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

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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
AP	Advisory Panel
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
Councils	Gulf of Mexico and South Atlantic Fishery Management Councils
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
F	Instantaneous rate of fishing mortality
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
FMU	Fishery Management Unit
GMFMC	Gulf of Mexico Fishery Management Council
GSMFC	Gulf States Marine Fisheries Commission
Gulf	Gulf of Mexico
HAPC	Habitat Area of Particular Concern
HBS	Headboat Survey
IRFA	Initial Regulatory Flexibility Analysis
MAFMC	Mid-Atlantic Fishery Management Council
MFMT	Maximum Fishing Mortality Threshold
MMPA	Marine Mammal Protection Act
mp	million pounds
MRIP	Marine Recreational Information Program
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
NOS	National Ocean Service
NS	National Standard
OFL	Overfishing Limit
OY	Optimum Yield
RA	Regional Administrator

RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
SAFMC	South Atlantic Fishery Management Council
Secretary	Secretary of Commerce
SEDAR	Southeast Data, Assessment and Review
SEFSC	Southeast Fisheries Science Center
SEIS	Supplemental Environmental Impact Statement
SSC	Scientific and Statistical Committee
SSB	Spawning Stock Biomass
SPR	Spawning Potential Ratio
TAC	Total Allowable Catch
TIP	Trip Interview Program
TL	Total Length
TPWD	Texas Parks and Wildlife Department

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

ACTION 2: Modify the Framework Procedure

Preferred Alternative 3. Revise the framework procedure to incorporate the SEDAR process and adjustments to ACLs, and expand the procedure to allow adjustments of a greater range of management measures under specific procedural guidelines

- **Preferred Option a.** 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

ACTION 4: Set Acceptable Biological Catch (ABC) Control Rule for Gulf Migratory group Cobia

Preferred Alternative 2. Adopt the Gulf Council's ABC Control Rule [The SSC used Tier 3a to set ABC at 1.46 mp]

ACTION 5-1: Set Annual Catch Limit (ACL) for Gulf Migratory group Cobia

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

- **Preferred Option a**. Set a single stock ACL

ACTION 5-2: Set Annual Catch Target (ACT) for Gulf Migratory group Cobia

Preferred Alternative 2. Set ACT = 90% of ACL for Gulf migratory group cobia [1.31 mp based on preferred ACL]

- **Preferred Option a**. Set a single stock ACT

ACTION 6: Set Accountability Measures (AMs) for Gulf Migratory group Cobia

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

- **Preferred 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

ACTION 7: Set Acceptable Biological Catch (ABC) Control Rule for Gulf Migratory group King Mackerel

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

ACTION 8-1: Set Annual Catch Limit (ACL) for Gulf Migratory group King Mackerel

Preferred Alternative 2. Set ACL = ABC for Gulf migratory group king mackerel [11.9 mp for 2012 and 10.8 mp in 2013]

Preferred Option b. Set separate commercial and recreational ACLs based on current allocations [recreational: 8.092 mp (2012), 7.344 mp (2013); commercial: 3.808 mp (2012), 3.456 mp (2013)]

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 (2012), 2,904,552 lb (2013); gillnet: 607,614 lb (2012), 551,448 lb (2013)]

ACTION 8-2: Set Annual Catch Target (ACT) for Gulf Migratory group King Mackerel

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

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

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

Preferred Option a. Commercial

Preferred Suboption i. If the quota 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

Preferred Suboption ii. If 75% of quota 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

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

ACTION 10: Set Acceptable Biological Catch (ABC) Control Rule for Gulf Migratory group Spanish Mackerel

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

ACTION 11-1: Set Annual Catch Limit (ACL) for Gulf Migratory group Spanish Mackerel

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

Preferred Option a. Set a single ACL

ACTION 11-2: Set Annual Catch Target (ACT) for Gulf Migratory group Spanish Mackerel

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

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

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

Preferred Option a. If the stock ACL 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

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
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 mp (corresponds to yield at $F_{30\%SPR}$, the accepted MSY proxy from the last stock assessment)

ACTION 13-3: Acceptable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory group King Mackerel

Preferred Alternative 2. Adopt the SAFMC SSC recommended ABC control rule [currently 10.46 mp]

ACTION 13-4: Annual Catch Limit (ACL) and Optimum Yield (OY) for Atlantic Migratory group King Mackerel

Preferred Alternative 2. ACL = OY = ABC (currently 10.46 mp which is the average of the ABC values for 2011-2013 recommended by the SSC; Recreational Sector ACL = 62.9% = 6.58 mp; Commercial Sector ACL = 37.1% = 3.88 mp)

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] (currently 6.11 mp)

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 commercial quota (total ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement additional AMs for the recreational sector for this stock. If the recreational sector quota (total ACL x recreational allocation) is exceeded, the RA shall publish a notice to reduce the length of the following fishing year or reduce the bag limit by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year. Compare the 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. 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

Preferred Option b. Reduce the recreational bag limit to ensure landings do not exceed the recreational sector quota for the following fishing year

Preferred Option c. Only adjust the recreational bag limits or season length if the Total ACL is exceeded

Preferred Alternative 3. Commercial payback of any overage

Preferred Option b. Payback only if overfished – If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage

Preferred Option c. Only deduct overages if the Total ACL is exceeded

Preferred Alternative 4. Recreational payback of any overage from one year to the next

Preferred Option b. Payback only if overfished – 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 sector ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 16-5

Preferred Option c. Only deduct overages if the Total ACL is exceeded

ACTION 15: Management Measures for Atlantic Migratory group King Mackerel

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

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 = 5.24 million pounds

Currently MSST = $0.85(B_{MSY})$ with no poundage estimated

Currently MFMT = $F_{MSY} = F_{30\%SPR}$ with no value estimated

ACTION 16-2: Overfishing Level (OFL) for Atlantic Migratory group Spanish Mackerel

OFL is unknown. The Councils will use the total ACL for Atlantic Migratory group Spanish Mackerel to determine whether overfishing is occurring

ACTION 16-3: Acceptable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory group Spanish Mackerel

Preferred Alternative 2. Adopt the SAFMC SSC recommended ABC control rule (currently = 5.69 mp)

ACTION 16-4: Annual Catch Limit (ACL) for Atlantic Migratory group Spanish Mackerel

Preferred Alternative 2. ACL = OY = ABC (currently 5.69 mp which is the 3rd highest year of all landings recommended by the SSC; Recreational Sector ACL = 45% = 2.56 mp; Commercial Sector ACL = 55% = 3.13 mp)

ACTION 16-5a: Commercial Sector ACT

Preferred Alternative 1. No Action - 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] (currently 2.32 mp)

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 commercial quota (total ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement additional AMs for the recreational sector for this stock. If the recreational sector quota (total ACL x recreational allocation) is exceeded, the RA shall publish a notice to reduce the length of the following fishing year or reduce the bag limit by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year. Compare the 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. 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

Preferred Option b. Reduce the recreational bag limit to ensure landings do not exceed the recreational sector quota for the following fishing year

Preferred Option c. Only adjust the recreational bag limits or season length if the Total ACL is exceeded

Preferred Alternative 3. Commercial payback of any overage

Preferred Option b. Payback only if overfished – If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage

Preferred Option c. Only deduct overages if the Total ACL is exceeded

Preferred Alternative 4. Recreational payback of any overage from one year to the next

Preferred Option b. Payback only if overfished – If the recreational sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the recreational sector ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 16-5

Preferred Option c. Only deduct overages if the Total ACL is exceeded

ACTION 18: Management Measures for Atlantic Migratory group Spanish Mackerel

Preferred Alternative 1. No Action **-** individual recreational bag limit is 15 per person per day for NY-FL. Bag limit sales are allowed consistent with state regulations. The commercial possession limits are as follows:

A. Northern Zone (Georgia northwards) – 3,500 pounds per day

B. Southern Zone (Florida)

1. March 1-November 30 – 3,500 pounds per vessel per day
2. December 1 until 75% of the adjusted quota is taken:
   Monday-Friday – Unlimited
   Saturday & Sunday– 1,500 pounds
3. After 75% of the adjusted quota is taken – 1,500 pounds per vessel per day for all days
4. When 100% of the adjusted quota is taken – 500 pounds per vessel per day to the end of the fishing year (March 31). Adjusted quota compensates for estimated catches of 500 pounds per vessel per day to the end of the season
5. 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.
6. The adjusted quota (currently 3.62 mp) is the quota for Atlantic migratory group Spanish mackerel reduced by an amount calculated to allow continued harvests of Atlantic migratory group Spanish mackerel at the rate of 500 lb per vessel per day for the remainder of the fishing year after the adjusted quota is reached

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 Councils will use the ABC for Atlantic Migratory group Cobia as a proxy for MSY pending results from the SEDAR assessment

The South Atlantic 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 South Atlantic Council has determined that the value for MFMT is the value of F_{MSY} or proxy of $F_{30\%SPR}$ from the most recent stock assessment. Currently the value for MFMT is unknown

ACTION 19-2: Overfishing Level (OFL) for Atlantic Migratory group Cobia

OFL is unknown. The Councils will use the total ACL for Atlantic Migratory group Cobia to determine whether overfishing is occurring

ACTION 19-3: Acceptable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory group Cobia

Preferred Alternative 5. Adopt the Gulf Council's ABC Control Rule as an interim control rule (currently ABC equals the mean plus 1.5 times the standard deviation of the most recent10 years of landings data = 1,571,399 lb 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 allocations specified would remain in effect until modified

ACTION 19-5: Annual Catch Limit (ACL) for Atlantic Migratory group Cobia

Preferred Alternative 2. ACL = OY = ABC (currently 1,571,399 lb based on the SSC Interim Control Rule; Recreational Sector ACL = 92% = 1,445,687 lb; Commercial Sector ACL = 8% = 125,712 lb)

ACTION 19-6a: Commercial Sector ACT

Preferred Alternative 1. No Action **-** 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] (currently 1,184,688 lb)

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 commercial quota (total ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the commercial quota is met or projected to be met. Implement additional AMs for the recreational sector for this stock. If the recreational sector quota (total ACL x recreational allocation) is exceeded, the RA 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 quota for the following fishing year. Compare the recreational ACL with recreational landings over a range of years. For 2011, use only 2011 landings. For 2012, use the average landings of 2011 and 2012. For 2013 and beyond, use the most recent three-year (fishing years) running average. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter

Preferred Option a. Only adjust the recreational season length if the Total ACL is exceeded

Preferred Alternative 4. Commercial payback of any overage

Preferred Option b. Payback only if overfished - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage

Preferred Option c. Only deduct overages if the Total ACL is exceeded

Preferred Alternative 5. Recreational payback of any overage from one year to the next

P**referred Option b.** Payback only if overfished - 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 19-6

Preferred Option c. Only deduct overages if the Total ACL is exceeded

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) two per person per day possession limit (Note: Florida State regulations only allow 1 per person per day for recreational and 2 per person per day for commercial), (c) one day possession limit, (d) must be landed with heads and fins intact, and (e) charter/headboats require a permit for Coastal Migratory Pelagics. Note: The fishing year is January 1 through December 31

1.0 INTRODUCTION

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), as reauthorized in 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 began 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 fishery management plans (FMPs), FMP amendments, implementing regulations, or annual specifications beginning in fishing year 2011 (see Section(2)(A), page 3211).

The Gulf of Mexico Fishery Management Council, the South Atlantic Fishery Management Council, and the Mid-Atlantic Fishery Management Council (Councils) are preparing to amend the Coastal Migratory Pelagics (CMP) FMP by consideration of actions as stated and discussed below. The primary actions 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*

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

In addition to setting ACLs and AMs, Amendment 18 contains alternatives to remove species from the FMP, modify the framework procedure to incorporate the Southeast Data Assessment and Review (SEDAR) process and allow for adjustments of the overfishing level (OFL), ACLs, AMs, and optional annual catch targets (ACTs); define management units for cobia in the Gulf of Mexico (Gulf) and Atlantic; and 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 king and Spanish mackerel but not cobia in the Atlantic; the most recent assessments are as follows:

Gulf and Atlantic migratory group king mackerel – SEDAR 16 (2008) with data thru 2006
Atlantic migratory group Spanish mackerel – SEDAR 17 (2008) with data thru 2007

Gulf migratory group Spanish mackerel – SEDAR 5 (2003)
Atlantic migratory group cobia – no stock assessment in the Atlantic
Gulf migratory group cobia – pre-SEDAR assessment (2001)

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 ACLs 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 OFL, which is the yield above which overfishing occurs. Once an OFL is specified, an acceptable biological catch (ABC) level is recommended by the council's Scientific and Statistical Committee (SSC). The ABC is based on the OFL 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, 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 other stocks.

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 an FMP 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.

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 gillnet). 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 for all managed species and do not exceed the recommendations of the respective SSC or other established peer review processes. They also require 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. Because 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 end of the 2011 fishing year to implement ACLs and AMs (see Section 1.7.1 for fishing years).

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 are now conducted under the SEDAR process. It also includes a species migratory 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 (see Section 2). Other changes to management parameters are needed to fully comply with the Sustainable Fisheries Act of 1996 and the Magnuson-Stevens Act. 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 February 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.

<u>King mackerel</u>: 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 at the Volusia/Flagler County border on the Florida east coast in the winter (November 1 - March 31) and the Monroe/Collier County border on the Florida southwest coast in the summer (April 1 - October 31) (Figure 1.3.1).

<u>Spanish mackerel</u>: 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 1.3.2). Within the Atlantic migratory group there are different regulations in Florida (Atlantic Migratory group South) and north of Florida (Atlantic Migratory group North).

<u>Cobia</u>: Cobia are currently managed as a unit stock with both Councils establishing management regulations for the entire management area (Mid-Atlantic, South Atlantic, and Gulf of Mexico).

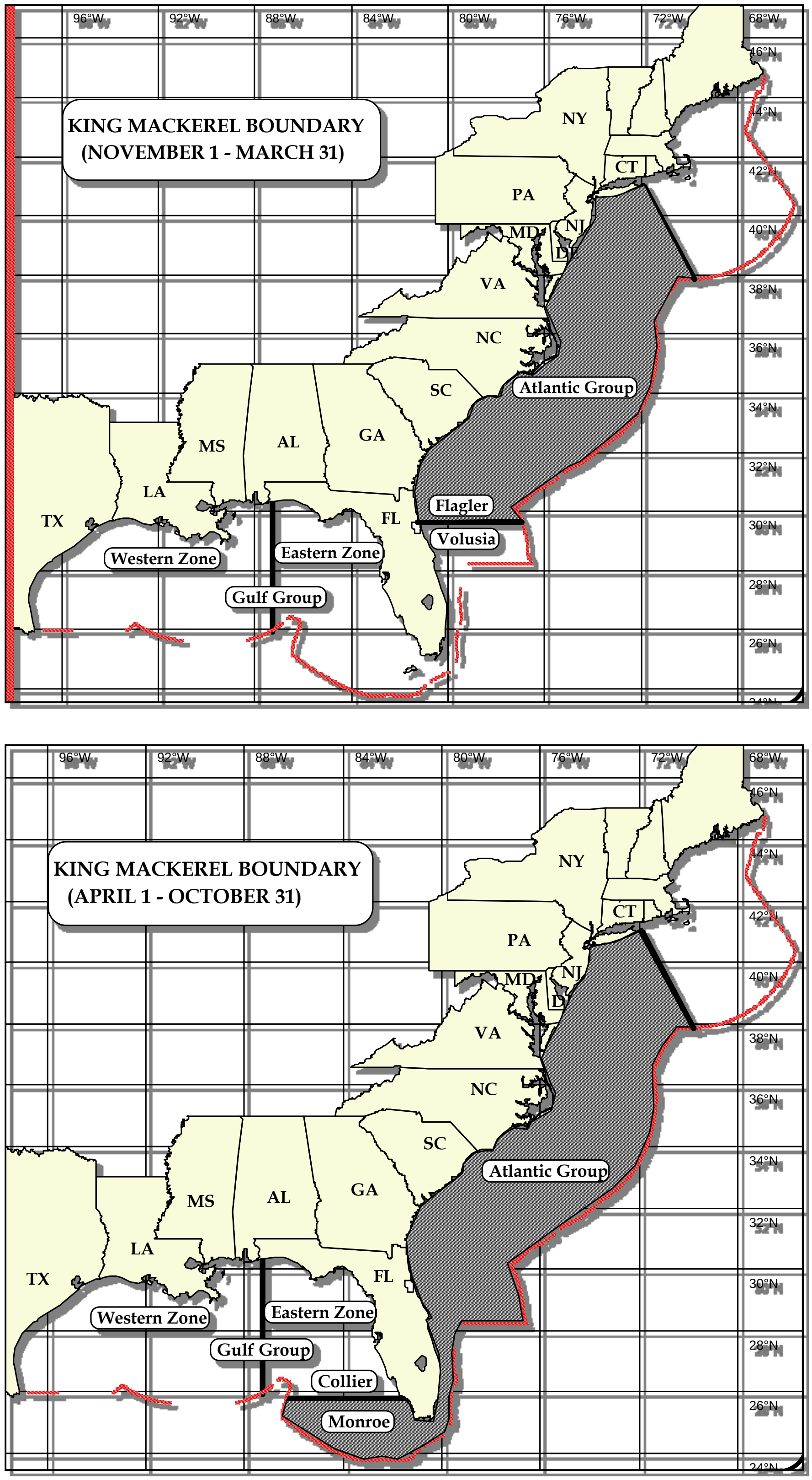

Figure 1.3.1. Seasonal boundary between Atlantic and Gulf migratory groups of king mackerel.

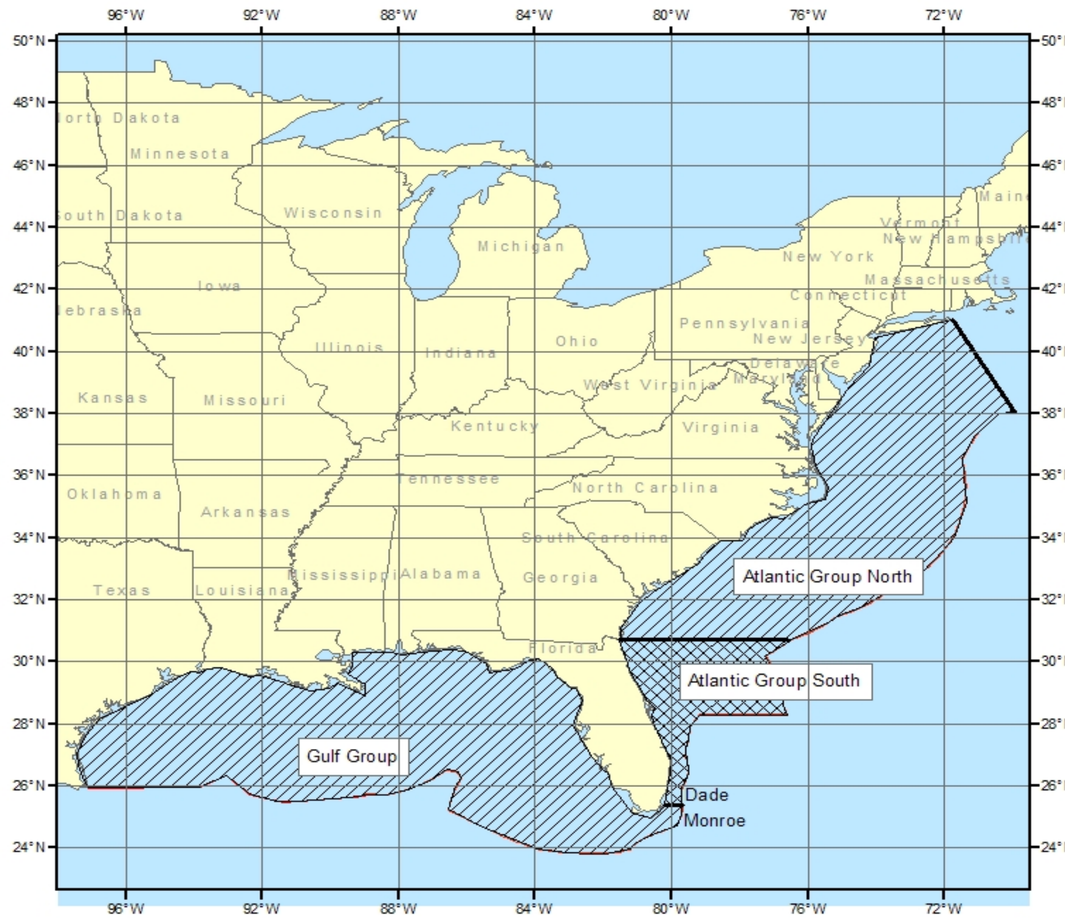

Figure 1.3.2. Fixed boundary between Atlantic and Gulf migratory groups of Spanish mackerel.

1.4 Allocations

For the purpose of allocating a limited resource among users, the management plan has set ratios based on historic unregulated catches. Currently, 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 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.

1.5 Mixing Percentage

When the original boundary between the Gulf and Atlantic migratory groups of king mackerel 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.

<u>FMP Amendments</u>

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, which 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 in fork length (FL) or 14 in total length (TL), and for cobia at 33 in FL or 37 in TL.

Amendment 2, with environmental assessment (EA), implemented in July of 1987, revised MSY for Spanish mackerel 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 established, 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 gillnets for coastal pelagic species and purse seines for the overfished migratory groups of mackerels.

Amendment 4, with EA, implemented in October 1989, reallocated Atlantic migratory 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 migratory groups of mackerels through the Mid-Atlantic Council'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 South Atlantic Council will be responsible for pre-season adjustments of TACs and bag limits for the Atlantic migratory groups of mackerels while the Gulf Council will be responsible for Gulf migratory groups;
- Continued to manage the two recognized Gulf migratory groups of king mackerel as one until management measures appropriate to the eastern and western migratory groups 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 migratory group king mackerel may be taken only by hook-and-line and run-around gillnets;
- Imposed a bag and possession limit of two cobia per person per day;
- Established a minimum size of 12 in FL or 14 in 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 migratory group king mackerel stock identification and allocation when appropriate;
- Provided for commercial Atlantic migratory group 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 in 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 sub-allocation for the area from Monroe County through Western Florida is equally divided between commercial hook-and-line and net gear users.

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

- Clarified ambiguity about allowable gear specifications for the Gulf migratory group king mackerel fishery by allowing only hook-and-line and run-around gillnets. However, catch by permitted, multi-species vessels and bycatch allowances for purse seines were maintained;
- Established allowable gear in the South Atlantic and Mid-Atlantic areas as well as providing for the RA (RA) to authorize the use of experimental gear;
- Established the Councils' intent to evaluate the impacts of permanent jurisdictional boundaries between the Gulf and South Atlantic Councils and development of separate FMPs for coastal pelagic species 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 one of the three previous calendar years, but allowed for a one-year grace period to qualify under permits that are transferred;
- Legalized retention of up to five 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 South Atlantic Council with authority to set vessel trip limits, closed seasons or areas, and gear restrictions for Gulf migratory group king mackerel in the North Area of the Eastern Zone (Dade/Monroe to Volusia/Flagler County lines);
- 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 Mid-Atlantic Council's area of jurisdiction (to 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

migratory group, Eastern Zone, South/West Area (Florida west coast) by establishing two subzones with a dividing line between the two subzones at the Collier/Lee County line;

- Established regional allocations for the west coast of Florida based on the two 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 lb per vessel per trip for the Western Zone;
- Established a moratorium on the issuance of commercial king mackerel gillnet endorsements and allow re-issuance of gillnet endorsements to only those vessels that: 1) had a commercial mackerel permit with a gillnet endorsement on or before the moratorium control date of October 16, 1995 (Amendment 8), and 2) had landings of king mackerel using a gillnet in one of the two fishing years, 1995-1996 or 1996-1997, as verified by the National Marine Fisheries Service (NMFS) or trip tickets from Florida; allowed transfer of gillnet endorsements to immediate family members (son, daughter, father, mother, or spouse) only; and prohibited the use of gillnets or any other net gear for the harvest of Gulf migratory group king mackerel north of an east/west line at the Collier/Lee County line;
- Increased the minimum size limit for Gulf migratory group king mackerel from 20 in to 24 in 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 provisions for the South Atlantic.

Amendment 11, with SEIS, partially approved in December 1999, included proposals for mackerel in the South Atlantic Council's Comprehensive Amendment Addressing Sustainable Fishery Act Definitions and other Provisions in FMPs 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 exclusive economic zone (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 migratory 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 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 EEZ under the jurisdiction of the Gulf, South Atlantic, and Mid-Atlantic Councils. It also changed the fishing season to March 1 through February 28/29 for the Atlantic migratory 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 and 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). All landings are in whole weight.

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 Sections 3.3 and 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 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.

<u>Gulf of Mexico</u>
King mackerel fishers traditionally have employed both hook-and-line and gillnet gear 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 in FL to be retained by both sectors.

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 commonly 4-3/4 in stretched, which is also the minimum size allowed. Nets can fish effectively in waters 55 to 60 ft 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 lb. 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 migratory 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 lbs 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.

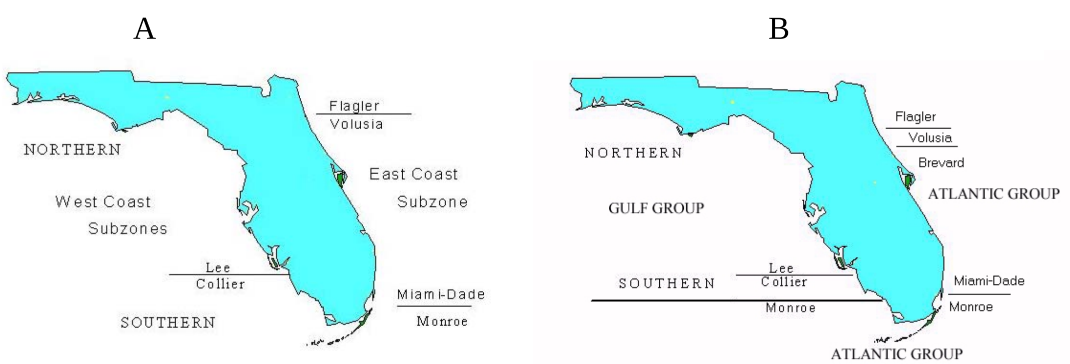

Figure 1.7.1.1.1. Gulf migratory group king mackerel Eastern zone subzones for A) November 1 – March 31 and B) April 1- October 31.

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 lbs 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-June 30 with a 1,250-lb trip limit until 75% of the quota is reached, and

then the trip limit is 500 lbs 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 lbs with a trip limit of 25,000 lbs. 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 gillnet; therefore, the gillnet fishing sector cannot also harvest fish using hook-and-line after the gillnet season is closed.
Commercial landings of Gulf migratory 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 (pounds x 1,000) of Gulf migratory group king mackerel. The East Coast subzone has Gulf migratory group king mackerel from November-March each year.

Fishing Year	Gulf	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 are from waters off Florida, particularly south Florida (Figure 1.7.1.1.2). Highest landings occur in January when the gillnet sector opens (Figure 1.7.1.1.3).

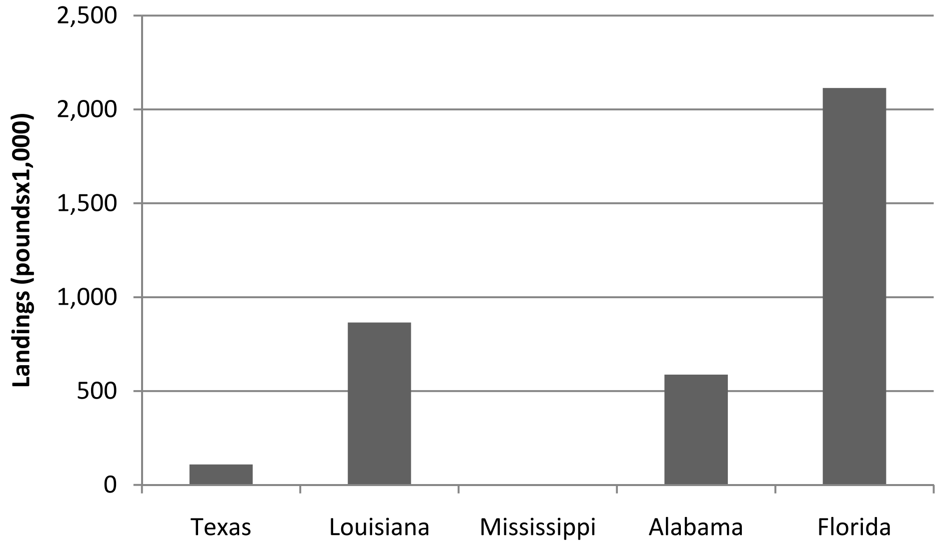

Figure 1.7.1.1.2. Average commercial landings of Gulf migratory group king mackerel by state for 1997-2009.

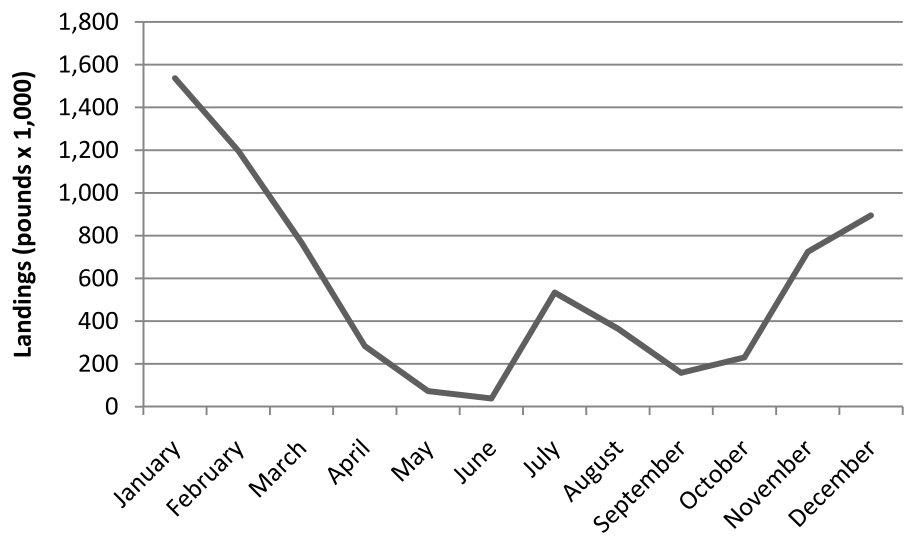

Figure 1.7.1.1.3. Average commercial landings of Gulf migratory group king mackerel by month for 1997-2009.

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 in FL.

Table 1.7.1.1.2. Annual recreational landings of Gulf migratory 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.

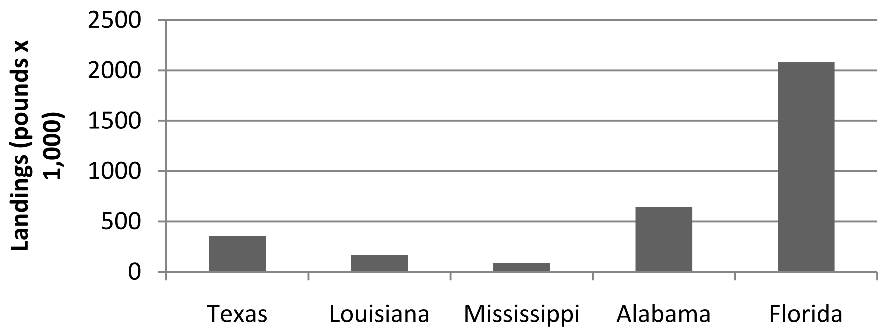

Figure 1.7.1.1.4. Average recreational landings of Gulf migratory group king mackerel by state for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases.

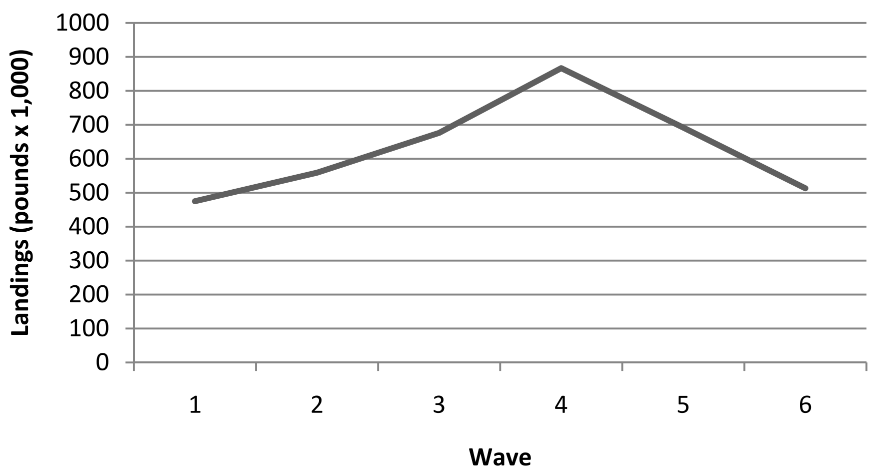

Figure 1.7.1.1.5. Average recreational landings of Gulf migratory group king mackerel by wave for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

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 in 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 (34^{o}37.3' 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 in. 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 migratory group of king mackerel has a commercial quota of 3.71 mp and the fishing year is March 1 through end of February. This migratory 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 commercial trip limit is 3,500 lbs year-round.

From April 1 until November 1, commercial vessels fishing for king mackerel in Volusia County also have a 3,500-lb 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 migratory group Eastern Zone East Coast subzone and are under the trip limits described for that area (see Figure 1.3.1). Monroe County (including the Florida Keys) is also part of the Atlantic migratory group at the beginning of the season until November 1, then that area becomes part of the Gulf migratory 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 lbs.

Commercial landings of Atlantic king mackerel have increased in recent years. The recent three-year annual average was 3.6 mp versus 2.8 mp for the previous ten years (Table 1.7.1.1.3).

The fishing year for Atlantic migratory group Spanish mackerel is March-February. This fishing year was implemented in August 2005. Before then, the fishing year was April-March. Because of the change in fishing year, the 2005/2006 fishing year has only 11 months of landings and has been normalized for comparison with other years.

Table 1.7.1.1.3. Annual commercial landings of Atlantic migratory 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	3,118
2006-2007	3.810
2007-2008	3.413
2008-2009	3,715
2009-2010	3,513

Source: SEFSC; ALS database
Note: For 99/00-04/05, the fishing year is Apr-Mar; for 05/06-09/10, the fishing year is Mar-Feb.

The peak fishing months for Atlantic migratory group 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.

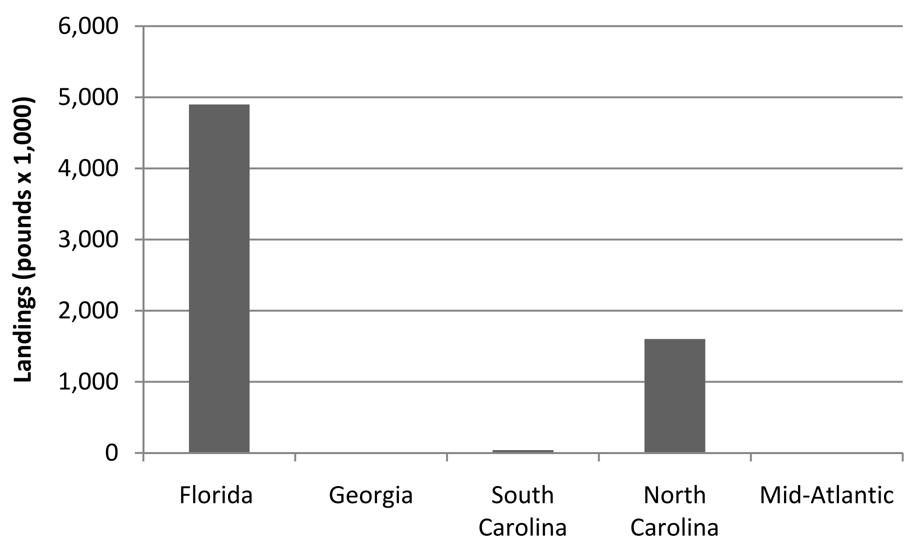

Figure 1.7.1.1.6. Average commercial landings of Atlantic migratory group king mackerel by state for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

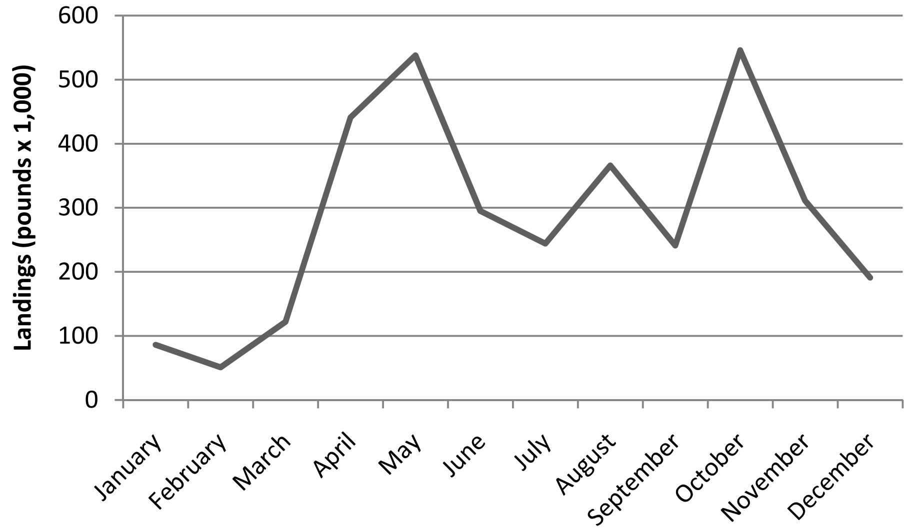

Figure 1.7.1.1.7. Average commercial landings of Atlantic migratory group king mackerel by month for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

The TAC is allocated 62.9% 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 migratory 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.

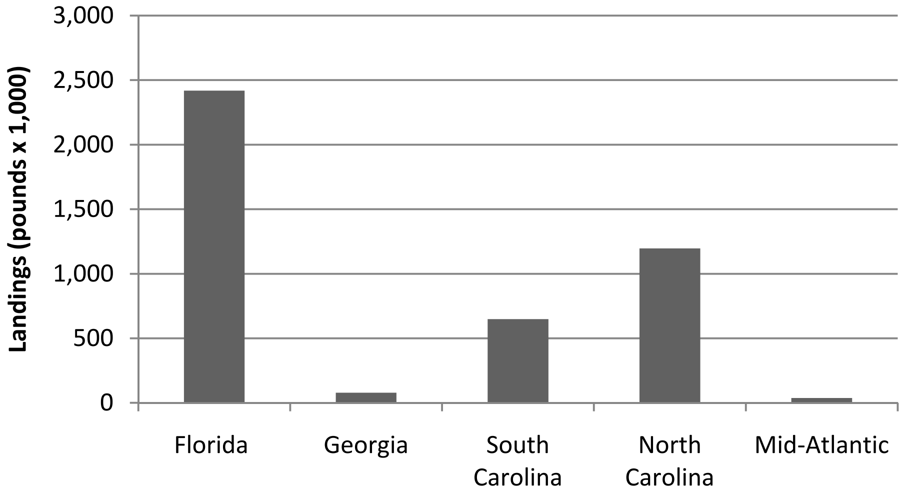

Figure 1.7.1.1.8. Average recreational landings of Atlantic migratory group king mackerel by state for 1980-2009. Mid-Atlantic states include Virginia, Maryland, Delaware, New Jersey, and New York.
Source: SEFSC; MRFSS, HBS, and TPW databases

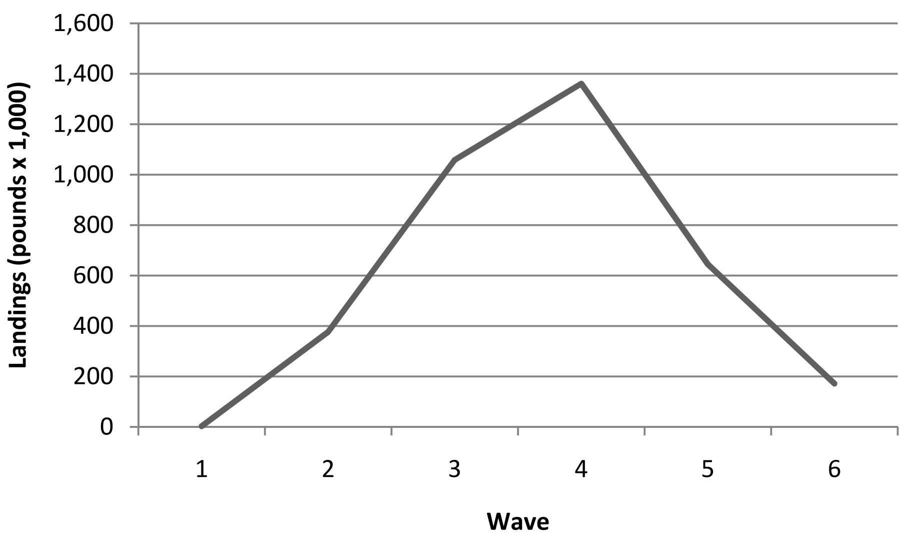

Figure 1.7.1.1.9. Average recreational landings of Atlantic migratory group king mackerel by wave for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

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 in 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, 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- 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 migratory group Spanish mackerel.

Fishing Year	Landings (pounds x 1,000)
2000-2001	1,053
2001-2002	809
2002-2003	1,729
2003-2004	899
2004-2005	1,981
2005-2006	1,124
2006-2007	1,479
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 migratory 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

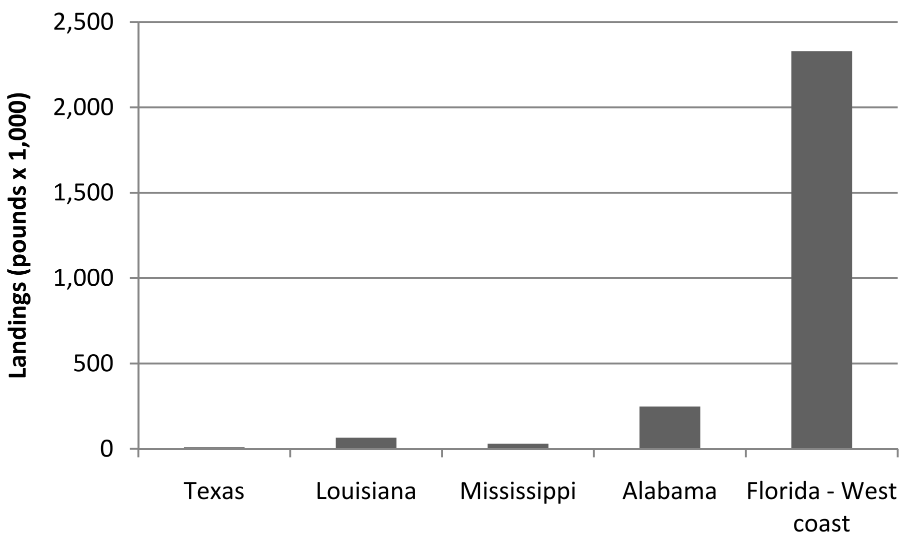

Figure 1.7.1.2.1. Average recreational landings of Gulf migratory group Spanish mackerel by state for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

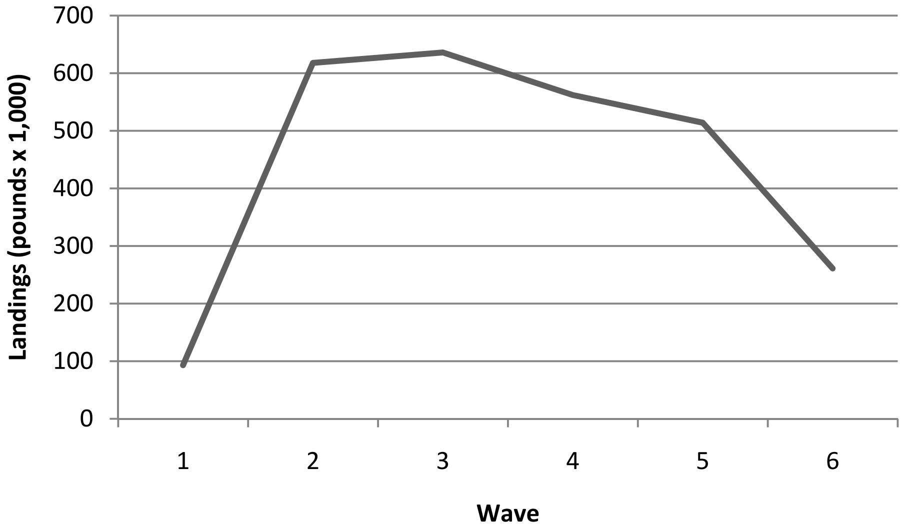

Figure 1.7.1.2.2. Average recreational landings of Gulf migratory group Spanish mackerel by wave for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

<u>Atlantic</u>
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 in 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-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 lbs; 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 lbs is set. If landings reach 100% of the adjusted quota, the trip limit is reduced to 500 lbs through the rest of the fishing year; there is no complete closure.

Commercial landings of Atlantic migratory group Spanish mackerel fell sharply in 1995 after Florida implemented a constitutional amendment banning certain types of nets, but average landings then increased back to near historical levels. Average annual landings over the recent three years were about 3.7 mp (Table 1.7.1.2.3). This migratory group met its quota in the 2009/2010 fishing year.

The fishing year for Atlantic migratory group Spanish mackerel is March-February. This fishing year was implemented in August 2005. Before then, the fishing year was April-March. Because of the change in fishing year, the 2005/2006 fishing year has only 11 months of landings and has been normalized for comparison with other years.

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

Fishing Year*	Landings (pounds x 1,000)
2000-2001	2,794
2001-2002	3,036
2002-2003	3,207
2003-2004	3,740
2004-2005	3,677
2005-2006	4,041
2006-2007	4,038
2007-2008	3,500
2008-2009	3,511
2009-2010	4,038

Source: Vondruska, 2010; ALS database
*For 99/00-04/05, the fishing year is Apr-Mar; for 06/07-09/10, the fishing year is Mar-Feb.

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%. 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 migratory 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

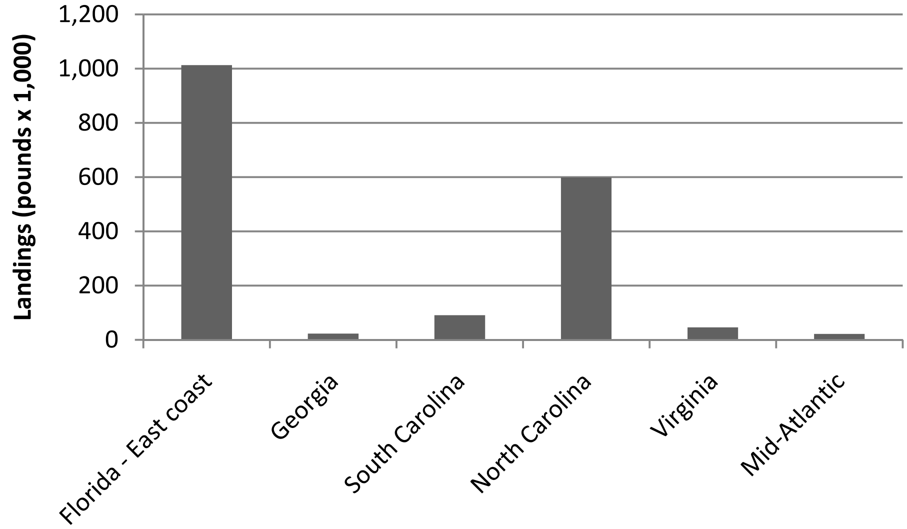

Figure 1.7.1.2.3. Average recreational landings of Atlantic migratory group Spanish mackerel by state for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

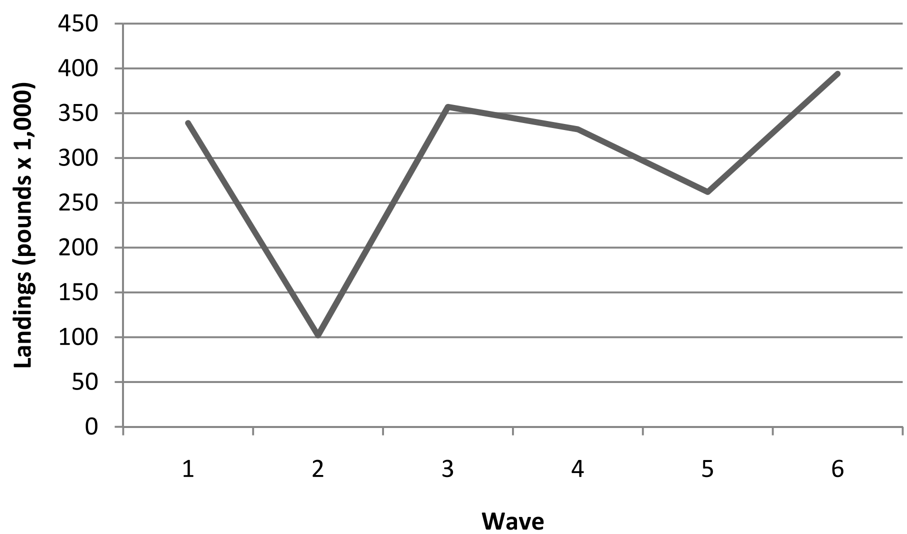

Figure 1.7.1.2.4. Average recreational landings of Atlantic migratory group Spanish mackerel by wave for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

1.7.1.3 Cobia

Currently, management measures for cobia in the Gulf and South Atlantic consist of a catch restriction of two per person per day, a size limit of 33 in FL for both the recreational and commercial sectors, and a requirement to land cobia with heads and fins intact. Drift gillnets are prohibited, but other authorized gear includes automatic reel, bandit gear, hand line, rod and reel, and pelagic longline. Charter/headboats must have 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 (Vondruska 2010), 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 lbs. 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

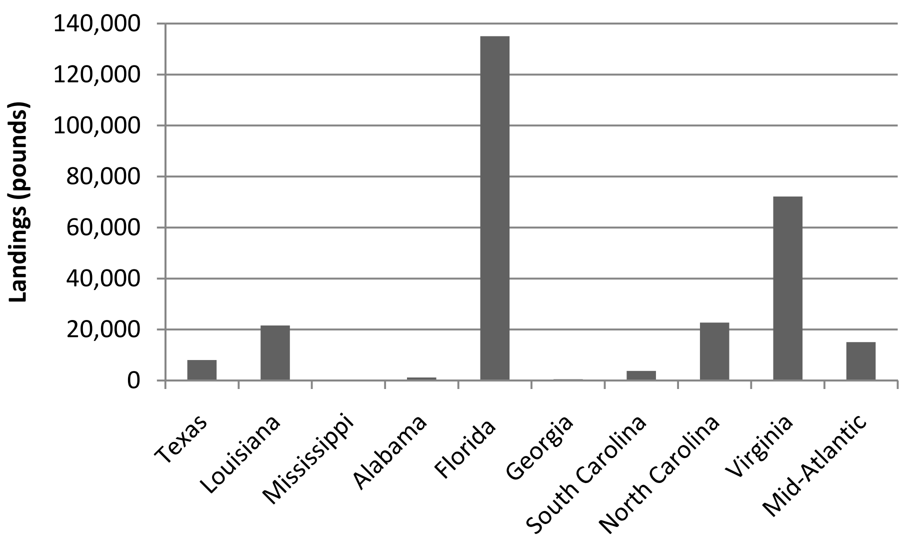

Figure 1.7.1.3.1. Average commercial landings of cobia by state for 2000-2009.

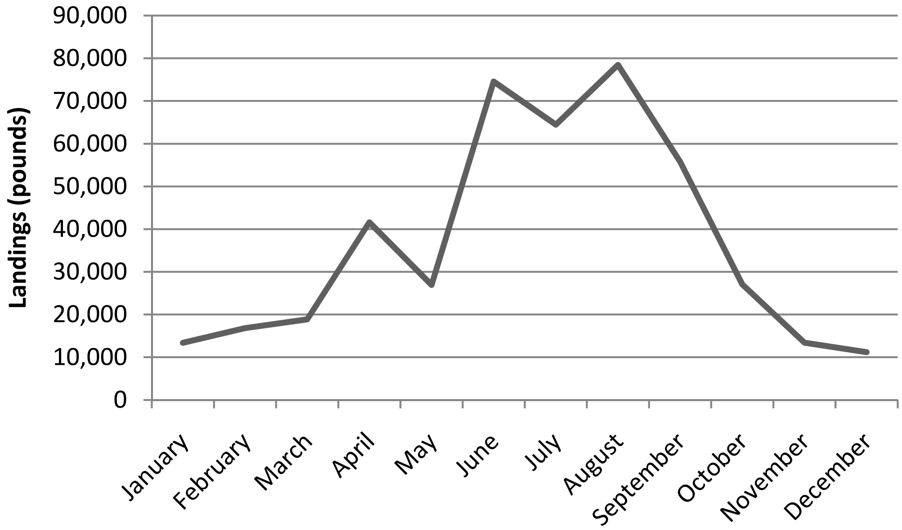

Figure 1.7.1.3.2. Average commercial landings of cobia by month for 2000-2009.

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.

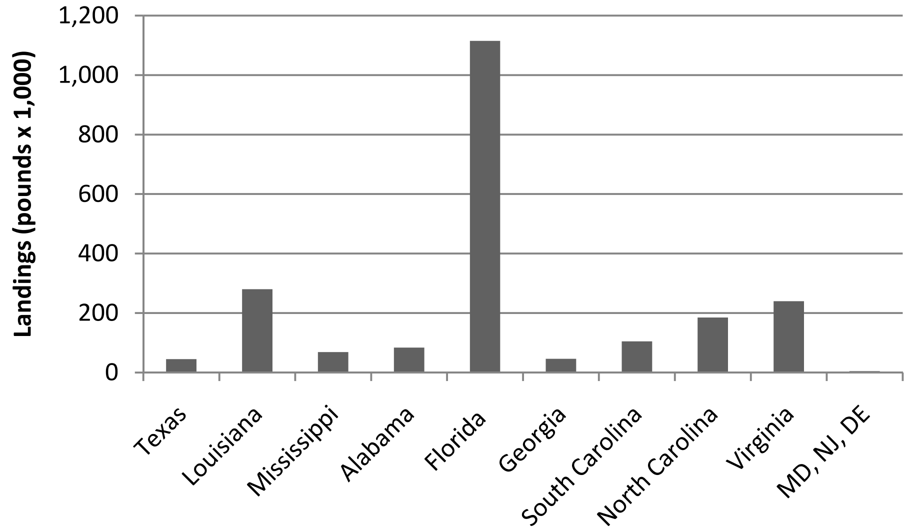

Figure 1.7.1.3.3. Average recreational landings of cobia by state for 2000-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

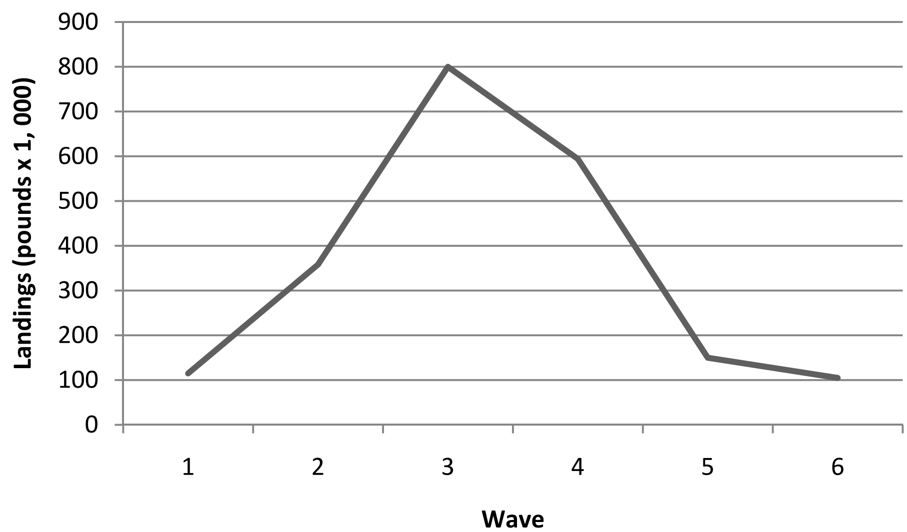

Figure 1.7.1.3.4. Average recreational landings of cobia by wave for 2000-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

1.7.1.4 Cero, Little Tunny, Dolphin, Bluefish

Cero and little tunny are included in the CMP FMP for both the Gulf and South 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

Cero commercial landings have declined from an average of around 14,000 lbs in 1998-2000 to an average of about 1,500 lbs 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[1]. 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

[1] Note: Data by state cannot be shown due to confidentiality issues.

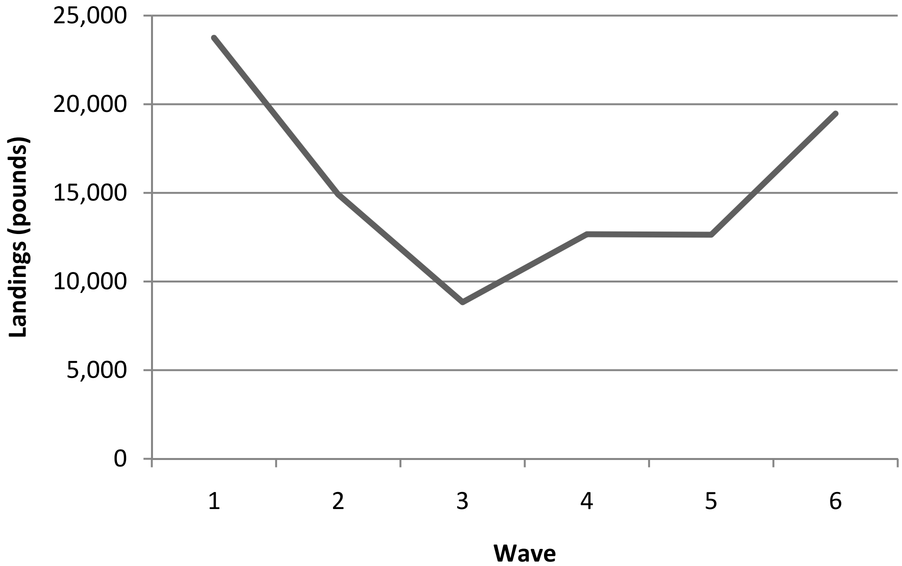

Figure 1.7.1.4.1. Average recreational landings of cero by wave for 2000-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

<u>Little Tunny</u>
Little tunny commercial landings are variable, but the recent five-year annual average was 610,000 lbs 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

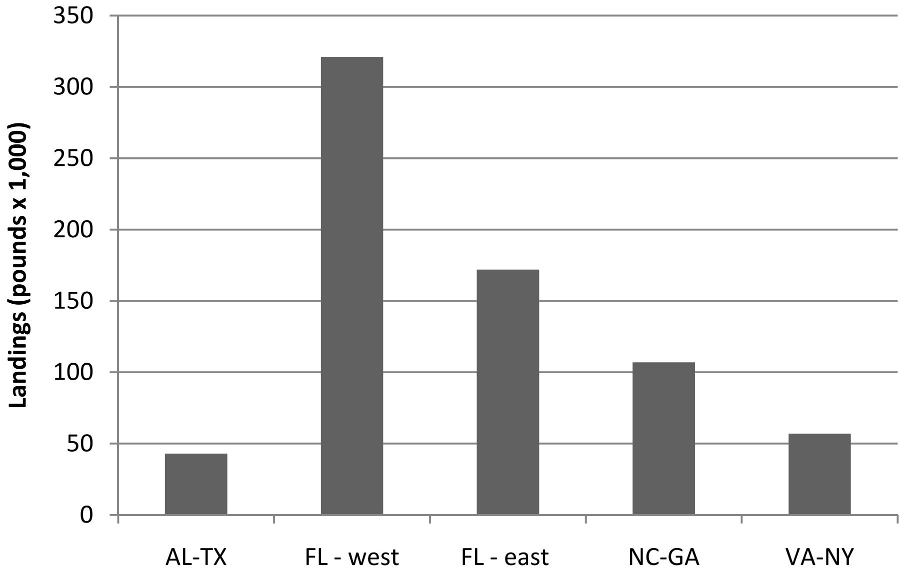

Figure 1.7.1.4.2. Average commercial landings of little tunny by region for 2000-2009.
Source: SEFSC, ACL and CFDBS data sets.

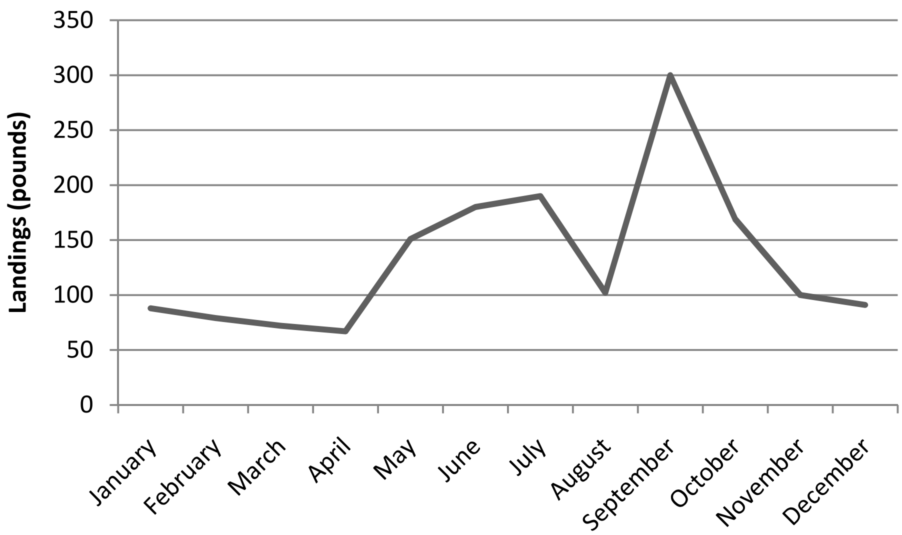

Figure 1.7.1.4.3. Average commercial landings of little tunny by month for 2000-2009.
Source: SEFSC, ACL and CFDBS data sets.

Recreational little tunny 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

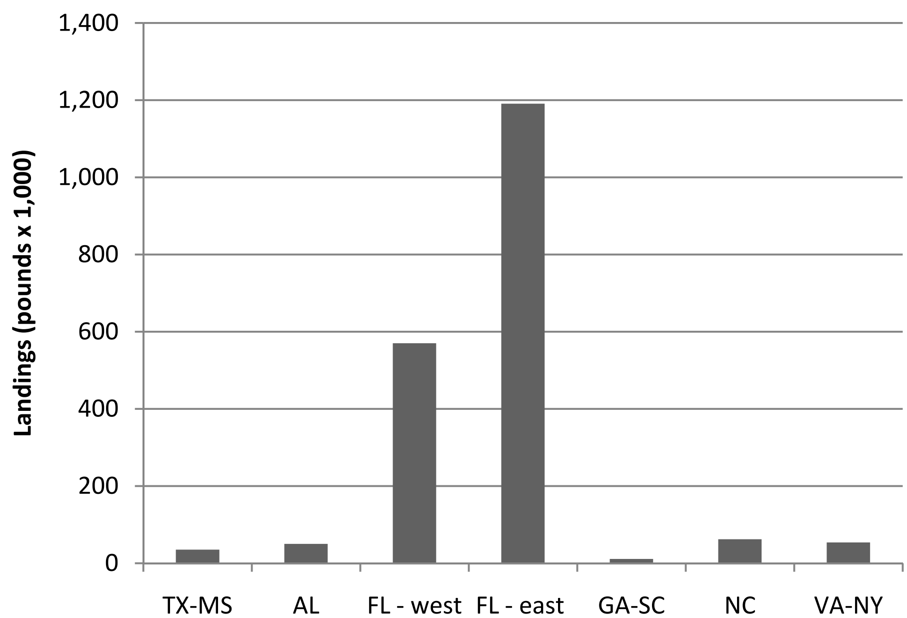

Figure 1.7.1.4.4. Average recreational landings of little tunny by region for 2000-2009.
Source: SEFSC, January 2011 data set; MRFSS, HBS, TPWD

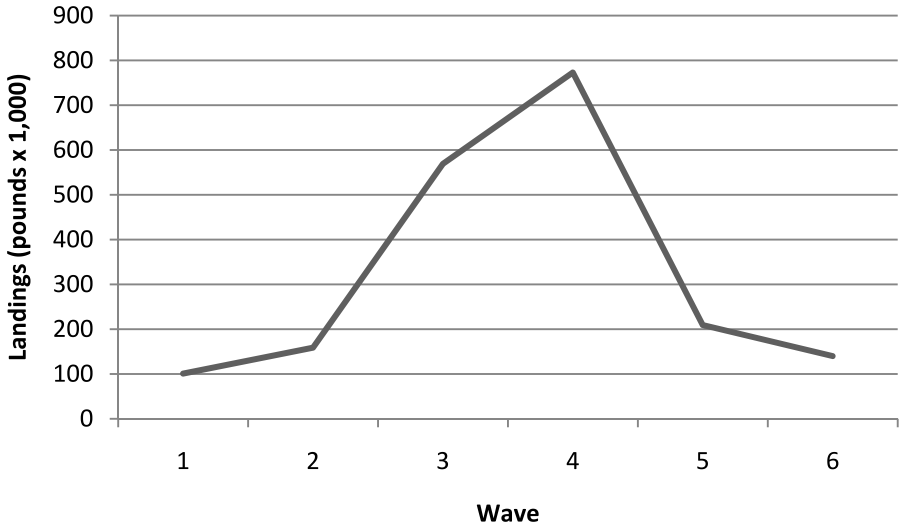

Figure 1.7.1.4.5. Average recreational landings of little tunny by wave for 2000-2009.
Source: SEFSC, January 2011 data set; MRFSS, HBS, TPWD

Bluefish

Commercial bluefish landings in the Gulf have declined since 1995 when Florida implemented a constitutional amendment to regulate allowable fishing gear in state waters. The recent five-year annual averages are 144,000 lbs commercial (Table 1.7.1.4.5) and 340,000 lbs recreational (Table 1.7.1.4.6).

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 Note: Landings include all of Monroe County, including landings from the South Atlantic.

Most recreational bluefish landings in the Gulf are from Florida and Alabama (Figure 1.7.1.4.6), peaking during May-June (Figure 1.7.1.4.7). Florida west coast landings include all of Monroe County and, therefore, are overestimates of the actual Gulf landings.

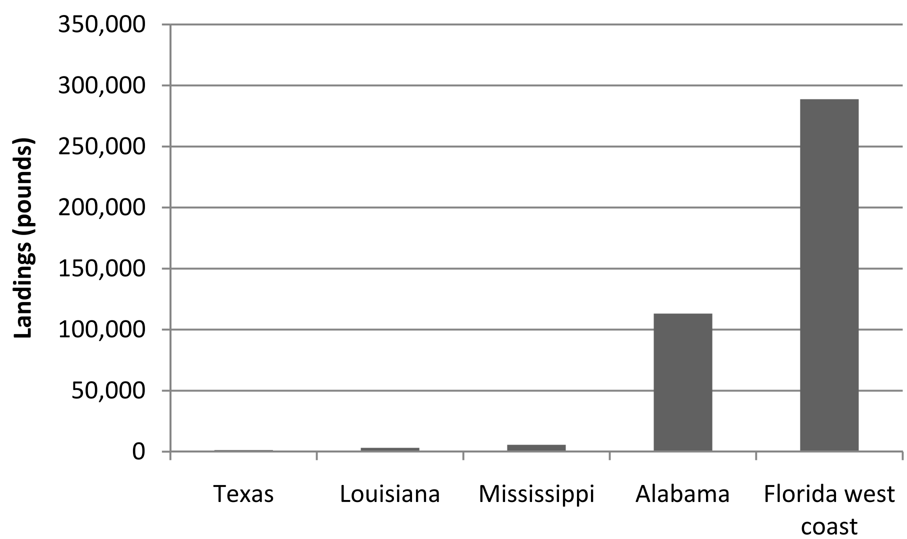

Figure 1.7.1.4.6. Average Gulf recreational landings of bluefish by state for 2000-2008.
Note: Florida landings are for the west coast of Florida and include the Florida Keys.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

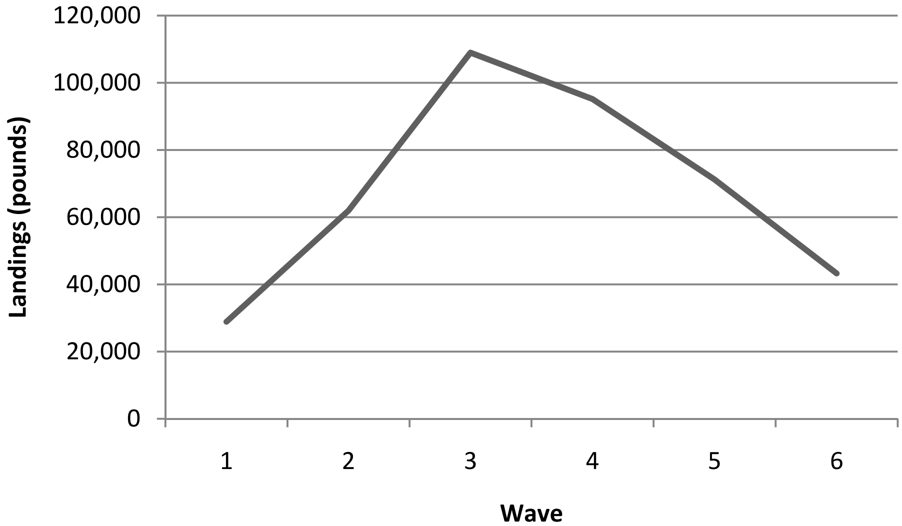

Figure 1.7.1.4.7. Average recreational landings of Gulf bluefish by wave for 2000-2008.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD Note: Landings include all of Monroe County, including landings from the South Atlantic.

The Mid-Atlantic Bluefish FMP was developed jointly by the Mid-Atlantic Council 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 (50 CFR 648.160). 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.

<u>Dolphin</u>
In the Gulf, commercial dolphin landings averaged around 325,000 lbs over the recent five years (Table 1.7.1.4.7). The Florida west coast accounted for approximately 92% of those landings.

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

Recreational Gulf landings of dolphin 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 1.7.1.4.8). Highest landings were in May-June (Figure 1.7.1.4.9). Florida west coast landings include all of Monroe County and, therefore, are overestimates of the actual Gulf landings.

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 Note: Landings include all of Monroe County, including landings from the South Atlantic.

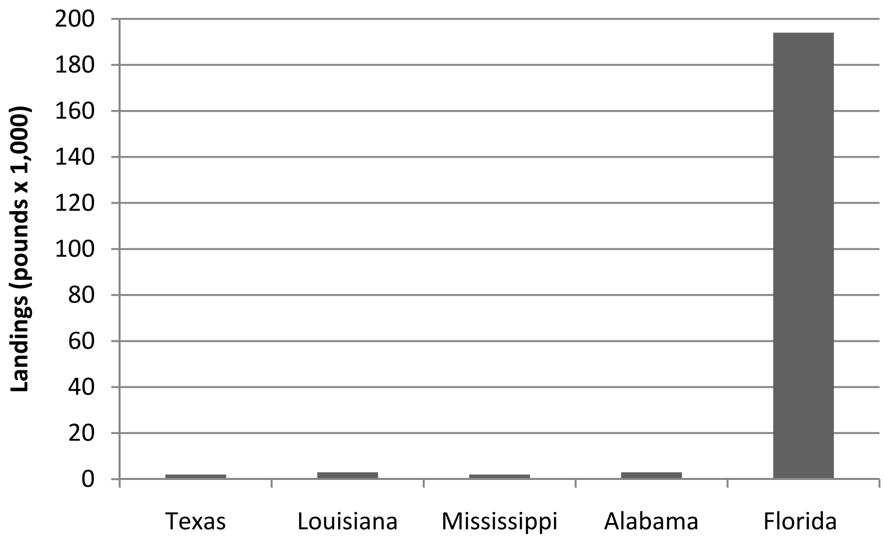

Figure 1.7.1.4.8. Average Gulf recreational landings of dolphin by state for 2000-2008.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD
Note: Florida landings are for the west coast of Florida and include the Florida Keys.

