Mobile has numerous seafood harvesters employed as sole proprietors with 500 listed in Table 3.3.6.2. Seafood dealers and processors also employ well over 700 within the county with boat building also a major activity. Baldwin County has more employed in Marinas with 130 persons, but does have 170 persons employed in processing of seafood.

Mobile County

Mobile County had a total population of 399,848 in 2000 that is estimated to have grown to 404,012 by 2007. Population density was 325 persons per square mile in 2000 and has grown to 329 persons in 2007. The majority of county residents were White (62.8%) and the Hispanic population was 1.8% in 2007. The percent of population that identified themselves as White alone was 60.6% with 34.5% of the population Black. Alabama as a state had an estimated 71.4% White population and Hispanics made up 2.7% of its total population and 26.7% of persons were Black. The White alone population for the state was estimated to be 68.7% in 2007. The median age for residents of Mobile County was estimated to have been 36.0, so Mobile County's median age is younger than the State's 37.3. Median household income for 2007 was estimated to be $54,729, lower than that for the state which was $57,597. There was an estimated 4.4% of the population in the civilian force that was estimated to be unemployed in Mobile County, which was slightly higher than the State's unemployment rate of 4.1%. The percentage of persons below the poverty level was estimated at 19.4% which was higher than the 16.3% for the state as a whole during 2007. Mobile County had a lower owner occupied housing rate than the state with 68.9% compared to the State's 71.3% estimated for 2007 (U.S. Census Bureau).

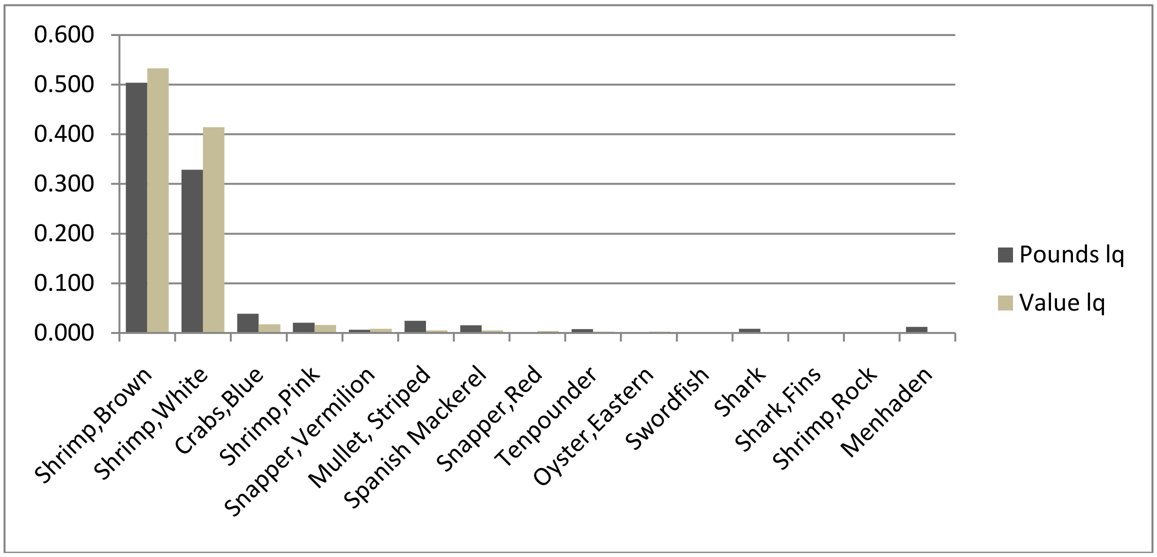


Figure 3.3.6.11. The top fifteen species in terms of proportion of total landings and value (lq) for Bayou LaBatre, Alabama.
Source: ALS 2008

Baldwin County

Baldwin County had a total population of 140,415 in 2000 that is estimated to have grown to 171,447 by 2007. Population density was 88 persons per square mile in 2000 and has grown to 108 persons in 2007. The majority of county residents were White (87.3%) and the Hispanic population was 2.7% in 2007. The percent of population that identified themselves as White alone was 85.2% with 10.3% of the population Black. Alabama as a state had an estimated 71.43% White population and Hispanics made up 2.7% of its total population and 26.7% of persons were Black. The White alone population for the state was estimated to be 68.7% in 2007. The median age for residents of Baldwin County was estimated to have been 39.2, so Baldwin County's median age is higher than the State's 37.3. Median household income for 2007 was estimated to be $66,189, higher than that for the state which was $57,597. There was an estimated 2.6% of the population in the civilian force that was estimated to be unemployed in Baldwin County, which was lower than the State's unemployment rate of 4.1%. The percentage of persons below the poverty level was estimated at 10.3% which was lower than the 16.3% for the state as a whole during 2007. Baldwin County had a higher owner occupied housing rate than the state with 75.9% compared to the State's 71.3% estimated for 2007 (U.S. Census Bureau).

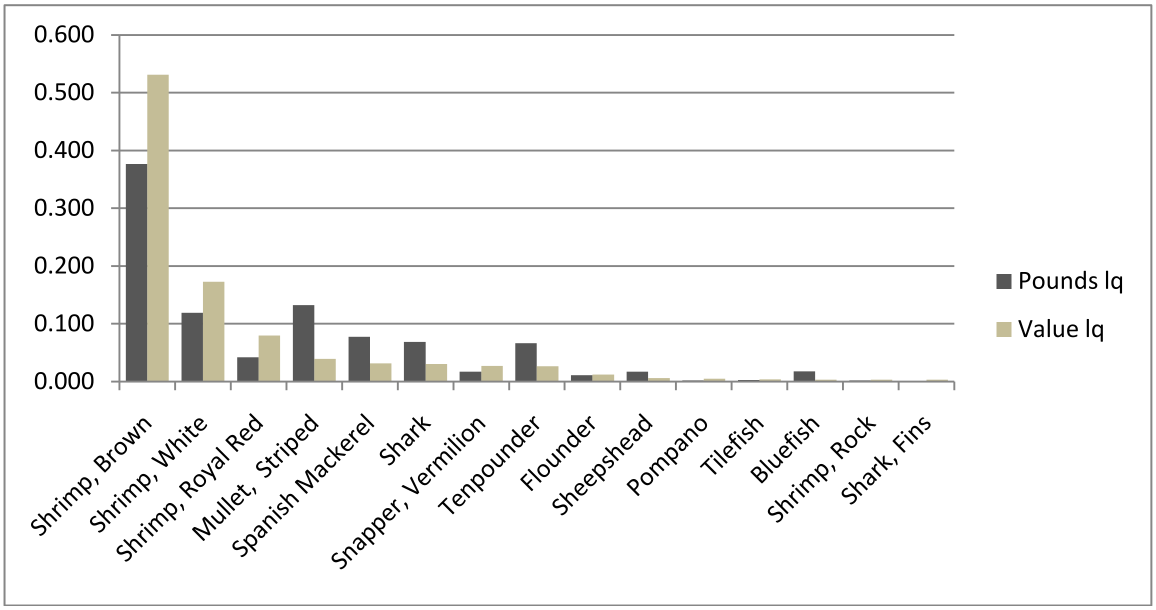


Figure 3.3.6.12. The top fifteen species in terms of proportion of total landings and value (lq) for Bon Secour, Alabama.
Source: ALS 2008

Bon Secour had landings of Spanish mackerel in the range of 8% of total landings with a value far less, near 3%. Shrimp dominate the landings for this community as shown in Figure 3.3.6.12.

Table 3.3.6.3. Marine Related Employment for 2007 in Mississippi Coastal Counties.
Source: Census Bureau 2010.

County	Hancock		Harrison		Jackson	
Sector	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp
Boat Dealers	.	.	.	.	.	.
Seafood Dealers	.	22	.	46	.	20
Seafood Harvesters	70	.	316	.	264	.
Seafood Retail	4	.	10	3	.	12
Marinas	.	2	.	31	.	17
Processors	.	.	.	212	.	3
Scenic Water	.	.	.	14	.	14
Ship Boat Builders	.	2	.	403	.	12815
Shipping Support	.	7	.	122	.	133
Shipping		7	.	45	.	78

Most coastal counties in Mississippi have substantial employment in the seafood harvesting sector and also seafood dealers. Harrison has a considerable amount of persons employed in the processing sector with over 200 persons. Boat building is also important in both Harrison and Jackson counties in Table 3.3.6.3.

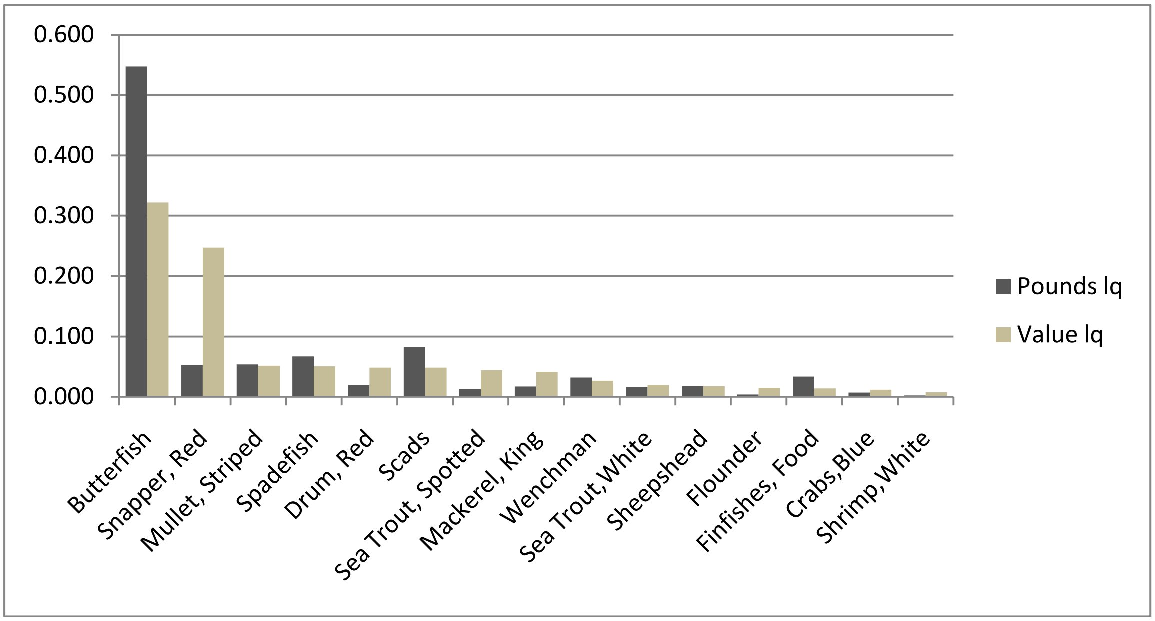


Figure 3.3.6.13. The top fifteen species in terms of proportion of total landings and value (lq) for Pascagoula, MS.
Source: ALS 2008

Coastal pelagic landings for Pascagoula were primarily king mackerel, with a local value quotient of about 5%. Landings of king mackerel were less than 3% for the community as seen in Figure 3.3.6.13.

Louisiana Counties

Figure 3.3.6.14. The Social Vulnerability Index applied to Louisiana Coastal Counties.

Several Parishes in Louisiana are categorized as medium high or high social vulnerability (Figure 3.3.6.14). Plaquemines, St. Mary and Iberia are all classified with medium high vulnerability. St. John the Baptist, St. James, Orleans and St. Bernard are classified as being highly vulnerable.

Table 3.3.6.4. Marine Related Employment for 2007 in Louisiana Coastal Counties.
Source: Census Bureau 2010.

County	Lafourche Parish		Plaquemines Parish	
Sector	# Prop	# Emp	# Prop	# Emp
Boat Dealers	.	.	.	.
Seafood Dealers	.	.	.	22
Seafood Harvesters	604	.	556	.
Seafood Retail	11	26	.	2
Marinas	.	52	.	25
Processors	5	14	.	167
Scenic Water	.	12	.	3
Ship Boat Builders	.	787	.	.
Shipping Support	.	451	.	590
Shipping	.	2446	.	304

Both counties listed in Table 3.3.6.4 have substantial numbers of persons employed in harvesting of seafood. Plaquemines Parish has 556 persons as sole proprietors in seafood harvesting and Lafourche Parish has over 600. Boat building is important in Lafourche with close to 800 persons employed in that sector and Plaquemines has 167 employed in the processing sector.

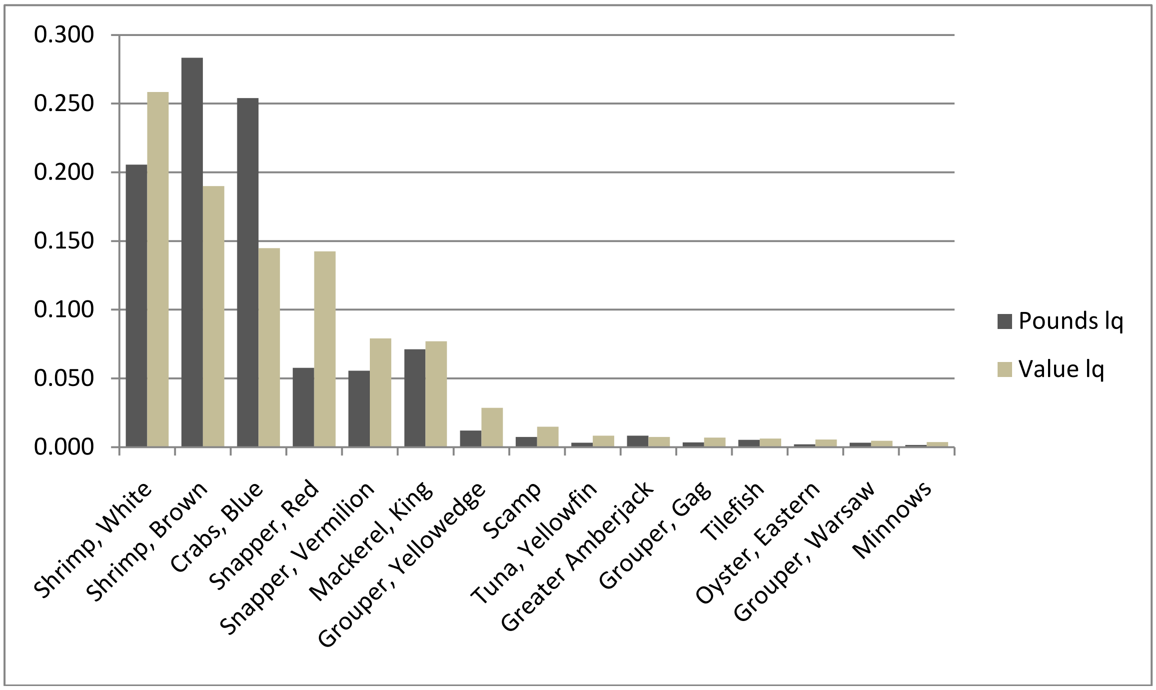


Figure 3.3.6.15. The top fifteen species in terms of proportion (lq) of total landings and value for Golden Meadow, Louisiana.
Source: ALS 2008.

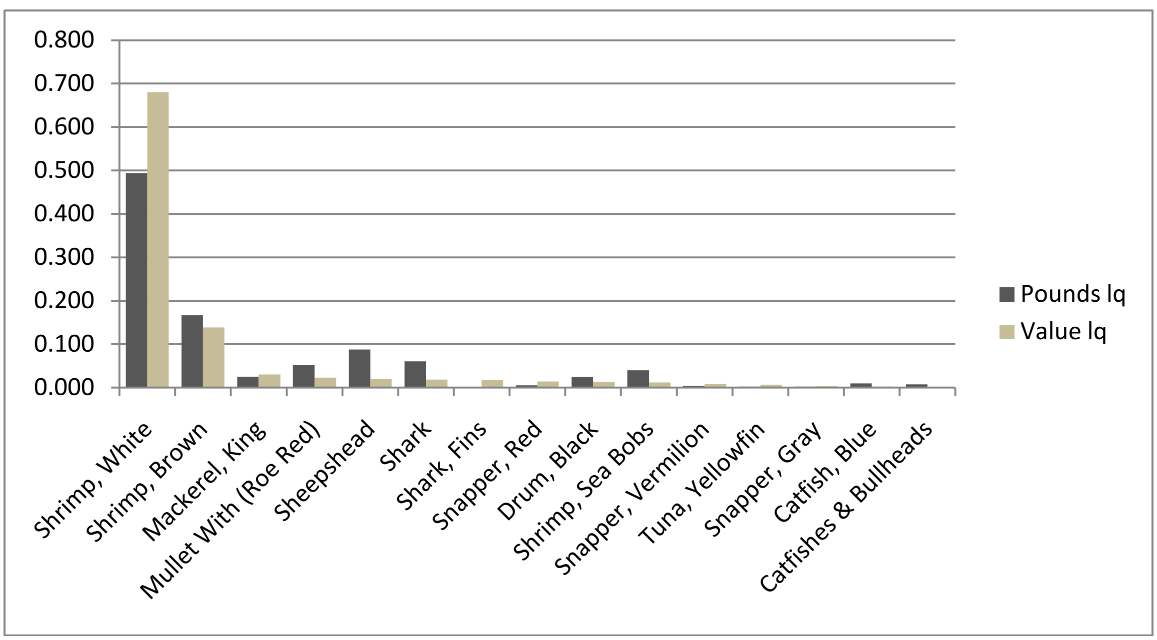


Figure 3.3.6.16. The top fifteen species in terms of proportion (lq) of total landings and value for Venice, Louisiana.
Source: ALS 2008.

Golden Meadow has close to 6% of value and landings in king mackerel out of total landings for the community in Fig. 3.3.6.15. Venice has just over 3% of value for king mackerel and a little less than that for landings out of total landings (Figure 3.3.6.16).

Texas Counties

Figure 3.3.6.17. The Social Vulnerability Index applied to Texas Coastal Counties.

Those counties within Texas that are either medium high or high vulnerability cover a considerable part of the coast (Figure 3.3.6.17). Those counties that are highly vulnerable are: Harris, Kleberg, Willacy and Cameron. Those that are medium high for social vulnerability are: Jefferson, Matagorda, Calhoun, San Patricio and Nueces.

While Texas did not have any communities other than Port Bolivar with substantial landings of coastal pelagics, both private recreational and charter fishing for coastal pelagics is an important seasonal fishing activity. The communities of Port O'Connor, Port Aransas, Matagorda, South Padre Island, Freeport, Port Mansfield and Sabine Pass are all categorized has having substantial recreational fishing infrastructure. The communities of Matagorda and Port O' Connor are located in counties that are also identified as having medium high social vulnerability.

3.3.7 Environmental Justice

As mentioned, environmental justice is related to the idea of social vulnerability; however, there are no thresholds with regard to social vulnerability. Environmental Justice is addressed through Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations and requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Impacts of commercial and recreational fishing on subsistence fishing are a concern in fisheries management; however, there are no such implications from the action proposed in this amendment.

Although it is anticipated that the impacts of this amendment may affect communities with environmental justice concerns, because the impacts should not discriminate against any group, this action should not trigger any environmental justice concerns. In reviewing the thresholds for minorities among all coastal counties involved, Liberty County in Georgia, Miami-Dade and Broward in Florida, Mobile County in Alabama; Orleans Parish in Louisiana; Harris, Nueces Kleberg, and Cameron in Texas all exceed the threshold for minorities. With regard to poverty, Georgetown County in South Carolina; Escambia, Levy and Miami-Dade Counties in Florida; Orleans Parish in Louisiana; Matagorda, Aransas, Nueces, Willacy, Kleberg and Cameron Counties in Texas all exceed the poverty threshold. Again, as illustrated by the SoVI, environmental justice is closely tied to social vulnerability index as most of the counties that do not meet these thresholds are also considered medium high or highly vulnerable. It is anticipated that the impacts from the following management actions may impact minorities and the poor, but not through discriminatory application of these regulations.

3.4 Economic Environment

3.4.1 Economic Description of the Commercial Fishery

Number of Vessels, Harvest, and Ex-vessel Value
An economic description of the commercial fisheries for the CMP species is contained in NMFS (2010) and is incorporated herein by reference. Select summary statistics are provided in Table 3.4.1.1. Landings information is provided in Section 1.5.

Table 3.4.1.1. Five-year[1] average performance statistics.

Species	Vessels	Ex-vessel Value[2] Species (millions)	Ex-vessel Value All Species (millions)	Average Ex-vessel Value per Vessel
Atlantic Group King Mackerel	742	$4.57	$23.41	$31,600
Atlantic Group Spanish Mackerel	349	$1.85	$9.76	$28,000
Gulf Group King Mackerel	669	$4.99	$29.48	$44,100
Gulf Group Spanish Mackerel	197	$0.31	$9.00	$45,900
Cobia (whole Southeast)	689	$0.27	$56.20	$81,700

[1]Fishing-year (2004/2005, 2005/2006,…, 2008/2009) for king and Spanish mackerel and calendar year (2005-2009) for cobia.
[2]2008 dollars.
Source: NMFS SEFSC Coastal Fisheries Logbook and NMFS NEFSC Commercial Fisheries Data Base System

Economic Activity
Estimates of the average annual economic activity (impacts) associated with the commercial fisheries for CMP species addressed in the amendment were derived using the model developed for and applied in NMFS (2009c) and are provided in Table 3.4.1.2. Business activity for the commercial sector is characterized in the form of full-time equivalent (FTE) jobs, income impacts (wages, salaries, and self-employed income), and output (sales) impacts (gross business sales). Income impacts should not be added to output (sales) impacts because this would result in double counting.

As noted in Table 3.4.1.1, the annual period refers to either the fishing year or calendar year, as appropriate to the management of the species. The estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors). Estimates are provided for the economic activity associated with the ex-vessel revenues from the individual CMP species as well as the revenues from all species harvested by these same vessels. The estimates of ex-vessel value are replicated from Table 3.4.1.1.

Table 3.4.1.2. Average annual economic activity associated with the CMP fisheries.

Species	Average Ex-vessel Value[1] (millions)	Total Jobs	Harvester Jobs	Output (Sales) Impacts (millions)	Income Impacts (millions)
Atlantic Group King Mackerel	$4.57	862	112	$60.21	$25.66
- All Species[2]	$23.41	4,412	576	$308.26	$131.38
Atlantic Group Spanish Mackerel	$1.85	348	45	$24.31	$10.36
- All Species	$9.76	1,840	240	$128.52	$54.77
Gulf Group King Mackerel	$4.99	941	123	$65.72	$28.01
- All Species	$29.48	5,556	725	$388.17	$165.43
Gulf Group Spanish Mackerel	$0.31	59	8	$4.10	$1.75
- All Species	$9.00	1,697	221	$118.56	$50.53
Cobia (All Southeast)	$0.27	50	6	$3.53	$1.50
- All Species	$56.20	10,560	1,355	$741.68	$314.28

[1]2008 dollars.
[2]Includes ex-vessel revenues and economic activity associated with the average annual harvests of all species harvested by vessels that harvested the subject CMP species.

Permits

Commercial Permits

The numbers of commercial permits associated with the CMP fishery on January 21, 2011, are provided in Table 3.4.1.3

Table 3.4.1.3. Number of permits associated with the CMP fishery.

	Valid[1]	Valid or Renewable
King Mackerel	1,452	1,530
King Mackerel Gillnet	21	23
Spanish Mackerel	1,704	Not applicable

[1]Non-expired. Expired permits may be renewed within one year of expiration.

Recreational Permits

The numbers of pelagic for-hire (charter or headboat) permits on January 21, 2011, are provided in Table 3.4.1.4. There are no specific permitting requirements for recreational anglers to harvest reef fish. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions.

Table 3.4.1.4. Number of pelagic for-hire (charter or headboat) permits.

	Valid[1]	Valid or Renewable
Gulf of Mexico	1,260	1,377
Gulf Historical Captain	36	44
South Atlantic	1,467	Not applicable

[1]Non-expired. Expired permits may be renewed within one year of expiration.

3.4.2 Economic Description of the Recreational Fishery

The recreational fishery is comprised of the private sector and for-hire sector. The private sector includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire sector is composed of the charterboat and headboat (also called partyboat) sectors. Charterboats generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person.

Harvest
Recreational harvest information is provided in Section 1.5.

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

Target effort - The number of individual angler trips, regardless of trip duration, where the intercepted angler indicated that the species was targeted as either the first or the second primary target for the trip. The species did not have to be caught.

Catch effort - The number of individual angler trips, regardless of trip duration and target intent, where the individual species was caught. The fish caught did not have to be kept.

All recreational trips - The total estimated number of recreational trips taken, regardless of target intent or catch success.

Estimates of average annual recreational effort, 2005-2009, for the CMP species addressed in this amendment are provided in Table 3.4.2.4-15. In each table, where appropriate, the “total” refers to the total number of target or catch trips, as appropriate, while “all trips” refers to the total number of trips across all species regardless of target intent of catch success. The estimates were evaluated by calendar year and not fishing year. As a result, while the results may not be fully reflective of effort associated with specific stocks (e.g., Gulf Migratory Group versus Atlantic Migratory Group for king or Spanish mackerel), the results are consistent with fishing activity based on area fished.

Among the three species examined, Spanish mackerel is subject to more target and catch effort than the other two species for the Gulf states (Table 3.4.2.1). Spanish mackerel is also subject to more catch effort than target effort, whereas more trips target king mackerel than catch the species.

The effort situation is somewhat different for the South Atlantic states (Table 3.4.2.2). While Spanish mackerel still records the highest average number of catch trips per year, the difference over king mackerel is not as pronounced as in the Gulf of Mexico. Further, more trips target king mackerel than Spanish mackerel (and cobia). Further, both species, as well as cobia, are subject to more target effort than catch effort.

W Florida dominates for all three species and effort type.

If examined by mode, in the Gulf of Mexico, the private mode accounts for the most target and catch effort for king mackerel and cobia (Table 3.4.2.3). For Spanish mackerel, however, the shore mode dominates target effort, while the private mode accounts for the most catch trips. In the South Atlantic, the private mode leads for all three species and effort type (Table 3.4.2.4).

Table 3.4.2.1. Average annual (calendar year) recreational effort (thousand trips) in the Gulf of Mexico, across all modes, 2005-2009.

	Target Trips					
Species	Alabama	WFlorida	Louisiana	Mississippi	Total	All Trips
King Mackerel	50	425	2	3	480	23,288
Spanish Mackerel	48	753	0	0	801	
Cobia	9	177	13	10	210	
	Catch Trips					
King Mackerel	49	270	7	3	329	23,288
Spanish Mackerel	63	1,011	30	11	1,115	
Cobia	7	72	19	3	101	

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.2. Average annual (calendar year) recreational effort (thousand trips) in the South Atlantic, across all modes, 2005-2009.

	Target Trips					
	EFlorida	Georgia	North Carolina	South Carolina	Total	All Trips
King Mackerel	423	11	214	100	748	22,419
Spanish Mackerel	189	6	254	63	512	
Cobia	96	3	53	18	171	
	Catch Trips					
King Mackerel	333	7	99	24	462	22,419
Spanish Mackerel	255	9	192	50	507	
Cobia	30	2	15	5	53	

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.3. Average annual (calendar year) recreational effort (thousand trips) in the Gulf of Mexico, across all states, 2005-2009.

	Target Trips				
	Shore	Charter	Private	Total	All Trips
King Mackerel	191	31	257	480	23,288
Spanish Mackerel	500	12	288	801	
Cobia	88	9	112	210	
	Catch Trips				
King Mackerel	56	106	167	329	23,288
Spanish Mackerel	489	44	581	1,115	
Cobia	10	14	76	101	

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.4. Average annual (calendar year) recreational effort (thousand trips) in the South Atlantic, across all states, 2005-2009.

	Target Trips				
	Shore	Charter	Private	Total	All Trips
King Mackerel	109	34	605	748	22,419
Spanish Mackerel	229	6	277	512	
Cobia	32	3	136	171	
	Catch Trips				
King Mackerel	12	73	376	462	22,419
Spanish Mackerel	178	18	311	507	
Cobia	6	5	42	53	

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Tables 3.4.2.5-12 contain estimates of the average annual (2005-2009) target trips and catch trips, by species, for each state and mode.

Table 3.4.2.5. Average annual (calendar year) recreational effort (thousand trips), Alabama, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	7	2	3	10	40	37	50	49
Spanish Mackerel	21	17	1	5	26	41	48	63
Cobia	0	0	1	0	9	7	9	7

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.6. Average annual (calendar year) recreational effort (thousand trips), WFlorida, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	184	55	28	92	213	124	425	270
Spanish Mackerel	479	465	11	32	262	513	753	1,011
Cobia	88	10	4	7	86	56	177	72

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.7. Average annual (calendar year) recreational effort (thousand trips), Louisiana, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	0	0	0	3	1	4	2	7
Spanish Mackerel	0	7	0	2	0	22	0	30
Cobia	0	0	5	7	8	11	13	19

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.8. Average annual (calendar year) recreational effort (thousand trips), Mississippi, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	0	0	0	1	3	2	3	3
Spanish Mackerel	0	0	0	5	0	6	0	11
Cobia	0	0	0	0	10	2	10	3

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.9. Average annual (calendar year) recreational effort (thousand trips), EFlorida, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	21	11	26	52	377	270	423	333
Spanish Mackerel	124	118	1	2	64	134	189	255
Cobia	9	2	2	4	86	25	96	30

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.10. Average annual (calendar year) recreational effort (thousand trips), Georgia, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	0	0	0	1	11	6	11	7
Spanish Mackerel	2	2	0	1	4	6	6	9
Cobia	0	0	0	0	3	2	3	2

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.11. Average annual (calendar year) recreational effort (thousand trips), North Carolina, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	45	1	3	16	165	82	214	99
Spanish Mackerel	64	34	2	10	187	148	254	192
Cobia	23	4	1	1	30	10	53	15

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.12. Average annual (calendar year) recreational effort (thousand trips), South Carolina, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	43	1	5	5	53	18	100	24
Spanish Mackerel	39	23	2	5	21	22	63	50
Cobia	1	0	0	0	17	5	18	5

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Similar analysis of recreational effort is not possible for the headboat sector because the headboat data are not collected at the angler level. Estimates of effort in the headboat sector are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats.

The average annual (2005-2009) number of headboat angler days is presented in Table 3.4.2.13. Due to confidentiality issues, Georgia estimates are combined with those of E Florida on the Atlantic, while Alabama is combined with W Florida as part of the summarization process for the Gulf (i.e., as part of the estimation process and not a result of confidentiality merging). As shown in Table 3.4.2.5, while the total (across all states) average number of headboat angler days has been more stable from 2005-2009 in the Gulf, more headboat effort normally occurs in the South Atlantic.

Table 3.4.2.13. Southeast headboat angler days, 2005-2009.

	Gulf of Mexico			
	Louisiana	Texas	WFlorida/ Alabama	Total
2005	0	59,857	130,233	190,090
2006	5,005	70,789	124,049	199,843
2007	2,522	63,764	136,880	203,166
2008	2,945	41,188	130,176	174,309
2009	3,268	50,737	142,438	196,443
Average	2,748	57,267	132,755	192,770
	South Atlantic			
	EFlorida/ Georgia	North Carolina	South Carolina	Total
2005	171,078	31,573	34,036	236,687
2006	175,522	25,736	56,074	257,332
2007	157,150	29,002	60,729	246,881
2008	124,119	16,982	47,287	188,388
2009	136,420	19,468	40,919	196,807
Average	152,858	24,552	47,809	225,219

Source: The Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab.

Permits

Information on the number of permits will be provided in a subsequent version of this amendment.

Table 3.4.2.14. South Atlantic snapper grouper for-hire permit holders by home port state, 2005-2009.

Source: Southeast Permits Database, NOAA Fisheries, SERO.

Economic Value, Expenditures, and Economic Activity

Participation, effort, and harvest are indicators of the value of saltwater recreational fishing. However, a more specific indicator of value is the satisfaction that anglers experience over and above their costs of fishing. The monetary value of this satisfaction is referred to as consumer surplus. The value or benefit derived from the recreational experience is dependent on several quality determinants, which include fish size, catch success rate, and the number of fish kept. These variables help determine the value of a fishing trip and influence total demand for recreational fishing trips.

The estimated consumer surplus per fish for king mackerel to anglers in both the Gulf of Mexico and South Atlantic, based on the estimated willingness-to-pay to avoid a reduction in the bag limit, is $7 (assumed 2006 dollars; Whitehead 2006). Comparable estimates have not been identified for Spanish mackerel or cobia.

While anglers receive economic value as measured by the consumer surplus associated with fishing, for-hire businesses receive value from the services they provide. Producer surplus is the measure of the economic value these operations receive. Producer surplus is the difference between the revenue a business receives for a good or service, such as a charter or headboat trip, and the cost the business incurs to provide that good or service. Estimates of the producer surplus associated with for-hire trips are not available. However, proxy values in the form of net operating revenues are available (David Carter, NMFS SEFSC, personal communication, August 2010). These estimates were culled from several studies – Liese *et al*. (2009), Dumas *et al*. (2009), Holland *et al*. (1999), and Sutton *et al*. (1999). Estimates of net operating revenue per angler trip (2009 dollars) on representative charter trips (average charter trip regardless of area fished) are $146 for Louisiana through east Florida, $135 for east Florida, $156 for northeast Florida, and $128 for North Carolina. For charter trips into the EEZ only, net operating revenues are $141 in east Florida and $148 in northeast Florida. For full-day and overnight trips only, net operating revenues are estimated to be $155-$160 in North Carolina. Comparable estimates are not available for Georgia, South Carolina, or Texas.

Net operating revenues per angler trip are lower for headboats than for charterboats. Net operating revenue estimates for a representative headboat trip are $48 in the Gulf of Mexico (all states and all of Florida), and $63-$68 in North Carolina. For full-day and overnight headboat trips, net operating revenues are estimated to be $74-$77 in North Carolina. Comparable estimates are not available for Georgia and South Carolina.

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

Estimates of the economic activity (impacts) associated with the recreational fishery for king mackerel, Spanish mackerel, and cobia were derived using average coefficients for recreational angling across all fisheries (species), as derived by an economic add-on to the MRFSS, and described and utilized in NMFS (2009c). Business activity is characterized in the form of FTE jobs, income impacts (wages, salaries, and self-employed income), output (sales) impacts (gross business sales), and value-added impacts (difference between the value of goods and the cost of materials or supplies). Job and output (sales) impacts are equivalent metrics across both the commercial and recreational sectors. Income and value-added impacts are not equivalent, though similarity in the magnitude of multipliers may result in roughly equivalent values. Neither income nor value-added impacts should be added to output (sales) impacts because this would result in double counting. Job and output (sales) impacts, however, may be added across sectors.

Estimates of the average expenditures by recreational anglers are provided in NMFS (2009c) and are incorporated herein by reference. Estimates of the average recreational effort (2005-2009) and associated economic impacts (2008 dollars) are provided in Table 3.4.2.15. Target trips were used as the measure of recreational effort. As previously discussed, more trips may catch some species than target the species. Where such occurs, estimates of the economic activity associated with the average number of catch trips can be calculated based on the ratio of catch trips to target trips because the average output impact and jobs per trip cannot be differentiated by trip intent. For example, if the number of catch trips is three times the number of target trips for a particular state and mode, the estimate of the associated activity would equal three times the estimate associated with target trips. Table 3.4.2.16 contain estimates of the average annual (2005-2009) target trips and catch trips, by species, for each state and mode.

It should be noted that output impacts and value added impacts are not additive and the impacts for each species should not be added because of possible duplication (some trips may target multiple species). Also, the estimates of economic activity should not be added across states to generate a regional total because state-level impacts reflect the economic activity expected to occur within the state before the revenues or expenditures “leak” outside the state, possibly to another state within the region. Under a regional model, economic activity that “leaks” from, for example, Alabama into Louisiana, would still occur within the region and continue to be tabulated. As a result, regional totals would be expected to be greater than the sum of the individual state totals. Regional estimates of the economic activity associated with the fisheries for these species are unavailable at this time.

The distribution of the estimates of economic activity by state and mode are consistent with the effort distribution with the exception that charter anglers, on average, spend considerably more money per trip than anglers in other modes. As a result, the number of charter trips can be a fraction of the number of private trips, yet generate similar estimates of the amount of economic activity. For example, as derived from Table 3.4.2.15, the average number of charter king mackerel target trips in W Florida (27,535 trips) was only approximately 13% of the number of private trips (213,641), whereas the estimated output (sales) impacts by the charter anglers (approximately $8.6 million) was approximately 89% of the output impacts of the private trips (approximately $9.7 million).

Table 3.4.2.15. Summary of king mackerel target trips (2005-2009 average) and associated economic activity (2008 dollars), Gulf states. Output and value added impacts are not additive.

	Alabama	WFlorida	Louisiana	Mississippi	Texas
	Shore Mode				
Target Trips	6,972	184,444	0	0	Unknown
Output Impact	$510,060	$12,499,596	$0	$0	
Value Added Impact	$274,383	$7,261,856	$0	$0	
Jobs	6	133	0	0	
	Private Mode				
Target Trips	39,581	213,461	1,312	2,608	Unknown
Output Impact	$2,302,878	$9,691,420	$106,992	$74,376	
Value Added Impact	$1,260,774	$5,762,882	$52,622	$35,646	
Jobs	24	97	1	1	
	Charter Mode				
Target Trips	3,336	27,535	457	122	Unknown
Output Impact	$1,736,893	$8,646,173	$217,556	$37,906	
Value Added Impact	$956,101	$5,126,290	$123,528	$21,360	
Jobs	23	89	2	0	
	All Modes				
Target Trips	49,889	425,440	1,769	2,730	Unknown
Output Impact	$4,549,831	$30,837,189	$324,547	$112,282	
Value Added Impact	$2,491,258	$18,151,028	$176,150	$57,006	
Jobs	54	318	3	1	

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.16. Summary of king mackerel target trips (2005-2009 average) and associated economic activity (2008 dollars), South Atlantic states. Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia	EFlorida
	Shore Mode			
Target Trips	45,057	43,054	0	20,543
Output Impact	$11,285,263	$4,384,103	$0	$586,864
Value Added Impact	$6,284,247	$2,441,172	$0	$340,707
Jobs	136	54	0	6
	Private Mode			
Target Trips	165,432	52,675	10,542	376,517
Output Impact	$9,029,852	$2,317,598	$164,705	$14,238,046
Value Added Impact	$5,091,654	$1,352,287	$99,907	$8,507,989
Jobs	97	26	1	150
	Charter Mode			
Target Trips	3,297	4,597	262	25,958
Output Impact	$1,283,468	$1,550,235	$16,470	$10,172,982
Value Added Impact	$720,285	$875,819	$9,613	$5,989,121
Jobs	16	20	0	105
	All Modes			
Target Trips	213,786	100,326	10,804	423,018
Output Impact	$21,598,582	$8,251,936	$181,176	$24,997,893
Value Added Impact	$12,096,185	$4,669,279	$109,520	$14,837,816
Jobs	250	100	2	261

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.17. Summary of Spanish mackerel target trips (2005-2009 average) and associated economic activity (2008 dollars), Gulf states. Output and value added impacts are not additive.

	Alabama	WFlorida	Louisiana	Mississippi	Texas
	Shore Mode				
Target Trips	20,894	478,844	0	0	Unknown
Output Impact	$1,528,570	$32,450,807	$0	$0	
Value Added Impact	$822,282	$18,852,855	$0	$0	
Jobs	19	344	0	0	
	Private Mode				
Target Trips	25,808	262,403	0	115	Unknown
Output Impact	$1,501,546	$11,913,453	$0	$3,280	
Value Added Impact	$822,062	$7,084,186	$0	$1,572	
Jobs	16	119	0	0	
	Charter Mode				
Target Trips	1,166	11,324	0	0	Unknown
Output Impact	$607,079	$3,555,811	$0	$0	
Value Added Impact	$334,177	$2,108,230	$0	$0	
Jobs	8	37	0	0	
	All Modes				
Target Trips	47,868	752,571	0	115	Unknown
Output Impact	$3,637,196	$47,920,072	$0	$3,280	
Value Added Impact	$1,978,521	$28,045,271	$0	$1,572	
Jobs	43	500	0	0	

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.18. Summary of Spanish mackerel target trips (2005-2009 average) and associated economic activity (2008 dollars), South Atlantic states. Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia	EFlorida
	Shore Mode			
Target Trips	64,374	39,137	1,739	124,223
Output Impact	$16,123,521	$3,985,242	$28,012	$3,548,752
Value Added Impact	$8,978,452	$2,219,077	$16,796	$2,060,245
Jobs	195	49	0	38
	Private Mode			
Target Trips	187,064	21,322	3,705	64,414
Output Impact	$10,210,602	$938,127	$57,886	$2,435,825
Value Added Impact	$5,757,442	$547,384	$35,113	$1,455,535
Jobs	110	11	1	26
	Charter Mode			
Target Trips	2,445	2,478	237	527
Output Impact	$951,798	$835,650	$14,899	$206,532
Value Added Impact	$534,151	$472,108	$8,695	$121,591
Jobs	12	11	0	2
	All Modes			
Target Trips	253,883	62,937	5,681	189,164
Output Impact	$27,285,921	$5,759,019	$100,796	$6,191,109
Value Added Impact	$15,270,045	$3,238,570	$60,605	$3,637,372
Jobs	316	70	1	65

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.19. Summary of cobia target trips (2005-2009 average) and associated economic activity (2008 dollars), Gulf states. Output and value added impacts are not additive.

	Alabama	WFlorida	Louisiana	Mississippi	Texas
	Shore Mode				
Target Trips	0	87,863	0	0	Unknown
Output Impact	$0	$5,954,393	$0	$0	
Value Added Impact	$0	$3,459,307	$0	$0	
Jobs	0	63	0	0	
	Private Mode				
Target Trips	8,689	85,502	8,017	10,150	Unknown
Output Impact	$505,538	$3,881,907	$653,775	$289,461	
Value Added Impact	$276,771	$2,308,328	$321,549	$138,730	
Jobs	5	39	6	3	
	Charter Mode				
Target Trips	799	3,909	4,587	0	Unknown
Output Impact	$416,000	$1,227,452	$2,183,650	$0	
Value Added Impact	$228,994	$727,753	$1,239,872	$0	
Jobs	6	13	23	0	
	All Modes				
Target Trips	9,488	177,274	12,604	10,150	Unknown
Output Impact	$921,539	$11,063,752	$2,837,425	$289,461	
Value Added Impact	$505,765	$6,495,387	$1,561,422	$138,730	
Jobs	11	115	29	3	

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.20. Summary of cobia target trips (2005-2009 average) and associated economic activity (2008 dollars), South Atlantic states. Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia	EFlorida
	Shore Mode			
Target Trips	22,566	731	0	8,524
Output Impact	$5,652,024	$74,436	$0	$243,510
Value Added Impact	$3,147,354	$41,448	$0	$141,371
Jobs	68	1	0	3
	Private Mode			
Target Trips	29,623	17,238	2,961	85,694
Output Impact	$1,616,926	$758,439	$46,262	$3,240,531
Value Added Impact	$911,735	$442,539	$28,062	$1,936,390
Jobs	17	9	0	34
	Charter Mode			
Target Trips	856	488	34	1,813
Output Impact	$333,227	$164,567	$2,137	$710,518
Value Added Impact	$187,007	$92,974	$1,247	$418,302
Jobs	4	2	0	7
	All Modes			
Target Trips	53,045	18,457	2,995	96,031
Output Impact	$7,602,176	$997,442	$48,399	$4,194,559
Value Added Impact	$4,246,096	$576,960	$29,309	$2,496,062
Jobs	90	12	0	44

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

As previously noted, the values provided in Tables 3.4.2.15-19 only reflect effort derived from the MRFSS. Because the headboat sector in the Southeast is not covered by the MRFSS, the results in Tables 3.4.2.15-19 do not include estimates of the economic activity associated with headboat anglers. While estimates of headboat effort are available (see Table 3.4.2.13), species target information is not collected in the Headboat Survey, which prevents the generation of estimates of the number of headboat target trips for individual species. Further, because the model developed for NMFS (2009c) was based on expenditure data collected through the MRFSS, expenditure data from headboat anglers was not available and appropriate economic expenditure coefficients have not been estimated. As a result, estimates of the economic activity associated with the headboat sector comparable to those of the other recreational sector modes cannot be provided.

3.5 Administrative Environment

3.5.1 Federal Fishery Management

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

Responsibility for federal fishery management decision-making is divided between the Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act, and with other applicable laws summarized in Section 9. In most cases, the Secretary has delegated this authority to NOAA Fisheries Service.

The Gulf Council is responsible for fishery resources in federal waters of the Gulf of Mexico. These waters extend to 200 nautical miles offshore from the nine-mile seaward boundary of the states of Florida and Texas, and the three-mile seaward boundary of the states of Alabama, Mississippi, and Louisiana. The Council consists of 17 voting members: 11 public members appointed by the Secretary; one each from the fishery agencies of Texas, Louisiana, Mississippi, Alabama, and Florida; and one from NOAA Fisheries.

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

The Council uses a Scientific and Statistical Committee to review the data and science being used in assessments and fishery management plans/amendments. Regulations contained within FMPs are enforced through actions of the NOAA's Office for Law Enforcement, the USCG, and various state authorities

The public is involved in the fishery management process through participation at public meetings, on advisory panels and through council meetings that, with few exceptions for discussing personnel matters, are open to the public. The regulatory process is in accordance with the Administrative Procedures Act, in the form of "notice and comment" rulemaking, which provides extensive opportunity for public scrutiny and comment, and requires consideration of and response to those comments.

3.5.2 State Fishery Management

The purpose of state representation at the Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters. The state governments have the authority to manage their respective state fisheries including enforcement of fishing regulations. Each of the eight states exercises legislative and regulatory authority over their states' natural resources through discrete administrative units. Although each agency listed below is the primary administrative body with respect to the states natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources.

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

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

More information about these agencies can be found from the following webpages:
Texas Parks & Wildlife Department - http://www.tpwd.state.tx.us
Louisiana Department of Wildlife and Fisheries http://www.wlf.state.la.us/
Mississippi Department of Marine Resources http://www.dmr.state.ms.us/
Alabama Department of Conservation and Natural Resources http://www.dcnr.state.al.us/
Florida Fish and Wildlife Conservation Commission http://www.myfwc.com
Georgia Department of Natural Resources, Coastal Resources Division http://crd.dnr.state.ga.us/
South Carolina Department of Natural Resources http://www.dnr.sc.gov/
North Carolina Department of Environmental and Natural Resources
http://portal.ncdenr.org/web/guest/

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Action 1. Modifications to the Fishery Management Unit

Alternative 1: No Action – Retain the following species in the Fishery Management Plan for data collection purposes only, but do not add them to the Fishery Management Unit: cero, little tunny, dolphin (Gulf only), and bluefish (Gulf only).

Alternative 2: Add the following species to the Fishery Management Unit and set annual catch limits and accountability measures:

- **Option a:** Cero
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option b:** Little tunny
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option c:** Dolphin (In the Gulf of Mexico region only)
- **Option d:** Bluefish (In the Gulf of Mexico region only)

Preferred Alternative 3: Remove the following species from the Fishery Management Plan:

- **Option a:** Cero
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option b:** Little tunny
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option c:** Dolphin
  - Suboption i: In the Gulf of Mexico region
  - Suboption ii: In the South Atlantic region
- **Option d:** Bluefish (In the Gulf of Mexico region only)

4.1.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Alternative 1 would not meet the National Standard 1 guidelines and have the same impacts to the physical or biological environments as currently exist. Leaving the species in the fishery management plan may offer the benefit of collecting data that could be used in the development of conservation and management measures, and positive impacts to the physical and biological environments would be expected at a later date. However, no data collection programs are currently in place for any of these species.

Alternatives 2 would add these species to the FMU and the Council would set ACLs and AMs. This alternative would be expected to have positive impacts on the physical and biological environments if catch is constrained below current levels. Positive physical, ecological, and biological impacts may result from better monitoring and record keeping of the resource, and implementing accountability measures, when and if the ACLs are exceeded.

Alternative 3 would remove all of the other species from the fishery management plan. If other agencies, such as the individual states, took over management, positive physical and biological impacts could occur. If another agency did not take over management of other species, and overfishing or detriment to the resource occurred without our knowledge, negative physical and biological impacts would be expected.

Leaving the species in the FMP may offer the benefit of collecting data that could be used later in the development of conservation and management measures. Positive impacts to the physical environment might be expected at a later date. Removal of these species from the FMP could allow another agency to take over management. In this case, positive physical impacts might be expected. However, if another agency did not take over management, and overfishing or detriment to the resource occurred without our knowledge, negative physical and biological impacts would be expected.

4.1.2 Direct and Indirect Effect on the Economic Environment

The economic effects of **Alternatives 1-3** are based on the expected biological effects of the alternatives. While implementation of **Alternative 2** would cap harvest, **Alternatives 1 and 3 (Preferred)** would not and this might result in higher short-term economic benefits from **Alternatives 1 and 3 (Preferred)**. However, under **Preferred Alternative 3**, removal of the listed species from the CMP FMP leaves the removed species more vulnerable than if they are retained for data collection purposes only (**Alternative 1**) while **Alternative 2** would offer the greatest protection by setting ACLs and AMs for the four species. However, if the states take over management of the species under **Preferred Alternative 3**, an improvement in management could be expected. For these reasons, **Alternative 2** is expected to offer the greatest long-term economic benefit followed by **Alternative 1** and **Preferred Alternative 3**.

4.1.3 Direct and Indirect Effect on the Social Environment

This action would have indirect effects on the social environment due to additional data and management required to implement ACLs and monitor landings for Cero and Little Tunny in **Alternative 1** and **Alternative 2**. For some species that are caught infrequently and in low numbers it may be more efficient to exclude those from management as the difficulty in tracking landings and monitoring could prove costly to implement by assigning ACLs to all. Ultimately, this could have negative effects on commercial and recreational sectors for King Mackerel, Spanish Mackerel, and Cobia.

By removing Cero (**Option 3-A**) and Little Tunny (**Option 3-B**) from the FMP, **Preferred Alternative 3** would have positive indirect effects on the social environment in that management for remaining CMP stocks could be streamlined. Removal of Dolphin (**Option 3-C)** will update the FMP language to reflect the existence of a separate FMP for Dolphin in the Atlantic.

4.1.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would not remove any species from the FMU and would result in increased administrative impacts associated with establishing ACLs and AMs. Under **Alternative 1**, king and Spanish mackerel and cobia would remain in the FMU and ACLs and AMs would be required. **Alternative 2** would add cero, little tunny, dolphin in the Gulf and bluefish in the Gulf to the FMU. This would increase the administrative burden associated with establishing ACLs and AMs for those species. **Alternative 3** would remove the same species from the FMP resulting in less administrative burden with regards to establishing ACLs and AMs. However, removing these species from the FMP (rather than the FMU) may make it more difficult to develop management measures for these species if the need arises.

4.1.5 Council Conclusions

Will be added after public hearings.

4.2 Action 2. Modify the Framework Procedure

Alternative 1. No Action – Do not modify the framework procedure.

Alternative 2. Update the framework procedure to incorporate the SEDAR process and adjustments to ACLs (Appendix A).

Alternative 3. Revise the framework procedure to incorporate the SEDAR process and adjustments to ACLs, and expand the procedure to allow adjustments of greater range of management measures under specific procedural guidelines.
Preferred Option 1: Adopt the base Framework Procedure (Appendix B)
Option 2: Adopt the more broad Framework Procedure (Appendix C)
Option 3: Adopt the more narrow Framework Procedure (Appendix D)

4.2.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

There are no direct physical, biological, or ecological effects expected from modifications of the framework procedure. However, if modifications increase the ease with which regulations can be implemented as needed, long-term biological benefits will increase. **Alternatives 2 and 3** offer the greater management flexibility and therefore are expected to offer greater long-term biological benefits than **Alternative 1 (No Action)**; **Alternative 3** offers the greatest efficiency and effectiveness of management change and therefore largest expected long-term biological benefits.

The physical environment would be indirectly impacted if a more flexible framework is implemented. Changes in harvest levels would change effort levels, either increasing or decreasing the impact on the physical environment. A quicker change to the regulations would result in a quicker change in the physical impacts of the fishery.

4.2.2 Direct and Indirect Effect on the Economic Environment

There are no direct economic effects expected from modifications to the framework procedure. However, if modifications increase the ease with which regulations can be implemented as needed, long-term economic benefits will increase as a consequence of increases in biological benefits. Since **Alternative 2** and **Alternative 3 (Including Preferred Option 1)** offer greater management flexibility and therefore are expected to offer greater long-term economic benefits than **Alternative 1 (No Action)** with **Alternative 3 (including Preferred Option 1)** offering the greatest efficiency and effectiveness of management change and therefore largest expected long-term economic benefits.

4.2.3 Direct and Indirect Effect on the Social Environment

Alternative 1 would allow for neither updates in the management framework procedure nor development of a process to incorporate new information to adjust ACLs. This could negatively impact the recreational and commercial fishing sectors should new data indicate that a stock had improved but the Council had no means to rapidly increase the ACL, resulting in loss of opportunity, income, and/or recreational angling experiences.

Alternative 2 and **Alternative 3** would generate indirect positive effects on the social environment with the framework modifications to incorporate a procedure for adjusting ACLs; updating text to reflect adoption of SEDAR as the source of stock assessment information (**Alternative 2** and **Alternative 3**) would provide consistency in language with regulatory changes and have few effects on the social environment.

Preferred Alternative 3, Option 1 will most likely result in positive social benefits in that it gives a clear and flexible procedure for the Council to make a management change. **Option 2** and **Option 3** will also provide the same outcome, but **Option 2** forfeits public participation and advisory panel input for a shorter timeline while **Option 3** works with more participation but a longer timeline to implementation. These more rigid procedures require the choice between timeliness and participation for all future management actions, both of which are important but in different situations. For example, while **Option 2** allows for timeliness by requiring discussion at only one council meeting (while **Option 3** requires three council meeting discussions), there may be a time when lack of discussion leads to negative social impacts.

4.2.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would retain the current procedure, which does not include the SEDAR process or allow for adjustments of ACLs. **Alternative 2** and **Alternative 3** would allow the agency and Councils flexibility by including the SEDAR process and allowing for an adjustment of ACLs through a framework amendment. Framework amendments generally require less time and staff effort and would lessen the administrative burden on the agency. **Alternative 3** would include the SEDAR process, allow for the updates of ACLs and would provide the option for more flexibility on how and when framework amendments can be used. **Alternative 3** contains **Options 1-3**. **Alternative 3**, **Option 1** would provide the most flexibility in the preparation of framework amendments, resulting in the least administrative burden on the agency. **Alternative 3**, **Option 3** would have tighter guidelines of when a framework can be used as well as the amount of public discussion and the involvement of the SSC, SEP, or APs. **Alternative 3, Option 3** is the most restrictive of options but would offer more flexibility than **Alternative 1** or **Alternative 2.**

4.2.5 Council Conclusions

Will be added after public hearings.

4.3 Action 3. Establish Separate Atlantic and Gulf Migratory Groups of Cobia

Alternative 1. No action - Maintain one group of cobia.

Alternative 2. Separate the two migratory groups at the Miami-Dade/Monroe County line.

Preferred Alternative 3. Separate the two migratory groups at the SAFMC/GMFMC boundary.

4.3.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Currently, the CMP FMP considers that there is only one stock of cobia that includes the Gulf and Atlantic. Although Franks *et al.* (1992), Franks and McBee (1994), Franks and Moxey (1996), and Burns *et al.* (1998) observed migrations of cobia from wintering grounds in the Florida Keys up the Atlantic and Gulf coasts, they also noted that some portion of the cobia stock remained in the Atlantic and the Gulf year-round. Burns *et al.* (1998) and Franks *et al.* (1999) also found distinct differences in life history parameters such as maximum age and growth rates for fish in the Atlantic and Gulf. Consequently, despite the evidence of mixing and genetic similarity, Thompson (1993) suggested that cobia be managed based on a two stock hypothesis (Thompson 1996). Williams (2001) recognized the evidence of mixing; however, came to the same conclusion as Thompson and used the two stock hypothesis in a 2001 assessment that was done for the Gulf component with a split at the Miami-Dade/Monroe County line. The following is taken directly from the "Assessment of cobia, *Rachycentron canadum*, in the waters of the U.S. Gulf of Mexico by Erik H. Williams (NOAA TECHNICAL MEMORANDUM NMFS-SEFSC-469, November 2001)":

"This assessment applies to cobia (*Rachycentron canadum*) located in the territorial waters of the U.S. Gulf of Mexico. Separation of the Gulf of Mexico and Atlantic Ocean is defined by the seaward extension of the Dade/Monroe county line in south Florida. Mixing of fish between the Atlantic and Gulf of Mexico occurs in the Florida Keys during winter months. Cobia annually migrate north in early spring in the Gulf to spawning grounds in the northern Gulf of Mexico, returning to the Florida Keys by winter.

Cobia (*Rachycentron canadum*), the only member of the family Rachycentridae in North America, is a widely distributed species of pelagic fish found worldwide, except the Eastern Pacific; in tropical, subtropical, and warm temperate waters (Shaffer and Nakamura 1989). In the U.S., cobia are found in the Atlantic Ocean from the Florida Keys to Massachusetts and throughout the Gulf of Mexico. Cobia exhibit seasonal migrations in the Atlantic and Gulf of Mexico. In the Atlantic Ocean cobia begin their spring migration north from wintering grounds in the Florida Keys, generally appearing by late spring and early summer in the poly/mesohaline areas of coastal Virginia and the Carolinas (Schwartz *et al*. 1981, Smith 1995). In the Gulf of Mexico, cobia migrate in early spring from their wintering grounds in the Florida Keys to the northeastern Gulf where they occur in the nearshore and coastal waters off northwestern Florida to Texas from March through October (Biesiot *et al*. 1994, Franks *et al*. 1999). In the Atlantic and Gulf of Mexico there is evidence of some cobia overwintering in deeper waters (100-125 m) off the Carolinas and northern Gulf (Franks *et al*. 1999, Joseph W. Smith personal communication).

Tagging studies have revealed migrations of fish in both directions between the northern Gulf of Mexico and the Carolinas, indicating some level of exchange of fish from the Gulf of Mexico and Atlantic Ocean (Franks *et al*. 1992, Franks and McBee 1994, Franks and Moxey 1996). A genetics study of mtDNA of cobia samples from the Atlantic and Gulf of Mexico did not reveal differences (Hrincevich 1993). Despite the evidence of mixing and genetic similarity, Thompson (1993) suggested that cobia be managed based on a two stock hypothesis (Thompson 1996). The two stock approach was endorsed by the Mackerel Stock Assessment Panel in 1993 and is used for this analysis."

More recent unpublished data from research conducted by South Carolina DNR (Dr. Michael Denson, Dr. Tanya Darden, J. Yost, K. Brenkert, M. Walker, M. Perkinson, L. Lefevbre, B. McAbee, A. Cammarano, A. Stokes, B. Cushman, M. Jamison, J. Richardson, C. Tarpey, and D. Farrae; Cobia Research in SC and Beyond, PowerPoint presentation at a Cobia meeting on March 15, 2011) examined a suite of microsatellite loci. Atlantic samples were collected during April – July in 2008 and 2009. Results indicate a homogenous offshore group, including the Florida Panhandle area, with distinct inshore aggregations (Figure 4.3.1).

Figure 4.3.1. Population structure of cobia based on recent genetic work.
Source: SCDNR; Dr. Michael Denson, *et al*. 2011.

There are no direct physical, biological, or ecological effects from the separation of Atlantic and Gulf migratory groups of cobia because this is a management decision. Cobia mix in the Atlantic and Gulf and as long as both migratory groups are managed to prevent overfishing there will be no negative biological effects.

4.3.2 Direct and Indirect Effect on the Economic Environment

While there are no direct economic effects from the separation of Atlantic and Gulf migratory groups of cobia, where the management boundary is established could have distributional impacts on fishermen. Also, management and enforcement difficulties resulting from the three alternatives could have a negative effect on long-term economic benefits.

4.3.3 Direct and Indirect Effect on the Social Environment

Overall, this action will most likely have the largest social impact on the Florida Keys. Continuing to manage cobia as one stock, as under **Alternative 1**, would have little effects on the social environment, as this is how the stock has been managed since 1982 when the CMP FMP was implemented. There may be some negative social impacts on the both the commercial and recreational sectors in south Florida due to changes in distribution under **Alternative 2** and **Preferred Alternative 3.** Additionally, **Preferred Alternative 3** will split Monroe County, requiring additional burden and increased risk of misreporting because fishermen move from oceanside to bayside on a regular basis.

4.3.4 Direct and Indirect Effect on the Administrative Environment

Establishing separate migratory groups of cobia for management purposes would be a procedural issue and would not increase the administrative burden. However, any permits associated with the single stock of cobia (status quo) would need to be revised and re-issued if **Alternative 2** or **Preferred Alternative 3** were selected. The administrative burden associated with revising and re-issuing necessary permits is expected to be significant.

4.3.5 Council Conclusions

Will be added after public hearings.

4.4 ACTION 4: Acceptable Biological Catch (ABC) Control Rule for Gulf Group Cobia

Alternative 1. No Action – do not establish an ABC Control Rule.

Preferred Alternative 2. Adopt the Gulf Council's ABC Control Rule. [Note: the SSC used Tier 3a to set ABC at 1.46 mp]

Alternative 3. Adopt a control rule that sets ABC = yield corresponding 0.75*FMSY when the stock is at equilibrium for Gulf group cobia [currently estimated at 1.45 MP] (This is the current definition of OY.)

4.4.1 Direct and Indirect Effects on Physical Environment

This action is largely administrative in nature, and would not directly affect the physical environments. While the development of the ABC control rule is not reasonably expected to have direct effects, the resultant management strategies for these groups could affect the level of fishing effort which may have slight affects on the physical environment.

4.4.2 Direct and Indirect Effects on Biological/Ecological Environment

Alternatives 2 and **3** may provide indirect beneficial effects to the biological and ecological environment compared to **Alternative 1**. **Preferred Alternative 2** and **Alternative 3** create specific guidelines for setting ABC with consistency versus using an ad hoc basis by the SSC. **Preferred Alternative 2** is a more complex alternative with numerous tiers for adopting an ABC based on the information that is available for the cobia stock. The ABC level under this alternative is only slightly less conservative than under **Alternative 3**. Because the Council cannot set an ACL higher than the ABC, benefits to the biological environment would be almost identical under either **Preferred Alternative 2** or **Alternative 3.** However, **Alternative 3** sets the ABC using a static definition, and does not allow for changes in the level of risk based on new stock assessments.

4.4.3 Direct and Indirect Effects on Economic Environment

The establishment of an ABC control rule, in and of itself, is not expected to directly affect the harvest or customary uses of the resources. As such, this management action is not expected to result in any direct effects on the economic environment. However, the subsequent use of the selected rule to determine ABCs is expected to result in indirect economic effects. The reliance of a consistent rule to determine ABC levels, as opposed to the traditional ad hoc approach, is expected to result in tangible biological benefits to the stocks in the future; potentially yielding indirect economic benefits. In addition, the use of the selected control rule, which would determine the maximum allowable harvest, may result in indirect adverse economic effects if resulting ABC levels are lower than ABCs determined without the use of a control rule[3]. It follows that indirect economic benefits would be expected if the ABCs based on the control rule are greater than the ones determined without the control rule. Net indirect economic effects expected from the selection of a control rule could be positive or negative, depending on the relative magnitude of economic benefits anticipated from the use of a consistent rule and economic effects resulting from the difference between ABCs determined with the control rule and those derived without. While the magnitude of these net economic effects cannot be quantified, it is expected that, compared to **Alternative 3** which determines ABCs using a predetermined buffer, **Preferred Alternative 2** would result in greater economic benefits (or lower adverse economic effects) because it relies on a control rule that accounts for changes in the condition of the cobia stock.

4.4.4 Direct and Indirect Effect on the Social Environment

According to the National Standard guidelines Annual Catch Limits have been relegated primarily to biological assessments and reference points to address scientific uncertainty. While setting the biological parameters on catch through ACLs can have indirect effects on the social environment, it is difficult to know what those effects will be until a definitive number has been

[3] It is assumed that a reduction in ABCs would result in a proportional reduction in ACLs and/or ACTs.

assigned which translates into harvest levels. Certainly, setting thresholds that adequately assess biological risk through harvest levels on stocks that are vulnerable can help stabilize landings and thereby provide long-term benefits to the fishery which should translate into positive social benefits over time. It is the short term costs involved that often drive perceptions of negative impacts. These impacts can translate into real costs that have significant impacts to both the commercial and recreational sectors. For fisheries where information is scarce and management is uncertain, it becomes a real possibility that there can be negative short term impacts that may not have been necessary if thresholds are too restrictive. In other fisheries which have more certainty in management and monitoring of catch, a more precise harvest level can be set with certainty and reduce volatility in the fishery which should produce positive effects.

In **Alternative 1** by not establishing an ACL the Councils would not be in compliance with National Standards. So, setting some type of overall ACL will likely be established. By establishing separate sector allocations as in **Alternatives 2 & 3 options b & c**, there would likely be some changes in fishing behavior and impacts to the social environment. The mere act of separating the ACL into two sector ACLs has the perception of creating scarcity in that limits have been imposed on each individual sector. Setting an overall ACL has a similar impact, but does not have the same effect on perceptions as there is more flexibility with regard to catch between sectors. However, the risk of one sector causing a closure for the other is always a possibility if one ACL is selected as in **Alternative 2 Option a** or **Alternative 3 Option a.** Setting separate ACLs places accountability within each sector. However, each subsequent division will drive perceptions of scarcity and likely change the fishing behavior of those within a particular sector. The coastal pelagic FMP has already created sector separation with allocation between the recreational and commercial sectors. Management alternatives also exist to regulate certain sectors, so further allocation may not be viewed as intrusive as long as harvest remains stable with little volatility from management actions.

4.4.5 Direct and Indirect Effect on the Administrative Environment

Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 2, Options b or Option c** would require tracking the commercial and recreational landings every year. The tracking of recreational landings can be challenging and would likely impose a burden on the administrative environment. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.4.6 Council Conclusions

Will be added

4.5 ACTION 5: Annual Catch Limits and Annual Catch Targets for Gulf Group Cobia

ACTION 5.1: Annual Catch Limit (ACL) for Gulf Group Cobia

Alternative 1. No action – do not set ACL for Gulf group cobia

Preferred Alternative 2. Set ACL = ABC for Gulf group cobia [based on preferred ABC 1.46 mp]

> **Preferred** Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

Alternative 3: Set ACL = 90% of ABC for Gulf group cobia [based on preferred ABC 1.31 mp]

> Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

Alternative 4: Set ACL = 85% of ABC for Gulf group cobia [based on preferred ABC 1.24 mp]

> Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

Alternative 5: Set ACL = 80% of ABC for Gulf group cobia [based on preferred ABC 1.17 mp]

> Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

Alternative 6: Set ACL = 75% of ABC for Gulf group cobia [based on preferred ABC 1.10 mp]

> Option a. Set a single stock ACL
> Option b. Set separate commercial and recreational ACLs based on current average percent of catches for the period 2000 through 2009

ACTION 5.2: Set Annual Catch Target (ACT) for Gulf Group Cobia

Alternative 1. No action – do not set ACT for Gulf group cobia

Preferred Alternative 2. Set ACT = 90% of ACL for Gulf group cobia

> **Preferred** Option a. Set a single stock ACT
> Option b. Set separate commercial and recreational ACTs based on current average percent of catches for the period 2000 through 2009

Alternative 3. Set ACT = 85% of ACL for Gulf group cobia

> Option a. Set a single stock ACT
> Option b. Set separate commercial and recreational ACTs based on current average percent of catches for the period 2000 through 2009

4.5.1 Direct and Indirect Effects on Physical Environment

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACL or ACT, fishing effort could be reduced through AMs such as a shortened season, and negative impacts might be decreased. Cobia are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral.

4.5.2 Direct and Indirect Effects on Biological/Ecological Environment

Setting an ACL or ACT potentially will have an impact on the biological environment if harvest changes from current levels, and AMs are triggered when the ACL or ACT are met or exceeded. An ACL equal to the ABC (Action 5-1, **Preferred Alternative 2**) would allow a higher level of landings than an ACL lower than the ABC. In fact, the ACL set by **Preferred Alternative 2** in Action 5-1 would not have been exceeded in the past ten years. Progressively lower ACLs (Action 5-1, **Alternatives 3-6**) would restrict landings more and increase the likelihood of exceeding the ACL in more years. Likewise, not setting an ACT (Action 5-2, **Alternative 1**) would allow a higher level of landings than setting an ACT below the ACL (Action 5-2, **Preferred Alternative 2** and **Alternative 3)**.

The more the ACL or ACT is divided, the more accountability each division will have. With a single ACL or ACT for the stock (**Preferred Option a**), one sector could exceed its allocation without triggering AMs, as long as the stock ACL or ACT is not exceeded. If the ACL or ACT is separated by sectors (**Option b**), AMs would be triggered as each sector reaches its limit, provided adequate monitoring could be in place. This level of control would be expected to result in greater positive impacts on the biological environment because catch would be more restricted. Further, with separate ACLs or ACTs, different types of AMs could be triggered that are more suited to the particular sector, and therefore, be more effective in constraining harvest within the ACL.

4.5.3 Direct and Indirect Effects on Economic Environment

ACTION 5.1: Annual Catch Limit (ACL) for Gulf Group Cobia

Management measures considered under this action would either set a single annual catch limit for Gulf group cobia (**Option a**) or establish separate commercial and recreational ACLs for gulf group cobia (**Option b**). Gulf group cobia ACLs under consideration range from a maximum of 1.46 mp under **Preferred Alternative 2** to a lower bound of 1.10 mp under **Alternative 6**. Based on the magnitude of the annual catch limits under consideration relative to cobia landings in the Gulf, it is unlikely that Gulf group cobia harvests would exceed the aggregate annual catch limit under **Preferred Alternative 2**. For Gulf group cobia, recreational landings, which have been declining in recent years, account for about 90% of the landings. In 2009, recreational landings for the Gulf and all of Monroe County totaled 599,280 lbs; the most recent five-year average

(2005-2009) is estimated at 1.01 MP, approximately. In the commercial sector, 2009 landings for the Gulf and all of Monroe County totaled only 71,152 lbs; the 2005-2009 average was estimated at 87,000 lbs, approximately. However, under separate recreational and commercial ACLs, it is possible that one sector (most likely commercial) could exceed its ACL; triggering restrictions and associated economic effects. In general, the greater the ACL considered, the less likely it would be expected to be exceeded, or, if exceeded, the smaller the overage. Therefore, while economic effects are not expected to result from **Preferred Alternative 2 – Preferred Option a**, adverse economic effects may result from the remaining alternatives. **Alternatives 3-6** are anticipated to result in adverse economic effects should the ACLs be exceeded and corrective measures be triggered; the magnitude of these effects is determined by the size of the overage and the nature of the corrective measures enacted in response. Should harvest levels remain below the ACL, no economic effects would result.

ACTION 5.2: Set Annual Catch Target (ACT) for Gulf Group Cobia

Potential economic effects anticipated from the implementation of annual catch targets would depend on the extent to which the ACTs under consideration would affect the harvest or other customary uses of the resource. Based on the preferred alternative selected in Action 5.1, ACTs under consideration range from 1.31 mp under **Preferred Alternative 2** to 1.24 mp under **Alternative 3**. The magnitude of Gulf group cobia landings compared to ACT levels suggests that these thresholds would likely not be reached. Therefore, economic effects are not expected from the implementation of a single ACT (or of separate commercial and recreational ACTs). However, in the event that ACTs become binding constraints, the magnitude of adverse economic effects is expected to be proportional to the severity of the constraint imposed on fishery participants i.e., the nature of corrective measures implemented in response to the overage.

4.5.4 Direct and Indirect Effect on the Social Environment

The social effects of setting ACTs for Gulf Group cobia are similar to setting ACLs, especially if separate ACTs are developed. ACTs are utilized in fisheries where there may management uncertainty that adds risk to reaching target harvest levels beyond the biological risks. It usually entails a further reduction in harvest levels to ensure catch remains at or below the ACL or relevant biological threshold. Each reduction in harvest threshold will certainly have social effects which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. In understanding management uncertainty there are often other factors that need to be considered: law enforcement difficulties, monitoring issues or socio-economic aspects of the fishery. Certainly **Alternative 2, Option a** could have fewer negative social effects than **Alternative 3** with **Options a, b or c**. Although, **Alternative 3, Option a** could have fewer social effects than **Options b or c**. With **Alternative 4 Option a**, a single ACL, would be a further reduction from the ABC and could have negative social effect, as well as **Options b and c** which would set up separate ACLs. Moving from **Alternative 2** to **Alternative 4** there is a reduction in ACT that may have negative social effects if harvests are reduced significantly.

4.5.5 Direct and Indirect Effect on the Administrative Environment

Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 2, Options b or Option c** would require tracking the commercial and recreational landings every year. The tracking of recreational landings can be challenging and would likely impose a burden on the administrative environment. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.5.6 Council Conclusions

Will be added

4.6 ACTION 6: Set Accountability Measures (AMs) for Gulf Group Cobia

Alternative 1. No Action

Option a. Commercial – none

Option b. Recreational - The Regional Administrator has authority via the framework to revert the possession limit to zero if fishermen have achieved or are expected to achieve their allocation

Preferred Alternative 2. Set in-season AMs for Gulf group cobia

Option a. If the ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to close the fishery for the remainder of the fishing year

Option b. If 90% of stock ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the possession limit to one fish person per day

Preferred Option c. When the 90% annual catch target is reached, that the possession limit be reduced to one fish per person per day until the annual catch limit (ACL) is reached. Once the ACL is reached, the fishery would be closed.

Note: this wording is from the motion during the April Council meeting; the IPT suggests changing to the following for consistency:

Preferred Option c. When the ACT is reached or projected to be reached, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the possession limit to one fish per person per day until the ACL is reached. When the ACL is reached or projected to be reached, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to close the fishery (commercial and recreational)

Alternative 3. Set post-season AMs for Gulf group cobia

Option a. Payback - If the ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 5.

Option b. Possession limit reduction - If the ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the possession limit to one fish per person per day in the following year

Option c. Shorten season - If the ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement temporary regulations for the following year to close the stock at a date when the stock is projected to meet its ACT

Option d. Trigger (can be chosen in addition to other options) - Post-season accountability measures will be triggered in 2012 if the 2011 landings exceed the ACL, in 2013 if the 2011-2012 average landings exceed the ACL, or in 2011-2013 average landings exceed the ACL, and thereafter if average landings exceed the equivalent three-year ACL. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter.

4.6.1 Direct and Indirect Effects on Physical Environment

This action would have no direct or indirect effect on the physical environment. To the extent that accountability measures shorten commercial and recreational fishing seasons, small benefits to the physical environment may result from reduced effort. A decrease or increase in fishing effort may have slight affects on the physical environment. Fishing can have negative impacts on the bottom as described in Action 4.

4.6.2 Direct and Indirect Effects on Biological/Ecological Environment

The purpose of AMs is to prevent ACLs from being exceeded or to take corrective action if ACLs are exceeded. There are two types of AMs specified by the National Standard 1 guidelines: in-season AMs and AMs when the ACL has been exceeded after the fishing season has closed (referred to as post-season in this amendment). The AMs are not mutually exclusive and can be used together if necessary.

Preferred Alternative 2 would attempt to limit harvest to levels at or below the ACL or ACT by reducing and/or closing harvest once a particular landings threshold is met during the season. If sector ACLs or ACTs were chosen, separate commercial and recreational AMs could be chosen (**Options a** and **b**). However, under the Council's preferred alternative for a single stock ACL and ACT, **Preferred Option c** would be appropriate to constrain the total harvest. By using in-season AMs triggered by the ACT, the ACL is less likely to be exceeded than if only post-season AMs are used.

Alternative 3, Options a-c include sector-specific post-season AMs that would be triggered in the event of an ACL overage. The post-season AM options are designed to compensate or correct for the magnitude of an overage during the following fishing year. Biologically, the ideal scenario is not to allow the ACL to be exceeded, then no post-season AM would be required and the stock would realize the biological benefits of sustainable harvest conditions into perpetuity. Unfortunately, management and scientific uncertainty, and numerous other variables including economic and unforeseen biologic and weather events, play a major role in annual landings, which may fall above or below any number of harvest parameters. The advantage of implementing post-season AMs is that the landings data for any given year can be examined in totality before the AM is actually triggered, as opposed to in-season AMs that would rely largely on projections of harvest that may or may not have a high degree of uncertainty. Using actual landings data to calculate the precise magnitude of an overage is typically biologically beneficial in that it ensures an adequate level of payback is implemented.

Option d proposes an alternate trigger schedule for implementing post-season AMs. Instead of AMs being triggered based on each year's landings compared to the ACL, a three-year running average would be compared to the ACL. Because landings data may be highly variable, using a three-year running average of estimated landings compared to the ACL could reduce, to some extent, variability caused by anomalous spikes or declines in landings. Averaging harvest over several years would minimize the influence any one exceptionally poor or exceptionally good year could have on the magnitude of the post-season AMs.

4.6.3 Direct and Indirect Effects on Economic Environment

Alternative 1would not result in direct economic effects because it does not trigger changes in management measures that would result in changes in the harvest or other customary uses of the resource. **Alternative 1**, which is not in compliance with regulatory mandates, is however expected to result in indirect economic effects. Indirect economic effects are anticipated to result from restrictive measures that could be required in the future should harvests above acceptable biological levels occur. All other alternatives are expected to result in direct economic effects on fishing participants. The timing and extent to which harvest levels are reduced and/or seasons are shortened will determined the magnitude of these economic effects.

Preferred Alternative 2 would attempt to prevent overages by implementing in-season accountability measures. Therefore, management measures that would restrict fishery participants' opportunities to harvest the resource would be implemented sooner than under **Alternative 3**, resulting in greater expected adverse economic effects in the short term. However, preventing harvest above prescribed levels is anticipated to result in longer term economic benefits stemming from the added protection to the stocks.

Alternative 3, which would remedy potential harvest overages after the fact by implementing post-season accountability measures, is expected to result in lower short term adverse economic effects compared to **Preferred Alternative 2**. The negative economic effects are anticipated to be smaller in the short term due to the delay in the implementation of corrective measures; fishery participants can actually continue to harvest the resource above prescribed levels throughout the predetermined season before any corrective measure is considered. However, in the longer term, **Alternative 3** is expected to result in greater adverse economic effects because more stringent corrective actions are expected to be required to remedy overages.

4.6.4 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short term, they may at times induce other indirect effects through changes in fishing behavior. The coastal pelagic FMP does have accountability measures in place for other species; therefore fishermen are familiar with such management.

Alternative 1 would put no accountability measures in place and would risk further harm to the stock if bag limits in place were not sufficient to keep the ACLs or ACTs from being exceeded. This would avoid short term negative social impacts, but may incur longer term impacts if stock status were jeopardized. The implementation of in season AMs in **Alternative 2** would require projection of the harvest in the commercial fishery to ensure no overages. This type of quota monitoring is not as precise as post season, but **Option a, Suboption ii** setting trip limits is utilized already with other coastal pelagic species, but cobia has none at this time. Reducing the recreational bag limit in **Option b, Suboption ii** may be more difficult as ensuring compliance and sufficient public notice of the change in season can be difficult, although it has been accomplished in the past with other species. The many options under **Alternative 3**, post season monitoring, can be more precise in both determining the size of the overage, but also the payback necessary. It does however, increase the risk of exceeding an ACL in season. What impacts are derived from either in season or post season accountability measures would depend upon the volatility of the fishery and the perceived risks of exceeding the ACL. However, as discussed earlier, fishing behaviors can change depending upon management measures chosen and the perception of scarcity. If ACLs begin to be exceeded and accountability measures are implemented which close the fishery, effort may be directed elsewhere. The ability to redirect fishing effort is becoming more difficult as limited entry management is becoming more common. Therefore, if there are fewer choices for redirecting effort, whether it is changing fisheries or choosing temporary work outside the fishery, the indirect effects on the social environment may extend beyond the coastal pelagic fishery.

4.6.5 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce near-term administrative impacts. Administrative impacts of **Alternatives 2-3** would increase the administrative burden from the status quo by changing AMs for gulf group cobia. The administrative burden of **Alternative 2** and **Alternative 3** would be similar as would the burden imposed by the various options and sub-options. All of the action alternatives, options and sub-options will result in a need for increased monitoring, enforcement, rule-making, education and outreach. As more options or sub-options are selected as preferred the administrative burden will increase. The sub-options associated with **Alternative 2, Option b** would have the greatest increase in administrative burden due to the difficulty with tracking recreational landings in season.

4.6.6 Council Conclusions

Will be added

4.7 ACTION 7: Acceptable Biological Catch (ABC) Control Rule for Gulf Group King Mackerel

Alternative 1: No Action – Do not establish an ABC Control Rule.

Preferred Alternative 2: Adopt the Gulf Council's ABC Control rule. [Note: the SSC used Tier 1 to set ABC through 2013]

Alternative 3: Adopt a control rule that sets ABC = yield at F 85% at SPR30%

4.7.1 Direct and Indirect Effects on Physical Environment

This action is largely administrative in nature, and would not directly affect the physical environments. While the development of the ABC control rule is not reasonably expected to have direct effects, the resultant management strategies for these groups could affect the level of fishing effort which may have slight affects on the physical environment.

4.7.2 Direct and Indirect Effects on Biological/Ecological Environment

Alternatives 2 and **3** may provide indirect beneficial effects to the biological and ecological environment compared to **Alternative 1**. **Alternatives 2** and **3** create specific guidelines for setting ABC with consistency verses using an ad hoc basis by the SSC. **Alternative 2** is a more complex alternative with numerous tiers for adopting an ABC based on the information that is available for the king mackerel stock. The ABC level under **Alternative 2** is only slightly higher than under **Alternative 3**. Because the Council cannot set an ACL higher than the ABC, benefits to the biological environment would be similar under each of these alternatives. **Alternative 3** sets the ABC using a static definition, and does not allow for changes in the level of risk based on new stock assessments.