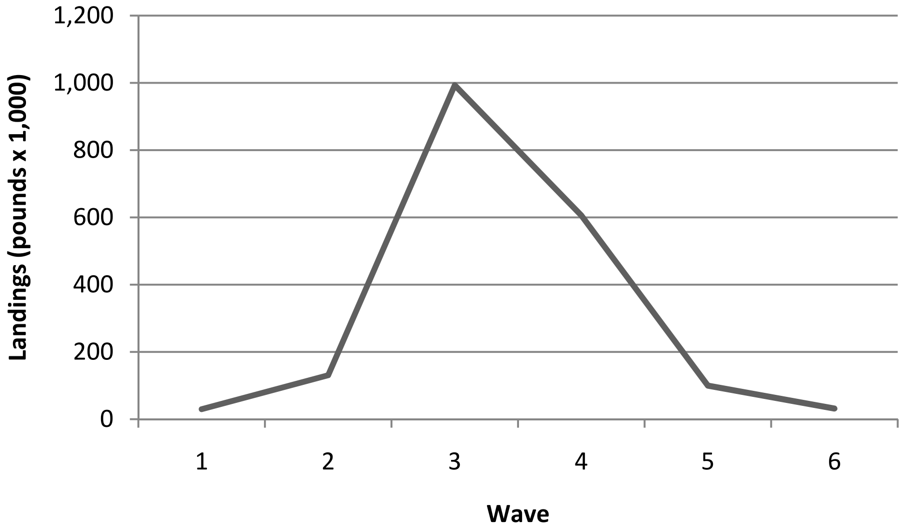

Figure 1.7.1.4.9. Average Gulf recreational landings of dolphin by wave for 2000-2008.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD Note: Landings include all of Monroe County, including landings from the South Atlantic.

In 2004, the South Atlantic Council created a Dolphin/Wahoo FMP that included management of dolphin in the South Atlantic, Mid-Atlantic, and the New England Councils' jurisdictions[1]. This 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 in 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 lbs whole weight 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 lbs for the commercial sector and about 9.9 mp for the recreational sector.

1.7.2 Status of Stocks

Gulf and South Atlantic Spanish mackerel and cobia benchmark assessments are scheduled for 2012.

[1] Although dolphin in the South Atlantic was included in the Dolphin/Wahoo FMP, this species was not removed from the CMP FMP.

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 migratory 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 migratory 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. 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

Cobia in the Atlantic have never been assessed; the status of Gulf cobia was assessed in 2001 (Williams 2001). The assessment was 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 mackerel stock assessment panel (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 South Atlantic 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 2001 Gulf cobia 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. The SEDAR 28 will assess both Gulf and South Atlantic cobia stocks beginning in 2012, and will be completed in 2013.

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 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 determined that the stock was not overfished or undergoing overfishing (Brooks 2002). Little information exists on the status of little tunny in the South Atlantic. The species has never been the subject of a SEDAR assessment and their overfished and overfishing status is considered unknown. An exploratory assessment of dolphin indicated the status of dolphin in the Gulf 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

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

Discussion: The Gulf of Mexico (Gulf) and South Atlantic Councils (Councils) have never managed cero, little tunny, dolphin, or bluefish under the coastal migratory pelagic fishery management plan (CMP FMP); however, these species were originally included for data collection purposes to determine whether future management was warranted. After more than 20 years, the Councils have not seen the need to add these stocks to the fishery management unit (FMU), although the South Atlantic Council elected to manage dolphin in the Atlantic via a separate FMP and bluefish in the Atlantic are managed jointly by the Mid-Atlantic Council and Atlantic States Marine Fisheries Commission (ASMFC).

Alternative 1 would retain these stocks in the FMP. Including species for data collection purposes only is no longer appropriate; the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires federally managed species have annual catch limits (ACLs) and accountability measures (AMs) or to be designated as ecosystem component species (unless they qualify under an exemption). Therefore, retaining any of the four species would require additional actions by the Councils to be in compliance with the Magnuson-Stevens Act requirements. Additionally, dolphin in the South Atlantic are already included in the South

Atlantic Council's Dolphin/Wahoo FMP. Keeping a single stock in two FMPs is an unnecessary duplication of management and inconsistent with National Standard 7 (NS7).

Alternative 2 would add cero, little tunny, dolphin (in the Gulf), or bluefish (in the Gulf) to the FMU and the Councils would specify ACLs and AMs. 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 South Atlantic Dolphin Wahoo FMP. Dolphin in the Gulf are caught almost exclusively off Florida under regulations of a minimum size of 20 in fork length (FL) and a 10-fish bag limit. 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.

Preferred Alternative 3 would remove these species from the CMP FMP. Although the species were originally included in the FMP "for data collection purposes", data collection on any species can be required of fishermen and dealers that hold federal permits, regardless of the presence of that species in an FMP. At this time, the Southeast Fisheries Science Center (SEFSC) has no plans to remove any species from their data collection vehicles. These data could alert NOAA Fisheries Service if landings or effort change, and species could be added back into the FMP if necessary for conservation and management.

National Standard guidelines state that the principle implicit in NS7 is that not every fishery needs regulation. The Magnuson-Stevens Act requires Councils to prepare FMPs only for overfished fisheries and for other fisheries where regulation would serve some useful purpose and where the present or future benefits of regulation would justify the costs. Guidance on NS 7 states the following general factors should be considered, among others, when deciding whether a fishery needs federal management:

1) The importance of the fishery to the Nation and the regional economy
2) Whether an FMP can improve the condition of the stock
3) The extent to which the fishery could be or already is adequately managed by states
4) Whether an FMP can further the resolution of competing interests and conflicts
5) Whether an FMP can produce more efficient utilization of the fishery
6) Whether an FMP can foster orderly growth of a developing fishery
7) Costs of the FMP balanced against benefits

Considering these factors, all four species appear to be good candidates for removal from the FMP. Although some commercial fishermen target these species the majority is from the recreational sector (factor 1). Dolphin in the South Atlantic are already managed under the Dolphin Wahoo FMP. Dolphin in the Gulf are caught almost exclusively off Florida under regulations of a minimum size of 20-in FL and a 10-fish bag limit (factor 3). Inclusion of these species in the FMP is unlikely to improve the condition of the stock, resolve competing interests, produce more efficient utilization of the coastal migratory pelagic fishery, or foster orderly growth of a developing fishery (factors 2, 4, 5, and 6) because no management measures have ever regulated catch of these species. If federal management of any of these species was desired in the future, a plan amendment would be required whether the species are in the FMP or not. If the species are retained in the FMP, ACLs and AMs would be needed. Setting appropriate ACLs would be difficult, because little data on life history, growth rates, and reproductive biology are available to conduct an effective stock assessment on these species. Thus keeping them in the FMP and managing them with ACLs and AMs would be costly and impractical (factor 7).

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)

Preferred Alternative 3. Revise the framework procedure to incorporate the SEDAR process and adjustments to ACLs, and expand the procedure to allow adjustments of a greater range of management measures under specific procedural guidelines

> **Preferred Option a.** Adopt the base Framework Procedure (Appendix B)
> **Option b.** Adopt the more broad Framework Procedure (Appendix C)
> **Option c.** Adopt the more narrow Framework Procedure (Appendix D)

Discussion: The Councils currently have three different regulatory vehicles for addressing fishery management issues. First, a fishery management plan or plan amendment may be developed to implement management measures. The amendment process can take one to three years depending on the analysis 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 amendment. Third, the Councils may prepare a regulatory amendment (hereafter called a framework action) based on the framework procedure, previously included through a plan or 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 acceptable catch levels. The SEDAR uses three levels of assessments to assess fish stocks. Benchmark assessments are completed using a series of three workshops: Data Workshop, Assessment Workshop, and Review Workshop. Standard assessments are completed using a combined Data and Assessment workshop, with review of the assessment conducted by the Council's Scientific and Statistical Committee (SSC). Update assessments are also conducted under SEDAR. Assessment updates use the same data sets and assessment techniques used in an earlier benchmark or standard assessment with succeeding year's data being added (see http://www.sefsc.noaa.gov/sedar/ for more details on the SEDAR process). Prior to 2002, the SEFSC developed stock assessments that were in turn reviewed by the Councils' stock assessment panels and the Councils' Scientific and Statistical Committees (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 ACLs.

Under **Alternative 2** and **Preferred Alternative 3**, adjustments to ACLs, annual catch targets (ACTs), 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 also allow periodic adjustments to NS1 guideline harvest parameters, and management measures could be altered in a more timely manner in response to stock assessment, survey results, or other similar information.

Alternative 2 and **Preferred Alternative 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 AMs. 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.

Preferred Alternative 3 provides a more generic framework procedure. Generic frameworks as described in **Preferred Alternative 3, Options a-c** have both open and closed components. The open components provide more policy discretion, whereas the closed components address more specific, factual circumstances. The options in **Preferred 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 a (Base) (**Preferred**)	Option b (Broad)	Option c (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 migratory 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. (1991), 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. 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 (Denson, et al.; 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 migratory group, including the Florida Panhandle area, with distinct inshore aggregations (Figure 2.3.1).

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 past data analysis. **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. **Preferred Alternative 3** would separate the migratory groups at the jurisdictional boundary between the Gulf and South Atlantic Councils similar to the boundary for dolphin and wahoo and that being proposed by the two councils for black grouper.

Although there are no differences in the direct impacts of the choice of either **Alternative 2** or **Preferred Alternative 3**, each Council will set management measures for their respective migratory group, which could be different in the assignment of ACLs and any subsequent AMs. National Standard 3 requires Councils to manage an individual stock as a unit throughout its range, and interrelated stocks as a unit or in close coordination. Although each group would be managed separately, the inclusion of both groups in the joint FMP would ensure close coordination.

As shown in Tables 2.3.1 and 2.3.2 approximately 90% of the cobia harvest comes from the recreational sector. Landings for the recreational sector are determined from the Marine Recreational Fisheries Statistics Survey (MRFSS) and Marine Recreational Information Program MRIP 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 **Preferred Alternative 3** results in having to assign a portion of the ACL to 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 (2000-2009).

			Monroe County			**Alternative 1**	**Alternative 2**		**Preferred Alternative 3**	
Year	South Atlantic Only	Gulf Only	South Atlantic	Gulf	Total	Monroe Co. Gulf & South Atlantic	South Atlantic Only	Gulf & All Monroe Co.	Monroe Co. & South Atlantic	Monroe Co. & 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	22,058	105,603	105,222
2003	80,665	108,886	29,535	2,580	32,115	221,666	80,665	41,001	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 (2000-2009).

				Alternative 1	**Alternative 2**		**Preferred Alternative 3**	
Year	South Atlantic Only	Gulf Only	Monroe County	Monroe Co. Gulf & South Atlantic	South Atlantic Only	Gulf & All Monroe Co.	South Atlantic & 50% Monroe Co.	Gulf & 50% Monroe Co.
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) Control Rule for Gulf Migratory group Cobia

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

Preferred Alternative 2. Adopt the Gulf Council's ABC Control Rule [The SSC used Tier 3a to set ABC at 1.46 mp]

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

Discussion: **Alternative 1** does not specify an ABC control rule. The SSC would set ABC for the stock using their best judgment. The NS1 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" [50 CFR 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 migratory group cobia. This ABC control rule determines the appropriate level of risk (P*) 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 would be greater in most cases.

Table 2.4.1. 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 MSY 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 = 50% b. Risk of exceeding OFL = 40% c. Risk of exceeding OFL = 30% (default) d. 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*	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) h. ABC = 65% of OFL

*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: 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 migratory 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 migratory 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 migratory 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 ABC 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.

MIGRATORY 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 25th and 75th 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 25^{th} and 75^{th} 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 Migratory group Cobia

2.5.1 ACTION 5-1: Set Annual Catch Limit (ACL) for Gulf Migratory group Cobia

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

Preferred Alternative 2. Set ACL = ABC for Gulf migratory 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 migratory 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 = 75% of ABC for Gulf migratory 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 closure authority has better management control than a fishery without these features. Annual catch limits, in coordination with AMs, must prevent overfishing.

Gulf migratory group cobia have not been assessed since 2001; 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 from the recreational sector. 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 mackerel stock assessment panel (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 AMs 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 lbs (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. **Alternative 4** is the most conservative choice that would provide a buffer of approximately 365,000 lbs or 25% below the preferred ABC. Although **Alternatives 3 and 4** are viable alternatives, they would appear to curtail the fishery excessively.

The largest component of removals is recreational and the uncertainty in recreational estimates is higher than for commercial estimates, so **Alternatives 3** and **4** would be more risk averse. 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 migratory 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 last stock assessment for Gulf migratory group cobia (Williams 2001) 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 between the Councils was used (Table 2.3.2). Although this assumption is not based on any scientific determination 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 three times the average from 2000-2009).

Preferred Alternative 2 and **Alternatives 3** and **4** 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 migratory 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 AMs 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 limit and a 33-in FL minimum size limit. The 33-in 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; consequently, the simplest choice would be **Preferred Option a.** Also, because the stock status is uncertain, this option is likely the most scientifically defensible.

2.5.2 ACTION 5-2: Set Annual Catch Target (ACT) for Gulf Migratory group Cobia

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

Preferred Alternative 2. Set ACT = 90% of ACL for Gulf migratory group cobia [1.31 mp based on preferred ACL]

- **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 migratory group cobia [1.24 mp based on preferred ACL]

- **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

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. The level of the ACT depends on the level of the ACL set in Action 5-1 (Table 2.5.1).

Table 2.5.1. Stock ACT levels for Alternatives 2 and 3, dependent upon ACL levels from each alternative in Action 5-1.

	Action 5-1 ACL =		
Action 5-2	Alt 2 [1.46]	Alt 3 [1.31]	Alt 4 [1.10]
Preferred Alt 2 90% ACL	1.31	1.18	0.99
Alt 3 85% ACL	1.24	1.11	0.94

Alternative 1 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. Either in-season or post-season AMs would be triggered 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 (Action 5-1, **Preferred Alternative 2**). 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 lbs. 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 approximately 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 Migratory group Cobia

Alternative 1. No Action

Option a. Commercial – The RA has authority via the framework to revert the bag/possession limit to zero if fishermen have achieved or are expected to achieve their allocation

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

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

Preferred 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

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

Alternative 3. Set post-season AMs for Gulf migratory 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 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 compared to the 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 likelihood that 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.

Alternative 1 is not a viable alternative in that the Council has chosen to set ACL and ACT for the entire stock as opposed to separate commercial and recreational components. 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, **Preferred Alternative 2, Preferred Option a** would allow for an in-season closure to the harvest of cobia when the ACT (1.31 mp) is reached. **Option b** would allow for an in-season reduction in the possession limit. Because current regulations already provide authority to the RA (RA) 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. **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. 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 MRFSS/MRIP.

Post-season AMs, **Alternative 3**, 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 RA already has the authority to reduce the possession limit. Providing the RA 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 because the stock is probably not overfished or undergoing overfishing under current regulations.

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 AM trigger has been used for the recreational sector to manage gray triggerfish and shallow-water migratory groupers. The justification for using averages for these species is that it reduces the probability the ACL 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. On the other hand, a new stock assessment is expected to be completed in 2012 that will probably change the ABC recommendation and potentially the Council's choices of ACL and ACT.

2.7 ACTION 7: Set Acceptable Biological Catch (ABC) Control Rule for Gulf Migratory 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%

<u>Discussion</u>: Alternative 1 does not specify an ABC control rule. The SSC would set ABC for the stock using their best scientific 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" [50 CFR 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 migratory 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.
Stocks with less information have greater scientific uncertainty, and therefore, the buffer between the OFL and ABC should be greater.

Tier 1 is for stocks that have undergone an assessment that has produced an estimate of MSY and a probability distribution around the estimate that is acceptable. Tier 2 is for stocks that have not had an assessment that produces an acceptable 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, are 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, are currently being fished at levels that may not be sustainable over time.

At their March 2011 meeting, the SSC determined Tier 1 was appropriate for Gulf migratory 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, the ABC levels in Table 2.7.1 resulted. Due to increased uncertainty with longer range projections, the SSC chose to recommend OFL and ABC only to 2013 to allow time for a new assessment. After such an updated assessment, the SSC may choose 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% $F_{30\% SPR}$. Deterministic estimates of yields at various benchmarks were provided in SEDAR 16 (2008) (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 Migratory group King Mackerel

2.8.1 ACTION 8-1: Set Annual Catch Limit (ACL) for Gulf Migratory group King Mackerel

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

Preferred Alternative 2. Set ACL = ABC for Gulf migratory group king mackerel [11.9 mp for 2012 and 10.8 mp in 2013]

> **Option a.** Set a single ACL
> **Preferred Option b.** Set separate commercial and recreational ACLs based on current allocations [recreational: 8.092 mp (2012), 7.344 mp (2013); commercial: 3.808 mp (2012), 3.456 mp (2013)]
> **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 (2012), 2,904,552 lb (2013); gillnet: 607,614 lb (2012), 551,448 lb (2013)]

Alternative 3. Set ACL = 90% of ABC for Gulf migratory 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 (recreational 7.28 mp, commercial 3.42 mp)
> **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 migratory 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 (recreational 6.88 mp, commercial 3.23 mp)
> **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 migratory 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 (recreational 6.46 mp, commercial 3.04 mp)
> **Option c.** For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

<u>**Discussion**</u>**:** **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 **Preferred 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, 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. Although ACLs would be tracked separately under **Preferred Alternative 2,** setting the recreational fishing year to the same as the commercial fishing year for the purpose of tracking the ACL would ease the administrative burden associated with monitoring. For Gulf migratory group king mackerel, the fishing year is July 1 – June 30.

Table 2.8.1.1. Quotas for commercial Gulf migratory group king mackerel under the status quo (Alternative 1) and the Preferred Alternative 2 (in millions of pounds).

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 2012 ACL 11.9	1,180,480	197,064	607,614	607,614	1,215,228
Preferred Alt 2, option c 2013 ACL 10.8	1,071,360	178,848	551,448	551,448	1,102,896

Alternative 3 would be only slightly more conservative than **Preferred Alternative 2,** and **Alternatives 4** and **5** would provide increasingly conservative ACLs. None of the alternatives are likely to trigger AMs for the recreational sector under the preferred alternative for Action 7 because the recreational catches have been well below their allocation (Table 1.7.1.1.2). On the other hand, the commercial sector typically has harvested its allocation of TAC prior to the end of the season and probably could do so under any of the choices for ACL.

2.8.2 ACTION 8-2: Set Annual Catch Target (ACT) for Gulf Migratory group King Mackerel

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

Alternative 2. Set ACT = 90% of ACL for Gulf migratory 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 migratory 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

Discussion: As noted in the discussion under Action 8-1, average catches of Gulf migratory 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 (**Preferred Alternative 1**) and using only the ACL to constrain harvest, would depend on being able to continue adequately monitoring commercial quotas and rely 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 **Alternatives 2** and **3**. **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 subzone 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 has the capacity to harvest its allocation in a few days, often exceeds its allocation. **Option c** would provide separate ACTs for each zone and subzone, as well as between the hook-and-line segment and the gillnet segment. This option would provide individual accountability to specific subzones and gear segments, and would not penalize those subzones 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.

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

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

Preferred Option a. Commercial

Preferred Suboption i. If the quota 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

Preferred Suboption ii. If 75% of quota 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

Preferred Option b. Recreational - The RA 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 migratory group king mackerel

Option a. Commercial – If the commercial quota 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% of its commercial ACT is reached or projected to be reached

Option b. Recreational - If 75% of the recreational allocation 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 migratory 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

Discussion: Accountability measures 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 migratory group king mackerel **(Preferred 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 RA already has authority to close each sector, options under **Alternative 2** could be chosen in conjunction with closure options in **Preferred Alternative 1,** but the Council has not chosen to do so. **Alternative 2, Option a** is not significantly different from **Preferred Alternative 1, Preferred Option a, Preferred 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 larger 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 Advisory Panel 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 ports 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, in 1988, 1989, 1990, and 1992, the recreational bag limit was reduced to zero during the fishing year. **Preferred Alternative 1, Preferred Option b** already gives the RA 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. Although ACLs would be tracked separately under **Preferred Alternative 1**, setting the recreational fishing year to the same as the commercial fishing year would ease the administrative burden associated with monitoring. For Gulf migratory group king mackerel, that fishing year is July 1 – June 30.

Existing in-season AMs (**Preferred 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: Set Acceptable Biological Catch (ABC) Control Rule for Gulf Migratory 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 migratory group Spanish mackerel (This is the current definition of OY)

Discussion: **Alternative 1** 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 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" [50 CFR 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 (see Table 2.4.1) to set ABC for Gulf migratory group Spanish 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. Stocks with less information have greater scientific uncertainty, and therefore, the buffer between the OFL and ABC should be greater.

Tier 1 is for stocks that have undergone an assessment that has produced an estimate of MSY and a probability distribution around the estimate. Tier 2 is for stocks that have not had an 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, are 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, are currently fishing at levels that may not be sustainable over time.

The most recent Spanish mackerel stock assessment was completed in 2003, but the most recent assessment reviewed by the SSC was completed in 2001 (Table 2.10.1). At its May 2011 meeting, the SSC determined the 2001 stock assessment was too outdated to provide adequate scientific advice on the overfished or overfishing status. However, they also expressed concern that they did not review the more recent 2003 stock assessment, and therefore did not want to use those results in establishing an ABC. Therefore, the SSC used Tier 3a of its control rule to establish OFL and ABC for Spanish mackerel based on average landings for the years 2001 through 2008. OFL was set as the average plus two standard deviations (5.54 mp), and the SSC recommended an ABC of 5.15 mp (average landings for 2001-2008 plus 1.5 standard deviations).

A new stock assessment including Spanish mackerel is scheduled for 2012; after that the SSC may choose a different tier from the control rule to reset OFL and recommend a new ABC.

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

MIGRATORY 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(Range)	8.5 (7.1 – 9.7) mp	
	Percentage of $F_{2000/01}/F_{MSY}$ > MFMT	1%	Not overfishing
	Percentage of B_{2001}/B_{MSY} < MSST	< 1%	Not overfished

a 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 $F_{40\%SPR}$.

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 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} would result in a yield higher than the SSCs recommendation for 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 a different level of risk was appropriate.

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

2.11.1 ACTION 11-1: Set Annual Catch Limit (ACL) for Gulf Migratory group Spanish Mackerel

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

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

Preferred Option a. Set a single ACL
Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial = 2.94 mp, 43% recreational = 2.21 mp)
Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 3. Set ACL = 90% of ABC for Gulf migratory group Spanish mackerel [4.64 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 = 2.64 mp, 43% recreational = 1.99 mp)
Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 4. Set ACL = 75% of ABC for Gulf migratory group Spanish mackerel [3.86 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 = 2.20 mp, 43% recreational = 1.66 mp)
Option c. Set separate commercial and recreational ACLs based on recent landings

Discussion: Gulf migratory group Spanish mackerel were last assessed in 2003, and based on that assessment, the Council set TAC at 9.1 mp. Additionally, there was only a 3% probability of SSB_{2003}<MSST and only a 9% probability of F_{2003}>MFMT. Consequently, the stock was neither undergoing 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 during the 2002/2003 season, when those landings totaled 4.901 mp.

Alternative 1 is not a viable alternative because it is above the SSC's ABC recommendation of 5.15 mp. **Preferred Alternative 2** would set the ACL equal to ABC and provide the greatest benefit to the industry. Furthermore, this level of harvest has not been exceeded since the 1993/1994 fishing season. **Alternative 3** would set the next highest ACL, and it also has not been exceeded since the 1993/1994 fishing season. **Alternative 4** offers the most conservative choice of ACL, but would have a greater likelihood of triggering AMs that would further restrict harvest as that level has been exceeded in five of the last 10 years. Although this is a viable alternative, it would appear to curtail the fishery excessively because, as previously discussed, the Spanish mackerel stock is not overfished or undergoing overfishing.

Under **Alternatives 2-4**, **Option a** would set a single ACL for both the commercial and recreational sectors. Neither sector would likely be subject to AMs under either **Preferred 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 **Alternative 4** would have a greater likelihood of triggering AMs under **Option a**. **Option a** under any alternative would allow landings to vary from the defined allocations of 57% commercial and 43% recreational because neither sector would be shut down when they reached their allocation, based on the preferred AMs in Action 12. Because landings for both sectors would need to be tracked together for a stock ACL, the recreational fishing year would be set the same as the commercial fishing year for purposes of tracking the ACL. For Gulf migratory group Spanish mackerel, the fishing year is April 1 – March 31.

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; even under **Preferred Alternative 2**, the recreational allocation of TAC would have been exceeded eight of the last 10 years (Table 1.7.1.2.2) and the likelihood only increases under **Alternatives 3** and **4**.

Option c under **Alternatives 2-4** would set ACL based recent landings. Average catches from the 2000/2001 to the 2009/2010 fishing season have been approximately 67% recreational and 33% commercial. This timeframe and the allocation percentages could be used, or some other range. The choice of **Option c**, with **Alternatives 2-4,** may or may not trigger AMs, depending on the allocation chosen.

2.11.2 ACTION 11-2: Set Annual Catch Target (ACT) for Gulf Migratory group Spanish Mackerel

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

Alternative 2. Set ACT = 90% of ACL for Gulf migratory 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 migratory 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 two significant digits).

	Action 11-1 ACL =		
Action 11-2	Alt 2 [5.15]	Alt 3 [4.64]	Alt 4 [3.86]
Alt 2 90% ACL	4.64	4.17	3.47
Rec./Comm.			
option b	2.00/2.64	1.79/2.38	1.49/1.98
option c	3.11/1.53	2.79/1.38	2.33/1.14
Alt 3 85% ACL	4.38	3.94	3.28
Rec./Comm.			
option b	1.88/2.50	1.69/2.25	1.41/1.87
option c	2.94/1.44	2.64/1.30	2.20/1.08

Discussion: **Preferred Alternative 1** would not establish an ACT, thereby not creating a buffer target less than the ACL selected in Action 11-1. Either in-season or post-season AMs would be triggered if the stock or sector-specific ACL were exceeded during a fishing year. The combined recreational and commercial landings for the 2000/2001 through 2009/2010 fishing seasons (see Tables 1.7.1.2.1 and 1.7.1.2.2) did not exceeded the stock ACL of Action 11-1, Preferred Alternative 2 (5.15 mp) in any year, only exceeded the ACL of Action 11-1, Alternative 3 (4.63 mp) in three of the last ten fishing years, and exceeded the ACL of Action 11-1, Alternative 4 (3.86 mp) in five of the ten fishing years.

Alternative 2, Option a would set a stock ACT ranging from 4.64 mp to 3.47 mp, depending on the ACL alternative chosen in Action 11-1. **Alternative 3, Option a** would establish a stock ACT ranging from 4.38 mp to 3.28 mp, depending on the alternative chosen in Action 11-1. Under both alternatives, combined landings during the previous 10 fishing seasons exceeded the highest level for ACL only three times and exceed the lowest level for ACL in eight years.

Alternative 2, Option b 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, depending on the alternative chosen for Action 11-1. For the recreational sector, the highest ACL alternative from Action 11-1 (Alternative 2) creates an ACT that was exceeded in all but two of the most recent fishing years. On the other hand, for the commercial sector, even the most conservative ACL from Action 11-1 (Alternative 4) creates an ACT that was exceeded in only one fishing year.

Alternative 3, Option b would establish a recreational ACT ranging from 1.88 mp to 1.41 mp, and a commercial ACT ranging from 2.50 mp to 1.87 mp, depending on the alternative chosen for Action 11-1. For the recreational sector, the highest ACL alternative from Action 11-1 (Alternative 2) creates an ACT that was exceeded in all but one of the most recent fishing years. On the other hand, for the commercial sector, even the most conservative ACL from Action 11-1 (Alternative 4) creates an ACT that was exceeded in only two fishing years.

Alternative 2, Option c would establish a recreational ACT ranging from 3.11 mp to 2.33 mp, and a commercial ACT ranging from 1.53 mp to 1.14 mp, depending on the alternative chosen for Action 11-1. For the recreational sector, the highest ACL alternative from Action 11-1 (Alternative 2) creates an ACT that was exceeded in only two of the most recent fishing years.

For the commercial sector, the highest ACL alternative from Action 11-1 (Alternative 2) creates an ACT that was exceeded in only three of the most recent fishing years.

Alternative 3, Option c would establish a recreational ACT ranging from 2.94 mp to 2.20 mp, and a commercial ACT ranging from 1.44 mp to 1.08 mp, depending on the alternative chosen for Action 11-1. For the recreational sector, the highest ACL alternative from Action 11-1 (Alternative 2) creates an ACT that was exceeded in only two of the most recent fishing years. For the commercial sector, the highest ACL alternative from Action 11-1 (Alternative 2) creates an ACT that was exceeded in four of the most recent fishing years.

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.

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 migratory group Spanish mackerel

> **Option a.** Commercial – If the quota (= ACL x commercial allocation) 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 RA has authority via the framework to revert the bag limit to zero if fishermen have achieved or are expected to achieve their allocation

Preferred Alternative 2. Set in-season AMs for Gulf migratory group Spanish mackerel

> **Preferred Option a.** If the stock ACL 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% of the stock ACL 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

Alternative 3. Set post-season AMs for Gulf migratory 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.
>
> **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 ACL
>
> **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 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 compared to the ACL for the third year and thereafter.

Discussion: **Alternative 1** would continue the current in-season AMs to close 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, under the current TAC the recreational allocation has never been reached and the commercial sector has not exceeded its allocation since the 1988/1989 fishing year. The reason for this is primarily because TAC has been set at or very near the MSY. If ACL is set equal to the preferred ABC in Action 11-1, the recreational sector would very likely reach its allocation.

Preferred Alternative 2, Preferred Option a would close both sectors if the ACL was projected to be reached. Based on the most recent 10-year landings, if ACL is set equal to ABC at 5.15 mp, the ACL would probably not be caught. Landings in the past 10 years would have met or exceeded an ACL of 4.64 mp three times, and an ACL of 3.86 mp five times. Currently, the RA has the authority to close both sectors of the fishery, so the only change associated with **Preferred Option a** would be that both sectors would close simultaneously based on the total ACL. Because landings for both sectors would need to be tracked together for a stock ACL, the recreational fishing year would be set the same as the commercial fishing year for purposes of tracking the ACL. For Gulf migratory group Spanish mackerel, that fishing year is April 1 – March 31.

Under the preferred choice of the ACL, **Alternative 2, Option b** would establish a commercial trip limit and reduce the recreational bag limit when 3.86 mp of landings is reached or projected to be reached. This level has been exceeded in half of the last 10 fishing seasons; therefore, it is reasonable to expect an even chance of needing to implement trip and bag limits at some point in the fishing season under this option.

Alternative 3 would set post-season AMs for Gulf migratory group Spanish mackerel. As previously stated, the ACL would not be expected to be exceeded under the Council's preferred ACL. Consequently, it is unlikely that a payback provision (**Option a**), the implementation of a trip limit the following year (**Option b**), or a reduction in the fishing season the following year (**Option c**) would be needed. In fact, landings would have to increase by approximately 1.5 mp over the recent 10-year average to trigger these AMs.

The NS1 guidance includes a caveat allowing post-season AM 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 AM trigger has been used for the recreational sector to manage gray triggerfish and shallow-water migratory groupers. Using averages for these species reduces the chance the ACL will be exceeded due to 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 South Atlantic Council's SSC.

2.13.1 ACTION 13-1: Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST) and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory group King Mackerel

The South Atlantic Council has determined that the value for MSY is the value of yield at F_{MSY} from the most recent stock assessment (SEDAR 16, 2008). Currently MSY = 10.4 mp. Based on the SEDAR 16 assessment, MSY = 8.964 mp (Table 2.13.1.1). Using updated projections, MSY = 9.357-12.836 mp (Table 2.13.3.3).

The South Atlantic 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 2.13.1.1).

The South Atlantic Council has determined that the value for MFMT is the value of F_{MSY} or proxy from the most recent stock assessment. Currently MFMT = F_{MSY} = $F_{30\%SPR}$ with no value estimated. Based on the SEDAR 16 assessment, MFMT = F_{MSY} = $F_{30\%SPR}$ = 0.256 (Table 2.13.1.1).

2.13.2 ACTION 13-2: Overfishing Level (OFL) for Atlantic Migratory group King Mackerel

The OFL, if provided by a SSC, is an annual amount of catch that corresponds to the estimate of MFMT applied to a stock or complex's abundance; MSY is the long-term average of such catches.

The SSC 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 2.13.1.1. Specific management criteria for Atlantic Migratory group King Mackerel.

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

Source: Table 4 from SEDAR 16.

2.13.3 ACTION 13-3: Acceptable Biological Catch (ABC) Control Rule and ABC for Atlantic Migratory group King Mackerel

The following NS1 excerpts describe the process of specifying an ABC:

> *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.*

<u>Council/SSC Development of Control Rule</u>
The South Atlantic Council's SSC first discussed ABC control rules in June 2008. An issues paper outlining various alternative approaches to establishing ABC was provided to the South Atlantic Council in September 2008. The intent was to obtain initial feedback on control rules and the level of overfishing risk that the South Atlantic Council considered appropriate for various likely stock information levels. Control rule options for ABC were therefore presented

in general terms rather than as specific alternatives and sub-alternatives. The South Atlantic Council supported further developing a control rule approach which specified ABC as a function of yield at MSY and assessment uncertainty. The South Atlantic 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.

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 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 South Atlantic Council in June 2010. However, some aspects of the proposed control rule and its criteria were considered inappropriate given guidance that the control rule should account for scientific uncertainty. The South Atlantic 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 SSC met again in April 2011 to make final recommendations for stocks which are unassessed. The final proposed ABC Control Rule (Table 2.13.3.1) is included as **Alternative 2** in the ABC control rule alternatives of this amendment and included below. King mackerel is considered by the SSC to fall under a Level 1 assessed stock.

Table 2.13.3.1. The South Atlantic Council's SSC's ABC Control Rule.

<table>
<tr><th colspan="2">Level 1 – Assessed Stocks</th></tr>
<tr><th>Tier</th><th>Tier Classification and Methodology to Compute ABC</th></tr>
<tr><td>1. Assessment Information (10%)</td><td>1. Quantitative assessment provides estimates of exploitation and biomass; includes MSY-derived benchmarks. (0%)
2. Reliable measures of exploitation or biomass; no MSY benchmarks, proxy reference points. (2.5%)
3. Relative measures of exploitation or biomass, absolute measures of status unavailable. Proxy reference points. (5%)
4. Reliable catch history. (7.5%)
5. Scarce or unreliable catch records. (10%)</td></tr>
<tr><td>2. Uncertainty Characterization (10%)</td><td>1. Complete. Key Determinant – uncertainty in both assessment inputs and environmental conditions are included. (0%)
2. High. Key Determinant – reflects more than just uncertainty in future recruitment. (2.5%)
3. Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections. (5%)
4. Low. Distributions of F_{MSY} and MSY are lacking. (7.5%)
5. None. Only single point estimates; no sensitivities or uncertainty evaluations. (10%)</td></tr>
<tr><td>3. Stock Status (10%)</td><td>1. Neither overfished nor overfishing. Stock is at high biomass and low exploitation relative to benchmark values. (0%)
2. Neither overfished nor overfishing. Stock may be in close proximity to benchmark values. (2.5%)
3. Stock is either overfished or overfishing. (5%)
4. Stock is both overfished and overfishing. (7.5%)
5. Either status criterion is unknown. (10%)</td></tr>
<tr><td>4. Productivity and Susceptibility – Risk Analysis (10%)</td><td>1. Low risk. High productivity, low vulnerability, low susceptibility. (0%)
2. Medium risk. Moderate productivity, moderate vulnerability, moderate susceptibility. (5%)
3. High risk. Low productivity, high vulnerability, high susceptibility. (10%)</td></tr>
<tr><th colspan="2">Level 2 - Unassessed Stocks. Reliable landings and life history information available</th></tr>
<tr><td colspan="2">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.</td></tr>
<tr><th colspan="2">Level 3 - Unassessed Stocks. Inadequate data to support DBSRA</th></tr>
<tr><td colspan="2">ABC derived directly, from "Depletion-Corrected Average Catch" (DCAC). Done when only a limited number of years of catch data for a fishery are available. Requires a higher level of "informed expert judgment" than Level 2.</td></tr>
<tr><th colspan="2">Level 4 - Unassessed Stocks. Inadequate data to support DCAC or DBSRA</th></tr>
<tr><td colspan="2">OFL and ABC derived on a case by case basis. ORCS ad hoc migratory group is currently working on what to do when not enough data exist to perform DCAC.</td></tr>
</table>

ABC is recommended by the SSC and specified by the South Atlantic Council. The SSC provided an ABC Control Rule for assessed species and an ABC value for Atlantic migratory group king mackerel at their April 2010 meeting. Prior to the April 2010 meeting, the South Atlantic 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 mp.

Table 2.13.3.2. Projected yields (landings in million pounds) under different fishing mortality rate (F) strategies.

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

Source: Table 5a SEDAR 16.

New projections, provided on March 16, 2010, provide updated estimated yield streams (Table 2.13.3.3)

Table 2.13.3.3. Projected yields (landings in million pounds) under different fishing mortality rate (F) strategies.

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

Source: Table 5b SEFSC Updated Projections, March 2010.

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 [currently 10.46 mp]

Alternative 3. Establish an ABC Control Rule where ABC equals OFL (currently 12.8359 mp

Alternative 4. Establish an ABC Control Rule where ABC equals a percentage of OFL
- **Option a.** ABC = 65%OFL (currently 8.3433 mp)
- **Option b.** ABC = 75%OFL (currently 9.6269 mp)
- **Option c.** ABC = 85%OFL (currently 10.9105 mp)

Discussion: The Magnuson-Stevens Act requires specification of additional management criteria in federal fisheries management plans. These criteria include an OFL, an ACL, and appropriate AMs. The Magnuson-Stevens Act also states that Council SSCs should specify an ABC that is reduced from the OFL to address assessment uncertainty. Guidance on NS1 of the Magnuson-Stevens Act states that a fishery management council must establish a process for developing ABC control rules and should 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. Guidance in NS1 also suggests that a Council may choose to specify an ACT which could be used as a basis for determining appropriate management measures.

Alternative 1 does not specify an ABC control rule. The SSC would set ABC for the stock using their best judgment. The NS1 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" [50 CFR 600.310(f)(2)(iii)]. Because this alternative does not provide a specified approach, it is not viable under the guidelines.

The South Atlantic Council's SSC developed an ABC Control rule for assessed stocks (Table 2.13.3.1) based on the guidance provided by the South Atlantic Council on the level of risk (10-40%) (**Preferred Alternative 2**). The ABC values for the years 2011, 2012 and 2013, as recommended by the SSC based on the control rule, are shown in Table 2.13.3.4. An average value was added for discussion purposes. The SSC expects to receive an updated assessment prior to providing an ABC for 2014 onwards.

Table 2.13.3.4. Atlantic migratory group king mackerel ABC recommendations (millions of pounds) 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 mp 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.

Preferred Alternative 2 would adopt the South Atlantic Council's SSC recommended ABC control rule and would be expected to provide a greater biological benefit than **Alternatives 3** and **Alternative 4, Option c** over the long term by accounting for assessment uncertainty while preventing overfishing. Since there would be no buffer between ABC and OFL, the biological effect of **Alternative 3** would be less than **Alternatives 2** and **4**. **Alternative 4, Option a** would be the most conservative alternative and **Alternative 4, Option c** would be the least conservative alternative. **Alternative 4, Option c** would provide a smaller buffer between OFL and ABC than **Preferred Alternative 2** and would therefore have a smaller positive biological effect. Therefore, while **Alternative 4, Options a** and **b** would provide greater biological benefits to Atlantic migratory group king mackerel, they could provide ABCs that are more conservative than needed to manage the resource.

2.13.4 ACTION 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 South Atlantic Council is considering the following options. Landings data are provided in Table 2.13.4.1 to assist in choosing ACL.

The South Atlantic 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 mp based on the values in Table 2.13.3.2.

Alternative 1. No Action - currently TAC or ACL = 10.0 mp based on an ABC of 8.9-13.3 mp (Recreational Sector ACL = 62.9% = 6.3 mp; Commercial Sector ACL = 37.1% = 3.71 mp)

Preferred Alternative 2. ACL = OY = ABC (currently 10.46 mp which is the average of the ABC values for 2011-2013 recommended by the SSC; Recreational Sector ACL = 62.9% = 6.58 mp; Commercial Sector ACL = 37.1% = 3.88 mp)

Alternative 3. ACL = OY = ABC [currently 10.06 mp which is the lowest value within the 2011-2013 recommendations (10.06 – 10.95 mp); (Recreational Sector ACL = 62.9% = 6.33 mp; Commercial Sector ACL = 37.1% = 3.73 mp)]

Alternative 4. ACL = OY = ABC [currently 10.95 mp which is the highest value within the 2011-2013 recommendations (10.06-10.95 mp); (Recreational Sector ACL = 62.9% = 6.89 mp; Commercial Sector ACL = 37.1% = 4.06 mp)]

Alternative 5. ACL = OY = X% of ABC = ______ mp

Option a. ACL = 65%ABC = 65% (currently 10.46 mp) = 6.799 mp (Recreational Sector ACL = 62.9% = 4.28 mp; Commercial Sector ACL = 37.1% = 2.52 mp)
Option b. ACL = 75%ABC = 75% (currently 10.46 mp) = 7.845 mp (Recreational Sector ACL = 62.9% = 4.94 mp; Commercial Sector ACL = 37.1% = 2.91 mp)
Option c. ACL = 85%ABC = 85% (currently 10.46 mp) = 8.891 mp (Recreational Sector ACL = 62.9% = 5.59 mp; Commercial Sector ACL = 37.1% = 3.30 mp)
Option d. ACL = 80%ABC = 80% (currently 10.46 mp) = 8.368 mp (Recreational Sector ACL = 62.9% = 5.26 mp; Commercial Sector ACL = 37.1% = 3.11 mp)
Option e. ACL = 90%ABC = 90% (currently 10.46 mp) = 9.414 mp (Recreational Sector ACL = 62.9% = 5.92 mp; Commercial Sector ACL = 37.1% = 3.49 mp)

Discussion: **Alternatives 2 (Preferred) - 5** would set the OY equal to the ACL. National Standard 1 establishes the relationship between conservation and management measures, preventing overfishing, and achieving OY from each stock, stock complex or fishery. The NS1 guidelines discuss the relationship of OFL to MSY and ACT (ACL) to OY. The OFL, if provided by a SSC, is an annual amount of catch that corresponds to the estimate of MFMT applied to a stock or complex's abundance; MSY is the long-term average of such catches. The ACL would be the limit that triggers AMs, and ACT, if specified, would be the management target for a fishery. Management measures for a fishery should, on an annual basis, prevent the ACL from being exceeded. The long-term objective is to achieve OY through annual achievement of an ACL or ACT. The NS1 guidelines state that if the OY is set close to MSY, the conservation and management measures in the fishery must have very good control of the amount of catch in order to achieve the OY without overfishing.

Although MSY and OFL are unknown for stocks which have not undergone stock assessments, the South Atlantic Council's SSC has established an ABC control rule that takes into consideration scientific uncertainty to ensure catches are maintained below a presumed MSY/OFL level. Setting OY equal to ACL would provide greater insurance that OY is achieved, overfishing is prevented, and the long-term average biomass is near or above B_{MSY}. Setting OY equal to ACL would provide greater assurance that overfishing is prevented, and the long-term average biomass is near or above B_{MSY}.

Under **Alternative 1** the recreational allocation (62.9%) is 6.30 mp (recreational sector ACL) and the commercial allocation (37.1%) is 3.71 mp (commercial sector ACL). The recreational allocation has not been exceeded since 1997/1998 (Table 2.13.4.1) when the recreational allocation was 4.28 mp; catches have never exceeded 6.30 mp. The recreational overage contributed to the TAC being exceeded in the 1997/1998 fishing year. The commercial quota was exceeded in 1997/1998 when the quota was 2.52 mp and the commercial overage contributed to the TAC being exceeded in the 1997/1998 fishing year. More recently, the commercial allocation was exceeded in 2006/2007 by 100,000 lbs and in 2008/2009 by 5,000 lbs.

Under **Preferred Alternative 2** the recreational allocation (62.9%) would be 6.58 mp (recreational sector ACL) and the commercial allocation (37.1%) would be 3.88 mp (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 2006/2007 with landings of 3.81 mp versus the potential allocation of 3.88 mp. The SEFSC Quota Monitoring Program shows preliminary commercial landings of 2.69 mp for the 2010/2011 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 **Preferred Alternative 2** would not have been exceeded.

Under **Alternative 3** the recreational allocation (62.9%) would be 6.33 mp (recreational sector ACL) and the commercial allocation (37.1%) would be 3.73 mp (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 have been exceeded in 2006/2007 with landings of 3.81 mp versus the potential allocation of 3.73 mp. The SEFSC Quota Monitoring Program shows preliminary commercial landings of 2.69 mp for the 2010/2011 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 mp (recreational sector ACL) and the commercial allocation (37.1%) would be 4.06 mp (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. The SEFSC Quota Monitoring Program shows preliminary commercial landings of 2.69 mp for the 2010/2011 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 the options listed for **Alternative 5** the recreational ACLs would range from 4.28 to 5.92 mp and the commercial ACLs would range from 2.52 to 3.49 mp. The commercial and recreational ACLs would not have been exceeded over the 24 year period shown in Table 2.13.4.1 for **Alternative 5** options.

Alternative 1 would retain the current regulations established for Atlantic migratory group king mackerel, which includes a TAC of 10 mp. An ACL equivalent (TAC) is currently in place. However, the South Atlantic Council's SSC has recommended an ABC based on its ABC control rule, and this document provides alternatives for ABC. **Preferred Alternative 2** through

Alternative 5 would set the ACL/OY based on the SSC's recommendation for ABC. Therefore, retention of the status quo ACL may not be an appropriate option.

Preferred Alternative 2 through **Alternative 5** would set the OY equal to the ACL. Setting OY equal to ACL would provide greater assurance that overfishing is prevented, and the long-term average biomass is near or above B_{MSY}. Setting OY equal to the ACL in **Preferred Alternative 2**, or to some portion of the ABC in **Alternative 5**, would be based on the ABC specified through the South Atlantic Council's preferred ABC control rule alternative.

The NS1 guidelines indicate the ACL may typically be close to the ABC. **Preferred Alternative 2** would set ACL equal to the average of the ABC values for 2011-2013 recommended by the SSC, which is the South Atlantic Council's preferred value for ABC. Therefore, **Preferred Alternative 2** would provide greater positive biological effects than **Alternative 4**, which would set ACL equal to the highest value for ABC recommended by the SSC. **Alternative 3** would set ACL equal to the lowest value of ABC recommended by the SSC for king mackerel and therefore provide greater positive biological effects than **Preferred Alternative 2**.

Setting ACL/OY equal to some percentage of the ABC in **Alternative 5** and its options would provide greater assurance overfishing does not occur because the options would create a larger buffer between the ACL and ABC, with **Alternative 5, Option a** setting the most conservative ACL at 65% of the ABC. However, **Preferred Alternative 2** through **Alternative 5** are based on an ABC control that sets ABC below OFL and therefore take into consideration scientific uncertainty in the specification of OFL. Therefore, ACLs specified under **Alternatives 3** and **5** may be more conservative than needed for appropriate management of the stock.

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] (mp)	TAC (mp)	Recreational Allocation/Quota[2] (mp. /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	3.118	3.485	6.603
2006/07	8.9-13.3	10	6.30/601,338	3.71	3.810	4.054	7.864
2007/08	8.9-13.3	10	6.30/601,338	3.71	3.413	6.080	9.493
2008/09	8.9-13.3	10	6.30/601,338	3.71	3.715	3.487	7.202
2009/10	8.9-13.3	10	6.30/601,338	3.71	3.513	3.885	7.398

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.

Alternative 1 would retain the current regulations established for king mackerel, which includes a TAC of 10 mp. However, the South Atlantic Council's SSC has recommended an ABC based on its ABC control rule, and this document provides alternatives for ABC. **Alternatives 2-5** would set the ACL/OY based on the SSC's recommendation for ABC. Therefore, retention of the status quo ACL may not be an appropriate option.

Alternatives 2-5 would set the OY equal to the ACL. Setting OY equal to ACL would provide greater assurance that overfishing is prevented, and the long-term average biomass is near or above B_{MSY}. Setting OY equal to the ACL in **Preferred Alternative 2** or to some portion of the ABC in **Alternative 5**, would be based on the ABC specified through the South Atlantic Council's preferred ABC control rule alternative.

The NS1 guidelines indicate the ACL may typically be close to the ABC. **Preferred Alternative 2** would set ACL equal to the average of the ABC values for 2011-2013 recommended by the SSC, which is the South Atlantic Council's preferred value for ABC. Therefore, **Preferred Alternative 2** would provide greater positive biological effects than **Alternative 4**, which would set ACL equal to the highest value for ABC recommended by the SSC. **Alternative 3** would set ACL equal to the lowest value of ABC recommended by the SSC for king mackerel and therefore provide greater positive biological effects than **Preferred Alternative 2**.

Setting ACL/OY equal to some percentage of the ABC in **Alternative 5** and its options would provide greater assurance overfishing does not occur because the options would create a larger buffer between the ACL and ABC, with **Alternative 5**, **Option a** setting the most conservative ACL at 65% of the ABC. However, **Alternatives 2-5** are based on an ABC control that sets ABC below OFL and therefore take into consideration scientific uncertainty in the specification of OFL. Therefore, ACLs specified under **Alternatives 3** and **5** may be more conservative than needed for appropriate management of the stock.

2.13.5 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

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL (currently 3.49 mp)

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL (currently 3.10 mp)

Discussion: Reducing the commercial quota (Table 2.13.5.1) would increase the likelihood that the season would be closed early. **Alternative 3** has the greatest potential to shorten the season and **Preferred Alternative 1** the least. Implementing an ACT would provide a mechanism to maintain harvest levels at or below the South Atlantic Council's choice of an ACL. Under this action, the most biologically beneficial ACT alternative for the commercial sector would be **Alternative 3**, which would create the largest buffer between the ACT and ACL. **Alternative 2** would result in greater biological benefits than **Preferred Alternative 1**, but fewer biological benefits when compared to **Alternative 3**. The least biologically beneficial ACT alternative would be **Preferred Alternative 1** since it would not establish a level of harvest lower than that of the ACL in order to trigger an AM to prevent ACL overages. However, under **Preferred Alternative 1** there would be little incentive to target king mackerel on commercial trips since all purchase and sale would be prohibited once the ACL is projected to be met. Furthermore, if the quota monitoring system is operating properly, landings in excess of the commercial ACL would not be expected.

Table 2.13.5.1. Atlantic migratory group king mackerel commercial sector ACTs (millions of pounds) 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 king mackerel	3.88	3.49	3.10

ACTION 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 (currently 5.59 mp)

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL (currently 4.94 mp)

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater] (currently 6.11 mp)

Discussion: The Council decided to use the five-year average PSE (Table 2.13.5.2) because this better represented recent catches than the three-year average.

Table 2.13.5.2. Proportional Standard Errors (PSEs) for Atlantic migratory group king mackerel from weight estimates (A+B1) for all modes.

Species	2003	2004	2005	2006	2007	2008	2009	3 year average (2007-09)	5 year average (2005-09)
Atlantic migratory group king mackerel	6.6	8.7	7.8	6.9	6.4	7.0	7.8	7.2	7.1

Source: Obtained from http://www.st.nmfs.noaa.gov on June 10, 2010.

Reducing the recreational allocation (Table 2.13.5.3) would increase the likelihood that the recreational sector would 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 over the 24 years shown in Table 2.13.4.1.

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

Species	Preferred 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	6.11

Alternatives 2-Preferred Alternative 4 would establish an ACT to hedge against an ACL overage, provide a buffer between the ACT and ACL, and account for management uncertainty. As recreational landings are survey based, there is greater uncertainty associated with those data than for commercial landings information that are reported by dealers. **Preferred Alternative 4** could have the greatest biological benefit of the four alternatives by adjusting the ACL by 50% or one minus the PSE from the recreational fishery, whichever is greater (Table 2.13.5.3). The lower the value of the PSE, the more reliable the landings data. By using PSE in **Preferred Alternative 4**, more precaution is taken in the estimate of the ACT with increasing variability and uncertainty in the landings data.

Establishing an ACT below the recreational ACL could also reduce the need to close or implement post-season AMs that are meant to correct for an ACL overage. The ACT could serve as a warning that landings were approaching an ACL and could serve as an indicator to enact management measures in the future that resulted in landings at the ACT level. Preferred Alternative 2 for Action 14 would reduce the recreational bag limit in the following year if the stock ACL is exceeded; this reduction would be calculated based on the ACT.

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 and post-season measures to make adjustments if the ACL 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. The recreational AM for this stock is the RA has authority via the framework to revert the recreational possession limit to zero if fishermen have achieved or are expected to achieve their allocation

Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the commercial quota (total ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement additional AMs for the recreational sector for this stock. If the recreational sector quota (total ACL x recreational allocation) is exceeded, the RA shall publish a notice to reduce the length of the following fishing year or reduce the bag limit by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year. Compare the 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. 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

> **Option a.** Reduce the length of the following recreational fishing year by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year
>
> **Preferred Option b.** Reduce the recreational bag limit to ensure landings do not exceed the recreational sector quota for the following fishing year
>
> **Preferred Option c.** Only adjust the recreational bag limits or season length if the Total ACL is exceeded

Preferred Alternative 3. Commercial payback of any overage

> **Option a.** Payback regardless of stock status - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
>
> **Preferred Option b.** Payback only if overfished - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the

Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
Preferred Option c. Only deduct overages if the Total ACL is exceeded

Preferred Alternative 4. Recreational payback of any overage from one year to the next
Option a. Payback regardless of stock status - 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 16-5
Preferred Option b. Payback only if overfished - 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 sector ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 16-5
Preferred Option c. Only deduct overages if the Total ACL is exceeded

<u>Explanation of how AM Payback Alternatives/Options work together:</u> The options work with the alternatives as follows (Table 2.14.1):

1. If only the commercial sector goes over their commercial ACL, and the stock is overfished and the total ACL is exceeded, then the amount above the total ACL is deducted from the commercial ACL for the following year.
2. If only the recreational sector goes over their recreational ACL, and the stock is overfished and the total ACL is exceeded, then the amount above the total ACL is deducted from the recreational ACL for the following year.
3. If both the recreational and commercial sectors go over their respective ACLs, and the stock is overfished and the total ACL is exceeded (which it will be as both recreational & commercial are over meaning the total is over), then the amount of the commercial overage is deducted from the commercial ACL for the following year and the amount of the recreational overage is deducted from the recreational ACL for the following year.

Table 2.14.1. Examples of how the Payback alternatives and options work together.

Stock is Overfished? Yes					
Total ACL Exceeded? Yes					
Fishing Year					
	2011/2012	2011/2012	2011/2012	2012/2013	2012/2013
#1 Com Overage	ACL	Landings	Overages	ACL	Landings
Total ACL	10	11	1		
Com ACL (40%)	**4**	**6**	**2**	**3**	
Rec ACL (60%)	6	5		6	
	2011/2012	2011/2012	2011/2012	2012/2013	2012/2013
#2 Com Overage	ACL	Landings	Overages	ACL	Landings
Total ACL	10	11	1		
Com ACL (40%)	4	3		4	
Rec ACL (60%)	**6**	**8**	**2**	**5**	
	2011/2012	2011	2011	2012/2013	2012/2013
#3 Both Overage	ACL	Landings	Overages	ACL	Landings
Total ACL	10	12	2		
Com ACL (40%)	**4**	**5**	**1**	**3**	
Rec ACL (60%)	**6**	**7**	**1**	**5**	

Discussion: Magnuson-Stevens Act NS1 guidelines recognize that existing FMPs may use terms and values that are similar to, associated with, or may be equivalent to AMs in many fisheries for which annual specifications are set for different stocks or stock complexes. In these situations the guidelines suggest that, as Councils revise their FMPs they use the same terms as set forth in the NS1 guidelines. Current Atlantic migratory group king mackerel regulations (**Alternative 1**) include size limits, bag limits, trip limits, quotas, and certain prohibited gear types. Currently, 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. The recreational AM for this stock is the RA has authority via the framework to revert the recreational possession limit to zero if fishermen have achieved or are expected to achieve their allocation.

There are several types of AMs that may be applied in the Coastal Migratory Pelagics fishery. In-season AMs are those that are triggered during the fishing season, typically before an ACL is exceeded or when it is projected to be met. Some examples of in-season AMs include quota closures, trip or bag limit changes, gear restrictions, or catch shares. Post-season AMs would be triggered if the ACL was exceeded and would typically be implemented the following fishing season. Post-season AMs could include seasonal closures, reduced trip or bag limits, or shortening of the fishing season implemented in the subsequent year. Ideally, a combination of in-season and post-season AMs would be used to first prevent the ACL or ACT from being exceeded, and then provide a mechanism to correct for an overage if one should occur. Implementing a post-season AM in addition to an in-season AM would reduce the risk of overfishing since there would be two layers of protection against unsustainable harvest rates.

The efficacy of in-season AMs is largely reliant upon in-season monitoring of landings, which may be especially difficult for the recreational sector. The MRFSS and the newly implemented MRIP use random survey methods and may not capture data on species that are infrequently encountered. An additional obstacle to tracking recreational harvest in-season is that there is a lag time between when the fish are landed and when those landings are reported in the landings database. This lag time means that projections of when the recreational ACL is expected to be met would need to be employed. Landings projections are not always 100% accurate, thus using such estimates could lead to an in-season AM being triggered prematurely, or not soon enough causing a recreational ACL overage.

The South Atlantic Council may choose one or more post-season AMs to supplement any of the in-season AMs. This would be the most administratively burdensome scenario; however, if an ACL overage were to occur after an in-season AM has been implemented, a post-season AM would be available to the RA as a means to correct an overage and prevent overfishing. Post-season AMs would allow all landings for a particular season to be reported before any harvest restriction measures would take effect. This method of accountability alone may correct for one year's or several years' overages; however, it does little to prevent an overage from occurring again unless it is chosen in conjunction with an in-season AM.

Preferred Alternative 2 would prevent the commercial sector from profiting from the harvest of king mackerel in quantities exceeding the ACL, and thus provides a disincentive to target king mackerel species once the ACL has been reached. Also, under **Preferred Alternative 2**, if the ACL is exceeded, the RA would reduce the recreational bag limit to ensure landings do not exceed the recreational sector ACT for the following fishing year (**Preferred Option b**); however, the recreational bag limit would only be reduced if the total ACL is exceeded (**Preferred Option c**). **Options b** and **c** would ensure that the amount of the previous year's ACL overage would be accounted for in the subsequent year's protection via a reduced bag limit, and thus would be biologically beneficial.

Preferred Alternative 2 and **Preferred Option b** indicate the Council's intent to only have the recreational bag limit adjusted in the future thereby making it clear that the RA has no flexibility in what measures to implement under **Preferred Alternative 2**. **Preferred Option c** indicates the Council's intent that in the event either the bag limit (**Preferred Option b**) or season (**Option a**) was changed, this change would only occur if the total ACL is exceeded.

Preferred Alternatives 3 and **4** address payback of overages for the commercial and recreational sectors, respectively. **Option a** under **Preferred Alternatives 3** and **4** would address payback or an overage regardless of stock status, which is more conservative than a payback only if overfished (**Preferred Option b** under **Preferred Alternatives 3** and **4**). Further, **Option c** under **Preferred Alternatives 3** and **4** would only enact payback of overages if the total ACL was exceeded.

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

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 South Atlantic Council's SSC, however, the biomass parameters were not accepted. SEDAR 28, which begins in 2012, and is scheduled to be completed in 2013, will asses Atlantic migratory group Spanish mackerel with data through 2011.

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 South Atlantic Council's SSC noted that there will likely never be precise estimates of such parameters and decisions must be made despite this uncertainty.

The SSC 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 are provided by each SEDAR assessment and the recommendations of the SSC as they review each assessment. The SSC has ABC recommendations. Information from the SEDAR assessment is shown in Table 2.16.2.1.

2.16.1 ACTION 16-1: Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST), and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory group Spanish Mackerel

The South Atlantic Council has determined that the value for MSY is the value from the most recent stock assessment. Currently MSY = 5.24 mp. Based on the SEDAR 17 assessment, MSY = 11.461 mp (Table 2.16.2.1). The South Atlantic Council's SSC has recommended this value not be used because biomass based estimates could not be reliably estimated from SEDAR 17and so the South Atlantic Council is not proposing to change the existing value. The MSY will be reexamined when the next SEDAR assessment is completed.

The South Atlantic 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 (17,824,191 pounds) (Table 2.16.2.1). The SSC has recommended this value not be used and so the South Atlantic Council is not proposing to change the existing value. This will be reexamined when the next SEDAR assessment is completed.

The South Atlantic Council has determined that the value for MFMT is the value of F_{MSY} or proxy from the most recent stock assessment. Currently MFMT = F_{MSY} = $F_{30\%SPR}$ with no value 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 South Atlantic Council is not proposing to change the existing value. This will be reexamined when the next SEDAR assessment is completed.

2.16.2 ACTION 16-2: Overfishing Level (OFL) for Atlantic Migratory group Spanish Mackerel

The SSC provided the following OFL recommendation at their April 2010 meeting: Since no biomass estimates are available for Spanish mackerel, the SSC decided to develop ABC recommendations based on landings data as recommended by the SEFSC. Based on the SEDAR 17 review panel recommendation that overfishing was not occurring, the SSC decided at their April 2010 meeting 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 determined that OFL is unknown.

The Council recommended 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 met in April 2010, and reviewed the interim OFL as requested by the South Atlantic Council. The SSC did not object to this method but retained their determination that the OFL is unknown. Given that the SSC has stated OFL is unknown, the Council will use the total ACL for Atlantic migratory group Spanish mackerel to determine whether overfishing is occurring.

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 ACTION 16-3: Acceptable 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 South Atlantic 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 mp. The current ABC = 5.7 – 9.0 mp.

The South Atlantic Council's SSC first discussed ABC control rules in June 2008. An issue paper outlining various alternative approaches to establishing ABC was provided to the South Atlantic Council in September 2008. During a March 2009 meeting the SSC decided on 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 assessed stocks. 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. Table 2.13.3.1 shows the different tiers used for determining an ABC for a Level 1 assessed species.

Although Atlantic migratory group Spanish mackerel has been assessed for many years (pre-SEDAR) and had a recent stock assessment, the SSC had no choice but to consider Spanish mackerel to be a Level 4 species due to uncertainty associated with the assessment in estimating biomass. The SSC met 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 South Atlantic 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 South Atlantic 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 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 SSC met again in April 2011 and developed the decision tree shown in Table 2.16.3.1 to better quantify Tier 4.

Table 2.16.3.1. South Atlantic Council's SSC interim approach to recommend ABCs for unassessed species in Level 4 of the Control Rule (Table 2.13.3.1).

1. Will catch affect stock? NO: Ecosystem Species (Council largely done this already; CMP Amendment 18 and Comprehensive ACL Amendment) YES: GO to 2
2. Will increase (beyond current range of variability) in catch lead to decline or stock concerns? NO: ABC = 3rd highest point in the 1999-2008 time series YES: Go to 3
3. Is stock part of directed fishery or is it primarily bycatch for other species? Directed: ABC = Median 1999-2008 Bycatch/Incidental: If yes. Go to 4
4. Bycatch. Must judge the circumstance: If bycatch in other fishery: What are trends in that fishery? What are the regulations? What is the effort outlook? If the directed fishery is increasing and bycatch of "stock of concern" is also increasing, the Council may need to find a means to reduce interactions or mortality. If that is not feasible, will need to impact the directed fishery. The SSC's intention is to evaluate the situation and provide guidance to the Council on possible catch levels, risk, and actions to consider for bycatch and directed components.

The SSC met again in April 2011 to make final recommendations for stocks that are unassessed or have limitations associated with the assessment. Because the Spanish mackerel ABC value was based on landings data rather than assessment information, and the SSC developed a new interim approach for determining ABC at the meeting, the SSC reconsidered its earlier recommendation for ABC. Discussions within the SSC centered on the method used to determine how high above the median landings value the ABC should be set. The use of standard deviations and percentiles were discussed in detail, with a recommendation for using the 80th percentile, or in this case the third highest point over a ten year period for use as the ABC. The OFL for Spanish mackerel was determined by the SSC to be unknown and the ABC was set at the 80th percentile for the time series ranging from 1999-2008. The final proposed ABC Control rule is included as **Preferred Alternative 2** in the ABC control rule alternatives of this amendment and included below.

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

<u>Preferred Alternative 2.</u> Adopt the SAFMC SSC recommended ABC control rule (currently = 5.69 mp)

<u>Discussion</u>: **Alternative 1** would not establish an ABC control rule for Atlantic migratory group Spanish mackerel. For stock and stock complexes required to have an ABC, the NS1 guidelines and associated regulations for the Magnuson-Stevens Act state the ABC will be set on the basis of the ABC control rule.

Since no biomass estimates are available for Atlantic migratory group Spanish mackerel, due to uncertainty in the assessment, the SSC had no choice but to develop ABC recommendations based on landings data as recommended by the SEFSC. The OFL for Atlantic migratory group Spanish mackerel was determined by the SSC to be unknown and the ABC was set as the third highest point over a ten year period (equivalent to the 80^{th} percentile) for the time series ranging from 1999-2008. Therefore, ABC for Spanish mackerel = 5.69 mp (**Preferred Alternative 2**). The Council requested the SSC evaluate setting the ABC based on the 3^{rd} highest commercial sector landings and 3^{rd} highest recreational sector landings which would result in ABC = 6.072 million pounds using sector landings. The SSC met via conference/web on July 29, 2011and discussed the Council's request. Their report was presented to the South Atlantic Council during their August 9, 2011 meeting; conclusions from the report are included below:

> *- SSC amenable to reconsidering the Spanish mackerel ABC if the council desires.*
> *-One justification for an overall reconsideration would be that the Council will accept a higher tolerance for risk than that implied by the current recommendation.*
> *-This does not appear to be the case in this situation, as the justification is based on sectors and their propensity to meet allocations over the past, there is no indication of the risk tolerance for the overall ABC that results. SSC does not feel that the Council has provided an adequate justification for reconsidering the ABC.*
> *- Concern expressed that accepting an alternative method for a single stock would establish a precedent for other stocks. Also concerned that adopting this approach will undermine the integrity of the recommended control rule that provides the basis for all unassessed stocks ABCs. It is noted that the SSC developed the current control rule after considerable deliberation, and in response to criticisms for adopting ad hoc and inconsistent approaches for establishing ABCs.*
> *- The SSC is not supportive of developing an ABC based on the sector - specific approach as proposed by the Council. The SSC considers the ABC to be a parameter relating to the overall population and removed from issues related to allocations that the Council may consider. It is not biologically defensible to establish ABCs based on Sector-specific data.*
> *- The SSC clarified that the ABC for Spanish mackerel is based on the recommendations from the stock assessment and the SSC's opinion on the sustainable level of harvest given those assessment findings. Issues regarding allocation of the ABC and whether a sector reaches its allocation come after ABC deliberations. Ordering of these events is important.*
> *- It was noted that the current TAC is 7.05 million pounds and has been in place since the 1999 fishing year. The assessment review panel stated that*

overfishing was minor to not occurring since 2000, or essentially the same period used to establish the ABC.
- Members discussed other alternatives for ABC, if the SSC were to reconsider the recommendation on a larger scale. Two options considered were the current TAC and the highest observed landings (1999-2008). It was acknowledged that such options were considered and discussed on at least 2 other occasions by the SSC. The Committee agreed that other alternatives could be considered, but doing so is beyond the scope of the request from the Council, and would require more time and information than is available.

SSC Recommendation: The SSC does not recommend pursuing the approach suggested by the Council for Spanish mackerel. The SSC did indicate they would be willing to revisit discussions to determine if setting the level at the present TAC was an interim option, given overfishing was minor to nonexistent during the reviewed time period.

Existing recreational and commercial allocations result in sector-specific ABCs as shown in Table 2.16.3.2.

Table 2.16.3.2. Atlantic migratory group Spanish mackerel ABC recommendation (millions of pounds) from the Scientific and Statistical Committee (April 2011) and current allocations.

Year	ABC	Recreational (45%)	Commercial (55%)	Source
2011	5.69	2.56	3.13	SSC April 2011

Preferred Alternative 2 would adopt the South Atlantic Council's 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. Although Atlantic migratory group Spanish mackerel has been assessed for many years (pre-SEDAR) and had a recent stock assessment, the SSC had no choice but to consider Spanish mackerel to be a Level 4 species due to uncertainty associated with the assessment in estimating biomass. At their April 2011 meeting, the SSC recommended an approach to determine ABC for Level 4 stocks (Table 2.16.3.1) and reviewed the previous fishing level recommendations for Atlantic migratory group Spanish mackerel at their April 2011 meeting. The SSC recommended an ABC = 5.69 mp for Atlantic migratory group Spanish mackerel.

2.16.4 ACTION 16-4: Annual Catch Limit (ACL) for Atlantic Migratory group Spanish Mackerel

Alternative 1. No Action - currently TAC or ACL = 7.04 mp based on an ABC of 5.7-9.0 mp (Recreational Sector ACL = 45% = 3.17 mp; Commercial Sector ACL = 55% = 3.87 mp)

Preferred Alternative 2. ACL = OY = ABC (currently 5.69 mp which is the 3rd highest year of landings recommended by the SSC; Recreational Sector ACL = 45% = 2.56 mp; Commercial Sector ACL = 55% = 3.13 mp)

Alternative 3. ACL = OY = X% of ABC = ______ mp

- **Option a.** ACL = 75%ABC = 75% (currently 5.69 mp) = 4.27 mp (Recreational Sector ACL = 45% = 1.92 mp; Commercial Sector ACL = 55% = 2.35 mp)
- **Option b.** ACL = 85%ABC = 85% (currently 5.69 mp) = 4.84 mp (Recreational Sector ACL = 45% = 2.18 mp; Commercial Sector ACL = 55% = 2.66 mp)
- **Option c.** ACL = 95%ABC = 95% (currently 5.69 mp) = 5.41 mp (Recreational Sector ACL = 45% = 2.43 mp; Commercial Sector ACL = 55% = 2.98 mp)
- **Option d.** ACL = 80%ABC = 80% (currently 5.69 mp) = 4.55 mp (Recreational Sector ACL = 45% = 2.05 mp; Commercial Sector ACL = 55% = 2.50 mp)
- **Option e.** ACL = 90%ABC = 90% (currently 5.69 mp) = 5.12 mp (Recreational Sector ACL = 45% = 2.30 mp; Commercial Sector ACL = 55% = 2.82 mp)

Discussion: The ACL is equivalent to total allowable catch (TAC) as used in the past. Landings data are provided in Table 2.16.4.1 to assist in choosing ACL. The South Atlantic Council is not considering changes to the existing allocations for Spanish mackerel. Applying the existing allocations results in sector-specific ACLs as discussed below.

Alternatives 2 (Preferred) - 5 would set the OY equal to the ACL. NS1 establishes the relationship between conservation and management measures, preventing overfishing, and achieving OY from each stock, stock complex or fishery. The relationship of OFL to MSY and ACT (ACL) to OY is discussed in the NSA guidelines. The OFL, if provided by a SSC, is an annual amount of catch that corresponds to the estimate of MFMT applied to a stock or complex's abundance; MSY is the long-term average of such catches. The ACL would be the limit that triggers AMs, and ACT, if specified, would be the management target for a fishery. Management measures for a fishery should, on an annual basis, prevent the ACL from being exceeded. The long-term objective is to achieve OY through annual achievement of an ACL or ACT. The NS1 guidelines state that if OY is set close to MSY, the conservation and management measures in the fishery must have very good control of the amount of catch in order to achieve OY without overfishing.

Although MSY and OFL are unknown for stocks which have not undergone stock assessments, the South Atlantic Council's SSC has established an ABC control that takes into consideration scientific uncertainty to ensure catches are maintained below a presumed MSY/OFL level.

Setting OY equal to ACL would provide greater insurance that OY is achieved, overfishing is prevented, and the long-term average biomass is near or above B_{MSY}. Setting OY equal to ACL would provide greater assurance that overfishing is prevented, and the long-term average biomass is near or above B_{MSY}.

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

Under **Preferred Alternative 2** the South Atlantic Council is setting the ACL equal to the ABC specified by the South Atlantic Council's SSC. Based on an ACL = ABC, the recreational allocation (45%) would be 2.56 mp (recreational sector ACL) and the commercial allocation (55%) would be 3.13 mp (commercial sector ACL). The commercial quota would not have been exceeded in the last two years (Table 2.16.4.1). The recreational allocation would not have been exceeded and the total would not have been exceeded in the last three years.

Under **Alternative 3** the recreational allocation (45%) would range from a low of 1.92 (**Option a**) to a high of 2.43 mp (**Option c**). These options would have a greater chance of the recreational allocation being exceeded (Table 2.16.4.1) than **Preferred Alternative 2**. The commercial allocation (55%) would range from a low of 2.35 (**Option a**) to a high of 2.98 mp (**Option c**). These alternatives would have a greater chance of the commercial quota being exceeded (Table 2.16.4.1) than **Preferred Alternative 2**.

Alternative 1 would retain the current regulations established for Atlantic migratory group Spanish mackerel, which includes a TAC of 7.04 mp. The final NS1 guidelines recognize that existing FMPs may use terms and values that are similar to, associated with, or may be equivalent to OFL, ABC, ACLs, ACTs, and AMs) in many fisheries for which annual specifications are set for different stocks or stock complexes. Therefore ACLs are in place for Spanish mackerel in the form of a TAC. However, the South Atlantic Council's SSC has recommended an ABC based on its ABC control rule and this document provides alternatives for ABC. **Preferred Alternative 2** and **Alternative 3** would set the ACL based on the SSC's recommendation for ABC. Therefore, retention of the status quo ACL may not be an appropriate option.

The NS1 guidelines indicate the ACL may typically be close to the ABC. **Preferred Alternative 2** would set ACL equal to the ABC recommended by the SSC. The SSC recommended ABC is 5.69 mp, which is considerable lower than the current TAC of 7.04 mp for **Alternative 1**. Therefore, **Preferred Alternative 2** would provide greater positive biological effects than **Alternative 1**.

Setting ACL/OY equal to some percentage of the ABC in **Alternative 3** and its options would provide greater assurance overfishing does not occur because the options would create a buffer between the ACL and ABC, with **Option a** setting the most conservative ACL at 65% of the ABC. Setting a buffer between the ACL and ACT would be appropriate in situations where there is uncertainty in whether or not management measures are constraining fishing mortality to target levels. ACTs, which are not required, can be set below the ACLs to account for management uncertainty and provide greater assurance overfishing does not occur. The South Atlantic Council is considering ACTs for the Spanish mackerel recreational sector in Action 16-5.

Table 2.16.4.1. Summary of quota management and harvest (million pounds) for Atlantic migratory group Spanish mackerel. Note: The fishing season is April-March through 2004/2005 and March-February for 2005/2006 onwards. Because of the change in fishing season, 2005/2006 had only 11 months of landings; that fishing season has been normalized to 12 months in this table for comparison to other fishing seasons.

Fishing Year	ABC Range[1]	TAC	Recreational Allocation/Quota[2] (mp /numbers)	Rec. Bag Limit	Commercial Quota	Annual Harvest Levels		
						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	2.740	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	5.510
1990/91	4.2 - 6.6	5	1.86 / 1,216,000	4 in FL, 10 GA-NC	3.14	3.535	2.075	5.610
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	1.660	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	2.379	1.505	3.884
2000/01	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	2.794	2.280	5.074
2001/02	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.036	2.034	5.070
2002/03	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.207	1.605	4.812
2003/04	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.740	1.846	5.586
2004/05	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.677	1.365	5.042
2005/06	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	4.041	1.649	5.690
2006/07	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	4.038	1.653	5.691

Fishing Year	ABC Range[1]	TAC	Recreational Allocation/Quota[2] (mp	Rec. Bag Limit	Commercial Quota	Annual Harvest Levels		
2007/08	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.500	1.711	5.211
2008/09	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.511	2.047	5.558
2009/10	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	4.038	2.108	6.146

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 recreational quota are as revised October 14, 1989; 5) Bag limit not be reduced to zero when allocation reached, beginning fishing year 1992.
Source: ALS data for commercial and Table 1.7.1.2.4 for recreational.

2.16.5 ACTION 16-5: Annual Catch Target (ACT) for Atlantic Migratory group Spanish Mackerel

ACTION 16-5a: Commercial Sector ACT

Preferred Alternative 1. No Action **-** 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 (currently 2.82 mp)

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL (currently 2.50 mp)

Discussion: Reducing the commercial quota below the current 3.87 mp would increase the likelihood that the season would be closed early. **Alternative 3** has the greatest potential to shorten the season and **Preferred Alternative 1** the least. Implementing an ACT would provide a mechanism to maintain harvest levels at or below the South Atlantic Council's choice of an ACL. Under this action the most biologically beneficial ACT alternative for the commercial sector would be **Alternative 3**, which would create the largest buffer between the ACT and ACL. **Alternative 2** would result in greater biological benefits than **Preferred Alternative 1**, but fewer biological benefits when compared to **Alternative 3**. The least biologically beneficial ACT alternative would be **Preferred Alternative 1** since it would not establish a level of harvest lower than that of the ACL in order to trigger an AM to prevent ACL overages. However, under **Preferred Alternative 1** there would be little incentive to target Spanish mackerel on commercial trips since all purchase and sale would be prohibited once the ACL is met or projected to be met. Furthermore, if the quota monitoring system is operating properly, landings in excess of the commercial ACL would not be expected.

ACTION 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 (currently 2.18 mp)

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL (currently 1.92 mp)

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater] (currently 2.32 mp)

Discussion: The South Atlantic Council decided to use the five-year average PSE because this better represented recent catches than the three-year average (Table 2.16.5.1). Reducing the recreational ACT below the current 3.17 mp allocation would increase the likelihood that recreational catches would exceed their allocation. **Alternative 3** has the greatest potential and **Alternative 1** the least. **Preferred Alternative 4** uses the variability in estimates of the recreational catches from the MRFSS/MRIP program to calculate the recreational ACT (Table 2.16.5.1).

Table 2.16.5.1. Proportional Standard Errors (PSEs) for Atlantic migratory group Spanish mackerel from weight estimates (A+B1) for all modes.

Species	2003	2004	2005	2006	2007	2008	2009	3 year average (2007-09)	5 year average (2005-09)
Atlantic migratory group king mackerel	8.5	10.0	9.6	10.1	9.6	9.5	9.0	9.6	9.4

Source: Obtained from http://www.st.nmfs.noaa.gov on June 10, 2010.

Alternatives 2-Preferred Alternative 4 would establish ACTs to hedge against an ACL overage, provide a buffer between the ACT and ACL, and account for management uncertainty. As recreational landings are survey based, there is greater uncertainty associated with those data than for commercial landings information that are reported by dealers. **Preferred Alternative 4** could have the greatest biological benefit of the four alternatives by adjusting the ACL by 50% or one minus the PSE from the recreational fishery, whichever is greater. The lower the value of the PSE, the more reliable the landings data. By using PSE in **Preferred Alternative 4**, more precaution is taken in the estimate of the ACT with increasing variability and uncertainty in the recreational landings data. Establishing an ACT below the recreational ACL could also reduce the need to close or implement post-season AMs that are meant to correct for an ACL overage. If AMs were not triggered when ACT is met, the ACT could serve as a warning that landings were approaching an ACL and could serve as an indicator to enact management measures in the future that would result in landings at the ACT level. Preferred Alternative 2 for Action 17 would reduce the recreational bag limit in the following year if the stock ACL is exceeded; this reduction would be calculated based on the ACT.

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. No Action **-** the commercial AM for this stock is to reduce the trip limit to 1,500 lb when 75% of the adjusted quota is landed, and reduce the trip limit to 500 lb when 100% of the adjusted quota is landed for the Southern Zone (Florida). No commercial closure provisions currently exist for this stock, and no commercial AMs exist for the Northern Zone (Georgia northward). The recreational AM for this stock is the Regional Administrator has authority via the framework to revert the recreational possession limit to zero if fishermen have achieved or are expected to achieve their allocation

Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the commercial quota (total ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement additional AMs for the recreational sector for this stock. If the recreational sector quota (total ACL x recreational allocation) is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year or reduce the bag limit by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year. Compare the 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. 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

> **Option a.** Reduce the length of the following recreational fishing year by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year
>
> **Preferred Option b.** Reduce the recreational bag limit to ensure landings do not exceed the recreational sector quota for the following fishing year
>
> **Preferred Option c.** Only adjust the recreational bag limits or season length if the Total ACL is exceeded

Preferred Alternative 3. Commercial payback of any overage

> **Option a.** Payback regardless of stock status - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
>
> **Preferred Option b.** Payback only if overfished - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the

Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
Preferred Option c. Only deduct overages if the Total ACL is exceeded

Preferred Alternative 4. Recreational payback of any overage from one year to the next
Option a. Payback regardless of stock status - 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 16-5
Preferred Option b. Payback only if overfished - 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 sector ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 16-5
Preferred Option c. Only deduct overages if the Total ACL is exceeded

Discussion: A discussion and example on how the AM payback provisions work is included under the Atlantic migratory group king mackerel discussion (Section 2.14) and is not repeated here.

Magnuson-Stevens Act NS1 guidelines recognize that existing FMPs may use terms and values that are similar to, associated with, or may be equivalent to AMs in many fisheries for which annual specifications are set for different stocks or stock complexes. In these situations the guidelines suggest that, as Councils revise their FMPs they use the same terms as set forth in the NS1 guidelines. Current Atlantic migratory group Spanish mackerel regulations include size limits, bag limits, trip limits, quotas, and certain prohibited gear types. Currently, the commercial AM for this stock is to reduce the commercial trip limit when the adjusted quota is met (**Alternative 1**). The recreational AM for this stock is the RA has authority via the framework to revert the recreational possession limit to zero if fishermen have achieved or are expected to achieve their allocation.

There are several types of AMs that may be applied in the CMP fishery. In-season AMs are those that are triggered during the fishing season, typically before an ACL is exceeded or when it is projected to be met. Some examples of in-season AMs include quota closures, trip or bag limit changes, gear restrictions, or catch shares. Post-season AMs would be triggered if the ACL was exceeded and would typically be implemented the following fishing season. Post-season AMs could include seasonal closures, reduced trip or bag limits, or shortening of the fishing season implemented in the subsequent year. Ideally, a combination of in-season and post-season AMs would be used to first prevent the ACL or ACT from being exceeded, and then provide a mechanism to correct for an overage if one should occur. Implementing a post-season AM in addition to an in-season AM would reduce the risk of overfishing since there would be two layers of protection against unsustainable harvest rates.

The efficacy of in-season AMs is largely reliant upon in-season monitoring of landings, which may be especially difficult for the recreational sector. The MRFSS and the newly implemented MRIP use random survey methods and may not capture data on species that are infrequently encountered. An additional obstacle to tracking recreational harvest in-season is that there is a lag time between when the fish are landed and when those landings are reported in the landings database. This lag time means that projections of when the recreational ACL is expected to be met would need to be employed. Landings projections are not always 100% accurate; thus using such estimates could lead to an in-season AM being triggered prematurely, or not soon enough to prevent a recreational ACL overage.

The South Atlantic Council may choose one or more post-season AMs to supplement any of the in-season AMs. This would be the most administratively burdensome scenario; however, if an ACL overage were to occur after an in-season AM has been implemented, a post-season AM would be available to the RA as a means to correct an overage and prevent overfishing. Post-season AMs would allow all landings for a particular season to be reported before any harvest restriction measures would take effect. This method of accountability alone may correct for one year's or several years' overages; however, it does little to prevent an overage from occurring again unless it is chosen in conjunction with an in-season AM.

Preferred Alternative 2 would prevent the commercial sector from profiting from the harvest of Spanish mackerel in quantities exceeding the ACL, and thus provides a disincentive to target Spanish mackerel species once the ACL has been reached. Also, under **Preferred Alternative 2**, if the ACL is exceeded, the RA would reduce the recreational bag limit to ensure landings do not exceed the recreational sector ACT for the following fishing year (**Preferred Option b**); however, the recreational bag limit would only be reduced if the total ACL is exceeded (**Preferred Option c**). **Preferred Options b** and **c** would ensure that the amount of the previous year's ACL overage would be accounted for in the subsequent year's protection via a reduced bag limit, and thus would be biologically beneficial.

Preferred Alternative 2 and **Preferred Option b** indicate the Council's intent to only have the recreational bag limit adjusted in the future thereby making it clear that the RA has no flexibility in what measures to implement under **Preferred Alternative 2**. **Preferred Option c** indicates the Council's intent that in the event either the bag limit (**Preferred Option b**) or season (**Option a**) was changed, this change would only occur if the Total ACL is exceeded.

Preferred Alternatives 3 and **4** address payback of overages for the commercial and recreational sectors, respectively. **Option a** under **Preferred Alternatives 3** and **4** would address payback or an overage regardless of stock status, which is more conservative than a payback only if overfished (**Preferred Option b** under **Preferred Alternatives 3** and **4**). Further, **Preferred Option c** under **Preferred Alternatives 3** and **4** would only enact payback of overages if the total ACL was exceeded.

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

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

Preferred Alternative 1. No Action **-** individual recreational bag limit is 15 per person per day for NY-FL. Bag limit sales are allowed consistent with state regulations. The commercial possession limits are as follows:

A. Northern Zone (Georgia northwards) – 3,500 pounds per day

B. Southern Zone (Florida)
   1. March 1-November 30 – 3,500 pounds per vessel per day
   2. December 1 until 75% of the adjusted quota is taken:
      Monday-Friday – Unlimited
      Saturday & Sunday– 1,500 pounds
   3. After 75% of the adjusted quota is taken – 1,500 pounds per vessel per day for all days
   4. When 100% of the adjusted quota is taken – 500 pounds per vessel per day to the end of the fishing year (March 31). Adjusted quota compensates for estimated catches of 500 pounds per vessel per day to the end of the season
   5. 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
   6. The adjusted quota (currently 3.62 mp) is the quota for Atlantic migratory group Spanish mackerel reduced by an amount calculated to allow continued harvests of Atlantic migratory group Spanish mackerel at the rate of 500 lb per vessel per day for the remainder of the fishing year after the adjusted quota is reached

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

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

Alternative 4. Reduce the individual bag limit for all recreational vessels from 15 to 10 per person per day

Alternative 5. Reduce the individual bag limit for all recreational vessels from 15 to 12 per person per day and set a maximum vessel limit of 60 per vessel per day

Discussion: Comparing the recreational ACL with recent landings does not indicate that a reduction in current harvest levels is necessary. The commercial ACL would be tracked and the fishery closed when the ACL is met or projected to be met under **Preferred Alternative 1**.

Alternative 4 would reduce the bag limit from 15 to 10 per person and would not be expected to reduce landings in any South Atlantic state based on average catches from 2005-09 (Table 2.18.1). Reducing the individual bag limit from 15 to 10 per person would not impact catches in the Mid-Atlantic other than Virginia where the reduction was 36% based on 2008 catches (Table 2.18.1)

Table 2.18.1. Atlantic migratory group Spanish mackerel percentage reductions by reducing the bag limit from 15 to 10 (Alternative 4).

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%

Source: ACCSP.

Alternative 5 would reduce the bag limit from 15 to 12 fish per person and would not impact catches in South Atlantic states. **Alternatives 2** and **3** would set maximum boat limits of 60 per vessel 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 **Alternative 4**. The greater the reduction in the bag limit, the greater the expected biological effect to the resource. As recreational landings are below the recreational ACL and ACT for Spanish mackerel, more restrictive management measures do not appear to be needed. Through monitoring the recreational ACL and ACT, the South Atlantic Council can evaluate the effectiveness of current management measures and determine if additional management measures are needed in the future.

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

The MSY, MSST, OFL, and ABC are provided by 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 South Atlantic Council's SSC has developed a data-poor ABC control rule that can be used for cobia.

2.19.1 ACTION 19-1: Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST), and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory group Cobia

The South Atlantic Council has determined that the value for MSY is the value from the most recent stock assessment. Currently MSY is unknown because Atlantic migratory group cobia have never been assessed by the Southeast Fisheries Science Center or through SEDAR. While the SSC has stated that MSY is unknown, the Councils will use the ABC for Atlantic migratory group cobia as a proxy for MSY pending results from the SEDAR assessment scheduled for 2012.

The South Atlantic 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 South Atlantic Council has determined that the value for MFMT is the value of F_{MSY} or proxy of $F_{30\%SPR}$ from the most recent stock assessment. Currently the value for MFMT is unknown.

2.19.2 ACTION 19-2: Overfishing Level (OFL) for Atlantic Migratory group Cobia

The SSC stated at their March 3, 2011 meeting that OFL is unknown. At their March 7-12, 2011 meeting, the South Atlantic Council recommended 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 SSC determined again at their April 2011 meeting that OFL for Atlantic migratory group cobia is unknown. While the SSC has indicated OFL is unknown, the Council will use the total ACL for Atlantic Migratory group Cobia to determine whether overfishing is occurring. If total landings exceed the total ACL, then overfishing is occurring.

The Council will revisit the OFL determination after the SEDAR Assessment that begins in 2012.

2.19.3 ACTION 19-3: Acceptable 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. At their April 2011 meeting, the SSC recommended an interim approach to determine ABC for Level 4 stocks (Table 2.16.3.1), which have not had recent assessments. At that meeting, the SSC considered the South Atlantic Council's recommendation of adopting the Gulf's ABC Control Rule as their preferred alternative and reviewed the previous fishing level recommendations for cobia. The SSC examined the ABC for cobia based on the Gulf Council's ABC Control Rule to determine what percentage the value represented relative to the median landings. The ABC was 25.6% above the median landings value. This value was consistent with the percentages that were being considered in the new interim rule described in Table 2.16.3.1, thus the ABC value derived by the Gulf Council's ABC Control was adopted by the South Atlantic Council's SSC as their ABC recommendation for cobia. Therefore, the ABC from **Alternative 2** and **Preferred Alternative 5** are the same.

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 [currently 1,571,399 lb whole weight; equal to the mean plus 1.5 times the standard deviation of the most recent 10 years landings]

Alternative 3. Establish an ABC Control Rule where ABC equals OFL (unknown)

Alternative 4. Establish an ABC Control Rule where ABC equals a percentage of OFL
- **Option a.** ABC = 65%OFL (unknown)
- **Option b.** ABC = 75%OFL (unknown)
- **Option c.** ABC = 85%OFL (unknown)

Preferred Alternative 5. Adopt the Gulf Council's ABC Control Rule as an interim control rule (currently ABC equals the mean plus 1.5 times the standard deviation of the most recent10 years of landings data = 1,571,399 lb whole weight)

Discussion: **Alternative 1** would not establish an ABC control rule for cobia. For stock and stock complexes required to have an ABC, the NS1 guidelines for the Magnuson-Stevens Act state the ABC will be set on the basis of the ABC control rule. Therefore, **Alternative 1** would not meet the requirements of the Magnuson-Stevens Act.

Alternative 2 would adopt the South Atlantic Council's SSC recommended ABC control rule (Table 2.13.3.1) and would be expected to provide positive biological benefits over the long term by accounting for assessment uncertainty while preventing overfishing. The ABC under **Alternative 2** is the same as specified under **Preferred Alternative 5**.

Alternative 3 would set ABC equal to OFL; however, as the SSC has indicated OFL is unknown for cobia, no value for ABC would be available. **Alternative 3** would carry more biological risk than the other alternatives because it would not account for management uncertainty which could lead to overfishing and negative biological effects. **Alternative 4** and **Options a-c** provide more biological protection as compared to **Alternatives 2** and **3**; however, since OFL is considered to be unknown by the SSC, no value for ABC would be available under any of the options.

Preferred Alternative 5 would adopt the Gulf Council's ABC control rule as an interim control rule until results are available from SEDAR 28 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. The ABC provided in **Preferred Alternative 5** is also recommended by the South Atlantic Council's SSC.

2.19.4 ACTION 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 allocations specified would remain in effect 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 allocations specified would remain in effect until modified

South Atlantic Council's Preferred Allocation 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 commercial and recreational allocations specified would remain in effect until modified.

$$\text{Com Sector \%} = \frac{(50\% \text{ x Average Com 2000-2008}) + (50\% \text{ x Average Com 2006-2008})}{(50\% \text{ x Avg Com 2000-2008} + 50\% \text{ x Avg Com 2006-2008}) + (50\% \text{ x Avg Rec 2000-2008} + 50\% \text{ x Avg Rec 2006-2008})}$$

$$\text{Rec Sector \%} = \frac{(50\% \text{ x Average Rec 2000-2008}) + (50\% \text{ x Average Rec 2006-2008})}{(50\% \text{ x Avg Rec 2000-2008} + 50\% \text{ x Avg Rec 2006-2008}) + (50\% \text{ x Avg Com 2000-2008} + 50\% \text{ x Avg Com 2006-2008})}$$

Discussion: Atlantic migratory group cobia ABC recommendation and proposed allocation are shown in Table 2.18.4.1. 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.

Year	ABC	Allocation Alt.2		Allocation Alt.3 (Preferred)	
		Rec (92%)	Com (8%)	Rec (92%)	Com (8%)
2011	1,571,399	1,445,687	125,712	1,445,687	125,712

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.

Preferred Alternative 3 uses the South Atlantic Council's allocation formula which balances historical catches (2000-2008) with more recent landings (2006-2008). Prior to NOAA Fisheries Service 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 ACTION 19-5: Annual Catch Limit (ACL) for Atlantic Migratory group Cobia

Alternative 1. No Action - currently there is no TAC or ACL for cobia

Preferred Alternative 2. ACL = OY = ABC (currently 1,571,399 lbs based on the SSC Interim Control Rule; Recreational Sector ACL = 92% = 1,445,687 lbs; Commercial Sector ACL = 8% = 125,712 lbs)

Alternative 3. ACL = OY = X% of ABC = ______ mp
- **Option a.** ACL = 75%ABC = 75% (currently 1,571,399 lbs) = 1,021,409 lbs (Recreational Sector ACL = 92% = 939,696 lbs; Commercial Sector ACL = 8% = 81,713 lbs)
- **Option b.** ACL = 85%ABC = 85% (currently 1,571,399 lbs) = 1,178,549 lbs (Recreational Sector ACL = 92% = 1,084,265 lbs; Commercial Sector ACL = 8% = 94,284 lbs)
- **Option c.** ACL = 95%ABC = 95% (currently 1,571,399 lbs) = 1,335,689 lbs (Recreational Sector ACL = 92% = 1,228,834 lbs; Commercial Sector ACL = 8% = 106,855 lbs)
- **Option d.** ACL = 80%ABC = 80% (currently 1,571,399 lbs) = 1,257,119 lbs (Recreational Sector ACL = 92% = 1,156,550 lbs; Commercial Sector ACL = 8% = 100,570 lbs)
- **Option e.** ACL = 90%ABC = 90% (currently 1,571,399 lbs) = 1,414,259 lbs (Recreational Sector ACL = 92% = 1,301,118 lbs; Commercial Sector ACL = 8% = 113,141 lbs)

<u>Discussion</u>: **Alternative 1** would not specify an ACL for cobia. Currently, there are no quotas in place that could serve as ACLs for either the commercial or recreational sector. Therefore, **Alternative 1** would not meet the requirements specified in the Magnuson-Stevens Act.

Preferred Alternative 2 and **Alternative 3** would set the OY equal to the ACL. National Standard 1 establishes the relationship between conservation and management measures, preventing overfishing, and achieving OY from each stock, stock complex or fishery. The relationship between OFL to MSY and ACT (ACL) to OY is discussed in the NS1 guidelines. The OFL, if provided by a SSC, is an annual amount of catch that corresponds to the estimate of MFMT applied to a stock or complex's abundance; MSY is the long-term average of such catches. The ACL would be the limit that triggers AMs, and ACT, if specified, would be the management target for a fishery. Management measures for a fishery should, on an annual basis, prevent the ACL from being exceeded. The long-term objective is to achieve OY through annual achievement of an ACL or ACT. The NS1 guidelines state that if OY is set close to MSY, the conservation and management measures in the fishery must have very good control of the amount of catch in order to achieve OY without overfishing.

Although MSY and OFL are unknown for stocks, which have not undergone stock assessments like cobia, the South Atlantic Council's SSC has established an ABC control that takes into consideration scientific uncertainty to ensure catches are maintained below a presumed MSY/OFL level. Setting OY equal to ACL would provide greater insurance that OY is achieved, overfishing is prevented, and the long-term average biomass is near or above B_{MSY}. Setting OY equal to ACL would provide greater assurance that overfishing is prevented and the long-term average biomass is near or above B_{MSY}.

Preferred Alternative 2 and **Alternative 3** would set the OY equal to the ACL. Setting OY equal to ACL would provide greater assurance that overfishing is prevented and the long-term average biomass is near or above B_{MSY}. Setting OY equal to the ACL in **Preferred Alternative 2** and **Alternative 3**, would be based on the ABC specified through the South Atlantic Council's preferred ABC control rule alternative.

Preferred Alternative 2 would set the ACL equal to the ABC. The NS1 guidelines indicate the ACL may typically be close to the ABC. The preferred alternative in Section 4.19.3 specifies an ABC = 1,571,399 lbs whole weight. Based on the preferred allocation alternatives in Section 4.19.4, 8% (125,712 lbs whole weight) of the ACL would be allocated to the commercial sector and 92% (1,445,687 lbs whole weight) of the ACL would be allocated to the recreational sector.

Alternative 3 and its options would have a greater positive biological effect than **Preferred Alternative 2** because **Alternative 3** would create a buffer between the ACL and ABC, with **Option a** setting the most conservative ACL at 65% of the ABC. Creating a buffer between the ACL and ABC would provide greater assurance overfishing did not occur. Setting a buffer between the ACL and ABC would be appropriate in situations where there is uncertainty in whether or not management measures are constraining fishing mortality to target levels. ACTs, which are not required, can also be set below the ACLs to account for management uncertainty and provide greater assurance overfishing does not occur. ACTs for the recreational sector are being considered by the South Atlantic Council in Action 19-6. **Preferred Alternative 2** and

Alternative 3 are based on the Gulf Council's ABC control rule that was accepted by the SAFMC SSC as an interim control rule and that takes into consideration scientific uncertainty in the specification of ABC.

Preferred Alternative 2 is based on an ABC control rule that takes into consideration scientific uncertainty in the specification of ABC when examining trends in historic landings.

Table 2.19.5.1. Recreational and commercial landing (pounds) of Atlantic cobia from 1986-2008.

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 (pounds) of cobia by year and area based on the boundaries considered in Action 3.

	Alternative 1					Alternative 2			Alternative 3				
	Commercial					Recreational			South Atlantic				
			Monroe County										
Year	South Atlantic Only	Gulf Only	South Atlantic	Gulf	Total	South Atlantic Only	Gulf Only	Monroe County	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

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

2.19.6 ACTION 19-6: Annual Catch Target (ACT) for Atlantic Migratory group Cobia

ACTION 19-6a: Commercial Sector ACT

Preferred Alternative 1. No Action **-** do not specify commercial sector ACTs for Atlantic migratory group cobia

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL (currently 113,141 lbs)

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL (currently 100,570 lbs)

Discussion: **Preferred Alternative 1** would not specify an ACT for the commercial sector. The 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.

Implementing an ACT would provide a mechanism to maintain harvest levels at or below the South Atlantic Council's choice of ACL. Under this action the most biologically beneficial ACT alternative for the commercial sector would be **Alternative 3**, which would create the largest buffer between the ACT and ACL. **Alternative 2** would result in greater biological benefits than **Preferred Alternative 1**, but fewer biological benefits when compared to **Alternative 3**. The least biologically beneficial ACT alternative would be **Preferred Alternative 1** since it would not establish a level of harvest lower than that of the ACL in order to trigger an AM to prevent ACL overages. However, under **Preferred Alternative 1** there would be little incentive to target cobia on commercial trips since all purchase and sale would be prohibited once the ACL is projected to be met. Furthermore, if the quota monitoring system is operating properly, landings in excess of the commercial ACL would not be expected.

ACTION 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 (currently 1,228,834 lbs)

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL (currently 1,084,265 lbs)

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater] (currently 1,184,688 lbs)

Discussion: Reducing the recreational ACT below the ACL would increase the likelihood that recreational catches would exceed their ACT. **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 2.19.6.1).

Table 2.19.6.1. Proportional Standard Errors (PSEs) for Atlantic migratory group cobia from numbers estimates (A+B1) for all modes.

Species	2003	2004	2005	2006	2007	2008	2009	3 year average (2007-09)	5 year average (2005-09)
Atlantic migratory group cobia	14.7	21.2	22.4	14.3	16.9	20.8	15.7	18.1	17.9

Alternatives 2-4 would establish ACTs to hedge against an ACL overage, provide a buffer between the ACT and ACL, and account for management uncertainty. As recreational landings are survey based, there is greater uncertainty associated with those data than for commercial landings information that are reported by dealers. **Preferred Alternative 4** could have the greatest biological benefit of the four alternatives by adjusting the ACL by 50% or one minus the PSE from the recreational fishery, whichever is greater. The Council decided to use the five-year average PSE because this better represented recent catches than the three-year average.

The lower the value of the PSE, the more reliable the landings data. By using PSE in **Preferred Alternative 4**, more precaution is taken in the estimate of the ACT with increasing variability and uncertainty in the landings data. Establishing an ACT below the recreational ACL could also reduce the need to close or implement post-season AMs that are meant to correct for an ACL overage. If AMs were not triggered when ACT is met, the ACT could serve as a warning that landings were approaching an ACL and could serve as an indicator to enact management measures in the future that resulted in landings at the ACT level. Preferred Alternative 3 for Action 20 would reduce the fishing season in the following year if the stock ACL is exceeded; this reduction would be calculated based on the ACT.

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 **-** the recreational and commercial AM for this stock is the Regional Administrator has authority via the framework to revert the recreational and commercial possession limit to zero if fishermen have achieved or are expected to achieve their allocation

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

Preferred Alternative 3. The commercial AM for this stock is to prohibit harvest, possession, and retention when the commercial quota (total ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the commercial quota is met or projected to be met. Implement additional AMs for the recreational sector for this stock. If the recreational sector quota (total ACL x recreational allocation) 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 quota for the following fishing year. Compare the recreational ACL with recreational landings over a range of years. For 2011, use only 2011 landings. For 2012, use the average landings of 2011 and 2012. For 2013 and beyond, use the most recent three-year (fishing years) running average. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter

> **Preferred Option a.** Only adjust the recreational season length if the Total ACL is exceeded

Preferred Alternative 4. Commercial payback of any overage

> **Option a.** Payback regardless of stock status - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
>
> **Preferred Option b.** Payback only if overfished - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
>
> **Preferred Option c.** Only deduct overages if the Total ACL is exceeded

Preferred Alternative 5. Recreational payback of any overage from one year to the next

Option a. Payback regardless of stock status - 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 19-6

Preferred Option b. Payback only if overfished - 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 19-6

Preferred Option c. Only deduct overages if the Total ACL is exceeded

Discussion: A discussion and example on how the AM payback provisions work is included under the Atlantic migratory group king mackerel discussion (Section 2.14) and is not repeated here.

Magnuson-Stevens Act NS1 guidelines recognize that existing FMPs may use terms and values that are similar to, associated with, or may be equivalent to AMs in many fisheries for which annual specifications are set for different stocks or stock complexes. In these situations the guidelines suggest that, as Councils revise their FMPs they use the same terms as set forth in the NS1 guidelines. Current cobia regulations include size limits, bag limits and certain prohibited gear types. Currently, the commercial and recreational AMs for this stock revert the recreational and commercial possession limits to zero if fishermen have achieved or are expected to achieve their allocation.

There are several types of AMs that may be applied in the Coastal Migratory Pelagics fishery. In-season AMs are those that are triggered during the fishing season, typically before an ACL is exceeded or when it is projected to be met. Some examples of in-season AMs include quota closures, trip or bag limit changes, gear restrictions, or catch shares. Post-season AMs would be triggered if the ACL was exceeded and would typically be implemented the following fishing season. Post-season AMs could include seasonal closures, reduced trip or bag limits, or shortening of the fishing season implemented in the subsequent year. Ideally, a combination of in-season and post-season AMs would be used to first prevent the ACL or ACT from being exceeded, and then provide a mechanism to correct for an overage if one should occur. Implementing a post-season AM in addition to an in-season AM would reduce the risk of overfishing since there would be two layers of protection against unsustainable harvest rates.

The efficacy of in-season AMs is largely reliant upon in-season monitoring of landings, which may be especially difficult for the recreational sector. The MRFSS and the newly implemented MRIP use random survey methods and may not capture data on species that are infrequently encountered. An additional obstacle to tracking recreational harvest in-season is that there is a lag time between when the fish are landed and when those landings are reported in the landings database. This lag time means that projections of when the recreational ACL is expected to be met would need to be employed. Landings projections are not always 100% accurate, thus using such estimates could lead to an in-season AM being triggered prematurely, or not soon enough to prevent a recreational ACL overage.

The South Atlantic Council may choose one or more post-season AMs to supplement any of the in-season AMs. This would be the most administratively burdensome scenario; however, if an ACL overage were to occur after an in-season AM has been implemented, a post-season AM would be available to the RA as a means to correct an overage and prevent overfishing. Post-season AMs would allow all landings for a particular season to be reported before any harvest restriction measures would take effect. This method of accountability alone may correct for one year's or several years' overages; however, it does little to prevent an overage from occurring again unless it is chosen in conjunction with an in-season AM.

Alternative 2 would specify commercial but not recreational AMs, and would not meet the new Magnuson-Stevens Act requirements for the recreational sector. **Alternative 2** would prohibit all purchase and sale of cobia when the commercial quota is met or projected to be met. It would not implement additional AMs for the recreational sector for this stock.

Preferred Alternative 3 would also prohibit all purchase and sale of cobia when the commercial quota is met or projected to be met. Furthermore, under **Preferred Alternative 3**, if the ACL is exceeded, the RA would reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACT for the following fishing year; however, the recreational season length would only be adjusted if the total ACL is exceeded (**Preferred Option a**). **Preferred Option a** would ensure that the amount of the previous year's total ACL overage would be accounted for in the subsequent year's protection via a shortened season, and thus would be biologically beneficial.

Alternatives 4 and 5 address payback of overages for the commercial and recreational sectors, respectively. **Option a** under **Preferred Alternatives 4** and **5** would address payback of an overage regardless of stock status, which is more conservative than a payback only if overfished (**Preferred Option b** under **Preferred Alternatives 4** and **5**). Further, **Preferred Option c** under **Preferred Alternatives 4** and **5** would only enact payback of overages if the total ACL was exceeded.

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) two per person per day possession limit (Note: Florida State regulations only allow 1 per person per day for recreational and 2 per person per day for commercial), (c) one day possession limit, (d) must be landed with heads and fins intact, and (e) 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:
- **Option a.** Two cobia per person per day
- **Option b.** One cobia per person per day

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

Alternative 4. Reduce the recreational possession limit from 2 to 1 cobia per vessel per day

Alternative 5. Establish a closed season for the recreational fishery

Alternative 6. Reduce the recreational possession limit from 2 to 1 cobia per person per day during the spawning season (April 1 through June 30)

Discussion: Comparing the recreational ACL (currently 1,445,687 lbs) and commercial ACL (currently 125,712 lbs) with landings through 2009 (Table 2.19.5.2) does not indicate that a reduction in current harvest levels is necessary. The commercial ACL would be tracked and the fishery closed when the ACL is met or projected to be met. **Alternative 1** would continue the precautionary management put in place through CMP Amendment 1, implemented in September of 1985, which established a minimum size limit for cobia at 33 in FL or 37 in TL. Also, CMP Amendment 5, implemented in August 1990, established a daily possession limit of two cobia per person per day 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 (to New York). So, since 1998 cobia have been protected with a two-fish daily bag limit and a 33-in FL or 37-in TL minimum size limit throughout the management area. **Preferred Alternative 1** would continue this level of precautionary biological protection.

Alternative 2 would specify a daily commercial trip limit based on either the existing two cobia per person possession limit (**Option a**) or reduce the limit to one cobia per person (**Option b**). The minimum size limit would remain unchanged under either option. **Alternative 2, Option a** would continue the level of protection in place since 1990 in the South Atlantic and 1998 in the Mid-Atlantic. **Option b** would reduce the commercial trip limit to one cobia per person per trip which would be more biologically conservative, unless fishermen violate the law and make 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 possession limit from two to one per person per day (**Alternative 3**) would 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 South Atlantic Council's ABC 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 recreational possession limit from two to one per person per day.

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%

Source: ACCSP.

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. Similar benefits and costs would result under **Alternative 6**, which would reduce the bag limit of cobia during from two fish to one during April and June.

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 surface water temperatures range from 12ºC to 29ºC (54ºF to 84ºF) depending on time of year.

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 Gulf of Mexico Fishery Management Council, and the National Park Service (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 2005).

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.

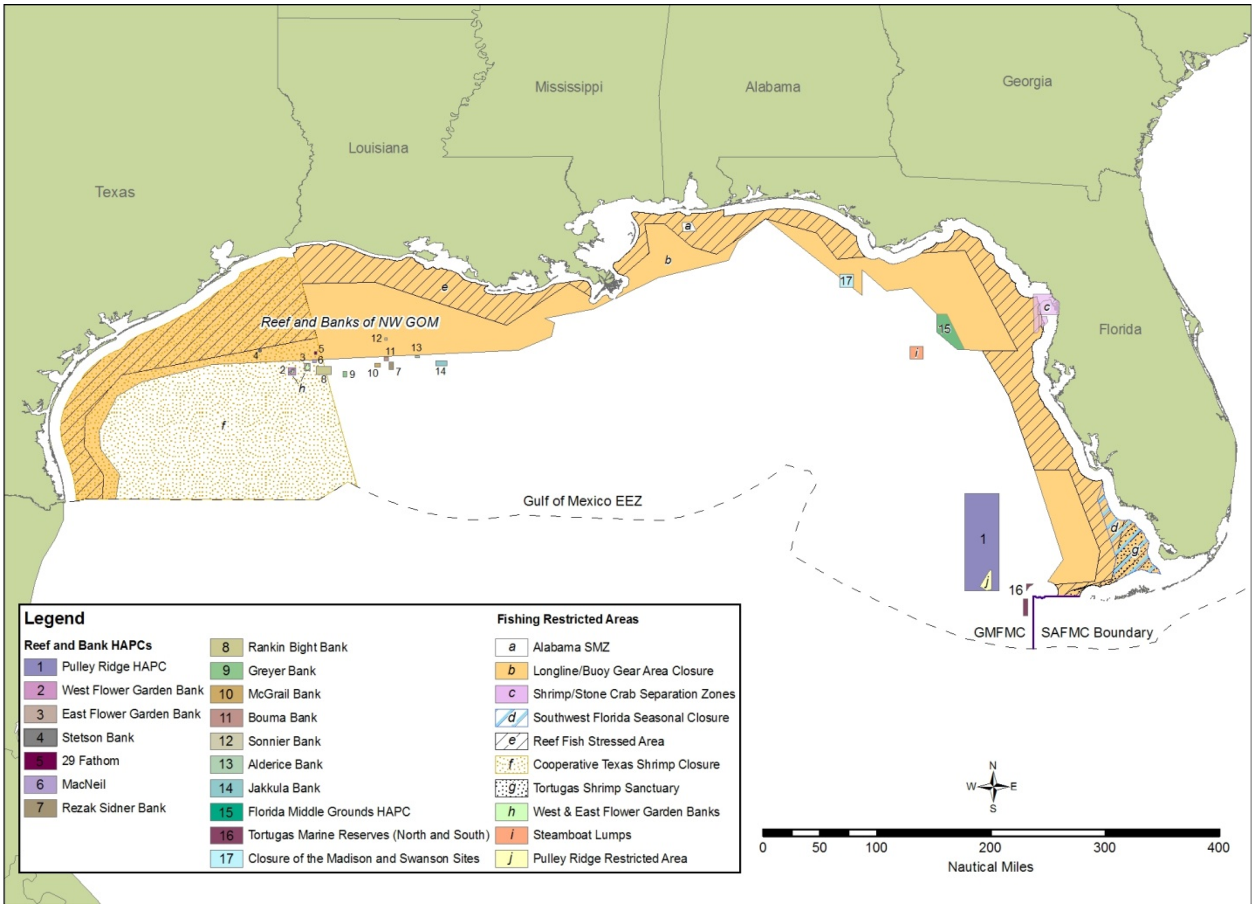

Figure 3.1.1.1. Environmental Sites of Special Interest Relevant to CMP Species in the Gulf of Mexico.

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 km^2 (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, 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, 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 (27-30°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.

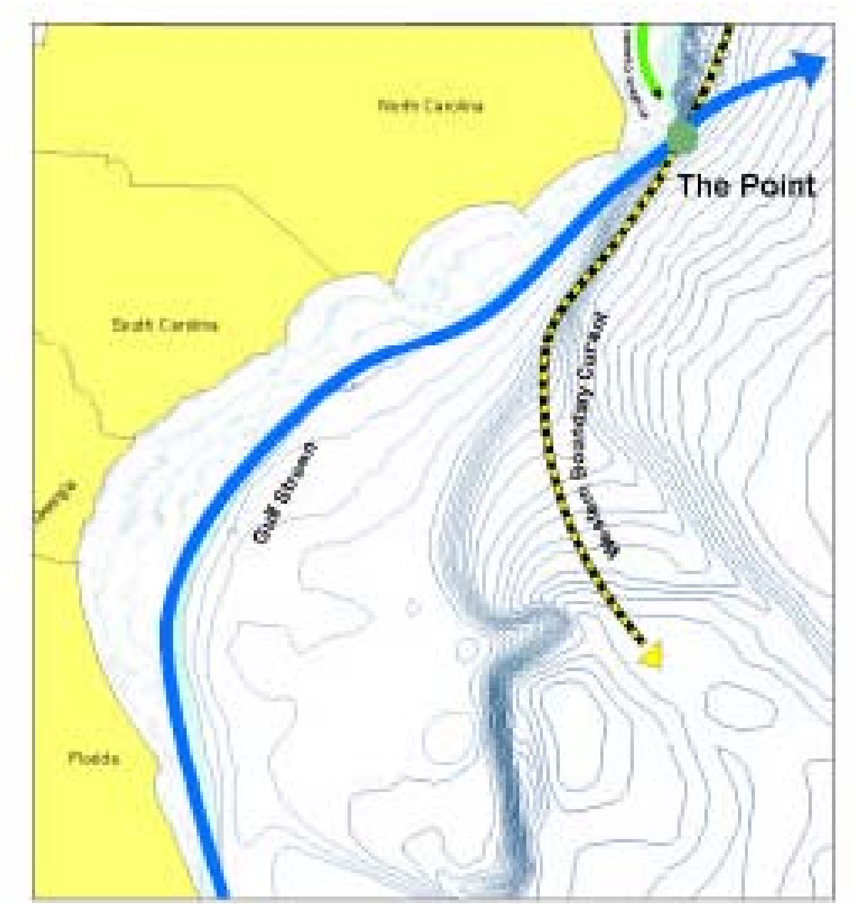

Figure 3.1.2.1. Water masses off Cape Hatteras, North Carolina.
Source: Roger Pugliese, SAFMC; Adapted from Shepard and Hulbert, 1994.

3.2 Biological Environment

<u>BP/Deepwater Horizon</u>
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 would 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. On April 19, 2011, the last area closed to fishing was reopened.

Prior to reopening an area, protocol required 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 successfully passed both a sensory examination and chemical analysis in an approved laboratory. The protocol involved sensory testing for polycyclic aromatic hydrocarbon (PAH) components of the oil and dispersant, and chemical-based testing for PAH as a confirmatory measure. Testing was performed on finfish, shrimp, crabs, and mollusks (e.g. oysters/mussels) from 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.

Coastal Migratory Pelagic Species

The mackerels in this management unit are often referred to as scombrids. The family Scombridae also 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 FMP 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. They prefer 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. 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 ft. 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 3-490 ft (1-150 m). 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 17.7-19.6 in long and usually occurs by the time they are 35.4 in long. 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 28.3 in. Females in U.S. waters, between the sizes of 17.6-58.6 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 migratory 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 0.02-0.05 in 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 20-32°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 in 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 1.3.1. 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 in (183 cm) in length and 17 lbs (7.76 kg) in weight. The record in Florida waters is 15.5 lbs (7 kg), although the fish commonly weighs up to 8 lbs (3.6 kg). Males reach maturity at lengths between 12.8-13.4 in (32.5-34 cm), and females at lengths of approximately 15 in (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 five years. Average fork lengths for males and females range from 34 to 55 in. 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. Bluefish 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 migratory 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 in (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 migratory 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, 2004), the August 2007 ESA Biological Opinion on the CMP fishery (NMFS 2007) 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[3]). The 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

[3]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

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.[4] 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.

[4] 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.

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 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.

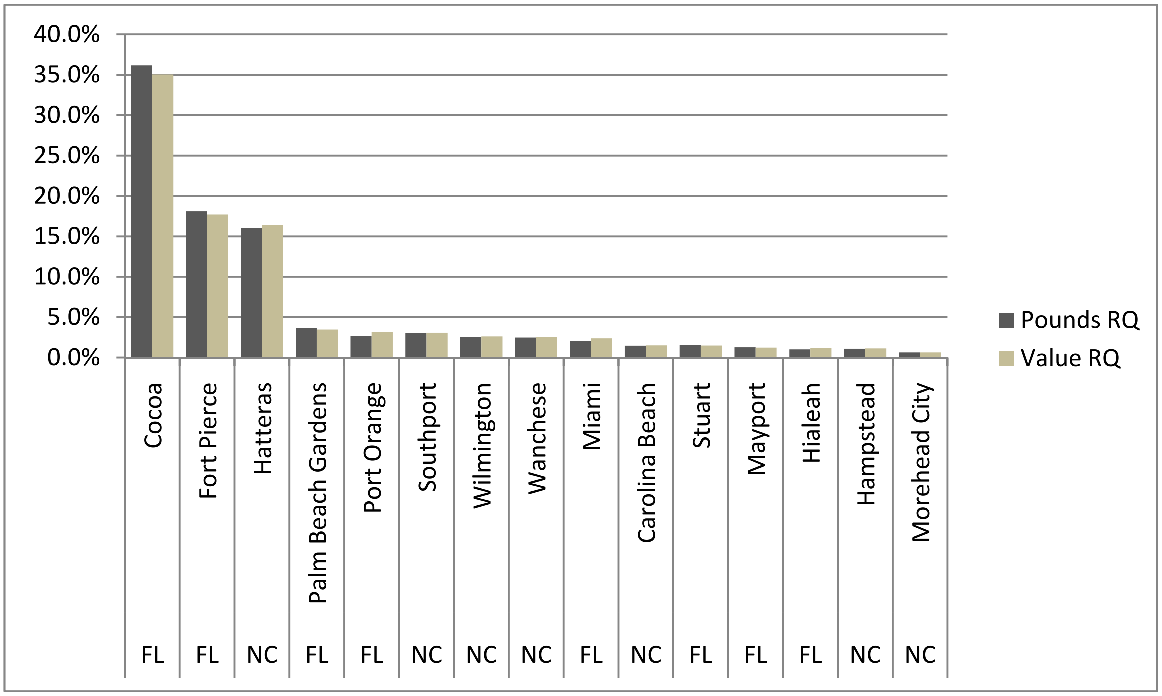

Figure 3.3.2.1. Top fifteen South Atlantic communities ranked by pounds and value regional quotient of king mackerel.
Source: ALS 2008

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%.

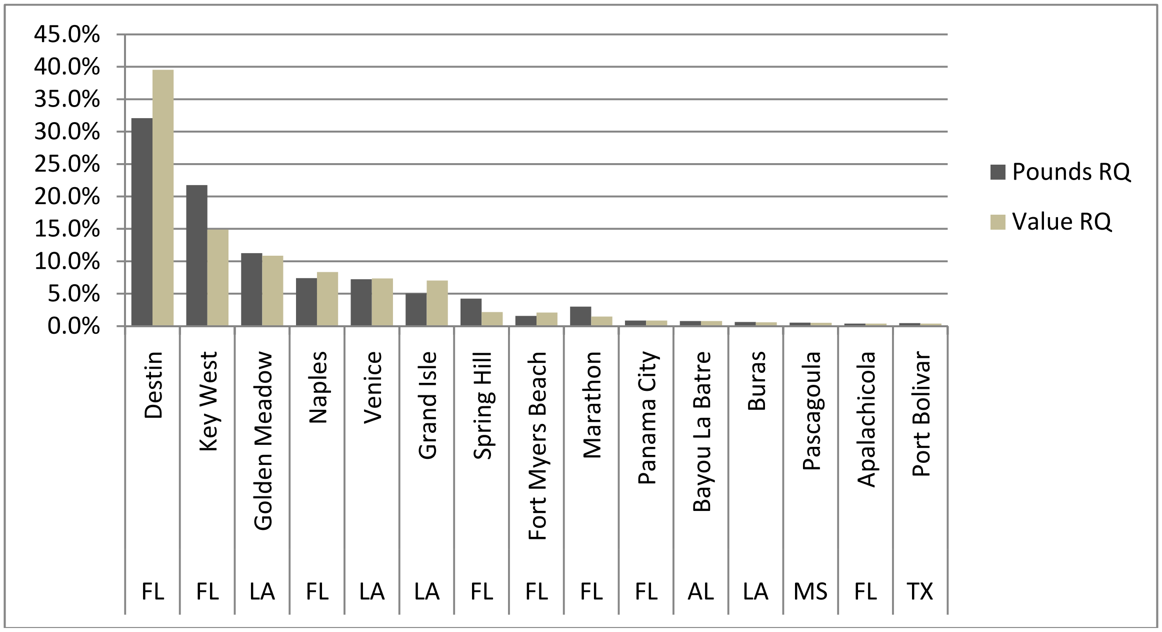

Figure 3.3.2.2. Top fifteen Gulf communities ranked by pounds and value of regional quotient of king mackerel.
Source: ALS 2008

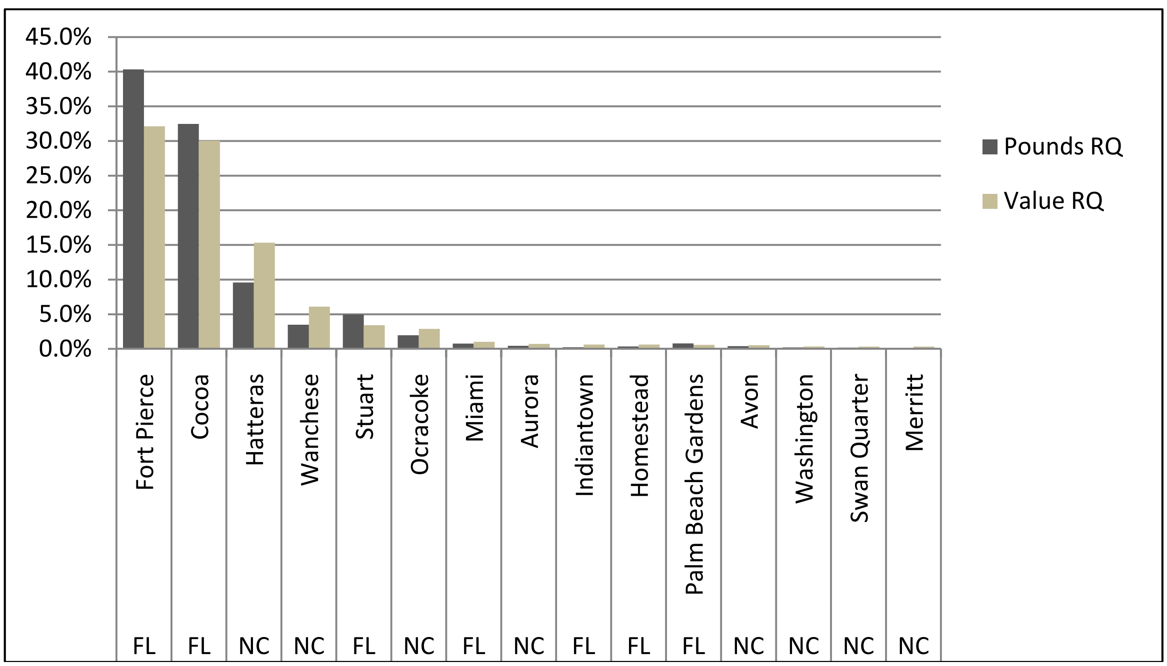

Figure 3.3.2.3. Top fifteen South Atlantic communities ranked by pounds and value of regional quotient of Spanish mackerel.
Source: ALS 2008

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.

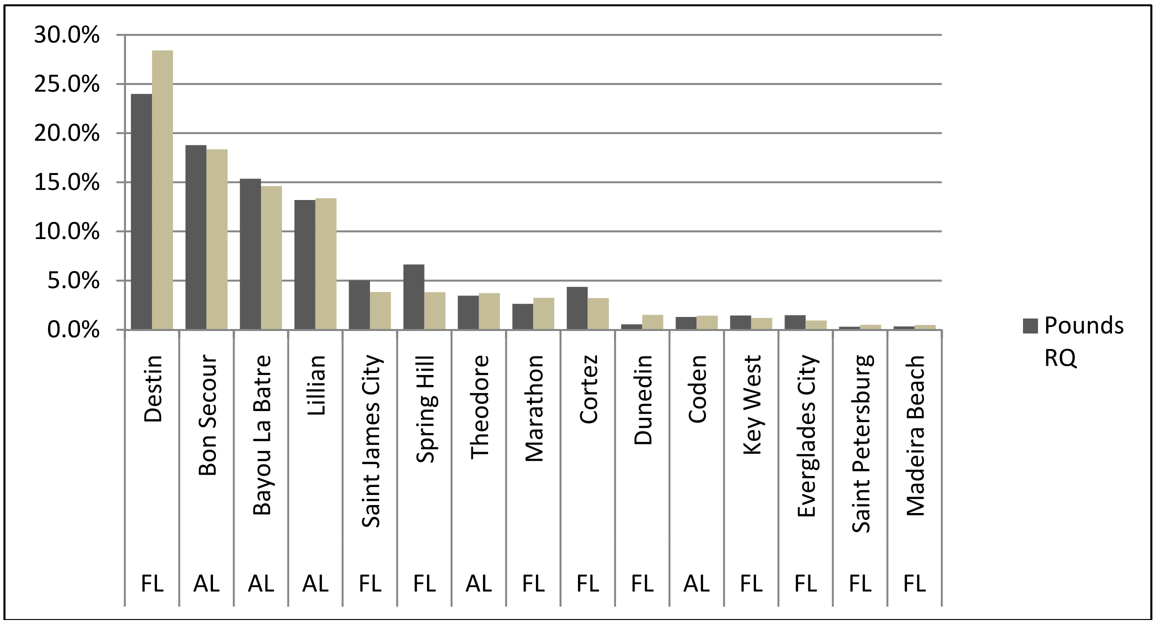

Figure 3.3.2.4. Top fifteen Gulf communities ranked by pounds and value of regional quotient of Spanish mackerel.
Source: ALS 2008

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.

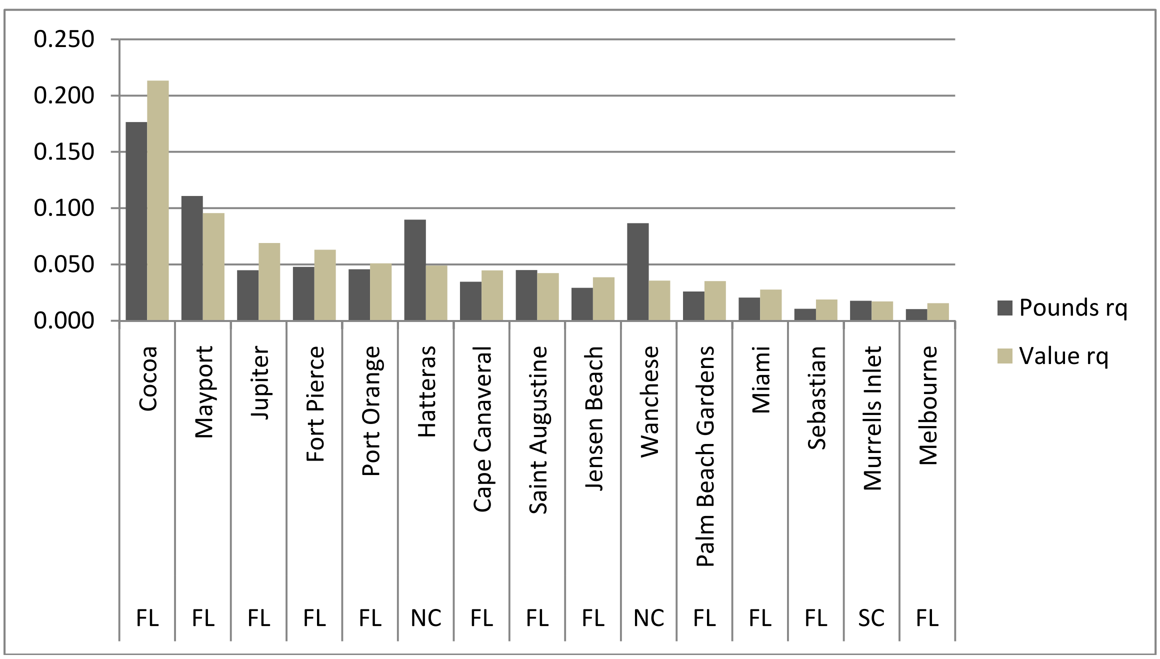

Figure 3.3.2.5. Top fifteen Atlantic communities ranked by pounds and value regional quotient (rq) of cobia.
Source: ALS 2008.

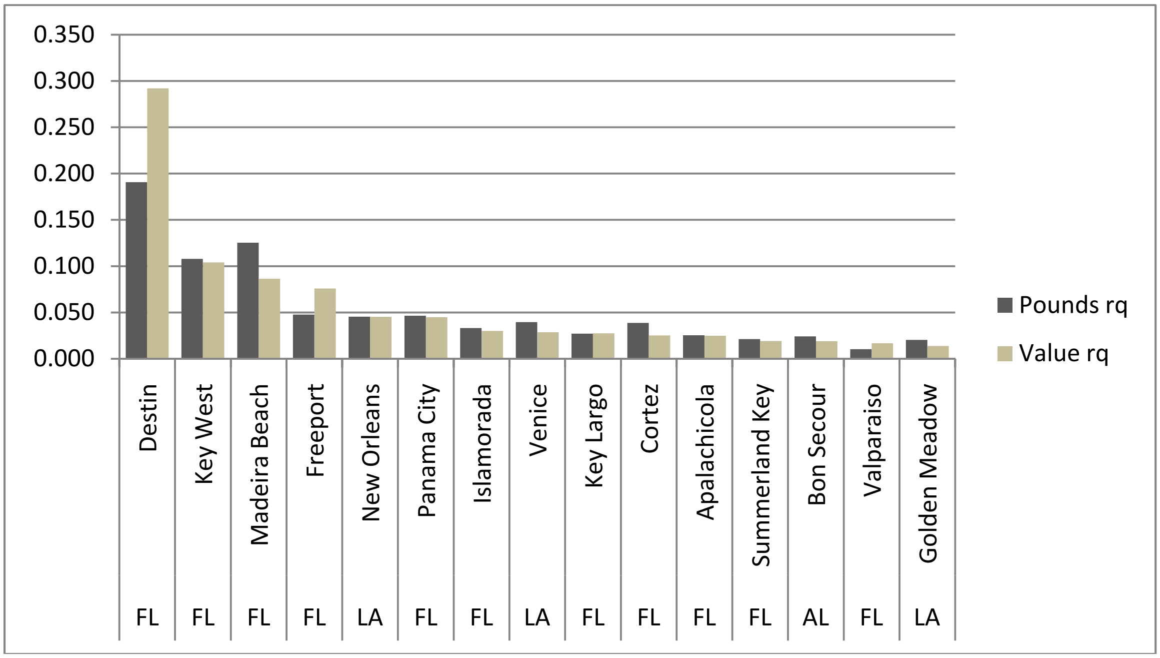

Figure 3.3.2.6. Top fifteen Gulf communities ranked by pounds and value regional quotient (rq) of Cobia.
Source: ALS 2008.

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 Marine Recreational Information Program (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 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 SoVI 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

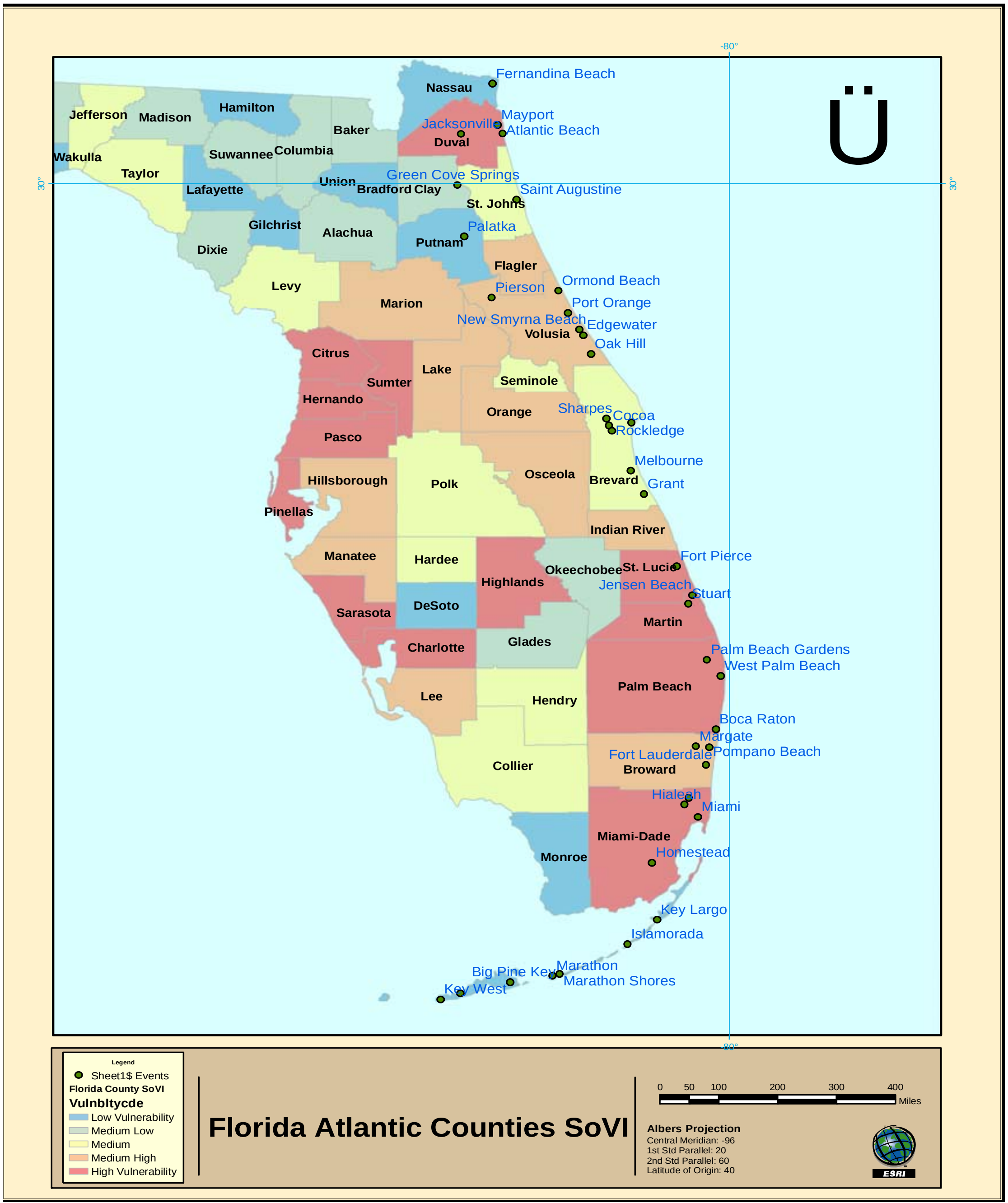

Figure 3.3.5.1. The Social Vulnerability Index applied to South Atlantic Florida Counties.

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.

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

Source: Census Bureau 2010.

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.

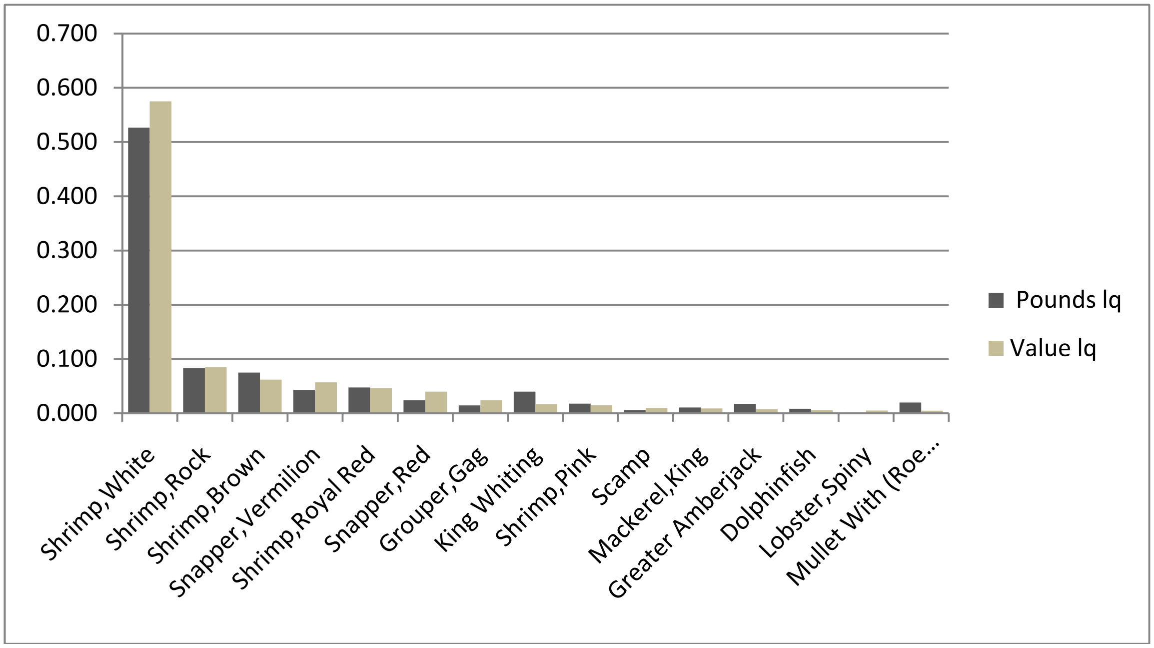

Figure 3.3.5.2. The top fifteen species in terms of proportion (lq) of total landings and value for Mayport, Florida.
Source: ALS 2008

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.

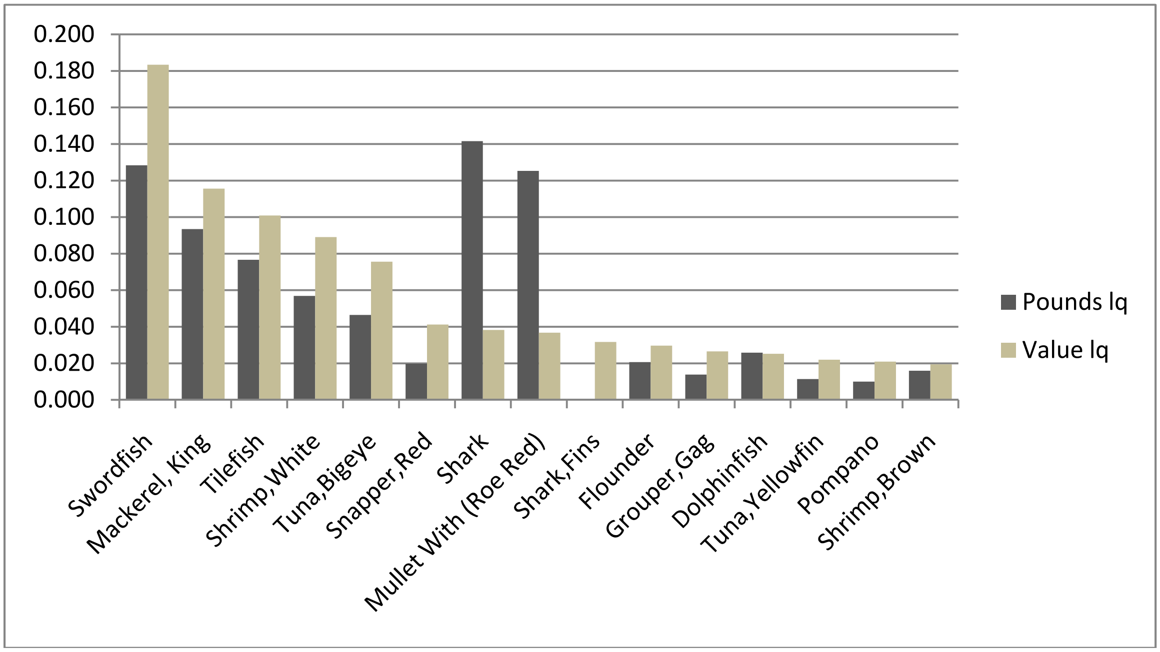

Figure 3.3.5.3. The top fifteen species in terms of proportion (lq) of total landings and value for Port Orange, Florida.
Source: ALS 2008

<u>Brevard County</u>
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.