4.7.3 Direct and Indirect Effects on Economic Environment

The establishment of an ABC control rule, in and of itself, is not expected to directly affect the harvest or customary uses of the resources. This action is not expected to result in direct economic effects. However, the subsequent use of the selected rule to determine ABCs is expected to result in indirect economic effects. The reliance of a consistent rule to determine ABC levels, as opposed to the traditional ad hoc approach, is expected to result in biological benefits to the stocks in the future; potentially yielding indirect economic benefits. In addition, the use of the selected control rule, which would determine the maximum allowable harvest, may result in indirect adverse economic effects if resulting ABC levels are lower than ABCs determined without the use of a control rule[4]. It follows that indirect economic benefits would

---

[4] It is assumed that a reduction in ABCs would result in a proportional reduction in ACLs and/or ACTs.

be expected if the ABCs based on the control rule are greater than the ones determined without the control rule. Net indirect economic effects expected from the selection of a control rule could be positive or negative, depending on the relative magnitude of economic benefits anticipated from the use of a consistent rule and economic effects resulting from the difference between ABCs determined with the control rule and those derived without. While the magnitude of these net economic effects cannot be quantified, it is expected that, compared to **Alternative 3** which determines ABCs using a predetermined buffer, **Preferred Alternative 2** would result in greater economic benefits (or lower adverse economic effects) because it relies on a control rule that accounts for changes in the condition of the king mackerel stock.

4.7.4 Direct and Indirect Effect on the Social Environment

As discussed under the cobia ACL **Action 4.4**, ACLs can have indirect effects on the social environment and it is difficult to know what those effects will be until a definitive number has been assigned which translates into harvest levels. In **Alternative 1** by not establishing an ACL the Councils would not be in compliance with National Standards. So, setting some type of overall ACL will likely be established. By establishing separate sector allocations as in **Alternatives 2 & 3 options b & c**, there would likely be some changes in fishing behavior and impacts to the social environment as there are more sectors to allocate to. The mere act of separating the ACL into two sector ACLs has the perception of creating scarcity in that limits have been imposed on each individual sector in **Option b** under both **Alternatives 2 and** 3 with the lower ACL in **Alternative 3** likely to have increased social effects. Setting an overall ACL has a similar impact, but does not have the same effect on perceptions as there is more flexibility with regard to catch between sectors. However, the risk of one sector causing a closure for the other is always a possibility. Setting separate ACLs places accountability within each sector. However, each subsequent division will drive perceptions of scarcity and likely change the fishing behavior of those within a particular sector. In addition, further sector allocation places a greater burden on the administration of quotas and monitoring.

4.7.5 Direct and Indirect Effect on the Administrative Environment

Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for gulf migratory group king mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2- 3** are minimal and would not differ much between the two action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

The action alternatives also provide options related to the allocation of the quota between the commercial and recreational sectors (**Option b**) and between the hook and line and run-around gillnet sectors (**Option c**). **Option b** and **Option c** could increase the administrative impacts to NOAA Fisheries Service as landings would need to be monitored in relation to the commercial and recreational portion if **Option b** is selected. If **Option c** is selected, the administrative burden would increase as the landings of the hook-and-line and run-around gillnet sectors would need to be monitored.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.7.6 Council Conclusions

Will be added

4.8 Action 8 Set Annual Catch Limit and Annual Catch Target for Gulf Group King Mackerel

ACTION 8.1: Set Annual Catch Limit (ACL) for Gulf Group King Mackerel

Alternative 1. No Action - maintain ACL at the current TAC for Gulf group king mackerel [10.2 mp]

Preferred Alternative 2. Set ACL = ABC for Gulf group king mackerel [11.9 mp for 2012]
- Option a. Set a single ACL
- **Preferred** Option b. Set separate commercial and recreational ACLs based on current allocations (recreational 8.092 mp, commercial 3.808 mp)
- **Preferred** Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets (hook and line: 3,200,386 lb; gillnet 607,614 lb)

Alternative 3. Set ACL = 90% of ABC for Gulf group king mackerel [10.7 mp for 2012]
- Option a. Set a single ACL
- Option b. Set separate commercial and recreational ACLs based on current allocations
- Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

Alternative 4. Set ACL = 85% of ABC for Gulf group king mackerel [10.1 mp for 2012]
- Option a. Set a single ACL
- Option b. Set separate commercial and recreational ACLs based on current allocations
- Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

Alternative 5. Set ACL = 80% of ABC for Gulf group king mackerel [9.5 mp for 2012]
- Option a. Set a single ACL
- Option b. Set separate commercial and recreational ACLs based on current allocations
- Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

Alternative 6. Set ACL = 75% of ABC for Gulf group king mackerel [8.9 mp for 2012]
- Option a. Set a single ACL

Option b. Set separate commercial and recreational ACLs based on current allocations
Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

ACTION 8.2: Set Annual Catch Target (ACT) for Gulf Migratory Group King Mackerel

Alternative 1. No Action - do not set an ACT for Gulf group king mackerel

Alternative 2. Set ACT = 90% of ACL for Gulf group king mackerel
Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations
Option c. For the commercial sector, set separate ACTs by zone, subzone, and gear

Alternative 3. Set ACT = 85% of ACL for Gulf group king mackerel
Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations
Option c. For the commercial sector, set separate ACTs by zone, subzone, and gear

4.8.1 Direct and Indirect Effects on Physical Environment

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACL or ACT, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. King mackerel are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral.

4.8.2 Direct and Indirect Effects on Biological/Ecological Environment

Setting ACLs or ACTs potentially will have an impact on the biological environment if harvest changes from current levels, and AMs are triggered when the ACLs or ACTs are met or exceeded. An ACL equal to the ABC (Action 8.1, **Preferred Alternative 2**) would allow a higher level of landings than an ACL lower than the ABC. In fact, the ACL set by **Preferred Alternative 2** in Action 8.1 would be unlikely to be met based on recent landings. Progressively lower ACLs (Action 8.1, **Alternatives 3-6**) would restrict landings more and increase the likelihood of exceeding the ACL, although recent landings have not met even the lowest proposed ACL. Likewise, not setting an ACT (Action 8.2, **Alternative 1**) would allow a higher level of landings than setting an ACT below the ACL (Action 8.2, **Preferred Alternative 2** and **Alternative 3)**.

The more the ACL or ACT is divided, the more accountability each division will have. With a single ACL or ACT for the stock (**Option a**), one sector could exceed its allocation without triggering AMs, as long as the stock ACL or ACT is not exceeded. If the ACL or ACT is separated by sectors (**Option b**), AMs would be triggered as each sector reaches its limit, provided adequate monitoring could be in place. Although the recreational sector would be unlikely to exceed its ACL, the commercial sector might. This level of control would be expected to result in greater positive impacts on the biological environment because catch would be more restricted. Further, with separate ACLs or ACTs, different types of AMs could be triggered that are more suited to the particular sector, and therefore, be more effective in constraining harvest within the ACL.

In Action 8.1, **Option c** allows for further division of the ACL by gear for the commercial sector. In most areas of the Gulf, hook and line are used to fish for king mackerel. Run around gillnets are only allowed in the west coast Florida southern subzone beginning the Tuesday after the Martin Luther King, Jr. holiday. In most years the gillnet component catches its quota within one or two weeks, and has exceeded its quota the past four years. A separate ACL for this component would allow AMs such payback to be implemented only for this component if they exceeded the ACL. Because the quota overages for the gillnet component have been as high as 33% in past years, this option could provide positive benefits to the biological environment.
In Action 8.2, **Option c** divides the commercial ACT by area and gear. If this option is chosen, the ACTs would match the current division of quotas. Current AMs have been fairly successful in constraining harvest within the current quotas for most portions of the commercial sector and would be expected to do so under the proposed ACTs.

4.8.3 Direct and Indirect Effects on Economic Environment

ACTION 8.1: Set Annual Catch Limit (ACL) for Gulf Group King Mackerel

For 2012, Gulf group king mackerel ACLs considered in this action range from a maximum of 11.9 mp under Preferred Alternative 2 to a minimum of 8.9 mp under Alternative 6. Preferred Alternative 2 and Alternative 3 would set ACLs greater than the current TAC. ACLs set under Alternatives 4-6 would be lower than the TAC. However, the most conservative of the ACLs considered under this action is about 2 mp greater than the average Gulf group king mackerel landings in recent years. It is therefore not likely that the overall Gulf group king mackerel would be exceeded. Thus, Preferred Alternative 2 – Option a is not expected to result in economic effects. However, under Preferred Alternative 2 – Preferred Option b – Preferred Option c, which would set separate recreational and commercial ACLs and further divide the commercial ACL into gear-specific ACLs, the commercial ACL and/or one or all gear-specific ACLs could be exceeded, triggering harvest restrictions; resulting in adverse economic effects. For Alternatives 3-6, as long as a single aggregate ACL is set, it is not likely to be exceeded. Thus, economic effects would not be anticipated to result from Alternatives 3-6 under Option a. Under Options b or c, Alternatives 3-6 are anticipated to result in adverse economic effects should the ACLs be exceeded and corrective measures triggered. The magnitude of these effects would depend on the size of the overage and the nature of the corrective measures enacted in response. Should harvest levels remain below the ACL, no economic effects would result.

ACTION 8.2: Set Annual Catch Target (ACT) for Gulf Migratory Group King Mackerel

Economic effects anticipated from the implementation of annual catch targets would depend on the extent to which the ACTs under consideration would affect the harvest or other customary uses of the resource. Based on the preferred alternative selected in Action 8.1, ACTs considered in this action range from 11.9 mp under Alternative 1 (the no action alternative would not set an ACT; ACT would equal ACL) to 10.1 mp under Alternative 3. If a single ACT is set (Option a), the magnitude of Gulf group king mackerel landings compared to ACT levels suggests that these thresholds would likely not be reached. Therefore, economic effects are not expected from the implementation of a single ACT. However, should separate ACTs for the commercial and recreational sectors be set (Option b) or should the commercial ACT be further subdivided by zone, subzone and gear type (Option c), ACTs would likely become binding constraints for the commercial sector; possibly affecting commercial harvests and resulting in adverse economic effects. In the event that ACTs become binding constraints, the magnitude of adverse economic effects is expected to be proportional to the severity of the constraint imposed on fishery participants and the nature of corrective measures implemented in response to the overage. Average landings for the recreational sector indicate that even under separate ACTs, economic effects are not expected because recreational landings would be well below the recreational ACT.

4.8.4 Direct and Indirect Effect on the Social Environment

The social effects of setting ACTs for Gulf Group king mackerel are similar to setting ACLs, especially if separate ACTs are developed. ACTs are utilized in fisheries where there may management uncertainty that adds risk to reaching target harvest levels beyond the biological risks. It usually entails a further reduction in harvest levels to ensure catch remains at or below the ACL or relevant biological threshold, but can be set equal to other thresholds. Each reduction in harvest threshold will certainly have social effects which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. In understanding management uncertainty there are often other factors that need to be considered: law enforcement difficulties, monitoring issues or socio-economic aspects of the fishery. In the no action **Alternative 1**, the harvesting threshold would fall back to the ACL, ABC or OFL. By establishing separate sector allocations as in **Alternatives 3 & 4 options b & c**, there would likely be some changes in fishing behavior and impacts to the social environment as there are more sectors to allocate to. The mere act of separating the ACT into two or more sector ACTs has the perception of creating scarcity in that limits have been imposed on each individual sector in **Option b and c** under both **Alternatives 3 and 4** with the lower ACT in **Alternative 4** likely to have increased social effects. Setting an overall ACT in **Alternative 2** has a similar impact, but does not have the same effect on perceptions as there is more flexibility with regard to catch between sectors. However, the risk of one sector causing a closure for the others is always a possibility and depends on monitoring capabilities. Setting separate ACLs places accountability within each sector. However, each subsequent division will drive perceptions of scarcity and likely change the fishing behavior of those within a particular sector. In addition, further sector allocation places a greater burden on the administration of quotas and monitoring. The coastal pelagic FMP has already created sector separation with allocation between the recreational and commercial sectors. Within the commercial sector there are allocations divided among gear types as well. Management alternatives also exist to regulate particular sectors with trip limits and seasonal closures, so further allocation may not be viewed as intrusive as long as harvest remains stable while reducing unpredictability from management actions.

4.8.5 Direct and Indirect Effect on the Administrative Environment

Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 2** would establish the ACT as the current TAC for gulf group king mackerel. **Alternative 1** and **Alternative 2** would result in no change to the administrative impacts. **Alternative 3 and Alternative 4,** and associated options would require additional administrative support with regards to tracking landings of commercial and recreational sectors **(Option b)** and hook-and-line and run-around gillnet sectors **(Option c).** The tracking of recreational landings under **Option b** can be challenging and would likely impose a burden on the administrative environment. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.8.6 Council Conclusions

Will be added

4.9 ACTION 9: Set Accountability Measures (AMs) for Gulf Migratory Group King Mackerel

Alternative 1. No Action - retain current in-season accountability measures (AMs) for Gulf group king mackerel. [Note: IPT recommends this as a preferred alternative.]

Option a. Commercial

Supoption i. If the quota (=ACT) for a zone, subzone, or gear is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to close that zone, subzone, or gear for the remainder of the fishing year

Suboption ii. If 75% of quota (=ACT) is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to reduce the trip limit to 500 lbs per day for the northern and southern west coast Florida subzones

Option b. Recreational - The Regional Administrator has authority via the framework to revert the bag limit to zero if fishermen have achieved or are expected to achieve their allocation

Alternative 2. Change in-season AMs for Gulf group king mackerel

Option a. Commercial – If the commercial ACT for a zone, subzone, or gear is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to reduce the trip limit by 50% for any zone, subzone, or gear when 75/85% of its commercial ACT is reached or projected to be reached

Option b. Recreational - If 75/85% of the recreational ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to reduce the bag limit to one

Alternative 3. Set post-season AMs for Gulf group king mackerel

Option a. Commercial

Suboption i. Payback - If the total commercial ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 8.

Suboption ii. Payback - If the commercial ACL for a gear is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the ACL for that gear in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 8.

Option b. Recreational

Suboption i. Payback - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the recreational ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 8.

Suboption ii. Trip limit reduction - If the ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the trip limit to one fish per person per day in the following year

Suboption iii. Shorten season - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement temporary regulations for the following year to close the recreational sector at a date when the recreational sector is projected to meet its ACT

4.9.1 Direct and Indirect Effects on Physical Environment

This action would have no direct or indirect effect on the physical environment. To the extent that accountability measures shorten commercial and recreational fishing seasons, small benefits to the physical environment may result from reduced effort. A decrease or increase in fishing effort may have slight affects on the physical environment. Fishing can have negative impacts on the bottom as described in Action 8.

4.9.2 Direct and Indirect Effects on Biological/Ecological Environment

The purpose of AMs is to prevent ACLs from being exceeded or to take corrective action if ACLs are exceeded. There are two types of AMs specified by the National Standard 1 guidelines: in-season AMs and AMs when the ACL has been exceeded after the fishing season has closed (referred to as post-season in this amendment). The AMs are not mutually exclusive and can be used together if necessary.

Alternative 1 would retain the current AMs for king mackerel. These AMs are fairly extensive for the commercial sector and include quota closures for specific areas, as well as trip limit changes. Although these measures can be confusing and somewhat administratively burdensome, they have been mostly successful in constraining harvest within the current quotas.

Alternative 2 would attempt to limit harvest to levels at or below the ACL or ACT by reducing and/or closing harvest once a particular landings threshold is met during the season. Because the Regional Administrator already has authority to close each sector, options under **Alternative 2** could be chosen in conjunction with closure options in **Alternative 1**. By using in-season AMs triggered by the ACT, the ACL is less likely to be exceeded than if only post-season AMs are used.

Alternative 3 includes sector-specific post-season AMs that would be triggered in the event of an ACL overage. The post-season AM options are designed to compensate or correct for the magnitude of an overage during the following fishing year. Biologically, the ideal scenario is not to allow the ACL to be exceeded, then no post-season AM would be required and the stock would realize the biological benefits of sustainable harvest conditions into perpetuity. Unfortunately, management and scientific uncertainty, and numerous other variables including economic and unforeseen biologic and weather events, play a major role in annual landings, which may fall above or below any number of harvest parameters. The advantage of implementing post-season AMs is that the landings data for any given year can be examined in totality before the AM is actually triggered, as opposed to in-season AMs that would rely largely on projections of harvest that may or may not have a high degree of uncertainty. Using actual landings data to calculate the precise magnitude of an overage is typically biologically beneficial in that it ensures an adequate level of payback is implemented.

For the commercial sector, post-season AMs consist of options to payback any overage from a year when the ACL is exceeded. This payback could be only when the total commercial ACL is exceeded or when the ACL for a specific gear is exceeded, as set in the Council's **Preferred Alternative 2, Option c** for Action 8.1. Any payback would result in beneficial impacts on the biological environment. For the recreational sector, payback is also an option to account for an overage in a year (Suboption i), but **Suboptions ii and iii** would only constrain the harvest in the following year. If both **Suboption i** and one of either **Suboption b** or **c** was chosen, the greatest benefit to the biological environment would be realized.

4.9.3 Direct and Indirect Effects on Economic Environment

Alternative 1 would continue to attempt to prevent overages by implementing in-season accountability measures should landings be projected to reach harvest thresholds set by the ACL or ACT. Although they may result in short term adverse economic effects if implemented, these ex ante restrictions to prevent harvest above prescribed levels are anticipated to result in long term economic benefits stemming from the added protection to the stocks.

Alternative 2 would also control harvest level by relying on in-season corrective measures. Compared to **Alternative 1, Alternative 2** would impose less stringent restrictions on the recreational sector; potentially resulting in lesser adverse economic effects in the short term. However, given the magnitude of the recreational landings compared to ACLs and ACT under consideration, it is highly unlikely that accountability measures would be invoked for the recreational sector. Therefore, economic effects due to corrective measures applied to the recreational sector are not expected. For the commercial sector, the magnitude of net economic effects that are anticipated to result from the implementation of accountability measures would depend on the extent to which fishery participants' opportunities to harvest Gulf group king mackerel are restricted.

Alternative 3, which would remedy potential harvest overages after the fact by implementing post-season accountability measures, is expected to result in lower short term adverse economic effects compared to **Alternatives 1** and **2**. The negative economic effects are anticipated to be smaller in the short term due to the delay in the implementation of corrective measures; fishery participants can actually continue to harvest Gulf group king mackerel above prescribed levels throughout the predetermined season before any corrective measure is considered. However, in the longer term, **Alternative 3** is expected to result in greater adverse economic effects because more stringent corrective actions are expected to be required to remedy overages.

4.9.4 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Gulf group King mackerel have in season accountability measures in place as trip limits and seasonal closures are already in use. The social effects from additional accountability measures will depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures.

Alternative 1 would utilize current accountability measures which should not incur further social effects if sufficient to keep the ACLs or ACTs from being exceeded. The implementation of in season AMs in **Alternative 2** would not be too intrusive as projection of the harvest through quota monitoring is already done in the commercial fishery to prevent overages. This type of quota monitoring is not as precise as post season, but **Option a, Suboption ii** setting trip limits is utilized already with king mackerel. It would depend on the trigger that is selected. Reducing the recreational bag limit in **Option b, Suboption ii** may be more difficult as ensuring compliance and sufficient public notice of the change in season can be difficult, although it has been accomplished in the past with other species. The many options under **Alternative 3**, post season monitoring, can be more precise in both determining the size of the overage, but also the payback necessary. It does however, increase the risk of exceeding an ACL in season. What impacts are derived from either in season or post season accountability measures would depend upon the volatility of the fishery and the perceived risks of exceeding the ACL. However, as discussed earlier, fishing behaviors can change depending upon management measures chosen and the perception of scarcity. If ACLs begin to be exceeded and accountability measures are implemented which close the fishery, effort may be directed elsewhere. The ability to redirect fishing effort is becoming more difficult as limited entry management is becoming more common. Therefore, if there are fewer choices for redirecting effort, whether it is changing fisheries or choosing temporary work outside the fishery, the indirect effects on the social environment may extend beyond the coastal pelagic fishery.

4.9.5 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce near-term administrative impacts. Administrative impacts of **Alternatives 2-3** would increase the administrative burden from the status quo by establishing AMs for Gulf king mackerel. The administrative burden of **Alternative 2** and **Alternative 3** would be similar as would the burden imposed by the various options and sub-options. All of the action alternatives, options and sub-options will result in an increase in monitoring, enforcement, rule-making, education and outreach. As more options or sub-options are selected as preferred the administrative burden will increase. The sub-options associated with **Alternative 2, Option b** would have the greatest increase in administrative burden due to the difficulty with tracking recreational landings in season.

4.9.6 Council Conclusions

Will be added

4.10 ACTION 10: Acceptable Biological Catch (ABC) Control Rule for Gulf Group Spanish Mackerel

Alternative 1: No Action – Do not establish an ABC Control Rule.

Preferred Alternative 2: Adopt the Gulf Council's ABC Control rule. [Note: the SSC used Tier 3a to set ABC at 5.15 mp]

Alternative 3. Adopt a control rule that sets ABC = yield corresponding 0.75*F_{MSY} when the stock is at equilibrium for Gulf group Spanish mackerel

4.10.1 Direct and Indirect Effects on Physical Environment

This action is largely administrative in nature, and would not directly affect the physical environments. While the development of the ABC control rule is not reasonably expected to have direct effects, the resultant management strategies for these groups could affect the level of fishing effort which may have slight affects on the physical environment.

4.10.2 Direct and Indirect Effects on Biological/Ecological Environment

Alternatives 2 and **3** are expected to provide indirect beneficial effects to the biological and ecological environment compared to **Alternative 1**. **Preferred Alternative 2** and **Alternative 3** create specific guidelines with consistency versus using an ad hoc basis by the SSC. **Preferred Alternative 2** is a more complex alternative with numerous tiers for adopting an ABC based on the information that is available for the Spanish mackerel stock. Because the value of ABC under **Alternative 3** is not known at this time, either **Preferred Alternative 2** or **Alternative 3** may be more biologically beneficial. **Alternative 3** sets the ABC using a static definition, and does not allow for changes in the level of risk based on new stock assessments.

4.10.3 Direct and Indirect Effects on Economic Environment

The establishment of an ABC control rule, in and of itself, is not expected to directly affect the harvest or customary uses of the resources. This action is therefore not expected to result in direct economic effects. However, the subsequent use of the selected rule to determine ABCs for the Gulf Group Spanish Mackerel is expected to result in indirect economic effects. The reliance of a consistent rule to determine ABC levels, as opposed to the traditional ad hoc approach, is expected to result in biological benefits to the stocks in the future; potentially yielding indirect economic benefits. In addition, the use of the selected control rule, which would determine the maximum allowable harvest, may result in indirect adverse economic effects if resulting ABC levels are lower than ABCs determined without the use of a control rule[5]. It follows that indirect economic benefits would be expected if the ABCs based on the control rule are greater than the ones determined without the control rule. Net indirect economic effects expected from the selection of a control rule could be positive or negative, depending on the relative magnitude of economic benefits anticipated from the use of a consistent rule and economic effects resulting from the difference between ABCs determined with the control rule and those derived without. While the magnitude of these net economic effects cannot be quantified, it is expected that, compared to **Alternative 3** which determines ABCs using a predetermined buffer, **Preferred Alternative 2** would result in greater economic benefits (or lower adverse economic effects) because it relies on a control rule that accounts for changes in the condition of the Spanish mackerel stock.

4.10.4 Direct and Indirect Effect on the Social Environment

The effects on the social environment from setting ACLs for Gulf group Spanish mackerel are similar to **Action 4.8** for king mackerel. Because Gulf group Spanish mackerel already have a quota for both commercial and recreational sectors, implementing ACLs would have few social effects. Certainly as ACL is reduced in **Alternatives 2 and 3** there is an increasing chance of negative social effects in the short term and possibly the long term, however, neither the commercial or recreational TACs have been exceeded so the risk of negative social effects may not be high. Setting separate ACLs for the recreational and commercial sectors would also have few social effects as long as current allocations remain the same as in **Alterative 2, Option b and Alternative 3, Option b**. Setting a single ACL in **Option a** for both **Alternatives 2 & 3**

[5] It is assumed that a reduction in ABCs would result in a proportional reduction in ACLs and/or ACTs.

may have few social effects unless the ACL is met early and a closure is implemented. Such a closure could initiate some type of concern if a particular sector was responsible for the closure but both would be held accountable for any overages.

4.10.5 Direct and Indirect Effect on the Administrative Environment

Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for gulf migratory group Spanish mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2- 3** are minimal and would not differ much between the two action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

The action alternatives also provide options related to the allocation of the quota between the commercial and recreational sectors. **Option b** and **Option c** could increase the administrative impacts to NOAA Fisheries Service as landings would need to be monitored in relation to the commercial and recreational portion of the allocation for overage and commercial quota purposes.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.10.6 Council Conclusions

Will be added

4.11 Action 11: Set Annual Catch Limit and Annual Catch Target for Gulf Group Spanish Mackerel

ACTION 11.1: Set Annual Catch Limit (ACL) for Gulf Group Spanish Mackerel

Alternative 1. No Action - maintain ACL at current TAC for Gulf group Spanish mackerel [9.1 mp based on preferred ABC]

Alternative 2. Set ACL = ABC for Gulf group Spanish mackerel [5.15 mp based on preferred ABC]

Option a. Set a single ACL

Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational: 2,935,500 lb – 2,214,500 lb)

Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 3. Set ACL = 90% of ABC for Gulf group Spanish mackerel [4.635 mp based on preferred ABC]

Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational: 2,641,950 lb – 1,993,050 lb)
Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 4. Set ACL = 85% of ABC for Gulf group Spanish mackerel [4.3775 mp based on preferred ABC]

Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational: 2,495,175 lb – 1,882,325 lb)
Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 5. Set ACL = 80% of ABC for Gulf group Spanish mackerel [4.12 mp based on preferred ABC]

Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational: 2,348,400 lb – 1,771,600 lb)
Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 6. Set ACL = 75% of ABC for Gulf group Spanish mackerel [3.8625 mp based on preferred ABC]

Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational: 2,201,625 lb – 1,660,875 lb)
Option c. Set separate commercial and recreational ACLs based on recent landings

ACTION 11.2: Set Annual Catch Target (ACT) for Gulf Migratory Group Spanish Mackerel

Alternative 1. No Action – do not set an ACT for Gulf group Spanish mackerel

Alternative 2. Set ACT = 90% of ACL for Gulf group Spanish mackerel

Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations (57% commercial, 43% recreational)
Option c. Set separate commercial and recreational ACTs based on recent landings

Alternative 3. Set ACT = 85% of ACL for Gulf group Spanish mackerel

Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations (57% commercial, 43% recreational)
Option c. Set separate commercial and recreational ACTs based on recent landings

Alternative 4. Set ACT = OY at 75% F_{MSY}

4.11.1 Direct and Indirect Effects on Physical Environment

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACL or ACT, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. Spanish mackerel are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral.

4.11.2 Direct and Indirect Effects on Biological/Ecological Environment

Setting an ACL or ACT potentially will have an impact on the biological environment if harvest changes from current levels, and AMs are triggered when the ACL is met or exceeded. An ACL equal to the ABC (Action 11.1, **Alternative 2**) would allow a higher level of landings than an ACL lower than the ABC. In fact, the stock ACL set by **Alternative 2** in Action 11.1 has not been exceeded in the past 17 years. Progressively lower ACLs (Action 11.1, **Alternatives 3-6**) would restrict landings more and increase the likelihood of exceeding the ACL. Likewise, not setting an ACT (Action11.2, **Alternative 1**) would allow a higher level of landings than setting an ACT below the ACL (Action 11.2, **Alternative 2** and **Alternative 3)**.

The more the ACL or ACT is divided, the more accountability each division will have. With a single ACL or ACT for the stock (**Option a**), one sector could exceed its allocation without triggering AMs, as long as the stock ACL or ACT is not exceeded. If the ACL or ACT is separated by sectors (**Option b**), AMs would be triggered as each sector reaches its limit, provided adequate monitoring could be in place. The recreational sector would be expected to exceed even the highest ACL, based on recent landings and current allocations. Thus, landings are more likely to be restricted under **Option b** and result in greater positive impacts on the biological environment. Further, with separate ACLs or ACTs, different types of AMs could be triggered that are more suited to the particular sector, and therefore, be more effective in constraining harvest within the ACL.

4.11.3 Direct and Indirect Effects on Economic Environment

ACTION 11.1: Set Annual Catch Limit (ACL) for Gulf Group Spanish Mackerel

Management measures considered under this action would either set a single annual catch limit for Gulf group Spanish mackerel (**Option a**) or establish separate commercial and recreational ACLs for gulf group Spanish mackerel (**Option b**). Excluding **Alternative 1**, which would exceed the SSC's ABC recommendation, Gulf group Spanish mackerel ACLs under consideration range from a maximum of 5.1500 mp under **Alternative 2** to a lower bound of 3.8625 mp under **Alternative 6**. Based on the magnitude of the annual catch limits under consideration relative to Spanish mackerel landings in the Gulf, it is unlikely that harvests would exceed the aggregate annual catch limit under **Alternative 2**. However, under separate recreational and commercial ACLs, it is possible that one sector (most likely recreational) could exceed its ACL; triggering restrictions and associated adverse economic effects. In general, the greater the ACL considered, the less likely it would be expected to be exceeded, or, if exceeded, the smaller the overage. Therefore, while economic effects are not expected to result from **Alternative 2 – Option a**, adverse economic effects may result from the remaining alternatives. **Alternatives 3-6** are anticipated to result in adverse economic effects should the ACLs be exceeded and corrective measures be triggered; the magnitude of these effects is determined by the size of the overage and the nature of the corrective measures enacted in response. Should harvest levels remain below the ACL, no economic effects would result.

ACTION 11.2: Set Annual Catch Target (ACT) for Gulf Migratory Group Spanish Mackerel

Economic effects anticipated from the implementation of annual catch targets would depend on the extent to which ACTs under consideration would affect the harvest or other customary uses of the resource. If a single ACT is set (Option a), the magnitude of Gulf group Spanish mackerel landings compared to ACT levels suggests that these thresholds would likely not be reached. Therefore, economic effects are not expected from the implementation of a single ACT. However, should separate ACTs for the commercial and recreational sectors be set (Option b), ACTs would likely become binding constraints for the recreational sector; possibly affecting recreational landings and resulting in adverse economic effects. In the event that ACTs become binding constraints, the magnitude of adverse economic effects is expected to be proportional to the severity of the constraint imposed on fishery participants and the nature of corrective measures implemented in response to the overage. Average landings for the commercial sector indicate that even under separate ACTs, economic effects are not expected because commercial landings are expected to be well below the commercial ACT.

4.11.4 Direct and Indirect Effect on the Social Environment

The social effects of setting ACTs for Gulf Group Spanish mackerel are similar to setting ACTs for Gulf group king mackerel especially if separate ACTs are developed. ACTs are utilized in fisheries where there may management uncertainty that adds risk to reaching target harvest levels beyond the biological risks. It usually entails a further reduction in harvest levels to ensure catch remains at or below the ACL or relevant biological threshold, but can be set equal to other thresholds. Each reduction in harvest threshold will certainly have social effects which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. In understanding management uncertainty there are often other factors that need to be considered: law enforcement difficulties, monitoring issues or socio-economic aspects of the fishery. The no action Alternative 1 would likely have few social effects as it would impose no further reductions on harvesting. Moving from **Alternative 2** to **Alternative 5**, each alternative imposes a slightly greater reduction in ACT. Because the harvest levels have never exceeded 6.2 MP, there would likely be few negative social effects from choosing any of these alternatives. Although, **Option c** under **Alternatives 2 through 5** may change sector allocations from the present calculation.

4.11.5 Direct and Indirect Effect on the Administrative Environment

Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 2** would establish the ACT as the current TAC for gulf group Spanish mackerel. **Alternative 1** and **Alternative 2** would result in no change to the administrative impacts. **Alternative 3, Alternative 4, Alternative 5** and associated options would require additional administrative support with regards to tracking landings of commercial and recreational sectors**.** Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.11.6 Council Conclusions

Will be added

4.12   ACTION 12: Set Accountability Measures (AMs) for Gulf Migratory Group Spanish Mackerel

Alternative 1. No Action - retain current in-season accountability measures (AMs) for Gulf group Spanish mackerel.

> Option a. Commercial – If the quota (=ACT) is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to close the commercial sector for the remainder of the fishing year
>
> Option b. Recreational - The Regional Administrator has authority via the framework to revert the bag limit to zero if fishermen have achieved or are expected to achieve their allocation

Alternative 2. In-season AMs for Gulf group Spanish mackerel.

> Option a. Commercial – If 75/85% of the commercial ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement a 3,500-lb trip limit
>
> Option b. Recreational - If 75/85% of the recreational ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the bag limit to xx fish per person per day

Alternative 3. Set post-season AMs for Gulf group Spanish mackerel.

> Option a. Commercial
>
> > Suboption i. Payback - If the commercial ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial ACL in the following year by the amount of the overage. The commercial ACT would also be adjusted according to the ACT formula in Action 11
> >
> > Suboption ii. Trip limit reduction - If the commercial ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the

Federal Register to implement a 3,500-lb trip limit in the following year
Suboption iii. Shorten season - If the commercial ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement temporary regulations for the following year to close the commercial sector at a date when the commercial sector is projected to meet its ACT

Option b. Recreational

Suboption i. Payback - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the recreational ACL in the following year by the amount of the overage. The recreational ACT would also be adjusted according to the ACT formula in Action 11

Suboption ii. Bag limit reduction - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the bag limit to xx fish per person per day in the following year

Suboption iii. Shorten season - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement temporary regulations for the following year to close the recreational sector at a date when the recreational sector is projected to meet its ACT

Option c. Trigger (can be chosen in addition to other options) - Post-season accountability measures will be triggered in 2012 if the 2011 landings exceed the ACL, in 2013 if the 2011-2012 average landings exceed the ACL, or in 2011-2013 average landings exceed the ACL, and thereafter if average landings exceed the equivalent three-year ACL. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter.

Note: If the Council chooses to set a single stock ACL and ACT, the IPT recommends the alternatives be changed as follows:

Alternative 2. In-season AMs for Gulf group Spanish mackerel.

Option a. If the stock ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to close the fishery for the remainder of the fishing year

Option b. If 75/85% of the stock ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement a 3,500-lb commercial trip limit and reduce the recreational bag limit to xx fish per person per day

Alternative 3. Set post-season AMs for Gulf group Spanish mackerel.

Option a. Payback - If the stock ACL is exceeded, the Assistant Administrator for

Fisheries shall file a notification with the Office of the Federal Register to reduce the stock ACL in the following year by the amount of the overage. The stock ACT would also be adjusted according to the ACT formula in Action 11

Option b. Trip/bag limit reduction - If the stock ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement a 3,500-lb commercial trip limit and reduce the recreational bag limit to xx fish per person per day in the following year

Option c. Shorten season - If the stock ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to implement temporary regulations for the following year to close the fishery at a date when the stock is projected to meet its ACT

Option d. Trigger (can be chosen in addition to other options) - Post-season accountability measures will be triggered in 2012 if the 2011 landings exceed the ACL, in 2013 if the 2011-2012 average landings exceed the ACL, or in 2011-2013 average landings exceed the ACL, and thereafter if average landings exceed the equivalent three-year ACL. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter.

4.12.1 Direct and Indirect Effects on Physical Environment

This action would have no direct or indirect effect on the physical environment. To the extent that accountability measures shorten commercial and recreational fishing seasons, small benefits to the physical environment may result from reduced effort. A decrease or increase in fishing effort may have slight affects on the physical environment. Fishing can have negative impacts on the bottom as described in Action 11.

4.12.2 Direct and Indirect Effects on Biological/Ecological Environment

The purpose of AMs is to prevent ACLs from being exceeded or to take corrective action if ACLs are exceeded. There are two types of AMs specified by the National Standard 1 guidelines: in-season AMs and AMs when the ACL has been exceeded after the fishing season has closed (referred to as post-season in this amendment). The AMs are not mutually exclusive and can be used together if necessary.

The current AMs (**Alternative 1**) allow for in-season closure by the Regional Administrator and have been successful in constraining harvest within the current quota. Although alternatives to set ACL for Spanish mackerel are substantially below the current TAC, landings in the past 17 years have not exceeded the SSC recommended ABC.

Alternative 2 would attempt to limit harvest to levels at or below the ACL or ACT by reducing harvest once a particular landings threshold (an ACT) is met during the season. If sector ACLs

or ACTs were chosen, separate commercial and recreational AMs could be chosen (**Options a** and **b**). Both options would be appropriate to constrain the total harvest if a single stock ACL or ACT is chosen. By using in-season AMs triggered by the ACT, the ACL is less likely to be exceeded than if only post-season AMs are used.
Alternative 3 includes sector-specific post-season AMs that would be triggered in the event of an ACL overage. The post-season AM options are designed to compensate or correct for the magnitude of an overage during the following fishing year. Biologically, the ideal scenario is not to allow the ACL to be exceeded, then no post-season AM would be required and the stock would realize the biological benefits of sustainable harvest conditions into perpetuity. Unfortunately, management and scientific uncertainty, and numerous other variables including economic and unforeseen biologic and weather events, play a major role in annual landings, which may fall above or below any number of harvest parameters. The advantage of implementing post-season AMs is that the landings data for any given year can be examined in totality before the AM is actually triggered, as opposed to in-season AMs that would rely largely on projections of harvest that may or may not have a high degree of uncertainty. Using actual landings data to calculate the precise magnitude of an overage is typically biologically beneficial in that it ensures an adequate level of payback is implemented.

Suboption i under each option requires payback of any overage from a year when the ACL is exceeded. Any payback would result in beneficial impacts on the biological environment. The other suboptions would only work to constrain the harvest in the following year. If both **Suboption i** and one of the other suboptions was chosen, the greatest benefit to the biological environment would be realized.

Option c proposes an alternate trigger schedule for implementing post-season AMs. Instead of AMs being triggered based on each year's landings compared to the ACL, a three-year running average would be compared to the ACL. Because landings data may be highly variable, using a three-year running average of estimated landings compared to the ACL could reduce, to some extent, variability caused by anomalous spikes or declines in landings. Averaging harvest over several years would minimize the influence any one exceptionally poor or exceptionally good year could have on the magnitude of the post-season AMs.

4.12.3 Direct and Indirect Effects on Economic Environment

Alternative 1 would continue to attempt to prevent overages by implementing in-season accountability measures should landings be projected to reach harvest thresholds set by the ACL or ACT. Although they may result in short term adverse economic effects if implemented, these in-season restrictions to prevent harvest above prescribed levels are anticipated to result in long term economic benefits stemming from the added protection to the stocks.

Alternative 2 would also control harvest level by relying on in-season corrective measures. Compared to **Alternative 1, Alternative 2** would impose less stringent restrictions on the recreational sector; potentially resulting in lesser adverse economic effects in the short term. For the recreational sector, the magnitude of net economic effects that are anticipated to result from the implementation of accountability measures would depend on the extent to which fishery participants' opportunities to harvest Gulf group Spanish mackerel are restricted. Given the magnitude of the commercial landings compared to ACLs and ACTs under consideration, it is highly unlikely that accountability measures would be invoked for the commercial sector. Therefore, economic effects due to corrective measures applied to the commercial sector are not expected.

Alternative 3, which would remedy potential harvest overages after the fact by implementing post-season accountability measures, is expected to result in lower short term adverse economic effects compared to **Alternatives 1** and **2**. The negative economic effects are anticipated to be smaller in the short term due to the delay in the implementation of corrective measures; fishery participants can potentially continue to harvest Gulf group Spanish mackerel above prescribed levels throughout the predetermined season before any corrective measure is considered. However, in the longer term, **Alternative 3** is expected to result in greater adverse economic effects because more restrictive actions are expected to be required to remedy overages.

4.12.4 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Gulf group Spanish mackerel have in season accountability measures in place as trip limits and seasonal closures are already in use. The social effects from additional accountability measures will depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures.

4.12.5 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce near-term administrative impacts. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for gulf migratory group Spanish mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. Administrative impacts of **Alternatives 2-3** would increase the administrative burden from the status quo by establishing AMs for gulf group Spanish mackerel. The administrative burden of **Alternative 2** and **Alternative 3** would be similar as would the burden imposed by the various options and sub-options. All of the action alternatives, options and sub-options will result in an increase in monitoring, enforcement, rule-making, education and outreach. As more options or sub-options are selected as preferred the administrative burden will increase. The sub-options associated with **Alternative 2, Option b** would have the greatest increase in administrative burden due to the difficulty with tracking recreational landings in season.

4.12.6 Council Conclusions

Will be added

4.13 Action 13. Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL & ACT for Atlantic Migratory Group King Mackerel

Atlantic migratory group king mackerel were last assessed in SEDAR 16 (2008) with data through 2006. The fishing mortality and biomass parameters were accepted by the SEDAR Review Panel and the Councils Scientific and Statistical Committee. SEDAR 33, which begins in 2012 and is scheduled to be completed in 2013, will assess the three species in the CMP FMP including Atlantic migratory group king mackerel with data through 2011.

4.13.1 MSY, MSST & MFMT for Atlantic Migratory Group King Mackerel

The 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. Based on the SEDAR 16 assessment, MSY = 8.964 million pounds (Table 2.13.2.1). Based on updated projections, MSY = 9.357-12.836 million pounds (Table 2.13.3.3).

The Council has determined that the value for MSST is the value from the most recent stock assessment based on MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. Currently MSST = 0.85(B_{MSY}) with no poundage estimated. Based on the SEDAR 16 assessment, MSST = 1,827.5 billion hydrated eggs (Table 2.13.2.1).

The 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} = $F_{30\%SPR}$ with no poundage estimated. Based on the SEDAR 16 assessment, MFMT = F_{MSY} = $F_{30\%SPR}$ = 0.256 (Table 2.13.2.1).

There are no alternatives under consideration because these values are being updated from the latest SEDAR stock assessment.

4.13.2 Overfishing Level (OFL) for Atlantic Migratory Group King Mackerel

The Scientific and Statistical Committee provided the following OFL at their April 2010 meeting: "The OFL for king mackerel is 12.8359 million pounds (corresponds to yield at $F_{30\%SPR}$, the accepted MSY proxy from the last stock assessment)." Note: This is the expected yield in 2011 (Table 2.13.3.3).

There are no alternatives under consideration because the overfishing level has been provided by the SSC.

4.13.3 ABC Control Rule and ABC for Atlantic Migratory Group King Mackerel

Alternative 1. No Action. Do not establish an ABC Control Rule for Atlantic migratory group king mackerel.

Preferred Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as 10.46 million pounds (MP).

Alternative 3. Establish an ABC Control Rule where ABC equals OFL (12.8359 million pounds).

Alternative 4. Establish an ABC Control Rule where ABC equals a percentage of OFL.
Alternative 4a. ABC = 65%OFL (8.3433 million pounds)
Alternative 4b. ABC = 75%OFL (9.6269 million pounds)
Alternative 4c. ABC = 85%OFL (10.9105 million pounds)

Table 4.13.3.1. Atlantic Migratory Group King Mackerel ABC recommendations from the Scientific and Statistical Committee and current allocations.

Year	ABC	Recreational (62.9%)	Commercial (37.1%)
2011	10.95	6.89	4.06
2012	10.36	6.52	3.84
2013	10.06	6.33	3.73
Average	10.46	6.58	3.88

4.13.3.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

While there are no direct biological effects from identification of an ABC, it does set the upper limit on the level of landings that will be allowed for fishermen and prevents overfishing. **Alternative 1** (No Action) would not meet the new Magnuson-Stevens Act requirements. **Alternative 2** would adopt the SAFMC SSC recommended ABC control rule and would be expected to provide the greatest biological benefits over the long term by accounting for assessment uncertainty while preventing overfishing. **Alternative 3** provides the highest level of landings of all the alternatives but carries more biological risk and exceeds the SSC recommendations which could lead to overfishing and negative biological effects. **Alternative 4a-4c** range from providing less biological protection to more as compared to **Alternative 2**.

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. King mackerel are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Sink gillnets are allowable gear in the South Atlantic; however, usage is very limited in the EEZ.

4.13.3.2 Direct and Indirect Effect on the Economic Environment

While there are no direct economic effects from identification of an ABC, it does set the upper limit on the level of landings that will be allowed for fishermen to harvest. In general, a higher ABC is expected to result in higher short-term economic benefits and smaller long-term economic benefits. **Alternative 3** provides the highest level of landings of all the alternatives and therefore is expected to bring about the highest short-term economic benefits. It could also bring about the highest long-term economic benefits as long as the risk of overfishing is very low. If the risk of overfishing is high, **Alternative 3** could provide the lowest long-term economic benefits. **Alternatives 4a and 4b** offer lower short-term economic benefits than **Alternatives 2 (Preferred) 3** and **4c** but also offer the highest long-term economic benefits.

4.13.3.3 Direct and Indirect Effect on the Social Environment

Establishment of the biological parameters for harvest thresholds will have few direct social effects. Impacts on the social environment are more indirect, resulting from the implementation of the ABC and any subsequent reduction when setting ACLs and ACTs. The more risk averse a control rule or threshold is, the more chances of negative social effects accruing in the short-term if harvest is reduced. The least restrictive ABC would result from **Alternative 3,** while **Alternative 4c** is the most restrictive, but all effects on the social environment will depend on subsequent decisions for the ACL and AMs following this action.

4.13.3.4 Direct and Indirect Effect on the Administrative Environment

The establishment of an ABC Control Rule is a procedural exercise. The rule is developed by the Council's SSC for consideration by the Council. Although the control rule can have implications on management actions, no specific management actions are required through the specification of the control rule. The administrative impacts of establishing a control rule are minimal and impacts would not differ much between the proposed alternatives.

4.13.3.5 Council Conclusions

Will be added after public hearings.

4.13.4 Annual Catch Limit (ACL) for Atlantic Migratory Group King Mackerel

Alternative 1. No action. Currently TAC or ACL =10.0 million pounds based on an ABC of 8.9 - 13.3 million pounds.

Preferred Alternative 2. ACL = OY = ABC = 10.46 million pounds which is the average of the ABC values for 2011-2013 recommended by the SSC.

Alternative 3. ACL = OY = ABC = 10.06 million pounds which is the lowest value within the 2011-2013 recommendations (10.06 – 10.95 million pounds).

Alternative 4. ACL = OY = ABC = 10.95 million pounds which is the highest value within the 2011-2013 recommendations (10.06 – 10.95 million pounds).

Alternative 5. ACL = OY = X% of ABC = ______ million pounds.
- **Sub-Alternative 5a.** ACL = 65%ABC = 65%(10.46) = 6.799 million pounds.
- **Sub-Alternative 5b.** ACL = 75%ABC = 75%(10.46) = 7.845 million pounds.
- **Sub-Alternative 5c.** ACL = 85%ABC = 85%(10.46) = 8.891 million pounds.
- **Sub-Alternative 5d.** ACL = 80%ABC = 80%(10.46) = 8.368 million pounds.
- **Sub-Alternative 5e.** ACL = 90%ABC = 90%(10.46) = 9.414 million pounds.

4.13.4.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Setting an ACL could affect the physical environment if harvest changes from current levels. However this is not expected to be the case as most alternatives would maintain catches close to **Alternative 1** (No Action). Setting an ACL potentially will have an impact on the biological environment if harvest changes from current levels; however, this is not expected to be the case. **Alternatives 2-4** are based on the SSC recommendations and would prevent overfishing. **Alternative 5** would provide more biological protection by setting the ACL below the ABC.

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. King mackerel are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Sink gillnets are allowable gear in the South Atlantic; however, usage is very limited in the EEZ.

4.13.4.2 Direct and Indirect Effect on the Economic Environment

In general, a more conservative ACL would result in higher long-term economic benefits and smaller short-term economic benefits while the opposite is true of a larger ACL. **Alternative 4** offers the largest ACL and therefore the greatest short-term economic benefits to commercial and recreational fishermen but also the smallest long-term economic benefit due to the increased risk of overfishing. **Alternatives 2 (Preferred), 3, and 1 (No Action)** follow in descending order. **Alternatives 2 (Preferred)-4** would result in an economic gain in the short-term to commercial and recreational fishermen in comparison to the 10 million pound ACL under **Alternative 1 (No Action)**. The suite of alternatives proposed under **Alternative 5** are all lower than **Alternatives 1-4** and therefore offer less risk of overfishing and greater long-term economic benefits and smaller short-term economic benefits compared to **Alternatives 1-4**.

4.13.4.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACLs will increase the risk of short-term negative impacts on commercial and recreational fishermen and communities. For the commercial and for-hire sectors, a more restrictive ACL could cause reduced effort and job loss if an operation cannot stay in business through low ACLs. However, successful management through ACLs will result in long-term overall benefits for the fishermen, communities, and general public as the resource is protected from overfishing.

Establishment of ACL for Atlantic King Mackerel will limit harvest, potentially reducing fishing opportunities for commercial and recreational fishermen. The most restrictive ACL scenarios are in **Alternative 5** (percentage of the ABC) and the least restrictive is **Alternative 4** (highest value within the 2011-2013 recommendations for ABC). **Preferred Alternative 2** uses the average of ABC values to establish the ACL and is less restrictive than most other alternatives, which will most likely not result in the negative impacts expected from **Alternative 5.**

4.13.4.4 Direct and Indirect Effect on the Administrative Environment

OY Specification - Atlantic King Mackerel

The specification of OY is a procedural exercise. Although OY can have implications on management actions, no specific management actions are required through the specification of OY. The administrative impacts of specifying OY are minimal and would not differ much between the proposed alternatives.

ACL Specification - Atlantic King Mackerel

Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for Atlantic migratory group king mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2-5,** and the **Sub-**

Alternatives associated with **Alternative 5** are minimal and would not differ much between the action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.13.4.5 Council Conclusions

Will be added after public hearings.

4.13.5 Annual Catch Target (ACT) for Atlantic Migratory Group King Mackerel

Action 4.13.5a. Commercial Sector ACT

Preferred Alternative 1 (No Action). Do not specify commercial sector ACTs for Atlantic migratory group king mackerel.

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL.

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL.

Table 4.13.5.1. The commercial sector ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Commercial ACL	Commercial Sector ACT	
		ACT Alt. 2; ACT=90%(ACL)	ACT Alt. 3; ACT=80%(ACL)
Atlantic migratory group king mackerel	3.88	3.49	3.10

Reducing the commercial quota will increase the likelihood that the season will be closed early. **Alternative 3** has the greatest potential to shorten the season and **Alternative 2** the least.

Action 4.13.5b. Recreational Sector ACT

Alternative 1 (No Action). Do not specify recreational sector ACTs for Atlantic migratory group king mackerel.

Alternative 2. The recreational sector ACT equals 85% of the recreational sector ACL.

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL.

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater].

Table 4.13.5.2. Proportional Standard Errors (PSEs) for Atlantic migratory group king mackerel from numbers estimates (A+B1) for all modes.
Source: Obtained from http://www.st.nmfs.noaa.gov on May 12, 2010.

Species	2003	2004	2005	2006	2007	2008	2009	3 year average (2007-09)	5 year average (2005-09)
Atlantic migratory group king mackerel	5.6	5.8	6.1	5.6	5.8	6.3	6.5	6.2	6.1

The Council decided to use the 5-year average PSE because this better represented recent catches than the 3 year average.

Table 4.13.5.3. The recreational ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Private Recreational Sector ACL	Recreational Sector ACT		
		ACT Alt. 2; ACT=85%(ACL)	ACT Alt. 3; ACT=75%(ACL)	Preferred ACT Alt. 4; ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater]
Atlantic migratory group king mackerel	6.58	5.59	4.94	6.18

4.13.5.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Setting an ACT provides more biological protection by accounting for management uncertainty and provides greater assurance that overfishing will be prevented.

Commercial
Alternative 1 would not set an ACT. **Alternatives 2 and 3** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur.

Recreational
Alternative 1 would not set an ACT. **Alternatives 2 and 3** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur. **Alternative 4** takes into account the variability of recreational catches while preventing overfishing.

4.13.5.2 Direct and Indirect Effect on the Economic Environment

Commercial
In general, a higher ACT will result in greater short-term net economic benefits to commercial fishermen through less restrictive management measures. However, if the ACT is lower than historical landings, short-term negative impacts will be expected to occur. In this action, **Preferred Alternative 1** provides the greatest short-term economic benefits while **Alternative 3**, being the most conservative biologically, offer the smallest short-term economic benefits. Discussion of long-term economic benefits depends on the risk of the ACT being exceeded. If the risks are high, then **Alternative 3** would offer the highest long-term economic benefits and **Preferred Alternative 1**, the smallest.

Recreational
In general, a higher ACT will result in greater short-term net economic benefits to recreational fishermen through less restrictive management measures. However, if the ACT is lower than historical landings, short-term negative impacts will be expected to occur. In this action, **Preferred Alternative 4** provides the greatest short-term economic benefits while **Alternative 3**, being the most conservative biologically, offer the smallest short-term economic benefits to the recreational fishery while **Preferred Alternative 4** would be close to the five year average. **Alternative 2** would be below the average for recreational landings. Discussion of long-term economic benefits depends on the risk of the ACT being exceeded. If the risks are high, then **Alternative 3** would offer the highest long-term economic benefits and **Preferred Alternative 4**, the smallest.

4.13.5.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACTs will result in negative social impacts in the short term because these will be linked to the reduced economic benefits and reduced fishing opportunities. Each reduction in harvest threshold may have additional potential social effects, which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. However, there will be long-term social benefits for fishermen, communities, and the general public by preventing overfishing through an ACT for a stock that has potential to exceed the ACL.

For the commercial sector action, **Preferred Alternative 1** does not establish an ACT and commercial harvest will continue until the ACL is reached, which allows more fishing opportunities and economic benefits to the commercial sector. **Alternative 2** and **Alternative 3** establish the commercial ACT at 90% and 80% of the ACL, respectively, which will cause short-term social impacts as the harvest approaches these levels in a shorter period, and may result in early closing.

For the recreational sector**, Alternative 1** does not establish an ACT and would also have few if any negative social effects. **Alternative 2** and **Alternative 3** would impose reductions lower than the ACL, which would cause the level to be reached in a shorter period and could limit recreational opportunities and social benefits if the recreational sector is closed early. **Preferred Alternative 4** would establish a recreational ACT close to the five-year average, which may affect future recreational opportunities if the sector continues to grow.

4.13.5.4 Direct and Indirect Effect on the Administrative Environment

Commercial ACT - Atlantic King Mackerel
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the commercial sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

Recreational ACT - Atlantic King Mackerel
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the recreational sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.13.5.5 Council Conclusions

Will be added after public hearings.

4.14 Action 14. Specify Accountability Measures (AMs) for Atlantic Migratory Group King Mackerel

The Councils may specify multiple preferred from among the following:

Alternative 1 (No Action). The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met. All purchase and sale is prohibited when the quota is met. Do not implement ACLs or AMs for the recreational sector.

Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement AMs for the recreational sector for this stock. If the recreational sector ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011/12, use only 2011/12 landings. For 2012/13, use the average landings of 2011/12 and 2012/13. For 2013/14 and beyond, use the most recent three-year (fishing years) running average.
Sub-Alternative a. Reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year.
Preferred Sub-Alternative b. Reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following fishing year.

Alternative 3. Commercial payback of any overage.
- **Preferred Sub-Alternative 3a.** Payback regardless of stock status.
- **Sub-Alternative 3b.** Payback only if overfished.

Alternative 4. Recreational payback of any overage from one year to the next.
- **Preferred Sub-Alternative 4a.** Payback regardless of stock status.
- **Sub-Alternative 4b.** Payback only if overfished.

4.14.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Alternative 1 is not considered a viable option since it would specify no AMs for the recreational sector and therefore, would not limit harvest to the ACL; there is no commercial or recreational correction for an ACL overage. The Magnuson-Stevens Act requires that mechanisms of accountability be established for all federally managed species. **Alternative 1** would not comply with this mandate, and would provide no biological benefit to the species. **Alternative 2** would attempt to limit harvest to levels at or below the ACL or ACT by reducing and/or closing harvest once a particular landings threshold is met. **Alternative 3** would provide for a commercial payback of any overage with **Sub-Alternative 3a** providing more biological benefits. **Alternative 4** would provide for a recreational payback of any overage with **Sub-Alternative 4a** providing more biological benefits.

The post-season AM options are designed to compensate or correct for the magnitude of the overage during the following fishing year. In doing so, harvest levels would return to their baseline ACL over the course of two fishing years, the year of the overage and the year of the overage correction. Biologically, the ideal scenario is not allow the ACL to be exceeded to begin with, then no post-season AM would be required and the stock would realize the biological benefits of sustainable harvest conditions into perpetuity. Unfortunately, management and scientific uncertainty, and numerous other variables including economic and unforeseen biologic and weather events, play a major role in annual mackerel landings, which may fall above or below any number of harvest parameters. The advantage of implementing post-season AMs is that the landings data for any given year can be examined in totality before the AM is actually triggered, as opposed to in-season AMs that could rely largely on projections of harvest that may or may not have a high degree of uncertainty. Using actual landings data to calculate the precise magnitude of an overage is biologically beneficial in that it ensures an adequate level of payback is implemented.

The most biologically beneficial AM for king mackerel is most likely some combination of in-season AMs and post-season AMs. Under this scenario, if the in-season AM failed at preventing commercial ACL overage, the Regional Administrator would still have the option to implementing a post-season AM in both sectors to compensate for the overage.

Alternative 1 would perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. Establishing AMs is unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. The impacts from **Alternatives 2 - 3,** and the associated sub-alternatives**,** on sea turtles and smalltooth sawfish are unclear. If they perpetuate the existing amount of fishing effort, but causes effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

Setting AMs could positively affect the physical environment if effort is reduced from current levels. Fishing can have negative impacts on the bottom as described in Action 13.

4.14.2 Direct and Indirect Effect on the Economic Environment

In general, accountability measures lead to better management of the biological stock and therefore increase long-term economic benefits in the form of greater profits over time. However, accountability measures can have economic effects on the stability of the supply and market for king mackerel, ultimately impacting aggregate profitability of commercial and recreational fisheries in the short-term. **Alternatives 3 and 4** require payback of an overage with two **Sub-Alternatives**. While both have positive long-term economic benefits, both also have negative short-term economic benefits due to instability of landings, making maintaining customers more difficult. **Preferred Sub-Alternatives 3a and 4a** require payback of an overage regardless of the status of the stock while **Sub-Alternatives 3b and 4b** only require payback of an overage if the stock is overfished. **Sub-Alternatives 3b and 4b** would likely result in higher short-term economic benefits than **Preferred Sub-Alternatives 3a and 4a**. **Alternative 2** specifies prohibition of harvest, possession, and retention when the commercial quota is met. This would result in positive long-term economic benefits and negative short-term economic benefits for commercial fisheries. Shortening the length of the recreational fishing season (**Sub-Alternative 2a**) would likely have negative short-term economic effects compared to (**Preferred**

Sub-Alternative 2b) due to the importance of particular times of the year for recreational fishing and the need to maintain customers for charter and for-hire vessels.

4.14.3 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures (AMs) can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long-term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Atlantic Group King Mackerel have commercial in-season accountability measures already in place in the form of trip limits and seasonal closures. The social effects from additional accountability measures will depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures. **Alternative 1** would not change the current regime, which closes the commercial fishery when the quota is met, but has no AMs for the recreational fishery. With **Alternative 2** new AMs would be imposed on the recreational sector through a reduction in the fishing season or bag limit the next year and present regulations for the commercial sector remain. By reducing the bag limit in **Preferred Sub-Alternative 2b** to prevent the recreational fishery from exceeding the sector ACL, this action will limit some recreational opportunities. However, it is less restrictive than reducing the length of the subsequent fishing year (**Sub-Alternative 2a)**, which would impact recreational fishing opportunities.

For the commercial sector AM, the mandatory payback in **Preferred Sub-Alternative 3a** does not allow as much flexibility as requiring payback only for overfished (**Sub-Alternative 3b**), and a reduction in the ACL for a subsequent year could have significant negative social impacts if the overage is substantial.

Alternative 4 requires the same mandatory payback AM for the recreational sector and **Preferred Sub-Alternative 4a** would have similar effects on the recreational fishing community as mentioned for **Sub-Alternative 3a**, depending on the overage. Because recreational landings can be difficult to track, overages may be common and paybacks substantial, resulting in negative impacts on the recreational sector.

4.14.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce short-term administrative impacts. However, there are currently no AMs in place for the recreational sector of king mackerel and this alternative would not comply with Reauthorized Magnuson-Stevens Act requirements and therefore, may trigger some type of legal action. If this scenario were to occur, the burden on the administrative environment could be significant in the future. **Alternative 2** would implement AMs for the recreational sector and would comply with the Magnuson Stevens Act but would result in an increased administrative burden associated with monitoring and tracking landings on a continuing basis. **Alternatives 3-4,** and associated **Sub-Alternatives**, would result in a minimal increase in administrative burden associated with calculating payback of overages for the commercial or recreational sectors. These alternatives would require outreach and education related to how the process would operate.

4.14.5 Council Conclusions

Will be added after public hearings.

4.15 Action 15. Management Measures for Atlantic Migratory Group King Mackerel

Preferred: The Councils have concluded no changes to existing management measures are necessary because the ACLs do not appear likely to be exceeded.

4.16 Action 16. Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL & ACT for Atlantic Migratory Group Spanish Mackerel

Atlantic migratory group Spanish mackerel were last assessed in SEDAR 17 (2008) with data through 2007. The fishing mortality parameters were accepted by the SEDAR Review Panel and the Councils Scientific and Statistical Committee (SSC); however, the biomass parameters were not accepted. SEDAR 33, which begins in 2012 and is scheduled to be completed in 2013, will assess the three species in the CMP FMP including Atlantic migratory group Spanish mackerel with data through 2011.

4.16.1 MSY, MSST & MFMT for Atlantic Migratory Group Spanish Mackerel

The Council has determined that the value for MSY is the value from the most recent stock assessment. Currently MSY = 10.4 million pounds. Based on the SEDAR 17 assessment, MSY = 11.461 million pounds (Table 2.16.2.1). The SSC has recommended this value not be used and so the Council is not proposing to change the existing value. This will be reexamined when the next SEDAR assessment is completed.

The Council has determined that the value for MSST is the value from the most recent stock assessment based on MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. Currently MSST = 0.85(B_{MSY}) with no poundage estimated. Based on the SEDAR 17 assessment, MSST = 8,085 metric tons (Table 2.16.2.1). The SSC has recommended this value not be used and so the Council is not proposing to change the existing value. This will be reexamined when the next SEDAR assessment is completed.

The 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} = $F_{30\%SPR}$ with no poundage estimated. Based on the SEDAR 17 assessment, MFMT = F_{MSY} = 0.371 (Table 2.16.2.1). The SSC has recommended this value not be used and so the Council is not proposing to change the existing value. This will be reexamined when the next SEDAR assessment is completed.

There are no alternatives under consideration because these values should be specified from the latest SEDAR stock assessment; however, in this case they are not being updated because the biomass parameters were not accepted.

4.16.2 Overfishing Level (OFL) for Atlantic Migratory Group Spanish Mackerel

The Scientific and Statistical Committee (SSC) provided the following OFL recommendation at their April 2010 meeting: Since no estimate of MSY is available for Spanish mackerel, the SSC decided to develop ABC recommendations based on landings data. Based on the SEDAR 17 review panel recommendation that overfishing was not occurring, the SSC decided to bypass the OFL estimate and recommend ABC as the median of landings over the last 10 years.

During their March 3, 2011 meeting the SSC provided the following recommendation: OFL is unknown.

The Council was advised by NOAA GC at the March 7-11, 2011 meeting that if the SSC did not provide a recommended OFL, then the Council would need to specify OFL. The Council is recommending an interim OFL = mean of 10 years landings + (2*Standard Deviation) (OFL=6.14 MP) based on the Gulf Council's ABC Control Rule. The SAFMC's SSC is meeting in April, and the Council has requested they review this interim OFL.

There are no alternatives under consideration because the overfishing level should be provided by the SSC.

4.16.3 ABC Control Rule and ABC for Atlantic Migratory Group Spanish Mackerel

Alternative 1. No Action. Do not establish an ABC Control Rule for Atlantic migratory group Spanish mackerel.

Preferred Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as 5.29 million pounds (MP).

Table 4.16.3.1. Atlantic Migratory Group Spanish Mackerel ABC recommendation from the Scientific and Statistical Committee and current allocations.

Year	ABC	Recreational (45%)	Commercial (55%)	Source
2011	4.91	2.21	2.70	SSC
2011	5.29	2.38	2.91	SSC & Updated Landings

4.16.3.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

While there are no direct biological effects from identification of an ABC, it does set the upper limit on the level of landings that will be allowed for fishermen and prevents overfishing. **Alternative 1** (No Action) would not meet the new Magnuson-Stevens Act requirements. **Alternative 2** would adopt the SAFMC SSC recommended ABC control rule and would be expected to provide the greatest biological benefits over the long term by accounting for assessment uncertainty while preventing overfishing. **Alternative 2** provides more biological protection as compared to **Alternative 1**.

4.16.3.2 Direct and Indirect Effect on the Economic Environment

In general, the higher the ABC, the greater the long-term biological benefits and therefore, the greater the long-term economic benefits if there is little risk of overfishing. If the risk of overfishing is significant, a buffer between the OFL and the ABC would result in the greatest long-term economic benefits but smaller short-term economic benefits. **Preferred Alternative 2** likely provides short-term economic benefits to the effect of 5.29 million pounds annually.

4.16.3.3 Direct and Indirect Effect on the Social Environment

Establishment of the biological parameters for harvest thresholds will have few direct social effects. Impacts on the social environment are more indirect, resulting from the implementation of the ABC and any subsequent reduction when setting ACLs and ACTs. Certainly, the more risk averse a control rule or threshold is, the more chances of negative social effects accruing in the short term if harvest is reduced. **Preferred Alternative 2** is based on landings and is not a significant reduction from recent landings trends; however, it will allow limited expansion for the recreational and commercial sectors.

4.16.3.4 Direct and Indirect Effect on the Administrative Environment

The establishment of an ABC Control Rule is a procedural exercise. The rule is developed by the Council's SSC for consideration by the Council. Although the control rule can have implications on management actions, no specific management actions are required through the specification of the control rule. The administrative impacts of establishing a control rule are minimal and impacts would not differ much between the proposed alternatives.

4.16.3.5 Council Conclusions

Will be added after public hearings.

4.16.4 Annual Catch Limit (ACL) for Atlantic Migratory Group Spanish Mackerel

The ACL is equivalent to Total Allowable Catch (TAC) as used in the past. Based on projections from SEDAR 17 (Table 2.16.2.1) and the SSC recommendations (Table 2.16.3.1), the Council is considering the following options:

Alternative 1. No action. Currently TAC or ACL =7.04 million pounds based on an ABC of 5.7 – 9.0 million pounds.

Preferred Alternative 2. ACL = OY = ABC = 5.29 million pounds which is the ABC recommended by the SSC.

Alternative 3. ACL = OY = X% of ABC = ________ million pounds.

- **Sub-Alternative 3a.** ACL = 75%ABC = 3.97 million pounds.
- **Sub-Alternative 3b.** ACL = 85%ABC = 4.50 million pounds.
- **Sub-Alternative 3c.** ACL = 95%ABC = 5.03 million pounds.
- **Sub-Alternative 3d.** ACL = 80%ABC = 4.23 million pounds.
- **Sub-Alternative 3e.** ACL = 90%ABC = 4.76 million pounds.

4.16.4.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Setting an ACL could affect the physical environment if harvest changes from current levels. However this is not expected to be the case as most alternatives would maintain catches close to **Alternative 1** (No Action). Setting an ACL potentially will have an impact on the biological environment if harvest changes from current levels; however, this is not expected to be the case. **Alternative 2** is based on the SSC recommendations and would prevent overfishing. **Alternative 3** would provide more biological protection by setting the ACL below the ABC.

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACL, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. Spanish mackerel are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Stab gillnets are allowable gear in the South Atlantic; however, usage is very limited in the EEZ.

4.16.4.2 Direct and Indirect Effect on the Economic Environment

In general, the higher the ACL, the higher the economic benefits as long as there is no significant overfishing risk. If there is a risk of overfishing, a buffer between the ABC and the ACL could provide positive long-term economic benefits but also negative short-term economic benefits. **Sub-Alternative 3a** offers the most conservative ACL, the least short-term economic benefits, and the greatest long-term economic benefits. **Sub-Alternative 3d** offers the next largest long-term economic benefit followed by **Sub-Alternatives 3b, 3e, and 3c**. **Preferred Alternative 2** offers the next largest long-term economic benefits. **Alternative 1** would likely result in the highest short-term economic benefits but the smallest long-term economic benefits.

4.16.4.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACLs will increase the risk of short-term negative impacts on commercial and recreational fishermen and communities. For the commercial and for-hire sectors, a more restrictive ACL could cause reduced effort and job loss if an operation cannot stay in business through low ACLs. However, successful management through ACLs will result in long-term overall benefits for the fishermen, communities, and general public as the resource is protected from overfishing. The establishment of the ACL for Atlantic Spanish Mackerel will limit harvest, potentially reducing fishing opportunities for commercial and recreational. The most restrictive ACL scenarios are in **Alternative 3** (percentage of the ABC) and the least restrictive is **Alternative 3e** (90% of ABC). **Preferred Alternative 2** sets the ACL at ABC and is less restrictive than most other alternatives, which will most likely not result in negative short-term impacts expected from allowing only a percentage of the ABC to be harvested as in **Alternative 3.**

4.16.4.4 Direct and Indirect Effect on the Administrative Environment

OY - Atlantic Spanish Mackerel

The specification of OY is a procedural exercise. Although OY can have implications on management actions, no specific management actions are required through the specification of OY. The administrative impacts of specifying OY are minimal and would not differ much between the proposed alternatives.

ACL - Atlantic Spanish Mackerel

Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for Atlantic migratory group Spanish mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2- 3,** and the **Sub-Alternatives** associated with **Alternative 3** are minimal and would not differ much between the action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.16.4.5 Council Conclusions

Will be added after public hearings.

4.16.5 Annual Catch Target (ACT) for Atlantic Migratory Group Spanish Mackerel

Action 4.16.5a Commercial Sector ACT

Preferred Alternative 1. Do not specify commercial sector ACTs for Atlantic migratory group Spanish mackerel.

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL.

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL.

Table 4.16.5.1. Commercial sector ACT (pounds whole weight) for each of the alternatives.

Species	Preferred Commercial ACL	Commercial Sector ACT	
		ACT Alt. 2; ACT=90%(ACL)	ACT Alt. 3; ACT=80%(ACL)
Atlantic migratory group Spanish mackerel	2.91	2.62	2.33

Action 4.16.5b Recreational Sector ACT

Alternative 1 (no action). Do not specify recreational sector ACTs for Atlantic migratory group Spanish mackerel.

Alternative 2. The recreational sector ACT equals 85% of the recreational sector ACL.

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL.

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater].

Table 4.16.5.2. Proportional Standard Errors (PSEs) for Atlantic migratory group Spanish mackerel from numbers estimates (A+B1) for all modes.
Source: Obtained from http://www.st.nmfs.noaa.gov on May 12, 2010.

Species	2003	2004	2005	2006	2007	2008	2009	3 year average (2007-09)	5 year average (2005-09)
Atlantic migratory group king mackerel	7.4	8.7	8.2	8.9	8.1	7.7	8.1	8.0	8.2

The Council decided to use the 5-year average PSE because this better represented recent catches than the 3 year average.

Table 4.16.5.3. The recreational ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Recreational Sector ACL	Recreational Sector ACT		
		ACT Alt. 2; ACT=85%(ACL)	ACT Alt. 3; ACT=75%(ACL)	ACT Alt. 4; ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater]
Atlantic migratory group Spanish mackerel	2.38	2.02	1.79	2.19

4.16.5.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Setting an ACT provides more biological protection by accounting for management uncertainty and provides greater assurance that overfishing will be prevented.

Commercial
Alternative 1 would not set and ACT. **Alternatives 2 and 3** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur.

Recreational
Alternative 1 would not set and ACT. **Alternatives 2 and 3** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur. **Alternative 4** takes into account the variability of recreational catches while preventing overfishing.

4.16.5.2 Direct and Indirect Effect on the Economic Environment

Commercial Sector ACT
In general, if there is no concern regarding exceeding the ACL, **Preferred Alternative 1** offers the greatest short-term and long-term economic benefits. If there is concern of an overage, **Alternatives 2 and 3** can provide greater long-term economic benefits than **Preferred Alternative 1**.

Recreational Sector ACT
In general, if there is no concern regarding exceeding the ACL, **Alternative 1** offers the greatest short-term and long-term economic benefits followed by **Preferred Alternative 4**. If there is concern of an overage, **Alternatives 2 and 3** can provide greater long-term economic benefits than **Alternative 1** and **Preferred Alternative 4**.

4.16.5.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACTs will result in negative social impacts in the short term because these will be linked to the reduced economic benefits and reduced fishing opportunities. Each reduction in harvest threshold may have additional potential social effects, which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. However, there will be long-term social benefits for fishermen, communities, and the general public by preventing overfishing through an ACT for a stock that has potential to exceed the ACL. For the commercial sector, **Preferred Alternative 1** does not establish an ACT and commercial harvest will continue until the ACL is reached, which allows more fishing opportunities and short-term economic benefits to the commercial sector. **Alternative 2** and **Alternative 3** establish the commercial ACT at 90% and 80% of the ACL, respectively, which will cause short-term social impacts as the harvest approaches these levels in a shorter period, and may result in early closing.

For the recreational sector**, Alternative 1** does not establish an ACT and would also have few if any negative social effects. **Alternative 2** and **Alternative 3** would impose reductions from the ACL, which would cause the level to be reached in a shorter period and could limit recreational opportunities and economic benefits if the recreational sector is closed early. **Preferred Alternative 4** would establish a recreational ACT close to the five year average, which may affect future recreational opportunities if the sector continues to grow.

4.16.5.4 Direct and Indirect Effect on the Administrative Environment

Commercial ACT - Atlantic Spanish Mackerel
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternatives 2-3** would result in minimal administrative impacts associated with tracking landings in the commercial sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

Recreational ACT - Atlantic Spanish Mackerel
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the recreational sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.16.5.5 Council Conclusions

Will be added after public hearings.

4.17 Action 17. Accountability Measures (AMs) for Atlantic Migratory Group Spanish Mackerel

Note: Accountability Measures (AMs) include in-season measures that are intended to limit each sector to their ACL/ACT and post-season measures to make adjustments if the ACL/ACT is exceeded. In-season measures are equivalent to management measures (regulations) that have been set in the past.

Alternative 1 (Status Quo). The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met. All purchase and sale is prohibited when the quota is met. Do not implement ACLs or AMs for the recreational sector.

Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement AMs for the recreational sector for this stock. If the recreational sector ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011/12, use only 2011/12 landings. For 2012/13, use the average landings of 2011/12 and 2012/13. For 2013/14 and beyond, use the most recent three-year (fishing years) running average.
Sub-Alternative a. Reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year.
Preferred Sub-Alternative b. Reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following fishing year.

Alternative 3. Commercial payback of any overage.
Preferred Sub-Alternative 3a. Payback regardless of stock status.
Sub-Alternative 3b. Payback only if overfished.

Alternative 4. Recreational payback of any overage from one year to the next.
Preferred Sub-Alternative 4a. Payback regardless of stock status.
Sub-Alternative 4b. Payback only if overfished.

4.17.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Alternative 1 is not considered a viable option since it would specify no AMs for the recreational sector and therefore, would not limit harvest to the ACL; there is no commercial or recreational correction for an ACL overage. The Magnuson-Stevens Act requires that mechanisms of accountability be established for all federally managed species. **Alternative 1** would not comply with this mandate, and would provide no biological benefit to the species. **Alternative 2** would attempt to limit harvest to levels at or below the ACL or ACT by reducing and/or closing harvest once a particular landings threshold is met. **Alternative 3** would provide for a commercial payback of any overage with **Sub-Alternative 3a** providing more biological benefits. **Alternative 4** would provide for a recreational payback of any overage with **Sub-Alternative 4a** providing more biological benefits.

The post-season AM options are designed to compensate or correct for the magnitude of the overage during the following fishing year. In doing so, harvest levels would return to their baseline ACL over the course of two fishing years, the year of the overage and the year of the overage correction. Biologically, the ideal scenario is not allow the ACL to be exceeded to begin with, then no post-season AM would be required and stock would realize the biological benefits of sustainable harvest conditions into perpetuity. Unfortunately, management and scientific uncertainty, and numerous other variables including economic and unforeseen biologic and weather events, play a major role in annual mackerel landings, which may fall above or below any number of harvest parameters. The advantage of implementing post-season AMs is that the landings data for any given year can be examined in totality before the AM is actually triggered, as opposed to in-season AMs that could rely largely on projections of harvest that may or may not have a high degree of uncertainty. Using actual landings data to calculate the precise magnitude of an overage is biologically beneficial in that it ensures an adequate level of payback is implemented.

The most biologically beneficial AM for Spanish mackerel is most likely some combination of in-season AMs and post-season AMs. Under this scenario, if the in-season AM failed at preventing commercial ACL overage, the Regional Administrator would still have the option to implementing a post-season AM in both sectors to compensate for the overage.

Alternative 1 would perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. Establishing AMs is unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. The impacts from **Alternatives 2 - 4,** and the associated **Sub-Alternatives,** on sea turtles and smalltooth sawfish are unclear. If they perpetuate the existing amount of fishing effort, but causes effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

Setting AMs could positively affect the physical environment if effort is reduced from current levels. Fishing can have negative impacts on the bottom as described in Action 16.

4.17.2 Direct and Indirect Effect on the Economic Environment

In general, accountability measures lead to better management of the biological stock and therefore increase long-term economic benefits in the form of profits over time. However, accountability measures can have economic effects on the stability of the supply and market for Spanish mackerel, ultimately impacting aggregate profitability of commercial and recreational fisheries in the short-term. **Preferred Alternative 2** specifies prohibition of harvest, possession, and retention when the quota is met for the commercial fishery. This would result in positive long-term economic benefits and negative short-term economic commercial benefits. However, shortening the length of the recreational fishing season (**Sub-Alternative 2a**) would likely have greater negative short-term economic recreational benefits compared to **Preferred Sub-Alternative 2b** due to the importance of particular times of the year for recreational fishing and the importance of maintaining customers for charter and for-hire vessels. **Alternatives 3 and 4** require payback of an overage with two **Sub-Alternatives**. While both have positive long-term economic benefits, both also have negative short-term economic benefits due to instability of landings, making maintaining customers more difficult. Payback regardless of stock status (**Preferred Sub-Alternatives 3a and 4a**), would likely have a greater negative short-term economic effects compared to **Sub-Alternatives 3b and 4b**.

4.17.3 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures (AMs) can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long-term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Atlantic Group Spanish Mackerel have in-season closures for the commercial sector, but no closures for the recreational sector. The social effects from additional accountability measures will depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures. **Alternative 1** would not change the current regime, which closes the commercial fishery when the quota is met, but has no AMs for the recreational. With **Alternative 2** new AMs would be imposed on the recreational sector through a reduction in the fishing season the next year (**Sub-Alternative 2a**) and present regulations for the commercial sector remain. By reducing the bag limit in **Preferred Sub-Alternative 2b** to prevent the recreational fishery from exceeding the sector ACL, this action will limit some recreational opportunities. However, it is less restrictive than reducing the length of the subsequent fishing year (**Sub-Alternative 2a)**, which would impact recreational fishing opportunities.

For the commercial sector AM, the mandatory payback in **Preferred Sub-Alternative 3a** does not allow as much flexibility as requiring payback only for overfished (**Sub-Alternative 3b**), and a reduction in the ACL for a subsequent year could have significant negative social impacts if the overage is substantial.

Alternative 4 requires the same AM for the recreational sector and **Preferred Sub-Alternative 4a** would have similar effects on the recreational fishing community as mentioned for **Sub-Alternative 3a**, depending on the overage. Because recreational landings can be difficult to track, overages may be common and paybacks substantial, resulting in negative impacts on the recreational sector.

4.17.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce short-term administrative impacts. However, there are currently no AMs in place for Spanish mackerel and this alternative would not comply with Reauthorized Magnuson-Stevens Act requirements and therefore, may trigger some type of legal action. If this scenario were to occur, the burden on the administrative environment could be significant in the future. **Alternative 2** would implement AMs for the recreational sector and would comply with the Magnuson Stevens Act but would result in an increased administrative burden associated with monitoring and tracking landings on a continuing basis. **Alternatives 3-4** and associated **Sub-Alternatives**, would result in a minimal increase in administrative burden associated with calculating payback of overages for the commercial or recreational sectors. These alternatives would require administrative support in terms of education and outreach.

4.17.5 Council Conclusions

Will be added after public hearings.

4.18 Action 18. Management Measures for Atlantic Migratory Group Spanish Mackerel

[Note: More than one alternative may be selected as preferred.]

Alternative 1 (No Action). Individual recreational bag limit is 15 NY-FL. Bag limit sales are allowed consistent with state regulations. The commercial possession limits are as follows:

1. **April 1 - November 30 -- 3,500 pounds per vessel per day.**
2. December 1 until 75% of the adjusted allocation is taken:
   Monday - Friday Unlimited
   Other days 1,500 pounds

(Vessel fishing days begin at 6:00 a.m. and extend until 6:00 a.m. the following day, and vessels must be unloaded by 6:00 p.m. of that following day.)

3. After 75% of the adjusted allocation is taken 1,500 pounds per vessel per day for all days.
4. When 100% of the adjusted allocation is reached: 500 pounds per vessel per day to the end of the fishing year (March 31). Adjusted allocation compensates for estimated catches of 500 pounds per vessel per day to the end of the season.

Alternative 2. Set a maximum bag limit of 60 Spanish mackerel per boat for charter boats.

Alternative 3. Set a maximum bag limit of 60 Spanish mackerel per boat for private recreational boats.

Preferred Alternative 4. Reduce the individual bag limit from 15 to 10 per person.

Table 4.18.1. Atlantic migratory group Spanish mackerel percentage reductions by reducing the bag limit from 15 to 10.
Source: ACCSP.

Year	Florida	Georgia	South Carolina	North Carolina	Virginia
2009	0%	0%	13%	17%	0%
2008	14%	0%	0%	17%	36%
2007	20%	0%	0%	19%	0%
2006	6%	0%	0%	16%	0%
2005	27%	53%	0%	15%	0%
Range	0-27%	0-53%	0-13%	15-19%	0-36%
Average	13%	11%	3%	17%	7%

4.18.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Comparing the recreational and commercial ACL with recent landings does not indicate that a reduction in current harvest levels is necessary. The commercial ACL will be tracked and the fishery closed when the ACL is met or projected to be met. Effort in the recreational fishery is not limited by management and the bag limit of 15 Spanish mackerel per person could allow catches to increase and potentially exceed the recreational ACL. **Preferred Alternative 4** reduces the bag limit from 15 to 10 per person and is expected to reduce landings by 13% in Florida, 11% in Georgia, 3% in South Carolina, 17% in North Carolina, and 7% in Virginia based on average catches from 2005-09 (Table 4.18.1). **Alternatives 2 and 3** would set maximum boat limits based on the new bag limit of 10 per person and would be expected to have similar reductions for charter boats and private recreational boats as projected for **Preferred Alternative 4**.