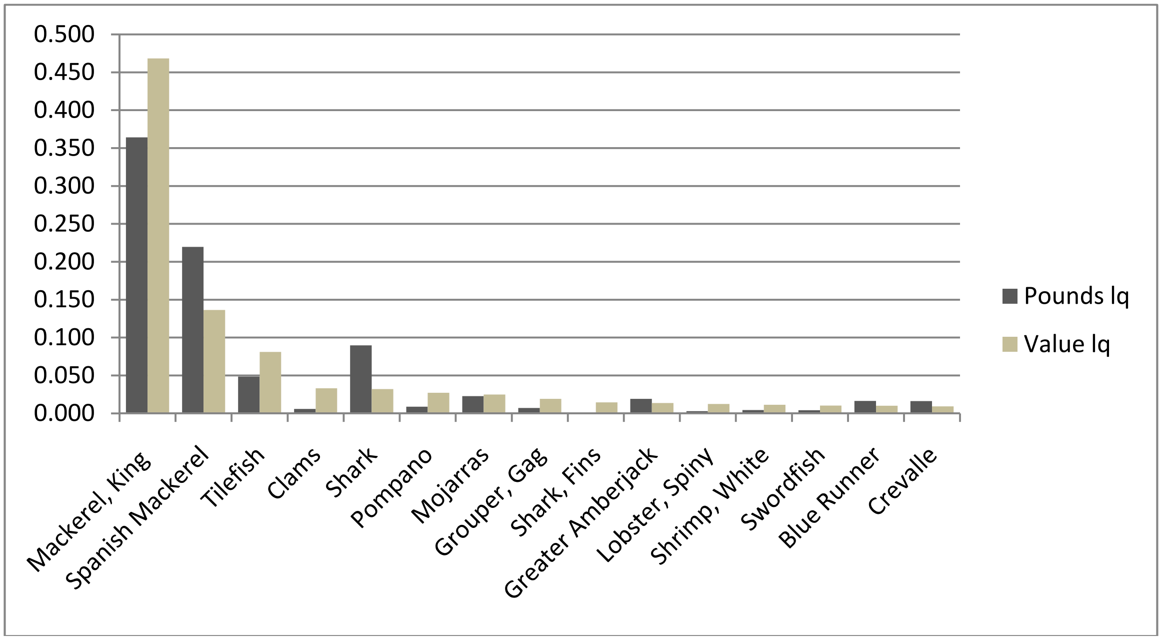

Figure 3.3.5.4. The top fifteen species in terms of proportion (lq) of total landings and value for Cocoa, Florida.
Source: ALS 2008

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.

County	St. Lucie County		Martin County		Palm Beach County		Broward County		Miami-Dade County		Monroe County	
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

Source: Census Bureau 2010.

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).

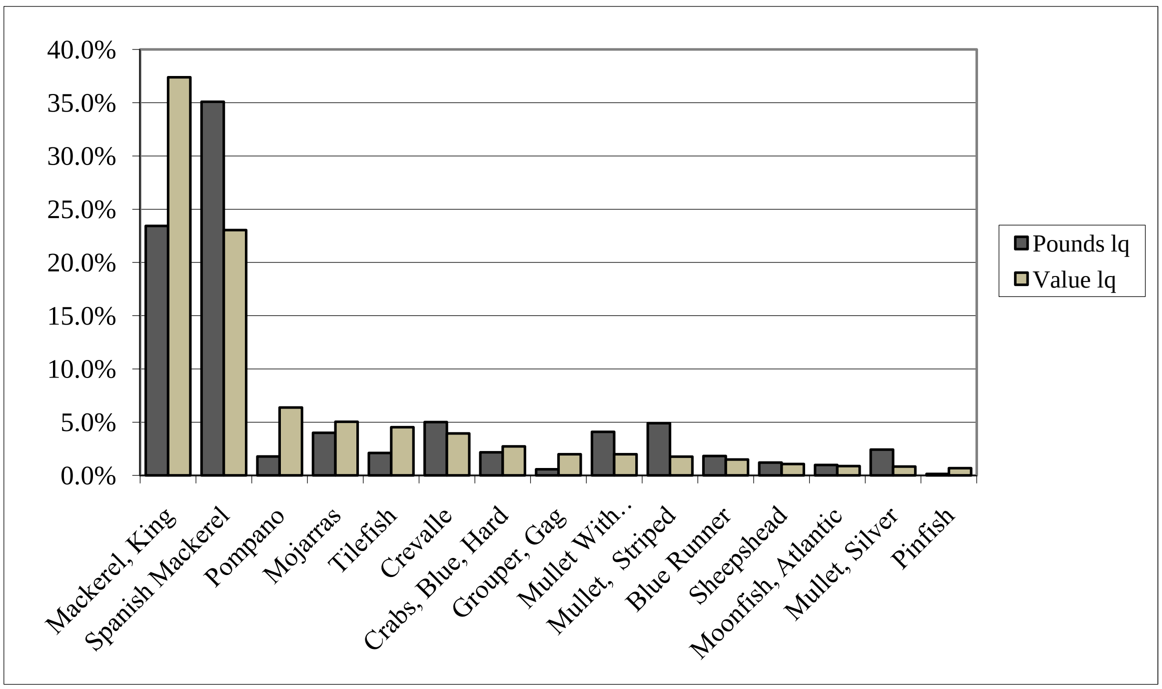

Figure 3.3.5.5. The top fifteen species in terms of proportion (lq) of total landings and value for Fort Pierce, Florida.
Source: ALS 2008

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.

<u>Martin County</u>
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).

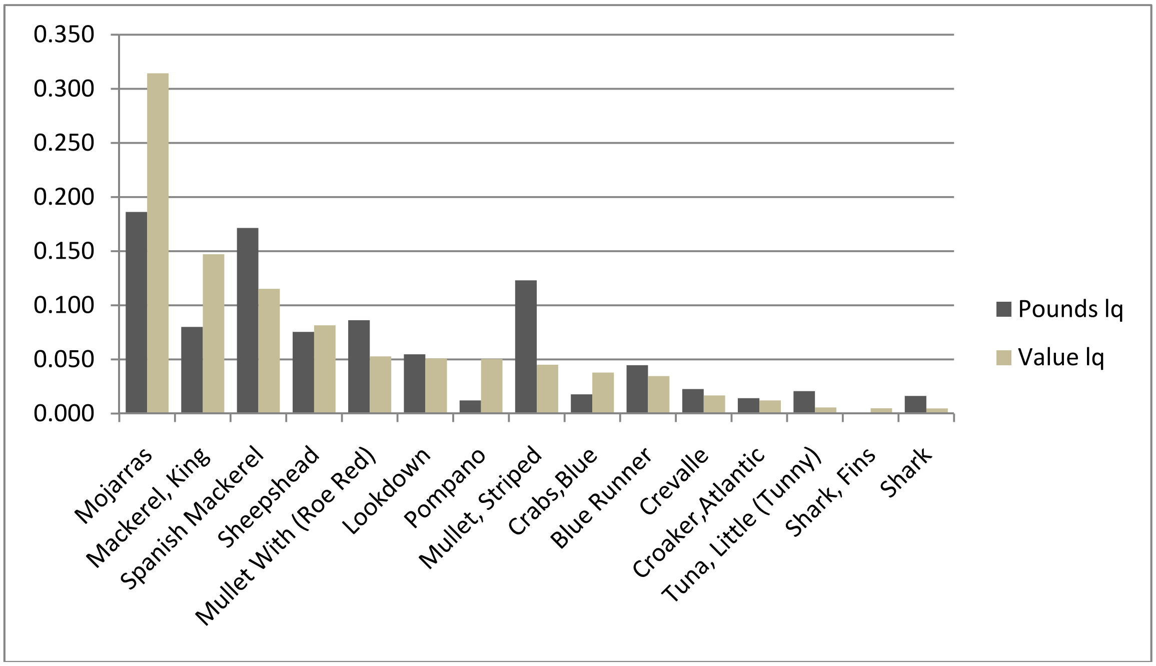

Figure 3.3.5.6. The top fifteen species in terms of proportion (lq) of total landings and value for Stuart, Florida.
Source: ALS 2008

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).

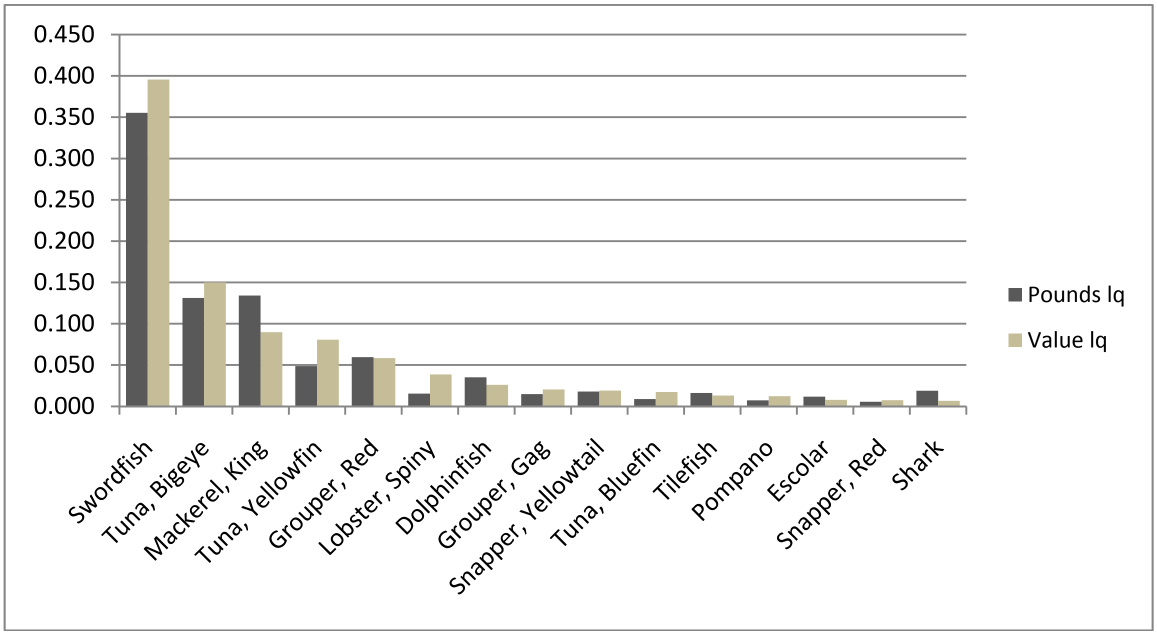

Figure 3.3.5.7. The top fifteen species in terms of proportion (lq) of total landings and value for Palm Beach Gardens, Florida.
Source: ALS 2008

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).

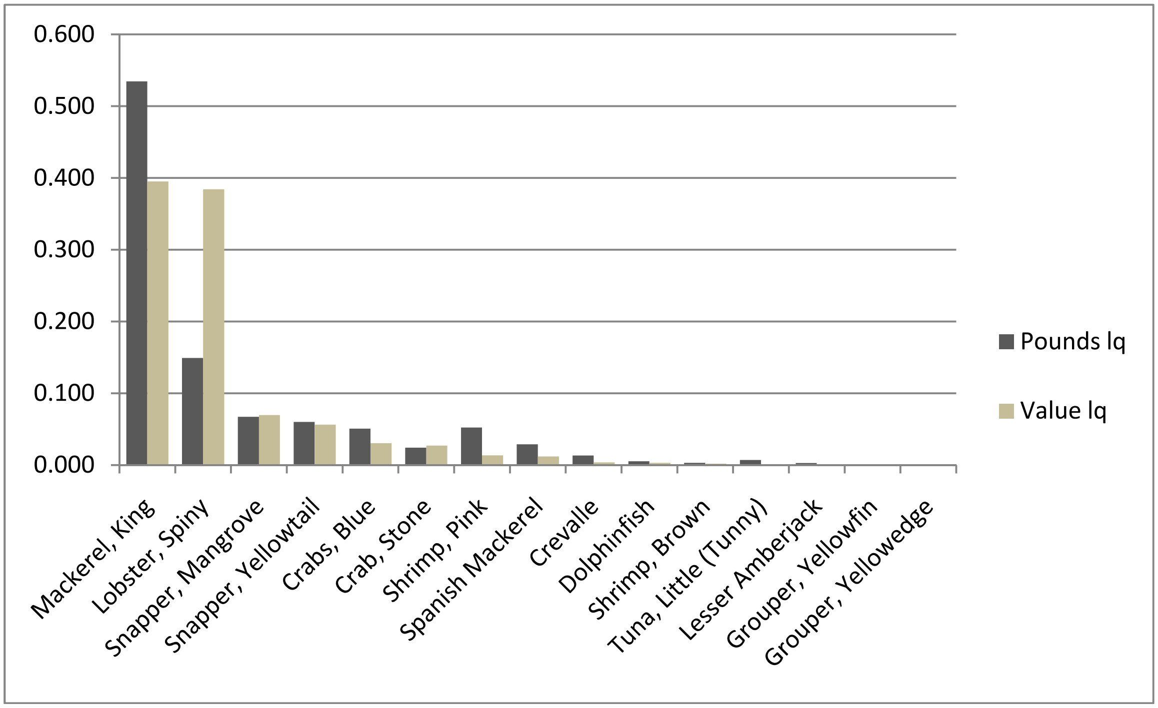

Figure 3.3.5.8. The top fifteen species in terms of proportion (lq) of total landings and value for Hialeah, Florida.
Source: ALS 2008

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.

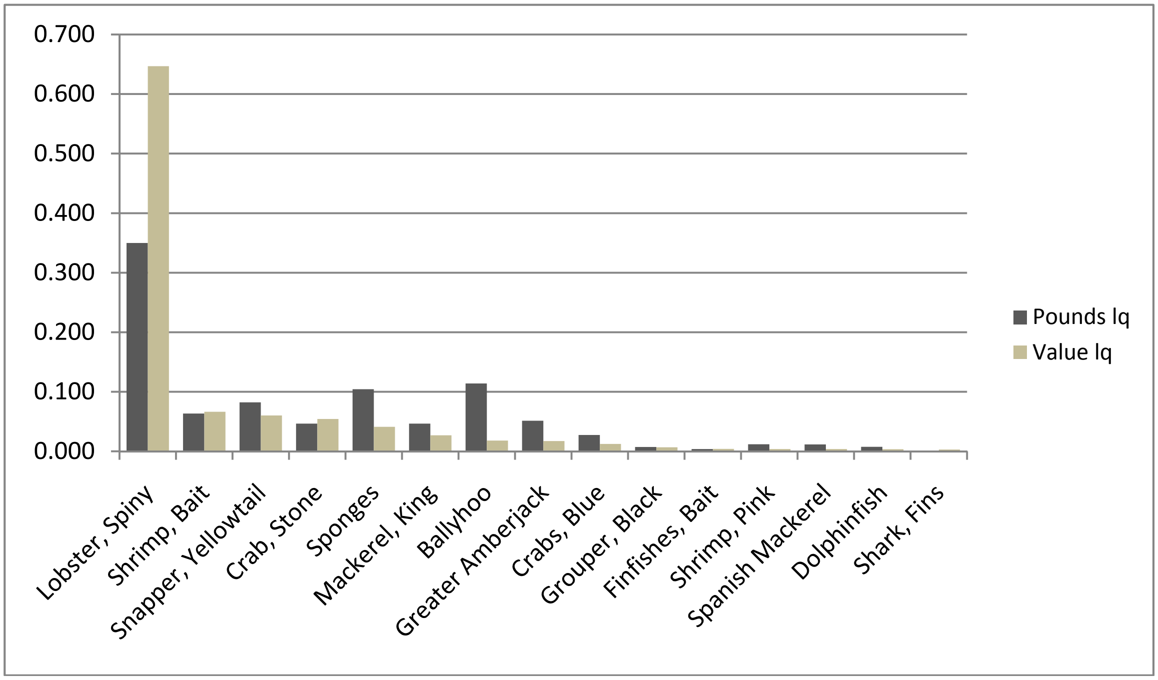

Figure 3.3.5.9. The top fifteen species in terms of proportion (lq) of total landings and value for Miami, Florida. Source: ALS 2008.

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

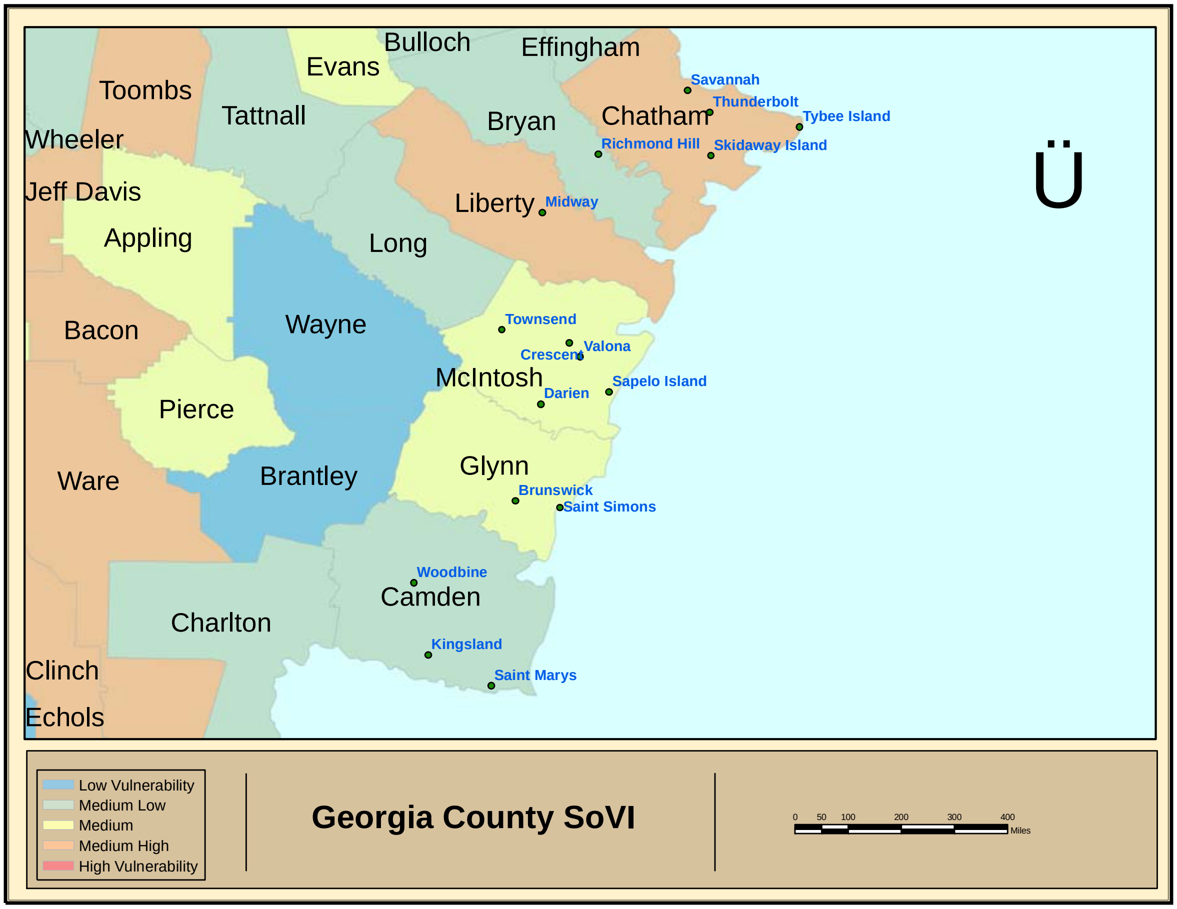

Figure 3.3.5.10. The Social Vulnerability Index applied to Georgia Coastal Counties.

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.

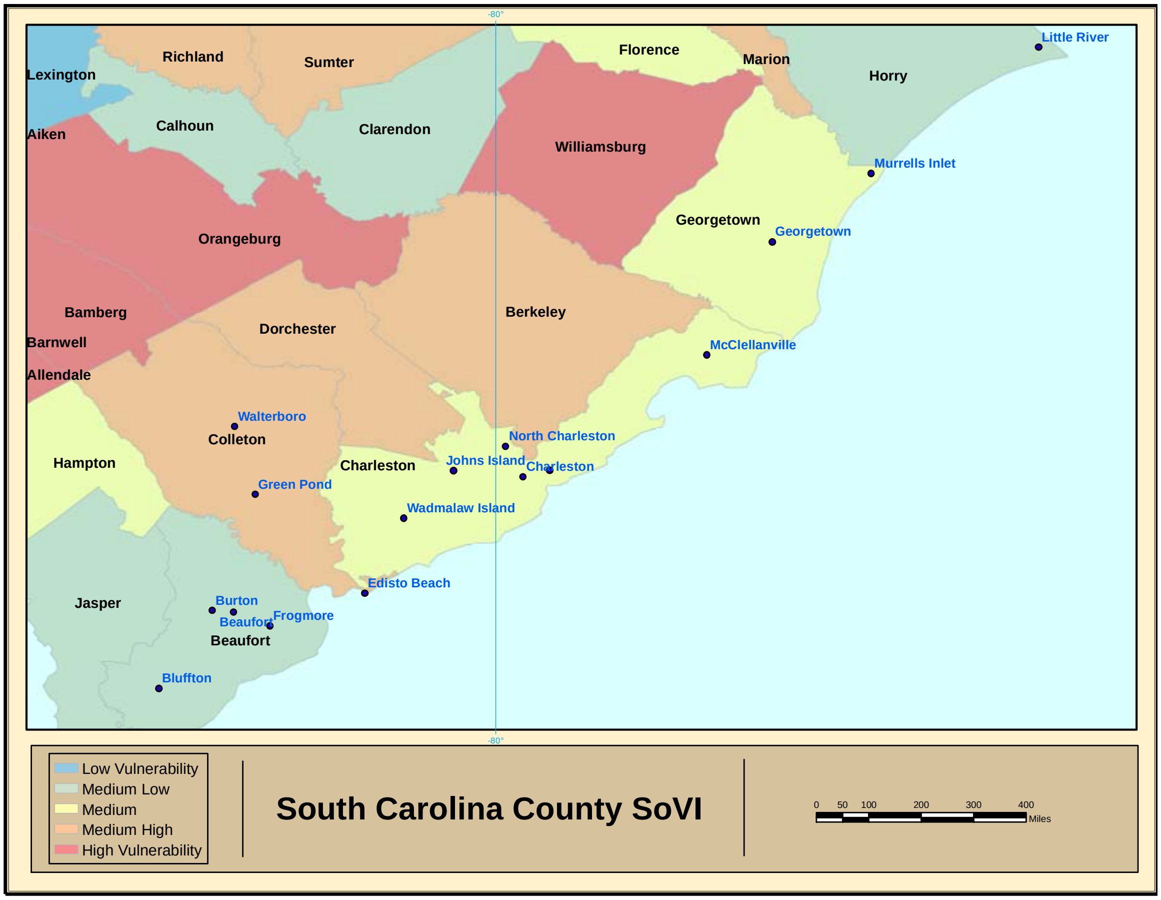

Figure 3.3.5.11. The Social Vulnerability Index applied to South Carolina Coastal Counties.

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.

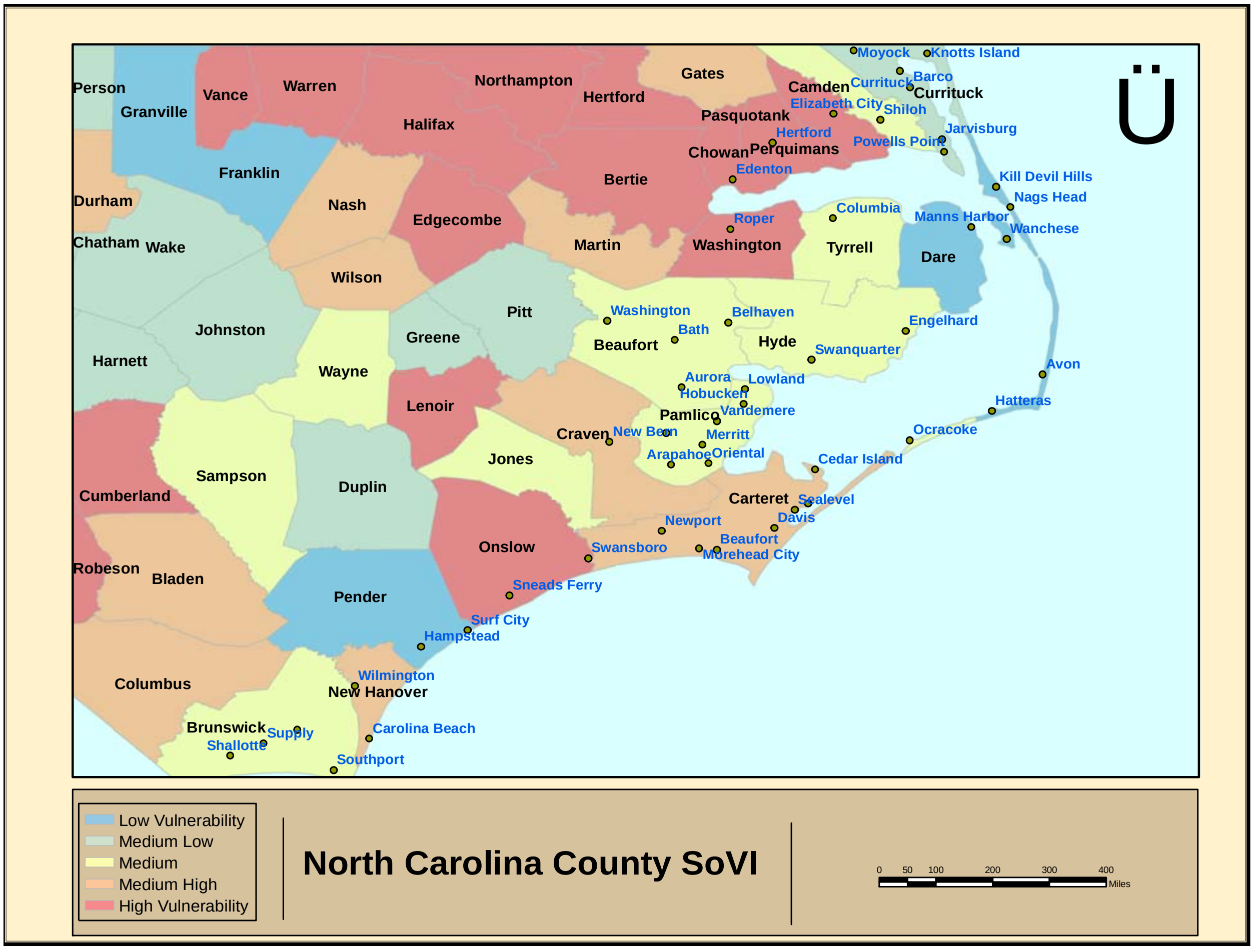

Figure 3.3.5.12. The Social Vulnerability Index applied to North Carolina Coastal Counties.

Table 3.3.5.3. Marine Related Employment for 2007 in North Carolina Coastal Counties.

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	.	.	.	.

Source: Census Bureau 2010.

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.

<u>Brunswick County</u>

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).

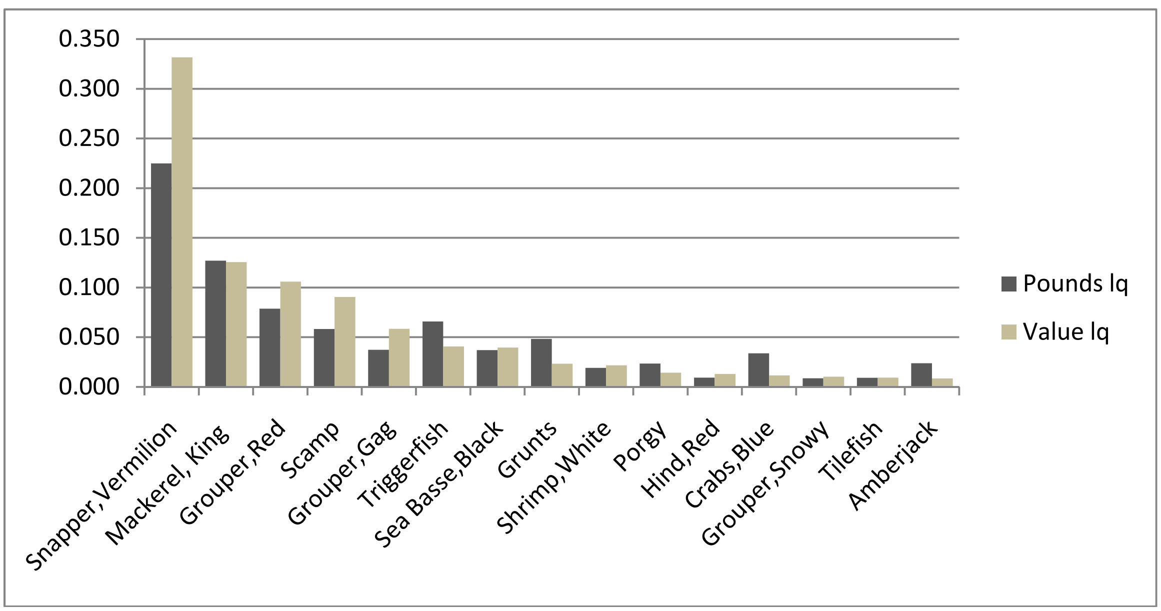

Figure 3.3.5.13. The top fifteen species in terms of proportion (lq) of total landings and value for Southport, North Carolina.

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).

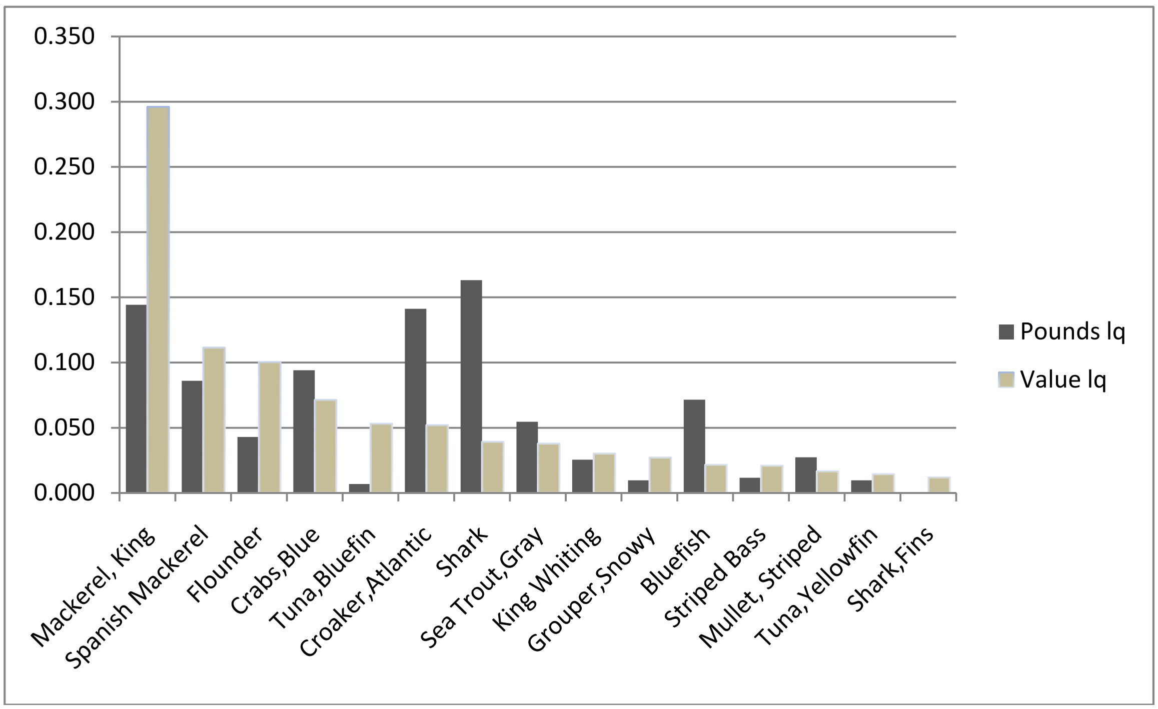

Figure 3.3.5.14. The top fifteen species in terms of proportion (lq) of total landings and value for Hatteras, North Carolina.
Source: ALS 2008.

The community of Hatteras derives about 14% of landings and almost 29% of value from king mackerel (Figure 3.3.5.1.4). Spanish mackerel accounted for about 8% of landings and about 12% of value.

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.

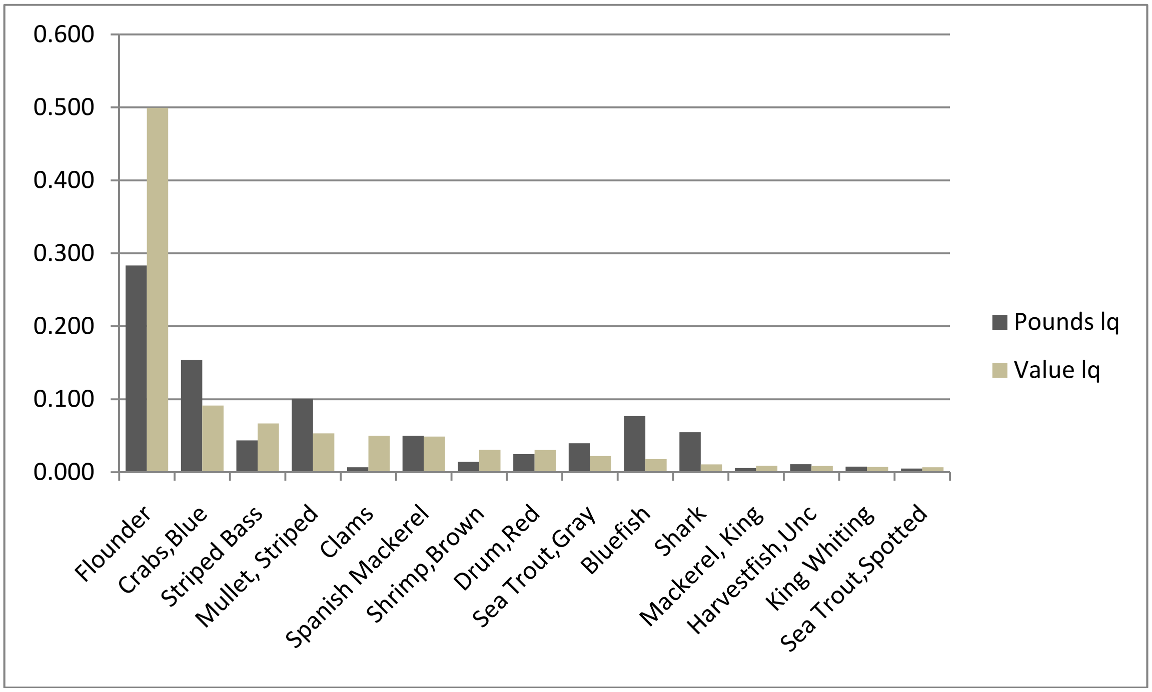

Figure 3.3.5.15. The top fifteen species in terms of proportion (lq) of total landings and value for Ocracoke, North Carolina.
Source: ALS 2008

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.

<u>New Hanover County</u>
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).

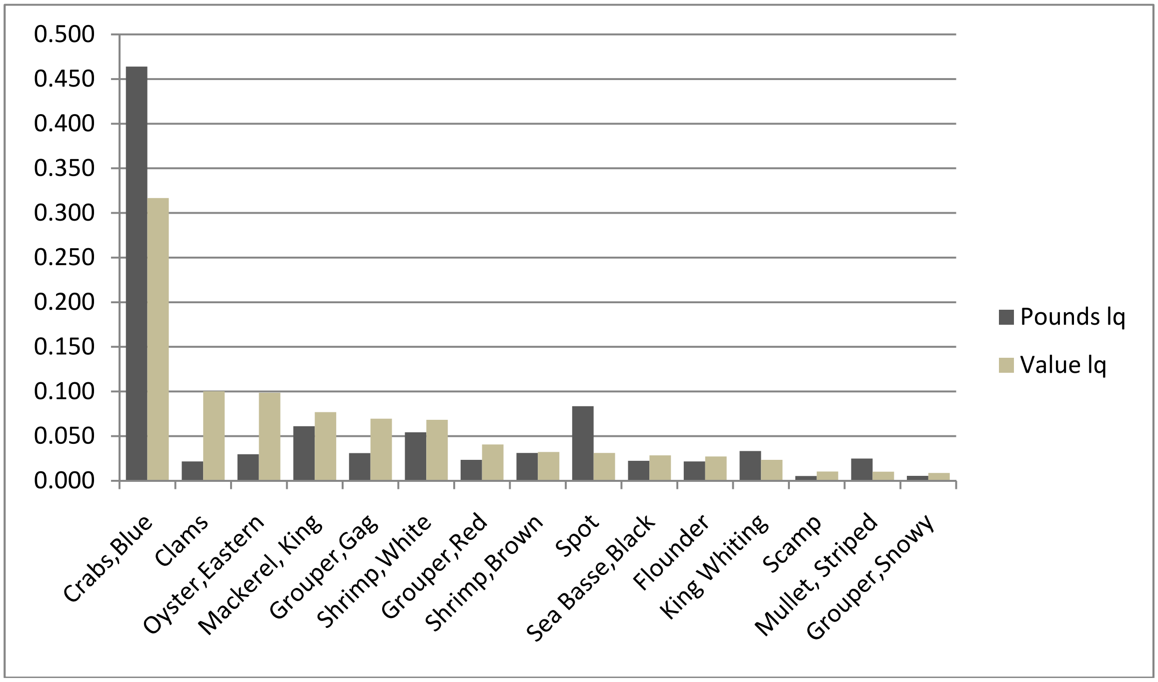

Figure 3.3.5.16. The top fifteen species in terms of proportion (lq) of total landings and value for Wilmington, North Carolina.
Source: ALS 2008

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).

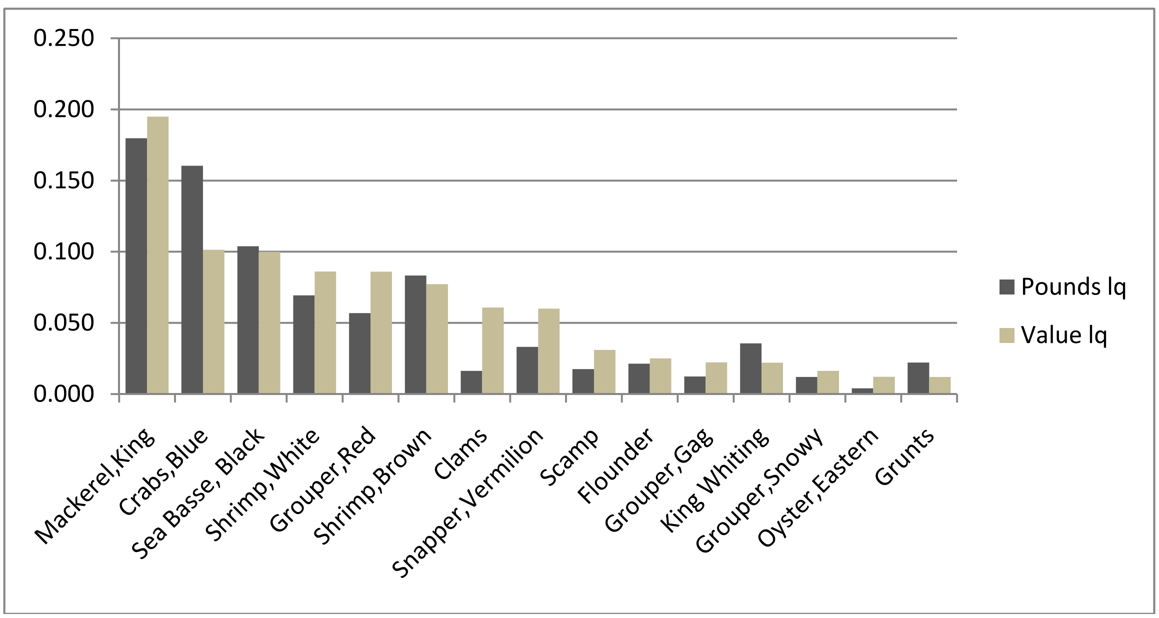

Figure 3.3.5.17. The top fifteen species in terms of proportion (lq) of total landings and value for Carolina Beach, North Carolina.
Source: ALS 2008

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).

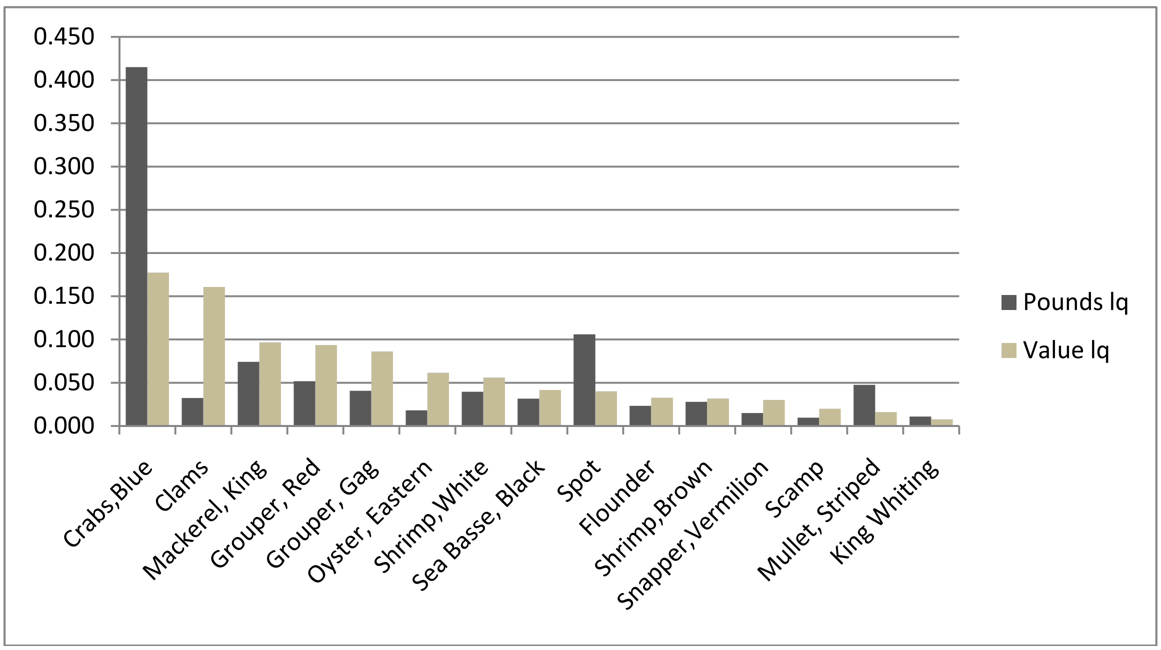

Figure 3.3.5.18. The top fifteen species in terms of proportion (lq) of total landings and value for Hampstead, North Carolina.

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

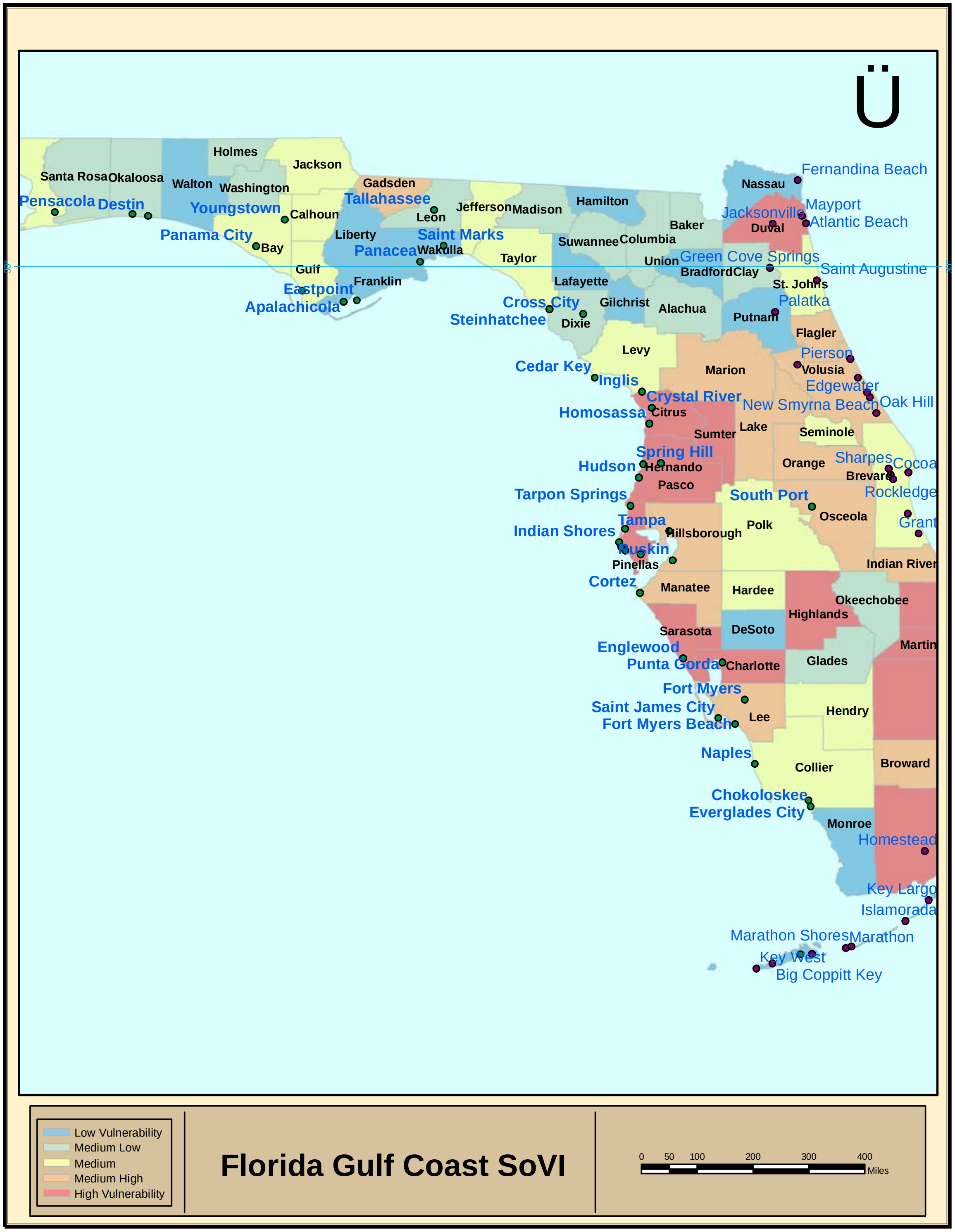

Figure 3.3.6.1. The Social Vulnerability Index applied to Florida Gulf Coastal Counties.

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.

<u>Okaloosa County</u>
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).

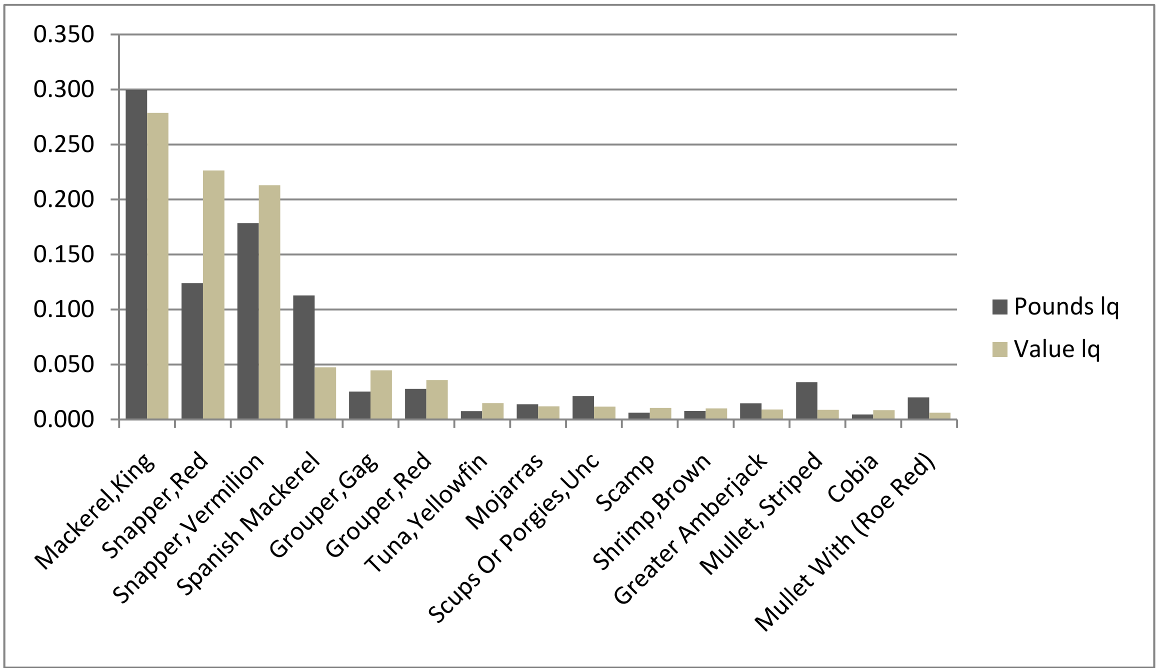

Figure 3.3.6.2. The top fifteen species in terms of proportion (lq) of total landings and value for Destin, Florida.
Source: ALS 2008

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).

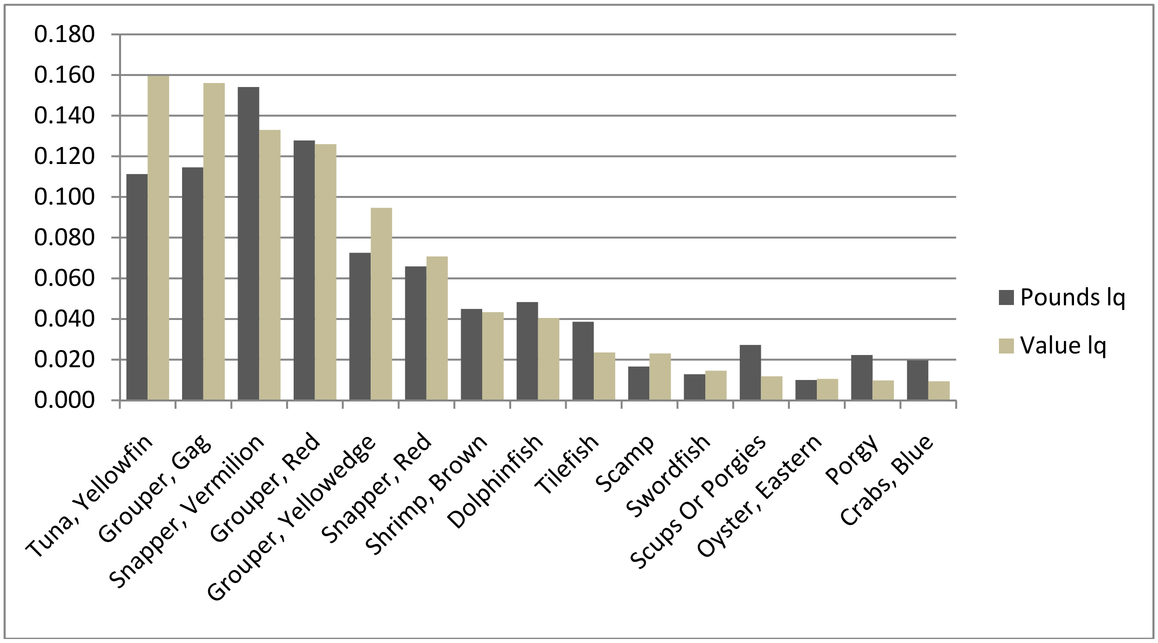

Figure 3.3.6.3. The top fifteen species in terms of proportion (lq) of total landings and value for Panama City, Florida.

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).

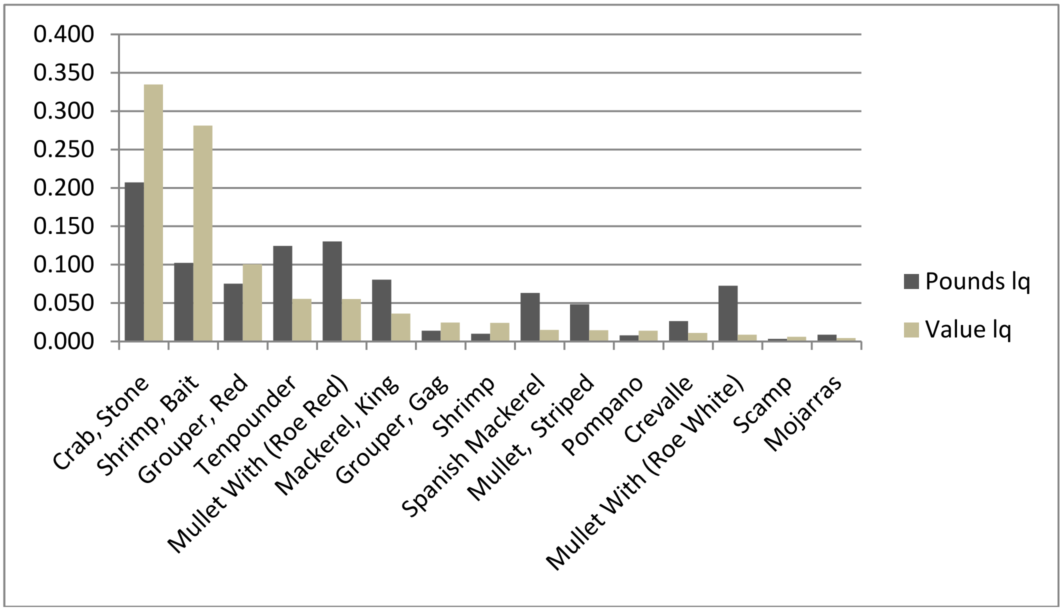

Figure 3.3.6.4. The top fifteen species in terms of proportion of total landings and value (lq) for Spring Hill, Florida.
Source: ALS 2008

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.

<u>Pinellas County</u>

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).

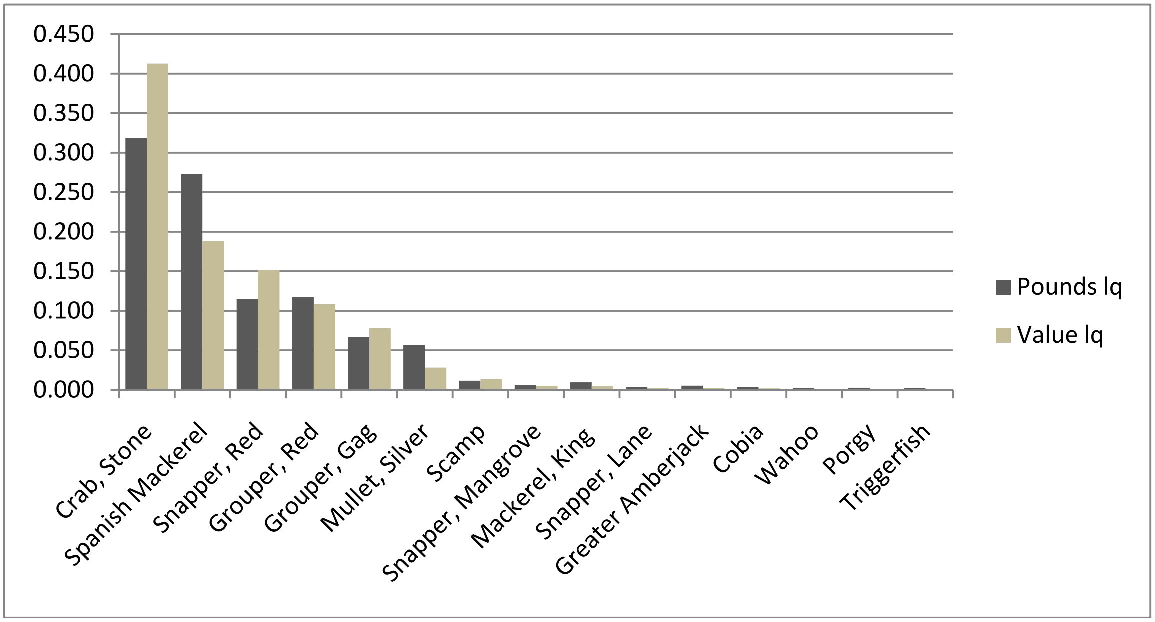

Figure 3.3.6.5. The top fifteen species in terms of proportion of total landings and value (lq) for Dunedin, Florida.
Source: ALS 2008

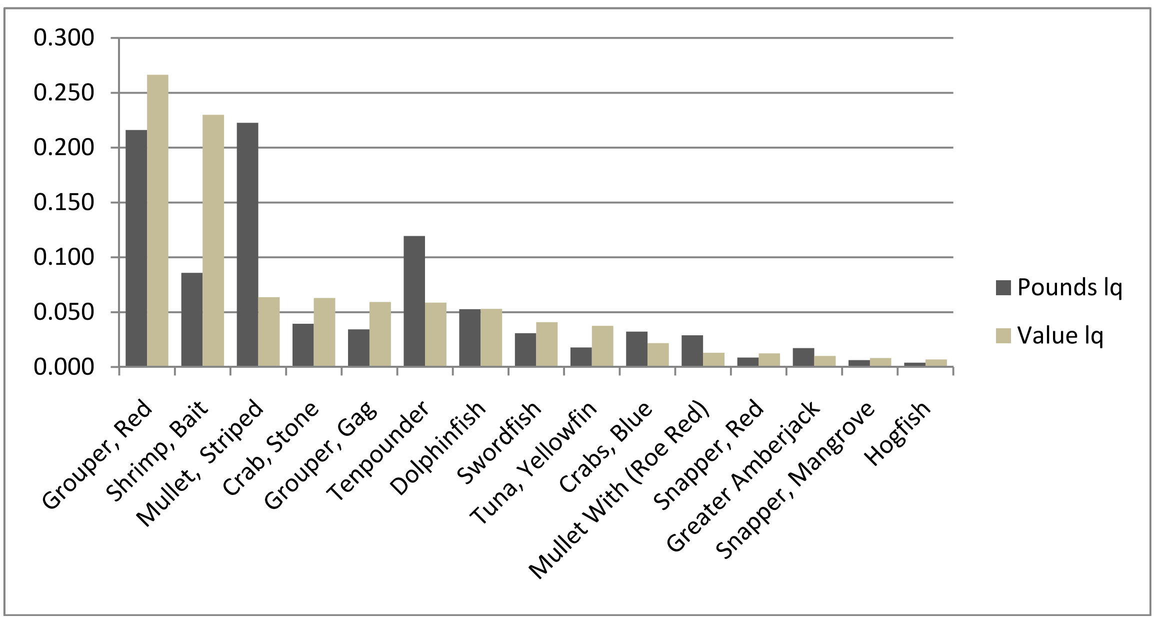

Figure 3.3.6.6. The top fifteen species in terms of proportion of total landings and value (lq) for St. Petersburg, Florida.
Source: ALS 2008

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).

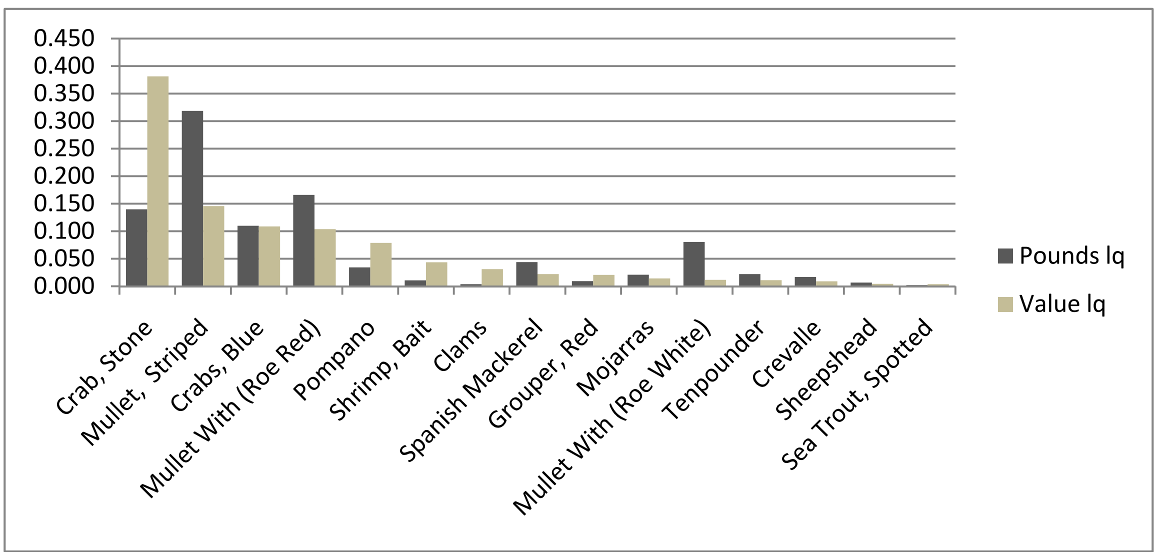

Figure 3.3.6.7. The top fifteen species in terms of proportion of total landings and value (lq) for St. James City, Florida.

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).

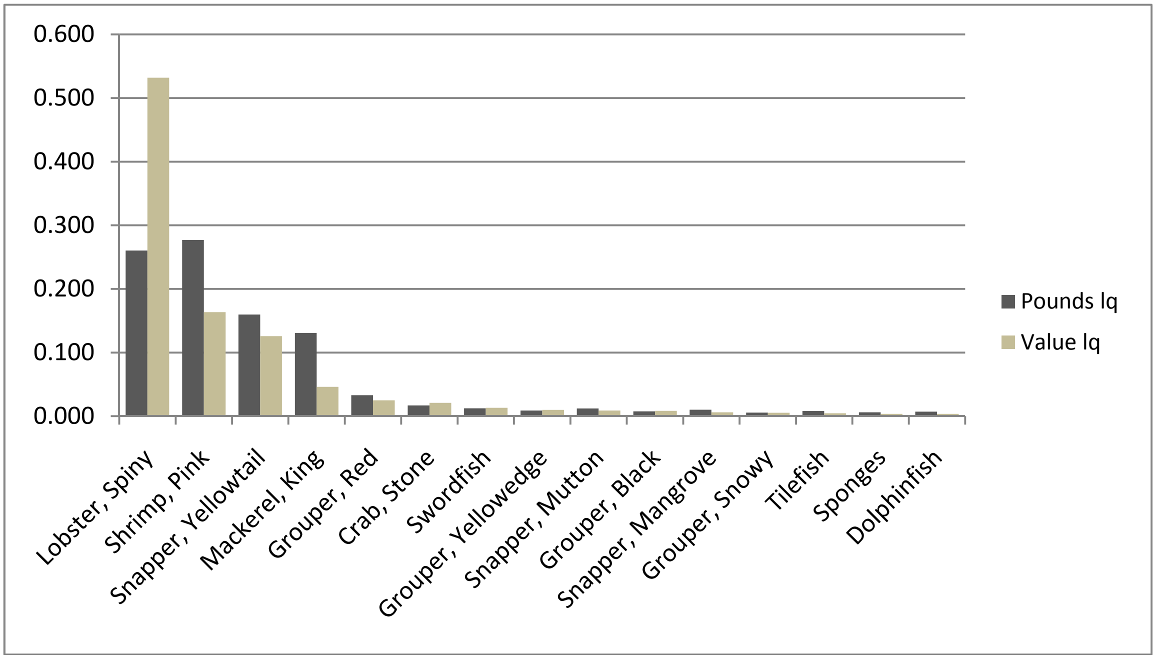

Figure 3.3.6.8. The top fifteen species in terms of proportion of total landings and value (lq) for Key West, Florida.
Source: ALS 2008

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.

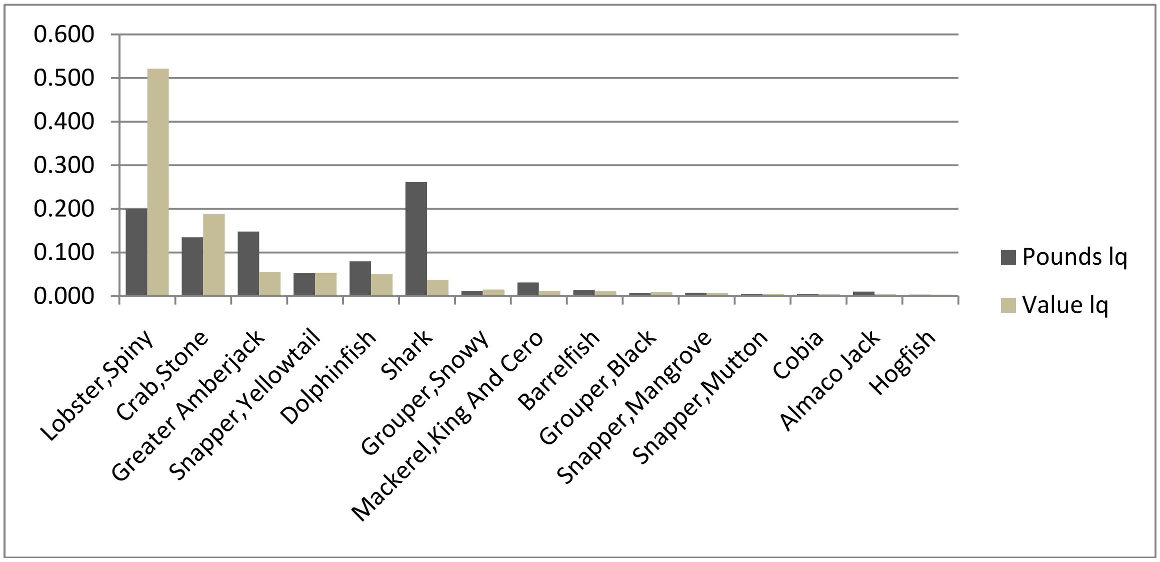

Figure 3.3.6.9. The top fifteen species in terms of proportion of total landings and value (lq) for Islamorada, Florida.
Source: ALS 2008

Mississippi-Alabama Counties

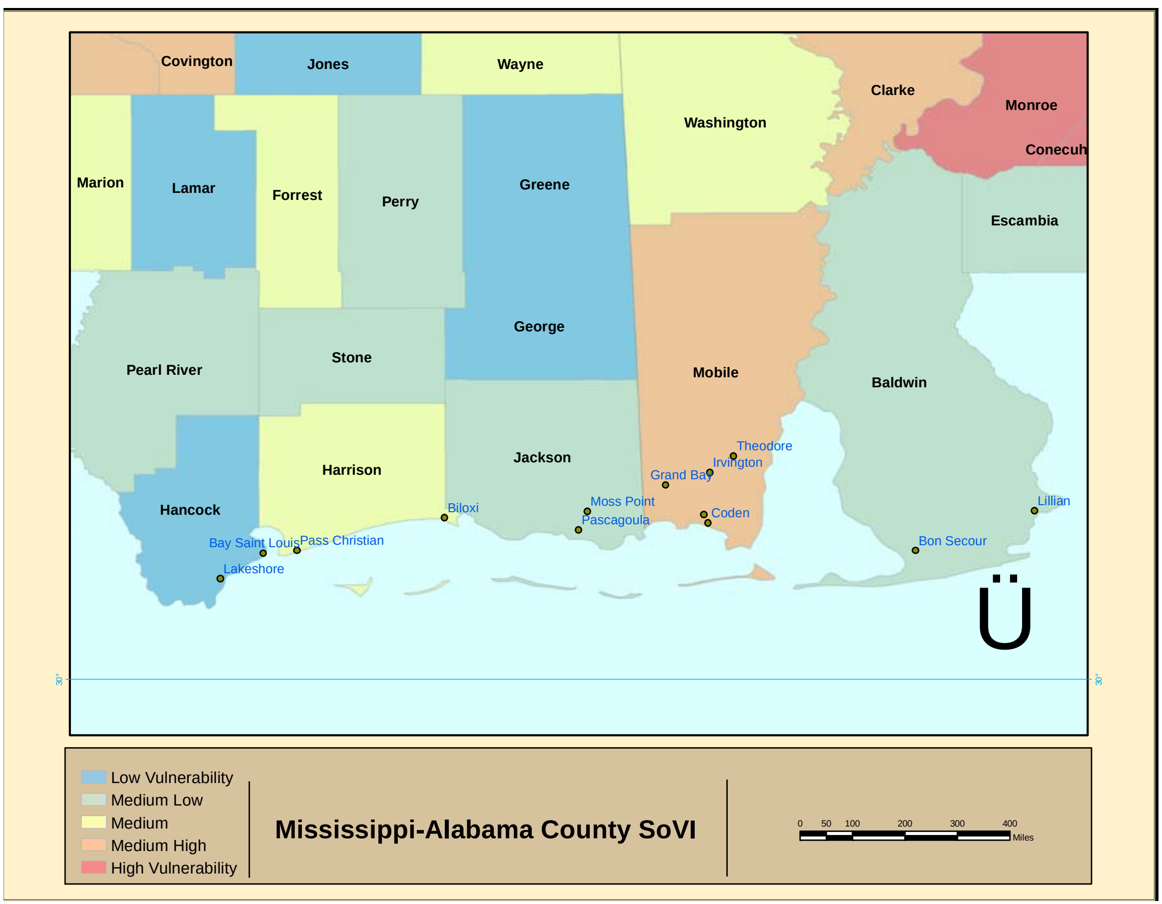

Figure 3.3.6.10. The Social Vulnerability Index applied to Mississippi-Alabama Coastal Counties.

Table 3.3.6.2. Marine Related Employment for 2007 in Alabama Coastal Counties.

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

Source: Census Bureau 2010.

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.

<u>Mobile County</u>

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). The top 15 species from Bayou LaBatre, Alabama are shown in Figure 3.3.6.11.

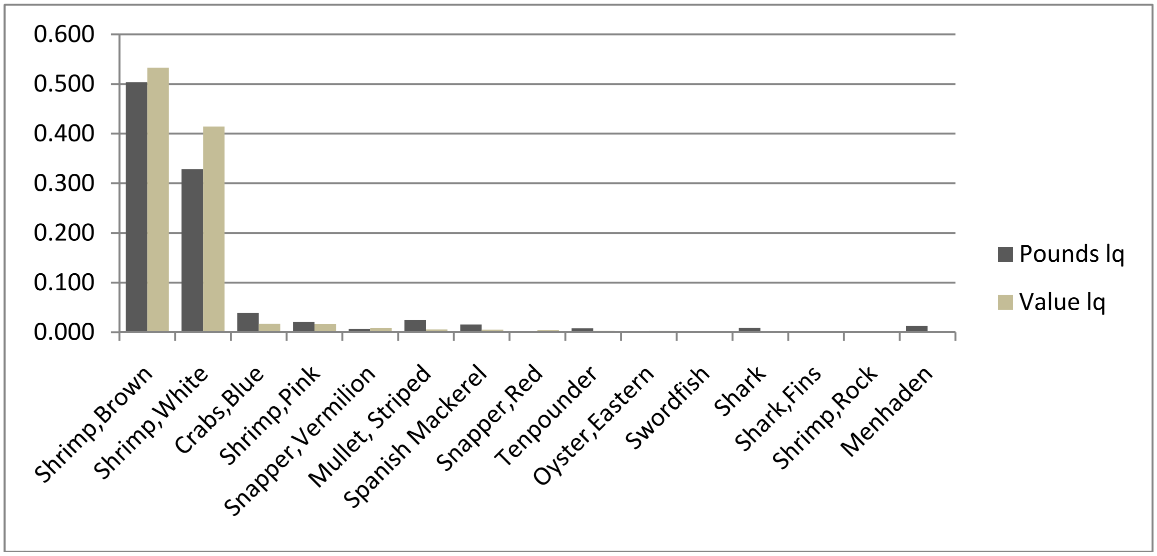

Figure 3.3.6.11. The top fifteen species in terms of proportion of total landings and value (lq) for Bayou LaBatre, Alabama.
Source: ALS 2008

<u>Baldwin County</u>
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).

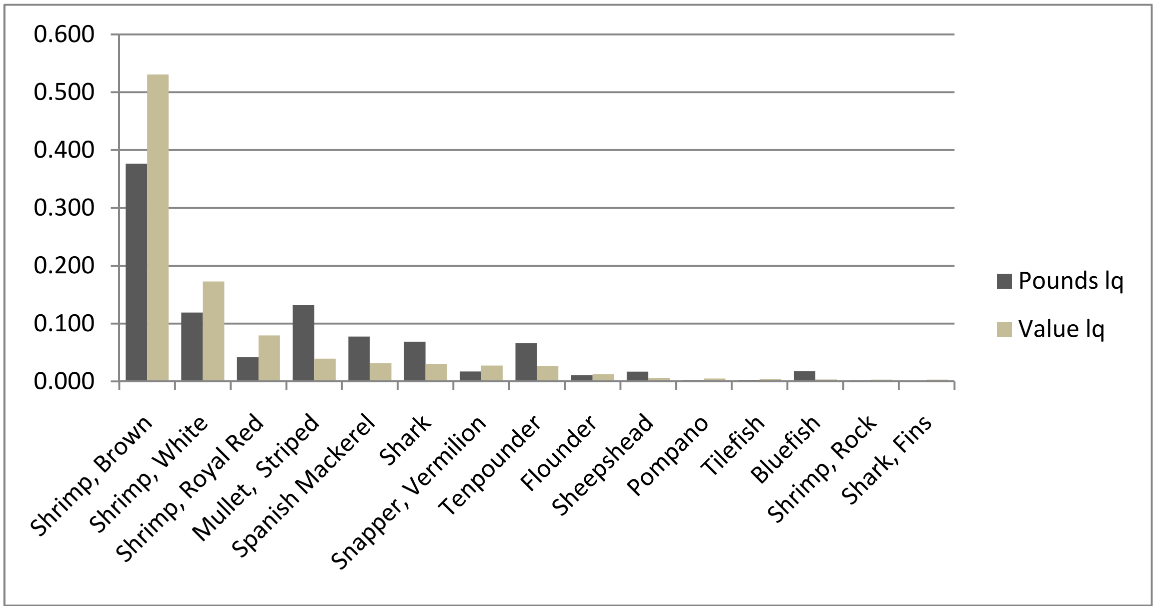

Figure 3.3.6.12. The top fifteen species in terms of proportion of total landings and value (lq) for Bon Secour, Alabama.
Source: ALS 2008

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.

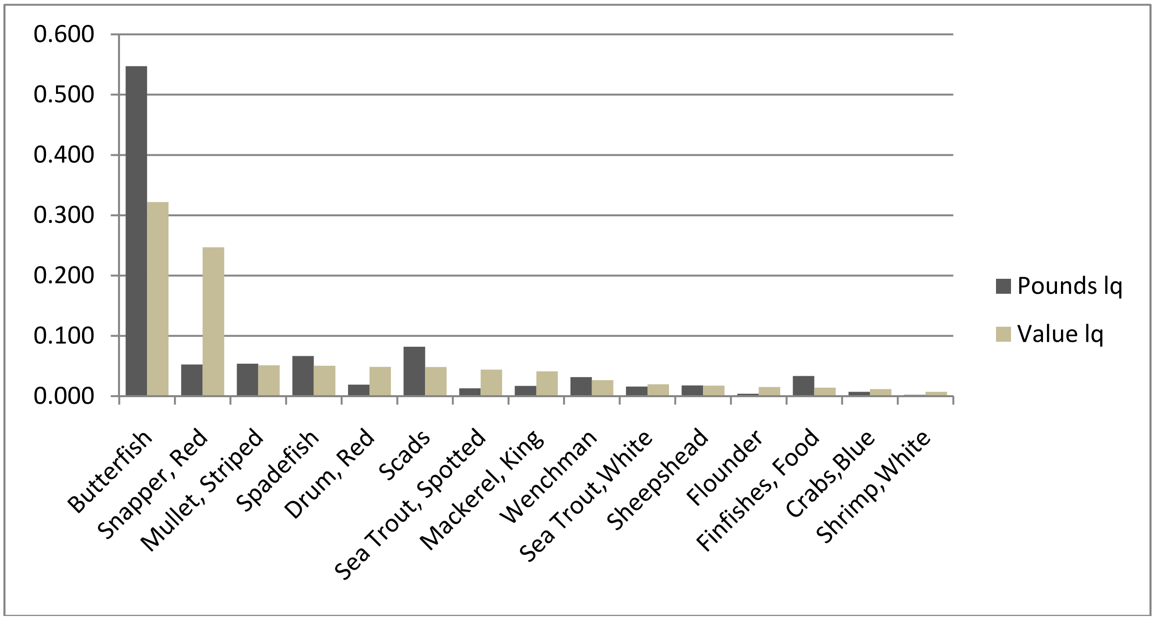

Figure 3.3.6.13. The top fifteen species in terms of proportion of total landings and value (lq) for Pascagoula, MS.
Source: ALS 2008

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

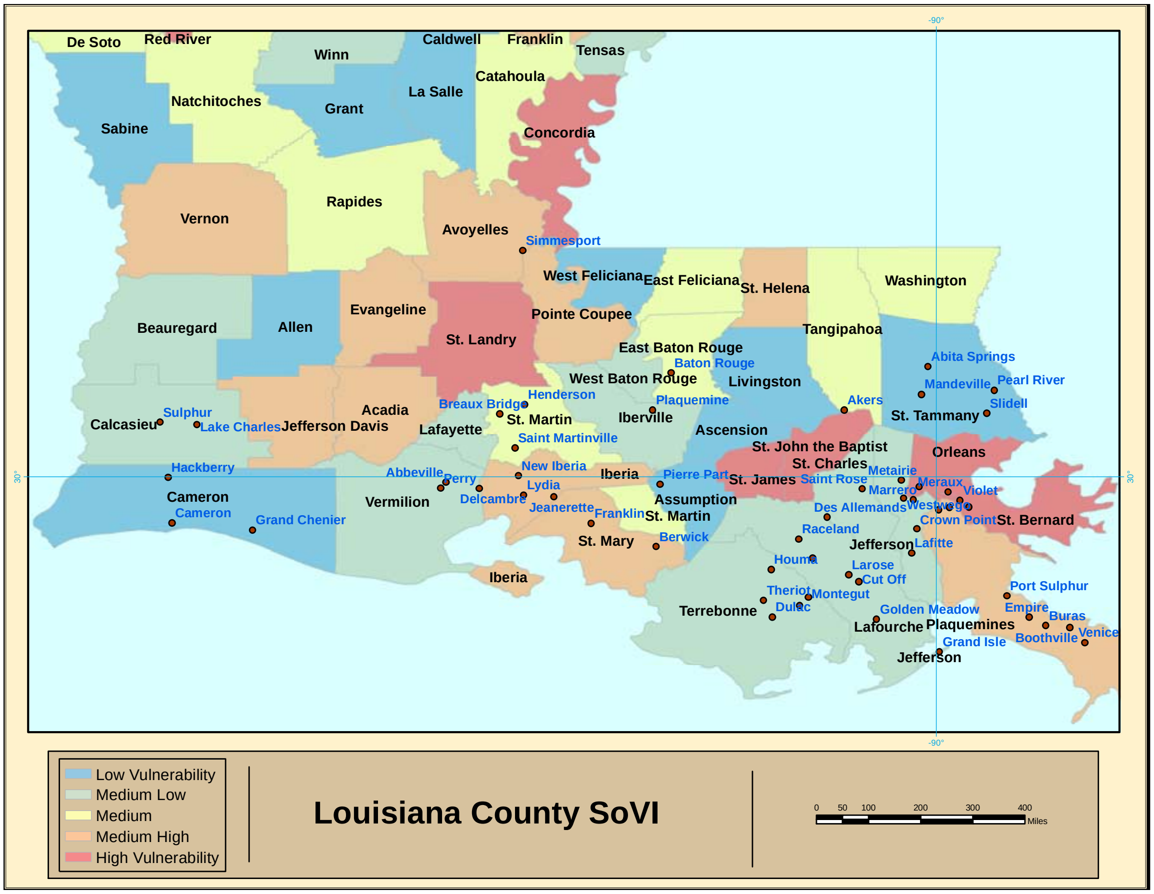

Figure 3.3.6.14. The Social Vulnerability Index applied to Louisiana Coastal Counties.

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.

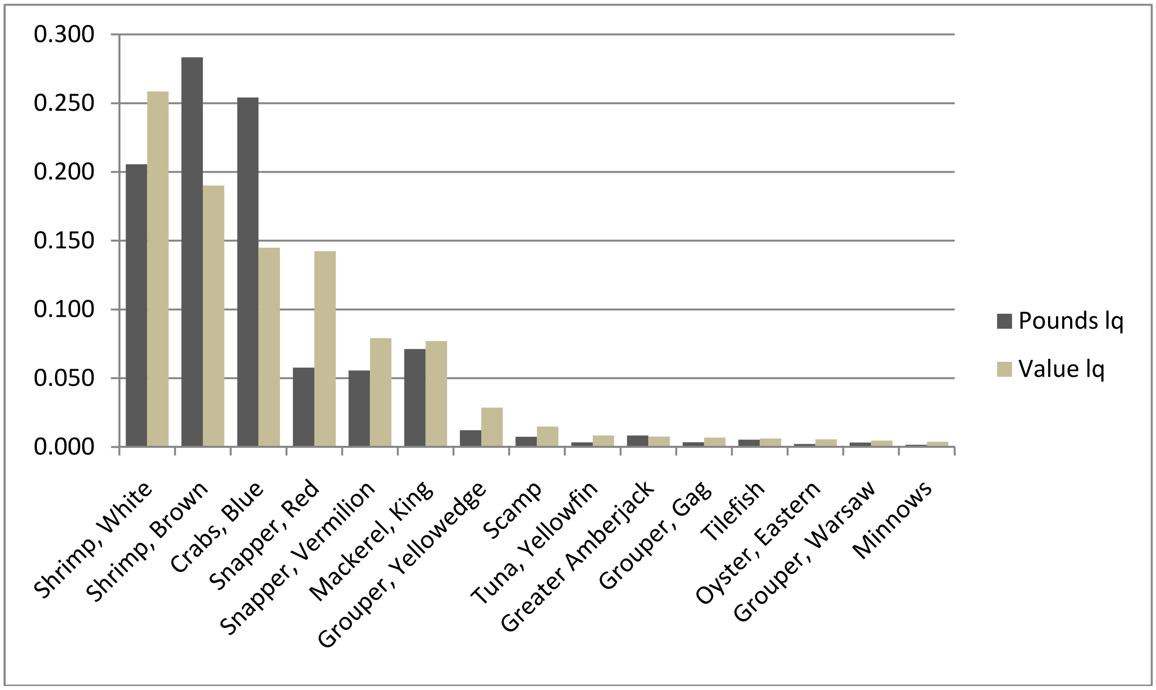

Figure 3.3.6.15. The top fifteen species in terms of proportion (lq) of total landings and value for Golden Meadow, Louisiana.
Source: ALS 2008.

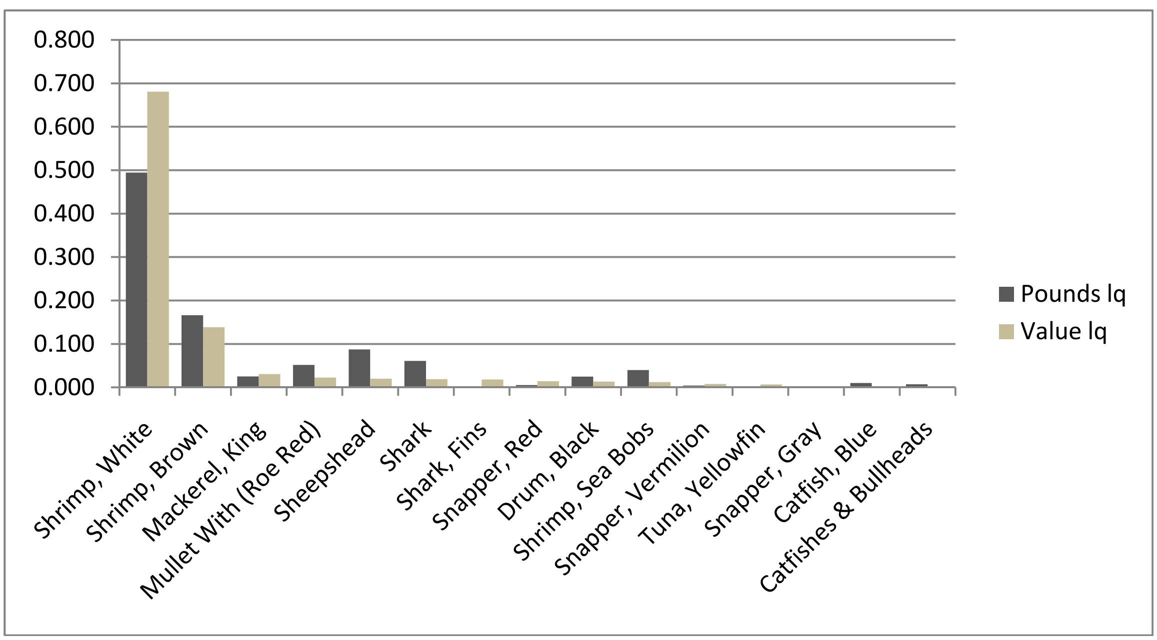

Figure 3.3.6.16. The top fifteen species in terms of proportion (lq) of total landings and value for Venice, Louisiana.
Source: ALS 2008.

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

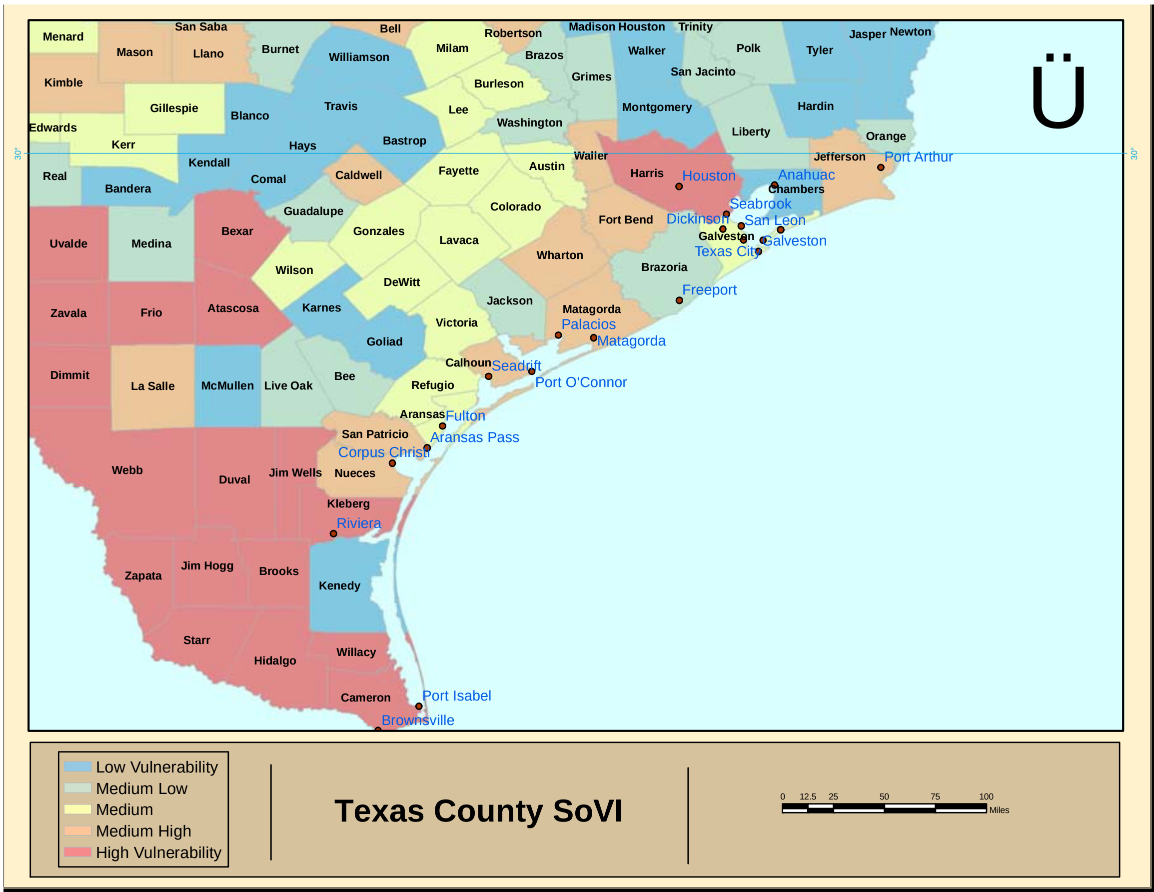

Figure 3.3.6.17. The Social Vulnerability Index applied to Texas Coastal Counties.

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.

Because we do not have demographic data on fishermen within the coastal migratory pelagic fishery that would allow us to identify those who live below the poverty level or even those who are minorities, it is difficult to judge how those populations would be affected by actions within this amendment. While it is true that minorities and those below the poverty line do suffer more negative impacts from social disruption, we cannot state with certainty that they will be affected negatively from these actions. Therefore, we attempt to identify where vulnerable populations exist. It is anticipated that through public comment any specific issues that may be related to that vulnerability will be identified. With regard to public participation, at public hearings in Key West during the Council meeting, a translator was present to assist Spanish speakers with testimony and discussion. In the future, outreach targeted to these populations will continue to ensure that these communities are well informed and have an opportunity to offer comments related to their involvement.

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 migratory 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. Overall, because these actions will likely have beneficial impacts, minority populations should also benefit.

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 Vondruska (2010) and is incorporated herein by reference. Select summary statistics are provided in Table 3.4.1.1. Landings information is provided in Section 1.7.

Table 3.4.1.1. Five-year[1] average performance statistics, including number of vessels landing each species, value of the species for those vessels, value of all species for those vessels, and the average value for those vessels.

Column 1 - Species	Vessels	Ex-vessel Value[2] Species from Column 1 (millions)	Ex-vessel Value All Species (millions)	Average Ex-vessel Value per Vessel
Atlantic Migratory group King Mackerel	742	$4.57	$23.41	$31,600
Atlantic Migratory group Spanish Mackerel	349	$1.85	$9.76	$28,000
Gulf Migratory group King Mackerel	669	$4.99	$29.48	$44,100
Gulf Migratory 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 Migratory group King Mackerel	$4.57	862	112	$60.21	$25.66
- All Species[2]	$23.41	4,412	576	$308.26	$131.38
Atlantic Migratory group Spanish Mackerel	$1.85	348	45	$24.31	$10.36
- All Species	$9.76	1,840	240	$128.52	$54.77
Gulf Migratory group King Mackerel	$4.99	941	123	$65.72	$28.01
- All Species	$29.48	5,556	725	$388.17	$165.43
Gulf Migratory 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

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.

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 1.7.

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 3.4.2.1. 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. 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. West Florida dominates for all three species and effort type.

If examined by mode, in the Gulf, 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	W Florida	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					
	E Florida	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), West Florida, 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), East Florida, 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 East Florida on the Atlantic, while Alabama is combined with West 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 3.4.2.13, 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	W Florida/ 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			
	E Florida/ 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

The numbers of pelagic for-hire (charter or headboat) permits on January 21, 2011, are provided in Table 3.4.2.14. There are no specific permitting requirements for recreational anglers to harvest coastal migratory pelagic species. 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 3.4.2.14. 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.

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 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 (D., 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 (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 (2009) and are provided in Tables 3.4.2.15-20. 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 (2009) 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 West 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	W Florida	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	E Florida
	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	W Florida	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	E Florida
	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	W Florida	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	E Florida
	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 3.4.2.15-20 only reflect effort derived from the MRFSS. Because the headboat sector in the Southeast Region is not covered by the MRFSS, the results in Tables 3.4.2.15-20 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 (2009) 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 Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the exclusive economic zone (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 of Mexico Fishery Management Council (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 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 Mid-Atlantic Council has two voting seats on the South Atlantic Council’s Mackerel Committee but does not vote during Council sessions. The Mid-Atlantic Council is responsible for fishery resources in federal waters off New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina.

The 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 Mid-Atlantic Council has two voting seats on the South Atlantic Council’s Mackerel Committee but does not vote during Council sessions.

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 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 web pages:
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
- **Preferred Option a.** Cero
  - **Suboption i.** In the Gulf of Mexico region
  - **Suboption ii.** In the South Atlantic region
- **Preferred Option b.** Little tunny
  - **Suboption i.** In the Gulf of Mexico region
  - **Suboption ii.** In the South Atlantic region
- **Preferred Option c.** Dolphin
  - **Suboption i.** In the Gulf of Mexico region
  - **Suboption ii.** In the South Atlantic region
- **Preferred 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 have the same impacts to the physical or biological environments as currently exist. Data collected could be used in the development of conservation and management measures, and positive impacts to the physical and biological environments could be expected at a later date. However, data collection programs currently in place requiring federal permit holders to report landings of these species would not change, even if species are removed from the FMP.

Alternative 2 would add these species to the FMU and the Gulf of Mexico (Gulf) and South Atlantic Fishery Management Councils (Councils) would set annual catch limits (ACLs) and accountability measures (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. However, setting appropriate ACLs would be difficult, because little data on life history, growth rates, and reproductive biology are available to conduct an effective stock assessment on most of these species. The magnitude of these impacts would be dependent on how much the level of catch was reduced, which is unknown at this time.

Preferred Alternative 3 would remove all of the listed species from the Fishery Management Plan (FMP). NMFS' National Standard guidelines state that the principle implicit in National Standard 7 (NS7) is that not every fishery needs regulation. The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires Councils to prepare FMPs only for overfished fisheries and for other fisheries where regulation would serve some useful purpose and where the present or future benefits of regulation would justify the costs. The overall objective of this action is to identify potential management efficiencies that could be achieved without compromising federal conservation and management objectives. If species are removed from federal management, states could manage harvest of the species within federal waters adjacent to state waters for vessels registered to the state or landing catch in the state. However, none of the Gulf or South Atlantic states have indicated an intention to extend their regulations into federal waters. Nevertheless, overfishing or detriment to these species would not be expected to occur without NOAA Fisheries Service's knowledge, because ongoing monitoring and data collection by the SEFSC will continue for all species that are sold to dealers or caught recreationally, regardless of whether they are in the Fishery Management Unit (FMU) or FMP. NOAA Fisheries Service would know if landings or effort change, and species could be added back into the FMP if necessary for conservation and management.

The Magnuson-Stevens Act requires that ACLs be set at a level that prevents overfishing. For species with very low landings, or no landings at all, setting appropriate acceptable biological catch (ABCs) and ACLs to ensure overfishing does not occur is very difficult. Further, sufficient data may never be available to conduct an effective stock assessment on these species. Inclusion of these species in the FMP is unlikely to improve the condition of the stock, produce more efficient utilization of the coastal migratory pelagic fishery, or foster orderly growth of a developing fishery because no management measures have ever regulated catch of these species.

4.1.2 Direct and Indirect Effect on the Economic Environment

The removal of cero, little tunny, dolphin, and bluefish (in the Gulf) from the FMP is primarily an administrative issue because these species were added to FMP solely for data collection purposes. **Preferred Alternative 3, Preferred Options a-d** would remove all four species from the FMP and is not expected to affect the harvest or other customary uses of these resources. Therefore, neither direct, nor indirect economic effects are anticipated to result from the implementation of **Preferred Alternative 3, Preferred Options a-d**. **Alternative 2** would add some (or all of) these species to the FMU and set ACLs and AMs. Direct economic effects are not expected to result from the implementation of **Alternative 2** because it is not anticipated to directly impact the harvest levels and use patterns of these stocks. However, while unlikely, if overly restrictive ACLs were implemented following the inclusion of these species in the FMU, indirect economic effects may result from harvest restrictions that could be imposed as corrective measures should the ACLs be exceeded.

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 species.

By removing cero **(Preferred Alternative 3, Option a)**, little tunny **(Preferred Alternative 3, Option b)** and bluefish (in the Gulf) **(Preferred Alternative 3, Option d)** from the FMP, **Preferred Alternative 3** would have slight positive indirect effects on the social environment in that management for remaining CMP stocks could be streamlined. Removal of dolphin **(Preferred Alternative 3, Option c)** would update the FMP language to reflect the existence of a separate FMP for dolphin in the Atlantic. Leaving any species in the FMP would require ACLs and AMs be set. Because landing information on these species is imprecise, setting an ACL and subsequent AMs would be problematic and could cause some social disruption and changes in fishing behavior if thresholds were set at such a level that would affect current harvesting patterns or linked to harvest of other species.

4.1.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would not meet the requirements of the Magnuson-Stevens Act, and could leave NOAA Fisheries Service subject to litigation, which would result in a significant administrative burden. **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, as well as management thresholds such as overfishing and overfished definitions. After ACLs are specified, the administrative burden associated with monitoring, enforcing, and implementing management measures and AMs would increase. **Preferred Alternative 3** would remove the same species from the FMP, resulting in less administrative burden with regards to those requirements. If the Councils chose to develop management measures for these species in the future, a plan amendment would be required to add the species back into the FMP. At that time ACLs and AMs would need to be developed to comply with the Magnuson-Stevens Act requirements.

4.1.5 Council Conclusions

The South Atlantic Council’s Mackerel Advisory Panel (AP) reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP discussed including cero with Spanish mackerel but understood that it would have to be separate and if included, the Councils would have to specify ACLs/AMs which would be difficult given the lack of catch and biological data; cero are included with Spanish mackerel in much of the catch records. The AP discussed ecosystem component species but recognized that this would still require specification of ACLs/AMs. The AP approved **Preferred Alternative 3**.

The South Atlantic Council’s Scientific and Statistical Committee (SSC) reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Councils reviewed the AP, SSC, and public hearing recommendations and chose **Preferred Alternative 3** to remove species from the FMP because those species are not in need of federal management. Although these species are targeted in some areas, landings are fairly low. Further, if landings or effort changed and the Councils felt management was needed, these species could be added back into the FMP.

The Councils concluded the preferred alternative provides the necessary management protection to the species that need management at this time and that this fishery management unit would provide the necessary structure to properly manage and prevent overfishing of king mackerel, Spanish mackerel, and cobia. The Councils also concluded the preferred alternative meets the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics (mackerel) fishery management plan as amended.

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)

Preferred Alternative 3. Revise the framework procedure to incorporate the SEDAR process and adjustments to ACLs, and expand the procedure to allow adjustments of a greater range of management measures under specific procedural guidelines

- **Preferred Option a.** Adopt the base Framework Procedure (Appendix B)
- **Option b.** Adopt the more broad Framework Procedure (Appendix C)
- **Option c.** Adopt the more narrow Framework Procedure (Appendix D)

4.2.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

No direct physical, biological, or ecological effects would be 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 would increase. **Alternatives 2** and **Preferred Alternative 3** offer greater management flexibility and, therefore, are expected to offer greater long-term biological benefits than **Alternative 1**; **Preferred Alternative 3** offers the greatest efficiency and effectiveness of management change and the 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. NMFS expects these effects to be insignificant.

4.2.2 Direct and Indirect Effect on the Economic Environment

Modifications to the framework procedure proposed herein are administrative actions. These actions could expand the range of management measures that the Councils can implement without a full plan amendment but are not expected to directly affect the harvest and other customary uses of the resource. Therefore, management measures considered under this action are not expected to result in direct effects on the economic environment. However, proposed changes to the framework procedure could result in a speedier implementation of management measures beneficial to the stocks thereby yielding biological benefits in the future. Framework changes may also result in a faster implementation of measures beneficial to fishery participants. Indirect positive economic effects are expected to result from these potential benefits to the stocks or to fishery participants. A quantitative evaluation of alternatives considered under this action would require additional information on the specific management measures to be implemented, expected changes to the stock(s) and/or participants in the fishery in question, and, anticipated time savings that would result from the use of the framework procedure. The relative magnitude of the anticipated indirect economic benefits would depend on the breadth of management actions that could be implemented via framework and on the speed at which beneficial regulatory changes can be implemented under **Preferred Alternative 3** and **Alternative 2**. While **Alternative 2** and **Preferred Alternative 3** are expected to implement management measures at the same speed, **Preferred Alternative 3** is anticipated to result in greater economic benefits because it would allow a wider variety of management measures to be implemented via framework.

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 **Preferred Alternative 3** would generate indirect positive effects on the social environment with the framework modifications to incorporate a procedure for adjusting ACLs in a timely manner; updating text to reflect adoption of SEDAR as the source of stock assessment information (**Alternative 2** and **Preferred Alternative 3**) would provide consistency in language with regulatory changes and have few effects on the social environment. Consistency and timeliness in the regulatory process are positive social benefits as they remove uncertainty and subsequent displeasure with regard to changes in management while protecting the stock.

4.2.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would be the most administratively burdensome of the alternatives being considered, because all modifications to ACLs, ACTs, and AMs would need to be implemented through a plan amendment, which is a more laborious and time consuming process than a framework action. **Alternative 2** and **Preferred Alternative 3** would allow the agency and Councils flexibility by including the SEDAR process and allowing for an adjustment of ACLs through a framework action. Framework actions generally require less time and staff effort than plan amendments and would lessen the administrative burden on the agency. **Preferred Alternative 3, Preferred Option a** would include the SEDAR process, allow for updates of ACLs, and provide the option for more flexibility on how and when framework actions can be used. **Preferred Alternative 3**, **Option b** would provide the most flexibility in the preparation of framework amendments, resulting in the least administrative burden on the agency. **Preferred Alternative 3**, **Option c** would have tighter guidelines for when a framework could be used as well as the amount of public discussion and the involvement of the SSC, SEP, or APs.

The Gulf Council is considering alternatives to the framework procedures of all Gulf FMPs that are similar to the options in **Preferred Alternative 3**. If the Councils choose the same basic framework for the CMP FMP as for other Gulf FMPs, the process of implementing framework actions may be more streamlined in the Gulf region.

4.2.5 Council Conclusions

The South Atlantic Council’s Mackerel AP reviewed this action at their April 6-7, 2011, meeting in North Charleston, South Carolina. The AP discussed how management seems to be making changes before the impacts of previous management have had a chance to affect the resource. They discussed which alternative would provide the most opportunity to incorporate the most data. However, they recognized that it would be best to address results from stock assessments as quickly as possible. The AP approved **Preferred Alternative 3, Preferred Option a** to allow changes based on one Council meeting.

The South Atlantic Council's SSC reviewed Mackerel Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Councils chose **Preferred Alternative 3, Preferred Option a** to have flexibility in making management change while providing both substantive and procedural guidelines. The framework procedure under **Alternative 1** is out of date and not consistent with current assessment and management methods. The framework under **Alternative 2** would be up-to-date, but would remain restrictive in the items that could be changed and unspecific about procedure. **Options b** and **c** for **Preferred Alternative 3** give the Councils and NOAA Fisheries Service too much and too little authority, respectively, to change management outside of the plan amendment process.

The Councils concluded the preferred alternative provides the necessary flexibility to respond quickly to new stock assessment information and to changes in the coastal migratory pelagics fishery. The Councils also concluded the preferred alternative meets the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics (mackerel) fishery management plan as amended.

4.3 ACTION 3: Establish Separate Atlantic and Gulf Migratory groups of Cobia

Alternative 1. No action - maintain one migratory 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 Williams 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 (Denson et al.) examined a suite of microsatellite loci. Atlantic samples were collected during April-July in 2008 and 2009. Results indicate a homogenous offshore migratory 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; 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 would be no negative biological effects.

4.3.2 Direct and Indirect Effect on the Economic Environment

The establishment of separate Atlantic and Gulf migratory groups of cobia is not expected to directly affect the harvest or other customary uses of cobia. Therefore, direct economic effects are not anticipated to result from the implementation of separate Atlantic and Gulf cobia migratory groups. However, the separation of cobia into two migratory groups could result in indirect adverse economic effects should harvest levels in the Gulf or the South Atlantic exceed their respective ACLs, triggering AMs. The likelihood of exceeding the ACLs for the Gulf or South Atlantic migratory groups (**Alternative 2** or **Preferred Alternative 3**) is expected to be greater than the likelihood of exceeding the aggregate ACL (**Alternative 1**). All other things being equal, the smaller a migratory group ACL is, the greater the likelihood of exceeding the ACL. **Preferred Alternative 3** is anticipated to correspond to a smaller likelihood of exceeding the ACLs than **Alternative 2** because the smallest migratory group ACL value would be recorded under **Alternative 2**. The magnitude of potential adverse indirect economic effects would depend on harvest overages recorded and corrective measures implemented in response.

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 in the form of income losses or reduced fishing opportunities on 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** would split Monroe County, requiring additional burden and increased risk of misreporting because fishermen move from oceanside to bayside on a regular basis. This may also add to the administration as tracking of landings within this region may prove difficult. However, this division would allow for differing management on regional stocks as has been accomplished with most coastal migratory pelagic species which would be more consistent with how the joint plan is currently managed.

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, if there were any permits associated with harvesting the single stock of cobia, they 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. However, since there currently are no such permits, there would be no direct or indirect effects on the administrative environment.

4.3.5 Council Conclusions

The South Atlantic Council's Mackerel AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. They received a presentation from SC DNR (Denson et al. 2011) on cobia research in South Carolina, particularly stock structure results. The AP recognized the Port Royal/St. Helena cobia as a distinct population based on the genetic research and they want to look at more specific management of this population in the future, after the stock assessment. The AP discussed fishing in the Florida Keys and how fishermen will fish in the Gulf and in the South Atlantic Councils' areas. However, out of Key West, they mostly fish on the Atlantic side in South Atlantic Council waters and catch relatively few cobia. In the Gulf, north of Key West, fishermen catch more cobia on the wrecks. The AP recognized that there is likely one stock and that management migratory groups could be established to make management easier. The AP also expressed preference for the Keys fishermen to be included in the South Atlantic Council area and approved **Preferred Alternative 3** that would separate the two migratory groups at the Council boundary.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Councils reviewed the AP, SSC, and public hearing recommendations, and the genetic research conducted by SC DNR, and concluded that although there is mixing of cobia from the Gulf and the Atlantic, the preponderance of scientific data, as discussed in Section 4.3.1 above, indicate that there are at least two separate migratory groups, if not two separate stocks in the Gulf and Atlantic. Furthermore, the Councils have determined that they should manage these migratory groups/stocks separately within their individual areas of jurisdiction. This would prevent fishermen from having to travel to meetings held by both Councils and providing input to two Councils. Also, the impacts of this choice versus maintaining the current unit stock strategy, which is not supported scientifically, or a set boundary at the Miami-Dade/Monroe County line would likely be negligible, primarily due to the very low percentage of landings from Monroe County.

The Councils concluded the preferred alternative provides the necessary management structure to properly manage cobia, specify the Magnusson-Stevens Act parameters (OFL, ABC, ACL/ACT, and AM), and prevent overfishing. The Councils also concluded the preferred alternative meets the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagic (mackerel) fishery management plan as amended. National Standard 3 requires Councils to manage an individual stock as a unit throughout its range, and interrelated stocks as a unit or in close coordination. Although each group would be managed separately by the appropriate Council, the inclusion of both groups in the joint FMP would ensure close coordination.

4.4 ACTION 4: Acceptable Biological Catch (ABC) Control Rule for Gulf Migratory group Cobia

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

Preferred Alternative 2. Adopt the Gulf Council's ABC Control Rule [The SSC used Tier 3a to set ABC at 1.46 mp]

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

Note: See discussion of the control rule in Section 2.4, Action 4.

4.4.1 Direct and Indirect Effects on Physical and Biological/Ecological Environment

This action would not directly affect the physical environment, although the resultant management strategies for these migratory groups could affect the level of fishing effort which may have affects on the physical environment as described in Sections 4.5 and 4.6.

Alternatives 2 and **3** may provide indirect beneficial effects to the biological and ecological environment compared to **Alternative 1** because a new ABC could be determined more quickly if new information is available. **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.

4.4.2 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 potentially yield 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

[5] It is assumed that a reduction in ABCs would result in a proportional reduction in ACLs and/or ACTs.

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. It is also important to note that a control rule that would consistently result in ABCs below the ABC needed for adequate protection of the stocks would systematically decrease the expected economic benefits (or amplify economic losses) in the short run by unduly restricting the use of the resource. The converse would be expected from a control rule that would systematically result in ABCs greater than ABCs needed for adequate protection of the stocks, with the inadequate protection of the stocks possibly resulting in longer term adverse economic effects. However, in the case of cobia, these effects are not expected to occur.

4.4.3 Direct and Indirect Effect on the Social Environment

Setting biological parameters on catch through an ABC control rule, ACL, or ACT can have indirect effects on the social environment. 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 through increased income and fishing opportunities. It is the short-term costs involved that often drive perceptions of negative impacts. These impacts have the potential to translate into real costs that have significant impacts to both the commercial and recreational sectors if their quotas are reduced. If substantial reductions occur there could be lost income on the commercial side and lost fishing opportunities for the recreational sector. In either case, such impacts can reverberate through the fishing community like any economic downturn or may translate into conflict between sectors as they compete for a reduced resource. The ABC control rule for Gulf migratory group cobia that has been selected in **Preferred Alternative 2** would not impose negative short-term social effects and provide positive benefits over the long term as a sustainable stock should result. **Alternative 1** would not be tenable as some form of ABC must be set by the SSC. **Alternative 3** would impose a lower ABC level which could then be further reduced through other actions setting ACLs or ACTs and may have negative indirect effects as a result. These effects are discussed in Section 4.5.

4.4.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would require the Gulf SSC to specify the ABC on an ad hoc basis requiring a comparable burden to the status quo. **Preferred Alternative 2** and **Alternative 3** would have indirect effects on the administrative environment because of additional calculations based on the available data. However, the administrative burden may return to the current level or decrease depending on the efficiency of the selected alternative.

4.4.5 Council Conclusions

The Council concluded that there should be no negative impacts to the biological, physical, ecological, economic, social, or administrative environments from its SSC's recommendation of ABC using the Council's ABC Control Rule with the Tier 3a approach. This action sets a limit that is the highest catch allowable. The resultant ABC of 1.46 mp is almost identical to the ABC that was calculated by MSAP (2001) using the current definition of OY (1.45 mp). Additionally, this stock assessment determined that the Gulf cobia stock was neither overfished nor undergoing overfishing. Furthermore, this action makes no changes to current regulations that constrain catch and have been in effect since 1990. Consequently, this action only sets a limit of the highest ACL that the Council can establish and sets a process whereby ABC can be adjusted in the future when additional information is available or additional stock assessments are completed.

4.5 ACTION 5: Annual Catch Limits and Annual Catch Targets for Gulf Migratory group Cobia

ACTION 5-1: Annual Catch Limit (ACL) for Gulf Migratory group Cobia

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

Preferred Alternative 2. Set ACL = ABC for Gulf migratory 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 migratory 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 = 75% of ABC for Gulf migratory 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

ACTION 5-2: Set Annual Catch Target (ACT) for Gulf Migratory group Cobia

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

Preferred Alternative 2. Set ACT = 90% of ACL for Gulf migratory group cobia [1.31 mp based on preferred ACL]

> **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 migratory group cobia [1.24 mp based on preferred ACL]

> **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 and Biological/Ecological 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; however, the ACT chosen as preferred would not restrict catch below recent five-year averages, and no such impacts would be expected to occur. 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.

Setting an ACL or ACT potentially would 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 and 4**) 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 magnitude of the 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.

The more the ACL or ACT is divided, the more accountability each division would 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. A single ACL and ACT would allow the fishery to achieve optimum yield while still constraining the stock within the ACL. 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 could 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. On the other hand because catches of cobia are approximately 90% recreational, the precision of monitoring would be poor at this time. Consequently, any potential positive biological impacts of sector-specific ACL or ACT would probably not be realized.

4.5.2 Direct and Indirect Effects on Economic Environment

ACTION 5-1: Annual Catch Limit (ACL) for Gulf Migratory group Cobia

Management measures considered under this action would either set a single ACL for Gulf migratory group cobia (**Preferred Option a**) or establish separate commercial and recreational ACLs for Gulf migratory group cobia (**Option b**). Gulf migratory group cobia ACLs under consideration range from a maximum of 1.46 mp under **Preferred Alternative 2** to a lower bound of 1.31 mp under **Alternative 3**. Based on the magnitude of the ACLs under consideration relative to cobia landings in the Gulf, it is unlikely that Gulf migratory group cobia harvests would exceed the aggregate ACL under **Preferred Alternative 2**. For Gulf migratory 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. **Alternative 3** could result in adverse economic effects should the ACL 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 Migratory group Cobia

Potential economic effects anticipated from the implementation of ACTs 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 migratory group cobia landings compared to ACT levels suggests that these thresholds would likely not be reached. The likelihood of observing overages is further diminished under **Preferred Option a,** which combines the commercial and recreational ACT into a single stock ACT. 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.

4.5.3 Direct and Indirect Effect on the Social Environment

According to the National Standard guidelines, ACLs have been relegated primarily to biological assessments and reference points to address scientific uncertainty. 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 through increased income and fishing opportunities which improve the coastal economy. With a robust coastal economy there is more flexibility and resilience to absorb socioeconomic changes that come from both natural and man-made hazards like hurricanes or regulatory change. A resilient coastal community offers stability and security to its residents and allows for their continued participation in the economy and adapts to social disruptions, like unemployment and social stressors. It is the short-term costs mentioned earlier that often drive perceptions of negative impacts. These impacts could translate into real costs that have significant impacts to both the commercial and recreational sectors through changes in fishing behaviors and/or involve losses of income or fishing opportunities. 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. For cobia, 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 Action 5-1, **Alternative 1,** by not establishing an ACL the Councils would not be in compliance with National Standard guidelines. By establishing separate sector allocations as in **Alternatives 2** and **3, Options b** and **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 perception, 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 **Preferred Alternative 2, Preferred Option a** or **Alternative 3, Option a**. Setting separate ACLs places accountability within each sector. However, each subsequent division would drive perceptions of scarcity and likely change the fishing behavior of those within a particular sector. The most restrictive ACLs are under **Alternative 4, Option a** and **b**. Again, **Alternative 4, Option a** uses an overall ACL while **Option b** separates into two sectors. Overall, the **Preferred Alternative 2, Preferred Option a** would likely have the fewest negative social effects.

The social effects of setting ACTs for Gulf Migratory group cobia in Action 5-2 are similar to setting ACLs, especially if separate ACTs are developed. ACTs are utilized in fisheries where there may be 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 would 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. **Preferred Alternative 2, Preferred 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**.

4.5.4 Direct and Indirect Effect on the Administrative Environment

Specifying an ACLs or 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 **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.

4.5.5 Council Conclusions

The Council concluded that there should be no direct impacts to the biological, physical, ecological, economic, social, or administrative environments as a result of its choice of an ACL equal to ABC (l.46 mp) or the choice of setting the ACT at 90% of the ACL (1.31 mp) for Gulf cobia, particularly since a single stock ACL and ACT are the preferred options. As previously stated these catch levels have not been realized in recent years, and management measures used to control harvest have been in place since 1990. Consequently, impacts to these various environments should remain the same because nothing has changed. A potential positive impact could result from setting the ACL and ACT in that if the ACT harvest level is projected to be exceeded the fishery can be closed thereby preventing the possibility that overfishing would occur. Such actions would probably have positive benefits to the biological, physical, ecological, economic, and social environments in the long term in that potential additional restrictions on harvest would be averted. Very slight negative impacts could apply to the administrative environment through the efforts to monitor and actually close the fishery should an overage be anticipated to occur. However, as noted such is not likely to occur under current management, and would be outweighed by the potential biological benefits associated with preventing overfishing.

4.6 ACTION 6: Set Accountability Measures (AMs) for Gulf Migratory group Cobia

Alternative 1. No Action

Option a. Commercial – The Regional Administrator has authority via the framework to revert the bag/possession limit to zero if fishermen have achieved or are expected to achieve their allocation

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

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

Preferred 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

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

Alternative 3. Set post-season AMs for Gulf migratory 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 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 compared to the ACL for the third year and thereafter

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

4.6.1 Direct and Indirect Effects on Physical and Biological/Ecological Environment

This action would not be expected to have direct or indirect effect on the physical environment. To the extent that AMs 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.

Preferred Alternative 2 would attempt to limit harvest to levels at or below the 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 a** 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.

4.6.2 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** is 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 would determine the magnitude of these economic effects.

Preferred Alternative 2 would attempt to prevent overages by implementing in-season AMs. 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 AMs, 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.

4.6.3 Direct and Indirect Effect on the Social Environment

The setting of AMs could have direct and indirect effects on the social environment if they impose some restriction on harvest. Those restrictions usually translate into reduced opportunity for harvest which in turn can change fishing behaviors through species switching if the opportunity exists. That behavior can increase pressure on other stocks or amplify conflict. If there are no opportunities to switch species then losses of income or fishing opportunities may occur which can act like any downturn in an economy for fishing communities affected. If there is a substantial downturn then increased unemployment and other disruptions to the social fabric may occur. While these negative effects are usually short term, they may at times induce other indirect effects through the loss of fishing infrastructure that can have a lasting effect on a community. The long-term effects should be beneficial as they provide protection from further negative impacts on the stock. The FMP does have AMs in place for other species; therefore fishermen are familiar with such management and these impacts should be minimal.

Alternative 1 would put no new AMs in place and would risk further harm to the stock if bag limits in place were not sufficient to keep the ACLs from being exceeded. This would avoid short-term negative social impacts mentioned above, but may incur longer term impacts if stock status were jeopardized. The implementation of in-season AMs in **Preferred 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. **Preferred Alternative 2, Preferred Option a** which closes the fishery once the ACT is reached may be the simplest form of AM. Reducing the recreational bag limit in **Preferred Alternative 2, Option b** 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. There may be fewer negative social effects with **Preferred Alternative 2, Option c** as the fishery would remain open until the ACL is reached which could mean a longer season. 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. With **Alternative 3, Option a** the adjustment to the ACT the next year could have substantial social effects if the reduction is considerable compared to the previous year. A lower ACT could force some species switching to occur if the season were to end earlier than in the past. Possession limits in **Alternative 3, Option b** would have similar impacts as would **Option c**, shortening the season. The trigger in **Alternative 3, Option d** would apply a range of average landings that may ameliorate some of the volatility within a fishery by utilizing a smoothing process of aggregating several years' landings. The magnitude of impacts derived from either in-season or post-season AMs 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 AMs 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 as discussed earlier. If that is the case, then AMs in other fisheries may also begin to affect fishing behaviors and subsequently impact each sector and the fishing communities involved.

4.6.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would not produce near-term administrative impacts. **Alternatives 2** and **3** would increase the administrative burden from the status quo by changing AMs for Gulf migratory group cobia. The administrative burden of **Preferred Alternative 2** and **Alternative 3** would be similar as would the burden imposed by the various options and sub-options. All of the alternatives, options, and sub-options would result in a need for monitoring, enforcement, rule-making, education and outreach. If more options or sub-options are selected as preferred the administrative burden would increase. The sub-options associated with **Preferred Alternative 2, Option b** would have the greatest increase in administrative burden due to the difficulty with tracking recreational landings in season.

4.6.5 Council Conclusions

The Council concluded that there should be no impacts to the biological, physical, ecological, economic, social, or administrative environments as a result of its choice of an in-season closure of the Gulf cobia fishery if the 1.31 mp ACT is reached or expected to be reached. As previously discussed, this catch level has not been achieved in recent years under the current long-term management actions. Consequently, a closure of the fishery is not likely to be needed to further constrain harvest. Should the 1.31 mp ACT be reached, a closure of the fishery would probably result in some positive long-term benefits to the biological, physical, ecological, economic, and social environments because the closure would occur before the ACL is reached and before the OFL is achieved. Consequently, there would be virtually no chance that overfishing would occur and that additional management measures would be needed. The administrative environment could incur very minor impact if such occurred through the need for monitoring and developing a closure notice. Additionally, since catches have been consistently below the OY level estimated by MSAP (2001), and the stock was not considered to be undergoing overfishing, there would be no need for payback actions as part of a post-season AM.

4.7 ACTION 7: Acceptable Biological Catch (ABC) Control Rule for Gulf Migratory 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%

Note: See discussion of the control rule in Section 2.7, Action 7.

4.7.1 Direct and Indirect Effects on Physical and Biological/Ecological Environments

This action would not directly affect the physical environment, although the resultant management strategies for these migratory groups could affect the level of fishing effort which may have affects on the physical environment as described in Sections 4.8 and 4.9.

Preferred Alternative 2 and **Alternative 3** may provide small indirect beneficial effects to the biological and ecological environment compared to **Alternative 1** because a new ABC could be determined more quickly if new information is available. **Preferred Alternative 2** and **Alternative 3** create specific guidelines for setting ABC with consistency verses 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 king mackerel stock. The ABC level under **Preferred Alternative 2** is only slightly higher than under **Alternative 3**. Because the Council cannot set an ACL higher than the ABC, each alternative will constrain the level of the ACL. **Alternative 3** sets the ABC higher than **Preferred Alternative 2** using a static definition that does not allow for changes in the level of risk based on new stock assessments.

4.7.2 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 on a consistent rule to determine ABC levels, as opposed to the traditional ad hoc approach, is expected to potentially yield 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[6]. 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

[6] It is assumed that a reduction in ABCs would result in a proportional reduction in ACLs and/or ACTs.

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. It is also important to note that a control rule that would consistently result in ABCs below the ABC needed for adequate protection of the stocks would systematically decrease the expected economic benefits (or amplify economic losses) in the short run by unduly restricting the use of the resource. The converse would be expected from a control rule that would systematically result in ABCs greater than ABCs needed for adequate protection of the stocks; with the inadequate protection of the stocks possibly resulting in longer term adverse economic effects.

4.7.3 Direct and Indirect Effect on the Social Environment

Setting biological parameters on catch through an ABC Control rule can have indirect effects on the social environment as mentioned previously in earlier actions. 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 as discussed in the precious action on ABC. These impacts have the potential to translate into real costs that have significant impacts to both the commercial and recreational sectors. The ABC Control Rule for Gulf migratory group king mackerel that has been selected in **Preferred Alternative 2** should not impose negative short term social effects and provide positive benefits over the long term as a sustainable stock should result. **Alternative 1** would not be tenable as some form of ABC must be set by the SSC. **Alternative 3** would impose a lower ABC level which could then be further reduced through other actions setting ACLs or ACTs and may have negative indirect effects as a result. These effects are discussed in Section 4.8.

4.7.4 Direct and Indirect Effect on the Administrative Environment

Selection of an ABC control rule alone would not increase the administrative burden over the status-quo. **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 ABC through **Preferred Alternative 2 and Alternative 3** are minimal and would not differ much between the two action alternatives. However, there would be indirect effects stemming from monitoring catches to ensure they do not exceed the resulting ACLs and ACTs. These effects are discussed in Section 4.8. This could result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. In addition, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

4.7.5 Council Conclusions

The Council chose **Preferred Alternative 2** to be consistent with decisions made for other species and to provide a statistically based way of setting ABC, even if a new stock assessment changed the status of the stock. In that case, the same control rule could be used, but the SSC could choose a different tier, based on the best scientific information. **Alternative 1** would not meet the Magnuson-Stevens Act requirements and **Alternative 3** would not allow for changes based on subsequent stock assessments.

4.8 ACTION 8: Set Annual Catch Limit and Annual Catch Target for Gulf Migratory group King Mackerel

ACTION 8-1: Set Annual Catch Limit (ACL) for Gulf Migratory group King Mackerel

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

Preferred Alternative 2. Set ACL = ABC for Gulf migratory group king mackerel [11.9 mp for 2012 and 10.8 mp in 2013]

> **Option a.** Set a single ACL
> **Preferred Option b.** Set separate commercial and recreational ACLs based on current allocations [recreational: 8.092 mp (2012), 7.344 mp (2013); commercial: 3.808 mp (2012), 3.456 mp (2013)]
> **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 (2012), 2,904,552 lb (2013); gillnet: 607,614 lb (2012), 551,448 lb (2013)]

Alternative 3. Set ACL = 90% of ABC for Gulf migratory 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 (recreational 7.28 mp, commercial 3.42 mp)
> **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 migratory 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 (recreational 6.88 mp, commercial 3.23 mp)
> **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 migratory 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 (recreational 6.46 mp, commercial 3.04 mp)
> **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

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

Alternative 2. Set ACT = 90% of ACL for Gulf migratory 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 migratory 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 and Biological/Ecological Environments

Setting an ACL or ACT could affect the physical or biological 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; however, no such impacts would be expected to occur. 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.

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 3-5**) would restrict landings more and increase the likelihood of exceeding the ACL, although recent landings have not met even the lowest ACL alternative. Likewise, not setting an ACT (Action 8-2, **Preferred Alternative 1**) would allow a higher level of landings than setting an ACT below the ACL (Action 8-2, **Alternative 2** and **Alternative 3)**. The magnitude of the 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.

The proposed ACLs are higher than current quotas by a small amount. In the past 10 years, landings were higher than the proposed commercial ACL only once, and during the same time the recreational sector never landed more than the proposed recreational ACL. We have no reason to expect the AMs to be triggered under the preferred ACL. Therefore, this action would have no significant impact on the human environment.

The more the ACL or ACT is divided, the more accountability each division would 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 is separated by sectors, as in **Preferred Alternative 2, Preferred 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, 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, **Preferred Alternative 2, 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, 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. However, the current commercial quotas are separated by gear so no change in the effects would be expected under this option.

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. The Council's preferred alternative is **Alternative 1**, allowing the fishery to be controlled by the ACL.

4.8.2 Direct and Indirect Effects on Economic Environment

ACTION 8-1: Set Annual Catch Limit (ACL) for Gulf Migratory Group King Mackerel

For 2012, Gulf migratory group king mackerel ACLs considered in this action range from a maximum of 11.9 mp under **Preferred Alternative 2** to a minimum of 9.5 mp under **Alternative 5**. **Preferred Alternative 2** and **Alternative 3** would set ACLs greater than the current TAC. ACLs set under **Alternatives 4** and **5** would be lower than the TAC. However, the most conservative of the ACLs considered under this action is about 2.5 mp greater than the average Gulf migratory group king mackerel landings in recent years. It is therefore not likely that the overall Gulf migratory group king mackerel ACL would be exceeded under any alternative. Thus, **Preferred Alternative 2, Option a** is not expected to result in economic effects. However, under **Preferred Alternative 2, Preferred Options b** and **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 3-5**, 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 3-5** 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 ACTs 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 **Preferred Alternative 1** to 10.1 mp under **Alternative 3**. If a single ACT is set (**Option a**), the magnitude of Gulf migratory 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. However, the actual change in quotas would be minimal even under the most conservative alternative, so impacts would not differ significantly from current conditions. 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.

4.8.3 Direct and Indirect Effect on the Social Environment

In **Alternative 1** by not establishing an ACL the Councils would not be in compliance with National Standards. By establishing separate sector allocations as in all alternatives **Options b** and **c**, there would likely be some changes in fishing behavior and impacts to the social environment as discussed in previous actions. Because sector separation is already part of the CMP plan, selecting **Preferred Alternative 2, Preferred Options b** and **c** would likely have few negative social effects. In fact fishermen prefer these separate allocations to ensure they have an opportunity to catch fish during the season. **Alternatives 3-5** would impose similar thresholds with their suboptions but as one moves from **Alternative 3** to **Alternative 5** the threshold becomes more restrictive which increases the possibility of reduced harvest for each sector. Such reductions will have the same impacts discussed in earlier actions depending upon the severity of the reduction which translates into fewer fishing opportunities and loss of income if no substitutions exist.

The social effects of setting ACTs for Gulf migratory group king mackerel are the same as setting ACLs, especially if separate ACTs are developed. In **Preferred Alternative 1**, the harvesting threshold would fall back to the ACL and would likely have few negative social effects. Setting an ACT under **Alternative 2** could possibly have some negative social effects if current harvest rates are reduced. Also setting an ACT under **Alternative 2** would likely entail some type of sector separation which might include **Options b** and **c** rather than **Option a** which would set a single ACT removing some of the accountability that is built in to sector separation. The ACT under **Alternative 3** would further reduce the harvest threshold with similar options for sector allocation under **Options b** and **c** and likely have negative social effects compared to the other alternatives since it would be the most restrictive in terms of harvest levels. However, because the proposed ACL is higher than the current TAC, the reduction from the ACT alternatives and the resulting impacts would be minimal.

4.8.4 Direct and Indirect Effect on the Administrative Environment

Specifying an ACL or ACT alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL or ACT can potentially result in a need for additional cost and personnel resources if the current monitoring mechanism is not sufficient. Commercial king mackerel landings are tracked semi-monthly by the Southeast Fisheries Science Center through port agents, and recreational king mackerel landings are tracked bimonthly by MRFSS. Timelier reporting from both of these sources may be needed. These impacts would be the same for all alternatives.

The alternatives provide options related to the allocation of the quota between the commercial and recreational sectors and between the hook-and-line and run-around gillnet sectors. This division of the ACL or ACT would have a greater administrative burden than a single stock ACL because landings would need to be monitored in relation to the commercial and recreational sectors separately, and the commercial sector by gear. However, this is the current method and so would not impose any new burden. Although sector ACLs would be tracked separately, setting the recreational fishing year to the same as the commercial fishing year would ease the administrative burden associated with monitoring. For Gulf migratory group king mackerel, that fishing year is July 1 – June 30.

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.

4.8.5 Council Conclusions

The Council chose to set an ACL equal to the ABC (Action 8.1, **Preferred Alternative 2, Preferred Options b** and **c**) because the stock is not overfished or undergoing overfishing, and is considered to be rebuilt; therefore, further reductions in catch levels, such as Action 8.1, **Alternatives 3-5**, are not necessary. **Option b** provides for accountability by each sector, and **Option c** provides for additional accountability through quotas for the various zones and gear types used by the commercial sector. For the same reasons, the Council chose not to set an ACT lower than the ACL in Action 8-2.

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

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

Preferred Option a. Commercial

Preferred Suboption i. If the quota 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

Preferred Suboption ii. If 75% of quota 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

Preferred 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 migratory group king mackerel

Option a. Commercial – If the commercial quota 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% of its commercial ACT is reached or projected to be reached

Option b. Recreational - If 75% of the recreational allocation 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 migratory 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 and Biological/Ecological Environments

This action would have no direct or indirect effect on the physical environment. To the extent that AMs 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.

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 NS1 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 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. These closures are intended to directly benefit the king mackerel stock by reducing the probability of overfishing. For the recreational sector, the RA currently has the authority to reduce the bag limit if the recreational allocation is met or projected to be met. Such action, again, is intended to reduce the probability of overfishing. 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 RA 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 an 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 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, Preferred Option c** for Action 8-1. Any payback would result in beneficial impacts on the biological environment, the magnitude of which would be dependent on the amount of payback. 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 ii** or **iii** was chosen, the greatest benefit to the biological environment would be realized.

4.9.2 Direct and Indirect Effects on Economic Environment

Preferred Alternative 1 would continue to attempt to prevent overages by implementing in-season AMs should landings be projected to reach harvest thresholds set by the ACL or ACT. For the commercial sector, **Preferred Option a** would reduce the daily trip limit to 500 lbs if 75% is reached or projected to be reached (**Preferred Sub-option ii)** and, if the quota for a zone, subzone, or gear is reached or projected to be reached within a fishing year, allow the Assistant Administrator for Fisheries to file a notification to close that zone, subzone, or gear for the remainder of the fishing year (**Preferred Sub-option i)**. Although they may result in short-term adverse economic effects if implemented, these restrictions to prevent harvest above prescribed levels are anticipated to result in long-term economic benefits stemming from the added protection to the stocks. Additionally, the effects would not change from those currently affecting the fishery.

Alternative 2 would also control harvest level by relying on in-season corrective measures. Compared to **Preferred Alternative 1, Alternative 2 - Option b** 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 AMs 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 AMs (**Option a**) would depend on the extent to which fishery participants' opportunities to harvest Gulf migratory group king mackerel are restricted.

Alternative 3, which would remedy potential harvest overages after the fact by implementing post-season AMs, is expected to result in lower short-term adverse economic effects compared to **Preferred Alternative 1** and **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 Gulf migratory 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. For the commercial sector, sector-wide payback provisions (**Option a-Sub-option i**) are anticipated to be less restrictive than gear-specific payback measures (**Option a-Sub-option ii**) because commercial harvest levels could be under the total commercial ACL even if a commercial ACL for a particular gear is exceeded. Therefore, adverse economic effects are anticipated to be greater under **Option a – Sub-option ii.**

4.9.3 Direct and Indirect Effect on the Social Environment

The setting of AMs could have 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 as discussed in earlier actions. Gulf migratory group King mackerel have in-season AMs in place as trip limits and seasonal closures are already in use. The social effects from additional AMs would depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures. Again, the more restrictive the management, the more likely that negative social impacts will occur. As in other actions, those impacts are usually lost income and fishing opportunities which can translate into a variety of social effects mentioned in earlier actions on AMs depending on the severity of the reductions in harvest.

Preferred Alternative 1 would utilize current AMs 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, Option a** would not be too intrusive as projection of the harvest through quota monitoring is already done in the commercial fishery to prevent overages and reducing the trip limits is utilized already with king mackerel. Reducing the recreational bag limit in **Alternative 2, Option b** 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 options under **Alternative 3**, for post-season monitoring, can be more precise in both determining the size of the overage, but also the payback necessary. For **Alternative 3, Option a, Suboption i**, payback could impose some short-term negative social effects for the commercial sector the next year, especially if the overage was large. However, that may also assist with maintaining a stable stock status which should have long-term benefits through increase fishing opportunities and income. **Option a, Suboption ii** under this alternative would make that payback specific to a particular gear type that would add some accountability to the measure.

4.9.4 Direct and Indirect Effect on the Administrative Environment

Preferred Alternative 1 would not produce near-term administrative impacts. Although ACLs would be tracked separately, setting the recreational fishing year to the same as the commercial fishing year would ease the administrative burden associated with monitoring. For Gulf migratory group king mackerel, that fishing year is July 1 – June 30.

Administrative impacts of **Alternatives 2** and **3** would increase the administrative burden from the status quo by establishing more restrictive and active AMs for Gulf king mackerel. The administrative burden of **Alternative 2** and **Alternative 3** (and the various options and sub-options) would be similar in that notice of these actions would be needed. **Alternative 3** would be more burdensome than **Alternative 2** because computations would also be needed to determine the amount of payback, or the amount of reduction of the season or bag limit. All of the action alternatives, options, and sub-options would 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 would increase. The sub-options associated with **Alternative 2, Option b** would also increase the administrative burden due to the difficulty with tracking recreational landings in season. **Suboption ii** would increase the burden more than **Suboption i** because more paybacks would need to be calculated for each gear.

4.9.5 Council Conclusions

The Council chose **Preferred Alternative 1** because the current regulations provide sufficient AMs for the recreational and commercial sectors. **Alternative 2** would have modified the current method of controlling harvest in-season, but the Council did not think changes were necessary. Even though the commercial sector has exceeded its various zone quotas in the past, because the recreational sector only harvests about 67% of its allocation, the overall stock ACL has not been exceeded in several years. Post-season AMs (**Alternative 3**) would impose an increased and unnecessary burden on fishermen and the administration. For the same reasons, the Council chose not to set an ACT lower than the ACL in Action 8-2.

4.10 ACTION 10: Acceptable Biological Catch (ABC) Control Rule for Gulf Migratory 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 migratory group Spanish mackerel (This is the current definition of OY)

Note: See discussion of the control rule in Section 2.10, Action 10.

4.10.1 Direct and Indirect Effects on Physical and Biological/Ecological Environments

This action would not directly affect the physical environment, although the resultant management strategies for these migratory groups could affect the level of fishing effort which may have affects on the physical environment as described in Sections 4.11 and 4.12.

Preferred Alternative 2 and **Alternative 3** are expected to provide indirect beneficial effects to the biological and ecological environment compared to **Alternative 1** because a new ABC could be determined more quickly if new information is available. **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 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.

4.10.2 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 migratory 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[7]. 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

[7] It is assumed that a reduction in ABCs would result in a proportional reduction in ACLs and/or ACTs.

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. It is also important to note that a control rule that would consistently result in ABCs below the ABC needed for adequate protection of the stocks would systematically decrease the expected economic benefits (or amplify economic losses) in the short run by unduly restricting the use of the resource. The converse would be expected from a control rule that would systematically result in ABCs greater than ABCs needed for adequate protection of the stocks; with the inadequate protection of the stocks possibly resulting in longer term adverse economic effects.

4.10.3 Direct and Indirect Effect on the Social Environment

Setting biological parameters on catch through an ABC Control rule can have indirect effects on the social environment as mentioned previously in other actions for ABC (see Sections 4.4.3 and 4.7.3). 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 have the potential to translate into real costs that have significant impacts to both the commercial and recreational sectors. The ABC Control Rule for Gulf migratory group Spanish mackerel that has been selected in **Preferred Alternative 2** would not impose negative short term social effects and provide positive benefits over the long term as a sustainable stock should result. **Alternative 1** would not be tenable as some form of ABC must be set by the SSC. **Alternative 3** would impose an ABC level which could then be further changed through other actions setting ACLs or ACTs and may have positive or negative indirect effects as a result.

4.10.4 Direct and Indirect Effect on the Administrative Environment

Selection of an ABC control rule alone would not increase the administrative burden over the status-quo. **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 ABC through **Preferred Alternative 2** and **Alternative 3** are minimal and would not differ between the two action alternatives because both would constrain the level of the ACL. However, there would be indirect effects stemming from monitoring catches to ensure they do not exceed the resulting ACLs and ACTs. These effects are discussed in Section 4.11. This could result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. In addition, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

4.10.5 Council Conclusions

The Council chose **Preferred Alternative 2** to be consistent with decisions made for other species and to provide a statistically based way of setting ABC, even if a new stock assessment changed the status of the stock. In that case, the same control rule could be used, but the SSC could choose a different tier, based on the best scientific information. **Alternative 1** would not meet the Magnuson-Stevens Act requirements and **Alternative 3** would not allow for changes based on subsequent stock assessments.

4.11 ACTION 11: Set Annual Catch Limit and Annual Catch Target for Gulf Migratory Group Spanish Mackerel

ACTION 11-1: Set Annual Catch Limit (ACL) for Gulf Migratory Group Spanish Mackerel

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

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

> **Preferred Option a.** Set a single ACL
> **Option b.** Set separate commercial and recreational ACLs based on current allocations (57% commercial = 2.94 mp, 43% recreational = 2.21 mp)
> **Option c.** Set separate commercial and recreational ACLs based on recent landings

Alternative 3. Set ACL = 90% of ABC for Gulf migratory group Spanish mackerel [4.64 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 = 2.64 mp, 43% recreational = 1.99 mp)
> **Option c.** Set separate commercial and recreational ACLs based on recent landings

Alternative 4. Set ACL = 75% of ABC for Gulf migratory group Spanish mackerel [3.86 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 = 2.20 mp, 43% recreational = 1.66 mp)
> **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

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

Alternative 2. Set ACT = 90% of ACL for Gulf migratory 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 migratory 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 and Biological/Ecological Environment

Setting an ACL or ACT could affect the physical and biological environments 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; however, we have no reason to expect the AMs to be triggered under the preferred ACL because it is higher than recent landings. 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.

An ACL equal to the ABC (Action 11-1, **Preferred Alternative 2**) would allow a higher level of landings than an ACL lower than the ABC. In fact, the stock ACL set by **Preferred Alternative 2, Preferred Option a** in Action 11-1 has not been exceeded in the past 17 years. Progressively lower ACLs would restrict landings more and increase the likelihood of exceeding the ACL. Likewise, not setting an ACT (Action 11-2, **Preferred 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 magnitude of the 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.

The more the ACL or ACT is divided, the more accountability each division would 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. This option would allow the fishery to optimize yield while still protecting the stock as a whole. If the ACL or ACT is separated by sectors (**Option b** or **c**), 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, may be more effective in constraining harvest within the ACL.

4.11.2 Direct and Indirect Effects on Economic Environment

ACTION 11-1: Set Annual Catch Limit (ACL) for Gulf Migratory Group Spanish Mackerel

Management measures considered under this action would either set a single ACL for Gulf migratory group Spanish mackerel (**Option a**) or establish separate commercial and recreational ACLs for Gulf migratory group Spanish mackerel (**Option b**). Excluding **Alternative 1**, which would exceed the SSC's ABC recommendation, Gulf migratory group Spanish mackerel ACLs under consideration range from a maximum of 5.15 mp under **Preferred Alternative 2** to a lower bound of 3.86 mp under **Alternative 4**. Based on the magnitude of the ACLs under consideration relative to Spanish mackerel landings in the Gulf, it is unlikely that harvests would exceed the aggregate ACL under **Preferred 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 **Preferred Alternative 2, Preferred Option a**, adverse economic effects may result from the remaining alternatives. **Alternatives 3** then **4** would result in increasing 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 ACTs would depend on the extent to which ACTs under consideration would affect the harvest or other customary uses of the resource. ACTs considered in this action range from 5.15 mp under **Preferred Alternative 1** to 4.38 mp under **Alternative 3**. If a single ACT is set (**Option a**), the magnitude of Gulf migratory 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.

4.11.3 Direct and Indirect Effect on the Social Environment

The effects on the social environment from setting ACLs in Action 11.1 for Gulf migratory group Spanish mackerel are the same as actions setting ACLs for the other species in this amendment. Because Gulf migratory group Spanish mackerel already have a quota for both commercial and recreational sectors, implementing ACLs would have few social effects. Certainly as an ACL is reduced in **Preferred Alternative 2** and going from **Alternative 3** to **Alternative 4** 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 could have negative social effects if current allocations are lowered considerably from what they were under **Option b** of **Alternatives 2, 3** and **4**. Setting a single ACL in **Preferred Alternative 2, Preferred Option a** 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. Without such accountability, there could be increased conflict between sectors. However, further reduction of the ACL through a buffer included in the ACT could impose some negative social effects.

As mentioned the social effects of setting ACTs in Action 11-2 for Gulf migratory group Spanish mackerel are the same as setting ACTs for Gulf migratory group king mackerel and cobia especially if separate ACTs are developed and a further buffer may have the same negative effects that occur from reduced harvest (see Sections 4.5.3 and 4.8.3). **Preferred Alternative 1** would likely have few social effects as it would impose no further reductions to the harvest threshold. Moving from **Alternative 2** to **Alternative 4**, 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 2-4** may change sector allocations from the present calculation, the new allocation would better reflect current conditions. Although **Option c** under **Alternatives 2-4** may change sector allocations from the present calculation, the new allocation could induce some negative social effects for a sector that saw a substantial reduction in allocation. Again, any reduction in harvest has the potential for imposing negative social effects mentioned previously and the impacts will depend upon the severity of the reduction.

4.11.4 Direct and Indirect Effect on the Administrative Environment

Specifying an ACL or ACT or sector ACLs or ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACL or ACT has been harvested during a particular fishing season could potentially result in a need for additional cost and personnel resources if the current monitoring mechanism is not sufficient. Commercial Spanish mackerel landings are tracked semi-monthly by the Southeast Fisheries Science Center through port agents, and recreational Spanish mackerel landings are tracked bimonthly by MRFSS. These impacts would be the same for all alternatives.