Any management measures that reduce effort could affect the physical environment. Fishing can have negative impacts on the bottom as described in Action 16.

4.18.2 Direct and Indirect Effect on the Economic Environment

Placing limits on the total number of fish that a recreational vessel is allowed to take will have varied negative economic effects depending on how many people the vessels typically take on a trip. **Alternatives 2 and 3** might not result in short-term economic losses as long as 4 or less people typically catch fish on these vessels. The distribution of the number of people fishing on charter and private vessels is not known at this time and therefore quantitative results cannot be estimated. **Preferred Alternative 4** reduces the bag limit from 15 to 10 fish per person. Maximum economic losses in consumer surplus are estimated based on how many trips are taken by individuals multiplied by the trip expenditures made per fish.

4.18.3 Direct and Indirect Effect on the Social Environment

Alternative 1 would make no changes to current management measures, which likely would not affect the commercial sector but may negatively impact the recreational sector by triggering an overage by allowing the current bag limit to stand. The 60-per-boat limit in **Alternative 2** and **Alternative 3** will only have negative impacts on for-hire and private boats if the number of people on board exceeds four. Specifically **Alternative 2** will decrease fishing opportunities and potentially the economic benefits for those employed by party boats and headboats, and their clients. The effects on the social environment from a lower bag limit in **Preferred Alternative 4** will result from reduced economic benefits and reduced fishing opportunities for Atlantic Spanish Mackerel, specifically for North Carolina, Florida, and Georgia. However, if the reduced bag limit helps to avoid a payback in the following year, this will provide more social benefits in the long term.

4.18.4 Direct and Indirect Effect on the Administrative Environment

Under the **Alternative 1** (no action) the administrative impacts would not increase. **Alternatives 2-4** would result in a moderate increase in the administrative burden due to rule-making, monitoring, enforcement, and outreach.

4.18.5 Council Conclusions

Will be added after public hearings.

4.19 Action 19. Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL & ACT for Atlantic Migratory Group Cobia

Atlantic migratory group cobia have never been assessed by the NMFS Southeast Fisheries Science Center or through SEDAR. SEDAR 33, which begins in 2012 and is scheduled to be completed in 2013, will assess the three species in the CMP FMP including Atlantic migratory group cobia with data through 2011.

4.19.1 MSY, MSST & MFMT for Atlantic Migratory Group Cobia

The Council has determined that the value for MSY is the value from the most recent stock assessment. Currently MSY is unknown.

The Council has determined that the value for MSST is the value from the most recent stock assessment based on MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. Currently MSST is unknown.

The Council has determined that the value for MFMT is the value of F_{MSY} or proxy from the most recent stock assessment. Currently MFMT is unknown.

There are no alternatives under consideration because these values are all unknown. They will be updated once SEDAR 33 is completed in 2013.

4.19.2 Overfishing Level (OFL) for Atlantic Migratory Group Cobia

The Scientific and Statistical Committee provided the following OFL at their April 2010 meeting: "Since no estimate of MSY is available for cobia the SSC decided to estimate OFL as the median of landings data for the period 1986-2008. Therefore, OFL = 857,714 pounds."

The Council used the SSC methodology (median of 10 years of landings) and updated landings data to calculate a new OFL = 1,302,740 pounds.

The SSC provided the following OFL at their March 3, 2011 meeting: OFL = unknown.

The Council was advised by NOAA GC at the March 2011 meeting that if the SSC did not provide a recommended OFL, then the Council would need to specify OFL. The Council is recommending an interim OFL = mean of 10 years landings + (2*Standard Deviation) (OFL=1.68 MP) based on the Gulf Council's ABC Control Rule. The SAFMC's SSC is meeting in April and the Council has requested they review this interim OFL.

There are no alternatives under consideration because the overfishing level is being provided by the SSC.

4.19.3 ABC Control Rule and ABC for Atlantic Migratory Group Cobia

ABC is recommended by the SSC and specified by the Council:
Alternative 1. No Action. Do not establish an ABC Control Rule for Atlantic migratory group cobia.

Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as xxxx pounds. Note: During their March 3, 2011 meeting, the SSC developed a new ABC = median of last 10 years and using the updated ACL data set, ABC = 1,026,079 pounds. Note: The landings database used by the SSC was different than that used by the Council as shown in Table 4.19.3.1. Based on the data in Table 4.19.3.1, the ABC = median 2000-2009 = 1,302,740 pounds whole weight.

Alternative 3. Adopt the SAFMC SSC recommended ABC control rule and establish an ABC Control Rule where ABC equals OFL (1,302,740 pounds). Note: This OFL was recommended by the SSC prior to their March 3, 2011 meeting when they determined that OFL was unknown and they specified ABC = median of 10 years of landings. With the data in Table 4.19.3.1.1, this value is 1,302,740 pounds whole weight.

Alternative 4. Adopt the SAFMC SSC recommended ABC control rule and establish an ABC Control Rule where ABC equals a percentage of OFL. Note: OFL = 1,302,740 pounds whole weight.
Sub-Alternative 4a. ABC=65%OFL=846,781 pounds.
GMFMC Preferred Sub-Alternative 4b. ABC=75%OFL=977,055 pounds.
Sub-Alternative 4c. ABC=85%OFL=1,107,329 pounds.

SAFMC Preferred Alternative 5. Adopt the Gulf Council's ABC Control Rule as an interim control rule and establish an ABC equal to the mean plus 1.5 times the standard deviation of the most recent10 years of landings data (ABC = 1,571,399 pounds whole weight). Note: The values are shown in Table 4.19.3.1.2. The Council requests that the SSC review this interim control rule at their April 2011 meeting.

4.19.3.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

While there are no direct biological effects from identification of an ABC, it does set the upper limit on the level of landings that will be allowed for fishermen and prevents overfishing. **Alternative 1** (No Action) would not meet the new Magnuson-Stevens Act requirements. **Alternative 2** would adopt the SAFMC SSC recommended ABC control rule and would be expected to provide positive biological benefits over the long term by accounting for assessment uncertainty while preventing overfishing. **Alternative 3** provides the second highest level of landings of all the alternatives but carries more biological risk and does not account for management uncertainty which could lead to overfishing and negative biological effects. **Alternative 4 and Sub-Alternatives 4a-4c** provide more biological protection as compared to **Alternatives 2 and 3**. **Alternative 5** would adopt the Gulf Council's ABC control rule as an interim control rule until results are available from SEDAR 33 which begins in 2012 and would provide the greatest biological benefits over the long term if it sufficiently accounts for assessment uncertainty and prevents overfishing.

Table 4.19.3.1.1. Recreational and commercial landing of Atlantic cobia by year and area for Action 3 (Cobia Management Boundary) Alternatives 1, 2, and 3.

	Commercial					Recreational			South Atlantic				
	South Atlantic	Gulf only	Monroe County			South Atlantic	Gulf only	Monroe County	South Atlantic		South Atlantic		South Atlantic
Year	Only		S. Atlantic	Gulf	Total	only			Com.	% Com.	Rec.	% Rec.	Total
2000	91,269	126,604	23,076	3,286	26,362	1,017,028	880,413	27,070	114,345	10%	1,030,563	90%	1,144,908
2001	95,435	89,760	19,707	2,348	22,055	849,194	1,165,227	47,868	115,142	12%	873,128	88%	988,270
2002	88,767	103,113	16,836	2,109	18,945	771,362	851,683	14,908	105,603	12%	778,816	88%	884,419
2003	80,665	108,886	29,535	2,580	32,115	1,509,248	1,098,724	70,593	110,200	7%	1,544,545	93%	1,654,745
2004	89,200	97,460	14,363	3,733	18,096	1,184,435	1,270,392	46,270	103,563	8%	1,207,570	92%	1,311,133
2005	59,513	84,377	12,372	3,104	15,476	1,274,058	1,222,264	35,963	71,885	5%	1,292,040	95%	1,363,925
2006	81,013	76,714	11,644	4,842	16,486	1,150,144	1,043,001	103,093	92,657	7%	1,201,690	93%	1,294,347
2007	83,918	68,932	13,359	4,220	17,579	1,246,670	1,056,228	17,076	97,277	7%	1,255,208	93%	1,352,485
2008	82,764	65,220	14,393	2,430	16,823	1,220,307	981,149	6,479	97,157	7%	1,223,547	93%	1,320,704
2009	99,475	60,424	9,608	1,120	10,728	946,037	594,786	4,493	109,083	10%	948,284	90%	1,057,367

Action 3: Alternative 1 (above numbers) Alternative 2 (above numbers) Alternative 3 (above numbers)
Source: SEFSC ALS, MRFSS, HBS, and TPW databases.

Table 4.19.3.1.2. Values from applying the Gulf Council's ABC control rule to the 2000-2009 data in Table 4.19.3.1 using the Council boundary as the stock boundary (Alternative 3).

Value	Pounds Whole Weight
Mean	1,237,230
Median	1,302,740
Standard Deviation (SD)	222,779
Mean + 0.5 * SD	1,348,620
Mean + 1.0 * SD	1,460,010
Mean + 1.5 * SD	1,571,399
Mean + 2.0 * SD	1,682,789

4.19.3.2 Direct and Indirect Effect on the Economic Environment

In general, the higher the ABC, the greater the biological benefits and therefore, the greater the long-term economic benefits if there is little risk of overfishing. If the risk of overfishing is significant, a buffer between the OFL and the ABC would result in the greatest long-term economic benefits but smaller short-term economic benefits. Therefore, **SAFMC Preferred Alternative 5** likely provides the greatest short-term economic benefits whereas **Sub-Alternative 4a** would likely provide the greatest long-term economic benefits but also the smallest short-term economic benefits followed by **GMFMC Preferred Sub-Alternative 4b, Alternative 2, Sub-Alternative 4c, and Alternative 3** in declining order.

4.19.3.3 Direct and Indirect Effect on the Social Environment

Establishment of the biological parameters for harvest thresholds will have few direct social effects. Impacts on the social environment are more indirect, resulting from the implementation of the ABC and any subsequent reduction when setting ACLs and ACTs. The more risk averse a control rule or threshold is, the more chances of negative social effects accruing in the short-term if harvest is reduced. The least restrictive ABC would result from **Preferred Alternative 5,** while **Alternative 4a** is the most restrictive, but all effects on the social environment will depend on subsequent decisions for the ACL and AMs following this action.

4.19.3.4 Direct and Indirect Effect on the Administrative Environment

The establishment of an ABC Control Rule is a procedural exercise. The rule is developed by the Council's SSC for consideration by the Council. Although the control rule can have implications on management actions, no specific management actions are required through the specification of the control rule. The administrative impacts of establishing a control rule are minimal and impacts would not differ much between the proposed alternatives.

4.19.3.5 Council Conclusions

Will be added after public hearings.

4.19.4 Allocation by Sector for Atlantic Migratory Group Cobia

Alternative 1. No action. Currently there are no allocations for cobia.

Alternative 2. Define allocations for Atlantic migratory group cobia based upon landings from the ALS, MRFSS, and headboat databases. The allocation would be based on landings from the years 2006-2008. The allocation would be 8% commercial and 92% recreational. The commercial and recreational allocation specified for 2011 would remain in effect beyond 2011 until modified.

Preferred Alternative 3. Define allocations for Atlantic migratory group cobia based upon landings from the ALS, MRFSS, and headboat databases. The allocation would be based on the following formula for each sector:
Sector apportionment = (50% * average of long catch range (lbs) 2000-2008 + (50% * average of recent catch trend (lbs) 2006-2008). The allocation would be 8% commercial and 92% recreational. The commercial and recreational allocation specified for 2011 would remain in effect beyond 2011 until modified.

4.19.4.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

There are no physical, biological or ecological effects from allocating by sector. The ACL or ACT and AMs provide biological protection and prevent overfishing. Using the landings data shown in Table 4.18.2.1.1 for Alternative 3(management separated at the Council boundary), the allocation is 92% recreational and 8% commercial for both **Alternative 3** and **Preferred Alternative 4**. Prior to NMFS updating commercial and recreational catches the allocations were different between **Alternatives 2 and 3**; however, the updated landings results in the same allocation (92% recreational and 8% commercial). Affects of applying the Councils preferred allocation to the ABC values is shown in Table 4.19.4.1.1.

Table 4.19.4.1.1. Atlantic Migratory Group Cobia ABC recommendation from the Scientific and Statistical Committee and proposed allocations.

		Allocation Alt.2		Allocation Alt.3		Source
Year	ABC	Rec (92%)	Com (8%)	Rec (92%)	Com (8%)	
2011	643,286	591,823	51,463	591,823	51,463	**SSC**
2011	977,055	898,891	78,164	898,891	78,164	**SSC's method & updated landings**
2011	1,571,399	1,445,687	125,712	1,445,687	125,712	SAFMC's Interim Control Rule

4.19.4.2 Direct and Indirect Effect on the Economic Environment

Creating sector allocations for Atlantic cobia will have positive benefits to each sector depending on the percentage allocated to that sector. The recreational sector will benefit more given a larger share while the same applies to the commercial sector. Deviations from the current harvest levels will have effects, both positive and negative, while allocations close to current harvest levels will have smaller effects. In this case, **Alternative 2** and **Preferred Alternative 3** result in the same allocations and will have no differential economic effects. However, compared to **Alternative 1**, the commercial and recreational sectors may feel they have experienced losses given that under **Alternative 1**, each sector had the opportunity to harvest more than under **Alternative 2** and **Preferred Alternative 3**.

4.19.4.3 Direct and Indirect Effect on the Social Environment

Effects on the social environment resulting from sector allocation will likely depend on the equity of the allocation and the newly separated accountability. **Alternative 1** would not define separate allocations but does allow both sectors to harvest until the overall ACL is met, which may provide more fishing opportunities than **Alternative 2** or **Preferred Alterative 3** for one or both of the sectors. **Alternative 2** or **Preferred Alterative 3** result in the same allocation, and would have similar social effects. There would likely be few or no short-term changes for either sector, because the allocation is based on recent landings history. However, possible negative social impacts may result in the future by limiting expansion of one or both sectors, or from less-than-optimal use of the fishery due to unused quota by one sector that could not be accessed by the other sector.

4.19.4.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1, no action, would not increase the administrative burden as it would not create allocations for cobia. Under any of the proposed action alternatives, administrative impacts will occur as allocations will need to be monitored and enforced to ensure that the sectors do not exceed their allocation and if so, appropriate overages are accounted for. The administrative impacts associated with the proposed alternatives are expected to be similar to the administrative impacts under **Alternative 1.** None of the action alternatives are expected to increase the administrative impacts more than the others.

4.19.4.5 Council Conclusions

Will be added after public hearings.

4.19.5 Annual Catch Limit (ACL) for Atlantic Migratory Group Cobia

The ACL is equivalent to TAC as used in the past.

Alternative 1. No action. Currently there is no TAC or ACL for cobia.

Preferred Alternative 2. ACL = OY = ABC = 977,055 pounds based on the SSC recommendation. Note: During their March 3, 2011 meeting, the SSC developed a new ABC = median of last 10 years and using the updated ACL data set, ABC = 1,026,079 pounds. Using the SAFMC's Interim Control Rule, ABC = 1,571,399 pounds.

Alternative 3. ACL = X% of ABC = ???? thousand pounds.
Sub-Alternative 3a. ACL = 65%ABC = 635,086 pounds = 1,021,409 pounds.
Sub-Alternative 3b. ACL = 75%ABC = 732,791 pounds = 1,178,549 pounds.
Sub-Alternative 3c. ACL = 85%ABC = 830,497 pounds = 1,335,689 pounds.
Sub-Alternative 3d. ACL = 80%ABC = 781,644 pounds = 1,257,119 pounds.
Sub-Alternative 3e. ACL = 90%ABC = 879,350 pounds = 1,414,259 pounds.
Note: The first set of ACL numbers in Alternative 3 above are calculated with ABC = 977,055 pounds whole weight which was the Council's previous preferred alternative. At the March 2011 meeting, the Council changed their preferred to using the ABC from their proposed Interim Control Rule with ABC = 1,571,399 pounds whole weight. The Council's new preferred ABC was used to calculate the second set of ACL numbers.

4.19.5.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Setting an ACL potentially will have an impact on the biological environment if harvest changes from current levels; however, this is not expected to be the case as most alternatives would maintain catches close to **Alternative 1** (No Action). **Preferred Alternative 2** is based on the SSC recommendations and would prevent overfishing. **Alternative 3** would provide more biological protection by setting the ACL below the ABC. ACL values based on the various values in **Preferred Alternative 2** and **Alternative 3** are shown in Table 4.19.5.1.1.

Table 4.19.5.1.1. ACL values (pounds whole weight) based on values in Preferred Alternative 2.

	ACL	If ABC =	If ABC =	If ABC =
Alternative	**Formula**	977,055	1,026,079	1,571,399
		Then ACL =	**Then ACL =**	**Then ACL =**
Preferred Alternative 2	ACL=OY=ABC	977,055	1,026,079	1,571,399
Sub-Alternative 3a	ACL=65%ABC	635,086	666,951	1,021,409
Sub-Alternative 3b	ACL=75%ABC	732,791	769,559	1,178,549
Sub-Alternative 3c	ACL=85%ABC	830,497	872,167	1,335,689
Sub-Alternative 3d	ACL=80%ABC	781,644	820,863	1,257,119

Setting an ACL could affect the physical environment if harvest changes from current levels. However this is not expected to be the case as most alternatives would maintain catches close to **Alternative 1** (No Action). If harvest is restricted under an ACL, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. CMP species are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral.

4.19.5.2 Direct and Indirect Effect on the Economic Environment

Preferred Alternative 2 offers the highest ACL level and therefore the greatest short-term and long-term economic benefits as long as there is no significant risk of overfishing. If there is a significant risk of overfishing, **Sub-Alternatives** under **Alternative 3** would offer higher long-term economic benefits but smaller short-term economic benefits compared to **Preferred Alternative 2**.

4.19.5.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACLs will increase the risk of short-term negative impacts on commercial and recreational fishermen and communities. For the commercial and for-hire sectors, a more restrictive ACL could cause reduced effort and job loss if an operation cannot stay in business through low ACLs. However, successful management through ACLs will result in long-term overall benefits for the fishermen, communities, and the general public as the resource is protected from overfishing. Establishment of the ACL for Atlantic Cobia will limit harvest, potentially reducing fishing opportunities for commercial and recreational. The most restrictive ACL scenarios are in **Alternative 3** (percentage of the ABC) and the least restrictive is **Alternative 3e** (90% of ABC). **Preferred Alternative 2** sets the ACL at ABC and is less restrictive than most other alternatives, which will most likely not result in negative short-term impacts expected from allowing only a percentage of the ABC to be harvested as in **Alternative 3.**

4.19.5.4 Direct and Indirect Effect on the Administrative Environment

Atlantic Cobia OY
The specification of OY is a procedural exercise. Although OY can have implications on management actions, no specific management actions are required through the specification of OY. The administrative impacts of specifying OY are minimal and would not differ much between the proposed alternatives.

ACLs for Atlantic Group Cobia
Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1** would not meet the requirements of the Magnuson-Stevens Act for Atlantic migratory group Spanish mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2- 3,** and the **Sub-Alternatives** associated with **Alternative 3** are minimal and would not differ much between the

action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.19.5.5 Council Conclusions

Will be added after public hearings.

4.19.6 Annual Catch Target (ACT) for Atlantic Migratory Group Cobia

Action 4.19.6a Commercial Sector ACT

Preferred Alternative 1. Do not specify commercial sector ACTs for Atlantic migratory group cobia.

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL.

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL.

Table 4.19.6.1. The commercial sector ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Commercial ACL	Commercial Sector ACT	
		ACT Alt. 2; ACT=90%(ACL)	ACT Alt. 3; ACT=80%(ACL)
Atlantic migratory group cobia	125,712	113,141	100,570

Action 4.19.6b Recreational Sector ACT

Alternative 1 (no action). Do not specify recreational sector ACTs for Atlantic migratory group cobia.

Alternative 2. The recreational sector ACT equals 85% of the recreational sector ACL.

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL.

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater].

Table 4.19.6.2. Proportional Standard Errors (PSEs) for Atlantic migratory group cobia from numbers estimates (A+B1) for all modes.
Source: Obtained from http://www.st.nmfs.noaa.gov on May 12, 2010.

Species	2003	2004	2005	2006	2007	2008	2009	3 year average (2007-09)	5 year average (2005-09)
Atlantic migratory group cobia	15.0	20.2	21.4	14.7	15.2	18.9	14.8	16.3	17.0

The Council decided to use the 5-year average PSE because this better represented recent catches than the 3 year average.

Table 4.19.6.3. The recreational ACT for each of the alternatives. Values are in lbs whole weight.

Species	Preferred Recreational Sector ACL	Recreational Sector ACT		
		ACT Alt. 2; ACT=85%(ACL)	ACT Alt. 3; ACT=75%(ACL)	ACT Alt. 4; ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater]
Atlantic migratory group cobia	1,445,687	1,228,834	1,084,265	1,199,920

4.19.6.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Setting an ACT provides more biological protection by accounting for management uncertainty and provides greater assurance that overfishing will be prevented.

Commercial
Alternative 1 would not set and ACT. **Alternatives 2 and 3** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur.

Recreational
Alternative 1 would not set and ACT. **Alternatives 2-4** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur. **Alternative 4** takes into account the variability of recreational catches while preventing overfishing.

4.19.6.2 Direct and Indirect Effect on the Economic Environment

Commercial Sector ACT
Preferred Alternative 1 proposes the highest commercial ACL and would result in the greatest short-term and long-term economic benefits as long as there is a low risk of overages. If there is a significant risk of overages, **Alternatives 2 and 3** would result in greater long-term economic benefits than **Preferred Alternative 1** but smaller short-term economic benefits.

Recreational Sector ACT
Preferred Alternative 4 proposes the highest recreational ACT and will result in the greatest short-term and long-term economic benefits as long as there is a low risk of overages. If there is a significant risk of overages, **Alternatives 2 and 3** would result in greater long-term economic benefits than **Preferred Alternative 4** but smaller short-term economic benefits.

4.19.6.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACTs will result in more negative social impacts for in the short term because these will be linked to the reduced economic benefits and reduced fishing opportunities. Each reduction in harvest threshold may have additional potential social effects, which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. However, there will be long-term social benefits for fishermen, communities, and the general public by preventing overfishing through an ACT for a stock that has potential to exceed the ACL.

For the commercial sector, **Preferred Alternative 1** does not establish an ACT and commercial harvest will continue until the ACL is reached, which allows more fishing opportunities and economic benefits to the commercial sector. **Alternative 2** and **Alternative 3** establish the commercial ACT at 90% and 80% of the ACL, respectively, which will cause short-term social impacts as the harvest approaches these levels in a shorter period, and may result in early closing.

For the recreational sector**, Alternative 1** does not establish an ACT and would also have few if any negative social effects. **Alternative 2** and **Alternative 3** would impose levels lower than the ACL, which would cause the ACT to be reached in a shorter period and could limit recreational opportunities and economic benefits if the recreational sector is closed early. **Preferred Alternative 4** would establish a recreational ACT less restrictive than **Alternative 3**, but still may affect future recreational opportunities if the sector continues to grow.

4.19.6.4 Direct and Indirect Effect on the Administrative Environment

Commercial ACT for Atlantic Migratory Cobia
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternatives 2-3** would result in minimal administrative impacts associated with tracking landings in the commercial sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

Recreational ACL for Atlantic Migratory Cobia
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. Action **Alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the recreational sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.19.6.5 Council Conclusions

Will be added after public hearings.

4.20 Action 20. Accountability Measures (AMs) for Atlantic Migratory Group Cobia

Note: Accountability Measures (AMs) include in-season measures that are intended to limit each sector to their ACL/ACT and post-season measures to make adjustments if the ACL/ACT is exceeded. In-season measures are equivalent to management measures (regulations) that have been set in the past.

Alternative 1 (No Action). There is no quota for cobia and there are no AMs in place for cobia.

Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Do not implement ACLs or AMs for the recreational sector.

Preferred Alternative 3. The commercial AM for this stock is to prohibit harvest, possession, and retention when the quota is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement Accountability Measures (AMs) for the recreational sector for this stock. If the ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011, use only 2011 landings. For 2012, use the average landings of 2011 and 2012. For 2013 and beyond, use three-year running average.

Alternative 4. Commercial payback of any overage.
Preferred Sub-Alternative 4a. Payback regardless of stock status.
Sub-Alternative 4b. Payback only if overfished.

Alternative 5. Recreational payback of any overage from one year to the next.
Preferred Sub-Alternative 5a. Payback regardless of stock status.
Sub-Alternative 5b. Payback only if overfished.

4.20.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Alternative 1 is not considered a viable option since it would specify no AMs for the recreational sector and therefore, would not limit harvest to the ACL; there is no commercial or recreational correction for an ACL overage. The Magnuson-Stevens Act requires that mechanisms of accountability be established for all federally managed species. **Alternative 1** would not comply with this mandate, and would provide no biological benefit to the species. **Alternatives 2 and 3** would attempt to limit commercial and recreational harvest to levels at or below the ACL or ACT by reducing and/or closing harvest once a particular landings threshold is met. **Alternative 4** would provide for a commercial payback of any overage with **Sub-Alternative 4a** providing more biological benefits. **Alternative 5** would provide for a recreational payback of any overage with **Sub-Alternative 5a** providing more biological benefits.

The post-season AM options are designed to compensate or correct for the magnitude of the overage during the following fishing year. In doing so, harvest levels would return to their baseline ACL over the course of two fishing years, the year of the overage and the year of the overage correction. Biologically, the ideal scenario is not allow the ACL to be exceeded to begin with, then no post-season AM would be required and stock would realize the biological benefits of sustainable harvest conditions into perpetuity. Unfortunately, management and scientific uncertainty, and numerous other variables including economic and unforeseen biologic and weather events, play a major role in annual mackerel landings, which may fall above or below any number of harvest parameters. The advantage of implementing post-season AMs is that the landings data for any given year can be examined in totality before the AM is actually triggered, as opposed to in-season AMs that could rely largely on projections of harvest that may or may not have a high degree of uncertainty. Using actual landings data to calculate the precise magnitude of an overage is biologically beneficial in that it ensures an adequate level of payback is implemented.

The most biologically beneficial AM for cobia is most likely some combination of in-season AMs and post-season AMs. Under this scenario, if the in-season AM failed at preventing commercial ACL overage, the Regional Administrator would still have the option to implementing a post-season AM in both sectors to compensate for the overage.

Alternative 1 would perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. Establishing AMs is unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. The impacts from **Alternatives 2 - 5,** and the associated **Sub-Alternatives,** on sea turtles and smalltooth sawfish are unclear. If they perpetuate the existing amount of fishing effort, but causes effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

Setting AMs could positively affect the physical environment if effort is reduced from current levels. Fishing can have negative impacts on the bottom as described in Action 19.

4.20.2 Direct and Indirect Effect on the Economic Environment

In general, accountability measures lead to better management of the biological stock and therefore increase long-term economic benefits. However, accountability measures can have economic effects on the stability of the supply of fish and market for cobia as well as headboat customers, ultimately impacting aggregate profitability of commercial and recreational fisheries in the short-term. **Alternative 2** specifies prohibition of harvest, possession, and retention when the quota is met for the commercial fishery only. This would result in some positive long-term economic benefits and negative short-term economic benefits for commercial fisheries. However, **Preferred Alternative 3** proposes AMs for both the commercial and recreational sectors and this would have even greater long-term economic benefits for both sectors. However, shortening the length of the recreational fishing season would likely have greater negative short-term economic benefits compared to **Alternatives 4 and 5** due to the importance of particular times of the year for recreational fishing. **Alternatives 4 and 5** require payback of an overage with two **Sub-Alternatives**. While both have positive long-term economic benefits, both also have negative short-term economic benefits due to instability of landings, making maintaining customers more difficult. **Preferred Alternatives 4a and 5a**, while economically beneficial in the long-term, would greater negative short-term economic effects than **Alternatives 4b and 5b**.

4.20.3 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures (AMs) can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long-term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Atlantic Group Cobia do not have in-season measures in place and there are no closures for the commercial sector or recreational sector. The social effects from additional accountability measures will depend upon their restrictive nature and whether additional management uncertainty is introduced from the measures. **Alternative 1** would not change the current regime and there would be little or no effects on the social environment. The commercial sector would experience some negative impacts if the season is closed early (**Alternative 2**) but the recreational sector would not experience any changes due to the alternative. **Preferred Alternative 3** includes an in-season closure for the commercial sector, which would have similar effects as **Alterative 2**. For the recreational sector, **Preferred Alternative 3** includes a reduction of the following year of an overage, which would impact fishing opportunities and economic benefits for the recreational sector.

For the commercial sector AM, the mandatory payback in **Preferred Sub-Alternative 4a** does not allow as much flexibility as requiring payback only for overfished (**Sub-Alternative 4b**), and a reduction in the ACL for a subsequent year could have significant negative social impacts if the overage is substantial.

Alternative 5 requires the same AM for the recreational sector and **Preferred Sub-Alternative 5a** would have similar effects on the recreational fishing community as mentioned for **Sub-Alternative 4a**, depending on the overage. Because recreational landings can be difficult to track, overages may be common and paybacks substantial, resulting in negative impacts on the recreational sector.

4.20.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce near-term administrative impacts. However, there are currently no AMs in place for cobia and this alternative would not comply with Reauthorized Magnuson-Stevens Act requirements and therefore, may trigger some type of legal action. If this scenario were to occur, the burden on the administrative environment could be significant in the future. **Alternative 2** would not implement ACLs or AMs for the recreational sector and would not comply with the Magnuson Stevens Act. **Alternative 3** would increase the administrative burden through the need for in-season monitoring, tracking of recreational landings, rule-making and education and outreach. **Alternatives 4-5**, would result in a minimal increase in administrative burden associated with calculating payback of overages for the commercial or recreational sectors.

4.20.5 Council Conclusions

Will be added after public hearings.

4.21 Action 21. Management Measures for Atlantic Migratory Group Cobia

[Note: More than one alternative may be selected as preferred.]

Preferred Alternative 1 (No Action). Recreational and commercial fishermen are limited to two cobia per person. This would retain the following regulations that apply to both recreational and commercial fishermen: (a) 33" fork length minimum size limit, (b) 2 per person bag limit (Note: Florida State regulations only allow 1 per person for recreational and 2 per person for commercial), (c) one day possession limit, (d) must be landed with heads and fins intact, and (d) charter/headboats require a permit for Coastal Migratory Pelagics. Note: The fishing year is January 1 through December 31.

Alternative 2. Specify a commercial trip limit:
Sub-Alternative 2a. Two cobia per person.
Sub-Alternative 2b. One cobia per person.

Alternative 3. Reduce the recreational bag limit from 2 to 1 cobia per person.

Alternative 4. Reduce the recreational bag limit from 2 to 1 cobia per boat per day.

Alternative 5. Establish a closed season for the recreational fishery.

Alternative 6. Reduce the recreational bag limit from 2 to 1 cobia per person per day during the spawning season.
Note: There was some discussion during the March 2010 Council meeting of using April, May, and June.

Discussion: Data and analyses necessary to evaluate the alternatives are presented below. An analysis of the effects is presented after this information.

Landings
The first step to determine whether changes are necessary to the current regulations is to compare expected landings in 2011 onwards with the proposed ACL and/or ACTs. To begin it is helpful to look at where cobia are caught. The previous data are from the NMFS and if examined at the state level, would be confidential. However, the public Atlantic Coast Cooperative Statistics Program or ACCSP provides both confidential and non-confidential data and is accessible by anyone at www.accsp.org. Catch data from New York through Florida are shown in Figures 4.21.1-4.21.11. As can be seen catches are low and sporadic in New York through Maryland. There has been a small level of commercial landings since 1950 in Virginia with variable recreational landings from 1980 onwards; recreational landings have ranged from just under 50,000 pounds to just under 500,000 pounds since 1990 (Figure 4.21.4). Mid-Atlantic landings are dominated by landings from Virginia and the trends are the same (Figure 4.21.5). Landings in North Carolina (Figure 4.21.6) are similar to Virginia while landings in South Carolina (Figure 4.21.6) begin in 1980 with a very small commercial fishery and a recreational fishery of between about 25,000 and 200,000 pounds with a spike in 2003 at over 450,000 pounds (Figure 4.21.7). Landings in Georgia have been low and sporadic since 1976 with a spike in recreational landings of about 340,000 pounds in 2008 (Figure 4.21.8). Landings have

been highest on Florida's Atlantic Coast (not including Monroe County) with a small commercial fishery since 1950 but showing an increase since the mid-1980s (Figure 4.21.9). Recreational landings on Florida's Atlantic Coast have fluctuated between 23,000 and slightly over 1 million pounds (Figure 4.21.9) since 1981. Landings in the South Atlantic are shown in Figure 4.21.10 and landings for the Mid-Atlantic and South Atlantic areas combined is shown in Figure 4.21.11.

So, if you compare the "Old ABC" value of 977,055 pounds to landings (see Figure 4.21.11) there would need to be a large reduction in landings to ensure the ABC is not exceeded. This is why the Councils have included management alternatives that look at reducing the bag limit and seasonal closures. The Councils recognize that when cobia were first managed, the recreational and commercial sectors supported precautionary measures and that is how the 2 per person bag limit (recreational and commercial) and 33" fork length minimum size limit were implemented.

At their March 2011 meeting, the South Atlantic Council reviewed the Gulf Council's ABC Control Rule and developed an "Interim ABC Control Rule" for cobia, to be applied until results of SEDAR 33 become available in 2013. The South Atlantic Council has asked their SSC to review their proposed ABC Control Rule and consider having it apply in the interim, until results of the SEDAR stock assessment become available. Applying this Interim Control Rule results in an Overfishing Level (OFL) of 1.68 million pounds and an ABC of 1.57 million pounds; these lines are shown in Figure 4.21.11 and you can see that catches would not have to be reduced although the 2010 catches are very high. This is why the Council is not proposing to change management regulations at this time; however, this decision is dependent on the SSC approving use of the Council's interim rule at their April 5-7, 2011 meeting.

Commercial Trip and Per Person Limit

The following analyses of logbook and trip interview data (TIP), both commercial, were prepared by the NMFS SERO:

Trip Limit - Landings are reported in pounds. To convert landings from pounds to numbers, two methods were explored. The first method used the average weight of cobia observed by TIP port agents (~25 lbs) to convert landings in pounds to landings in numbers. This method did NOT set a maximum catch for the trip based on the number of crew times the two cobia per person bag limit. The second method also used the average TIP weight to convert from numbers to pounds. The number of fish estimated to be caught was then compared to the maximum allowable catch which was set equal to the number of crew on the vessel times a 2 fish per person bag limit. The number caught was then set equal to or less than the maximum number that could be legally caught. Results are shown in Table 2.21.1.

Per Person Limit - Landings are reported in pounds. To convert landings from pounds to numbers, two methods were explored. The first method used the average weight of cobia observed by TIP port agents (~25 lbs) to convert landings in pounds to landings in numbers. This method likely overestimates the number of cobia caught on individual trips as it estimates some fishermen would have exceeded the 2 per person bag limit on a trip. The second method also used the average TIP weight to convert from numbers to pounds. The number of fish estimated to be caught per angler (number caught/crew) was then compared to the maximum allowable catch per angler which was set equal to the 2 fish per person bag limit. The number caught was then set equal to or less than two cobia per angler as this is the legal allowable limit.

Results are shown in Table 2.21.2.

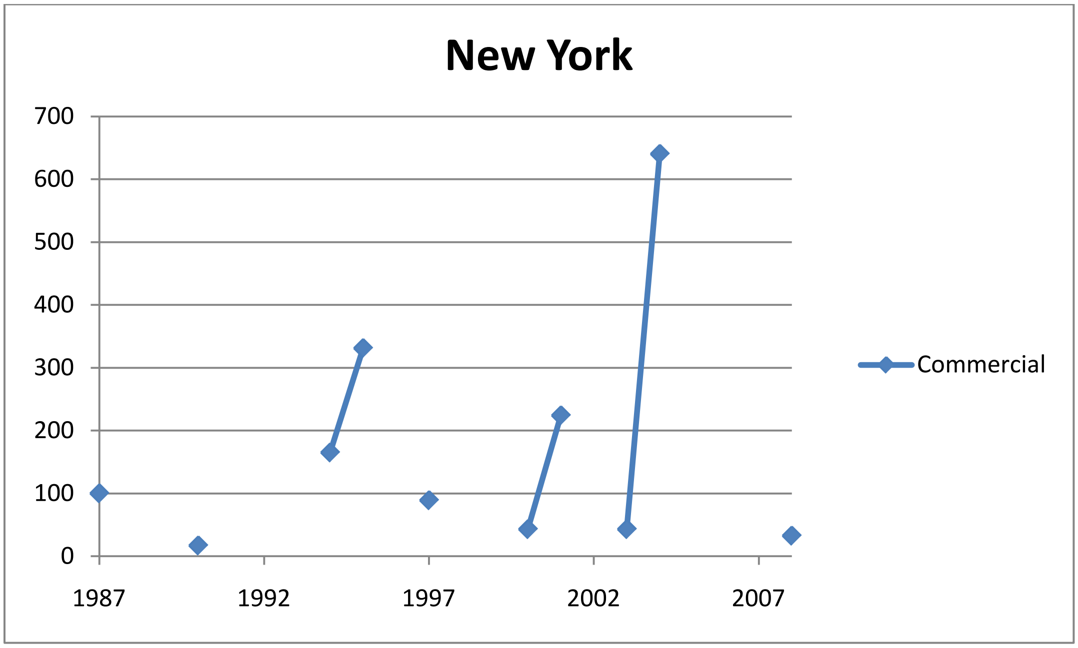


Figure 4.21.1. Landings of cobia in New York.
Source: ACCSP.org

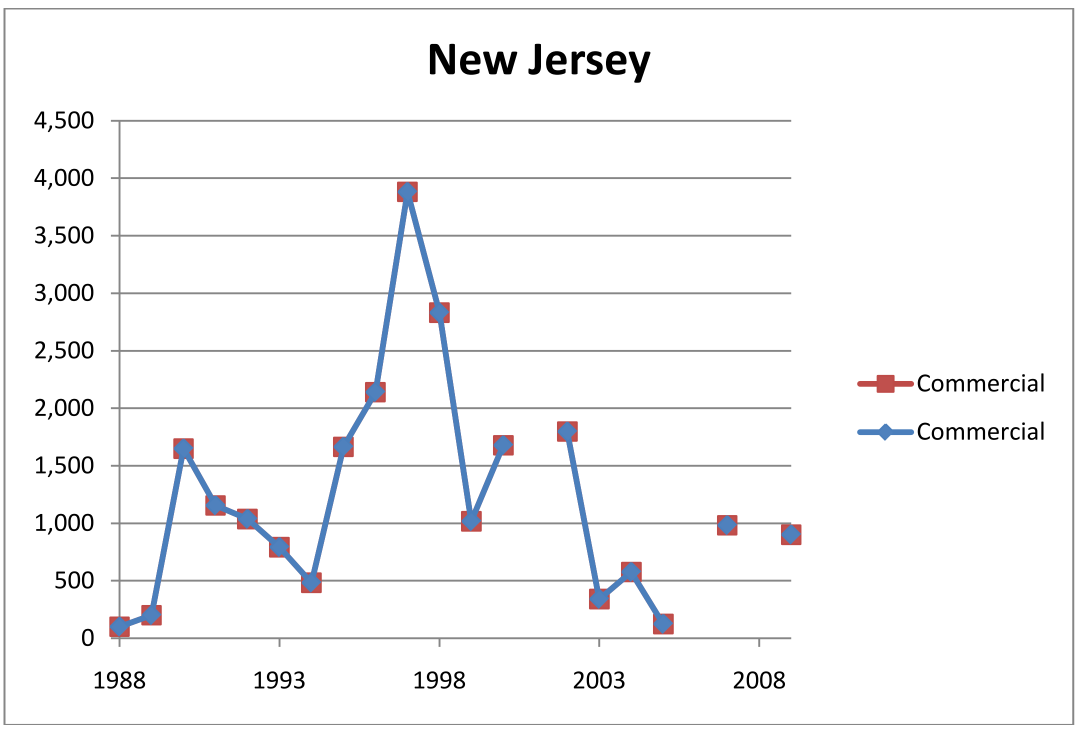


Figure 4.21.2. Landings of cobia in New Jersey.
Source: ACCSP.org

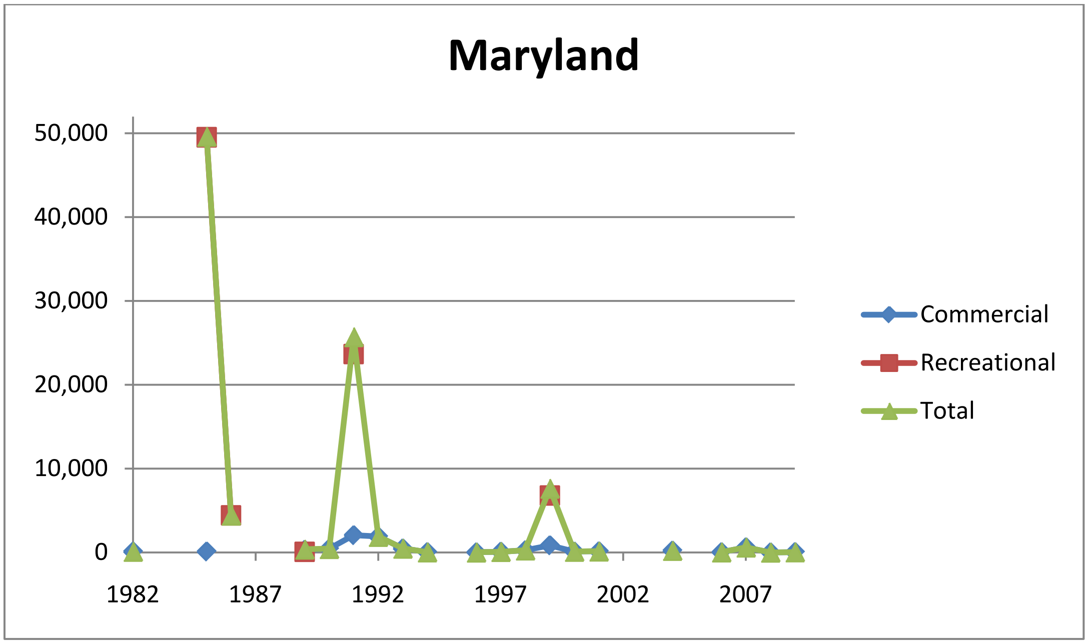


Figure 4.21.3. Landings of cobia in Maryland.
Source: ACCSP.org

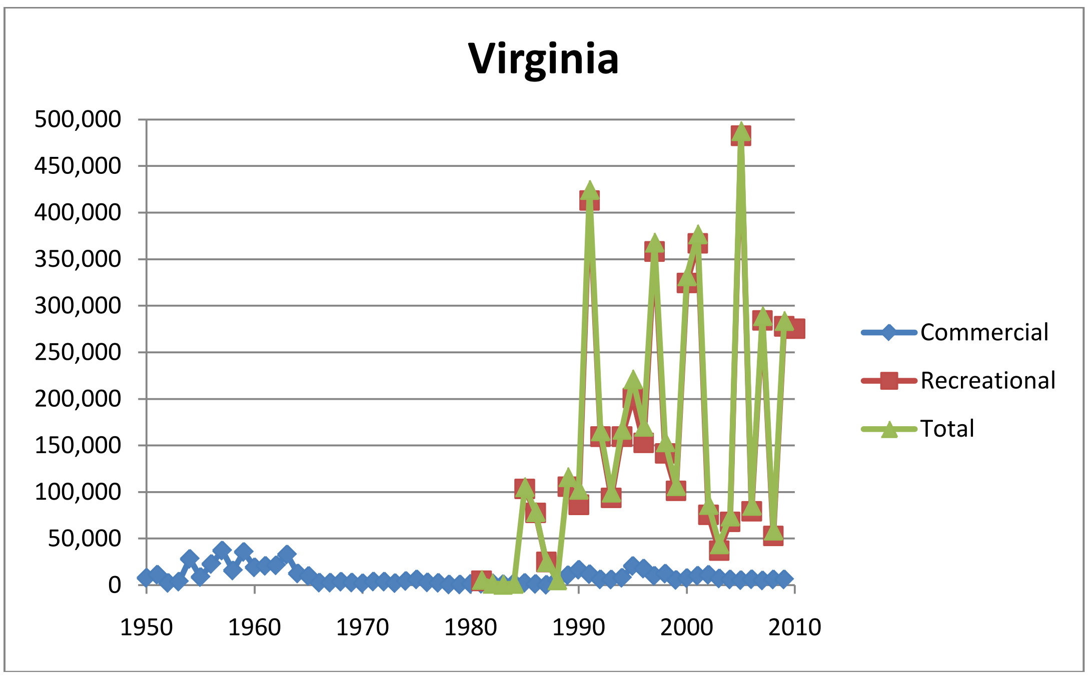


Figure 4.21.4. Landings of cobia in Virginia.
Source: ACCSP.org

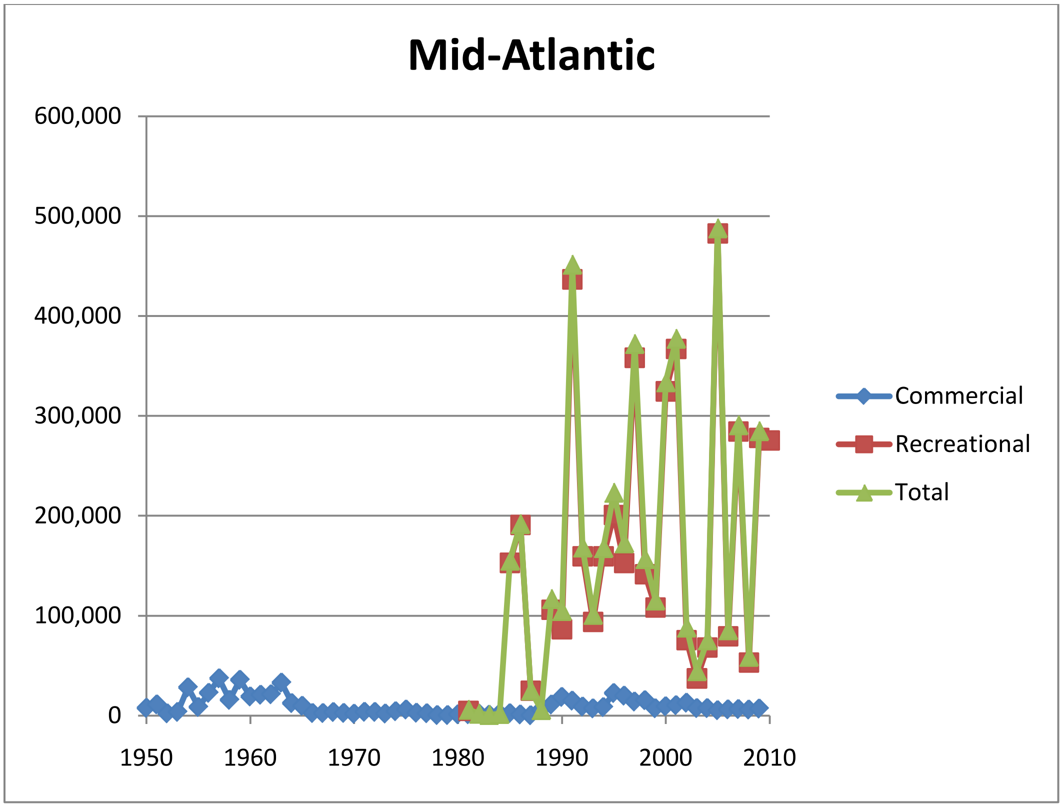


Figure 4.21.5. Landings of cobia in the Mid-Atlantic.
Source: ACCSP.org

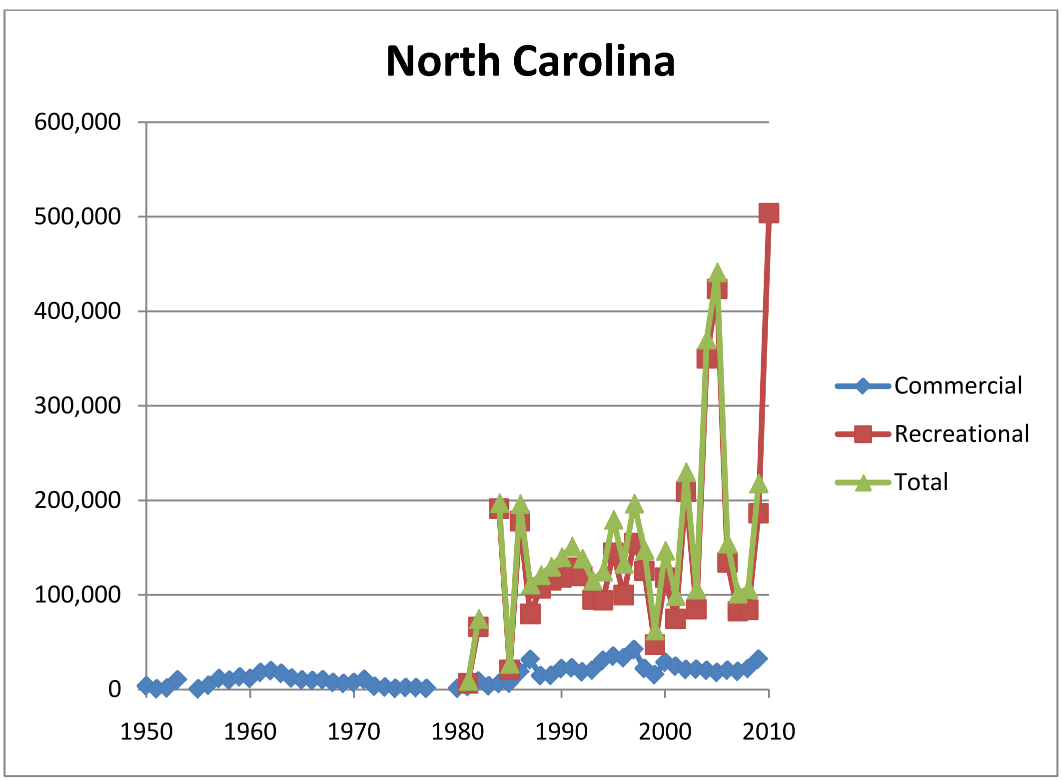


Figure 4.21.6. Landings of cobia in North Carolina.
Source: ACCSP.org

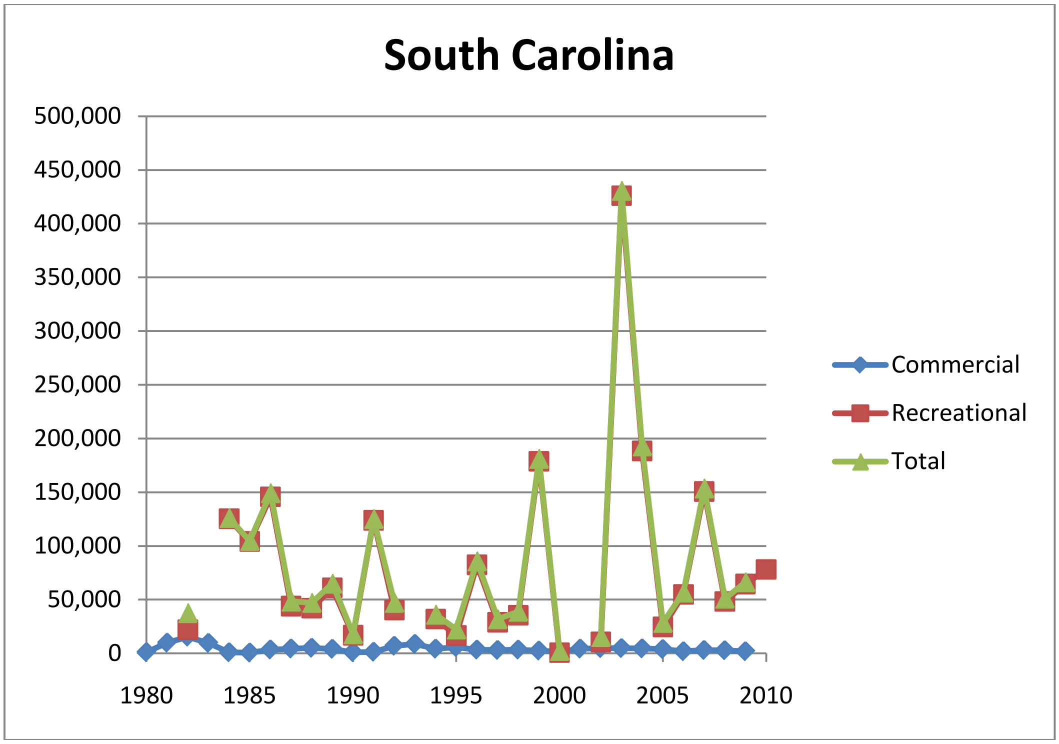


Figure 4.21.7. Landings of cobia in South Carolina.
Source: ACCSP.org

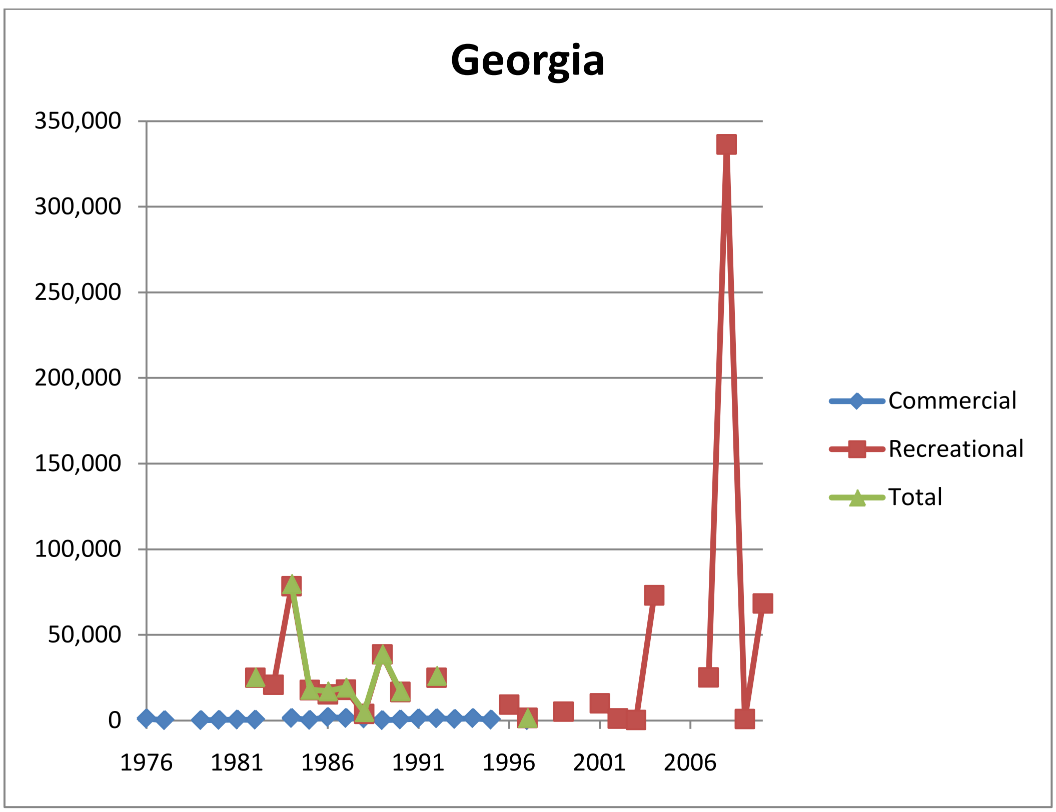


Figure 4.21.8. Landings of cobia in Georgia.
Source: ACCSP.org

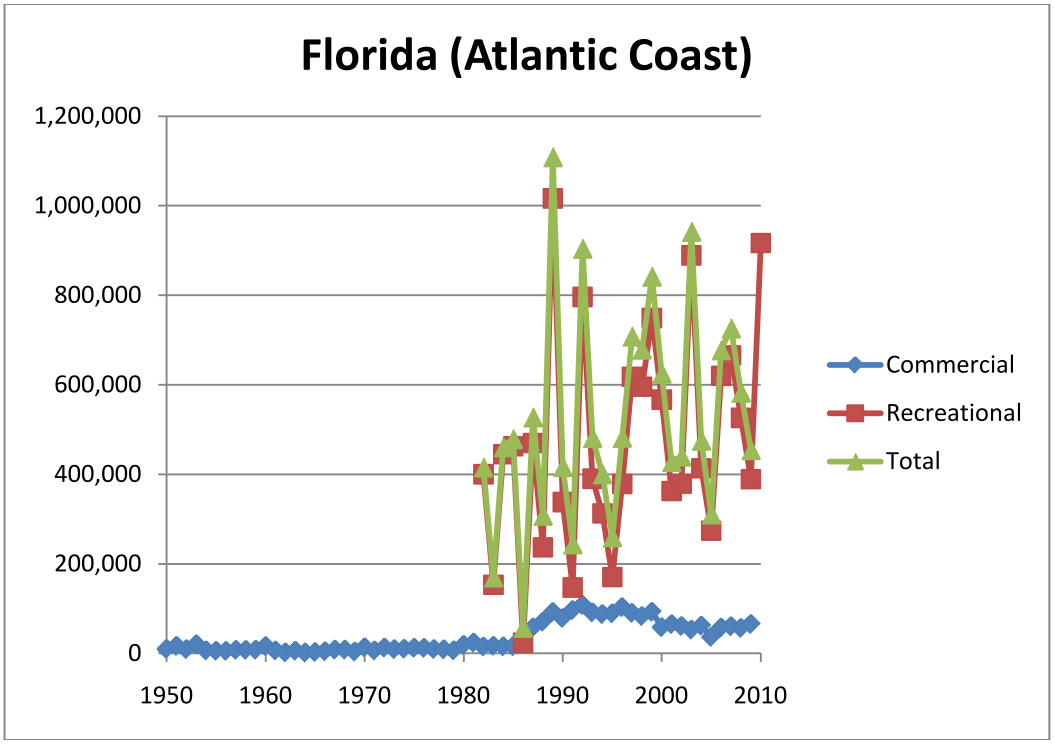


Figure 4.21.9. Landings of cobia in Florida (Atlantic Coast).
Source: ACCSP.org

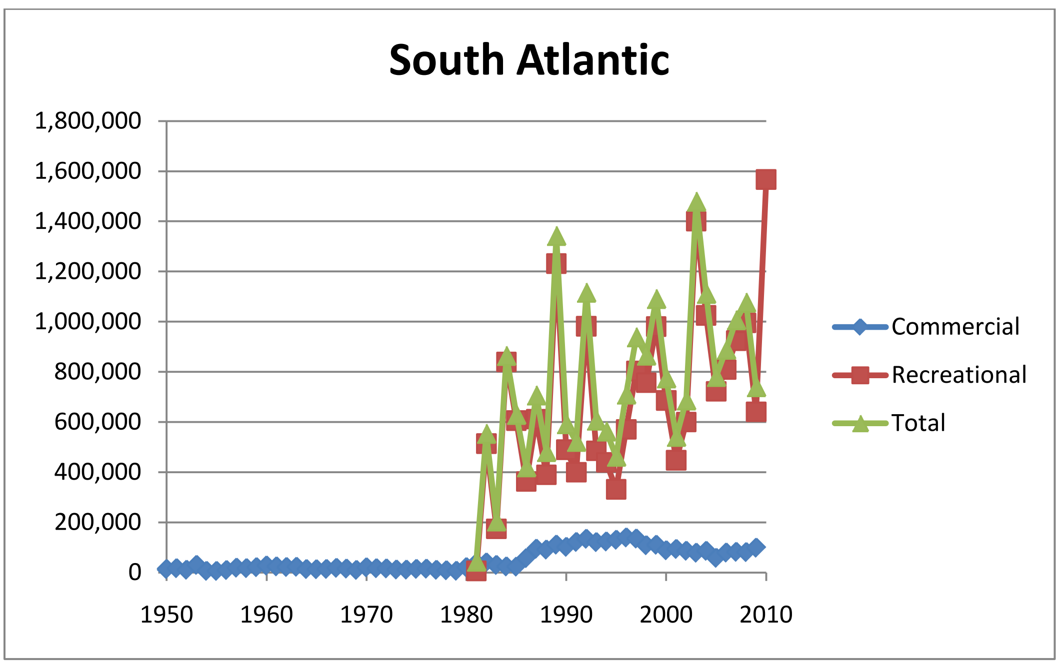


Figure 4.21.10. Landings of cobia in the South Atlantic.
Source: ACCSP.org

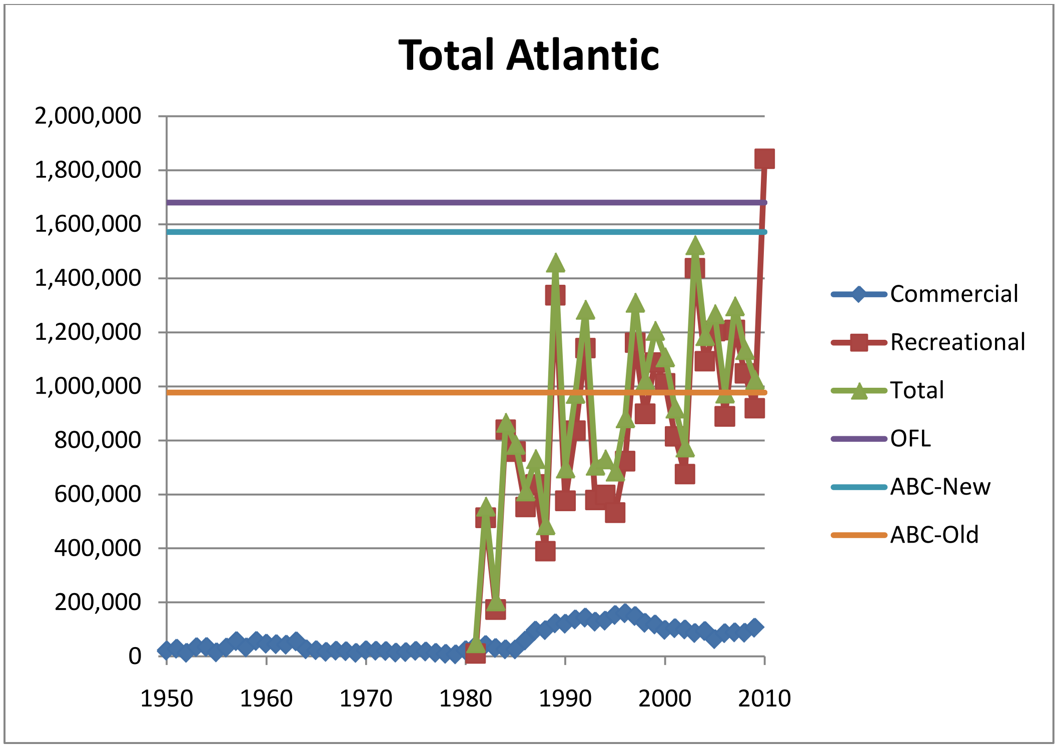


Figure 4.21.11. Landings of cobia in the Mid-Atlantic and South Atlantic.
Source: ACCSP.org

Recreational Bag Limit

Impacts of a bag limit are shown in Table 4.21.3. Reducing the recreational bag limit from 2 to 1 per person will not impact catches in the Mid-Atlantic except for Virginia where the reduction would be 10% based on 2007 catches. Catches, based on 2005-2009 data, would be reduced on average by 6% in Florida, 64% in Georgia, 16% in South Carolina, and 13% in North Carolina. Detailed bag limit tables are shown Appendix G, Table G.2

Table 4.21.1. Reductions from cobia commercial vessel limits.

Method 1: TIP average weight; no maximum cap on number landed

Vessel Limit (n)	Landings (n)		
	2007	2008	2009
1	1,225	1,203	1,373
2	1,593	1,548	1,805
3	1,754	1,716	1,998
4	1,855	1,807	2,106
5	1,920	1,862	2,169
6	1,964	1,900	2,206
7	1,991	1,928	2,227
8	2,007	1,944	2,236
9	2,018	1,954	2,244
10	2,024	1,961	2,250
11	2,028	1,965	2,255
12	2,031	1,968	2,259
no limit	2,034	1,979	2,262

Vessel Limit (n)	Percent Reduction in Number Landed		
	2007	2008	2009
1	40%	39%	39%
2	22%	22%	20%
3	14%	13%	12%
4	9%	9%	7%
5	6%	6%	4%
6	3%	4%	2%
7	2%	3%	2%
8	1%	2%	1%
9	1%	1%	1%
10	0%	1%	1%
11	0%	1%	0%
12	0%	1%	0%
no limit	0%	0%	0%

Method 2: TIP average weight; maximum cap on number landed

Vessel Limit (n)	Landings (n)		
	2007	2008	2009
1	1,225	1,203	1,373
2	1,593	1,548	1,805
3	1,723	1,678	1,963
4	1,805	1,747	2,055
5	1,839	1,777	2,078
6	1,862	1,798	2,092
7	1,867	1,800	2,092
8	1,871	1,801	2,092
9	1,872	1,801	2,092
10	1,873	1,801	2,092
11	1,874	1,801	2,092
12	1,874	1,801	2,092
no limit	1,874	1,801	2,092

Vessel Limit (n)	Percent Reduction in Number Landed		
	2007	2008	2009
1	35%	33%	34%
2	15%	14%	14%
3	8%	7%	6%
4	4%	3%	2%
5	2%	1%	1%
6	1%	0%	0%
7	0%	0%	0%
8	0%	0%	0%
9	0%	0%	0%
10	0%	0%	0%
11	0%	0%	0%
12	0%	0%	0%
no limit	0%	0%	0%

Source: NMFS SERO.

Note: The above analyses assume an average cobia weight of 25 lbs. If the average weight of fish caught is greater, then reductions estimated will be less. Similarly, if the average weight of cobia caught is less, the reductions are estimated to be greater.

Table 4.21.2. Reductions from cobia commercial per person limits.

Method 1: TIP average weight; no maximum cap on number landed

Per person bag limit	Landings (n)		
	2007	2008	2009
1	1,588	1,543	1,774
2	2,034	1,979	2,262

Per person bag limit	% Reduction in Number Landed		
	2007	2008	2009
1	22%	22%	22%
2	0%	0%	0%

Method 2: TIP average weight; maximum cap on number landed

Per person bag limit	Landings (n)		
	2007	2008	2009
1	1,588	1,543	1,774
2	1,874	1,801	2,092

Per person bag limit	% Reduction in Number Landed		
	2007	2008	2009
1	15%	14%	15%
2	0%	0%	0%

Source: NMFS SERO.

Note: The above analyses assume an average cobia weight of 25 lbs. If the average weight of fish caught is greater, then reductions estimated will be less. Similarly, if the average weight of cobia caught is less, the reductions are estimated to be greater.

Table 4.21.3. Summary of percentage reduction in the cobia catch by reducing the bag limit from 2 to 1 per person per day in the recreational fishery.

Source: ACCSP.

Year	Florida	Georgia	South Carolina	North Carolina	Virginia
2009	8%	100%	37%	0%	0%
2008	0%	22%	42%	0%	0%
2007	10%	0%	0%	0%	10%
2006	11%	100%	0%	10%	0%
2005	0%	100%	0%	56%	0%
Range	0-11%	0-100%	0-42%	0-56%	0-10%
Average	6%	64%	16%	13%	2%

Spawning Season/Closed Season

Recent work by SC DNR researchers (unpublished data from research conducted by South Carolina DNR; Dr. Michael Denson, Dr. Tanya Darden, J. Yost, K. Brenkert, M. Walker, M. Perkinson, L. Lefevbre, B. McAbee, A. Cammarano, A. Stokes, B. Cushman, M. Jamison, J. Richardson, C. Tarpey, and D. Farrae; Cobia Research in SC and Beyond, PowerPoint presentation at a Cobia meeting on March 15, 2011) examined 148 female cobia collected during 2007 and found:

Males are in spawning condition throughout recreational season (April – June)

All but 1 female in spawning condition

2 gravid females caught in Port Royal and St. Helena Sounds may indicate:

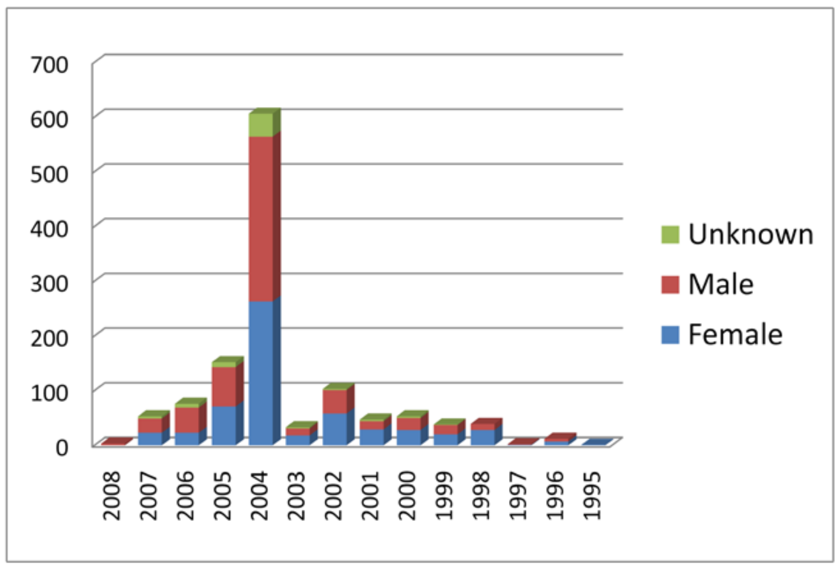
Daytime spawning

Some may be spawning in Sounds
Results of their sampling from 2005-2010 show:
Large recreational fishery in SC estuaries
Current regulations allow fish over 84 cm to be caught, but…
Females mature at 80 cm
Many may not make it to their first spawn
First spawn not always the most productive?
Average fork length for age 3 female=97.5 cm
If spawning is occurring in the estuaries, current management may need adjustment
Increase minimum size; implement slot limit; change in bag limit; designate spawning areas as essential habitat

Impacts of fishing are reflected in the age structure of the SC population based on their work:

Total catch by year-class 2005-2010

Year	Sample Size (n)
2010	217
2009	205
2008	283
2007	347
2006	53
2005	113
Combined (2005-2010)	1218



- Year-class highly variable (2004 yc 50% of total catch)
- Sex ratios similar
- Maximum age 13
- Survival past initial recruitment into the creel
  - Able to contribute to the spawning population for multiple years (2004 yc 25% total catch in 2010)

Figure 4.21.12. Total catch of cobia in southern SC by year-class from 2005-2010.
Source: SCDNR unpublished data; Denson *et al.* 2010.

4.21.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Alternative 1 (No Action) would continue the precautionary management put in place through Coastal Migratory Pelagics (CMP) Amendment 1, implemented in September of 1985, which established a minimum size limit for cobia at 33 inches FL or 37 inches TL. Also, CMP Amendment 5, implemented in August 1990, established a daily bag limit of two (2) cobia per person for both recreational and commercial sectors. CMP Amendment 8, implemented in March 1998, expanded the management area for cobia through the MAFMC's area of jurisdiction (New York). So, since 1998 cobia have been protected with a 2 fish daily bag limit and a 33" FL or 37" TL minimum size limit throughout the management area. **Alternative 1** would continue this level of precautionary biological protection.

Alternative 2 would specify a commercial trip limit based on either the existing 2 cobia per person bag limit (**Sub-Alternative 2a**) or reduce the limit to 1 cobia per person (**Sub-Alternative 2b**). The minimum size limit would remain unchanged under either sub-alternative. **Sub-Alternative 2a** would continue the level of protection in place since 1990 in the South Atlantic and 1998 in the Mid-Atlantic. **Sub-alternative 2b** would reduce the commercial trip limit to 1 cobia per person per trip which would be more biologically conservative unless fishermen made more than one trip per day. As shown in Table 4.21.2, the expected reduction in harvest would range from 14%-22%. The level of reduction would not prevent a commercial closure when the commercial ACL is met or projected to be met.

Reducing the recreational bag limit from 2 to 1 per person (**Alternative 3**) will not impact catches in the Mid-Atlantic except for Virginia where the reduction would be 10% based on 2007 catches (Table 4.21.3). Catches, based on 2005-2009 data, would be reduced on average by 6% in Florida, 64% in Georgia, 16% in South Carolina, and 13% in North Carolina (Table 4.21.3). The bag limit reduction (**Alternative 3**) would help prevent the recreational ACL from being exceeded, if the Council's Interim Control Rule is not accepted, whereas **Alternative 1** would not reduce catches and would likely result in the recreational ACL being met.

Alternative 4 would result in greater reductions in recreational catches than **Alternative 3** and is more biologically conservative. A closed season (**Alternative 5**) could have disproportionate biological impacts depending on when the season was closed. For example, catches in South Carolina mainly occur during April-June and if these times were not closed there would be minimal biological impacts. On the other hand, if they were closed, there would be large biological benefits but obviously large negative social and economic impacts. The level of biological benefit would depend on when the Council chose to consider a closure. The public is invited to comment during the public hearing process on the timing and benefits/costs of a closed season. Similar benefits and costs would result under **Alternative 6**. The fact that the bulk of South Carolina's catch (about 50%) relies on the strong 2004 year class (Figure 4.21.12) raises a point of concern and the recreational sector may want to consider reducing the bag limit to 1 per person per day to head off any future problems. The public is urged to comment on this during the hearing process.

Any management measures that reduce effort could affect the physical environment. Fishing can have negative impacts on the bottom as described in Action 19.

4.21.2 Direct and Indirect Effect on the Economic Environment

Commercial

Alternative 2b decreases the number of cobia that can be taken commercially by limiting the number of cobia to 1 fish per person per trip compared to 2 fish per person under **Alternative 1 (No Action)**. Imposing this restriction to previous years (2007-09) indicates a 14-22% reduction in the number of fish landed, depending on the method used. This would result in short-term economic losses but possible long-term economic benefits. **Alternative 2a** is the same as **Alternative 1 (No Action)** and no economic losses would be expected to the commercial fishery.

Recreational

Reducing the recreational bag limit from 2 to 1 cobia person (**Alternative 3**) and reducing the bag limit from 2 to 1 cobia per boat per day (**Alternative 4**) would have negative short-term economic effects on the recreational fishery. However, **Alternatives 3 and 4** could have a positive long-term economic effect on the recreational fishery if the proposed management strategies succeeded in decreasing the total number of cobia harvested each year. **Alternatives 5 and 6** would both have negative short-term economic effects and positive long-term economic effects on the recreational fishery.

4.21.3 Direct and Indirect Effect on the Social Environment

Preferred Alternative 1 and **Sub-Alternative 2a** would maintain status quo for commercial bag limits and would likely have little or no impacts on either sector. **Sub-Alternative 2b** could result in lower catches for commercial cobia fishermen if only one fish is allowed per person per trip.

For the recreational sector, there would be little or no social effects from **Preferred Alternative 1**. The restrictive measures in **Alternatives 3-6** will reduce the fishing opportunities and short-term economic benefits, although could result in long-term positive social benefits by decreasing the likelihood of an early closure or resource depletion.

4.21.4 Direct and Indirect Effect on the Administrative Environment

Under the **Alternative 1** (no action) the administrative impacts would not increase. **Alternatives 2-5** would result in a moderate increase in the administrative burden due to rule-making, monitoring, enforcement, and outreach.

4.21.5 Council Conclusions

Will be added after public hearings.

5.0 FISHERY IMPACT ANALYSIS/SOCIAL IMPACT STATEMENT

Mandates to conduct Social Impact Assessments come from both the National Environmental Policy Act (NEPA) and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). NEPA requires federal agencies to consider the interactions of natural and human environments by using a "...systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making" [NEPA section 102 (2) (a)]. Under the Council on Environmental Quality's (CEQ, 1986) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, a clarification of the terms "human environment" expanded the interpretation to include the relationship of people with their natural and physical environment (40 CFR 1508.14). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects which may be direct, indirect or cumulative (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994).

Recent amendments to the Magnuson-Stevens Act require FMPs address the impacts of any management measures on the participants in the affected fishery and those participants in other fisheries that may be affected directly or indirectly through the inclusion of a fishery impact statement [Magnuson-Stevens Act section 303 (a) (9)]. Most recently, with the addition of National Standard 8, FMPs must now consider the impacts upon fishing communities to the extent practicable to assure their sustained participation and minimize adverse economic impacts upon those communities [Magnuson-Stevens Act section 301 (a) (8)]. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. With an increasing need for management action, the consequences of such changes need to be examined to minimize the negative impacts experienced by the populations concerned to the extent practicable.

5.1 Data Limitations and Methods

Social impacts are generally the consequences to human populations that follow from some type of public or private action. Those consequences may include alterations to "...the ways in which people live, work or play, relate to one another, organize to meet their needs and generally cope as members of a society..." (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994:1). In addition, included under this interpretation are cultural impacts that may involve changes in values and beliefs, which affect the way people identify themselves within their occupation, communities and society in general. Social impacts analyses help determine the consequences of policy action in advance by comparing the status quo with the projected impacts. Therefore, it is important that as much information as possible concerning a fishery and its participants be gathered for an assessment.

It is important to identify any foreseeable adverse effects on the human environment. With quantitative data often lacking, qualitative data can be used to provide a rough estimate of some of the impacts based on the best available science. In addition, when there is a body of empirical findings available from the social science literature, it needs to be summarized and referenced in the analyses.

5.2 Summary of Social Impact Assessment

Will be added after public hearings.

6.0 REGULATORY IMPACT REVIEW

Will be added after public hearings.

7.0 REGULATORY FLEXIBILITY ANALYSIS

Will be added after public hearings.

8.0 LIST OF PREPARERS

PREPARERS

Name	Discipline/Expertise	Role in EIS Preparation
Rick Leard, Ph.D. GMFMC	Fishery Biologist	Biological Environment and Impacts
Gregg Waugh, SAFMC	Fishery Biologist	Biological Environment and Impacts
Susan Gerhart, NMFS	Fishery Biologist	Biological Environment and Impacts
Assane Diagne, Ph.D. GMFMC	Economist	Economic Environment and Impacts
Karla Gore, NMFS/SF	Fishery Biologist	Biological Environment and Impacts
Stephen Holiman, Ph.D. NMFS/SF	Economist	Economic Environment and Impacts
John Vondruska, Ph.D. NMFS/SF	Economist	Economic Environment and Impacts
Mike Jepson, Ph.D. NMFS/SF	Anthropologist	Social Environment and Impacts
Kate Quigley, SAFMC	Fishery Economist	Economic Impacts
Kari MacLauchlin, SAFMC	Fishery Social Scientist	Social Impacts

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

REVIEWERS

Name	Discipline/Expertise	Role in EA Preparation
Shepherd Grimes, NOAA GC	Attorney	Legal Review
David Keys, NMFS SERO	SERO Regional NEPA Coordinator	NEPA Review
David Dale, NMFS/HC	EFH Specialist	Habitat Review
Jennifer Lee, NMFS SERO	Protected Resources Specialist	Protected Resources
Shannon Cass-Calay, Ph.D. NMFS SEFSC	Assessment Scientist	Stock Status

9.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS WHO RECEIVED COPIES

Atlantic States Marine Fisheries Commission
Department of Commerce Office of General Counsel
Environmental Defense
Florida Fish and Wildlife Conservation Commission
Florida Keys Commercial Fishermen's Association
Georgia Department of Natural Resources
Gulf and South Atlantic Fisheries Development Foundation
National Fisheries Institute
National Marine Fisheries Service Office of General Counsel
National Marine Fisheries Service Office of General Counsel Southeast Region
National Marine Fisheries Service Southeast Regional Office
National Marine Fisheries Service Southeast Fisheries Science Center
National Marine Fisheries Service Silver Spring Office
National Marine Fisheries Service Office of Law Enforcement
North Carolina Division of Marine Fisheries
Sea Grant (NC, SC, GA, and FL)
South Atlantic Fishery Management Council (Mackerel AP, Law Enforcement AP, and SSC)
South Carolina Department of Natural Resources, Marine Resources Division
United States Coast Guard
United States Fish and Wildlife Services

10.0 REFERENCES

Barnette, M.C. 2001. A review of the fishing gear utilized within the Southeast Region and their potential impacts on essential fish habitat. NOAA Technical Memorandum NMFS-SEF SC-44 9, 62 pp.

Brooks, E.N. 2002. Assessment of little tunny (*Euthynnus alletteratus*) in the Gulf of Mexico. NMFSSEFSC, Miami, Florida. Sustainable Fisheries Division Contribution SFD-01/02-160. 39 p.

GMFMC. 2004a . Final Environmental Impact Statement for the Generic Essential Fish Habitat Amendment to the following fishery management plans of the Gulf of Mexico: Shrimp Fishery of the Gulf of Mexico, Red Drum Fishery of the Gulf of Mexico, Reef Fish Fishery of the Gulf of Mexico, Stone Crab Fishery of the Gulf of Mexico, Coral and Coral Reef Fishery of the Gulf of Mexico, Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic, Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic. Gulf of Mexico Fishery Management Council, Tampa, Florida. 118 p.

GMFMC. 2005a. Generic Amendment 3 for addressing EFH requirements, HAPCs , and adverse effects of fishing in the following FMPs of the Gulf: Shrimp, Red Drum, Reef Fish, Stone Crab, Coral and Coral Reefs in the Gulf and Spiny Lobster and the Coastal Migratory Pelagic resources of the Gulf and South Atlantic. Gulf of Mexico Fishery Management Council, Tampa, Florida.

Godcharles, M. F., and M. D. Murphy. 1986. Species profiles: life history and environmental requirements of coastal fishes and invertebrates (south Florida) -- king mackerel and Spanish mackerel. U. S. Fish Wild. Serv. Biol. Rep. 82(11.58). U. S. Army Corps o f Engineers, TR EL-82-4. 18 pp.

Gore, C. H. 1992. The Gulf of Mexico. Pineapple Press Inc. Sarasota, Fl. 384 p.
Heinemann, D. 2002. Preliminary assessment of bluefish, Pomatomus saltatrix, in the Gulf of Mexico. NMFS-SEFSC, Miami, Florida. Sustainable Fisheries Division Contribution SFD-01/02-159.

NMFS. 2009c. Fisheries Economics of the United States 2006. U.S. Depart. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-97. 158 p. Available at: http://www.st.nmfs.gov/st5/publications/index.html.