The alternatives also provide options related to the allocation of the quota between the commercial and recreational sectors. Options to track the ACL or ACT by sector (**Options b** and **c**) would have a greater administrative impact than single stock ACL or ACT (**Option a**) because landings would need to be monitored in relation to the commercial and recreational sectors separately. However, landings are currently tracked by sector, so no new impacts would be realized. If a stock ACL or ACT is selected, the recreational fishing year would need to be set the same as the commercial fishing year. Because landings for both sectors would need to be tracked together for a stock ACL, setting the recreational fishing year the same as the commercial fishing year would ease the administrative burden. For Gulf migratory group Spanish mackerel, that fishing year is April 1 – March 31.

4.11.5 Council Conclusions

The Council chose to set an ACL equal to the ABC (Action 11-1, **Preferred Alternative 2**) because total landings of Spanish mackerel have been below that level for many years. They did not choose **Alternative 1** for this action because the ACL cannot be set higher than the ABC. The stock is not overfished or undergoing overfishing, so further reductions in catch (Action 11-1**, Alternatives 3** and **4**) are not necessary. **Option a** was chosen so that AMs would only be implemented if the stock ACL is exceeded. Although landings by the recreational sector currently account for a greater proportion than the defined recreational allocation, the commercial sector lands much less than their allocation. Thus, the stock would not be affected by allowing the recreational sector to continue the higher level of harvest under current conditions. **Options b** and **c** would hold landings for each sector to a specific allocation; however, the Council felt this would unnecessarily restrict catch and not allow the best chance for the fishery to achieve optimum yield. For the same reasons, the Council chose not to set an ACT lower than the ACL in Action 11-2.

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 migratory group Spanish mackerel

Option a. Commercial – If the quota (= ACL x commercial allocation) 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

Preferred Alternative 2. Set in-season AMs for Gulf migratory group Spanish mackerel

Preferred Option a. If the stock ACL 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% of the stock ACL 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

Alternative 3. Set post-season AMs for Gulf migratory 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.

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 ACL

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 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 compared to the ACL for the third year and thereafter.

4.12.1 Direct and Indirect Effects on Physical and Biological/Ecological Environment

This action would have no direct effect on the physical or biological environment. To the extent that AMs 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 effects on the physical environment. Fishing can have negative impacts on the bottom as described in Action 11.

The purpose of AMs is to prevent ACLs from being exceeded or to take corrective action if ACLs are exceeded. The current AMs (**Alternative 1**) allow in-season closure by the RA 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. However, current AMs are implemented by sector and the Council preferred alternative for Action 11-1 is to set a single stock ACL.

Preferred Alternative 2 would attempt to limit harvest to levels at or below the ACL by reducing harvest after the ACL is met or projected to be met during the season. By using in-season AMs, the ACL is less likely to be exceeded than if only post-season AMs are used. Closure of the fishery (**Preferred Option a**) is the easiest way to restrict harvest. Depending on the effectiveness of monitoring, this option could allow the fishery to maximize optimum yield while constraining landings to the ACL. **Option b** could be chosen in conjunction with **Option a** to slow harvest when landings approach the ACL. This option would only provide an additional biological benefit if the trip or bag limit prevented the ACL from being met. **Option c** is similar to a combination of **Options a** and **b**, but the trip and bag limit trigger would be based on the ACT. Because the Council preferred alternative for Action 11-2 is to not set an ACT, this alternative would not be viable.

Alternative 3 includes 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 biological and weather events, play a major role in annual landings, which may fall above or below any number of harvest parameters. In the case of Spanish mackerel, the likelihood of landings exceeding the preferred ACL (5.15 mp) is quite low, considering that level has not been reached in 17 years. The advantage of implementing post-season AMs is the landings data for any given year can be examined in totality before the AM is triggered, as opposed to in-season AMs that rely largely on projections of harvest that may have a high degree of uncertainty.

Option a requires adjustment of the next year's quota by any overage from a year when the ACL is exceeded. Any payback would result in beneficial impacts on the biological environment. The other options would only work to constrain the harvest in the following year. 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 b** adjusts management measures in the year following an ACL overage. These options are an attempt to constrain harvest within the original or adjusted ACL, and could be used with or without a payback option.

If both **Option a** and **b** are chosen, the greatest benefit to the biological environment would be realized.

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 of landings 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.

4.12.2 Direct and Indirect Effects on Economic Environment

Alternative 1 would continue to attempt to prevent overages by implementing in-season AMs 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.

Preferred Alternative 2 would also control harvest level by relying on in-season corrective measures. Compared to **Alternative 1, Preferred 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 AMs would depend on the extent to which fishery participants' opportunities to harvest Gulf migratory group Spanish mackerel are restricted by potential closures (**Preferred Option a**) or trip and bag limit adjustments (**Option b**). Given the magnitude of the commercial landings compared to ACLs and ACTs under consideration, it is highly unlikely that AMs would be invoked for the commercial sector. Therefore, economic effects due to corrective measures applied to the commercial sector are not expected.

Alternative 3 would remedy potential harvest overages after the fact by implementing post-season accountability measures. Management measures considered include payback provisions (**Option a**), trip and bag limit reductions (**Option b**), season length adjustments (**Option c**), and, use of multi-year average harvests (**Option d**). **Alternative 3** is expected to result in lower short term adverse economic effects compared to **Alternative 1** and **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 potentially continue to harvest Gulf migratory group Spanish mackerel above prescribed levels throughout the predetermined season before any corrective measure is considered. However, should overages occur, **Alternative 3** is expected to result in greater adverse economic effects in the longer term because more restrictive actions are expected to be required to remedy overages.

4.12.3 Direct and Indirect Effect on the Social Environment

Alternative 1 would utilize current AMs 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 **Preferred Alternative 2, Preferred Option a** may impose the same negative social effects mentioned earlier(see Sections 4.6.3 and 4.9.3) that come from any reduction in harvest if the in-season closure is early and prevents a substantial number of fishermen from harvesting Spanish mackerel. However, the TAC has not been met in recent years so there would be few negative effects from this option unless catch rates increase. Reducing the trip limit in **Alternative 2, Option b** would not be too intrusive as projection of the harvest through quota monitoring is already done in the commercial fishery to prevent overages and reducing the trip limits is utilized already with king mackerel. Reducing the recreational bag limit may induce some negative social effects if catch rates were to increase, yet since harvest rates have been below these current levels there would be few negative social effects. The options under **Alternative 3**, for post-season monitoring, can be more precise in both determining the size of the overage, but also the payback necessary. For **Alternative 3, Option a**, payback could impose some short-term negative social effects for the commercial sector through lost income the next year, especially if the overage was large. However, that may also assist with maintaining a stable stock status which should have long term benefits. For **Alternative 3, Option b,** whereas trip limits and bag limit reductions are commonly used in this fishery and would likely not impose negative social effects, if a bag limit is substantially reduced, there could be negative effects to the recreational sector if there are no substitutions. Those effects can translate into lost fishing opportunities and increased competition for other species or conflict with other sectors as perceptions of a scarce resource become prevalent. The same is true with **Alternative 3, Option c** as the season is often shortened for many coastal pelagic as harvest levels reach their target. With **Alternative 3, Option d** there is some averaging of landings that may allow for natural variation of the stock and be more flexible with determining a harvest threshold not based upon a single year event.

4.12.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would have the same impacts on the administrative environment as are currently in place. **Preferred Alternative 2** may decrease the administrative burden from the status quo because both sectors would close or change their catch limits simultaneously. Because landings for both sectors would need to be tracked together for a stock ACL, setting the recreational fishing year the same as the commercial fishing year would ease the administrative burden. For Gulf migratory group Spanish mackerel, that fishing year is April 1 – March 31. All options under **Alternative 3** would increase the administrative burden; **Options a** and **d** would have more impact because the amount of overage and the next season's ACL would need to be determined. For all options, a notice of the management changes would need to be published and disseminated.

4.12.5 Council Conclusions

The Council chose **Preferred Alternative 2** to be consistent with their reasoning when choosing a stock ACL. Total landings of Spanish mackerel have been below the preferred ACL for many years, and the stock is not overfished or undergoing overfishing. **Option a** was chosen so that AMs could be implemented in a timely manner, without multiple in-season actions as in **Option b**.

The Council did not choose **Alternative 1** because the current AMs are implemented by sector and are inconsistent with a stock ACL. Post-season AMs (**Alternative 3**) would impose an increased and unnecessary burden on fishermen and the administration. For the same reasons, the Council chose not to set an ACT in Action 11-2.

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 South Atlantic Council's SSC.

4.13.1 ACTION 13-1: Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST) and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory Group King Mackerel

There are no alternatives under consideration for MSY, MSST, and MFMT because these values are being updated based upon the latest SEDAR stock assessment:

MSY = 9.357 – 12.836 million pounds
MSST = 1,827.5 billion hydrated eggs
MFMT = F_{MSY} = $F_{30\%SPR}$ = 0.256

4.13.2 ACTION 13-2: Overfishing Level (OFL) for Atlantic Migratory Group King Mackerel

There are no alternatives under consideration because the overfishing level has been provided by the SSC: "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)."

4.13.3 ACTION 13-3: Acceptable Biological Catch (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 [currently 10.46 mp]

Alternative 3. Establish an ABC Control Rule where ABC equals OFL (currently 12.8359 mp)

Alternative 4. Establish an ABC Control Rule where ABC equals a percentage of OFL

Option a. ABC = 65%OFL (currently 8.3433 mp)
Option b. ABC = 75%OFL (currently 9.6269 mp)
Option c. ABC = 85%OFL (currently 10.9105 mp)

The South Atlantic Council's SSC developed an ABC Control rule for assessed stocks (Table 2.13.3.1) based on the guidance provided by the South Atlantic Council on the level of risk (10-40%) (**Preferred Alternative 2**). The ABC values for the years 2011, 2012 and 2013, as recommended by the SSC based on the control rule, are shown in Table 4.13.3.1. An average value was added for discussion purposes. The SSC expects to receive an updated assessment prior to providing an ABC for 2014 onwards.

Table 4.13.3.1. Atlantic migratory group king mackerel ABC recommendations (million pounds) 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 would be allowed for fishermen and prevents overfishing. **Alternative 1** would not establish an ABC control rule for king mackerel. For stock and stock complexes required to have an ABC, the NS1 guidelines and associated codified text for the Magnuson-Stevens Act require that the ABC be set on the basis of the ABC control rule. Failure to specify an ABC would not meet the new Magnuson-Stevens Act requirements.

Preferred Alternative 2- Alternative 4 would specify an ABC control rule for king mackerel. **Preferred Alternative 2** would adopt the South Atlantic Council's 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. The SSC's ABC control rule for assessed species (Level 1) has four dimensions included in the control rule framework: Assessment information; characterization of uncertainty; stock status; and productivity/susceptibility of the stock (Table 2.13.3.1). Each dimension would contain tiers that can be evaluated for each stock to determine a numerical score. The uncertainty buffer, or difference between OFL and ABC, would be expressed in terms of a reduction in the "probability of overfishing", or "P*". The adjustment score provided by the tiers and dimensions represents the amount by which P* is reduced to obtain the critical value for P*. Therefore, the key product of the control rule is the sum of scores for all dimensions that is used as an adjustment factor to calculate the critical value for P*. The scoring provides a maximum P* adjustment of 40% and a minimum of 0% that results in critical values for P* ranging from 10% to 50%. These critical values are then used to determine the actual ABC from projection tables that provide the level of annual yield that corresponds to a particular P*.

Setting ABC equal to OFL implies a P* equal to 50%, where 50% represents the chance of overfishing occurring. Reducing P* will reduce ABC and provide a reduction in the probability of overfishing occurring. The relationship between the amount of reduction in P* and the resulting reduction in ABC is determined by the shape of the distribution of yield about the management parameters. For a given reduction in P*, broad distributions (suggesting higher uncertainty) will result in larger reductions in ABC whereas narrower distributions (suggesting lower uncertainty) will result in smaller reductions in ABC.

Based on the most recent stock assessment for king mackerel, the OFL for king mackerel is 12.835 mp, which corresponds to yield at $F_{30\%SPR}$, the accepted MSY proxy from the last stock assessment. From the SSC's ABC control rule, the P* for king mackerel equals 27.5%. Table 1 from the king mackerel stock assessment (A28_Updated MackerelProjs3-17-10.pdf) provides a value of 11 mp corresponding to a probability of overfishing of 28% for 2011. The SSC decided not to use this value since the P* value (28%) is a higher risk of overfishing than established by the control rule (27.5%). The SSC decided to determine ABC for the period 2011-2020 through a linear interpolation of TAC values from 27.5% to 28.0%.

Under **Alternative 3**, the ABC would be equal to the OFL specified by the South Atlantic Council's SSC. The NS1 guidelines recommend OFL be the upper bound of ABC, but ABC should usually be reduced from the OFL to account for scientific uncertainty in the estimate of OFL. **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. Since there would be no buffer between ABC and OFL, the biological effect of **Alternative 3** would be less than **Preferred Alternative 2** and **Alternative 4**. In contrast to **Alternative 3**, **Preferred Alternative 2** and **Alternative 4** would account for scientific uncertainty by providing a buffer between ABC and OFL.

Alternative 4 would set the ABC as a percentage of the OFL. **Options a-c** range from providing less biological protection to more, as compared to **Preferred Alternative 2**. **Option a** would be the most conservative option and **Option c** would be the least conservative option. **Option c** would provide a greater buffer between OFL and ABC than **Preferred Alternative 2** and would therefore have a greater positive biological effect. However, **Preferred Alternative 2** is based on the recommendation of the South Atlantic Council's SSC, which takes into consideration scientific uncertainty from the assessment. Therefore, while **Alternative 4, Option a** would provide a greater biological benefit to king mackerel, it would provide an ABC that is more conservative than needed to manage the resource.

4.13.3.2 Direct and Indirect Effect on the Economic Environment

A discussion of the expected economic effects of this action must distinguish between the ABC and the ABC control rule. Both are required administrative components of a fishery management plan; however, the ABC is the landings limit, and the ABC control rule defines the process or method used to specify the limit. Absent a control rule, the ABC would be determined by the SSC through deliberation of appropriate biological information. The ABC control rule must be based on similar deliberation of appropriate biological information but, once defined, would potentially allow for more timely and efficient management decisions because application of the rule would not require a repeat of the evaluation of all the information available for the resource and discussions undertaken in the development of the control rule.

The goal of either process – the determination of the ABC with or without a control rule - would be establishment of an ABC appropriate for the condition and needs of the resource. Either process should be capable of arriving at the same ABC. If such occurs, the functional difference between the two processes reduces to the different administrative efficiencies and costs associated with each process.

Although the two processes may result in the same ABC, the issue of flexibility is relevant. Excessive flexibility could lead to dysfunction within the decision process, but it is logical to assume that increased flexibility supports greater opportunity for the consideration of relevant information and better decisions. Conversely, a system rigidly constrained by a terse formulaic rule could, although simple to apply, result in decisions not adequately reflective of necessary considerations. It should be noted that functional options exist on the point at which relevant information enters into the decision process. A particular type of information could be assessed at one stage, for example as part of the ABC control rule process. Alternatively, the information could be assessed in the determination of another management parameter, for example in the determination of OFL, and the OFL, or other parameter, subsequently used in the determination of the ABC, similar to some of the proposed alternatives. If the information is specifically used at the ABC control rule stage, the resultant ABC would be expected to be directly informed by this information. Conversely, if the information is used in the determination of the OFL, and the ABC derived from the OFL, the ABC would, arguably only be directly informed by this information if the OFL and ABC were calculated concurrently. If the OFL has not recently been estimated, i.e., it does not contain the most recent information, then an ABC control rule based on the OFL, or similar parameter, may be less flexible in incorporating the most recent relevant information than a control rule that incorporates this information directly. This concern may only apply, however, at the initial application of the ABC control rule because subsequently the ABC may only need to be revised upon completion of a new stock assessment and generation of a new OFL, upon which the ABC would be calculated automatically. There could be occasion where there is a desire to change the ABC control rule without changing the OFL, or other parameter. However, this would require additional rulemaking and this process would presumably incorporate the new information relevant to both the ABC and the OFL (or other relevant parameter).

Aggregating these considerations, this assessment concludes that increased flexibility would be expected to result in increased economic benefits, as a result of better management decisions, compared to decreased flexibility. It may be obvious, however, that quantifying the benefits of increased flexibility or, conversely, the costs of inflexibility, is not possible. As a result, the following assessment only includes qualitative or ranking discussion with respect to the flexibility of the alternatives.

Finally, consideration of the level of ABC that the process produces is relevant. This consideration arises at two levels. The first level of consideration is the appropriateness of the resultant ABC relative to the biological conditions and needs of the resource, and the second level pertains to the relationship of the resultant ABC with current harvest levels and implications for potential management change. The issue of appropriateness deals with the need to establish an ABC that results in the probability of overfishing occurring not exceeding 50%. Preventing overfishing from occurring protects the long-term health of the resource and associated economic benefits. However, in ensuring this protection, it is important from an economic perspective that fish not be unnecessarily, from a biological perspective, left unharvested, resulting in foregone economic opportunities. Having an excessively conservative ABC would be expected to result in short-term economic losses without compensating increased long-term economic gains. It should be noted and clearly understood that this conclusion is based on the assumption that the long-term biological goals result in sufficient biological protection and sustainability of the resource and maximize the social and economic benefits of the resource. As a result, an overly conservative ABC would not be expected to result in a long-term healthier resource, nor increased associated economic benefits.

The relationship of the resultant ABC with current harvest levels is relevant because the ABC may allow status quo harvest management and fishery operation, or it could result in a requirement for increased harvest restrictions. If ABC is greater than or equal to current harvests, then no associated management restrictions may be required; considerations of subsequent specification of the ACL, as required, and the ACT, if specified, factor into the final decision of whether harvest restrictions would be necessary. However, if the ABC is less than current harvests, then additional management restrictions would be required, and associated reductions in economic benefits would be expected to occur. Although the management restrictions would be consistent with protecting the long-term health of the resource and associated economic benefits, the economic benefits in the short term would be reduced. The extent to which short-term economic benefits would be reduced would depend on the amount and manner in which harvests are reduced.

The previous discussion has established the foundation of this economic assessment. Establishing an ABC control rule is an administrative action. Often, because an action is administrative, no direct economic effects would be expected to occur as a result of any of the alternatives considered. This is generally the case for this action; most of the potential effects discussed above would be associated with the outcome of the process, the ABC itself and its relationship to current harvests, and not to the process itself. As such, these would be indirect effects. The exception to this conclusion arises under **Alternative 1** (and, possibly, **Alternative 3**; see below). Because an ABC control rule is a required component of a fishery management plan, **Alternative 1** is not a viable alternative and its adoption would require additional subsequent management action to implement an acceptable ABC control rule, with associated increased costs of duplicative management action. Although these costs would not be imposed on fishermen or the associated fishing industry, they are nevertheless increased costs that would be directly imposed on the management system as a result of **Alternative 1**.

It should be noted that an ABC-equivalent already exists for the Atlantic migratory group king mackerel (8.9-13.3; mid-point of 10.95 mp). As a result, **Alternative 1** would not require subsequent action to specify an ABC. Further, this ABC is greater than current harvests, which have averaged approximately 7.71 mp over the most recent five fishing years, 2005/2006 through 2009/2010 (the fishing years for Atlantic migratory group king mackerel runs from March through February and, therefore, does not follow the calendar year). Therefore, no harvest restrictions, and associated reduction in short-term economic benefits, would be implied by the ABC that would apply under **Alternative 1**, though some reduction could result from subsequent decisions on the ACL and ACT for this species. For discussion of the possible effects of the proposed ACL and ACT alternatives, see Sections 4.13.4.2 and 4.13.5.2, respectively.

Alternatives 2 (Preferred)-4, and associated options, would establish an ABC control rule and, as a result, would not result in the direct costs associated with necessary subsequent management action that would be required under **Alternative 1**.

Because they would establish simple formulaic ABC control rules, **Alternatives 3** and **4** (and options) would be expected to result in the lowest management development costs, as they would simply equate the ABC to some percentage of the OFL. Because it would systematically incorporate consideration of the widest range of information at the point of ABC determination,

Preferred Alternative 2 would be expected to be the most flexible option and result in greater associated economic benefits than **Alternatives 3** and **4**. Imbedded in this conclusion is the expectation that the increased flexibility of **Preferred Alternative 2** would be expected to reduce the likelihood that the resultant ABC would establish an excessive buffer between the allowable harvest and the buffer necessary to ensure the biological goals, i.e., that foregone economic benefits are minimized. Similar to **Alternative 1**, the resultant ABC under **Preferred Alternative 2** is greater than current average harvests and, as a result, no harvest restrictions, and associated reduction in short-term economic benefits, would be implied, though some reduction could result from subsequent decisions on the ACL and ACT for this species (see Sections 4.13.4.2 and 4.13.5.2).

In addition to the economic effects discussed in the previous paragraph, **Alternative 3** may not be a viable alternative, similar to **Alternative 1**, though for a different reason. Although **Alternative 3** would establish an ABC control rule, the rule itself may not adequately accommodate the requirement that the rule establish an ABC that results in the probability of overfishing occurring not exceeding 50%. Given the scientific and management uncertainty for king mackerel, it is not obvious that an ABC control rule that would set the ABC equal to OFL would impart sufficient certainty that the probability of overfishing does not exceed the required threshold. If this is the case then, similar to **Alternative 1**, **Alternative 3** would require subsequent management action to develop an appropriate ABC control rule, incurring additional direct increased management costs. It should be noted, however, that subsequent decisions on the ACL, ACT, and AM (see Sections 4.13.4.2, 4.13.5.2, and 4.14.2) may reduce the likelihood or necessity of corrective action. Similar to **Alternative 1** and **Preferred Alternative 2**, the resultant ABC under **Alternative 3** is greater than current harvests and, as a result, no harvest restrictions, and associated reduction in short-term economic benefits, would be implied, although some reduction could result from subsequent decisions on the ACL and ACT for this species. However, despite the absence of demonstrated harvests at this level, equating the ABC to the OFL may be expected to increase the likelihood that the OFL would be exceeded, resulting in jeopardy to the long-term health of the resource and associated economic benefits, necessitating corrective action and associated reduction in short-term economic benefits.

The options of **Alternative 4** would be expected to reduce the adverse economic effects of **Alternative 3** by establishing a buffer between the ABC and the OFL, thereby reducing the likelihood of exceeding the OFL, jeopardizing the long-term biological health of the resource and associated economic benefits, and requiring corrective action and reduction in short-term economic benefits. There are, however, trade-offs associated with the size of the buffer. The smaller the buffer, the greater the likelihood the buffer is insufficient and corrective action would be required, and the larger the buffer, the greater the likelihood fish, and associated economic benefits, would be foregone. Subsequent decisions on the ACL, ACT, and AM (see Sections 4.13.4.2, 4.13.5.2, and 4.14.2) would also be expected to affect the sufficiency of the buffer. Nevertheless, the best buffer cannot be determined with available data. At best, the options under **Alternative 4** can only be characterized in terms of their likelihood of resulting in subsequent corrective action versus resulting in fish, and associated economic benefits, being foregone. From this perspective, **Option c** would be expected to result in the highest likelihood, absent the mitigating protection of the ACL, ACT, and AM, that the OFL would be exceeded and the lowest likelihood that fish, and associated economic benefits, would be foregone. Conversely, **Option a** would be expected to result in the least likelihood that the OFL would be exceeded and the highest likelihood of foregone economic benefits. The effects of **Option b** would be expected to be intermediate of those of **Option a** and **Option c**. Similar to the other alternatives, however, current average harvests have not exceeded any of the resultant ABCs under any of the options, though harvest in the 2008/2009 fishing year, approximately 9.49 mp, exceeded the resultant ABC under **Option a**.

In summary, none of the alternatives considered would be expected to require, based on the resultant ABC, corrective management to reduce the current average harvest, though **Alternative 4, Option a** may result in the greatest likelihood of such being necessary. **Alternative 4, Option a** would also be expected to have the greatest likelihood of resulting in foregone economic benefits. **Alternative 1** and possibly **Alternative 3** may not be viable alternatives, necessitating subsequent additional management action. Because it is responsive to the requirement to establish an ABC control rule, it incorporates greater flexibility, and it would not be expected to result in more restrictive management, **Preferred Alternative 2** would be expected to result in the greatest economic benefits among the alternatives considered.

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 as discussed earlier (see Sections 4.4.3, 4.7.3 and 4.10.3). 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. Those negative effects are the same as discussed under earlier actions addressing ABC for other species. The no action **Alternative 1** would have few social impacts as there would be no change in the harvest threshold, although buffers could be imposed through later actions. The **Preferred Alternative 2** would also have few social effects since there should be no reduction in harvest levels unless a reduction is imposed elsewhere. The least restrictive ABC would result from **Alternative 3,** while **Alternative 4, Option a** is the most restrictive, but all effects on the social environment would depend on subsequent decisions for the ACL and AMs following this action. As discussed with all actions setting thresholds, the social effects will depend upon how restrictive the threshold may be and any subsequent reductions.

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 South Atlantic Council's SSC for consideration by the South Atlantic 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 specifying an ABC through **Preferred Alternative 2** and **Alternatives 3** and **4** are minimal and would not differ among the alternatives because all would constrain the level of the ACL. However, there would be indirect effects stemming from monitoring catches to ensure they do not exceed the resulting ACLs and ACTs. These effects are discussed in Sections 4.13-4 and 4.13-5. This could result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. In addition, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

4.13.3.5 Council Conclusions

The South Atlantic Council's Mackerel Advisory Panel (AP) reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Preferred Alternative 2**.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC recommended no changes to the specified values for OFL and ABC; these values are based on the SEDAR assessment results and the SSC previously concluded these are based on the best available science and are appropriate for management.

The Council chose **Preferred Alternative 2** as recommended by the SAMFC's SSC and Mackerel AP. This provides a statistically based way of setting ABC, even if a new stock assessment changed the status of the stock. In that case, the same control rule could be used, but the SSC could choose a different tier, based on the best scientific information. The Council concluded the preferred alternative provides the necessary flexibility to respond to new stock assessment information and to recommendations from the SSC. The Council also concluded the preferred alternative meets the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics (mackerel) fishery management plan as amended.

4.13.4 ACTION 13-4: Annual Catch Limit (ACL) and Optimum Yield (OY) for Atlantic Migratory Group King Mackerel

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

Alternative 1. No Action - currently TAC or ACL = 10.0 mp based on an ABC of 8.9-13.3 mp (Recreational Sector ACL = 62.9% = 6.3 mp; Commercial Sector ACL = 37.1% = 3.71 mp)

Preferred Alternative 2. ACL = OY = ABC (currently 10.46 mp which is the average of the ABC values for 2011-2013 recommended by the SSC; Recreational Sector ACL = 62.9% = 6.58 mp; Commercial Sector ACL = 37.1% = 3.88 mp)

Alternative 3. ACL = OY = ABC [currently 10.06 mp which is the lowest value within the 2011-2013 recommendations (10.06 – 10.95 mp); (Recreational Sector ACL = 62.9% = 6.33 mp; Commercial Sector ACL = 37.1% = 3.73 mp)]

Alternative 4. ACL = OY = ABC [currently 10.95 mp which is the highest value within the 2011-2013 recommendations (10.06-10.95 mp); (Recreational Sector ACL = 62.9% = 6.89 mp; Commercial Sector ACL = 37.1% = 4.06 mp)]

Alternative 5. ACL = OY = X% of ABC = ______ mp

Option a. ACL = 65%ABC = 65% (currently 10.46 mp) = 6.799 mp (Recreational Sector ACL = 62.9% = 4.28 mp; Commercial Sector ACL = 37.1% = 2.52 mp)
Option b. ACL = 75%ABC = 75% (currently 10.46 mp) = 7.845 mp (Recreational Sector ACL = 62.9% = 4.94 mp; Commercial Sector ACL = 37.1% = 2.91 mp)
Option c. ACL = 85%ABC = 85% (currently 10.46 mp) = 8.891 mp (Recreational Sector ACL = 62.9% = 5.59 mp; Commercial Sector ACL = 37.1% = 3.30 mp)
Option d. ACL = 80%ABC = 80% (currently 10.46 mp) = 8.368 mp (Recreational Sector ACL = 62.9% = 5.26 mp; Commercial Sector ACL = 37.1% = 3.11 mp)
Option e. ACL = 90%ABC = 90% (currently 10.46 mp) = 9.414 mp (Recreational Sector ACL = 62.9% = 5.92 mp; Commercial Sector ACL = 37.1% = 3.49 mp)

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**. If harvest is restricted, fishing effort could be reduced through AMs 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 gear types 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.

Setting an ACL potentially would 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.

Preferred Alternative 2 would set ACL equal to the average of the ABC values for 2011-2013 recommended by the SSC, which is the South Atlantic Council's preferred value for ABC. Therefore, **Preferred Alternative 2** would provide greater positive biological effects than **Alternative 4**, which would set ACL equal to the highest value for ABC recommended by the SSC. **Alternative 3** would set ACL equal to the lowest value of ABC recommended by the SSC for king mackerel and therefore provide greater positive biological effects than **Preferred Alternative 2**. The magnitude of the 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.

Alternative 5 would provide more biological protection by setting the ACL below the ABC. Setting ACL/OY equal to some percentage of the ABC in **Alternative 5** and its options would provide greater assurance overfishing does not occur because the options would create a larger buffer between the ACL and ABC, with **Option a** setting the most conservative ACL at 65% of the ABC. However, **Preferred Alternative 2** is based on an ABC control rule that sets ABC below OFL and takes into consideration scientific uncertainty in the specification of ABC. Therefore, ACLs specified under **Alternatives 3** and **5** may be more conservative than needed for appropriate management of the stock.

Creating a buffer between the ACL and ABC would provide a greater assurance of preventing overfishing by accounting for scientific uncertainty. Setting a buffer between the ACL and ACT would be appropriate in situations where there is uncertainty in whether or not management measures are constraining fishing mortality to target levels. ACTs, which are not required, can be set below the ACLs to account for management uncertainty and provide greater assurance overfishing does not occur. The South Atlantic Council is considering ACTs for the recreational sector in Action 13-5.

There is likely to be no additional biological benefit to protected species from **Alternative 1** because it would perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. Previous ESA consultations determined the CMP fishery would not affect smalltooth sawfish or marine mammals and was not likely to adversely affect *Acropora* species. **Preferred Alternative 2-Alternative 5** are unlikely to alter fishing behavior in a way that would cause new adverse effects to these species.

4.13.4.2 Direct and Indirect Effect on the Economic Environment

Although not described in the same terms as the ABC control alternatives, the ACL and OY alternatives essentially constitute control rules for determining the ACL and OY for the Atlantic migratory group king mackerel. As a result, there are overlapping considerations relevant to an assessment of the expected economic effects of both actions. For a general discussion of issues that should be considered in the assessment of the effects of an ABC control rule, see Section 4.13.3.2.

Both ACL and OY are thresholds used in the management of the resource. The primary considerations in the assessment of the expected economic effects of alternative specifications of an ACL and OY are: 1) whether the threshold is a required management component; 2) whether the threshold would be expected to be adequately conservative to reflect the conditions of the resource and fishery, thereby achieving the biological and economic goals for the resource; and 3) what implications do the specified thresholds have on the need for more restrictive or liberal management.

An ACL and OY is a required component of a fishery management plan, though control rules to specify such, unlike an ABC control rule, are not required. Similar to an ABC control rule, specifying the ACL and OY control rule is an administrative action (though ACL and OY control rules are not required) and, as such, would generally not be expected to result in direct economic effects other than, as discussed in Section 4.13.3.2, an alternative is not a viable alternative and its adoption requires additional management action to define the required parameter. However, the ACL would serve as a true harvest limit, which may not always be the case for the ABC. As a result, as a true harvest limit, direct effects would be expected to accrue to an ACL specification that was lower than current average harvests, precipitating restrictive management, with associated reduction in short-term economic benefits, intended to prevent harvest from exceeding the limit. Although the restrictions themselves would be the action inducing the economic effects, the limits established by the ACL are the driver, so it is easier to more directly attribute these effects to the ACL unlike the ABC, which is the upper constraint on the ACL. Nevertheless, whether these are characterized as direct or indirect effects, because the ACL cannot be exceeded on a continuous basis, economic consequences will precipitate if the ACL is less than current harvests.

An ACL-equivalent, the current TAC, and an OY already exist for the Atlantic migratory group king mackerel. As a result, all of the alternatives considered are viable alternatives and none would require subsequent additional management action to specify these required management parameters.

The primary differences between **Preferred Alternative 2 – Alternative 5**, and associated options, relate to the selection of the appropriate ABC and whether the ABC embodies sufficient buffer to the OFL to account for uncertainty. **Preferred Alternative 2 – Alternative 4** would equate the ACL and OY to the ABC, and the options of Alternative 5 would equate the ACL and OY with different values for the ABC. The identification of the appropriate ABC is beyond the scope of this assessment, as is the determination of the need for additional buffer or the most appropriate additional buffer. However, with respect to the buffer issue, the discussion provided with respect to the ABC control rule buffer (Section 4.13.3.2) would similarly apply here; the smaller the buffer, the greater the likelihood of exceeding the limit or threshold, precipitating corrective action with associated short-term reduction in economic benefits, whereas the larger the buffer, the greater the likelihood of unnecessarily leaving fish, and associated economic benefits, in the water.

Beyond these points, the remaining consideration is the comparison of the alternative specifications, specifically the resultant ACL, with current harvests and the implications on the need for, and effects of, additional management restrictions. From the perspective of the total ACL and not sector evaluation, based on 2005-2010 average fishing year harvests, only

Alternative 5, Option a would be expected to not accommodate expected harvest, with a projected overage (across both sectors) of approximately 910,000 lbs. Examined at the sector level, however, **Alternative 5, Options a-e** would each be expected to result in reductions in commercial harvests, ranging from approximately 20,000 lbs for **Option e** to approximately 990,000 lbs for **Option a** (note that the commercial reduction for this alternative is not the same as the all-sector reduction because the recreational sector would not be expected to harvest its whole ACL). These reductions would be valued at approximately $30,000 and $1.92 million in ex-vessel value, respectively, based on an average ex-vessel price of $1.94 per pound (2010 dollars) (Vondruska 2010).

Overall, because of an inability to select the alternative that best addresses uncertainty considerations and the adverse effects of foregone benefits (unnecessarily leaving fish unharvested), ranking the alternatives is difficult; despite the reduction in harvests that would be required, the resource may need the protection of one of the lower ACLs included under **Alternative 5**. If, however, all the alternatives provide adequate protection of the resource and biological goals and needs, then the alternative that would result in the largest ACL would be expected to result in the greatest economic benefits, both from the short and long-term perspective, although some of the benefits would take the form of potential benefits or benefit growth because the resultant sector ACLs exceed current average harvests for the recreational sector for all alternatives and for the commercial sector for **Alternatives 1-4**. Nevertheless, assuming the resultant ACLs satisfy the uncertainty considerations, based on potential economic benefits, **Alternative 4** would be expected to result in the highest economic benefits, followed by **Preferred Alternative 2**, and **Alternative 3**. Each of these alternatives would be expected to result in more economic benefits than **Alternative 5, Options a-e** because these alternatives, as previously discussed, would require harvest reductions in the commercial sector.

4.13.4.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACLs would increase the risk of short-term negative impacts like those discussed in earlier ACL actions on commercial and recreational fishermen and communities (see Sections 4.5.3, 4.8.3, and 4.11.3). 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 would result in long-term overall benefits for the fishermen, communities, and general public as the resource is protected from overfishing and stocks increase. Such benefits would provide more fishing opportunities and increased harvest which in turn would benefit the coastal economy.

The no action **Alternative 1** would not establish an ACL for Atlantic migratory group king mackerel and would have few if any negative social effects as there would be no change in harvest levels. **Alternative 3** (lowest value within the 2011-2013 ABC recommendations) is still larger than current thresholds and would likely have not negative social impacts. 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, resulting in a commercial ACL that is higher than average landings; the ACL would likely have little direct social impact on the commercial sector because fishing behavior would not change. The recreational ACL in **Preferred Alternative 2** is also higher than landings history for the recreational sector in the past 25 years and would not be expected to result in negative social impacts following closures or restrictions on recreational fishing due to exceeding the ACL.

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 **Preferred Alternative 2- Alternative 5,** and the options 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, 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

The South Atlantic Council's Mackerel AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Preferred Alternative 2** that sets the ACL = OY = ABC.

The South Atlantic Council's SSC reviewed Mackerel Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on the ACL.

The Council chose **Preferred Alternative 2** that sets the ACL = OY = ABC (currently 10.46 mp) which is the average of the ABC values for 2011-2013 recommended by the SSC. The ACL does not exceed the ABC as recommended by the South Atlantic Council's SSC. The Council concluded it is appropriate to set the ACL = ABC because Atlantic migratory group king mackerel are not overfished or undergoing overfishing, have been assessed for a number of years, restrictive management measures have been in place for a number of years, and total catches have not approached 10 mp over the last 24 years. The Council concluded the preferred alternative provides the necessary protection to prevent overfishing while achieving the optimum yield. The Council also concluded the preferred alternative meets the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics (mackerel) fishery management plan as amended.

4.13.5 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

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL (currently 3.49 mp)

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL (currently 3.10 mp)

ACTION 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 (currently 5.59 mp)

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL (currently 4.94 mp)

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater] (currently 6.11 mp)

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 would be prevented.

Commercial
Preferred 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 if AMs were triggered by the ACT. Implementing an ACT would provide a lower target to maintain harvest levels at or below the South Atlantic Council's choice of an ACL. Establishing an ACT **(Alternatives 2** and **3)** for the commercial sector would be somewhat more straight-forward than for the recreational sector since all commercial landings of king mackerel are reported through dealer trip tickets, which can be used to monitor in-season harvest. Therefore, projections of when the ACT would likely be met, or estimates of by how much an ACT is exceeded would be more reliable than for the recreational sector. A higher degree of harvest projection accuracy would reduce the risk of AMs being triggered too soon or too late.

Assuming the AMs would be triggered by the ACT, the most biologically beneficial ACT alternative for the commercial sector would be **Alternative 3**, which would create the largest buffer between the ACT and ACL, and therefore have the lowest probability of overfishing. **Alternative 2** would result in greater biological benefits than **Preferred Alternative 1**, but fewer biological benefits when compared to **Alternative 3**. The least biologically beneficial ACT alternative would be **Preferred Alternative 1** since it would not establish a level of harvest lower than that of the ACL in order to trigger an AM to prevent ACL overages. However, under **Preferred Alternative 1** there would be little incentive to target king mackerel on commercial trips since all purchase and sale would be prohibited once the ACL is projected to be met. Furthermore, if the quota monitoring system is operating properly, landings in excess of the commercial ACL would not be expected, thereby providing the required biological protection and preventing overfishing.

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. **Preferred Alternative 4** takes into account the variability of recreational catches while preventing overfishing.

Alternatives 2-Preferred Alternative 4 would establish an ACT to provide a buffer between the ACT and ACL and account for management uncertainty. As recreational landings are survey-based, there is greater uncertainty associated with those data than for commercial landings information that are reported by dealers. The ACT could serve as a warning that landings were approaching an ACL and could serve as an indicator to enact management measures in the future that resulted in landings at the ACT level. Preferred Alternative 2 for Action 14 would reduce the recreational bag limit in the following year if the total ACL is exceeded; this reduction would be calculated based on the ACT.

Preferred Alternative 4 could have the greatest biological benefit of the four options by adjusting the ACL by 50% or one minus the PSE from the recreational fishery, whichever is greater. The lower the value of the PSE, the more reliable the landings data. By using PSE in **Preferred Alternative 4**, more precaution is taken in the estimate of the ACT with increasing variability and uncertainty in the landings data.

4.13.5.2 Direct and Indirect Effect on the Economic Environment

ACTs are not required components of fishery management plans. As a result, the decision to not establish an ACT for a species, as would occur under **Alternative 1** for either sector, would not result in a requirement for subsequent additional management action, with associated costs. However, because an ACT would establish a buffer between the targeted harvest limit and the ACL, an ACT may be desired to reduce the likelihood that the ACL is exceeded. If an ACL is exceeded, the AMs are triggered and the assumption is that AMs will result in reduced short-term economic benefits. Although AMs would be expected to allow management to keep pace with long-term biological goals and associated economic benefits, the short-term reductions in harvests and effort, and general disruption of fishing business planning is expected to result in a net economic loss relative to a management environment where AMs are not triggered. The buffer established by the ACT would be expected to reduce the likelihood that these short-term economic losses would be incurred. However, the lower harvest level of the ACT would itself be expected to reduce short-term economic benefits. So, the key question is whether the short-term economic losses resulting from the ACT would be expected to be less than those resulting from the AMs. Unfortunately, this question cannot be answered because the amount of overage that would occur and trigger the AM, as well as the resultant corrective action, and associated effects, cannot be predicted (if it could, pre-emptive management measures could be implemented to avoid the overage). As a result, assessment of the expected economic effects of the proposed ACT alternatives reduces to, similar to the discussion under the ACL actions, that the determination of the best buffer cannot be determined, a discussion of the short-term economic losses associated with the reduced harvests, if any, and the conclusion that these losses may or may not be less than those that would be expected to result from triggering the AMs.

Commercial
Because it would not establish an ACT, **Preferred Alternative 1** would not be expected to result in any change in economic benefits to fishermen or associated businesses. Although the failure to specify an ACT would logically be expected to increase the likelihood of exceeding the ACL and triggering AMs, with associated reductions in economic benefits, it cannot be determined with available data whether not specifying an ACT would be expected to result in net loss or gain in economic benefits.

Based on the current preferred ACL and current average harvests, **Alternative 2** would not be expected to require any reduction in harvests for the commercial sector. As a result, no short-term economic losses would be expected to occur. **Alternative 3**, however, would be expected to result in a reduction in commercial harvests of approximately 410,000 lbs, with an ex-vessel value of approximately $800,000 (2010 dollars; $1.94 per pound).

Because neither **Preferred Alternative 1** nor **Alternative 2** would be expected to require reductions in current commercial king mackerel harvests, the economic effects of both alternatives could be identical. However, given the ability to effectively monitor commercial harvests, thereby reducing the likelihood of exceeding the ACL and triggering AMs, **Preferred Alternative 1** would be expected to result in increased economic benefits in the long term than **Alternative 2** because of the higher allowable harvest limit.

Recreational
Because it would not establish an ACT, **Alternative 1** would not be expected to result in any change in economic benefits to fishermen or associated businesses. Although the failure to specify an ACT would logically be expected to increase the likelihood of exceeding the ACL and triggering AMs, with associated reductions in economic benefits, it cannot be determined with available data whether not specifying an ACT would be expected to result in net loss or gain in economic benefits.

Based on the current preferred ACL and current average harvests, none of the alternatives would be expected to require any reduction in harvests for the recreational sector. As a result, no short-term economic losses would be expected to occur. Recreational data collection and monitoring, however, is not as efficient as data collection for the commercial sector. As a result, in the long term, if target effort or harvest success increase, some additional buffer may be justified. Similar to the discussion on the ABC and ACL, however, identifying the best buffer is not possible with available data. As a result, further discussion reduces to the consideration of the trade-offs between an in-sufficient buffer and the economic losses associated with unnecessarily leaving fish unharvested. **Preferred Alternative 4** would allow the largest potential harvest, thereby having the smallest likelihood of foregone economic benefits, but the largest likelihood of exceeding the ACL and triggering the AMs. **Alternative 3** would allow the smallest harvests, thereby resulting in the largest likelihood of foregone economic benefits, but the smallest likelihood of exceeding the ACL and triggering the AMs. The expectations of **Alternative 2** would be intermediate to those of **Preferred Alternative 4** and **Alternative 3**.

4.13.5.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACTs would result in negative social impacts in the short term because these would be linked to the reduced economic benefits and reduced fishing opportunities as discussed in earlier actions (see Sections 4.5.3, 4.8.3 and 4.11.3). 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 would 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. Those benefits would include more fishing opportunities and increased income which should benefit the coastal economy and contribute to community resilience for those involved in these fisheries.

For the commercial sector action, **Preferred Alternative 1** does not establish an ACT and commercial harvest would continue until the ACL is reached or projected to be reached, which allows more fishing opportunities and economic benefits to the commercial sector (see Sections 4.5.3, 4.8.3 and 4.11.3). **Alternative 2** and **Alternative 3** establish the commercial ACT at 90% and 80% of the ACL, respectively, which could cause short-term negative social impacts as discussed in earlier actions 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. The short-term social impacts would likely be minimal because the recreational landings have not exceeded the ACT in almost two decades, decreasing the likelihood that an AM would be triggered when the ACT is met.

4.13.5.4 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.

Alternatives 2-4 would result in minimal administrative impacts associated with tracking landings in the commercial sector. Commercial king mackerel landings are tracked semi-monthly by the Southeast Fishery Science Center through dealer reporting, and recreational king mackerel landings are tracked bimonthly by MRFSS. 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

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Preferred Alternative 1** that would not specify a commercial sector ACT and **Preferred Alternative 4** that would base the recreational ACT on the PSE.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council chose **Preferred Alternative 1** that would not specify a commercial sector ACT because the system in place to track commercial landings using trip tickets, dealer reports, and the commercial logbook program should be able to prevent commercial overages. The Council chose **Preferred Alternative 4** that would base the recreational ACT on the PSE to address the variability in the recreational catch data. The ACT is used to set management measures to achieve the ACT while ensuring the recreational catch is below the recreational ACL. The Council concluded the preferred alternatives provide the necessary protection to prevent catches exceeding the respective commercial and recreational ACLs. The Council also concluded the preferred alternatives meet the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

4.14 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 and post-season measures to make adjustments if the ACL 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. The recreational AM for this stock is the RA has authority via the framework to revert the recreational possession limit to zero if fishermen have achieved or are expected to achieve their allocation

Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the commercial quota (total ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement additional AMs for the recreational sector for this stock. If the recreational sector quota (total ACL x recreational allocation) is exceeded, the RA shall publish a notice to reduce the length of the following fishing year or reduce the bag limit by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year. Compare the 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. 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

> **Option a.** Reduce the length of the following recreational fishing year by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year
>
> **Preferred Option b.** Reduce the recreational bag limit to ensure landings do not exceed the recreational sector quota for the following fishing year
>
> **Preferred Option c.** Only adjust the recreational bag limits or season length if the Total ACL is exceeded

Preferred Alternative 3. Commercial payback of any overage.

> **Option a.** Payback regardless of stock status - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
>
> **Preferred Option b.** Payback only if overfished - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage

Preferred Option c. Only deduct overages if the Total ACL is exceeded

Preferred Alternative 4. Recreational payback of any overage from one year to the next

Option a. Payback regardless of stock status - 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 16-5

Preferred Option b. Payback only if overfished - 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 sector ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 16-5

Preferred Option c. Only deduct overages if the Total ACL is exceeded

A discussion and example of how the AM paybacks work is included under the Atlantic migratory group king mackerel discussion in Section 2.14 and is not repeated here. **Preferred Alternative 2** and **Preferred Option b** indicate the Council's intent to only have the recreational bag limit adjusted in the future, thereby making it clear that the RA has no flexibility in what measures to implement under **Preferred Alternative 2**. **Preferred Option c** indicates the Council's intent that in the event either the bag limit or season was changed, this change would only occur if the total ACL is exceeded.

4.14.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

The Magnuson-Stevens Act requires that mechanisms of accountability be established for all federally managed species. Currently, 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 or projected to be met (**Alternative 1**). The recreational AM for this stock is the RA has authority via the framework to revert the recreational possession limit to zero if recreational fishermen have achieved or are expected to achieve their allocation.

Preferred Alternative 2 would attempt to limit harvest to levels at or below the ACL by reducing and/or closing harvest once a particular landings threshold is met or projected to be met. **Preferred Alternative 2** would prevent the commercial sector from profiting from the harvest of king mackerel in quantities exceeding the commercial ACL, and thus provides a disincentive to target king mackerel species once the ACL has been reached. Also, under **Preferred Alternative 2, Preferred Option c**, if the total ACL is exceeded, the RA would reduce the recreational bag limit to ensure landings do not exceed the recreational ACL for the following fishing year. **Preferred Options b** and **c** would ensure that the amount of the previous year's ACL overage would be accounted for in the subsequent year via a reduced bag limit if the total ACL was exceeded, and thus would be biologically beneficial.

Preferred Alternatives 3 and **4** address payback of overages for the commercial and recreational sectors, respectively. **Option a** under **Preferred Alternatives 3** and **4** would require payback of an overage regardless of stock status, which is more conservative than a payback only if overfished (**Preferred Option b** under **Preferred Alternatives 3** and **4**).

Preferred Option c (under **Preferred Alternatives 3** and **4**) would only require overages be deducted if the total ACL was exceeded which is less conservative than requiring deduction if each sector's ACL were exceeded. However, limiting catches to the total ACL is the biological goal.

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 would be to not 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 biological 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 Atlantic migratory group king mackerel is 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 RA would still have the ability to implement 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 **Preferred Alternatives 2-4,** and the associated options**,** 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 would 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, a biological resource has a capacity for long-term economic (and social and biological) benefits that can be realized if certain conditions exist. These conditions would include, but not be limited to, environmental, regulatory, and human behavioral states. This capacity is a function of the consumption trade-offs of the resource, i.e., the benefits to the natural environment versus the benefits of human harvest and consumption. Within this context, management of the resource occurs at two levels. The first management level determines the long-term goal, i.e., the condition of the resource and magnitude of associated benefits. Although the long-term goal need not be static, it nevertheless identifies the target. The second level recognizes, however, that uncertainty exists, conditions change, control is never absolute, and adjustments, or management correction, are necessary to remain on the long-term goal path. AMs are intended to serve the function of these adjustments. As such, although AMs affect the short-term economic benefits from a resource, their intent is to ensure the receipt of the long-term economic benefits.

Within this context, certain considerations are relevant. As previously discussed under the ACLs and ACTs, this assessment assumes that triggering AMs results in a net economic loss compared to harvesting the allowable limits. AMs are triggered when harvests exceed the allowable limit. Although the biological goals are/can be preserved by the corrective action of the AM, the corrective action is expected to sufficiently disrupt the economic process (revenue streams, market flow, etc.) in the short term sufficient to result in a net negative loss over the period of overage and period of correction despite the industry participants, businesses and fishermen, receiving certain economic benefits (associated with the overage) earlier than expected. Thus, AMs are to be avoided, though previous caveats on the need to be sensitive to potential foregone benefits should be recalled.

To the extent AMs cannot be avoided, without unnecessarily restricting harvests and associated economic benefits (as an extreme example, closing a fishery or establishing extremely low trip or bag limits can prevent the ACL from being exceeded and AMs triggered, but would be expected to result in unnecessary economic losses), it is important to consider methods of reducing the need for and economic severity of AMs. Important aspects to consider include, but may not be limited to, scope of assessment, sector accountability, immediacy of correction, flexibility of correction, and depth of correction. "Scope of assessment" refers to whether the assessment level is based on the combined harvests of all sectors or whether assessment is at the sector level. Even where sector allocations exist, AMs might only be triggered if the total ACL is exceeded. Alternatively, only a single sector might need to exceed its sector-ACL in order to trigger an AM. If one sector exceeds its ACL but the total ACL is not exceeded, then no jeopardy to the biological status and goals of the resource, and associated economic benefits, would be expected. The fact that one sector exceeded its allocation but the total ACL was not exceeded could only occur if the other sector under-harvested its allocation, a condition that would be circumstantial to the dynamics of that sector and not management design or intent. As a result, imposing AMs on the one sector would be expected to result in an unnecessary – from the perspective of the long-term management goals - reduction in short-term economic benefits. One nuance to this discussion should be noted. It could be presumed that the harvest underage by the one sector and the corrective potential of imposing AMs on the second sector could have positive biological, and associated economic, benefits overall. The positive biological benefits could take the form of faster rebuilding (for stocks under a rebuilding plan, which is not the case for any of the species in this proposed amendment), a larger rebuilt biomass, or just a larger, perhaps healthier standing biomass. However, the original goal identified for the resource presumes that overall benefits would not be enhanced by these conditions. Therefore, benefits would be the greatest if the path is followed, not through deviation, even if the deviation is seemingly in a positive direction.

"Sector accountability" is related to the "scope of assessment" but has additional considerations. "Sector accountability" basically considers whether the individual harvest sectors are held fully responsible for their overage. Although not strictly an economic consideration, holding a sector accountable for its overage, even if the total ACL is not exceeded, has equity implications. One sector – or entities within the sector - may voluntarily not harvest its allocation for strategic or conservation purposes. Would it be fair for another sector to exceed its allocation and not be held accountable? Further, if the total ACL is exceeded and one or both sectors exceed their allocation, a subsequent stock assessment may identify a deteriorated stock condition, reducing total allowable harvest. Distributing the reduction across the normal allocation ratio instead of basing it on the proportional contribution to the overage would unfairly distribute the costs of the correction.

"Immediacy of correction" refers to how fast assessment, and subsequent correction, occurs. Typically, harvests are not going to be certain, nor would biological responses to harvests, regardless of the relation of harvests to expectations (higher, lower, or equal to). Assessment and correction on an annual basis may result in the greatest certainty that long-term goals are met. However, annual assessment and correction may also be expected to result in the greatest likelihood that needless corrections, with associated economic costs, are imposed (an overage in one year may be biologically neutral from a longer-term perspective, conditions that result in increased harvests one year may not persist in subsequent years, etc.). Basing corrective action on multi-year assessments would be expected to reduce the likelihood of incurring the costs of these unnecessary corrections. One additional consideration related to "immediacy of correction" should be noted. The different nature of sector operation has implications on data collection and monitoring capabilities. The commercial sector has fewer participants, data collection points, and all commercial landings are required to be documented. The recreational sector, however, has a much larger number of participants and data access points, and harvest data collection is not mandatory with the exception of the headboat sector. As a result of these differences, data collection and harvest monitoring is much simpler and timely for the commercial sector compared to the recreational sector. This allows for a greater reliance on real versus projected landings for the commercial sector and a reduced likelihood of overages. The converse is true for the recreational sector. The importance of this is that the greater the potential likelihood of overage, the greater potential deviation from the biological goals and magnitude of necessary correction. Additionally, particularly in the case of the recreational sector, overages may be so great and their quantification so delayed that necessary corrections, particularly if payback provisions exist (see the discussion on "depth of correction" below), jeopardize entire subsequent fishing seasons, with resultant significant economic losses to the industry.

When AMs are necessary, the effects of the correction are a function of the method of correction. This is what is meant by the "flexibility of correction" and refers to the range of management options available to ensure overages are neither extensive nor repeated. In general, management has a wide range of tools to restrict harvests and the more common tools include closures, bag or trip limits, size limits, fixed open or closed seasons, and participation or access restrictions. In theory, benefits are maximized the wider the variety of tools and the ability to match the tool to the specifics of the species or fishery. The flip side of this is the expectation that the fewer the tools that are available, the more likely some economic benefits would be foregone. AMs, by their prescriptive nature, reduce the flexibility of tool choice, thereby limiting the means of correction and reducing potential benefits. However, the rationale for this prescriptive approach, and potential reduction in benefits, is that corrective action can occur quicker, thereby potentially reducing the magnitude of correction and associated costs, as well as reducing the costs of a more protracted management process (the more options that are available, the longer it takes to identify, evaluate, adopt, and implement corrective action). Although not quantitatively demonstrated, the expectation is the net effect of the prescriptive AM approach is an increase in economic benefits compared to the non-prescriptive approach.

The final aspect to be discussed in this assessment, “depth of correction,” addresses the issue of whether the correction involves payback or not. Post-season AMs can take two basic approaches. In the event of an overage, the first approach simply attempts to implement measures to prevent, or at least reduce the likelihood, of a subsequent overage also occurring. The second approach attempts to result in similar protection but is also designed to reduce harvests by the amount of the overage sufficient to result in the combined harvests over the multi-year period having no net combined overage for the period (example: if the ACL is 100,000 lbs and 150,000 lbs is harvested, the management goal is to reduce harvest in the second year to 50,000 lbs so that the combined harvest for the two years equals 200,000 lbs, or 100,000 lbs per year, on average). This is what is referred to as “payback.” Although the pace of harvest would be expected to have some biological implications (from a resource perspective, the harvest of 2 mp in one year and none the next would not be expected to be equivalent to 1 mp in each year), the rationale for payback is that overages are important from a resource perspective. Accounting for the temporal aspect of harvests may require corrective harvest reductions that exceed the overages. The economic disruption associated with the payback would be expected to increase with the magnitude of the payback. It should also be emphasized, again, the previous comment that business operational requirements mean that the economic benefits of, for example, 200,000 lbs in landings one year and none the next is not equivalent to 100,000 lbs each year. So, despite an overage equating to the industry getting benefits “early,” this does not mean any subsequent correction would not impose economic losses. The rationale against paybacks may be that, beyond their economic costs, given the variability of stock changes and dynamics, it may be sufficient to get back on the target biological path by simply preventing additional overages from occurring. If this is true, then payback would be expected to result in greater reduction in short-term economic benefits than non-payback. If, however, payback is necessary to preserve achievement of the long-term biological goals, and associated economic benefits, then failure to impose payback would be expected to result in reduced long-term economic benefits. Within this discussion, it should be noted that the requirement for periodic stock assessment tempers concerns for long-term reductions in benefits. In the absence of payback, re-assessment of the stock incorporating overages would be expected to result in ACL, or other parameter, adjustments (the assessment may simply produce a new ABC, with the resultant ACL determined by prescription through application of an ACL control rule) that bring the harvest path back in line with the management targets and goals. As a result, long-term benefits would not be expected to be reduced or jeopardized. Instead, reductions in short-term economic benefits would be traded, due to the absence of paybacks, for reductions in intermediate-term economic benefits.

With the above discussion as foundation, the alternatives can now be discussed. It should be noted that the alternatives are not all alternatives to each other and are not directly comparable. **Preferred Alternative 2**, and options, is a direct alternative, and comparable to, **Alternative 1**. **Preferred Alternatives 3** and **4**, and options, deal with separate sectors and address potential enhancements to either **Alternative 1** or **Preferred Alternative 2** rather than stand-alone options. This implies that either **Alternative 1** or **Preferred Alternative 2** needs to be selected and implemented in order for either or both **Alternative 3** or **4** to be adopted and have relevance.

However, given that it constitutes the status quo, **Alternative 1** need not be selected as the preferred in order for it to remain in effect should neither **Alternative 1** nor **Preferred Alternative 2** be selected and implemented. The net effect of these considerations is that this assessment will compare **Preferred Alternative 2**, and options, with **Alternative 1**, and **Alternatives 3** and **4**, and options, will be compared with the absence of payback provisions in **Alternative 1** and **Preferred Alternative 2**.

AM-equivalent provisions already exist for Atlantic migratory group king mackerel. As a result, **Alternative 1** is a viable alternative and its adoption (or continuation) would not require additional management action to make the FMP compliant with requirements. Under **Alternative 1**, each sector would be evaluated, and harvest restricted separately; action would, or could, occur in the current fishing year, based on actual or projected data (recreational assessment could be projected), or occur in the following year after final data are available; correction options are limited, for both sectors, to closure (reduction of the bag limit to zero is equivalent to a recreational closure for that species); and no payback provisions exist. As a result of these specifications, the benefits of sector accountability would be realized; delay in action could be minimized, reducing the magnitude of correction, and associated reduction in short-term economic benefits, the potential of imposing unnecessary corrections would be increased because of the strict sector accountability rather than assessment at the level of the total ACL (across all harvest sectors); flexibility of corrective option, and associated economic benefits, would be minimal because only closure options are available; and the absence of payback provisions may jeopardize long-term goals or, more correctly, lead to reductions in intermediate-term economic benefits as a result of re-assessment of the stock resulting in ACL, or other parameter, adjustments that account for the overages.

Preferred Alternative 2, **Preferred Options b** and **c**, would continue sector accountability with the exception that recreational adjustments would only occur if the total ACL is exceeded; correction would only occur in the current fishing year for the commercial sector and in the following fishing year for the recreational sector; flexibility for correction would remain unchanged for the commercial sector (quota closure) and remain inflexible for the recreational sector; and assessment of the recreational sector would, progressively, consider harvest over moving multiple-year periods rather than single years. As a result of these specifications, the economic effects of **Preferred Alternative 2**, **Preferred Options b** and **c**, on the commercial sector and associated businesses would be expected to remain unchanged from those of **Alternative 1**. For the recreational sector, the absence of in-season adjustment would be expected to avoid the costs of in-season disruption and uncertainty of season length. Delaying corrective action until the following season increases the potential overage and magnitude of corrective action, and reduction in associated economic benefits. However, the multi-year assessment would be expected to mitigate the potential magnitude of these economic losses. Finally, the assessment at the total ACL level would be expected to reduce the likelihood of foregone benefits that would result from imposing a recreational AM when the stock as a whole would not require adjustment. On the basis of the improved economic outcomes that would accrue to the total ACL multi-year recreational overage assessment, and eliminating recreational closure as a corrective procedure (except in the extreme case where payback would require a zero bag limit; see the subsequent discussion on **Alternative 4**), **Preferred Alternative 2**, **Preferred Options b** and **c**, would be expected to result in greater economic benefits than **Alternative 1**.

It should be noted that, under **Preferred Alternative 2**, if **Option a** is selected instead of **Preferred Option b**, the correction flexibility for the recreational sector would remain identical to that of **Alternative 1**. Although **Preferred Alternative 2** under this set of options would still be expected to result in greater economic benefits than **Alternative 1**, the benefits would be lower than those of the current suite of preferred options.

Preferred Alternatives 3 and **4** deal exclusively with payback considerations and, as such, as previously discussed deal with enhancements to **Alternative 1** and **Preferred Alternative 2**, rather than substitutes. The economic effects of the considerations associated with paybacks in general have previously been discussed. The following discussion, therefore, only addresses comparison of the options when payback would occur and not whether payback would occur. Further, the expected effects would not be expected to vary with their adoption in conjunction with either **Alternative 1** or **Preferred Alternative 2**.

Although they deal with separate sectors, the options under **Preferred Alternatives 3** and **4** are identical (the options under **Preferred Alternative 4** contain language on ACT, but only because the preferred action for the recreational sector would establish an ACT, whereas that for the commercial sector would not). As a result, the effects of the options would be expected to be the same for both actions and this discussion will not separately address each alternative. It is noted again, however, that the likelihood of overages in the commercial sector would be expected to be lower than for the recreational sector.

To reiterate the discussion above, paybacks would be expected to be economically disruptive in the short-term, but may be necessary to support the long-term goals for the resource (notwithstanding the incremental corrective action of updated assessments and subsequent changes in the ACL). Because any payback would be expected to result in short-term reductions in economic benefits, the basic comparison of the options may reduce to limiting this corrective action to those situations when such action is absolutely necessary or obviously beneficial. If the total ACL is not exceeded, although sector payback may address equity issues, the biological goals for the resource would not be expected to be jeopardized and, as a result, a reduction in short-term economic benefits would be expected to accrue to the respective sector without accompanying increase in long-term benefits. Essentially, there would be expected to be foregone economic benefits. **Preferred Option c** would avoid these losses. If a stock is overfished, it would be subject to a rebuilding plan, with more specific and targeted resource goals than would apply to a non-overfished stock. Specifically, the stock would have a rebuilding target date in addition to a biomass target. Jeopardy of long-term goals, and associated economic benefits, as a result of overages would be expected to be greater for overfished stocks than non-overfished stocks. Therefore, economic benefits would be expected to be increased if paybacks are required when the stock is overfished, as would occur under **Preferred Option b**, compared to not requiring paybacks. An alternative perspective may be that only requiring paybacks if the stock is overfished reduces the likelihood of imposing foregone economic benefits, i.e., requiring paybacks when biologically they may be unnecessary. Finally, requiring a payback regardless of the stock status would be expected to result in the greatest likelihood of experiencing foregone economic benefits. If the stock is not overfished, a specific recovery time table would not exist and the biological target would reduce to biomass evaluation target, the status of which may change over time with subsequent stock assessments independent of actual harvest performance (as a result of natural variability of recruitment, external environmental factors, etc.). The stock may be biologically healthy despite overages. As a result, the imposition of paybacks in the absence of biological necessity would be expected to result in reductions in economic benefits without accompanying longer-term economic benefits. **Option a** would increase the likelihood of this occurring.

4.14.3 Direct and Indirect Effect on the Social Environment

The setting of AMs can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long-term social effects should be beneficial as they provide protection from further negative impacts on the stock. These impacts are the same discussed previously for other actions on AMs (see Section 4.6.3). 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 as were discussed with other AM actions. Atlantic migratory 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 AMs would 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 sector when the quota is met or projected to be met, and reverts the bag limit to zero when the recreation allocation is met or projected to be met. 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 would remain. By reducing the bag limit in **Preferred Alternative 2, Preferred Option b** to prevent the recreational sector from exceeding the sector ACL, this action would limit some recreational opportunities. However, it is less restrictive than reducing the length of the subsequent fishing year (**Option a)**, which would impact recreational fishing opportunities. The additional **Preferred Option c** under **Preferred Alternative 2** requires the recreational AMs only if the total ACL is exceeded, which may provide more flexibility to the recreational sector and provide short term social benefits through recreational fishing opportunities in years when the commercial sector does not meet the commercial ACL.

For both commercial and recreational sectors, **Preferred Alternatives 3** and **4** include options that require payback for overages (**Preferred Option b)**, but only if the total ACL is exceeded (**Preferred Option c**). For each sector, this provides more flexibility for the overall fishery to continue fishing without overfishing the stock if the other sector has not reached the ACL/ACT. These options are expected to result in positive impacts on the fishery by minimizing economic impacts of a payback and mitigate lost fishing opportunities if only one sector met its ACL, while producing long-term social benefits by keeping in place the payback to help improve the stock if both sectors meet or exceed the ACL/ACT.

4.14.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would not produce short-term administrative impacts associated with implementing new measures. **Alternative 2** would implement new AMs for the recreational sector and would comply with the Magnuson Stevens Act, but would not result in an increased administrative burden associated with monitoring and tracking landings on a continuing basis. **Alternatives 3** and **4,** and associated options, 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

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Preferred Alternatives 3** and **4, Preferred Option b** that would only apply paybacks to the commercial and recreational sectors if the stock is overfished. They felt it was more appropriate to only have paybacks when biologically necessary; when the stock was not overfished, some overage could be tolerated. NOAA Fisheries Service tracking the commercial quota and the Councils specifying the necessary management measures should keep each sector at or below their ACL. The AP also recommended the Councils modify the AMs to only adjust bag limits or season length and deduct overages only if the total ACL is exceeded. Again, tracking the commercial quota and setting the necessary management measures should limit each sector to their ACL, but if the overage is below the total ACL, then the management should not change.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council chose **Preferred Alternative 2, Option b** that would reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following year because this would be less disruptive than a closure with the resulting social and economic costs. The Council agreed with the AP and chose preferred alternatives that would modify management/payback only if the stock is overfished and only if the total ACL was exceeded. The Council concluded the preferred alternatives provide the necessary protection to prevent catches exceeding the respective commercial and recreational ACLs, thereby preventing overfishing. The Council also concluded the preferred alternatives meet the requirements of the reauthorized Magnuson-Stevens Act and best meet the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

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

No changes to existing management measures are proposed 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 Council's SSC; however, the biomass parameters were not accepted. SEDAR 28, which begins in 2012 and is scheduled to be completed in 2013, will assess Atlantic migratory group Spanish mackerel with data through 2011.

4.16.1 ACTION 16-1: Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST) and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory Group Spanish Mackerel

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. Thus, the existing values are as follows:

MSY = 5.24 million pounds
MSST = $0.85(B_{MSY})$ with no poundage estimated
MFMT = $F_{MSY} = F_{30\%SPR}$ with no value estimated

4.16.2 ACTION 16-2: Overfishing Level (OFL) for Atlantic Migratory Group Spanish Mackerel

During their March 3, 2011 meeting the SSC provided the following recommendation: OFL is unknown. The Councils will use the total ACL for Atlantic migratory group Spanish mackerel to determine whether overfishing is occurring.

4.16.3 ACTION 16-3: Acceptable Biological Catch (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 (currently = 5.69 mp)

Discussion: Atlantic migratory group Spanish mackerel fall under Level 4 – Unassessed Stocks (Table 2.13.3.1) of the South Atlantic Council's Control Rule even though they have been assessed for many years (pre-SEDAR). The biomass parameters from the SEDAR assessment were rejected and so the SSC had no choice but to use landings data as recommended by the SEFSC to calculate the ABC. Using the Council's/SSC's ABC Control Rule only provides for Level 2 and no action as reasonable alternatives at this time. The Council will revisit this issue after the SEDAR 28 assessment that begins in 2012 and, assuming the biomass values are accepted, Tier 1 would provide the ABC.

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 would be allowed for fishermen and prevents overfishing. **Alternative 1** would not establish an ABC control rule for Atlantic migratory group Spanish mackerel. For stock and stock complexes required to have an ABC, the NS1 guidelines and associated codified text for the Magnuson-Stevens Act require that the ABC be set on the basis of the ABC control rule. Failure to specify an ABC would not meet the requirements of the Magnuson-Stevens Act.

Preferred Alternative 2 would adopt the South Atlantic Council's 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. **Preferred Alternative 2** provides more biological protection as compared to **Alternative 1**. Although Atlantic migratory group Spanish mackerel has had a recent assessment, it would fall under Level 4 of the SSC's ABC control described in Table 2.13.3.1 due to uncertainty associated with the results of the assessment. At their April 2011 meeting, the SSC recommended an interim approach to determine ABC for Level 4 stocks (Table 2.16.3.1), and reviewed the previous fishing level recommendations because the Atlantic migratory group Spanish mackerel ABC value was based on landings data rather than assessment information.

Establishing an ABC control rule for Atlantic migratory group Spanish mackerel would not directly affect protected species because these parameters are not used in determining immediate harvest objectives. Future specific management actions based on the ABC control rule may affect protected species. The biological effects to protected species from future management actions would be evaluated as they are developed.

4.16.3.2 Direct and Indirect Effect on the Economic Environment

For a general discussion of issues that should be considered in the assessment of the effects of an ABC control rule, see Section 4.13.3.2.

Because an ABC control rule is a required component of a fishery management plan, **Alternative 1** is not a viable alternative and its adoption would require additional subsequent management action to implement an acceptable control rule, with associated increased costs of duplicative management action. Although these costs would not be imposed on fishermen or the associated fishing industry, they are nevertheless increased costs that would be directly imposed on the management system as a result of **Alternative 1**.

An ABC-equivalent already exists for the Atlantic migratory group Spanish mackerel (5.7-9.0 mp; mid-point is 7.1 mp; MSAP 2003). As a result, **Alternative 1** would not require subsequent action to specify an ABC. This ABC-equivalent is greater than current average harvests, which have averaged approximately 5.66 mp over the most recent five fishing years, 2005/2006 through 2009/2010 (the fishing years for Atlantic migratory group Spanish mackerel ran from April through March for 2005/2006 and March through February since 2006/2007). Therefore, no harvest restrictions, or associated reduction in short-term economic benefits, would be implied by the ABC that would apply under **Alternative 1.** Harvest reductions, however, may be necessary based on subsequent decisions on the ACL and ACT for this species. For discussion of the possible effects of the proposed ACL and ACT alternatives, see Sections 4.16.4.2 and 4.16.5.2, respectively.