Prager, M.H. 2000. Exploratory assessment of dolphinfish, *Coryphaena hippurus*, based on U.S. landings from the Atlantic Ocean and Gulf of Mexico. NMFS-SEFSC, Beaufort, North Carolina. 18 p.

Turner, S.C. and E. N. Brooks. 2002. An examination of catches and catch rates of cero, *Scomberomorous regalis*, in the south Florida and Gulf of Mexico regions using data through 2001. NMFS-SEFSC, Miami, Florida. Sustainable Fisheries Division Contribution SFD-01/02-157. 19 p.

Social Vulnerability Index for the United States.
http://webra.cas.sc.edu/hvri/products/sovi.aspx#. accessed July 8, 2010
Whitehead, J.C. 2006. "A comparison of contingent valuation method and random utility model estimates of the value of avoiding reductions in king mackerel bag limits," Applied Economics, vol. 38(15), pages 1725-1735.

Williams, R.O. and R. G. Taylor. 1980. The effect of water temperature and winter air temperature on springtime migrations of king mackerel in the vicinity of Tampa Bay, Florida. Fla. Sci. 43(suppl):26. (abstr).

Williams, E.H. 2001. Assessment of cobia, *Rachycentron canadum*, in the waters of the U.S. Gulf of Mexico. NMFS-SEFSC, Beaufort, North Carolina. NOAA Technical Memorandum NMFS-SEFSC- 469. 55 p.

APPENDIX A – MODIFICATIONS TO FRAMEWORK

Section 12.6.1 Mechanism for Determination of Framework Adjustments, as modified by this and previous amendments is as follows:

Section 12.6.1.1:

A. ~~An assessment panel (Panel) appointed by the Councils will normally reassess the condition of each stock or migratory group of Spanish and Spanish mackerel and cobia in alternate (even numbered) years and other stocks when data allows for the purpose of providing for any needed preseason adjustment of TAC and other framework measures. However, in the event of changes in the stocks or fisheries~~, **T**he Councils may request ~~additional~~ assessments as may be needed. The Councils, however, may make annual seasonal adjustments based on the most recent assessment. ~~The Panel shall be composed of NMFS scientists, Council staff, Scientific and Statistical Committee members, and other state, university, and private scientists as deemed appropriate by the Councils.~~

Each stock assessment ~~The Panel~~ **should** ~~will~~ address the following **and perhaps other** items for each stock:

1. Stock identity and distribution. This should include situations where there are groups of fish within a stock which are sufficiently different that they should be managed as separate units. If several possible stock divisions exist, ~~the Panel~~ **they** should describe the likely alternatives.

2. MSY and/or B_{MSY} (or appropriate proxies) for each identified stock. If more than one possible stock division exists, MSY and/or B_{MSY} for each possible combination should be estimated.

3. Condition of the stock(s) or groups of fish within each stock which could be managed separately. For each stock, this should include but not be limited to:

a. Fishing mortality rate**s** relative to F_{MSY} and $F_{0.1}$ as well as $F_{30\ percentSPR,}$ and $F_{40\ percentSPR,}$ **OFL, or other limits as deemed appropriate.**

b. Spawning potential ratio**s** (SPR).

c. Abundance relative to **biomass at MSY and MSST** ~~an adequate spawning biomass.~~

d. Trends in recruitment.

e. Acceptable Biological Catch (ABC) **estimates** which will result in long-term yield as near MSY as possible **based on the level of scientific uncertainty.**

f. Calculation of catch ratios based on catch statistics using procedures defined in the FMP as modified.

g. Estimate of current mix of Atlantic and Gulf migratory group Spanish mackerel in the mixing zone for use in tracking Spanish quotas.

4. **Overfished and** Overfishing:

a. Gulf group Spanish mackerel stocks in the Gulf of Mexico will be considered overfished if the probability that $B_{current}$ is less than MSST is greater than 50%. The minimum stock size threshold (MSST) is defined as (1-M)*B_{MSY} or 80% of B_{MSY}. Gulf group Spanish mackerel stocks and cobia stocks in the Gulf of Mexico will be considered overfished if the probability that $B_{current}$ is less than MSST is greater than 50%. The minimum stock size threshold (MSST) is defined as (1-M)*B_{MSY} or 70% of B_{MSY}. ~~A mackerel stock or migratory group is considered to be overfished when the biomass is reduced below the MSST.~~

b. The South Atlantic Council's target level or OY is 40 percent static SPR. The Gulf Council's target level or optimum yield (OY) is **the yield corresponding to a fishing mortality rate (F_{OY}) defined as: F_{OY}=0.85*F_{MSY} when the stock is at equilibrium for Gulf group Spanish mackerel and the yield corresponding to a fishing mortality rate (F_{OY}) defined as: F_{OY}=0.75*F_{MSY} when the stock is at equilibrium for Gulf group Spanish mackerel and cobia** ~~30 percent static SPR.~~ ABC is calculated based on **both MSY (defined for Gulf group Spanish and Spanish mackerel as the yield associated with $F_{30\%\ SPR}$ when the stock is at equilibrium and the yield associated with F_{MSY} when the stock is at equilibrium for cobia) and OY as well as the consideration of scientific uncertainty.** ~~the target level or optimum yield (SAFMC = 40 percent static SPR and GMFMC = 30 percent static SPR).~~

c. When a stock or migratory group is overfished (biomass is below MSST), a rebuilding program that makes consistent progress towards restoring stock condition must be implemented and continued until the stock is restored to **B_{MSY}** ~~MSY~~. The rebuilding program must be designed to achieve recovery within an acceptable time frame consistent with the National Standard Guidelines, and as specified by the Councils. The Councils will continue to rebuild the stock above MSY until the stock is restored to the management target (OY) if different from MSY.

d. ~~When a stock or migratory group is not overfished,~~ The act of overfishing is defined as MFMT = F_{MSY} and OFL is the yield associated with this level of fishing mortality. The Gulf group Spanish mackerel, Gulf group Spanish mackerel and Gulf group cobia stocks would be considered undergoing overfishing if the probability that $F_{current}$ is larger than F_{MSY} is greater than 50%. ~~a static SPR that exceeds the threshold of 30 percent (i.e., $F_{30\ percent}$ or MFMT).~~ If fishing mortality rates that exceed the level associated with these thresholds ~~the static SPR threshold~~ are maintained, the stocks may become overfished. Therefore, if overfishing is occurring, a program to reduce fishing mortality rates toward management target levels (OY) will be implemented, even if the stock or migratory group is not in an overfished condition.

e. **The stock assessment process should** ~~The Councils have requested the Mackerel Stock Assessment Panel (MSAP)~~ provide a range of possibilities and options for specifying B_{MSY} and the MSST.

f. For species when there is insufficient information to determine whether the stock or migratory group is overfished, overfishing is defined as a fishing mortality rate in excess of the fishing mortality rate corresponding to a default threshold static SPR of 30 percent, which is the MFMT. If overfishing is occurring, a program to reduce fishing mortality rates to at least the level corresponding to management target levels will be implemented.

5. Management options. If recreational or commercial fishermen have achieved or are expected to achieve their allocations, the **stock assessment** ~~Panel~~ may **include** ~~delineate~~ possible options for non-quota restrictions on harvest, including effective levels for such actions as:

a. Bag limits.
b. Size limits.

c. Gear restrictions.
d. Vessel trip limits.
e. Closed season or areas, and
f. Other options as requested by the Councils.

6. **The stock assessment process may also evaluate and provide recommendations for** ~~The Panels may also recommend~~ more appropriate levels or statements for the MSY (or proxy), OY, MFMT, ~~and~~ MSST**, OFL and ABC** for any stock, including ~~their~~ rationale for the proposed change**s**.

7. Other biological questions, as appropriate, **may also be addressed through the stock assessment process**.

B. **The stock assessment process** ~~The Panel~~ will **develop** ~~prepare~~ a written report with ~~its~~ recommendations for submission to the councils **and their SSCs** ~~each year (even years - full assessment, odd years - mini assessments)~~ by such date as may be specified by the councils **in coordination with NMFS**. The report will contain the scientific basis for ~~their~~ recommendations and indicate the degree of reliability **and uncertainty** which the Council should place on the recommended stock divisions, levels of catch, ~~and~~ options for non-quota controls of the catch**, and any other recommendations**.

C. The Councils may take action based on the ~~panel~~ report or may take action based on issues/information that surface separate from the **report** ~~assessment group~~. The steps are as follows:

1. **The stock assessment process** ~~Assessment panel~~ report: The councils **and their SSCs** will consider the report and recommendations ~~of the Panel~~ and such public comments as are relevant to the ~~Panel's~~ report. Public hearings will be held at the time and place where the councils consider the ~~Panel's~~ report. The councils will consult their Advisory Panels and Scientific and Statistical Committees to review the report and provide advice prior to taking final action. After receiving public input, the councils will make findings on the need for changes.

2. Information separate from **the stock assessment process** ~~assessment panel~~ report: The Councils will consider information that surfaces separate from **the stock assessment process** ~~the assessment group~~. **The** Councils' staff will compile the information and analyze the impacts of likely alternatives to address the particular situation. The councils' staff report will be presented to the councils. A public hearing will be held at the time and place where councils consider the Councils' staff report. The council**s will** consult their Advisory Panels and Scientific and Statistical Committees to review the report and provide advice prior to taking final action. After receiving public input, the councils will make findings on the need for changes.

D. If changes are needed in the following, the councils will advise the Regional Administrator (RA) of the Southeast Region of the National Marine Fisheries Service in writing of their recommendations, accompanied by the **stock assessment process report, staff reports,** ~~assessment panel's report~~, relevant background material, and public comments, **as appropriate**:

a. MSY or B_{MSY} (or proxies),
b. overfishing levels (MFMT) and overfished levels (MSST),
c. TACs and OY statements,
d. OFL, ABC, ACL, and possibly ACT
e~~d~~. quotas (including zero quotas),
f~~e~~. trip limits,

g~~f~~. bag limits (including zero bag limits),
h~~g~~. minimum sizes,
i~~h~~. reallocation of Atlantic group Spanish mackerel,
j~~i~~. gear restriction (ranging from modifying current regulations to a complete prohibition),
k~~j~~. permit requirements, or
l~~k~~. season/area closure and reopening (including spawning closure).
m. zones, subzones, and migratory group boundaries
n. allocations

Recommendations with respect to the Atlantic migratory groups of Spanish and Spanish mackerel **and cobia** will be the responsibility of the South Atlantic Council, and those for the Gulf migratory groups of Spanish and Spanish mackerel **and cobia** will be the responsibility of the Gulf Council. Except that the SAFMC will have responsibility to set vessel trip limits, closed seasons or areas, or gear restrictions for the northern area of the Eastern Zone (Dade through Volusia Counties, Florida) for the commercial fishery for Gulf group Spanish mackerel. ~~This report shall be submitted by such data as may be specified by the Councils.~~

For stocks~~, such as cobia,~~ where scientific information indicates it is a common stock that migrates through the Gulf and South Atlantic jurisdictions, both councils must concur on the recommendations. For other stocks~~, such as bluefish, cero, and little tunny, there is no scientific information that shows they are common stocks, and~~ each council will separately make management recommendations for these stocks in their jurisdictions.

E. The RA will review the councils' recommendations, supporting rationale, public comments and other relevant information, and if the RA concurs with the recommendations, the RA will draft regulations in accordance with the recommendations. The RA may also reject **any** ~~the~~ recommendation, providing written reasons for rejection. In the event the RA rejects **a** ~~the~~ recommendation, existing regulations shall remain in effect until resolved. However, if the RA finds that a proposed recreational bag limit for Gulf migratory group or groups of Spanish mackerels is likely to exceed the allocation and rejects the Council**'s**~~'~~ recommendation, the bag limit reverts to one fish per person per day.

F. If the RA concurs that the councils' recommendations are consistent with the goals and objectives of the plan, the National Standards, and other applicable law, the RA shall implement the regulations by proposed and final rules in the Federal Register prior to the appropriate fishing year or such dates as may be agreed upon with the councils. A reasonable period for public comment shall be afforded, consistent with the urgency, if any, of the need to implement the management measure.

Appropriate regulatory changes that may be implemented by the RA by proposed and final rules in the Federal Register are:

1. Adjustment of the overfishing level (MFMT) for Spanish and Spanish mackerels and **cobia** ~~other stocks~~. Specification of B_{MSY} and the MSST for the stocks. Respecification of levels or statements of OY and MSY (proxy).

2. Setting **ACLs** ~~total allowable catches (TACs)~~ for each stock or migratory group of fish which should be managed separately, as identified in the FMP provided:

a. No **ACL** ~~TAC~~ may exceed the best point estimate of MSY ~~by more than 10 percent for more than one year.~~

b. No **ACL** ~~TAC~~ may exceed the upper range of ABC **or the ABC recommended by the respective SSC** ~~if it results in overfishing~~ **~~(as previously defined)~~**~~.~~

c. Downward adjustments of **ACL** ~~TAC~~ of any amount **(i.e. to ACT)** are allowed in order to protect the stock and prevent overfishing.

d. Reductions or increases in allocations as a result of changes in the **ACL** ~~TAC~~ are to be as equitable as may be practical utilizing similar percentage changes to allocations for participants in a fishery.

3. Adjusting user group allocations in response to changes in **ACLs** ~~TACs~~ according to the formula specified in the FMP.

4. The reallocation of Atlantic Spanish mackerel between recreational and commercial fishermen may be made through the framework after consideration of changes in the social and/or economic characteristics of the fishery. Such allocation adjustments shall not be greater than a ten percent change in one year to either sector's allocation. Changes may be implemented over several years to reach a desired goal, but must be assessed each year relative to changes in TAC and social and/or economic impacts to either sector of the fishery.

5. Modifying (or implementing for a particular species):

a. quotas (including zero quotas)
b. trip limits
c. bag limits (including zero bag limits)
d. minimum sizes
e. re-allocation of Atlantic group Spanish mackerel by no more than 10 percent per year to either the commercial or recreational sector.
f. gear restriction (ranging from modifying current regulations to a complete prohibition)
g. permit requirements, or
h. season/area closures and re-openings (including spawning closure)
i. zones, subzones, migratory group boundaries and allocations

Authority is also granted to the RA to close any fishery, i.e., revert any bag limit to zero, and close and reopen any commercial fishery, once a quota has been established through the procedure described above; and such quota has been filled. When such action is necessary, the RA will recommend that the Secretary publish a notice in the Federal Register as soon as possible.

APPENDIX B – BASE FRAMEWORK PROCEDURE

This framework procedure provides standardized procedures for implementing management changes pursuant to the provisions of the FMP. There are two basic processes, the open framework process and the closed framework process. Open frameworks address issues where there is more policy discretion in selecting among various management options developed to address an identified management issue, such as changing a size limit to reduce harvest. Closed frameworks address much more specific factual circumstances, where the FMP and implementing regulations identify specific action to be taken in the event of specific facts occurring, such as closing a sector of a fishery after their quota has been harvested.

Open Framework:

Situations under which this framework procedure may be used to implement management changes include the following:

A new stock assessment resulting in changes to the overfishing limit, acceptable biological catch, or other associated management parameters.

In such instances the Council may, as part of a proposed framework action, propose an annual catch limit (ACL) or series of ACLs and optionally an annual catch target (ACT) or series of ACTs, as well as any corresponding adjustments to MSY, OY, and related management parameters.

New information or circumstances.

The Council will, as part of a proposed framework action, identify the new information and provide rationale as to why this new information indicates that management measures should be changed.

Changes are required to comply with applicable law such as MSA, ESA, MMPA, or are required as a result of a court order.

In such instances the Regional Administrator will notify the Council in writing of the issue and that action is required. If there is a legal deadline for taking action, the deadline will be included in the notification.

Open framework actions may be implemented in either of two ways, abbreviated documentation, or standard documentation process.

Abbreviated documentation process. Regulatory changes that may be categorized as a routine or insignificant may be proposed in the form of a letter or memo from the Council to the Regional Administrator containing the proposed action, and the relevant biological, social and economic information to support the action. If multiple actions are proposed, a finding that the actions are also routine or insignificant must also be included. If the Regional Administrator concurs with the determination and approves the proposed action, the action will be implemented through publication of appropriate notification in the Federal Register. Actions that may be viewed as routine or insignificant include, among others:

Reporting and monitoring requirements,

Permitting requirements,

Gear marking requirements,

Vessel marking requirements,

Restrictions relating to maintaining fish in a specific condition (whole condition, filleting, use as bait, etc.),

Bag and possession limit changes of not more than 1 fish,

Size limit changes of not more than 10% of the prior size limit,

Vessel trip limit changes of not more than 10% of the prior trip limit,

Closed seasons of not more than 10% of the overall open fishing season,

Species complex composition,

Restricted areas (seasonal or year-round) affecting no more than a total of 100 nautical square miles,

Respecification of ACL, ACT or quotas that had been previously approved as part of a series of ACLs, ACTs or quotas,

Specification of MSY proxy, OY, and associated management parameters (such as overfished and overfishing definitions) where new values are calculated based on previously approved specifications,

Gear restrictions, except those that result significant changes in the fishery, such as complete prohibitions on gear types,

Quota changes of not more than 10%, or retention of portion of an annual quota in anticipation of future regulatory changes during the same fishing year,

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

Specification of ACTs or sector ACTs,

Rebuilding plans and revisions to approved rebuilding plans,

The addition of new species to existing limited access privilege programs (LAPP),

Changes specified in section 4(a) that exceed the established thresholds.

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

Prior to taking final action on the proposed framework action, the Council may convene its SSC, SEP, or AP, as appropriate, to provide recommendations on the proposed actions.

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

For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA[1] and other applicable law.

---

[1] SEC. 304. ACTION BY THE SECRETARY 16 U.S.C. 1854
(a) REVIEW OF PLANS.—
(1) Upon transmittal by the Council to the Secretary of a fishery management plan or plan amendment, the Secretary shall—

> (A) immediately commence a review of the plan or amendment to determine whether it is consistent with the national standards, the other provisions of this Act, and any other applicable law; and
> (B) immediately publish in the Federal Register a notice stating that the plan or amendment is available and that written information, views, or comments of interested persons on the plan or amendment may be submitted to the Secretary during the 60-day period beginning on the date the notice is published.

(2) In undertaking the review required under paragraph (1), the Secretary shall—

> (A) take into account the information, views, and comments received from interested persons;
> (B) consult with the Secretary of State with respect to foreign fishing; and
> (C) consult with the Secretary of the department in which the Coast Guard is operating with respect to enforcement at sea and to fishery access adjustments referred to in section 303(a)(6).

(3) The Secretary shall approve, disapprove, or partially approve a plan or amendment within 30 days of the end of the comment period under paragraph (1) by written notice to the Council. A notice of disapproval or partial approval shall specify—

> (A) the applicable law with which the plan or amendment is inconsistent;
> (B) the nature of such inconsistencies; and
> (C) recommendations concerning the actions that could be taken by the Council to conform such plan or amendment to the requirements of applicable law. If the Secretary does not notify a Council within 30 days of the end of the comment period of the approval, disapproval, or partial approval of a plan or amendment, then such plan or amendment shall take effect as if approved.

(4) If the Secretary disapproves or partially approves a plan or amendment, the Council may submit a revised plan or amendment to the Secretary for review under this subsection.
(5) For purposes of this subsection and subsection (b), the term "immediately" means on or before the 5th day after the day on which a Council transmits to the Secretary a fishery management plan, plan amendment, or proposed regulation that the Council characterizes as final.

(b) REVIEW OF REGULATIONS.—
(1) Upon transmittal by the Council to the Secretary of proposed regulations prepared under section 303(c), the Secretary shall immediately initiate an evaluation of the proposed regulations to determine whether they are consistent with the fishery management plan, plan amendment, this Act and other applicable law. Within 15 days of initiating such evaluation the Secretary shall make a determination and—

> (A) if that determination is affirmative, the Secretary shall publish such regulations in the Federal Register, with such technical changes as may be necessary for clarity and an explanation of those changes, for a public comment period of 15 to 60 days; or
> (B) if that determination is negative, the Secretary shall notify the Council in writing of the inconsistencies and provide recommendations on revisions that would make the proposed regulations consistent with the fishery management plan, plan amendment, this Act, and other applicable law.

(2) Upon receiving a notification under paragraph (1)(B), the Council may revise the proposed regulations and submit them to the Secretary for reevaluation under paragraph (1).
(3) The Secretary shall promulgate final regulations within 30 days after the end of the comment period under paragraph (1)(A). The Secretary shall consult with the Council before making any revisions to the proposed regulations, and must publish in the Federal Register an explanation of any differences between the proposed and final regulations.

Closed Framework:

Consistent with existing requirements in the FMP and implementing regulations, the Regional Administrator is authorized to conduct the following framework actions through appropriate notification in the Federal Register:

Close or adjust harvest any sector of the fishery for a species, sub-species, or species group that has a quota or sub-quota at such time as projected to be necessary to prevent the sector from exceeding its sector-quota for the remainder of the fishing year or sub-quota season,

Reopen any sector of the fishery that had been prematurely closed,

Implement an in-season AM for a sector that has reached or is projected to reach, or is approaching (e.g., within x percent) or is projected to approach its ACL, or implement a post-season AM for a sector that exceeded its ACL in the current year.

APPENDIX C – BROAD FRAMEWORK PROCEDURE

This framework procedure provides standardized procedures for implementing management changes pursuant to the provisions of the FMP. There are two processes, the open framework process and the closed framework process. Open frameworks address issues where there is more policy discretion in selecting among various management options developed to address an identified management issue, such as changing a size limit to reduce harvest. Closed frameworks address much more specific factual circumstances, where the FMP and implementing regulations identify specific action to be taken in the event of specific facts occurring, such as closing a sector of a fishery after their quota has been harvested.

Open Framework:

The council may utilize this framework procedure to implement management changes in response to any additional information or changed circumstances.

The Council will, as part of a proposed framework action, identify the new information and provide rationale as to why this new information requires that management measures be adjusted.

Open framework actions may be implemented at any time based on information supporting the need for adjustment of management measures or management parameters:

Actions that may be implemented via the framework procedure include:

Reporting and monitoring requirements,

Permitting requirements,

Bag and possession limits,

Size limits,

Vessel trip limits,

Closed seasons,

Species complex composition, or inclusion of new species under existing IFQs,

Restricted areas (seasonal or year-round),

Respecification of ACL, ACT or quotas that had been previously approved as part of a series of ACLs, ACTs or quotas,

Specification of MSY proxy, OY, and associated management parameters (such as overfished and overfishing definitions) where new values are calculated based on previously approved specifications,

Gear restrictions, except those that result in significant changes in the fishery, such as complete prohibitions on gear types,

Quota changes,

Specification of ACTs or sector ACTs,

Rebuilding plans and revisions to approved rebuilding plans,

Any other measures deemed appropriate by the council.

The Council will initiate the open framework process to inform the public of the issue and develop potential alternatives to address the issue. The framework process will include the development of documentation and public discussion during one council meeting.

For all framework actions, the Council will provide the letter, memo, or the completed framework document along with proposed regulations to the Regional Administrator following final action by the Council.

For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA and other applicable law.

Closed Framework:

Consistent with existing requirements in the FMP and implementing regulations, the Regional Administrator is authorized to conduct the following framework actions through appropriate notification in the Federal Register:

Close or adjust harvest any sector of the fishery for a species, sub-species, or species group that has a quota or sub-quota at such time as projected to be necessary to prevent the sector from exceeding its sector-quota for the remainder of the fishing year or sub-quota season,

Reopen any sector of the fishery that had been prematurely closed,

Implement an in-season AM for a sector that has reached or is projected to reach, or is approaching (e.g., within x percent) or is projected to approach its ACL, or implement a post-season AM for a sector that exceeded its ACL in the current year,

Take any other immediate action specified in the regulations.

APPENDIX D – NARROW FRAMEWORK PROCEDURE

This framework procedure provides standardized procedures for implementing management changes pursuant to the provisions of the FMP. There are two basic processes, the open framework process and the closed framework process. Open frameworks address issues where there is more policy discretion in selecting among various management options developed to address an identified management issue, such as changing a size limit to reduce harvest. Closed frameworks address much more specific factual circumstances, where the FMP and implementing regulations identify specific action to be taken in the event of specific facts occurring, such as closing a sector of a fishery after their quota has been harvested.

Open Framework:

Situations under which this framework procedure may be used to implement management changes include only the following:

A new stock assessment resulting in changes to the overfishing limit, acceptable biological catch, or other associated management parameters.

In such instances the Council may, as part of a proposed framework action, propose an annual catch limit (ACL) or series of ACLs and optionally an annual catch target (ACT) or series of ACTs, as well as any corresponding adjustments to MSY, OY, and related management parameters.

Open framework actions may be implemented only in response to the above conditions.

Actions that may be implemented via the framework procedure include only the following:

Reporting and monitoring requirements,

Bag and possession limits,

Size limits,

Closed seasons,

Restricted areas (seasonal or year-round),

Quotas.

The Council will initiate the open framework process to inform the public of the issue and develop potential alternatives to address the issue. The framework process will include the development of documentation and public discussion during at least three council meetings, and shall be discussed at separate public hearings within the areas most affected by the proposed measures.

Prior to taking final action on the proposed framework action, the Council shall convene its SSC, SEP, and AP to provide recommendations on the proposed actions.

For all framework actions, the Council will provide the letter, memo, or the completed framework document, and all supporting analyses, along with proposed regulations to the Regional Administrator in a timely manner following final action by the Council.

For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA and other applicable law. The Regional Administrator will provide the Council weekly updates on the status of the proposed measures.

Closed Framework:

Consistent with existing requirements in the FMP and implementing regulations, the Regional Administrator is authorized to conduct the following framework actions through appropriate notification in the Federal Register:

Close or adjust harvest any sector of the fishery for a species, sub-species, or species group that has a quota or sub-quota at such time as projected to be necessary to prevent the sector from exceeding its sector-quota for the remainder of the fishing year or sub-quota season,

Reopen any sector of the fishery that had been prematurely closed,

Implement an in-season AM for a sector that has reached or is projected to reach, or is approaching (e.g., within x percent) or is projected to approach its ACL, or implement a post-season AM for a sector that exceeded its ACL in the current year.

APPENDIX E – TABLES

Table 1. Trends of Fishing Mortality & Spawning Stock Biomass – GOM Stock

SSB VPA estimated value Million hydrated eggs					SSB/MSST				
Year	Deterministic	low CI	Median	upp CI	Year	Deterministic	low CI	Median	upp CI
1981	2123	2103	2111	2124	1981	0.811	0.804	0.807	0.812
1982	2036	2015	2023	2036	1982	0.778	0.770	0.773	0.779
1983	1555	1532	1541	1556	1983	0.594	0.586	0.589	0.595
1984	1590	1565	1574.5	1591	1984	0.607	0.598	0.602	0.608
1985	1502	1473	1484	1503	1985	0.574	0.563	0.567	0.575
1986	1532	1495	1509	1534	1986	0.585	0.572	0.577	0.586
1987	1590	1543	1561	1592	1987	0.607	0.590	0.597	0.608
1988	1731	1676	1697	1733	1988	0.661	0.641	0.649	0.662
1989	1748	1680	1706	1751	1989	0.668	0.643	0.652	0.669
1990	1885	1796	1830	1888	1990	0.720	0.687	0.700	0.722
1991	2040	1929	1972	2045	1991	0.779	0.738	0.754	0.782
1992	2215	2072	2126.5	2220	1992	0.846	0.792	0.813	0.849
1993	2245	2070	2137.5	2252	1993	0.857	0.792	0.817	0.861
1994	2265	2052	2134	2273	1994	0.865	0.785	0.816	0.869
1995	2210	1932	2038.5	2220	1995	0.844	0.739	0.779	0.849
1996	2340	1987	2123	2353	1996	0.894	0.760	0.811	0.900
1997	2443	2006	2174	2459	1997	0.933	0.767	0.831	0.940
1998	2509	1979	2185.5	2531	1998	0.958	0.757	0.835	0.967
1999	2658	2036	2286.5	2700	1999	1.015	0.779	0.874	1.032
2000	2788	2106	2396.5	2850	2000	1.065	0.806	0.916	1.089
2001	2876	2162	2487	2968	2001	1.098	0.828	0.951	1.134
2002	2873	2180	2526	3032	2002	1.097	0.834	0.966	1.159
2003	2872	2226	2578	3091	2003	1.097	0.851	0.987	1.180
2004	2955	2343	2728	3218	2004	1.129	0.896	1.043	1.227
2005	3285	2645	3116	3644	2005	1.255	1.012	1.191	1.394
2006	3921	3224	3846	4512	2006	1.498	1.237	1.471	1.725

F apical VPA Estimate Fishing Mortality Rate				
Year	Deterministic	low CI	Median	upp CI
1981	0.340	0.340	0.342	0.343
1982	1.008	1.008	1.012	1.014
1983	0.413	0.413	0.414	0.415
1984	0.427	0.427	0.429	0.430
1985	0.558	0.558	0.561	0.563
1986	0.556	0.556	0.561	0.565
1987	0.493	0.492	0.499	0.504
1988	0.368	0.367	0.383	0.393
1989	0.548	0.548	0.557	0.563
1990	0.422	0.421	0.439	0.449
1991	0.568	0.568	0.586	0.597
1992	0.713	0.711	0.732	0.745
1993	0.508	0.505	0.552	0.584
1994	0.681	0.679	0.707	0.724
1995	0.537	0.535	0.582	0.614
1996	0.378	0.375	0.420	0.451
1997	0.294	0.292	0.336	0.369
1998	0.313	0.311	0.362	0.401
1999	0.346	0.306	0.339	0.365
2000	0.313	0.259	0.286	0.313
2001	0.212	0.191	0.214	0.239
2002	0.177	0.158	0.185	0.220
2003	0.225	0.202	0.263	0.332
2004	0.223	0.176	0.210	0.257
2005	0.239	0.195	0.233	0.279
2006	0.288	0.212	0.254	0.313

Fcurr/ MFMT				
Year	Deterministic	low CI	Median	upp CI
1983	1.446	1.385	1.530	1.647
1984	1.434	1.376	1.520	1.637
1985	1.398	1.347	1.489	1.607
1986	1.343	1.294	1.431	1.544
1987	1.440	1.387	1.532	1.654
1988	1.613	1.558	1.726	1.863
1989	1.846	1.790	1.983	2.141
1990	1.754	1.713	1.899	2.053
1991	2.027	1.974	2.187	2.367
1992	1.866	1.829	2.032	2.199
1993	1.984	1.957	2.186	2.382
1994	1.942	1.924	2.169	2.373
1995	2.095	2.077	2.365	2.603
1996	1.898	1.889	2.159	2.379
1997	1.536	1.516	1.754	1.935
1998	1.267	1.233	1.424	1.570
1999	1.231	1.165	1.323	1.453
2000	1.273	1.153	1.290	1.412
2001	1.132	0.974	1.119	1.236
2002	0.854	0.738	0.843	0.942
2003	0.765	0.709	0.826	0.958
2004	0.778	0.692	0.810	0.952
2005	0.826	0.728	0.899	1.106
2006	0.827	0.714	0.828	0.969

Table 2. Trends of Fishing Mortality and Spawning Stock Biomass - Atlantic Stock

SSB VPA Estimated Value Million Hydrated Eggs				
Year	Deterministic	low CI	Median	upp CI
1981	4508	4496	4509	4551
1982	4568	4555	4569	4615
1983	4587	4573	4589	4640
1984	4498	4483	4500	4555
1985	4418	4400	4420	4483
1986	4275	4253	4277	4353
1987	4086	4059	4089	4182
1988	3873	3842	3877	3985
1989	3555	3520	3559	3682
1990	3545	3500	3550	3705
1991	3580	3520	3587	3797
1992	3369	3294	3377	3640
1993	3098	3010	3108	3416
1994	2962	2861	2973	3328
1995	2873	2753	2887	3307
1996	2847	2698	2864	3383
1997	2824	2643	2844	3474
1998	2701	2494	2722.5	3439
1999	2641	2410	2664.5	3433
2000	2640	2382	2658.5	3442
2001	2476	2194	2485.5	3258
2002	2377	2069	2374	3119
2003	2341	2000	2320	3008
2004	2365	1958	2336	3038
2005	2433	1973	2426.5	3102
2006	2443	1951	2476.5	3203

SSB/MSST				
Year	Deterministic	low CI	Median	upp CI
1981	2.468	2.463	2.470	2.492
1982	2.501	2.495	2.503	2.528
1983	2.512	2.505	2.514	2.541
1984	2.463	2.455	2.465	2.495
1985	2.419	2.410	2.421	2.455
1986	2.341	2.330	2.343	2.383
1987	2.237	2.224	2.240	2.290
1988	2.121	2.105	2.124	2.182
1989	1.947	1.928	1.950	2.015
1990	1.941	1.917	1.945	2.028
1991	1.960	1.928	1.965	2.078
1992	1.845	1.804	1.851	2
1993	1.696	1.648	1.703	1.869
1994	1.622	1.567	1.629	1.820
1995	1.573	1.508	1.582	1.808
1996	1.559	1.478	1.570	1.849
1997	1.546	1.448	1.559	1.898
1998	1.479	1.367	1.493	1.877
1999	1.446	1.320	1.459	1.872
2000	1.446	1.305	1.456	1.883
2001	1.356	1.202	1.361	1.782
2002	1.302	1.134	1.300	1.706
2003	1.282	1.095	1.271	1.647
2004	1.295	1.074	1.280	1.657
2005	1.332	1.081	1.329	1.697
2006	1.338	1.071	1.357	1.749

F Apical VPA Estimate Fishing Mortality Rate				
Year	Deterministic	low CI	Median	upp CI
1981	0.442	0.440	0.442	0.443
1982	0.386	0.383	0.386	0.387
1983	0.382	0.378	0.381	0.382
1984	0.287	0.284	0.287	0.288
1985	0.441	0.437	0.441	0.442
1986	0.288	0.284	0.288	0.289
1987	0.208	0.205	0.208	0.209
1988	0.287	0.282	0.287	0.289
1989	0.219	0.213	0.219	0.220
1990	0.331	0.320	0.331	0.334
1991	0.311	0.297	0.311	0.316
1992	0.345	0.325	0.344	0.351
1993	0.318	0.293	0.317	0.326
1994	0.252	0.226	0.251	0.260
1995	0.361	0.318	0.360	0.376
1996	0.366	0.314	0.364	0.383
1997	0.390	0.320	0.388	0.416
1998	0.315	0.240	0.312	0.346
1999	0.233	0.165	0.230	0.264
2000	0.263	0.203	0.259	0.298
2001	0.285	0.248	0.287	0.305
2002	0.269	0.245	0.274	0.294
2003	0.358	0.284	0.362	0.406
2004	0.377	0.324	0.393	0.455
2005	0.344	0.296	0.373	0.458
2006	0.359	0.310	0.409	0.534

Fcurr/ MFMT				
Year	Deterministic	low CI	Median	upp CI
1983	0.914	0.784	0.854	0.919
1984	0.745	0.637	0.695	0.749
1985	0.754	0.645	0.704	0.758
1986	1.010	0.863	0.943	1.016
1987	0.804	0.684	0.751	0.808
1988	0.613	0.521	0.572	0.616
1989	0.623	0.528	0.581	0.625
1990	0.669	0.566	0.625	0.672
1991	0.683	0.575	0.638	0.684
1992	0.815	0.680	0.762	0.817
1993	0.974	0.802	0.912	0.977
1994	0.937	0.758	0.878	0.940
1995	0.831	0.658	0.780	0.835
1996	0.906	0.703	0.852	0.913
1997	1.154	0.873	1.086	1.165
1998	1.025	0.746	0.965	1.043
1999	0.783	0.530	0.737	0.814
2000	0.705	0.477	0.666	0.739
2001	0.725	0.517	0.687	0.747
2002	0.718	0.551	0.684	0.740
2003	0.771	0.628	0.741	0.814
2004	0.893	0.725	0.877	0.983
2005	0.984	0.811	0.985	1.150
2006	1.006	0.869	1.076	1.306

Table 3. Proportions of Catch by Stock Unit at Different Boundaries in the FL East Coast

Deterministic Run Yield Landings Million Pounds – Gulf of Mexico

Projections Final Model

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	11.810	11.810	11.810	11.810	11.810	11.810
2008	17.130	12.610	14.778	13.162	11.513	14.394
2009	17.491	13.543	15.496	14.050	12.513	15.157
2010	16.286	13.223	14.791	13.640	12.357	14.526
2011	14.240	12.046	13.215	12.366	11.369	13.023
2012	12.432	10.834	11.715	11.080	10.300	11.576
2013	11.277	10.018	10.732	10.221	9.568	10.622
2014	10.503	9.438	10.053	9.614	9.041	9.958
2015	10.148	9.200	9.755	9.361	8.834	9.672
2016	9.886	9.015	9.533	9.165	8.669	9.456

Projections adjusted for Dade-Monroe management unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	10.823	10.823	10.823	10.823	10.823	10.823
2008	15.258	11.200	13.164	11.726	10.258	12.992
2009	15.535	12.006	13.768	12.486	11.124	13.602
2010	14.524	11.772	13.194	12.170	11.028	13.067
2011	12.823	10.826	11.900	11.137	10.242	11.816
2012	11.293	9.814	10.638	10.060	9.351	10.585
2013	10.326	9.145	9.822	9.351	8.753	9.785
2014	9.685	8.677	9.265	8.858	8.330	9.234
2015	9.384	8.480	9.014	8.647	8.159	8.990
2016	9.162	8.328	8.828	8.485	8.024	8.807

Projections adjusted for Council boundary management unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	10.005	10.005	10.005	10.005	10.005	10.005
2008	14.271	10.488	12.312	10.967	9.594	12.085
2009	14.548	11.252	12.891	11.690	10.413	12.683
2010	13.578	11.013	12.333	11.375	10.307	12.172
2011	11.940	10.088	11.080	10.369	9.535	10.968
2012	10.477	9.115	9.871	9.335	8.678	9.794
2013	9.549	8.467	9.084	8.650	8.097	9.026
2014	8.930	8.010	8.545	8.171	7.683	8.495
2015	8.643	7.820	8.305	7.967	7.518	8.262
2016	8.431	7.673	8.126	7.811	7.387	8.088

Projections status quo catch Mixing-winter all GOM unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	14.266	14.266	14.266	14.266	14.266	14.266
2008	25.155	18.371	21.663	19.286	16.868	17.167
2009	24.956	19.180	22.068	20.000	17.805	18.082

2010	22.862	18.481	20.754	19.143	17.346	17.577
2011	19.698	16.685	18.323	17.176	15.820	15.999
2012	16.837	14.775	15.946	15.135	14.118	14.257
2013	14.601	13.102	13.986	13.380	12.586	12.696
2014	12.897	11.693	12.416	11.925	11.263	11.354
2015	12.086	11.039	11.676	11.244	10.653	10.734
2016	11.548	10.591	11.177	10.781	10.232	10.307

Table 4. Proportions of Catch by Stock Unit at Different Boundaries in the FL East Coast

Deterministic Run Yield Landings Million Pounds - Atlantic

Projections Final Model

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	9.277	9.277	9.277	9.277	9.277	9.277
2008	9.453	6.669	8.170	7.291	6.391	9.504
2009	9.248	6.956	8.236	7.498	6.706	9.288
2010	9.154	7.240	8.344	7.718	7.017	9.184
2011	9.132	7.522	8.477	7.943	7.319	9.156
2012	8.860	7.476	8.314	7.851	7.295	8.880
2013	8.788	7.549	8.309	7.893	7.379	8.805
2014	8.794	7.665	8.369	7.985	7.507	8.810
2015	8.737	7.672	8.338	7.979	7.520	8.750
2016	8.704	7.685	8.327	7.981	7.538	8.717

Projections adjusted for Dade-Monroe management unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	10.264	10.264	10.264	10.264	10.264	10.264
2008	11.326	8.079	9.784	8.726	7.645	10.906
2009	11.205	8.493	9.965	9.062	8.096	10.843
2010	10.915	8.692	9.941	9.188	8.346	10.644
2011	10.548	8.743	9.791	9.172	8.447	10.363
2012	9.999	8.495	9.391	8.871	8.244	9.871
2013	9.738	8.421	9.220	8.762	8.194	9.642
2014	9.612	8.427	9.157	8.741	8.218	9.534
2015	9.501	8.392	9.079	8.692	8.195	9.432
2016	9.427	8.372	9.031	8.661	8.182	9.366

Projections adjusted for Council boundary management unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	11.082	11.082	11.082	11.082	11.082	11.082
2008	12.312	8.791	10.636	9.486	8.310	11.813
2009	12.192	9.247	10.842	9.858	8.807	11.762
2010	11.861	9.450	10.802	9.983	9.068	11.539
2011	11.432	9.480	10.611	9.940	9.154	11.211
2012	10.815	9.194	10.158	9.596	8.917	10.663
2013	10.516	9.099	9.957	9.463	8.850	10.401
2014	10.367	9.093	9.877	9.429	8.865	10.273
2015	10.242	9.052	9.789	9.372	8.836	10.159
2016	10.159	9.027	9.734	9.335	8.819	10.085

Projections status quo catch Mixing-winter all GOM unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	7.756	7.756	7.756	7.756	7.756	7.756
2008	8.710	6.149	7.535	6.729	5.902	8.071
2009	8.221	6.202	7.335	6.687	5.990	7.747

2010	7.981	6.340	7.291	6.757	6.153	7.619
2011	7.897	6.543	7.355	6.905	6.376	7.617
2012	7.502	6.347	7.050	6.665	6.199	7.271
2013	7.423	6.389	7.026	6.682	6.252	7.222
2014	7.405	6.466	7.055	6.737	6.338	7.229
2015	7.330	6.442	7.002	6.702	6.318	7.167
2016	7.293	6.444	6.982	6.695	6.325	7.139

Section 2.13.3 ABC Control Rule and ABC for Atlantic Migratory Group King Mackerel
Alternative 5. Establish an ABC Control Rule where ABC is a percentage of OFL. The percentage is based upon the level of risk of overfishing (P*).
Alternative 5a. ABC=X% of OFL. The X% is based upon P* equals .20.
Alternative 5b. ABC=X% of OFL. The X% is based upon P* equals .30.
Alternative 5c. ABC=X% of OFL. The X% is based upon P* equals .40.
Alternative 5d. ABC=X% of OFL. The X% is based upon P* equals .50.