Preferred Alternative 2 would establish an ABC control rule and, as a result, would not result in the direct costs associated with necessary subsequent management action that would be required under **Alternative 1**. Because the ABC that would result from this control rule is greater than current harvests, on average over the last five fishing years, though the harvest for two years equaled the ABC and the harvest from 2009/2010 exceeded the ABC, no harvest restrictions, and associated reduction in short-term economic benefits, would be implied by the ABC that would apply under **Preferred Alternative 2.** However, because the ABC is so close to current average harvests, any buffer that may be imposed by subsequent decisions on the ACL and ACT for this species may result in a need for harvest reductions, and associated reduction in short-term economic benefits. As previously noted, for discussion of the possible effects of the proposed ACL and ACT alternatives, see Sections 4.16.4.2 and 4.16.5.2, respectively. Because **Preferred Alternative 2** would avoid the costs of additional management action to establish an ABC control rule, **Preferred Alternative 2** would be expected to result in increased economic benefits relative to **Alternative 1**.

4.16.3.3 Direct and Indirect Effect on the Social Environment

Establishment of the biological parameters for harvest thresholds would 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. With the no action **Alternative 1** it is likely that there would be no negative social effects. Any social effects would be the same from establishing an ABC as discussed in previous actions (see Section 4.4.3). **Preferred Alternative 2** is based on landings and is not a significant reduction from recent landings trends; however, it would allow limited expansion for the recreational sector and could limit the commercial sector. Depending upon fishing trends for Spanish mackerel, an early commercial closure could account for lost income which may be difficult to recuperate from fishing for other species, especially with ACLs being established in other plans. Without substitute fisheries, commercial fishermen may need to make changes to household income and expense patterns to make up of these losses.

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 for management actions, no specific management actions are required through the specification of the control rule. The administrative impacts of specifying an ABC through **Preferred Alternative 2** are minimal because it would only constrain the level of the ACL. However, there would be indirect effects stemming from monitoring catches to ensure they do not exceed the resulting ACLs and ACTs. These effects are discussed in Section 4.16-4 and 4.16-5. This could result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. In addition, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

4.16.3.5 Council Conclusions

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Alternative 1** that would not establish an ABC Control Rule and expressed their discontent with the assessment.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC reviewed the current fishing level recommendations for Atlantic migratory group Spanish mackerel as provided in the draft amendment. Because the Atlantic migratory group Spanish mackerel ABC value was based on landings data and the SSC developed a new interim approach, the SSC reconsidered its earlier recommendation. If the previous SSC control rule for "landings only" stocks was applied to Atlantic migratory group Spanish mackerel, the value resulted in extremely low ACTs, which seemed unreasonable given that rebuilding was noted in the most recent assessment. Discussions within the SSC centered on the method used to determine how high above the median landings value the ABC should be set. The use of standard deviations and percentiles were discussed in detail, with a recommendation for using the 80th percentile, or in this case the third highest point for use as the ABC. Given the data at hand, the OFL for Atlantic migratory group Spanish mackerel was determined to be unknown. The ABC was set at the 80th percentile for the time series ranging from 1999-2008; ABC = 5.69 million pounds using the overall landings. The Council requested the SSC evaluate setting the ABC based on the 3rd highest commercial sector landings and 3rd highest recreational sector landings, which would result in ABC = 6.072 million pounds using sector landings. The SSC met via conference call on July 29, 2011, and discussed the Council's request. The SSC determined their recommendation to use the total landings was more consistent with the stock assessment that is based on total landings by year rather than by sector. Also, their current recommended approach is more consistent with their ABC Control Rule. The SSC conclusions from their report are presented in Section 2.16.3 and are not repeated here.

The Council chose **Preferred Alternative 2** as recommended by the South Atlantic Council's SSC. This provides a statistically-based way of setting ABC, even if a new stock assessment changed the status of the stock. In that case, the same control rule could be used, but the SSC could choose a different tier, based on the best scientific information. The Council concluded the preferred alternative provides the necessary flexibility to respond to new stock assessment information and to recommendations from the SSC. The Council also concluded the preferred alternative meets the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

4.16.4 ACTION 16-4: Annual Catch Limit (ACL) for Atlantic Migratory Group Spanish Mackerel

Alternative 1. No Action - currently TAC or ACL = 7.04 mp based on an ABC of 5.7-9.0 mp (Recreational Sector ACL = 45% = 3.17 mp; Commercial Sector ACL = 55% = 3.87 mp)

Preferred Alternative 2. ACL = OY = ABC (currently 5.69 mp which is the 3rd highest year of landings recommended by the SSC; Recreational Sector ACL = 45% = 2.56 mp; Commercial Sector ACL = 55% = 3.13 mp)

Alternative 3. ACL = OY = X% of ABC = ______ mp

Option a. ACL = 75%ABC = 75% (currently 5.69 mp) = 4.27 mp (Recreational Sector ACL = 45% = 1.92 mp; Commercial Sector ACL = 55% = 2.35 mp)
Option b. ACL = 85%ABC = 85% (currently 5.69 mp) = 4.84 mp (Recreational Sector ACL = 45% = 2.18 mp; Commercial Sector ACL = 55% = 2.66 mp)
Option c. ACL = 95%ABC = 95% (currently 5.69 mp) = 5.41 mp (Recreational Sector ACL = 45% = 2.43 mp; Commercial Sector ACL = 55% = 2.98 mp)
Option d. ACL = 80%ABC = 80% (currently 5.69 mp) = 4.55 mp (Recreational Sector ACL = 45% = 2.05 mp; Commercial Sector ACL = 55% = 2.50 mp)
Option e. ACL = 90%ABC = 90% (currently 5.69 mp) = 5.12 mp (Recreational Sector ACL = 45% = 2.30 mp; Commercial Sector ACL = 55% = 2.82 mp)

4.16.4.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Setting an ACL could affect the physical and biological environments if harvest changes from current levels. **Preferred Alternative 2** is based on the SSC's recommendation for ABC and would prevent overfishing. The commercial quota would have been exceeded in the last seven years, and exceeded by around 1 million lbs in 2009/2010 (Table 2.16.4.1). The recreational allocation would not have been exceeded and the total would not have been exceeded in two of the last three years. **Alternative 3** would provide more biological protection by setting the ACL below the ABC.

Setting ACL/OY equal to some percentage of the ABC in **Alternative 3** and its options would provide greater assurance overfishing does not occur because the options would create a buffer between the ACL and ABC, with **Alternative 3, Option a** setting the most conservative ACL at 65% of the ABC. Setting a buffer between the ACL and ACT would be appropriate in situations where there is uncertainty in whether or not management measures are constraining fishing mortality to target levels. ACTs, which are not required, can be set below the ACLs to account for management uncertainty and provide greater assurance overfishing does not occur. The South Atlantic Council is considering ACTs for the Atlantic migratory group Spanish mackerel recreational sector in Action 16-5.

For Level 1 assessed species, the SSC's ABC Control Rule takes into consideration scientific uncertainty by setting the ABC below the OFL. However, although OFL is unknown for Atlantic migratory group Spanish mackerel and they are considered a Level 4 un-assessed species, **Preferred Alternative 2** is based on an ABC control rule that takes into consideration scientific uncertainty in the specification of ABC when examining trends in historic landings. Since OFL is unknown, an overfishing determination could be made through the stock assessment process where current fishing mortality is compared to MFMT = $F_{30\%SPR}$. However, given that the SSC has stated OFL is unknown, the Council will use the total ACL for Atlantic migratory group Spanish mackerel to determine whether overfishing is occurring.

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 AMs 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 gear types 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

For a general discussion of issues that should be considered in the assessment of the effects of the specification of an ACL and OY, see Section 4.14.4.2.

An ACL-equivalent, the current TAC, and an OY already exist for Atlantic migratory group Spanish mackerel. As a result, all of the alternatives considered are viable alternatives and none would require subsequent additional management action to specify these required management parameters.

The primary difference between **Preferred Alternative 2** and **Alternative 3**, and associated options, relate to whether the ABC embodies sufficient buffer from the OFL to account for uncertainty. The determination of the need for additional buffer or the most appropriate additional buffer is beyond the scope of this assessment. However, the discussion provided with respect to the ABC control rule buffer (Section 4.13.3.2) would similarly apply here; the smaller the buffer, the greater the likelihood of exceeding the limit or threshold, precipitating corrective action with associated short-term reduction in economic benefits, whereas the larger the buffer, the greater the likelihood of unnecessarily leaving fish, and associated economic benefits, in the water. Ranking of the alternatives from this perspective should be obvious and will not be provided in this assessment.

Beyond these points, the remaining consideration is the comparison of the alternative specifications, specifically the resultant ACL, with current harvests and the implications on the need for, and effects of, additional management restrictions. From the perspective of the total ACL and not sector evaluation, based on 2005-2010 average fishing year harvests (5.66 mp), all of the **Alternative 3** options would not be expected to accommodate expected harvest, with a projected overage (across both sectors) ranging from approximately 250,000 lbs (**Alternative 3, Option c**) to approximately 1.39 mp (**Alternative 3, Option a**). Examined at the sector level, all of the required reductions would be expected to apply to commercial harvests, ranging from ranging from approximately 850,000 lbs for **Option c** to approximately 1.48 mp for **Option a**. Similar to the discussion in Section 4.14.4.2 (king mackerel), the reductions in the commercial sector are greater than the reductions required across both sectors because the recreational sector would not be expected to harvest its entire sector ACL under any of the scenarios examined based on average landings. However, the recreational sector has in recent years recorded single season harvests in excess of some of the allocations that would result from the lower ACLs. The value of the reductions in the commercial sector harvests would be expected to range from approximately $840,000 and $1.45 million in ex-vessel value, respectively, based on an average ex-vessel price of $0.98 per pound (2010 dollars) (Vondruska 2010).

Similar to the discussion for king mackerel, overall, because of an inability to select the alternative that best addresses uncertainty considerations and the adverse effects of foregone benefits (unnecessarily leaving fish unharvested), ranking the alternatives is difficult; despite the reduction in harvests that would be required, the resource may need the protection of one of the lower ACLs included under **Alternative 3**. If, however, all the alternatives provide adequate protection of the resource and biological goals and needs, then the alternative that would result in the largest ACL would be expected to result in the greatest economic benefits, both from the short and long-term perspective, though some of the benefits would take the form of potential benefits or benefit growth because the resultant sector ACLs exceed current average harvests for the recreational sector for all alternatives and for the commercial sector for **Alternative 1**. Nevertheless, assuming the resultant ACLs satisfy the uncertainty considerations, based on potential economic benefits, **Alternative 1** would be expected to result in the highest economic benefits, followed by **Preferred Alternative 2**. Additionally, in comparison with **Alternative 1**, **Preferred Alternative 2** would be expected to result in reduced economic benefits because a reduction of approximately 700,000 lbs, with an ex-vessel value of approximately $680,000 (2010 dollars), would be required in the commercial sector to limit the sector to its allocation. Each of these alternatives would be expected to result in more economic benefits than **Alternative 3, Options a-e** because these alternatives, as previously discussed, would require harvest reductions in the commercial sector and these reductions would exceed the reduction that would be required under **Preferred Alternative 2**.

4.16.4.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACLs would 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 would result in long-term overall benefits for the fishermen, communities, and general public as the resource is protected from overfishing and the increased fishing opportunities and income should bolster the coastal economy as discussed with earlier ACT actions (see Section 4.5.3 and 4.8.3). The establishment of the ACL for Atlantic migratory group Spanish mackerel would limit harvest, potentially reducing fishing opportunities for commercial and recreational fishermen, except the no action **Alternative 1**, which would not impose any negative social effects because the threshold would not change. The most restrictive ACL scenarios are in **Alternative 3** (percentage of the ABC), and the least restrictive option is **Option e** (90% of ABC). **Preferred Alternative 2** sets the ACL at ABC and is less restrictive than most other alternatives, which would 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

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 between the proposed alternatives.

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. Commercial Spanish mackerel landings are tracked semi-monthly by the Southeast Fishery Science Center through dealer reporting, and recreational Spanish mackerel landings are tracked bimonthly by MRFSS.

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 **Preferred Alternative 2** and **Alternative 3,** and the options associated with **Alternative 3** are minimal and would not differ between the alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and AMs 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

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Alternative 1** that would keep the ACL = 7.04 mp. The AP concluded, based on their extensive on-water experience, no biological/fishery issues exist that justify reducing the ACL.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council chose **Preferred Alternative 2** that sets the ACL = OY = ABC (currently 5.69 mp) as recommended by the SSC. The ACL does not exceed the ABC as recommended by the South Atlantic Council's SSC. The Council concluded it is appropriate to set the ACL = ABC because Atlantic migratory group Spanish mackerel are not overfished or undergoing overfishing, have been assessed for a number of years, restrictive management measures have been in place for a number of years, and total catches would be limited by a lower ACL with little to no biological rationale. The Council concluded the preferred alternative provides the necessary protection to prevent overfishing while achieving the optimum yield. The Council also concluded the preferred alternative meets the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

4.16.5 ACTION 16-5: Annual Catch Target (ACT) for Atlantic Migratory Group Spanish Mackerel

ACTION 16-5a: Commercial Sector ACT

Preferred Alternative 1. No Action **-** 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 (currently 2.82 mp)

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL (currently 2.50 mp)

ACTION 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 (currently 2.18 mp)

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL (currently 1.92 mp)

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater] (currently 2.32 mp)

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 would be prevented.

Commercial
Preferred 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 if AMs were triggered by the ACT. Implementing an ACT would provide a mechanism to maintain harvest levels at or below the South Atlantic Council’s choice of an ACL. Establishing an ACT **(Alternatives 2** and **3)** for the commercial sector would be somewhat more straight-forward than for the recreational sector since all commercial landings of Spanish mackerel are reported through dealer trip tickets, which can be used to monitor in-season harvest. Therefore, projections of when the ACT would likely be met, or estimates of by how much an ACT is exceeded would be more reliable than for the recreational sector. A higher degree of harvest projection accuracy would reduce the risk of AMs being triggered too soon or too late.

Assuming the AMs would be triggered by the ACT, the most biologically beneficial ACT alternative for the commercial sector would be **Alternative 3**, which would create the largest buffer between the ACT and ACL. **Alternative 2** would result in greater biological benefits than **Preferred Alternative 1**, but fewer biological benefits when compared to **Alternative 3**. The least biologically beneficial ACT alternative would be **Preferred Alternative 1** since it would not establish a level of harvest lower than that of the ACL in order to trigger an AM to prevent ACL overages. However, under **Preferred Alternative 1** there would be little incentive to target Atlantic migratory group Spanish mackerel on commercial trips since all purchase and sale would be prohibited once the ACL is projected to be met. Furthermore, if the quota monitoring system is operating properly, landings in excess of the commercial ACL would not be expected.

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. **Preferred Alternative 4** takes into account the variability of recreational catches while preventing overfishing.

Alternatives 2-Preferred Alternative 4 would establish an ACTs to provide a buffer between the ACT and ACL, and account for management uncertainty. As recreational landings are surveyed based, there is greater uncertainty associated with those data than for commercial landings information that are reported by dealers. The ACT could serve as a warning that landings were approaching an ACL and could serve as an indicator to enact management measures in the future that resulted in landings at the ACT level. Preferred Alternative 2 for Action 17 would reduce the recreational bag limit in the following year if the stock ACL is exceeded; this reduction would be calculated based on the ACT.

Preferred Alternative 4 could have the greatest biological benefit of the four alternatives by adjusting the ACL by 50% or one minus the PSE from the recreational fishery, whichever is greater. The lower the value of the PSE, the more reliable the landings data. By using PSE in **Preferred Alternative 4**, more precaution is taken in the estimate of the ACT with increasing variability and uncertainty in the landings data.

4.16.5.2 Direct and Indirect Effect on the Economic Environment

A discussion of general considerations relevant to the specification of ACTs is contained in Section 4.13.5.2 and is not repeated here.

Commercial
Because it would not establish an ACT, **Preferred Alternative 1** would not be expected to result in any change in economic benefits to fishermen or associated businesses. Although the failure to specify an ACT would logically be expected to increase the likelihood of exceeding the ACL and triggering AMs, with associated reductions in economic benefits, it cannot be determined with available data whether not specifying an ACT would be expected to result in net loss or gain in economic benefits.

Based on the current preferred ACL and current average harvests, both **Alternatives 2** and **3** would be expected to require a reduction in harvests for the commercial sector. The reductions would be approximately 1.01 mp and approximately 1.33 mp for **Alternatives 2** and **3**, respectively. The estimated ex-vessel value of these reduced harvests would be approximately $990,000 and $1.30 million (2010 dollars; $0.98 per pound), respectively.

Given the ability to effectively monitor commercial harvests, thereby reducing the likelihood of exceeding the ACL and triggering AMs, **Preferred Alternative 1** would be expected to result in increased economic benefits in the long term than both **Alternative 2** and **Alternative 3** because of the higher allowable harvest limit.

Recreational
Because it would not establish an ACT, **Alternative 1** would not be expected to result in any change in economic benefits to fishermen or associated businesses. Although the failure to specify an ACT would logically be expected to increase the likelihood of exceeding the ACL and triggering AMs, with associated reductions in economic benefits, it cannot be determined with available data whether not specifying an ACT would be expected to result in net loss or gain in economic benefits.

Based on the current preferred ACL and current average harvests, none of the alternatives would be expected to require any reduction in harvests for the recreational sector. As a result, no short-term economic losses would be expected to occur. Recreational data collection and monitoring, however, is not as efficient as data collection for the commercial sector. As a result, in the long term, if target effort or harvest success increase, some additional buffer may be justified. Similar to the discussion on the ABC and ACL, however, identifying the best buffer is not possible with available data. As a result, further discussion reduces to the consideration of the trade-offs between an insufficient buffer and the economic losses associated with unnecessarily leaving fish unharvested. **Preferred Alternative 4** would allow the largest potential harvest, thereby having the smallest likelihood of foregone economic benefits, but the largest likelihood of exceeding the ACL and triggering the AMs. **Alternative 3** would allow the smallest harvests, thereby resulting in the largest likelihood of foregone economic benefits, but the smallest likelihood of exceeding the ACL and triggering the AMs. The expectations of **Alternative 2** would be intermediate to those of **Preferred Alternative 4** and **Alternative 3**.

4.16.5.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACTs would result in negative social impacts in the short term because these would be linked to the reduced economic benefits and reduced fishing opportunities mentioned under earlier ACT actions (see Sections 4.5.3, 4.8.3, and 4.11.3). 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 would 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 would continue until the ACL is reached, which allows more fishing opportunities and short-term economic benefits to the commercial sector through increased income. **Alternative 2** and **Alternative 3** establish the commercial ACT at 90% and 80% of the ACL, respectively, which would 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 like lost fishing opportunities. **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 within 500,000 lbs. of the five-year average, which may affect future recreational opportunities if the sector continues to grow. Again, see earlier AM sections for discussions of the negative effects of restrictive ACTs.

4.16.5.4 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. **Alternatives 2-3** would result in minimal administrative impacts associated with tracking landings in the commercial sector. Tracking recreational landings would be more burdensome because of the nature of the data collection program. 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

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Preferred Alternative 1** that would not specify a commercial sector ACT and **Preferred Alternative 4** that would base the recreational ACT on the PSE.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

Preferred Alternative 1 would not specify a commercial sector ACT because the system in place to track commercial landings using trip tickets and dealer reports, should be able to prevent commercial overages. The Council chose **Preferred Alternative 4** that would base the recreational ACT on the PSE to address the variability in the recreational catch data. The ACT is used to set management measures to achieve the ACT while ensuring the recreational catch is below the recreational ACL. The Council concluded the preferred alternatives provide the necessary protection to prevent catches exceeding the respective commercial and recreational ACLs. The Council also concluded the preferred alternatives meet the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

4.17 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. No Action **-** the commercial AM for this stock is to reduce the trip limit to 1,500 lb when 75% of the adjusted quota is landed, and reduce the trip limit to 500 lb when 100% of the adjusted quota is landed for the Southern Zone (Florida). No commercial closure provisions currently exist for this stock, and no commercial AMs exist for the Northern Zone (Georgia northward). The recreational AM for this stock is the Regional Administrator has authority via the framework to revert the recreational possession limit to zero if fishermen have achieved or are expected to achieve their allocation

Preferred Alternative 2. The commercial AM for this stock is to prohibit harvest, possession, and retention when the commercial quota (total ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the quota is met or projected to be met. Implement additional AMs for the recreational sector for this stock. If the recreational sector quota (total ACL x recreational allocation) is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year or reduce the bag limit by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year. Compare the 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. 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

> **Option a.** Reduce the length of the following recreational fishing year by the amount necessary to ensure landings do not exceed the recreational sector quota for the following fishing year
>
> **Preferred Option b.** Reduce the recreational bag limit to ensure landings do not exceed the recreational sector quota for the following fishing year
>
> **Preferred Option c.** Only adjust the recreational bag limits or season length if the Total ACL is exceeded

Preferred Alternative 3. Commercial payback of any overage

> **Option a.** Payback regardless of stock status - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
>
> **Preferred Option b.** Payback only if overfished - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage

Preferred Option c. Only deduct overages if the Total ACL is exceeded

Preferred Alternative 4. Recreational payback of any overage from one year to the next

Option a. Payback regardless of stock status - 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 16-5

Preferred Option b. Payback only if overfished - 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 sector ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action 16-5

Preferred Option c. Only deduct overages if the Total ACL is exceeded

A discussion and example on how the AMs work is included under the Atlantic migratory group king mackerel discussion in Section 2.14 and is not repeated here. **Preferred Alternative 2** and **Preferred Option b** indicate the Council's intent to only have the recreational bag limit adjusted in the future thereby making it clear that the RA has no flexibility in what measures to implement under **Preferred Alternative 2**. **Preferred Option c** indicates the Council's intent that in the event either the bag limit or season was changed, this change would only occur if the total ACL is exceeded.

4.17.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

The Magnuson-Stevens Act requires that mechanisms of accountability be established for all federally managed species. Currently, the commercial AM for this stock is to reduce the commercial trip limit when the adjusted quota is met. The recreational AM for this stock is the RA has authority via the framework to revert the recreational possession limit to zero if recreational fishermen have achieved or are expected to achieve their allocation.

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 or projected to be met. **Preferred Alternative 2** would prevent the commercial sector from profiting from the harvest of Atlantic migratory group Spanish mackerel in quantities exceeding the commercial ACL, and thus provides a disincentive to target Spanish mackerel species once the ACL has been reached. **Preferred Options b** and **c** would ensure that the amount of the previous year's ACL overage would be accounted for in the subsequent year via a reduced bag limit if the total ACL was exceeded, and thus would be biologically beneficial.

Preferred Alternatives 3 and **4** address payback of overages for the commercial and recreational sectors, respectively. **Option a** under **Alternatives 3** and **4** would require payback of an overage regardless of stock status, which is more conservative than a payback only if overfished (**Preferred Option b** under **Alternatives 3** and **4**). Further, **Preferred Option c** under **Alternatives 3** and **4** would only enact payback of overages if the total ACL was exceeded.

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 would be to not allow the ACL to be exceeded, 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 biological 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 Atlantic migratory group Spanish mackerel is 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 RA would still have the ability to implement 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 **Preferred Alternatives 2-4,** and the associated options**,** 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 would 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

The expected economic effects of the AMs considered for Atlantic migratory group Spanish mackerel are identical to those considered for Atlantic migratory group king mackerel. The assessment of the expected economic effects of the AMs considered for Atlantic migratory group king mackerel is provided in Section 4.14.2 and is not repeated here.

4.17.3 Direct and Indirect Effect on the Social Environment

The setting of AMs can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. Those effects are the same as previously discussed for other AM actions (see Section 4.6.3, 4.9.3 and 4.12.3) and reference to negative social impacts or benefits would be comparable. 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. The social effects from additional AMs would depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures. **Alternative 1** would not change the current regime, which reduces the commercial trip limit when the adjusted quota is met and reverts the recreational bag limit to zero when the recreation allocation is met. By reducing the recreational bag limit in **Preferred Alternative 2, Preferred Option b** to prevent the recreational fishery from exceeding the recreational sector ACL, this action would limit some recreational opportunities. However, it is less restrictive than reducing the length of the subsequent fishing year (**Option a)**, which would impact recreational fishing opportunities. The additional **Preferred Option c** under **Preferred Alternative 2** requires the recreational AMs only if the total ACL is exceeded, which may provide more flexibility to the recreational sector and provide short term social benefits through recreational fishing opportunities in years when the commercial sector does not meet the commercial ACL.

For both commercial and recreational sectors, **Preferred Alternatives 3** and **4** include options that require payback for overages (**Preferred Option b)**, but only if the total ACL is exceeded (**Preferred Option c**). For each sector, this provides more flexibility for the overall fishery to continue fishing without overfishing the stock if the other sector has not reached the ACL/ACT. These options are expected to result in positive impacts on the fishery by minimizing economic impacts of a payback and mitigate lost fishing opportunities if only one sector met its ACL, while producing long-term social benefits by keeping in place the payback to help improve the stock if both sectors meet or exceed the ACL/ACT.

4.17.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would not produce short-term administrative impacts. **Preferred Alternative 2** would implement new AMs for the recreational and commercial sectors 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. **Preferred Alternatives 3-4** and associated options, 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

The South Atlantic Council’s AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Alternatives 2, Option b,** and **Alternatives 3** and **4, Options b** that would only apply paybacks to the commercial and recreational sectors if the stock is overfished. They felt it was more appropriate to only have paybacks when biologically necessary; when the stock was not overfished, some overage could be tolerated. NOAA Fisheries Service tracking the commercial quota and the Councils specifying the necessary management measures should keep each sector at or below their ACL. The AP also recommended the Council modify the AMs to only adjust bag limits or season length and deduct overages only if the total ACL is exceeded. Again, tracking the commercial quota and setting the necessary management measures should limit each sector to their ACL but if the overage is below the total ACL, then the management should not change.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council chose **Preferred Alternative 2, Option b** that would reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following year because this would be less disruptive than a closure with the resulting social and economic costs. The Council agreed with the AP and chose preferred alternatives that would modify management/payback only if the stock is overfished and only if the total ACL was exceeded. The Council concluded the preferred alternatives provide the necessary protection to prevent catches exceeding the respective commercial and recreational ACLs, thereby preventing overfishing. The Council also concluded the preferred alternatives meet the requirements of the reauthorized Magnuson-Stevens Act and best meet the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

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

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

Preferred Alternative 1. No Action **-** individual recreational bag limit is 15 per person per day for NY-FL. Bag limit sales are allowed consistent with state regulations. The commercial possession limits are as follows:

- A. Northern Zone (Georgia northwards) – 3,500 pounds per day
- B. Southern Zone (Florida)
  1. March 1-November 30 – 3,500 pounds per vessel per day
  2. December 1 until 75% of the adjusted quota is taken:
     Monday-Friday – Unlimited
     Saturday & Sunday– 1,500 pounds
  3. After 75% of the adjusted quota is taken – 1,500 pounds per vessel per day for all days
  4. When 100% of the adjusted quota is taken – 500 pounds per vessel per day to the end of the fishing year (March 31). Adjusted quota compensates for estimated catches of 500 pounds per vessel per day to the end of the season
  5. 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
  6. The adjusted quota (currently 3.62 mp) is the quota for Atlantic migratory group Spanish mackerel reduced by an amount calculated to allow continued harvests of Atlantic migratory group Spanish mackerel at the rate of 500 lb per vessel per day for the remainder of the fishing year after the adjusted quota is reached

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

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

Alternative 4. Reduce the individual bag limit for all recreational vessels from 15 to 10 per person per day

Alternative 5. Reduce the individual bag limit for all recreational vessels from 15 to 12 per person per day and set a maximum vessel limit of 60 per vessel per day

4.18.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Comparing the commercial ACL with recent landings does not indicate that a reduction in current harvest levels is necessary, although a commercial closure is expected. Therefore no alternatives for the commercial sector were considered in this action.

The greater the reduction in the bag limit, the greater the expected biological effect to the resource. Thus **Alternative 4** would result in a higher benefit than **Alternative 5**, which would result in a higher benefit than **Alternative 1**. Vessel-level harvest data are not systematically collected for the charterboat and private angler sectors, so the average number of anglers per vessel is not known. If the average is four anglers per vessel, **Alternatives 2** and **3** would not differ from **Alternative 1**. With fewer than four anglers per vessel **Alternatives 2** and **3** would allow for greater landings per angler; with more than four anglers per vessel **Alternatives 2** and **3** would allow for less landings per angler. The biological impacts from these alternatives would similarly change.

As recreational landings are below the recreational ACL and ACT for Atlantic migratory group Spanish mackerel, more restrictive management measures do not appear to be needed. Through monitoring the recreational ACL and ACT, the South Atlantic Council can evaluate the effectiveness of current management measures and determine if additional management measures are needed in the future.

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

Preferred Alternative 1 would not result in any change to the management measures for Atlantic migratory group Spanish mackerel. As a result, **Preferred Alternative 1** would not be expected to result in any change in the economic benefits to fishermen or associated industries. As discussed in Section 4.16.5.2, none of the alternative ACT specifications would be expected to require harvest reductions in the recreational sector, so no adverse management conditions would be expected to persist under **Preferred Alternative 1**, and not further management action would be required to implement necessary harvest restrictions.

Vessel-level harvest data are not systematically collected for the charterboat and private angler sectors (catch and harvest data are collected at the angler level and, circumstantially, may or may not collect vessel-level data). As a result, available data does not support precise evaluation of the expected effects of **Alternatives 2** or **3**. Nevertheless, some inferences using available data are possible. Assuming an average of 4-6 passengers per charterboat trip, the current bag limit would allow 60-90 Atlantic migratory group Spanish mackerel per vessel per day (the alternative would establish the limit as a daily vessel limit, regardless of the number of trips taken; available data does not support evaluation on a daily basis versus a trip basis, so this assessment equates the day limit to a trip limit). Thus, the vessel limit in **Alternative 2** would imply an average reduction of 0-30 fish per trip, or up 33%. However, based on MRFSS 2006-2009 data, charterboat anglers, on average, harvested only approximately 3.6 Atlantic migratory group Spanish mackerel per trip and only approximately 6% of anglers harvested more than 10 fish. As a result, based on these averages, a 60-fish per vessel limit would appear to remain generous, not be binding on the average charterboat trip or angler, and relatively few anglers would be expected to be affected by **Alternative 2.** Although some anglers would be expected to experience a reduction in recreational value as a result of potentially reduced trip quality, few, if any, trips would be expected to be cancelled as a result of the proposed reduction in the bag limit.

For **Alternative 3**, average angler performance is even lower for private anglers than that of charterboat anglers, with individual private anglers averaging only approximately 3.2 fish per trip. As a result, the conclusions with respect to the expected economic effects of **Alternative 2** would be expected to apply to **Alternative 3** as well.

When evaluated across all anglers in the MRFSS dataset (2006-2009 data), approximately 4% of anglers harvested more than 10 Atlantic migratory group Spanish mackerel per trip and approximately 3% harvested more than 12 Spanish mackerel per trip. Based on the estimated annual average of 507,000 angler trips that catch Atlantic migratory group Spanish mackerel each year, the proposed reduction in the bag limit to 10 fish (**Alternative 4**) and 12 fish (**Alternative 5**) per day would be expected to affect approximately 20,800 and 15,200 angler trips per year, respectively. Similar to the discussion on vessel limits, however, although these individual anglers would be expected to experience a reduction in recreational value as a result of reduced trip quality, few, if any, trips would be expected to be cancelled as a result of the proposed reduction in the bag limit. As seen in Appendix G, a reduction in the bag limit to 10 fish per angler would be expected to result in a reduction in Spanish mackerel harvests by 15-36%. Because a management need has not been identified to justify such a reduction, the adoption of either **Alternative 4** or **Alternative 5** would be expected to result in a reduction in short-term economic benefits without an expectation of subsequent increased long-term economic benefits. Essentially, the economic benefits associated with these fish would be needlessly foregone.

Overall, **Preferred Alternative 1** would be expected to result in the most economic benefits, followed by, collectively, **Alternatives 2** and **3** (because they address separate sectors), **Alternative 5**, and **Alternative 4**.

It is noted that headboat anglers are not included in this assessment. However, the inclusion of relevant statistics on this sector would not be expected to substantially alter the conclusions drawn because of the nature of headboat fishing, which generally targets bottom fish.

4.18.3 Direct and Indirect Effect on the Social Environment

Preferred Alternative 1 would maintain status quo for the recreational bag limit (15/person/day) and commercial possession limits and would likely have little or no social impacts on either sector. **Alternative 2-5** could result in lower catches for recreational fishermen impacting fishing opportunities for both charter fishermen and private fishermen. However, these alternatives may be helpful in preventing an overage and triggering the AMs. Any reduction in bag limit that results in lower harvest levels has the potential for negative social effects through fewer recreational fishing opportunities if no substitute species are available. With no substitutes, recreational fishermen may not fish at all which would have further social effects that may reverberate through the larger coastal economy.

4.18.4 Direct and Indirect Effect on the Administrative Environment

Under the **Preferred Alternative 1** the administrative impacts would not change. **Alternatives 2-4** would result in a moderate increase in the administrative burden due to rule-making, monitoring, enforcement, and outreach. In all cases the bag limit would change, so the impacts would not differ among alternatives.

4.18.5 Council Conclusions

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP recommended an individual bag limit of 12 and a boat limit of 60 Spanish mackerel to prevent future catches from exceeding the recreational ACL.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council proposed reducing the bag limit from 15 to 10 per person for public hearings. However, comparing the recent catches to the recreational ACL/ACT indicates that some increase in catch could be allowed without exceeding the ACL. Given all the other regulations and closures being implemented, the Council concluded that no action (**Preferred Alternative 1)** was appropriate to moderate overall social and economic impacts. The Council concluded the preferred alternative provide the necessary protection to prevent catches exceeding the respective commercial and recreational ACLs, thereby preventing overfishing. The Council also concluded the preferred alternatives meet the requirements of the reauthorized Magnuson-Stevens Act and best meet the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

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 Southeast Fisheries Science Center or through SEDAR. SEDAR 28, which begins in 2012 and is scheduled to be completed in 2013, will assess Atlantic migratory group cobia with data through 2011.

4.19.1 ACTION 19-1: Maximum Sustainable Yield (MSY), Minimum Stock Size Threshold (MSST), and Maximum Fishing Mortality Threshold (MFMT) for Atlantic Migratory Group Cobia

There are no alternatives under consideration because these values are all unknown. They will be updated once SEDAR 28 is completed in 2013.

MSY = unknown. The Councils will use the ABC for Atlantic migratory group cobia as a proxy for MSY pending results from the SEDAR assessment.

MSST = the value from the most recent stock assessment based on MSST = [(1-N) or 0.5 whichever is greater]*B_{MSY}

MFMT = F_{MSY} or proxy from the most recent assessment

4.19.2 ACTION 19-2: Overfishing Level (OFL) for Atlantic Migratory Group Cobia

The SSC stated at their March and April 2011 meetings that OFL is unknown. The Councils will use the total ACL for Atlantic migratory group cobia to determine whether overfishing is occurring. If total landings exceed the total ACL, then overfishing is occurring. The Council will revisit this OFL determination after the SEDAR assessment that begins in 2012.

4.19.3 ACTION 19-3: Acceptable Biological Catch (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 [currently 1,571,399 lb whole weight; equal to the mean plus 1.5 times the standard deviation of the most recent 10 years landings]

Alternative 3. Establish an ABC Control Rule where ABC equals OFL (unknown)

Alternative 4. Establish an ABC Control Rule where ABC equals a percentage of OFL

- **Option a.** ABC = 65%OFL (unknown)
- **Option b.** ABC = 75%OFL (unknown)
- **Option c.** ABC = 85%OFL (unknown)

Preferred Alternative 5. Adopt the Gulf Council's ABC Control Rule as an interim control rule (currently ABC equals the mean plus 1.5 times the standard deviation of the most recent10 years of landings data = 1,571,399 lb whole weight)

Discussion: General discussion about the ABC control rule is contained in Section 2.13.3 and is incorporated by reference. At their April 2011 meeting, the South Atlantic Council's SSC recommended an interim approach to determine ABC for Level 4 stocks (Table 2.16.3.1), which have not had recent assessments. At that meeting, the SSC considered the South Atlantic Council's recommendation of adopting the Gulf Council's ABC Control Rule as their preferred alternative and reviewed the previous fishing level recommendations for cobia. The SSC examined the ABC for cobia based on the Gulf Council's ABC Control Rule to determine what percentage the value represented relative to the median landings. The ABC was 25.6% above the median landings value. This value was consistent with the percentages that were being considered in the new interim rule described in Table 2.16.3.1 being considered by the SSC, thus the ABC value derived by the Gulf Council's ABC Control was adopted by the South Atlantic Council's SSC as their ABC recommendation for cobia. Therefore, the ABC from **Alternative 2** and **Preferred Alternative 5** are the same.

The control rule being applied to Atlantic migratory group cobia is the same as the control rule being applied to Gulf migratory group cobia. The Councils will revisit the ABC Control Rules and ABCs after the next SEDAR assessment that begins in 2012.

4.19.3.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Alternative 2 would adopt the South Atlantic Council's SSC recommended ABC control rule (Table 2.13.3.1) and would be expected to provide positive biological benefits over the long term by accounting for assessment uncertainty while preventing overfishing.

Alternative 3 would set ABC equal to OFL; however, as the SSC has indicated OFL is unknown for cobia, no value for ABC would be available. **Alternative 3** would carry more biological risk than the other alternatives because it would not account for management uncertainty which could lead to overfishing and negative biological effects. **Alternative 4, Options a-c** provide more biological protection as compared to **Alternatives 2** and **3**; however, since OFL is considered to be unknown by the SSC, no value for ABC would be available under any of the options.

Preferred Alternative 5 would adopt the Gulf Council's ABC control rule as an interim control rule until results are available from the SEDAR assessment and would provide the greatest biological benefits over the long term if it sufficiently accounts for assessment uncertainty and prevents overfishing (Tables 4.19.3.1.1 and 4.19.3.1.2). The ABC provided in **Preferred Alternative 5** is also recommended by the South Atlantic Council's SSC.

Table 4.19.3.1.1. Recreational and commercial landings (pounds) of Atlantic migratory group cobia by year and area for alternatives in Action 3.

	Alternative 1					Alternative 2			Alternative 3				
	Commercial					Recreational			South Atlantic				
			Monroe County										
Year	South Atlantic Only	Gulf Only	South Atlantic	Gulf	Total	South Atlantic Only	Gulf Only	Monroe County	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

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 (Action 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

For a general discussion of issues that should be considered in the assessment of the effects of an ABC control rule, see Section 4.13.3.2.

Because an ABC control rule is a required component of a fishery management plan, **Alternative 1** is not a viable alternative and its adoption would require additional subsequent management action to implement an acceptable control rule, with associated increased costs of duplicative management action. Additionally, unlike king and Spanish mackerel, an ABC-equivalent does not exist for cobia. As a result, additional subsequent management action to specify an ABC would also be required, with associated increased costs of duplicative management action. Although these costs would not be imposed on fishermen or the associated fishing industry, they are nevertheless increased costs that would be directly imposed on the management system as a result of **Alternative 1**.

Alternatives 2-Preferred Alternative 5, and associated options, would establish an ABC control rule and an ABC and, as a result, would not result in the direct costs associated with necessary subsequent management action that would be required under **Alternative 1**. However, **Alternatives 3** and **4** would not appear to be a viable alternative because an OFL for Atlantic migratory group cobia does not exist. As a result, although the adoption of a control rule based on the OFL might be viable, the adoption of such would still require subsequent management action, with associated costs, to specify both the OFL and associated ABC. Further, for **Alternative 3**, similar to the discussion for Atlantic migratory group king mackerel, given the scientific and management uncertainty for Atlantic migratory group cobia, setting the ABC equal to the OFL would not appear to satisfy the requirement that the control rule establish an ABC that results in the probability of overfishing occurring not exceeding 50 percent.

Because they mirror the structure of the ABC control rule alternatives for Atlantic migratory group king mackerel (Section 4.13.3), the expected economic effects of **Alternatives 2-4**, and associated options, would be expected to mirror those discussed for Atlantic migratory group king mackerel (Section 4.13.3.2) and only highlights of these effects will be summarized here. Among these three alternatives, **Alternative 2** would be expected to be the most flexible and result in greater associated economic benefits than **Alternatives 3** and **4**. Because they would establish simple formulaic ABC control rules, **Alternatives 3** and **4** (and options) would be expected to result in the lowest management development costs.

The options of **Alternative 4** would be expected to reduce the adverse economic effects of **Alternative 3,** assuming **Alternative 3** were a viable alternative, by establishing a buffer between the ABC and the OFL, thereby reducing the likelihood of exceeding the OFL, jeopardizing the long-term biological health of the resource and associated economic benefits, and requiring corrective action and reduction in short-term economic benefits. From a ranking perspective, **Option c** would be expected to result in the highest likelihood, absent the mitigating protection of the ACL, ACT, and AM, that the OFL would be exceeded and the lowest likelihood that fish, and associated economic benefits, would be foregone. Conversely, **Option a** would be expected to result in the least likelihood that the OFL would be exceeded and the highest likelihood of foregone economic benefits. The effects of **Option b** would be expected to be intermediate of those of **Option a** and **Option c**.

Similar to **Alternative 2**, the ABC control rule that would be established under **Preferred Alternative 5** would be expected to have flexibility than the rules established under **Alternatives 3** and **4**, resulting in greater economic benefits than these two alternatives. The ranking of **Alternative 2** and **Preferred Alternative 5** from the perspective of flexibility, and associated economic benefits, is unknown.

From the perspective of the resultant ABC under the various alternatives, and subsequent implications on the need for harvest reductions, with associated reductions in short-term economic benefits, **Alternative 2** and **Preferred Alternative 5** would result in equivalent ABCs, which is greater than current average harvests. The ABC that would result from **Alternative 3**, if it is a viable alternative, is also greater than current average harvests (Table 4.19.3.1.1). As a result, no harvest restrictions, and associated reduction in short-term economic benefits, would be implied based just on the ABC resulting from these alternatives, though some reduction could result from subsequent decisions on the ACL and ACT for this species (see Sections 4.19.5.2 and 4.19.6.2).

All of the options under **Alternative 4** would result in an ABC that is less than current average harvests. Subsequent decisions on the ACL, ACT may further reduce allowable harvests, increasing the magnitude of necessary harvest reductions. The discussion of the expected economic effects of these actions is provided in Sections 4.19.5.2, 4.19.6.2.

In summary, **Alternative 1** and possibly **Alternatives 3** and **4** may not be viable alternatives, necessitating subsequent additional management action. Neither **Alternative 2, Alternative 3**, nor **Preferred Alternative 5** would be expected to require, based on the resultant ABC, corrective management to reduce the current average harvest, although subsequent decisions on the respective ACL and ACT could trigger a need for reduced harvests, with associated reduction in short-term economic benefits. All of the options under **Alternative 4** would result in a need for more restrictive management, with associated decreased economic benefits, to reduce harvest. Because they would be responsive to the requirement to establish an ABC control rule, incorporate greater flexibility, and not be expected to result in more restrictive management, based simply on the ABC control rule and resultant ABC, **Alternative 2** and **Preferred Alternative 5** would be expected to result in the greatest economic benefits than the other alternatives considered. Distinguishing the economic effects between **Alternative 2** and **Preferred Alternative 5**, however, is not possible with available information.

4.19.3.3 Direct and Indirect Effect on the Social Environment

Establishment of the biological parameters for harvest thresholds would 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 4, Option a** is the most restrictive, but all effects on the social environment would 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 specifying an ABC through **Preferred Alternative 5** and **Alternatives 2-4** are minimal and would not differ among the alternatives because all would constrain the level of the ACL. However, there would be indirect effects stemming from monitoring catches to ensure they do not exceed the resulting ACLs and ACTs. These effects are discussed in Sections 4.19-5 and 4.19-6. This could result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. In addition, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

4.19.3.5 Council Conclusions

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Preferred Alternative 5** using the Gulf Council's ABC Control Rule as an interim control rule.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC reviewed the current fishing level recommendations for Atlantic migratory group cobia. The Council proposed following the Gulf of Mexico's ABC control rule to determine the ABC. The SSC examined the Council's ABC to see what percentage the value represented relative to the median landings. The ABC was 25.6% above the median landings value. This value was consistent with the percentages that were being considered in the new interim rule being considered by the SSC, thus the ABC value derived by the Council was acceptable to the SSC; ABC = 1,571,399 pounds.

The Council chose **Preferred Alternative 5** as an interim control rule and this was agreed to by the South Atlantic Council's SSC. This provides a statistically-based way of setting ABC, even if a new stock assessment changed the status of the stock. In that case, the same control rule could be used, but the SSC could choose a different tier, based on the best scientific information. This will be reexamined after the next SEDAR assessment. The Council concluded the preferred alternative provides the necessary flexibility to respond to new stock assessment information and to recommendations from the SSC. The Council also concluded the preferred alternative meets the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

4.19.4 ACTION 19-4: Allocation 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 allocations specified would remain in effect 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 allocations specified would remain in effect until modified

South Atlantic Council's Preferred Allocation 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 commercial and recreational allocations specified would remain in effect until modified.

$$\text{Com Sector \%} = \frac{(50\% \text{ x Average Com 2000-2008}) + (50\% \text{ x Average Com 2006-2008})}{(50\% \text{ x Avg Com 2000-2008} + 50\% \text{ x Avg Com 2006-2008}) + (50\% \text{ x Avg Rec 2000-2008} + 50\% \text{ x Avg Rec 2006-2008})}$$

$$\text{Rec Sector \%} = \frac{(50\% \text{ x Average Rec 2000-2008}) + (50\% \text{ x Average Rec 2006-2008})}{(50\% \text{ x Avg Rec 2000-2008} + 50\% \text{ x Avg Rec 2006-2008}) + (50\% \text{ x Avg Com 2000-2008} + 50\% \text{ x Avg Com 2006-2008})}$$

4.19.4.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

There are no expected physical, biological or ecological effects from allocating by sector. The ACL or ACT and AMs provide biological protection and prevent overfishing. This action does not change the level of catch, only how it is distributed.

Alternative 1 would not establish allocations for cobia. If an allocation is not specified then there would be one ACL including both recreational and commercial catches. This could result in one sector being responsible for increased restrictions, due to ACL overages caused by the other sector.

The allocations in **Alternative 2** and **Preferred Alternative 3** would be identical. **Alternative 2** bases the allocation on the recreational and commercial catches from 2006-2008. **Preferred Alternative 3** differs from **Alternative 2** in that it considers past and recent participation, giving greater weight to recent participation. As there is no difference in the amount of ABC allocated to the commercial and recreation sectors in **Alternative 2** and **Preferred Alternative 3**, there is no difference in the biological effects between the two alternatives.

4.19.4.2 Direct and Indirect Effect on the Economic Environment

Currently, there are no sector allocations for Atlantic migratory group cobia. Because AMs are a required component of a fishery management plan, sector allocations are required if more than one sector harvests a stock and sector AMs are expected to be adopted. Atlantic migratory group cobia are harvested by the commercial and recreational sectors and sector AMs have been selected as the preferred management approach. As a result, if sector AMs are adopted, **Alternative 1** would not be a viable alternative. Adoption of **Alternative 1** would, therefore, require additional subsequent management action to specify sector allocations, with associated increased costs of duplicative management action, as well as potential costs associated with delayed ability to impose AMs, should the need arise. The administrative costs of duplicative management would not be imposed on fishermen or associated businesses, but would, nonetheless, be direct costs of the adoption of this alternative. Because the adoption of **Alternative 1** would not result in any changes affecting harvest or the manner in which fishermen operate, no immediate short-term economic effects on fishermen, or associated businesses, would be expected to occur. However, if the imposition of AMs are required, but their imposition delayed because of the absence of sector allocations, then intermediate-term reduction in economic benefits could occur (delay of action could result in greater corrections, with associated reduction in economic benefits, than might otherwise be necessary).

From an economic perspective, stock allocation should be based on maximum economic benefit analysis with the resulting allocation equaling the distribution of fish that results in the largest economic benefit to society. Unfortunately, available data do not allow identification of the allocation that would maximize economic benefits and the current alternatives were developed based on simple examination of harvest histories. Absent the data needed to conduct a maximum benefit analysis, reliance on simple historic harvest data has been demonstrated to be acceptable in determining allocations based on the assumption that, despite the possible (and likely) existence of "incremental" harvest controls, such as bag, trip, or size limits, the absence of sector harvest limits allows, to some extent, each sector to harvest to the limits of its demand. The resultant harvest by each sector, thus, reflects the extent to which the sector values the stock, again, subject to its ability to harvest the stock as constrained by the incremental controls. The balance that results from this situation could then be loosely described as the allocation that approximately maximizes societal benefits (economic and social). The fewer the incremental controls, the more valid these assumptions and conclusions. From this perspective, recalling the absence of adequate data to conduct quantitative valuation, evaluation of the expected economic effects of alternative fixed allocations can be reduced to examining the relationship of the proposed allocation with the historical "natural" allocation. The allocation deviating the least from the historic allocation would be expected to be least disruptive to current practices and demand and result in the most economic benefits.

Noting these considerations, **Alternative 2** and **Preferred Alternative 3** are both based on previous harvest and, despite depending on different formulas (**Alternative 2** would utilize recent harvest, 2006-2008, and **Preferred Alternative 3** would use a weighted average of 2000-2008 and 2006-2008 harvest), result in the same allocations. As a result, the expected economic effects of each alternative would be the same. Further, because the proposed allocations simply reflect different combinations of harvest distribution since 2000, it could be argued that, on average, the proposed allocations equal in effect what would be expected to occur in the status quo, **Alternative 1**, notwithstanding the fact that **Alternative 1** is not a viable alternative, as discussed. Therefore, neither **Alternative 2** nor **Preferred Alternative 3** would be expected to result in any change in economic benefits relative to **Alternative 1** beyond the economic benefits associated with adopting implicitly required fishery management plan components. However, compared to **Alternative 1**, each sector may feel they would experience reductions in economic benefits under either **Alternative 2** or **Preferred Alternative 3** because each sector would have the opportunity under **Alternative 1** to harvest more than they would under **Alternative 2** and **Preferred Alternative 3**, despite not having demonstrated the propensity to do so, on average, in recent years when the opportunity existed.

4.19.4.3 Direct and Indirect Effect on the Social Environment

Effects on the social environment resulting from sector allocation would 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. The impacts of such unused quota could fuel conflict between the sectors as competition may increase due to reductions in harvest thresholds for other fisheries. While one sector uses its entire allocation the unused portion of the other's allocation may seem wasted.

4.19.4.4 Direct and Indirect Effect on the Administrative Environment

Under any of the proposed action alternatives, administrative impacts would occur as allocations would need to be monitored and enforced to ensure that the sectors do not exceed their allocation and if so, appropriate overages are accounted for. **Alternative 1** would not increase the administrative burden as it would not create allocations for cobia. **Alternative 2** and **Preferred Alternative 3** would have slightly more indirect administrative impacts than **Alternative 1** because two ACLs would need to be tracked and two sets of AMs implemented if needed.

4.19.4.5 Council Conclusions

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP did not object to the Council's proposed methodology for allocating Atlantic migratory group cobia based on past catches.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council concluded it was most fair to allocate the Atlantic migratory group cobia resource based on a combination of historical catches (2000-2008) and recent catches (2006-2008). The Council concluded the preferred alternative meets the requirements of the reauthorized

Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

4.19.5 ACTION 19-5: Annual Catch Limit (ACL) for Atlantic Migratory Group Cobia

Alternative 1. No Action - currently there is no TAC or ACL for cobia

Preferred Alternative 2. ACL = OY = ABC (currently 1,571,399 lbs based on the SSC Interim Control Rule; Recreational Sector ACL = 92% = 1,445,687 lbs; Commercial Sector ACL = 8% = 125,712 lbs)

Alternative 3. ACL = OY = X% of ABC = ______ mp

Option a. ACL = 75%ABC = 75% (currently 1,571,399 lbs) = 1,021,409 lbs (Recreational Sector ACL = 92% = 939,696 lbs; Commercial Sector ACL = 8% = 81,713 lbs)

Option b. ACL = 85%ABC = 85% (currently 1,571,399 lbs) = 1,178,549 lbs (Recreational Sector ACL = 92% = 1,084,265 lbs; Commercial Sector ACL = 8% = 94,284 lbs)

Option c. ACL = 95%ABC = 95% (currently 1,571,399 lbs) = 1,335,689 lbs (Recreational Sector ACL = 92% = 1,228,834 lbs; Commercial Sector ACL = 8% = 106,855 lbs)

Option d. ACL = 80%ABC = 80% (currently 1,571,399 lbs) = 1,257,119 lbs (Recreational Sector ACL = 92% = 1,156,550 lbs; Commercial Sector ACL = 8% = 100,570 lbs)

Option e. ACL = 90%ABC = 90% (currently 1,571,399 lbs) = 1,414,259 lbs (Recreational Sector ACL = 92% = 1,301,118 lbs; Commercial Sector ACL = 8% = 113,141 lbs)

4.19.5.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

Setting an ACL potentially would 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**. **Preferred Alternative 2** is based on the SSC's recommendation for ABC and would prevent overfishing. **Alternative 3** would provide more biological protection by setting the ACL below the ABC.

Alternative 1 would not specify an ACL for Atlantic migratory group cobia. The final NS1 guidelines recognize that existing FMPs may use terms and values that are similar to, associated with, or may be equivalent to the OFL, ABC, ACL, ACT, and AM in many fisheries for which annual specifications are set for different stocks or stock complexes. In these situations the guidelines suggest that, as fishery management councils revise their FMPs, they use the same terms as set forth in the NS1 guidelines. The ACL serves as a catch limit for a species which triggers some sort of AM to ensure overfishing of a species does not occur. Currently, there are no quotas in place that could serve as ACLs for either the commercial or recreational sector. Therefore, **Alternative 1** would not meet the requirements specified in the Magnuson-Stevens Act.

Taking no action on specifying ACL/OY could have negative biological effects as it could allow ACL/OY to be greater than the ABC. Similar to the relationship between OFL and ABC, OY is prescribed on the basis of the MSY from the fishery, as reduced by relevant economic, social or ecological factors. In the case of an overfished fishery, OY provides for rebuilding to a level consistent with producing MSY in such a fishery. For overfished stocks, ABC must also be set to reflect the annual catch that is consistent with the rebuilding plan for that stock. In NS1, use of the phrase, "achieving, on a continuing basis, the optimum yield from each fishery" means producing, from each stock, stock complex or fishery a long-term series of catches such that the average catch is equal to OY, overfishing is prevented, the long term average biomass is near or above B_{MSY}, and overfished stocks are rebuilt in as short a time as possible.

Alternative 3 and its options would have a greater positive biological effect than **Preferred Alternative 2** because **Alternative 3** would create a buffer between the ACL and ABC, with **Alternative 3, Option a** setting the most conservative ACL at 75% of the ABC. Creating a buffer between the ACL and ABC would provide greater assurance overfishing did not occur. Setting a buffer between the ACL and ABC would be appropriate in situations where there is uncertainty in whether or not management measures are constraining fishing mortality to target levels. ACTs, which are not required, can also be set below the ACLs to account for management uncertainty and provide greater assurance overfishing does not occur. ACTs for the recreational sector are being considered South Atlantic Council in Action 19-6. **Preferred Alternative 2** and **Alternative 3** are based on the Gulf Council's ABC control rule that was accepted by the South Atlantic Council's SSC as an interim control rule that takes into consideration scientific uncertainty in the specification of ABC.

Preferred Alternative 2 is based on an ABC control rule that takes into consideration scientific uncertainty in the specification of ABC when examining trends in historic landings.

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**. 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. Cobia are typically caught at the ocean surface and typically do not come in contact with bottom habitat.

4.19.5.2 Direct and Indirect Effect on the Economic Environment

For a general discussion of issues that should be considered in the assessment of the effects of the specification of an ACL and OY, see Section 4.13.4.2.

An ACL, ACL-equivalent, or OY do not exist for Atlantic migratory group cobia. As a result, **Alternative 1** would not be a viable alternative and would require subsequent additional management action, with associated costs, to specify these required management parameters.

Similar to the discussion in Section 4.16.4.2 (Spanish mackerel), the primary difference between **Alternatives 2-3**, and associated options, relate to whether the ABC embodies sufficient buffer to the OFL to account for uncertainty. The determination of the need for additional buffer or the most appropriate additional buffer is beyond the scope of this assessment. However, the discussion provided with respect to the ABC control rule buffer (Section 4.13.3.2) would similarly apply here; the smaller the buffer, the greater the likelihood of exceeding the limit or threshold, precipitating corrective action with associated short-term reduction in economic benefits, whereas the larger the buffer, the greater the likelihood of unnecessarily leaving fish, and associated economic benefits, in the water.

Beyond these points, the remaining consideration is the comparison of the alternative specifications, specifically the resultant ACL, with current harvests and the implications on the need for, and effects of, additional management restrictions. From the perspective of the total ACL and not sector evaluation, based on 2005-2009 average fishing year harvests, **Alternative 3 Options a, b,** and **d** would not be expected to accommodate expected harvest, with a projected overage (across both sectors) ranging from approximately 20,000 lbs (**Alternative 3 Option d**) to approximately 260,000 lbs (**Alternative 3 Option a**). Examined at the sector level, most of the required reductions would be expected to apply to recreational harvests, ranging from ranging from approximately 20,000 lbs for **Option c** to approximately 250,000 lbs for **Option a**. An estimate of the consumer surplus (economic value) for cobia is not available. However, using the value of $7.57 (2010 dollars) per king mackerel as a proxy value, and an average weight of 24.46 lbs per fish (MRFSS data, 2006-2010), the economic value of these reduced recreational harvests is estimated to range from approximately $10,000 to $80,000. In addition to the reduction in recreational harvest and value, **Alternative 3 Option a** would be expected to require a reduction in commercial sector harvest of approximately 10,000lbs, with an ex-vessel value of approximately $30,000, based on an average ex-vessel price of $2.58 per pound (2010 dollars).

Similar to the discussion for Atlantic migratory group king and Spanish mackerel, overall, because of an inability to select the alternative that best addresses uncertainty considerations and the adverse effects of foregone benefits (unnecessarily leaving fish unharvested), ranking the alternatives is difficult; despite the reduction in harvests that would be required, the resource may need the protection of one of the lower ACLs included under **Alternative 3**. If, however, all the alternatives provide adequate protection of the resource and biological goals and needs, then the alternative that would result in the largest ACL would be expected to result in the greatest economic benefits, both from the short and long-term perspective, though some of the benefits would take the form of potential benefits or benefit growth because the resultant sector ACLs exceed current average harvests for the recreational sector for **Preferred Alternative 2** and **Alternative 3, Options c** and **e**, and for the commercial sector for all alternatives except **Alternative 3, Option a**. Nevertheless, assuming the resultant ACLs satisfy the uncertainty considerations, based on potential economic benefits, **Preferred Alternative 2** would be expected to result in the highest economic benefits, followed by **Alternative 3, Option e** and **Alternative 3, Option c**. These alternatives would be expected to result in greater economic benefits than **Alternative 3, Options a, b,** and **d** because these alternatives, as previously discussed, would require harvest reductions in the recreational sector and, in the case of **Alternative 3, Option a**, the commercial sector.

4.19.5.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACLs would increase the risk of short-term negative impacts on commercial and recreational fishermen and communities as discussed in other ACL actions within this document. 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 would 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 migratory group cobia would 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 3, Option e** (90% of ABC). **Preferred Alternative 2** sets the ACL at ABC and is less restrictive than other alternatives, which would 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

Although OY can have indirect impacts 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 between the proposed alternatives.

The monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if additional monitoring mechanisms are needed. Cobia landings are tracked by the Southeast Fishery Science Center through logbooks, trip tickets, and MRFSS. **Alternative 1** would not meet the requirements of the Magnuson-Stevens Act for Atlantic migratory group cobia, 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 **Preferred Alternative 2** and **Alternative 3,** and the options associated with **Alternative 3** are minimal and would not differ 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

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Preferred Alternative 2** that sets the ACL = OY = ABC.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council chose **Preferred Alternative 2** that sets the ACL = OY = ABC (currently 1,571,399 lbs) based on the SSC Interim Control Rule. The ACL does not exceed the ABC as recommended by the SSC. The Council concluded it is appropriate to set the ACL = ABC because Atlantic migratory group cobia are not overfished or undergoing overfishing and restrictive management measures have been in place for a number of years. The Council concluded the preferred alternative provides the necessary protection to prevent overfishing while achieving the optimum yield. The Council also concluded the preferred alternative meets the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

4.19.6 ACTION 19-6: Annual Catch Target (ACT) for Atlantic Migratory Group Cobia

ACTION 19-6a: Commercial Sector ACT

Preferred Alternative 1. No Action **-** do not specify commercial sector ACTs for Atlantic migratory group cobia

Alternative 2. The commercial sector ACT equals 90% of the commercial sector ACL (currently 113,141 lbs)

Alternative 3. The commercial sector ACT equals 80% of the commercial sector ACL (currently 100,570 lbs)

ACTION 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 (currently 1,228,834 lbs)

Alternative 3. The recreational sector ACT equals 75% of the recreational sector ACL (currently 1,084,265 lbs)

Preferred Alternative 4. The recreational sector ACT equals sector ACL[(1-PSE) or 0.5, whichever is greater] (currently 1,184,688 lbs)

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 would be prevented.

Commercial
Preferred 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 if AMs were triggered by the ACT. Implementing an ACT would provide a mechanism to maintain harvest levels at or below the South Atlantic Council's choice of an ACL. Establishing an ACT **(Alternatives 2** and **3)** for the commercial sector would be somewhat more straight-forward than for the recreational sector since all commercial landings of cobia are reported through dealer trip tickets, which can be used to monitor in-season harvest. Therefore, projections of when the ACT would likely be met, or estimates of by how much an ACT is exceeded would be more reliable than for the recreational sector. A higher degree of harvest projection accuracy would reduce the risk of AMs being triggered too soon or too late.

Assuming the AMs would be triggered by the ACT, the most biologically beneficial ACT alternative for the commercial sector would be **Alternative 3**, which would create the largest buffer between the ACT and ACL. **Alternative 2** would result in greater biological benefits than

Preferred Alternative 1, but fewer biological benefits when compared to **Alternative 3**. The least biologically beneficial ACT alternative would be **Preferred Alternative 1** since it would not establish a level of harvest lower than that of the ACL in order to trigger an AM to prevent ACL overages. However, under **Preferred Alternative 1** there would be little incentive to target Atlantic migratory group cobia on commercial trips since all purchase and sale would be prohibited once the ACL is projected to be met. Furthermore, if the quota monitoring system is operating properly, landings in excess of the commercial ACL would not be expected.

Recreational
Alternative 1 would not set an ACT. **Alternatives 2-Preferred Alternative 4** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur. **Preferred Alternative 4** takes into account the variability of recreational catches while preventing overfishing.

Alternatives 2-Preferred Alternative 4 would establish an ACTs to hedge against an ACL overage, provide a buffer between the ACT and ACL, and account for management uncertainty. As recreational landings are survey-based, there is greater uncertainty associated with those data than for commercial landings information that are reported by dealers. The ACT could serve as a warning that landings were approaching an ACL and could serve as an indicator to enact management measures in the future that resulted in landings at the ACT level. Preferred Alternative 3 for Action 20 would reduce the recreational bag limit in the following year if the stock ACL is exceeded; this reduction would be calculated based on the ACT.

Preferred Alternative 4 could have the greatest biological benefit of the three subalternatives by adjusting the ACL by 50% or one minus the PSE from the recreational fishery, whichever is greater. The lower the value of the PSE, the more reliable the landings data. By using PSE in **Preferred Alternative 4)**, more precaution is taken in the estimate of the ACT with increasing variability and uncertainty in the landings data.

4.19.6.2 Direct and Indirect Effect on the Economic Environment

A discussion of general considerations relevant to the specification of ACTs is contained in Section 4.13.5.2 and is not repeated here.

Commercial
Because it would not establish an ACT, **Preferred Alternative 1** would not be expected to result in any change in economic benefits to fishermen or associated businesses. Although the failure to specify an ACT would logically be expected to increase the likelihood of exceeding the ACL and triggering AMs, with associated reductions in economic benefits, it cannot be determined with available data whether not specifying an ACT would be expected to result in net loss or gain in economic benefits.

Based on the current preferred ACL and current average harvests, neither **Alternative 2** or **3** would be expected to require a reduction in harvests for the commercial sector. As a result, neither alternative would be expected to result in any change in economic benefits to fishermen or associated shoreside businesses. **Alternative 2** would allow a slightly larger harvest “growth cushion” than **Alternative 3** (the difference between the ACT and current average commercial harvests is greater for **Alternative 2** than for **Alternative 3** by approximately 13,000 lbs). However, this does not support a conclusion that **Alternative 2** would be expected to result in greater economic benefits than **Alternative 3** because an ACT is not a binding parameter (management correction is not required if the ACT is exceeded) and, as a result harvest would not be bounded under either alternative by the ACT but, rather, by the ACL, which would be identical for both alternatives..

Given the ability to effectively monitor commercial harvests, thereby reducing the likelihood of exceeding the ACL and triggering AMs, **Preferred Alternative 1** would be expected to result in increased economic benefits in the long term compared with both **Alternative 2** and **Alternative 3.** Unlike the case for Atlantic migratory group Spanish mackerel, where the higher economic benefit of **Preferred Alternative 1** derived from the avoidance of harvest restrictions to restrain harvest to the ACT, the increased economic benefits for **Preferred Alternative 1** for Atlantic migratory group cobia derive from the absence of necessity for a buffer to the ACL (due to the ability to monitor and close harvests) and simplified management needs (due to the absence of a need to monitor and manage one parameter, ACL, rather than two, the ACL and ACT).

Recreational
Because it would not establish an ACT, **Alternative 1** would not be expected to result in any change in economic benefits to fishermen or associated businesses. Although the failure to specify an ACT would logically be expected to increase the likelihood of exceeding the ACL and triggering AMs, with associated reductions in economic benefits, it cannot be determined with available data whether not specifying an ACT would be expected to result in net loss or gain in economic benefits.

Based on the current preferred ACL and current average harvests, **Alternative 2** would not be expected to require any reduction in harvests for the recreational sector. As a result, no short-term economic losses would be expected to occur as a result of **Alternative 2**. Recreational data collection and monitoring, however, is not as efficient as data collection for the commercial sector. As a result, in the long term, if target effort or harvest success increase, some additional buffer may be justified. Similar to the discussion on the ABC and ACL, however, identifying the best buffer is not possible with available data. **Alternative 3** would be expected to result in small reductions in the recreational harvests, approximately 100,000 lbs. As previously stated, an estimate of the consumer surplus (economic value) for cobia is not available. However, using the value of $7.57 (2010 dollars) per king mackerel as a proxy value, and an average weight of 24.46 pounds per fish (MRFSS data, 2006-2010), the economic value of this reduced recreational harvest is estimated to be approximately $31,000. **Preferred Alternative 4** would not be expected to require any reduction in recreational harvest. As a result, if a buffer to the ACL is not required to effectively monitor and manage the resource consistent with the biological goals for the species, **Alternative 2** would be expected to result in the most economic benefits because harvest reductions would not be required, followed by **Preferred Alternative 4** and **Alternative 3.** If a buffer is necessary and either buffer is adequate, **Preferred Alternative 4** would be expected to result in greater economic benefits than **Alternative 3** because it would allow greater harvests.

4.19.6.3 Direct and Indirect Effect on the Social Environment

In general, more restrictive ACTs would result in more negative social impacts in the short term because these would be linked to the reduced economic benefits and reduced fishing opportunities as discussed in previous actions setting ACTs (see Sections 4.5.3, 4.8.3 and 4.11.3). 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 would 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 would 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 would 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**, yet is less than recent harvest levels. If recreational harvest continues to grow, there may be short term negative impacts if the ACL is exceeded and AMs need to be implemented.

4.19.6.4 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. **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.

4.19.6.5 Council Conclusions

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Preferred Alternative 1** that would not specify a commercial sector ACT and **Preferred Alternative 4** that would base the recreational ACT on the PSE.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council chose **Preferred Alternative 1** that would not specify a commercial sector ACT because the system in place to track commercial landings using trip tickets and dealer reports should be able to prevent commercial overages. The Council chose **Preferred Alternative 4** that would base the recreational ACT on the PSE to address the variability in the recreational catch data. The ACT is used to set management measures to achieve the ACT while ensuring the recreational catch is below the recreational ACL. The Council concluded the preferred alternatives provide the necessary protection to prevent catches exceeding the respective commercial and recreational ACLs. The Council also concluded the preferred alternatives meet the requirements of the reauthorized Magnuson-Stevens Act and best meets the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

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 - the recreational and commercial AM for this stock is the Regional Administrator has authority via the framework to revert the recreational and commercial possession limit to zero if fishermen have achieved or are expected to achieve their allocation

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

Preferred Alternative 3. The commercial AM for this stock is to prohibit harvest, possession, and retention when the commercial quota (total ACL x commercial allocation) is met or projected to be met. All purchase and sale is prohibited when the commercial quota is met or projected to be met. Implement additional AMs for the recreational sector for this stock. If the recreational sector quota (total ACL x recreational allocation) 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 quota for the following fishing year. Compare the recreational ACL with recreational landings over a range of years. For 2011, use only 2011 landings. For 2012, use the average landings of 2011 and 2012. For 2013 and beyond, use the most recent three-year (fishing years) running average. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter

> **Preferred Option a.** Only adjust the recreational season length if the Total ACL is exceeded

Preferred Alternative 4. Commercial payback of any overage

> **Option a.** Payback regardless of stock status - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
>
> **Preferred Option b.** Payback only if overfished - If the commercial sector ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the commercial sector ACL in the following year by the amount of the overage
>
> **Preferred Option c.** Only deduct overages if the Total ACL is exceeded

Preferred Alternative 5. Recreational payback of any overage from one year to the next

> **Option a.** Payback regardless of stock status - 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 19-6

Preferred Option b. Payback only if overfished - 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 19-6

Preferred Option c. Only deduct overages if the Total ACL is exceeded

4.20.1 Direct and Indirect Effect on the Physical and Biological/Ecological Environments

The Magnuson-Stevens Act requires that mechanisms of accountability be established for all federally managed species for which ACLs are required. **Alternative 2** and **Preferred Alternative 3** would attempt to limit commercial and recreational harvest to levels at or below the ACL by reducing and/or closing harvest once a particular landings threshold is met. **Alternative 2** would prohibit all purchase and sale of Atlantic migratory group cobia when the commercial quota is met or projected to be met. It would not implement additional AMs for the recreational sector for this stock. **Preferred Alternative 3** would also prohibit all purchase and sale of Atlantic migratory group cobia when the commercial quota is met or projected to be met. Furthermore, under **Preferred Alternative 3**, if the ACL is exceeded, the RA would reduce the recreational season to ensure landings do not exceed the recreational sector quota for the following fishing year (**Preferred Option a**).

Preferred Alternatives 4 and **5** address payback of overages for the commercial and recreational sectors, respectively. **Option a** under **Alternatives 4** and **5** would address payback or an overage regardless of stock status, which is more conservative than a payback only if overfished (**Preferred Option b** under **Alternatives 4** and **5**). Further, **Preferred Option c** under **Alternatives 4** and **5** would only enact payback of overages if the total ACL was exceeded which would provide the necessary biological protection by addressing total ACL overages.

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** and **Preferred Alternatives 5,** and the associated options**,** 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 would 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

A discussion of general considerations relevant to the specification of AMs is contained in Section 4.14.2 and is not repeated here.