Section 2.13.4 OY for Atlantic Migratory Group King Mackerel
The IPT recommends that OY be folded into the ACL action based on NOAA GC and NMFS RA guidance provided at the September 2010 South Atlantic Council meeting; a similar approach is being taken in the South Atlantic Council's Comprehensive ACL Amendment. This would move the OY alternatives shown below to Appendix F, Alternatives Considered but Eliminated from Detailed Consideration.
Currently OY = the yield from fishing at a fishing mortality rate equal to 40%Spawning Potential Ratio; however, a value was not previously estimated. Based on the SEDAR 16 assessment and the Council's actions on other species, the following options are likely (Tables 2.13.2.1 and 2.13.3.1).

Alternative 1. No action. Currently OY = yield at $F_{40\%SPR}$ with no poundage estimated. However, using the updated projections yields a range of 8.40 – 9.20 million pounds.

Alternative 2. OY = 65% of the yield at $F_{30\%SPR}$ = 7.96 – 8.36 million pounds based on projections of expected median yields under a constant fishing mortality rate over the years 2011 through 2021.

Alternative 3. OY = 75% of the yield at $F_{30\%SPR}$ = 8.46 – 9.37 million pounds based on projections of expected median yields under a constant fishing mortality rate over the years 2011 through 2021.

Alternative 4. OY = 85% of the yield at $F_{30\%SPR}$ = 8.80 – 10.46 million pounds based on projections of expected median yields under a constant fishing mortality rate over the years 2011 through 2021.

Alternative 5. OY = yield at $F_{30\%SPR}$ = 9.36 – 12.84 million pounds based on projections of expected median yields under a constant fishing mortality rate over the years 2011 through 2021.

Section 2.13.5 Annual Catch Target for Atlantic Migratory Group King Mackerel

Alternative 2. The commercial sector ACT equals the commercial sector ACL.

4. Section 2.14 ACTION 14: Specify Accountability Measures (AMs) for Atlantic

Migratory Group King Mackerel

Alternative 5. Allow roll-over of underages but not to exceed the ABC.

Sub-Alternative 5a. 100%
Sub-Alternative 5b. 50%

5. Section 2.16.3 Allowable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory Group Spanish Mackerel

Alternative 3. Establish an ABC Control Rule where ABC equals OFL.

Alternative 4. Establish an ABC Control Rule where ABC equals a percentage of OFL.

Alternative 4a. ABC=65%OFL.

Alternative 4b (Preferred). ABC=75%OFL.

Alternative 4c. ABC=85%OFL.

Alternative 5. Establish an ABC Control Rule where ABC is a percentage of OFL. The percentage is based upon the level of risk of overfishing (P*).

Alternative 5a. ABC=X% of OFL. The X% is based upon P* equals .20.

Alternative 5b. ABC=X% of OFL. The X% is based upon P* equals .30.

Alternative 5c. ABC=X% of OFL. The X% is based upon P* equals .40.

Alternative 5d. ABC=X% of OFL. The X% is based upon P* equals .50.

6. 2.16.4 Optimum Yield (OY) for Atlantic Migratory Group Spanish Mackerel

The IPT recommends that OY be folded into the ACL action based on NOAA GC and NMFS RA guidance provided at the September 2010 South Atlantic Council meeting; a similar approach is being taken in the South Atlantic Council's Comprehensive ACL Amendment. This would move the OY alternatives shown below to Appendix F, Alternatives Considered but Eliminated from Detailed Consideration.

Currently OY = the yield from fishing at a fishing mortality rate equal to 40%Spawning Potential Ratio; however, a value was not previously estimated. Based on the SEDAR 17 assessment and the Council's actions on other species, the following options are likely (Table 11).

Alternative 1. No action. Currently OY = yield at $F_{40\%SPR}$ with no poundage estimated. Based on the SEDAR 17 assessment, the yield at $F_{40\%SPR}$ is 11,458,000 pounds.

Alternative 2. OY = 65% of the yield at F_{MSY} = 10.608 million pounds.

Alternative 3. OY = 75% of the yield at F_{MSY} = 11.051 million pounds.

Alternative 4. OY = 85% of the yield at F_{MSY} = 11.320 million pounds.

Alternative 5. OY = the yield at $F_{30\%SPR}$ = 10.565 million pounds.

Alternative 6. OY = the yield at F_{max} = 6.598 million pounds.

7. Section 2.16.5 Annual Catch Target (ACT) for Atlantic Migratory Group Spanish Mackerel

Alternative 2. The commercial sector ACT equals the commercial sector ACL.

8. Section 2.19.3 Allowable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory Group Cobia

Alternative 5. Establish an ABC Control Rule where ABC is a percentage of OFL. The percentage is based upon the level of risk of overfishing (P*).

Alternative 5a. ABC=X% of OFL. The X% is based upon P* equals .20.

Alternative 5b. ABC=X% of OFL. The X% is based upon P* equals .30.

Alternative 5c. ABC=X% of OFL. The X% is based upon P* equals .40.

Alternative 5d. ABC=X% of OFL. The X% is based upon P* equals .50.

9. 2.19.4 Optimum Yield (OY) for Atlantic Migratory Group Cobia

The IPT recommends that OY be folded into the ACL action based on NOAA GC and NMFS RA guidance provided at the September 2010 South Atlantic Council meeting; a similar approach is being taken in the South Atlantic Council's Comprehensive ACL Amendment. This would move the OY alternatives shown below to Appendix F, Alternatives Considered but Eliminated from Detailed Consideration.

Currently OY = the yield from fishing at a fishing mortality rate equal to 40%Spawning Potential Ratio; however, a value was not previously estimated.

Alternative 1. No action. Currently OY = yield at $F_{40\%SPR}$ with no poundage estimated.

Alternative 2. OY = ACL.

Alternative 3. OY = ACT.

Discussion:

10. Section 2.19.4 Allocations for Atlantic Migratory Group Cobia

Alternative 4. Define allocations for Atlantic migratory group cobia based upon landings from the ALS, MRFSS, and headboat databases. The allocation would be based on the following formula for each sector:

Sector apportionment = (50% * average of long catch range (lbs) 1986(or 1999)-2008) + (50% * average of recent catch trend (lbs) 2006-2008). The allocation would be xx% commercial, yy% for-hire, and zz% private recreational. Beginning in 2011, the commercial allocation would be ________ lbs gutted weight, the for-hire allocation would be ________ fish (_____ lbs gutted weight), and the private recreational allocation would be ________ fish (_____ lbs gutted weight). The commercial, for-hire, and private recreational allocations specified for 2011 would remain in effect beyond 2011 until modified.

11. Section 2.19.6a Commercial Sector ACT

Alternative 2. The commercial sector ACT equals the commercial sector ACL.

12.

APPENDIX G – DETAILED BAG LIMIT TABLES

Table G.1a. Spanish Mackerel percent reduction under various bag limits based on 2009 catches.

2009	Florida Harvest in			Georgia Harvest in			South Carolina			North Carolina		
Number Caught	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
20										4480	1%	1%
19											0%	1%
18											0%	1%
17											0%	1%
16											0%	1%
15										53319	10%	11%
14										8599	2%	13%
13										11277	2%	15%
12										8243	2%	16%
11							7994	13%	13%	2464	0%	17%
10							7267	12%	24%	15103	3%	20%
9								0%	24%	28287	5%	25%
8								0%	24%	34455	7%	32%
7	26889	7%	7%				1199	2%	26%	36164	7%	39%
6	34164	9%	17%				11215	18%	44%	58060	11%	50%
5	34000	9%	26%					0%	44%	39805	8%	57%
4	53829	15%	41%	1034	13%	13%	4539	7%	51%	50228	10%	67%
3	56488	16%	57%	279	4%	17%	10878	17%	68%	47475	9%	76%
2	48825	13%	70%	150	2%	19%	11028	17%	86%	59194	11%	88%
1	108669	30%	100%	6199	81%	100%	8958	14%	100%	65098	12%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	362864	100%		7662	100%		63078	100%		522251	100%	

Table G.1b. Spanish Mackerel percent reduction under various bag limits based on 2008 catches.

2008	Florida			Georgia			South Carolina			North Carolina			Virginia		
Number Caught	Harvest in Number Fish	Percent	Cum. Percent	Harvest in Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
20															
19															
18	22738	2%	2%												
17		0%	2%												
16		0%	2%												
15	131792	12%	14%							107024	9%	9%			
14		0%	14%							12970	1%	10%			
13		0%	14%							6903	1%	11%			
12		0%	14%							55840	5%	16%	30945	13%	13%
11		0%	14%							12137	1%	17%	54701	23%	36%
10	39832	4%	18%							64486	6%	22%	1765	1%	37%
9		0%	18%							25343	2%	24%		0%	37%
8	49776	5%	22%				2035	2%	2%	133790	11%	36%	11849	5%	42%
7	118750	11%	33%				12979	11%	13%	95579	8%	44%	33574	14%	56%
6	83532	8%	41%				24201	21%	34%	92437	8%	52%	37482	16%	71%
5	104264	9%	50%	465	2%	2%	20167	17%	51%	113091	10%	62%		0%	71%
4	120942	11%	61%	1116	4%	5%	11520	10%	61%	109219	9%	71%	16824	7%	78%
3	130804	12%	73%		0%	5%	7470	6%	67%	109852	9%	81%	22384	9%	88%
2	142512	13%	86%	10765	37%	42%	18827	16%	83%	126541	11%	91%	7353	3%	91%
1	153829	14%	100%	16832	58%	100%	19372	17%	100%	99040	9%	100%	21836	9%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	1098771	100%		29178	100%		116571	100%		1164252	100%		238713	100%	

Table G.1c. Spanish Mackerel percent reduction under various bag limits based on 2007 catches.

2007	Florida Harvest in			Georgia Harvest in			South Carolina			North Carolina		
Number Caught	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
36	24809	4%	4%									
20	11561	2%	6%									
19		0%	6%									
18		0%	6%									
17		0%	6%									
16		0%	6%									
15	71297	12%	18%							65490	13%	13%
14		0%	18%							8513	2%	15%
13		0%	18%								0%	15%
12	8761	1%	19%							7297	1%	16%
11	6365	1%	20%							13377	3%	19%
10	23450	4%	24%							56174	11%	30%
9	15613	3%	27%							11932	2%	32%
8	44085	7%	34%							21554	4%	37%
7	4046	1%	35%							11921	2%	39%
6	15035	2%	37%				5881	6%	6%	22102	4%	43%
5	64608	11%	48%				5683	5%	11%	39636	8%	51%
4	65556	11%	59%	447	3%	3%	34519	33%	44%	35232	7%	58%
3	23046	4%	63%	5251	40%	43%	22268	21%	65%	61912	12%	71%
2	73448	12%	75%	2030	15%	58%	14098	13%	78%	70748	14%	85%
1	150795	25%	100%	5525	42%	100%	23223	22%	100%	76937	15%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	602475	100%		13253	100%		105672			502825	100%	

Table G.1d. Spanish Mackerel percent reduction under various bag limits based on 2006 catches.

2006	Florida Harvest in			Georgia Harvest in			South Carolina			North Carolina		
Number Caught	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
28	2560	1%	1%									
27	2468	1%	1%									
26		0%	1%									
25	2285	1%	2%									
24		0%	2%									
23		0%	2%									
22		0%	2%									
21		0%	2%									
20		0%	2%									
19		0%	2%									
18		0%	2%							913	0%	0%
17		0%	2%							863	0%	1%
16		0%	2%							0	0%	1%
15		0%	2%							3575	1%	2%
14		0%	2%							0	0%	2%
13		0%	2%							23875	8%	10%
12	19351	5%	6%							16745	6%	16%
11		0%	6%							1675	1%	16%
10	66352	16%	22%							3045	1%	17%
9	16275	4%	26%							13794	5%	22%
8	5216	1%	28%				911	2%	2%	10881	4%	26%
7	32145	8%	35%					0%	2%	9625	3%	29%
6	15197	4%	39%				273	1%	3%	27481	9%	38%
5	23033	6%	45%	567	20%	20%	0	0%	3%	36852	13%	51%
4	46414	11%	56%	454	16%	36%	0	0%	3%	21644	7%	58%
3	57831	14%	70%	0	0%	36%	4154	9%	12%	38560	13%	71%
2	63821	15%	85%	454	16%	52%	25993	59%	72%	36636	12%	84%

1	62064	15%	100%	1356	48%	100%	12487	28%	100%	48208	16%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	415012	100%		2831	100%		43818	100%		294372	100%	

Table G.1e. Spanish Mackerel percent reduction under various bag limits based on 2005 catches.

2005	Florida Harvest in			Georgia Harvest in			South Carolina			North Carolina		
Number Caught	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
20										8679	3%	3%
19										6505	2%	5%
18				6251	53%	53%				6163	2%	6%
17						53%					0%	6%
16						53%					0%	6%
15	116641	18%	18%			53%				11645	4%	10%
14		0%	18%			53%				11983	4%	14%
13	18221	3%	21%			53%					0%	14%
12	43879	7%	27%			53%				5207	2%	15%
11		0%	27%			53%					0%	15%
10	56345	9%	36%			53%				8559	3%	18%
9	24529	4%	40%			53%				6987	2%	20%
8	15025	2%	42%			53%				24149	7%	27%
7	11862	2%	44%			53%				15104	5%	32%
6	60164	9%	53%	1250	11%	64%	6842	10%	10%	15287	5%	36%
5	67393	10%	63%	347	3%	66%	353	0%	10%	22886	7%	43%
4	39960	6%	69%			66%	17384	24%	34%	27405	8%	51%
3	55949	9%	78%			66%	14997	21%	55%	43084	13%	64%
2	63961	10%	88%			66%	16033	22%	77%	56921	17%	82%
1	80089	12%	100%	3956	34%	100%	16326	23%	100%	60722	18%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	654018	100%		11804	100%		71935			331286		

Table G.2. Cobia percent reduction under various bag limits.

2009	**Florida**			**Georgia**			**South Carolina**			**North Carolina**					
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.			
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent			
2	1557	8%	8%	47	100%	100%	1453	37%	37%	0	0%	0%			
1	**18564**	**92%**	**100%**	**0**	0%	**100%**	**2523**	63%	**100%**	**5747**	100%	**100%**			
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%			
	20121	100%		47	100%		3976	100%		5747	100%				
2008	**Florida**			**Georgia**			**South Carolina**			**North Carolina**					
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.			
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent			
2	0	0%	0%	4893	22%	22%	2103	42%	42%	0	0%	0%			
1	**35083**	100%	**100%**	**17157**	78%	**100%**	**2890**	58%	**100%**	**4997**	100%	**100%**			
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%			
	35083	100%		22050	100%		4993	100%		4997	100%				
2007	**Florida**			**Georgia**			**South Carolina**			**North Carolina**			**Virginia**		
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent
2	2616	10%	10%	0	0%	0%	0	0%	0%	0	0%	0%	997	10%	10%
1	**22719**	90%	**100%**	**961**	100%	**100%**	**3450**	100%	**100%**	**2965**	100%	**100%**	**9212**	90%	**100%**
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	25335	100%		961	100%		3450	100%		2965	100%		10209	100%	
2006	**Florida**			**Georgia**			**South Carolina**			**North Carolina**					
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.			
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent			
2	3085	11%	11%	49	100%	100%	0	0%	0%	477	10%	10%			
1	**25115**	89%	**100%**	**0**	0%	**100%**	**2200**	100%	**100%**	**4240**	90%	**100%**			
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%			
	28200	100%		49	100%		2200	100%		4717	100%				
2005	**Florida**			**Georgia**			**South Carolina**			**North Carolina**					
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.			
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent			
2	0	0%	0%	30	100%	100%	0	0%	0%	9493	56%	56%			
1	**12092**	100%	**100%**	**0**	0%	**100%**	**994**	100%	**100%**	**7459**	44%	**100%**			
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%			
	12092	100%		30	100%		994	100%		16952	100%				

APPENDIX H: INITIAL REGULATORY FLEXIBILITY ANALYSIS

1. Introduction

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

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

2. Statement of the need for, objectives of, and legal basis for the rule

A discussion of the need for and objectives of this action is provided in Section 1.2 of this document. The Magnuson-Stevens Act provides the statutory basis for this proposed rule.

3. Description and estimate of the number of small entities to which the proposed action would apply

This proposed action would apply to all fishing that is managed under the Fishery Management Plan for Coastal Migratory Pelagic Resources in the Atlantic and Gulf of Mexico. Using approximations, the proposed action may affect 1,000 to 2,000 commercial fishing vessels, with average gross revenue of $28,000 to $46,000 per vessel for those fishing for king and Spanish mackerel, and $16,000 to $277,000, including other vessels.

The proposed rule could affect as many as 2,132 vessels that have permits to engage in for-hire fishing for coastal migratory pelagic species in Atlantic waters (average number of NMFS, SERO, "CHS" permits for the last 5 years). For-hire vessels include charter boats, which charge for the vessel by trip, and a much smaller number of head boats, which charge per individual angler (head). The charter boat annual average gross revenue is estimated to range from approximately $62,000-$84,000 for Florida vessels, $73,000-$89,000 for North Carolina vessels, $68,000-$83,000 for Georgia vessels, and $32,000-$39,000 for South Carolina vessels. For headboats, the corresponding estimates are $170,000-$362,000 for Florida vessels, and $149,000-$317,000 for vessels in other states.

The Small Business Administration has established size criteria for all major industry sectors in the U.S. including fish harvesters. A business involved in commercial finfish harvesting is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of $4.0 million (NAICS code 114111, finfish fishing) for all its affiliated operations worldwide. A for-hire business involved in fish harvesting is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of $7.0 million (NAICS code 713990, recreational industries). Based on the average revenue estimates provided above, all commercial and for-hire fishing vessels expected to be directly affected by this proposed rule are determined for the purpose of this analysis to be small business entities.

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

This proposed rule would not establish any new reporting, record keeping, or other compliance requirements.

5. **Identification of all relevant federal rules, which may duplicate, overlap or conflict with the proposed rule**

No duplicative, overlapping, or conflicting federal rules have been identified.

6. **Significance of economic impacts on small entities**

Substantial number criterion

This proposed rule, if implemented, would be expected to affect all vessels that engage in commercial and for-hire fishing in the EEZ that is managed under the Fishery Management Plan for Coastal Migratory Pelagic Species in the Atlantic and Gulf.

Significant economic impacts

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

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

All entities expected to be directly affected by the measures in this proposed rule are determined for the purpose of this analysis to be small business entities, so the issue of Disproportionality does not arise in the present case.

<u>Profitability:</u> Do the regulations significantly reduce profits for a substantial number of small entities?

The proposed regulation is not expected to significantly reduce profits for a substantial number of small entities.

7. Description of significant alternatives to the proposed action and discussion of how the alternatives attempt to minimize economic impacts on small entities

Modification of the Fishery Management Unit

The proposed rule includes fourteen alternatives to address the status of four species respecting the FMP (and/or FMU), namely bluefish (Gulf only), cero mackerel, little tunny, and dolphin (Gulf only). The proposed action (which incorporates seven of the fourteen alternatives) would remove all four species from the FMP, recognizing the stated geographic designations. The status quo (no-action) alternative is believed not to address Magnuson Stevens Act requirements. Taken together, the other six alternatives to the proposed action would add the four species to the Fishery Management Unit (FMU), and set ACLs and AMs for each, following the stated geographic designations. Allowing for caveats on the use of available data to describe fishing for the four species, the proposed action is not expected to have an economic impact.

Bluefish in the Gulf: Bluefish are landed commercially notably in the Middle Atlantic and South Atlantic regions. Only 1.5% of the landings occur in the Gulf. In the Atlantic, 80% to 90% of bluefish landings are recreational, compared with 70% for the Gulf. The MAFMC and the Atlantic States Marine Fisheries Commission jointly manage bluefish in the Atlantic; they implemented a 9-year rebuilding plan in 2001, and declared the stock rebuilt in 2009. Commercial landings of bluefish in the Gulf are approximately a fourth of what they were 20 years earlier (average, 0.144 mp per year in the last 5 years, and 0.441 mp in 1984-88). Increased, now higher landings in Alabama-Texas have not offset the drop for Florida. After the July 1995 implementation of the State of Florida's Constitutional Amendment to regulate the use of allowable gear in the State's waters, commercial landings of bluefish fell sharply in the State. Their ex-vessel price is relatively low, $0.39 / lb. Their liveliness and accessibility (often close to shore) help explain their being fished recreationally. Recreational landings in the Gulf (0.338 mp) are greater than commercial landings and they occur mostly on the Florida west coast, and secondly in Alabama. Most of the recreational catch occurs from the shore or via private/rental boats, and relatively little occurs via charterboats. For the Atlantic and Gulf together, an average of 244 vessels in the last 5 years landed blue fish commercially; they averaged $51,000 in gross per vessel (0.93% of gross from bluefish) (coastal fishery logbook data, NMFS, SEFSC).

Cero mackerel: Recreational landings (112,000 lbs) of cero mackerel are greater than logbook-reported commercial landings (1,503 lbs). In the last 5 years, an average of 28 vessels landed cero mackerel commercially (1,503 pounds), and their average gross revenue was $16,000 per vessel (0.62% from cero mackerel). Total commercial landings of cero mackerel are not known, because they are included inseparably with king mackerel in the more comprehensive NMFS data collection systems. Reportedly, cero mackerel are most common in the Bahamas, the

Caribbean and south Florida. To recreational fishers, they are a good eating fish, and challenging, because they are fast swimmers.

Little Tunny: In the last 5 years, an average of 194 vessels landed little tunny commercially in the Atlantic and Gulf, with an average gross of $47,000 per vessel (0.38% from little tunny). Compared with commercial landings of 0.689 mp, recreational landings were 1.883 mp, with recreational landings more concentrated in Florida. The ex-vessel price is relatively low at $0.35 / lb. As for other tunas, little tunny requires immediate care onboard (gutting, bleeding and icing) if eaten, and its stronger flavor means more care in preparation. This helps explain why little tunny may be used as bait, or thrown back into the water. Even so, to anglers, little tunny are known for swimming speed and fighting ability when hooked.

Dolphin in the Gulf: Twenty-eight percent (0.325 mp) of the Atlantic and Gulf commercial landings of dolphin occurred in the Gulf in the last 5 years. Gulf recreational landings are higher at 1.455 mp. There were 677 commercial, coastal fishery vessels with landings in the Atlantic and Gulf, with an average gross of $62,000 (1.3% from dolphin). Pelagic long line vessels landed more dolphin (0.739 mp versus 0.279 mp), and averaged $277,000 in vessel gross revenue, with relatively more attributable to dolphin (7.3% for 124 vessels). Fishing for dolphin in the Atlantic is managed directly under the Dolphin Wahoo FMP. Fishing for dolphin is managed indirectly under the Consolidated Atlantic Highly Migratory Species FMP, given the NMFS limited-access permit system for the predominant Atlantic swordfish, shark, and tuna pelagic longline fisheries.

Modify the Framework Procedure

Among the five alternatives, the proposed action would adopt the base Framework Procedure. The status quo (no action) alternative would not change the framework procedure, while the other three alternatives to the proposed action would be more or less inclusive. Though it affects all small entities that engage in fishing for species that managed under the FMP, the proposed action is primarily administrative in nature, and it would not be expected to have an economic impact. In the future, the proposed action could facilitate the incorporation of new information and expedite that implementation of proposed management changes.

Establish Separate Atlantic and Gulf Migratory Groups of Cobia

Among the three alternatives, the proposed action would separate cobia into two groups at the SAFMC/GMFMC boundary. The status quo (no-action) alternative would not split cobia into two migratory groups. The second alternative to the proposed action would split the two groups at the Miami-Dade/Monroe County line. The proposed action is not expected to have an economic impact.

Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL and ACT for Atlantic Migratory Group King Mackerel

Specifying MSY and other biological parameters does not alter the current harvest or use of the resource. There are no economic impacts on small entities. The Councils concluded that the proposed actions for defining the biological parameters best meet Magnuson-Stevens Act requirements for ACLs and AMs to prevent overfishing.

The Council specified MSY based on updated projections, which were accepted by the SEDAR Review and SSC, wherein MSY = 9.247 mp to 12.836 mp. The MSY from the most recent stock assessment (SEDAR16, 2008) is 8.964 mp. Alternatives were not considered, because updated estimates of biological parameters will not be available until 2013 (SEDAR33).

The Council's SSC provided an OFL as follows (April 2010 meeting): OFL = 12.836 mp, corresponding to yield at $F_{30\%SPR}$, the accepted MSY proxy. No alternatives were considered by the Council's SSC.

Among the six alternatives considered by the Council for the ABC control rule and ABC, the proposed action is to adopt the SSC-recommended control rule and ABC, wherein ABC = 10.46 mp. The status quo alternative would not meet Magnuson-Stevens Act requirements. The other four alternatives to the proposed action involve different ABC control rules and higher or lower ABCs.

The Council considered nine alternatives for the ACL, and the propose action specifies that ACL = OY = ABC = 10.46 mp. The other eight alternatives to the propose action specify a higher or lower ACL, including an ACL of 10.0 mp for the status quo (no-action) alternative.

Among seven alternatives to specify ACT, the proposed action includes two. One of the long-standing percentages for allocating TAC is used to determine the commercial sector ACT, whereby ACT = 3.88 mp (37.1% of 10.46 mp, where 10.46 mp = ACL = ABC = OY). Under the second alternative in the proposed action, the ACT of 6.1 mp is based instead on a formula that incorporates a 5-year average of annual proportional standard errors from NMFS recreational fishing surveys. The other five alternatives to the proposed action would result in lower ACTs for both sectors.

The proposed action for ACTs is not expected to have an economic impact. The specified commercial ACT of 3.88 mp exceeds the status quo landings of 2.3 mp (average for the last 5 years), and it exceeds high-end landings of the last 10 years, 3.6 mp (2009/10). The specified recreational ACT of 6.1 mp exceeds the status quo landings of 4.2 mp (average for the last 5 years), and approximates the high-end landings of the last 10 years (2007/08). The sum of ACTs, 9.98 mp (3.88 + 6.1 = 9.98), falls short of the ACL of 10.46 mp, and it approximates the TAC of 10.0 mp for recent years.

Specify Accountability Measures (AMs) for Atlantic Migratory Group King Mackerel

The Council considered seven alternatives to specify AMs, and the proposed action includes three post-season adjustments, based initially on one year of harvest data and based finally on the most recent three-year average. If recreational landings exceed the sector's ACT, then bag limits would be required to be reduced in the following year. Considering each sector separately, landings in excess of ACT would trigger payback in the following year, regardless of the status of the stock. The status quo (no-action) alternative to the proposed action has an in-season fishery closure for the commercial sector. In the year following the harvest overage, the other three alternatives to the proposed action would require a shorter recreational season, rather than a reduction in bag limit, and would require payback for each sector only if the stock were being overfished.

Managements Measures for Atlantic Migratory Group King Mackerel

The Council concluded that no changes in management measures are necessary because the sector ACTs (ACLs) are not likely to be exceeded.

Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL and ACT for Atlantic Migratory Group Spanish mackerel

Specifying MSY and other biological parameters does not alter the current harvest or use of the resource. As discussed under the section on AMs, the specifications leading from ABC to ACTs may be seen as having an economic impact. The Councils concluded that the proposed actions for defining the biological parameters best meet Magnuson-Stevens Act requirements for ACLs and AMs to prevent overfishing.

The Council determined that MSY = 10.4 mp, as it is currently, in accord with the most recent stock assessment for which all biological parameters were accepted by the SSC. This and other biological parameters will be reconsidered after an updated SEDAR becomes available in 2013. Because the SSC the left OFL as having an unknown value, the Council recommended an interim OFL of 6.14 mp (10-year mean plus 2 standard deviation units).

The Council considered two alternatives for specifying an ABC control rule. The proposed action is based on the SSC recommended ABC control rule (ABC equal to the median landings for the last 10 years) which results in an ABC of 5.29 mp. The only alternative to the proposed action is the status quo (no-action) alternative; it does not specify an ABC control rule and it would not meet the requirements of the Magnuson-Stevens Act.

Among three alternatives considered by the Council, the proposed action specifies the ACL as follows: ACL = OY = ABC = 5.29 mp. The status quo (no-action) alternative would leave the ACL (TAC) at 7.04 mp. The second alternative to the proposed action would specify lower ACLs, wherein an ACL is obtained by applying a percentage (75% - 95%) to the ABC.

There are seven alternatives to specify the ACTs. The proposed action includes two of the seven alternatives, one of which specifies an ACT for the commercial sector as 2.91 mp. This ACT results from applying the status quo (no-action) allocation percentage to the ACL (55% of 5.29 mp, where 5.29 mp = ACL = OY = ABC). The second alternative in the proposed action specifies a recreational sector ACT of 2.19 mp based on a formula that incorporates a 5-year average of annual proportional standard errors from NMFS recreational fishing surveys. The other alternatives to the proposed rule would result in lower ACTs for the commercial sector, and higher or lower ACTs for the recreational sector.

Specify Accountability Measures (AMs) for Atlantic Migratory Group Spanish mackerel

The Council considered seven alternatives to specify AMs, and the proposed action includes three post-season adjustments, based initially on one year of harvest data and based finally on the most recent three-year average. If recreational landings exceed the sector's ACT, then bag limits would be required to be reduced in the following year. Considering each sector separately, landings in excess of ACT would trigger payback in the following year, regardless of the status of the stock. If the ACT (commercial quota) is reduced, the status quo (no-action) alternative to the proposed action would invoke a reduction in the "adjusted allocation," which is used in combination with a complex system of staged reductions in trip limits for the commercial sector in Florida only to avoid exceeding the commercial sector's ACT. For the recreational sector, landings have been well short of the allocation in last 15 years or so. The other three alternatives to the proposed action would require a shorter recreational season, rather than a reduction in bag limit in the year following the harvest overage, and would require payback for each sector only if the stock were being overfished.

The proposed action is expected to have an imminent economic impact on commercial fishing. The specified commercial ACT of 2.91 mp is less than the status quo landings of 3.57 mp (average for the last 5 years); it is well below the high-end landings in 3 of the last 10 years, approximately 4.0-4.1 mp; and it is well below the commercial quota of 3.87 mp that prevailed during the last decade. Under existing management measures, a reduction in the ACT from the status quo 3.87 mp would result in a reduction in the "adjusted allocation," which is used in combination with staged reductions in trip limits in Florida from December 1 through February to assure that the ACT is not exceeded. North of Florida, trip limits remain at 3,500 pounds all year, as they do in Florida from March 1 through November 30. There are staged reductions in trip limits in Florida from December 1 through February, ranging from unlimited trips down to 500 lbs / trip. For the commercial sector as a whole, the reduction in landings (from 3.57 mp to 2.91 mp) translates into a loss of 18.5% in landings and ex-vessel value for commercial landings for Spanish mackerel in the Atlantic, a 3.5% reduction average vessel gross (from the status-quo $27,964), and a 13.2% reduction average trip gross (from $663). The actual percentage reductions in vessel and trip gross revenue would be larger for the affected vessels, because the reduction occurs only in Florida.

On the other hand, the specified recreational ACT of 2.19 mp under the proposed action exceeds the status quo landings of 1.83 mp (average for the last 5 years). The recreational ACT is less than the recreational allocation of the past ten years. Recreational landings were greater than the specified ACT in only one of the last ten years. The sum of ACTs, 5.1 mp (2.91 + 2.19 = 5.1), is a bit less than the ACL of 5.29 mp, but it falls well short of the TAC of 7.04 mp for last decade.

Management Measures for Atlantic Migratory Group Spanish mackerel

Among the four alternatives for management measures, the proposed action would reduce bag limits from 15 to 10 fish per person. The status quo (no-action) alternative would not change the bag limit. The other two alternatives to the proposed action would set maximum bag limits for for-hire vessels and/or for private fishing vessels at 60 fish. It is estimated that a bag limit of 10 fish per person could reduce the number of Spanish mackerel landed by 15% [data for North Carolina - Florida for 2005-2009, Appendix G, (sum, number of fish landed at 11 or more per trip) / (sum, number of all fish landed in the 5 years) = 963,043 / 6,413,927 = 0.15]. The effect on the number of trips is unknown, but likely small. In Florida, 47% - 83% of individual angler trips involve landings of 1-5 fish, and, in North Carolina, 29% - 64% involve landings of 1-5 fish. Most trips for Spanish mackerel occur from shore or via private boats (only 6,000 out of 512,000 target trips occur via charter boats, or 1.2%; 18,000 out of 507,000 catch trips occur via charter boats, or 3.5%). For a target trip, the intercepted angler indicates that the species was the first or second target for the trip, even it is not caught. For catch trips, the species must be caught, even if not kept.

Although the proposed action reduces bag limits, this is does not translate into a reduction in the demand for for-hire fishing services. This is because the demand for the services of for-hire fishing vessels may depend on several factors, such as the persona of the captain and crew, customer fees and amenities, other opportunities for recreation, national economic conditions, the angler challenge and catch of various species encountered on a trip, and other factors. If the proposed actions results in cancellation of for-hire trips, the estimated loss in net operating revenue (a proxy for producer surplus) could be $128-$160 per angler day for charter boats, and $48-$77 per angler day for head boats. While the number of for-hire vessels that actually fish for Spanish mackerel in the Atlantic is not known, it is less than 2,132 vessels that may have engaged in for-hire fishing for coastal migratory pelagic species in Atlantic waters (average number of NMFS, SERO, "CHS" permits for the last 5 years). The vessels would be expected to land other species. For-hire vessels include charter boats, which charge for the vessel by trip, and a much smaller number of head boats, which charge per individual angler (head).

Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL and ACT for Atlantic Migratory Group Cobia

Information to specify biological parameters is expected to be available when SEDAR 33 becomes available in 2013. Meanwhile, MSY, MSST and MFMT are considered by the Council to be unknown. The specification of biological parameters is not expected to have an economic impact.

In April 2010 the SSC had estimated the OFL as the median landings in 1986-2008 (0.857 mp). Following the SSC, the Council computed median landings for the last 10 years (1.3 mp, ww). However, the SSC provided no update (03Mar11), leaving OFL as unknown. Given this situation, GC advised the Council to specify an OFL, resulting in an interim OFL = 1.68 mp, ww, pending review by the SSC (OFL = 1.68 mp = 10-year mean + 2 standard deviation units).

The Council considered seven alternatives for specifying an ABC control rule and ABC. Allowing for different sets of data within the purview of the SSC and the Council, the proposed action uses an interim control rule whereby ABC = 1.571 mp, ww (ABC = 10-year mean + 1.5 standard deviation units) (Council decision, as of 11Mar11). Because the status quo (no-action) alternative involves no ABC control rule it would not meet the requirements of the Magnuson Stevens Act. The other five alternatives to the propose action would establish lower ABCs, based either on different sets of data or the application of percentages to the OFL.

The Council considered three alternatives respecting sector allocations. Based on an ABC of 1.571 mp and a formula using 2000-2008 and 2006-2008 data, the proposed action establishes an allocation of 92% recreational (1.445 mp) and 8% (0.125 mp). The status quo (no-action) alternative would not establish sector allocations. The second alternative to the propose action uses 2006-2008 data and no formula, but appears to result in the same allocation percentages.

Among three alternatives, the proposed rule specifies ACL = OY = ABC = 1.571 mp (ww). However, lower ABCs are also translated into ACLs, allowing for different sets of data within the purview of the SSC and the Council. The status quo (no-action) alternative is not associated with an ACL because cobia had not been treated as two stocks prior to the proposed rule. The second alternative to the proposed action would apply percentages (65% - 85%) to the three possible ABCs, thereby obtaining lower ACLs.

The Council considered seven alternatives to specify ACTs, and the proposed action includes two, one of which specifies a commercial sector ACT of 0.125 mp, based on the interim ABC of 1.571 mp and a sector allocation of 8%. The second alternative in the proposed action specifies a recreational sector ACT of approximately 1.2 mp, based on a sector allocation of 92% and an ABC of 1.571 mp (1.571 x 0.92 = 1.445 mp), along with a formula that incorporates a 5-year average of annual proportional standard errors from NMFS recreational fishing surveys. The other alternatives to the proposed rule would result in lower ACTs for the commercial sector, and higher or lower ACTs for the recreational sector. Two alternatives to the proposed action would result in a lower ACT for the commercial sector. Three other alternatives to the proposed action would result in a higher or lower ACT for the recreational sector.

Accountability Measures (AMs) for Atlantic Migratory Group Cobia

Among seven alternatives, the proposed action includes three. The proposed action is not expected to have an economic impact on commercial or for-hire fishing vessels. Part of one alternative in the proposed action would disallow further in-season commercial fishing if the quota is met or is expected to be met. A second part of this alternative would reduce the length of the recreational season in the following fishing year, if landings exceed the ACL, based initially on one year of data and finally three years of data. Two other alternatives in the proposed action would impose payback by sector, regardless of stock status. The status quo (no-action) alternative to the proposed action would not establish AMs, and thereby would not meet the Magnuson Stevens Act requirements. A second alternative to the proposed action would disallow further in-season commercial fishing if the quota is met or is expected to be met, but it would not implement an AM for the recreational sector. Finally, two other alternatives to the proposed action would require payback by each sector only if the stock were overfished.

The commercial sector ACT, 0.125 mp, which is based on an interim ABC, pending further deliberation by the SSC and the Council, exceeds the status-quo landings of 0.097 mp for the Atlantic coast states and a small part of the landings on Florida’s west coast, 0.72 mp (averages for the last 5 years, data for 2004-2008, Atlantic-Gulf states boundary at the Miami-Dade / Monroe County line). Atlantic landings determined using the SAFMC/GMFMC boundary would be larger. Counting all areas of capture (Atlantic and Gulf), the numbers of vessels and trips with commercial landings of cobia, and the landings themselves are less than they were a decade earlier. Using approximations, the vessels average 3 trips per year with landings of cobia, land 2 cobia per trip (at 25 pounds per fish), with crews of 2.5 persons per trip, and 0.48% of their vessel gross revenue (1.8% of their trip gross) is attributed to cobia. Cobia represents an incidental catch.

According to visual interpretation of available data (graphs of ACCSP data in Section 4), recreational landings were about the same as commercial landings in 1980, grew steadily, and appear to have exceeded 1.8 mp in 2009. Under the proposed action, landings in excess of the ACT of 1.2 mp would affect fishing in the following year, requiring a reduction in the bag limit from two to one cobia per person per day, a shorter season, and payback. It is estimated that a bag limit of 1 fish per person could reduce the number of cobia landed by 13% [data for North Carolina - Florida for 2005-2009, Appendix G, (sum, number of fish landed at 2 or more per trip)

/ (sum, number all fish landed in the 5 years) = 25,756 / 194,959 = 0.13]. The effect on the number of trips is unknown, but likely small, because 87% of the fish are landed on trips with landings of only 1 fish. According to NMFS recreational fishery survey data, cobia are targeted mostly on shore-based and private boat trips, with only 1.8% of target trips (3 of 171 target trips) being for charter boats, along with 9.4% of catch trips (5 of 53 catch trips). For a target trip, the intercepted angler indicates that the species was the first or second target for the trip, even it is not caught. For catch trips, the species must be caught, even if not kept.

Although the proposed action could reduce bag limits, shorten the season, and reduce the ACT, this is does not translate into a reduction in the demand for for-hire fishing services. This is because the demand for the services of for-hire fishing vessels may depend on several factors, such as the persona of the captain and crew, customer fees and amenities, other opportunities for recreation, national economic conditions, the angler challenge and catch of various species encountered on a trip, and other factors. If the proposed actions results in cancellation of for-hire trips, the estimated loss in net operating revenue (a proxy for producer surplus) could be $128-$160 per angler day for charter boats, and $48-$77 per angler day for head boats. While the number of for-hire vessels that actually fish for cobia in the Atlantic is not known, it is less than 2,132 vessels that may have engaged in for-hire fishing for coastal migratory pelagic species in Atlantic waters (average number of NMFS, SERO, “CHS” permits for the last 5 years). The vessels would be expected to land other species. For-hire vessels include charter boats, which charge for the vessel by trip, and a much smaller number of head boats, which charge per individual angler (head).

Management Measures for Atlantic Migratory Group Cobia

Seven alternatives were considered for management measures. The proposed action is the status quo (no-action) alternative and involves no changes. The other six alternatives would specify a commercial trip limit (one or two cobia per day per person), reduce the bag limit (to one cobia per person per day, or one cobia per boat per day), establish a closed recreational season, and/or reduce the recreational bag limit during the spawning season (to one cobia per person per day).