It should be noted that the alternatives are not all alternatives to each other and are not, therefore, directly comparable. **Alternative 2** and **Preferred Alternative 3**, and options, are direct alternatives to, and comparable to, **Alternative 1**. **Preferred Alternatives 4** and **5**, and options, deal with separate sectors and address potential enhancements to **Alternatives 1-Preferred Alternative 3**. However, sufficient AM-equivalent provisions do not exist for Atlantic migratory group cobia under the status quo (see below). As a result, either **Alternative 2** or **Preferred Alternative 3** needs to be selected and implemented in order for either or both **Alternative 4** or **5** to be adopted and have relevance. The net effect of these considerations is that this assessment will compare **Alternative 2** and **Preferred Alternative 3**, and options, with **Alternative 1**, and **Preferred Alternatives 4** and **5**, and options, will be compared with simply the absence of payback provisions in **Alternative 1-Preferred Alternative 3**.

As previously stated, sufficient AM-equivalent provisions already exist for Atlantic migratory group cobia. As a result, **Alternative 1** is a viable alternative and its adoption (or continuation) would not require additional management action to make the fishery management plan compliant with requirements. Under **Alternative 1**, each sector would be evaluated, and harvest restricted separately; action would, or could, occur in the current fishing year, based on actual or projected data (recreational catch could be projected, or occur in the following year after final data is available); correction options are limited, for both sectors, to closure (reduction of the bag limit to zero is equivalent to a recreational closure for that species); and no payback provisions exist. As a result of these specifications, the benefits of sector accountability would be realized; delay in action could be minimized, reducing the magnitude of correction, and associated reduction in short-term economic benefits, the potential of imposing unnecessary corrections would be increased because of the strict sector accountability rather than assessment at the level of the total ACL (across all harvest sectors); flexibility of corrective option, and associated economic benefits, would be minimal because only closure options are available; and the absence of payback provisions may jeopardize long-term goals or, more correctly, lead to reductions in intermediate-term economic benefits as a result of re-assessment of the stock resulting in ACL, or other parameter, adjustments that account for the overages.

Under **Alternative 2**, the current AMs for the commercial sector would be expanded, but the AMs for the recreational sector would be changed from those currently in place. As a result, although the reduction in short-term economic benefits that would accrue to the imposition of AMs on the recreational sector would be avoided, the longer-term economic benefits of recreational AMs would be foregone. As a result, **Alternative 2** would be expected to result in lower economic benefits than **Alternative 1**.

Preferred Alternative 3, **Preferred Option a**, would continue sector accountability with the exception that recreational adjustments would only occur if the total ACL is exceeded; correction would only occur in the current fishing year for the commercial sector and in the following fishing year for the recreational sector; flexibility for correction would remain unchanged; and assessment of the recreational sector would, progressively, consider harvest over moving multiple-year periods rather than single years. As a result of these specifications, the economic effects of **Preferred Alternative 3**, **Preferred Option a**, on the commercial sector and associated businesses would be expected to remain unchanged from those of **Alternative 1** or **2**. For the recreational sector, the absence of in-season adjustment would be expected to avoid the costs of in-season disruption and uncertainty of season length. Delaying corrective action until the subsequent season increases the potential overage and magnitude of potential corrective action, and reduction in associated economic benefits. However, the multi-year assessment would be expected to mitigate the potential magnitude of these economic losses. Finally, assessment at the total ACL level would be expected to reduce the likelihood of foregone benefits that would result from imposing a recreational AM when the stock as a whole would not require adjustment. On the basis of the improved economic outcomes that would accrue to the total ACL and multi-year recreational overage assessment, **Preferred Alternative 3**, and preferred option, would be expected to result in greater economic benefits than **Alternatives 1** and **2**.

Preferred Alternatives 4 and **5** deal exclusively with payback considerations and, as such, deal with enhancements to **Alternatives 1-Preferred Alternative 3**, and are not substitute alternatives (note that **Preferred Alternative 5** would not be relevant to **Alternative 2** because **Alternative 2** would not establish recreational AMs). The economic effects of the considerations associated with paybacks in general have previously been discussed. The following discussion, therefore, only addresses comparison of the options when payback would occur and not whether payback would occur. Further, the expected effects would not be expected to vary with their adoption in conjunction with either **Alternative 1**, **Alternative 2**, or **Preferred Alternative 3**.

Although they deal with separate sectors, the options under **Preferred Alternatives 4** and **5** are identical (the options under **Preferred Alternative 5** contain language on ACT, but only because the preferred action for the recreational sector would establish an ACT, whereas that for the commercial sector would not). As a result, the effects of the options would be expected to be the same for both actions and this discussion will not separately address each alternative. It is noted again, however, that the likelihood of overages in the commercial sector would be expected to be lower than for the recreational sector.

To reiterate the discussion above, paybacks would be expected to be economically disruptive in the short-term, but may be necessary to support the long-term goals for the resource (notwithstanding the incremental corrective action of updated assessments and subsequent changes in the ACL). Because any payback would be expected to result in short-term reductions in economic benefits, the basic comparison of the options may reduce to limiting this corrective action to those situations when such action is absolutely necessary or obviously beneficial. If the total ACL is not exceeded, although sector payback may address equity issues, the biological goals for the resource would not be expected to be jeopardized and, as a result, a reduction in short-term economic benefits would be expected to accrue to the respective sector without accompanying increase in long-term benefits. Essentially, there would be expected to be foregone economic benefits. **Preferred Option c** would avoid these losses. If a stock is overfished, it would be subject to a rebuilding plan, with more specific and targeted resource goals than would apply to a non-overfished stock. Specifically, the stock would have a rebuilding target date in addition to a biomass target. Jeopardy of long-term goals, and associated economic benefits, as a result of overages would be expected to be greater for overfished stocks than overfished stocks. Therefore, economic benefits would be expected to be increased if paybacks are required when the stock is overfished, as would occur under **Preferred Option b**, compared to not requiring paybacks. An alternative perspective may be that only requiring paybacks if the stock is overfished reduces the likelihood of imposing foregone economic benefits, i.e., requiring paybacks when biologically they may be unnecessary. Finally, requiring a payback regardless of the stock status would be expected to result in the greatest likelihood of experiencing foregone economic benefits. If the stock is not overfished, a specific recovery time table would not exist and the biological target would reduce to biomass evaluation target, the status of which may change over time with subsequent stock assessments independent of actual harvest performance (as a result of natural variability of recruitment, external environmental factors, etc.). The stock may be biologically healthy despite overages. As a result, the imposition of paybacks in the absence of biological necessity would be expected to result in reductions in economic benefits without accompanying longer-term economic benefits. **Option a** would increase the likelihood of this occurring.

4.20.3 Direct and Indirect Effect on the Social Environment

The setting of 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. The social effects from additional accountability measures would depend upon their restrictive nature and whether additional management uncertainty is introduced from the measures. Any of the social effects from setting AMs on Atlantic Group cobia would be the same as other AM actions within this amendment (see Sections 4.6.3, 4.9.3, and 4.12.3). **Alternative 1** would not change the current regime and there would be little or no effects on the social environment. The commercial and recreational sectors would experience some negative impacts if the season is closed early (**Alternative 2**). **Preferred Alternative 3** includes an in-season closure for the commercial sector, which would have the same effects as **Alterative 2**. For the recreational sector, **Preferred Alternative 3, Preferred Option a** includes a reduction of the recreational season length if the total ACL is exceeded, which would impact fishing opportunities and economic benefits for the recreational sector. This provides more flexibility to the recreational sector and may help to mitigate social impacts from a lower ACL in a subsequent year.

For both commercial and recreational sectors, **Preferred Alternatives 4 and 5** include options that require payback for overages (**Preferred Option b)**, but only if the total ACL is exceeded (**Preferred Option c**). For each sector, this provides more flexibility for the overall fishery to continue fishing without overfishing the stock if the other sector has not reached the ACL/ACT. These options are expected to result in positive impacts on the fishery by minimizing economic impacts of a payback and mitigate lost fishing opportunities if only one sector met its ACL, while producing long-term social benefits by keeping in place the payback to help improve the stock if both sectors meet or exceed the ACL/ACT.

4.20.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would not produce near-term administrative impacts. **Alternative 2** would not implement additional AMs for the recreational sector, only the commercial sector, and so would be the next least burdensome. **Preferred Alternative 3** would increase the administrative burden through the need for in-season monitoring, tracking of recreational landings, rule-making and education and outreach. **Preferred 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

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Preferred Alternative 3** and **Alternatives 4 and 5, Options b** that would adjust the fishing year and only apply paybacks to the commercial and recreational sectors if the stock is overfished. They felt it was more appropriate to only have paybacks when biologically necessary; when the stock was not overfished, some overage could be tolerated. NOAA Fisheries Service tracking the commercial quota and the Councils specifying the necessary management measures should keep each sector at or below their ACL. The AP also recommended the Council modify the AMs to only adjust bag limits or season length and deduct overages only if the total ACL is exceeded. Again, tracking the commercial quota and setting the necessary management measures should limit each sector to their ACL but if the overage is below the total ACL, then the management should not change.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council chose **Preferred Alternative 3, Preferred Option a** that would reduce the length of the following fishing year to ensure landings do not exceed the recreational sector ACL for the following year because this would be less disruptive than reducing the bag limit from the current two per person per day with the resulting social and economic costs. The Council agreed with the AP and chose **Preferred Alternatives 4b, 4c, 5b** and **5c** preferred alternatives that would payback only if the stock is overfished and only if the total ACL was exceeded. The Council concluded the preferred alternatives provide the necessary protection to prevent catches exceeding the respective commercial and recreational ACLs, thereby preventing overfishing. The Council also concluded the preferred alternatives meet the requirements of the reauthorized Magnuson-Stevens Act and best meet the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

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) two per person per day possession limit (Note: Florida State regulations only allow 1 per person per day for recreational and 2 per person per day for commercial), (c) one day possession limit, (d) must be landed with heads and fins intact, and (e) 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:

Option a. Two cobia per person per day

Option b. One cobia per person per day

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

Alternative 4. Reduce the recreational possession limit from 2 to 1 cobia per vessel per day

Alternative 5. Establish a closed season for the recreational fishery

Alternative 6. Reduce the recreational possession limit from 2 to 1 cobia per person per day during the spawning season (April 1 through June 30)

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 Atlantic migratory group cobia are caught. The data in previous tables are from NOAA Fisheries Service and if examined at the state level, would be confidential. However, the public Atlantic Coast Cooperative Statistics Program (ACCSP) provides both confidential and non-confidential data and is accessible at www.accsp.org. Individuals with proper clearance for access to confidential data can access confidential data; non-confidential data are accessible by anyone. Non-confidential catch data from ACCSP for New York through Florida are shown in Figures 4.21.1-4.21.11. Preliminary 2010 MRFSS data were available and included; 2010 commercial data were not available. 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 lbs to just under 500,000 lbs 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 4.21.7) begin in 1980 with a very small commercial sector and a recreational sector of between about 25,000 and 200,000 lbs with a spike in 2003 at over 450,000 lbs. Landings in Georgia have been low and sporadic since 1976 with a spike in recreational landings of about 340,000 lbs in 2008 (Figure 4.21.8). Landings have been highest on Florida's Atlantic Coast (not including Monroe County) with a small commercial harvest 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 lbs and slightly over 1 mp (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.

If the "Old ABC" value of 977,055 lbs, initially suggested by the South Atlantic SSC, is compared 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 included management alternatives that consider a reduction in the possession 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 two per person per day possession limit (recreational and commercial) and 33-in 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 Atlantic migratory group cobia, to be applied until results of the SEDAR stock assessment become available in 2013. The South Atlantic Council asked their SSC to review the 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 OFL of 1.68 mp and an ABC of 1.57 mp; these lines are shown in Figure 4.21.11 and one can see that catches would not have to be reduced although the 2010 catches are very high.

At their April 2011 meeting, the South Atlantic Council's SSC recommended an interim approach to determine ABC for Level 4 stocks (Table 2.16.3.1), which have not had recent assessments. At that meeting, the SSC considered the South Atlantic Council's recommendation of adopting the Gulf's ABC Control Rule as their preferred alternative and reviewed the previous fishing level recommendations for Atlantic migratory group cobia. The SSC examined the ABC (1.57 mp) for Atlantic migratory group cobia based on the Gulf Council's ABC Control Rule to determine what percentage the value represented relative to the median landings. The ABC was 25.6% above the median landings value. This value was consistent with the percentages that were being considered by the SSC in the new interim rule described in Table 2.16.3.1, thus the ABC value derived by the Gulf Council's ABC Control was adopted by the South Atlantic Council's SSC as their ABC recommendation for Atlantic migratory group cobia. The SSC also determined that OFL for cobia is unknown. This is why the Council is not proposing to change management regulations.

Commercial Trip and Per Person Limit
The following analyses of logbook and trip interview data (TIP), both commercial, were prepared by the NMFS SERO:

<u>Trip Limit</u> - 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 per

day possession 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 two fish per person per day possession 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 4.21.1.

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 two per person per day possession 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 two fish per person per day possession 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 4.21.2.

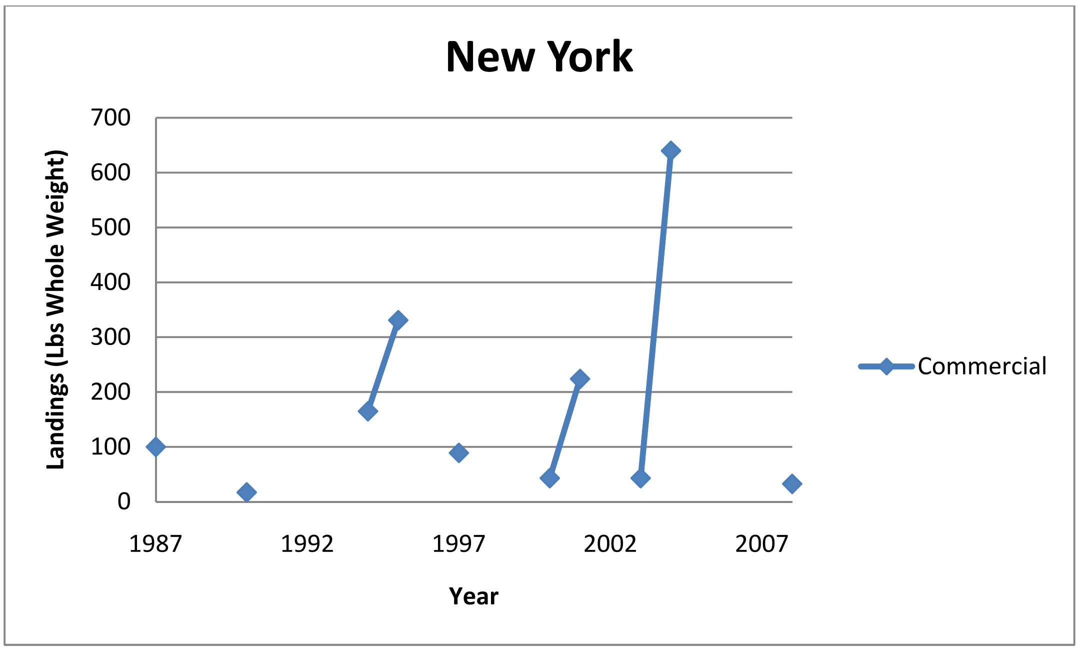

Figure 4.21.1. Landings of cobia in New York.
Source: ACCSP.org

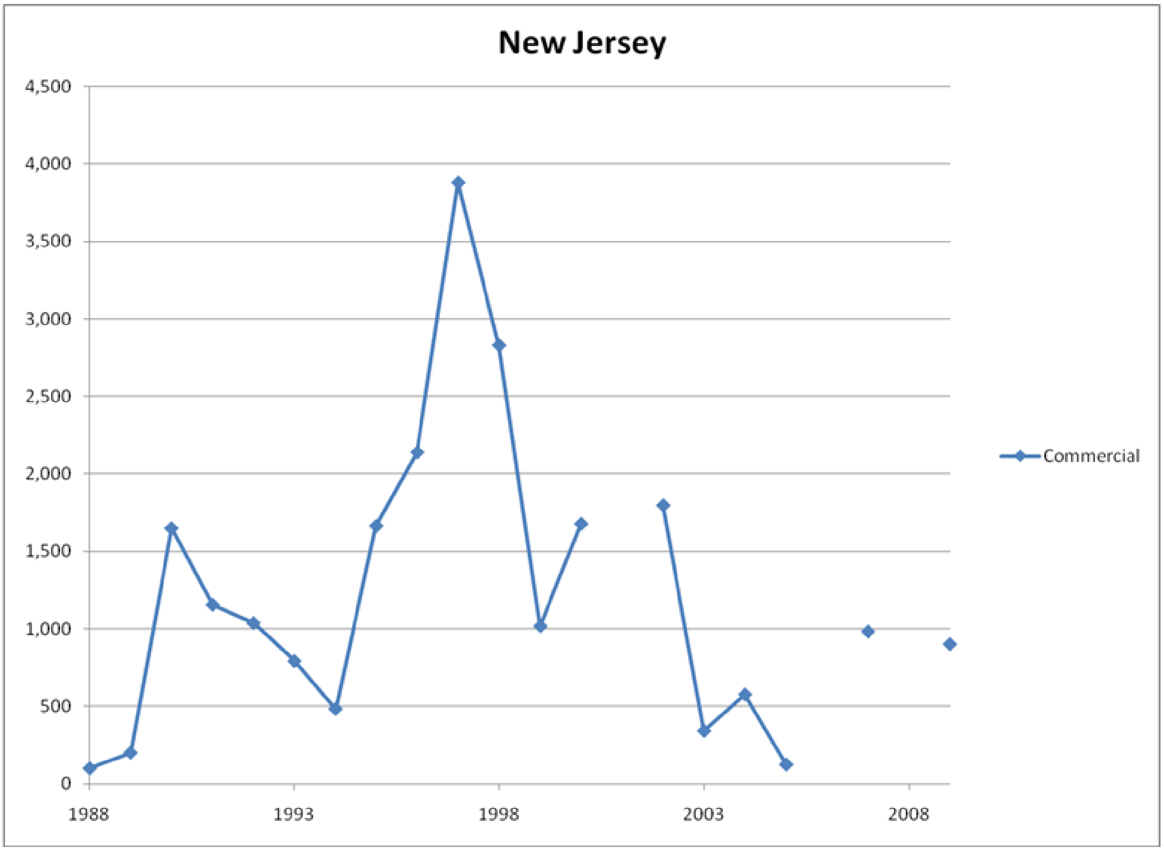

Figure 4.21.2. Landings of cobia in New Jersey.
Source: ACCSP.org

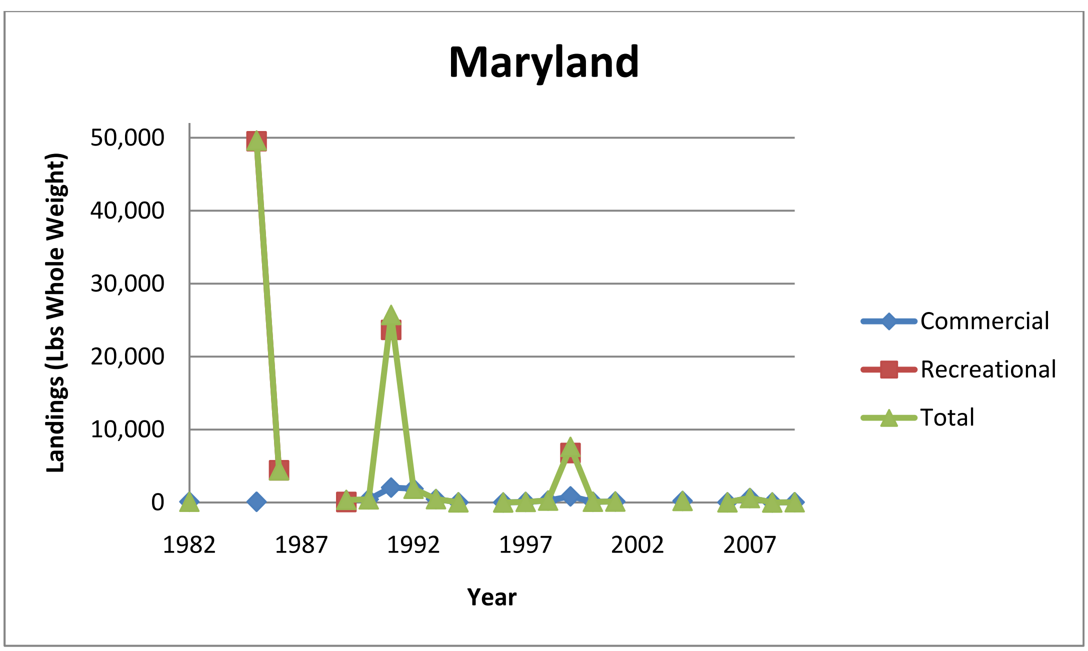

Figure 4.21.3. Landings of cobia in Maryland.
Source: ACCSP.org

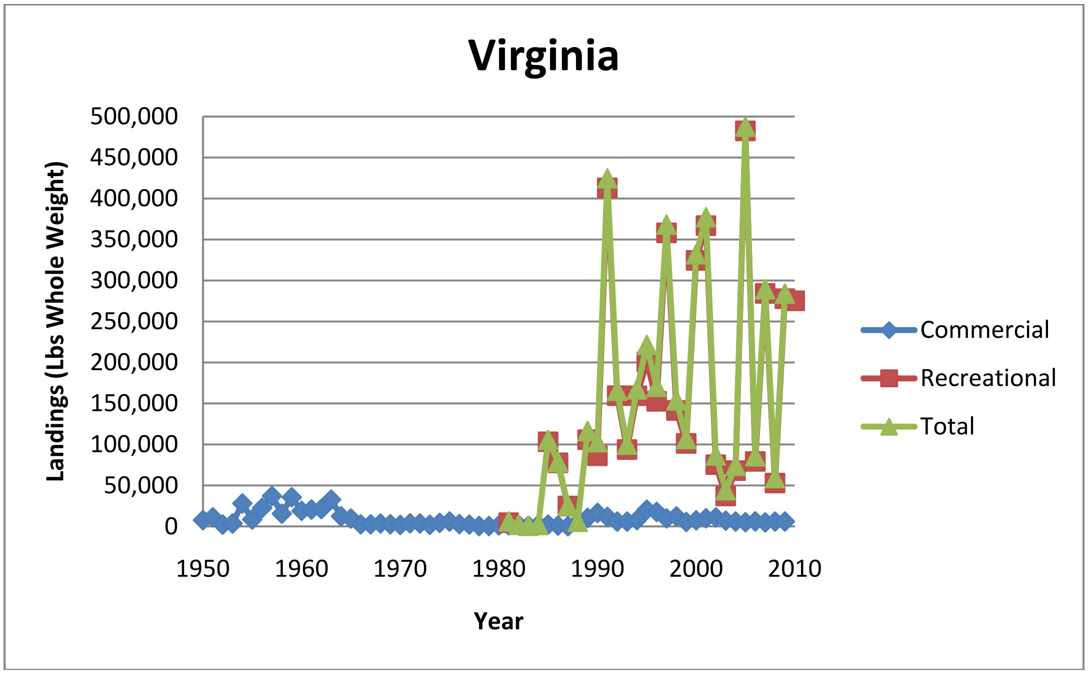

Figure 4.21.4. Landings of cobia in Virginia.
Source: ACCSP.org

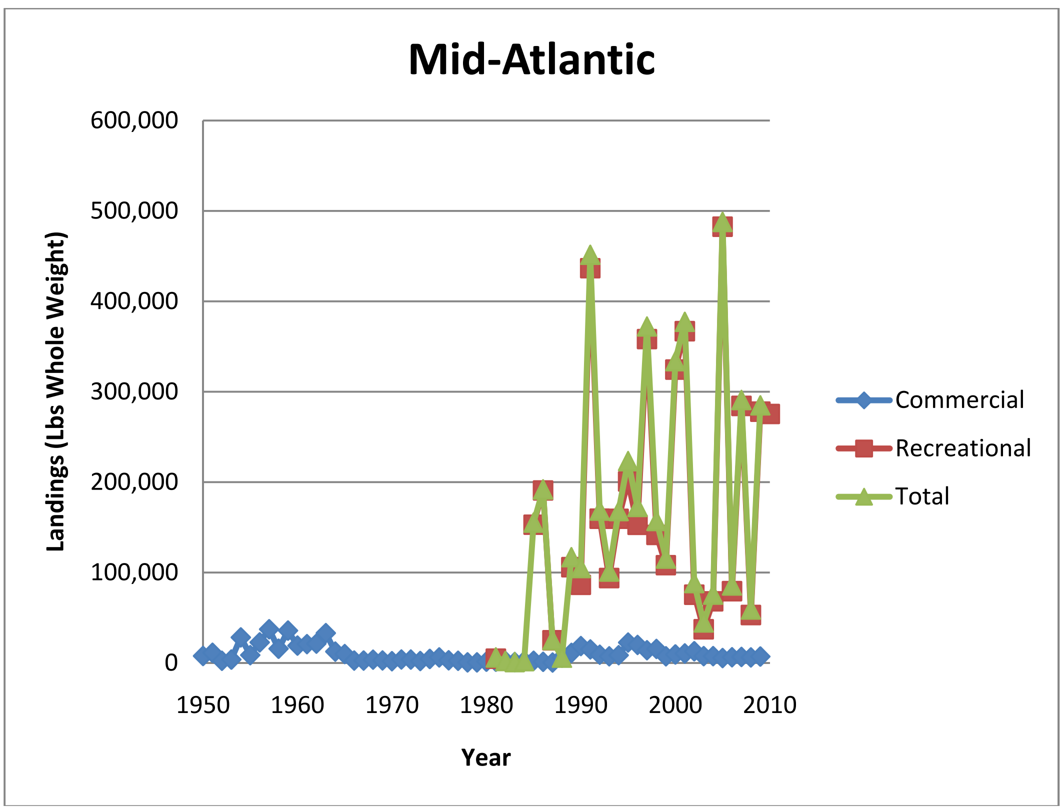

Figure 4.21.5. Landings of cobia in the Mid-Atlantic.
Source: ACCSP.org

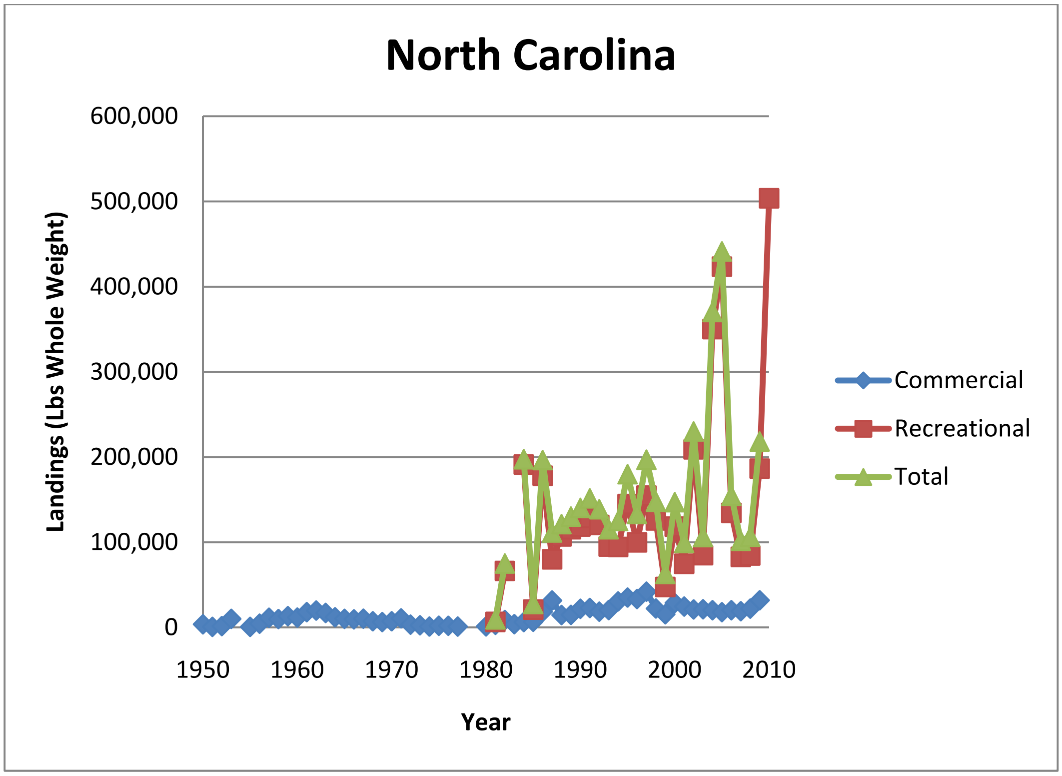

Figure 4.21.6. Landings of cobia in North Carolina.
Source: ACCSP.org

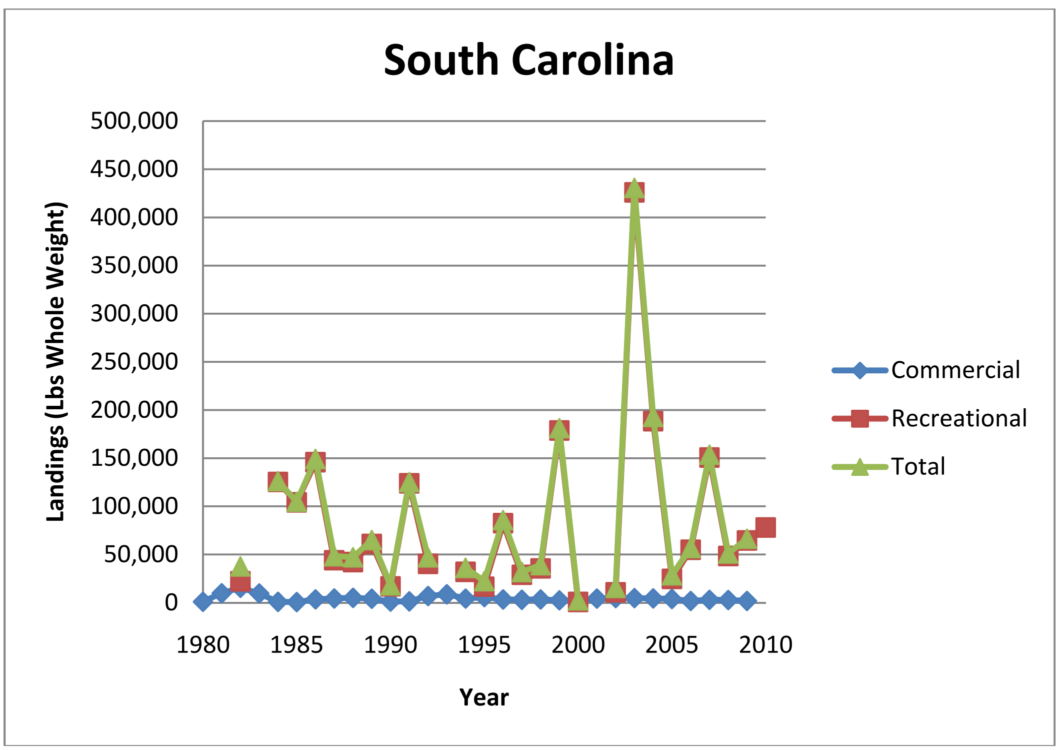

Figure 4.21.7. Landings of cobia in South Carolina.
Source: ACCSP.org

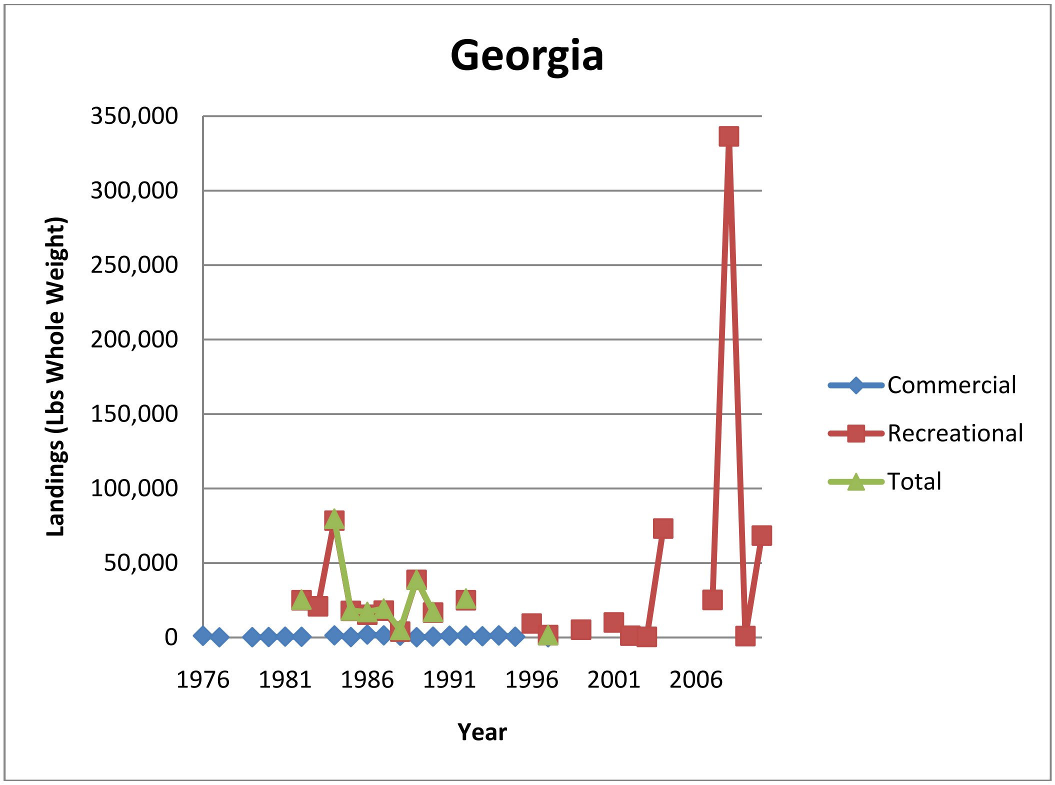

Figure 4.21.8. Landings of cobia in Georgia.
Source: ACCSP.org

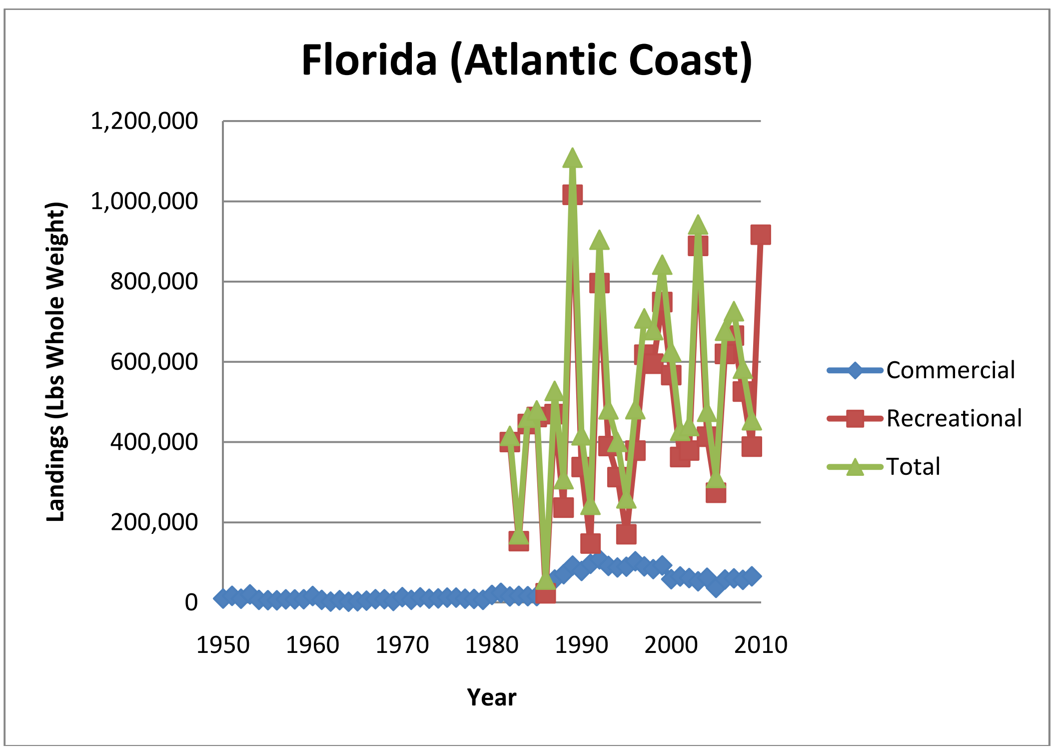

Figure 4.21.9. Landings of cobia in Florida (Atlantic Coast).
Source: ACCSP.org

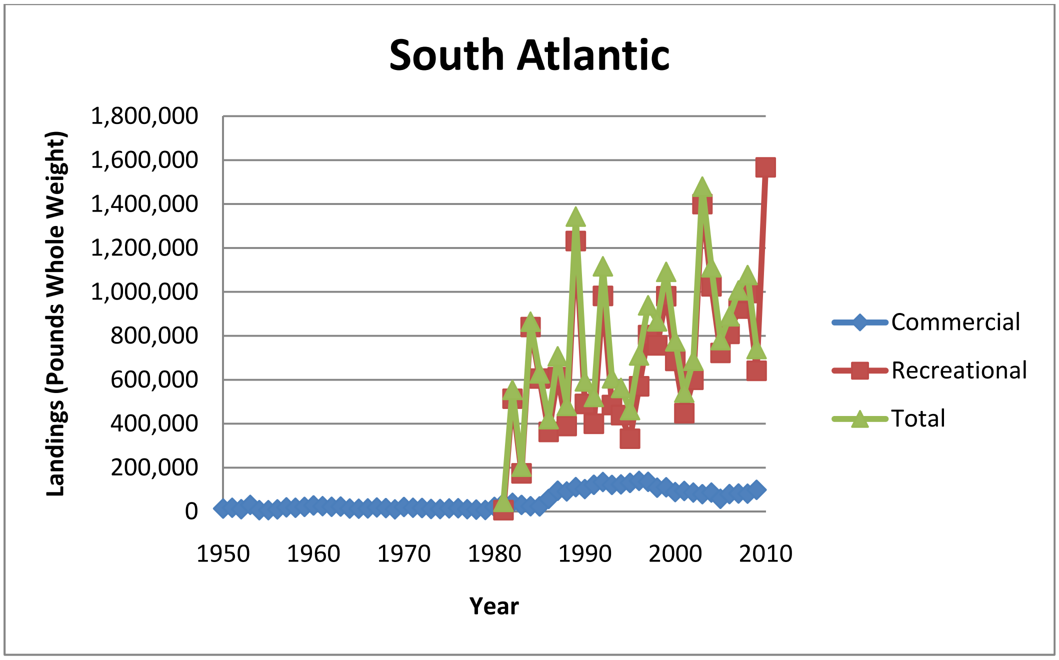

Figure 4.21.10. Landings of cobia in the South Atlantic.
Source: ACCSP.org

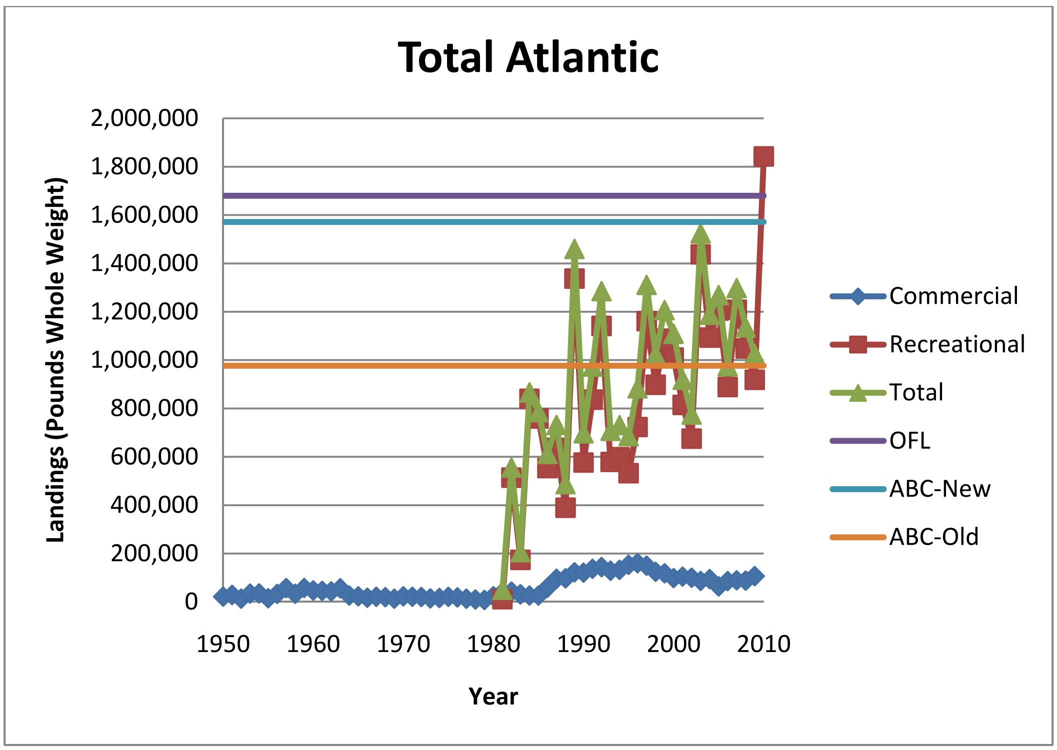

Figure 4.21.11. Landings of cobia in the Mid-Atlantic and South Atlantic.
Source: ACCSP.org

Recreational Bag Limit
Impacts of a bag limit are shown in Table 4.21.3. Reducing the recreational bag limit from two to one per person would 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 in Appendix G, Table G.2

Table 4.21.1. Projected reductions from implementation of cobia commercial vessel limits.

Method 1: TIP average weight; no maximum cap on number landed

Vessel Limit (n)	Landings (number)		
	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 (number)		
	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 would be less. Similarly, if the average weight of cobia caught is less, the reductions are estimated to be greater.

Table 4.21.2. Projected reductions from changes to cobia commercial per person limits.

Method 1: TIP average weight; no maximum cap on number landed

Per person bag limit	Landings (number)		
	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 (number)		
	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 would 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 two to one per person per day in the recreational fishery.

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%

Source: ACCSP.

Spawning Season/Closed Season

Recent work by SC DNR researchers (unpublished data from research conducted by South Carolina DNR; Denson et al.; Cobia Research in SC and Beyond, presentation at a Cobia meeting on March 15, 2011) examined 148 female cobia collected during 2007 and found that males were in spawning condition throughout the recreational season (April – June), and all but one female was in spawning condition. The presence of two gravid females caught in Port Royal and St. Helena Sounds may indicate there is daytime spawning and that there may be some spawning in the Sounds. Results of their sampling from 2005-2010 show that there is a large recreational fishery in SC estuaries, current regulations allow fish over 84 cm to be caught, females mature at 80 cm, many cobia may not make it to their first spawn, the first spawning event is not always the most productive, and the average fork length for age 3 female is 97.5 cm. The work by the SC DNR researchers suggests that if spawning is occurring in the estuaries, current management may need adjustment. The possible management measures that could be used include: an increase minimum size; a slot limit; a change in bag limit; and designation of spawning areas as essential habitat. Impacts of fishing are reflected in the age structure of the

SC population based on their work (Figure 4.21.12):

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

Comparing the recreational and commercial ACL with recent landings does not indicate that a reduction in current harvest levels is necessary. The commercial ACL would be tracked and the fishery closed when the ACL is met or projected to be met. **Alternative 1** would continue the precautionary management put in place through CMP Amendment 1, implemented in September of 1985, which established a minimum size limit for cobia at 33 in FL or 37 in TL. Also, CMP Amendment 5, implemented in August 1990, established a daily possession limit of two cobia per person per day for both recreational and commercial sectors. CMP Amendment 8, implemented in March 1998, expanded the management area for cobia through the Mid-Atlantic Council's area of jurisdiction (New York). So, since 1998 cobia have been protected with a two-fish daily possession limit and a 33-in FL or 37-in TL minimum size limit throughout the management area. **Preferred Alternative 1** would continue this level of precautionary biological protection.

Alternative 2 would specify a commercial trip limit based on either the existing two cobia per person per day possession limit (**Option a**) or reduce the limit to one cobia per person per day

(**Option b**). The minimum size limit would remain unchanged under either option. **Alternative 2, Option a** would continue the level of protection in place since 1990 in the South Atlantic and 1998 in the Mid-Atlantic. **Alternative 2, Option b** would reduce the commercial trip limit to one cobia per person per day which would be more biologically conservative unless fishermen illegally make 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 possession limit from two to one per person per day (**Alternative 3**) would 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, whereas **Preferred 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. Similar benefits and costs would result under **Alternative 6**, which would reduce the possession limit of cobia from two fish to one during April and June.

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

Preferred Alternative 1 would not result in any change to the management measures for Atlantic migratory group cobia. As a result, **Preferred Alternative 1** would not be expected to result in any change in the economic benefits to fishermen or associated industries. However, as discussed in Section 4.19.6, the preferred ACT alternative would not require a reduction in cobia harvest by the recreational sector. If a reduction is necessary and adverse management conditions, such as deterioration of the biological condition of the resource or inconsistency with long-term biological goals, and associated economic benefits, persist or worsen under **Preferred Alternative 1**, then further management action would be required to implement necessary harvest restrictions. In the absence of this additional management attention, the long-term economic benefits associated with the stock would be expected to be reduced.

Based on the information provided in Tables 4.21.1 and 4.21.2, an average weight of 24.46 lbs per fish, and an average ex-vessel price of $2.58 (2010 dollars) per pound, **Alternative 2 Option a** would not be expected to result in any change in commercial ex-vessel revenues and **Alternative 2 Option b** would be expected to reduce commercial ex-vessel revenues by approximately $18,000-$29,000 relative to **Preferred Alternative 1**. The range in losses is a result of the alternative methods used to estimate the expected reduction in harvests. These losses assume no mitigating behavior by fishermen to compensate for the reduced revenues from cobia.

Based on MRFSS 2006-2009 data, **Alternative 3** would be expected to reduce cobia recreational harvests by approximately 5.9%. Assuming a status quo recreational harvest of 1.184 mp, an average weight of 24.46 lbs per fish, and a recreational value of $7.57 (2010 dollars) per fish, **Alternative 3** would be expected to reduce recreational value by approximately $21,500 relative to **Preferred Alternative 1**. It should be noted that the recreational value per fish used is a proxy derived from studies on king mackerel because a value for cobia is not available. The estimated reduction in recreational value reflects only the value associated with decreased harvests and does not incorporate any reduction associated with cancelled trips as a result of the reduction in possession limit. Cobia is not a significantly targeted species, with only an estimated 53,000 target trips per year, or less than one percent of the estimated 22.4 million angler trips occurring in the South Atlantic (Table 3.4.2.2). As a result, **Alternative 3** is not projected to result in any trip cancellations.

As previously discussed for Atlantic migratory group Spanish mackerel, vessel-level harvest data is not systematically collected for the charterboat and private angler sectors. As a result, available data does not support substantive evaluation of the expected effects **Alternative 4**. Nevertheless, some inferences using available data are possible. If a one-fish per angler possession limit would be expected to reduce harvests by approximately 5.9%, then reducing the limit to a vessel limit would be expected to result in an even greater reduction because it would be expected that most vessel trips carry multiple anglers. Thus, although the absence of vessel-level data prevents quantitative assessment of the expected effects of **Alternative 4**, it is straight-forward to conclude that the expected economic loss associated with **Alternative 4** would be greater than the expected loss as a result of **Alternative 3**.

Because it does not specify the closed season, the expected economic effects of **Alternative 5** cannot be meaningfully evaluated except to assume that any resultant seasonal closure would not be expected to result in harvest reductions that exceed those projected to be required under the preferred ACT specification. As discussed in Section 4.19.6.2, the preferred ACT would be expected to require a small reduction in the recreational cobia harvest of approximately 4,000 lbs, valued at approximately $1,000. Because the estimated harvest reduction is so small, however, it is unlikely that any seasonal closure would be capable of limiting the harvest by just this amount. As a result, this estimate of reduced economic value should, at best, be considered a lower bound.

During March through June (MRFSS Waves 2 and 3), a slightly higher portion of anglers who catch cobia are expected to harvest more than one fish, approximately 7% (MRFSS 2006-2009 data). Approximately 56% of annual recreational cobia harvests are estimated to occur in April-June (MRFSS 2005-2009 data). Using these ratios and assuming a status quo recreational harvest of 1.184 mp, an average weight of 24.46 lbs per fish, and a recreational value of $7.57 (2010 dollars) per fish, **Alternative 6** would be expected to reduce recreational value by approximately $14,400 relative to **Preferred Alternative 1**.

It is noted that headboat anglers are not included in this assessment. However, the inclusion of relevant statistics on this sector would not be expected to substantially alter the conclusions drawn because of the nature of headboat fishing, which generally targets bottom fish.

4.21.3 Direct and Indirect Effect on the Social Environment

Preferred Alternative 1 would maintain status quo for commercial possession limits and would likely have little or no social impacts on either sector. **Alternative 2, Option b** could result in lower catches for commercial cobia fishermen if only one fish is allowed per person per trip, impacting fishing opportunities or lost income. However, this alternative/option may be helpful in preventing an overage and triggering the AMs for either sector.

For the recreational sector, there would be little or no social effects from **Preferred Alternative 1**. The restrictive measures in **Alternatives 3-6** would 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. A reduction in bag limit per person in **Alternative 3** would be reduce fishing opportunities while **Alternative 4** would reduce them even further through the implementation of a per vessel bag limit. Limiting fishing opportunities can have indirect negative social effects if there are no immediate substitutes available for cobia. Fishermen may stop fishing altogether if no substitute exists. The seasonal closure in **Alternative 5** could have the same impacts if no substitutes exist during that time period. A reduction in bag limit proposed in **Alternative 6** during the spawning season would be less restrictive, but again could change fishing behaviors if proper substitutes do not exist during the spawning season. Any changes in fishing behavior that result in lost fishing opportunities will have the same impacts that have been discussed for other actions in this amendment.

4.21.4 Direct and Indirect Effect on the Administrative Environment

Under the **Preferred Alternative 1,** the administrative impacts would not change. **Alternatives 2-6** would result in a moderate increase in the administrative burden due to rule-making, monitoring, enforcement, and outreach. This level of burden would be identical for each of the alternatives.

4.21.5 Council Conclusions

The South Atlantic Council's AP reviewed this action at their April 6-7, 2011 meeting in North Charleston, South Carolina. The AP approved **Alternative 6** that would reduce the recreational possession limit from two to one cobia per person per day from April 1 – June 30 which comprises the bulk of the spawning season.

The South Atlantic Council's SSC reviewed CMP Amendment 18 at their April 5-7, 2011 meeting in North Charleston, South Carolina. The SSC focused their review on the OFL/ABC determinations and had no specific recommendations on this action.

The Council considered reducing the possession limit early in discussions but proposed no action (**Preferred Alternative 1**) for public hearings. Comparing the 2010 recreational catches to the ABC indicates that it was exceeded based on preliminary MRFSS data. The Council did not have current (2011) MRFSS/MRIP data and concluded it was better to let the AMs address the issue if catches exceed the ACLs. Therefore, the Council concluded that no action (**Preferred Alternative 1**) was appropriate to moderate overall social and economic impacts. The Council concluded the preferred alternative provide the necessary protection to prevent catches exceeding the respective commercial and recreational ACLs, thereby preventing overfishing. The Council also concluded the preferred alternatives meet the requirements of the reauthorized Magnuson-Stevens Act and best meet the goals and objectives of the coastal migratory pelagics fishery management plan as amended.

4.22 Cumulative Effects

As directed by the National Environmental Policy Act (NEPA), federal agencies are mandated to assess not only the indirect and direct impacts, but cumulative impacts of actions as well. The NEPA defines a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). Cumulative effects can either be additive or synergistic. A synergistic effect occurs when the combined effects are greater than the sum of the individual effects. The following are some past, present, and future actions that could impact the environment in the area where the CMP fishery is prosecuted.

<u>Past Actions</u>
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.

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

The highest concern is that the oil spill may have impacted spawning success of species that spawn in the summer months, either by reducing spawning activity or by reducing survival of the eggs and larvae. 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. Effects on the physical environment, such as low oxygen, could lead to impacts on the ability of larvae and post-larvae to survive, even if they never encounter oil. In addition, effects of oil exposure may create sub-lethal effects on the eggs, larva, and early life stages. The stressors could potentially be additive, and each stressor may increase the susceptibility to the harmful effects of the other. If eggs and larvae were affected, impacts on harvestable-size coastal migratory pelagic fish would 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.

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 CMP species 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.

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

<u>Present Actions</u>

Although this amendment contains many actions, the effects of all the actions would not be expected to be cumulative. Unlike many other fisheries, one single universe of fishermen should not be assumed. For example, in the Gulf reef fish fishery, all species are landed under one permit and in the same area, and each fisherman might be expected to be affected to some extent by all ACLs imposed on reef fish species. However, under the CMP FMP, separate commercial permits are issued to king mackerel and Spanish mackerel fishermen, and no permits are required for cobia fishermen. Some overlap of these migratory groups most certainly occurs; however, different gear types are primarily used to fish for king mackerel and Spanish mackerel, and many fishermen do not switch between gear types. Further, each species would be managed under two different sets of regulations, one for each migratory group. A large portion of commercial king mackerel fishermen fish in both the Gulf and South Atlantic, but it would not be expected that fishermen fish for all three species in both the Gulf and South Atlantic. Recreational fishermen are also unlikely to move between the Gulf and South Atlantic, except perhaps in the Florida Keys.

On the other hand, many commercial mackerel and cobia fishermen only fish for these species part time. The development of ACLs and AMs for all other managed species in the Gulf and South Atlantic could impose an additional burden on CMP fishermen who supplement their income by fishing for other species. King mackerel commercial quotas are usually met during the year for most zones, and fishing in those zones is then closed, requiring fishermen to switch to other zones or other species. For both Gulf and South Atlantic migratory groups of king mackerel, the commercial quotas would increase slightly under the preferred alternatives for ACLs, perhaps allowing a longer fishing time in some zones and reducing the level of effort shift. Also, if ACLs are more restrictive for other species than recent landings, some effort might shift to CMP species. However, king mackerel commercial permits are limited access and can only be purchased from existing permit holders. Gillnets are the primary gear used to harvest Spanish mackerel, so switching to this type of fishing would require purchase of additional gear. Cobia are not popular target species.

<u>Future Actions</u>

The Marine Recreational Information Program (MRIP) is modifying the catch estimation method for recreational harvest from 2004-2010 to address improvements identified for estimating recreational catches. The modifications will address concerns raised in the 2006 review of recreational fisheries survey methods (National Research Council 2006) that estimation methods may not be consistent with the sampling probabilities of individually sampled access sites, and could result in biased estimates. Revised estimation procedures have been developed and will be applied to existing data going back to 2004. These revisions are expected to be applied in late 2011 or early 2012. Correction of estimates prior to 2004 will also be considered in the future.

Due to planned changes in the estimation procedure, MRIP estimates of recreational catch for 2004-2010 are likely to change. Estimates for 2011 and beyond will be based on the new method. Changes in recreational catch estimates for 2004-2010 raise concerns because the new MRIP values could result in changes to the values of acceptable biological catch, overfishing limit, sector-based allocations, and annual catch limits included in this document.

While the Councils are fully aware of these issues, the reauthorized Magnuson-Stevens mandate of establishing annual catch limits and accountability measures in 2011 has not been revised to account for the impending change to recreational data. Hence the Councils and NOAA Fisheries Service must still meet the 2011 deadline to establish the required limits and targets. The Councils may need to take action via plan amendment or framework procedure to revise the appropriate values as needed in 2012 and beyond.

How global climate changes will affect Gulf fisheries is unknown. Climate change can impact marine ecosystems through ocean warming by increased thermal stratification, reduced upwelling, sea level rise; and through increases in wave height and frequency, loss of sea ice, and increased risk of diseases in marine biota. Decreases in surface ocean pH due to absorption of anthropogenic CO_2 emissions may impact a wide range of organisms and ecosystems, particularly organism that absorb calcium from surface waters, such as corals and crustaceans (IPCC 2007, and references therein).

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

5.0 FISHERY IMPACT ANALYSIS (FIS)

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires that for all fishery management plan (FMP) amendments, an FIS shall be prepared. The FIS contains an assessment of the likely biological and socioeconomic effects of the conservation and management measures on: 1) fishery participants and their communities; 2) participants in the fisheries conducted in adjacent areas under the authority of another council; and 3) the safety of human life at sea.

5.1 Actions Contained in Amendment 18 to the Coastal Migratory Pelagic (CMP) FMP

Amendment 18 to the CMP FMP would bring the FMP into compliance with Magnuson-Stevens Act requirements for annual catch limits (ACLs) and accountability measures (AMs). The CMP FMP is jointly managed by the Gulf of Mexico (Gulf) and South Atlantic Fishery Management Councils (Councils). Specifically, Amendment 18 would:

- Remove cero, little tunny, dolphin (Gulf only), and bluefish (Gulf only) from the FMP.
- Revise the framework procedure to include the National Standard 1 harvest parameters, increase measures that can be changed under the framework, and outline the procedures for making such changes.
- Establish separate Gulf and South Atlantic migratory groups of cobia, divided at the Council boundary.
- Specify acceptable biological catch (ABC) control rules developed by the Councils' Scientific and Statistical Committees (SSCs) for setting ABC for their respective migratory groups of each species.
- Set the Gulf migratory group cobia ACL equal to ABC (1.46 mp) and the annual catch target (ACT) for recreational and commercial combined equal to 90% ACL (1.31 mp), and close the recreational and commercial sectors when the ACT is reached or projected to be reached.
- Set the Gulf migratory group king mackerel ACL equal to ABC (11.9 mp for 2012 and 10.8 mp for 2013) with separate ACLs for the recreational and commercial sectors based on current allocations, and separate hook-and-line and gillnet quotas for the commercial sector. Do not set an ACT, and retain current AMs.
- Set the Gulf migratory group Spanish mackerel ACL equal to ABC (5.15 mp) for recreational and commercial combined and do not set an ACT, and close the recreational and commercial sectors when the ACL is reached or projected to be reached.
- Establish biological thresholds for Atlantic migratory group king mackerel, Spanish mackerel, and cobia.
- Set the Atlantic migratory group king mackerel ACL equal to ABC (10.46 mp), do not set a commercial ACT, and set the recreational ACT equal to ACL[(1-PSE) or 0.5, whichever is greater] (6.11 mp). Close the commercial sector when the commercial quota (ACL x commercial allocation = 3.88 mp) is reached or projected to be reached, and reduce the recreational bag limit in following year if the total ACL is exceeded. If the stock is overfished and the total ACL is exceeded, deduct the recreational and commercial overages from the recreational and commercial ACLs the following year.
- Set the Atlantic migratory group Spanish mackerel ACL equal to ABC (5.69 mp), do not

set a commercial ACT, and set the recreational ACT equal to ACL[(1-PSE) or 0.5, whichever is greater] (2.32 mp). Close the commercial sector when the commercial quota (ACL x commercial allocation = 3.13 mp) is reached or projected to be reached, and reduce the recreational bag limit in following year if the total ACL is exceeded. If the stock is overfished and the total ACL is exceeded, deduct the recreational and commercial overages from the recreational and commercial ACLs the following year.

- Define allocations for Atlantic migratory group cobia based on the following formula: Sector apportionment = (50% * average of long catch range (lbs) 2000-2008 + (50% * average of recent catch trend (lbs) 2006-2008). The allocations would be 8% commercial, 92% recreational.
- Set the Atlantic migratory group cobia ACL equal to ABC (1,571,399 lbs), do not set a commercial ACT, and set the recreational ACT equal to ACL[(1-PSE) or 0.5, whichever is greater] (1,184,688 lbs). Close the commercial sector when the commercial quota (ACL x commercial allocation = 125,712 lbs) is reached or projected to be reached, and reduce the recreational bag limit in following year if the total ACL is exceeded. If the stock is overfished and the total ACL is exceeded, deduct the recreational and commercial overages from the recreational and commercial ACLs the following year.

5.2 Assessment of Biological Effects

<u>South Atlantic and Gulf of Mexico</u>

Removal of any of the four species from the FMP is expected to have little impact on the biological environment. If states took over management, positive physical and biological impacts could occur. However, none of the Gulf or South Atlantic states have indicated an intention to extend their regulations into federal waters. In addition, data collection through dealer reports could alert NOAA Fisheries Service if landings or effort change, and species could be added back into the FMP if necessary for conservation and management.

Updating the framework, which outlines the actions that can be implemented through framework actions, would have no impact on the biological environment except to enable harvest modifications to be expedited when they are most needed.

There are no direct biological effects from the separation of Atlantic and Gulf migratory groups of cobia because this is a management decision. The cobia migratory groups mix in the Atlantic and Gulf, and as long as both migratory groups are managed to prevent overfishing there would be no negative biological effects.

<u>Gulf of Mexico</u>

The Gulf ABC control rule creates specific guidelines for setting ABC versus using an ad hoc basis by the SSC. It is a complex rule with numerous tiers for adopting an ABC based on the information that is available for each stock. The SSC will recommend the tier to use and the resulting ABC.

Setting an ACL or ACT potentially would 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.

The Gulf migratory group cobia ACT would not have been exceeded in the past 10 years and the ACL for Gulf migratory group Spanish mackerel has not been exceeded in the past 17 years; therefore, AMs for these species would not be expected to be triggered. The ACL for Gulf migratory group king mackerel is separated by sectors, and 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. The commercial ACL is further divided by gear. 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 to be implemented only for this component if they exceeded the ACL, and could provide positive benefits to the biological environment.

South Atlantic
The South Atlantic ABC control rule creates specific guidelines for setting ABC with consistency versus using an ad hoc basis by the SSC. It is a complex rule with numerous tiers for adopting an ABC based on the information that is available for each stock. The SSC will recommend the tier to use and the resulting ABC.

Setting an ACL or ACT potentially would 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.
The Atlantic migratory group king mackerel recreational ACT of 6.11 mp would not have been exceeded in the last 24 years although it came close in the 2007/08 fishing year; the commercial ACL of 3.88 mp would not have been exceeded in the last 24 years although it came close in the 2009/10 fishing year. AMs for Atlantic king mackerel would not be expected to be triggered.

The Atlantic migratory group Spanish mackerel recreational ACT of 2.32 mp would not have been exceeded in the last 23 years although it came close a number of times; the commercial ACL of 3.13 mp would have been exceeded in 6 or 7 of the last 10 years. Commercial AMs for Atlantic Spanish mackerel would be expected to be triggered.

The Atlantic migratory group cobia recreational ACT of 1,184,688 lbs would have been exceeded in 6 of the last 10 years; the commercial ACL of 125,712 lbs would not have been exceeded in the last 10 years although implementation of a commercial quota may result in better data collection and the commercial ACL may be met. AMs for Atlantic cobia would be expected to be triggered.

The level of control provided by the ACLs/AMs would be expected to result in greater positive impacts on the biological environment because catch would be more restricted for these three species.

5.3. Assessment of Economic Effects

South Atlantic and Gulf of Mexico
Joint actions considered in this amendment, including modifications to the fishery management

unit or to the framework procedure and the separation of cobia into distinct Gulf and Atlantic migratory groups, are administrative in nature and thus are not anticipated to result in direct economic effects. However, indirect adverse economic effects could result from these actions should harvest restrictions result from changes to the management unit, to the framework procedure, or to the structure of the cobia migratory group. In addition, indirect economic effects could result from a speedier implementation of management measures under the proposed framework. The magnitude of these indirect economic effects would be determined by the timing as well as by the nature and extent of the measures implemented. These impacts cannot be quantified at this time because the overages, and necessary corrections, cannot be forecast. However, any harvest corrections, and associated reduction in short-term economic benefits, would be expected to preserve the long-term biological goals, and associated long-term economic benefits, associated with the harvest of these stocks.

<u>Gulf of Mexico</u>

With the exception of management alternatives that would implement AMs, should Gulf migratory group cobia, Spanish mackerel, or king mackerel ACLs be exceeded, none of the proposed preferred alternatives is expected to result in direct economic effects. For Gulf migratory group cobia, Spanish mackerel, and king mackerel, the magnitude of harvest levels recorded to date suggests that preferred alternatives for the selection of a control rule used to set ABCs, the determination of proposed ACLs and finally ACTs are not expected to restrict the harvest or customary uses of these resources. Accountability measures for cobia, Spanish mackerel, and king mackerel proposed are expected to result in no direct economic effects on fishing participants. The timing and extent to which harvest levels are reduced and/or fishing seasons are shortened would determine the magnitude of these potential economic effects. These impacts cannot be quantified at this time because the overages, and necessary corrections if needed, cannot be forecast. However, any harvest corrections, and associated reduction in short-term economic benefits, would be expected to preserve the long-term biological goals, and associated long-term economic benefits, associated with the harvest of these stocks.

<u>South Atlantic</u>

The preferred alternatives for the majority of the actions in this proposed amendment applicable to the South Atlantic CMP fishery would not be expected to result in any economic effects because the actions are either administrative, the preferred alternatives allow status quo harvests and associated economic performance, or result in indirect impacts that directly occur as a result of other proposed actions. Only the proposed Spanish mackerel ACL and AMs for king mackerel, Spanish mackerel, and cobia, if implemented, would be expected to result in short-term economic impacts. The proposed specification of the Spanish mackerel ACL would be expected to result in a reduction in ex-vessel revenues to commercial fishermen of approximately $680,000 (2010 dollars) due to a reduction in commercial harvest and the AM requirement that harvest, possession, and sale of Spanish mackerel be prohibited when the commercial quota is met. The economic activity associated with these revenues is an estimated 17 harvester and 10 dealer/processor full-time equivalent jobs. The proposed AMs for each species would be expected to result in unquantifiable short-term reductions in economic benefits associated with the implementation of harvest restrictions necessary to correct for harvest overages, should overages occur. These impacts cannot be quantified at this time because the overages, and necessary corrections, cannot be forecast. However, any harvest corrections, and associated reduction in short-term economic benefits, would be expected to preserve the long-term biological goals, and associated long-term economic benefits, associated with the harvest of these stocks.

5.4. Assessment of the Social Effects

South Atlantic and Gulf of Mexico
Removing cero, little tunny, dolphin (Gulf only), and bluefish (Gulf only) from the FMP would likely have positive social effects as it would streamline management. Removing dolphin from the CMP FMP recognizes that a separate plan exists in the South Atlantic and it is no longer needed in the CMP FMP. Requiring federal agencies to maintain ACLs and AMs on species that are harvested infrequently and pose some difficulty in monitoring because landings data are sparse or non-existent could impose further regulatory burdens on fishermen if harvest levels are reduced because of uncertainty.

Updating the framework procedure would also likely produce beneficial long-term social effects by providing a clear and flexible process for the Councils to make changes. The proposed actions allow the Councils to prioritize timeliness and public participation for all future management actions, both of which are important but in different situations.

Designation of separate migratory groups for Atlantic and Gulf cobia would likely impact fishermen in the Florida Keys, requiring additional burden and increased risk of misreporting because fishermen move from oceanside to bayside on a regular basis. However, most CMP species are managed similarly, so the impacts of this separation are not anticipated to have substantial impacts.

Gulf of Mexico
The Gulf actions for ACLs, ACTs, and AMs in general should have few negative social impacts in the short-term, because the ACLs and ACTs are set at levels higher than recent landings for both commercial and recreational sectors for most stocks. Because cobia has not had these types of management imposed previously, there may be some negative social effects which could accrue to either the commercial or recreational fisheries.

South Atlantic
The South Atlantic actions for ACLs, ACTs, and AMs in general would have few social impacts in the short-term, because the ACLs and ACTs are set at levels higher than at least the last ten years of landings for both commercial and recreational sectors for all three stocks except for the commercial Spanish mackerel sector and the recreational cobia sector. The Spanish mackerel ACL, with the proposed measures may trigger an in-season closure (and payback if overfished) in the subsequent year if the total ACL is exceeded, as the commercial ACL is lower than recent landings. If harvest continues at past levels, chances are that AMs for Spanish mackerel may result and reduced commercial fishing opportunities may occur. The preferred cobia recreational ACT is lower than recent recreational landings and could trigger an payback in the subsequent year if the total ACL is exceeded. If recreational AMs for cobia are implemented it may result in reduced recreational fishing opportunities, affecting private anglers and for-hire fishermen. In the long-term, these limits and AMs may affect growth in the fishery if participation increases within the commercial or recreational sectors.

For each stock, the proposed measures would not require a payback due to an overage by one sector if the other sector does not meet its ACL in that year and the stock is not overfished. If one sector has a year of higher-than-normal landings, this provides some flexibility without compromising the biological goals of the ACL, and positive social effects should result.

Overall, the proposed actions are expected to improve and sustain the fishing stocks, including precautionary measures that would decrease the likelihood of exceeding the ACLs, and should result in long-term overall social benefits for all sectors by improving present and future fishing opportunities and improving the resource by avoiding overfishing of the stocks.

5.5. Assessment of Effects on Safety at Sea

None of the actions in this amendment should have a direct impact on safety at sea. Any ACLs or ACTs that are or become restrictive could result in derby fishing if fishermen are concerned about in-season closures, or if the season is substantially reduced in the year following an overage. However, all but one ACL/ACT are above recent catch levels, so this scenario would not be expected.

6.0 REGULATORY IMPACT REVIEW

Introduction

NOAA Fisheries Service requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR: 1) provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action; 2) provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem; and, 3) ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. The RIR also serves as the basis for determining whether the proposed regulations are a “significant regulatory action” under the criteria provided in Executive Order (E.O.) 12866 and provides information that may be used in conducting an analysis of impacts on small business entities pursuant to the Regulatory Flexibility Act (RFA). This RIR analyzes the expected impacts that this action would be expected to have on the coastal migratory pelagic fishery.

Problems and Objectives

The purpose and need, issues, problems, and objectives of the proposed amendment are presented in Section 1.2. In summary, the purpose of this amendment is to: 1) remove species from the Coastal Migratory Pelagic (CMP) Fishery Management Plan (FMP); 2) update the framework for the FMP; 3) specify acceptable biological catch control rules; 2) specify annual catch limits (ACLs); 4) specify optional annual catch targets (ACTs); 5) specify accountability measures (AMs); 6) establish regional management separation of cobia; and 7) establish management measures necessary to restrain harvests to the specified limits. These measures are intended to make the FMP compliant with legal requirements and facilitate expedient Council response to new scientific advice as it becomes available.

Methodology and Framework for Analysis

This RIR assesses management measures from the standpoint of determining the resulting changes in costs and benefits to society. To the extent practicable, the net effects of the proposed measures are stated in terms of producer and consumer surplus, changes in profits, employment in the direct and support industries, and participation by charter boat fishermen and private anglers. In addition, estimates of the public and private costs associated with the management process and enforcement are provided.

Description of the Fishery

A description of the fishery is provided in Section 1.7.

Impacts of Management Measures

Detailed discussion of the expected economic impacts of all the actions and alternatives considered in this proposed amendment is included in Section 4. The following discussion provides a summary of the expected economic impacts of the preferred alternatives for the joint South Atlantic and Gulf of Mexico actions, Gulf of Mexico actions, and South Atlantic actions.

<u>Joint South Atlantic and Gulf of Mexico Actions</u>

Joint actions considered in this amendment, including modifications to the fishery management unit and to the framework procedure and the separation of cobia into distinct Gulf and Atlantic migratory groups, are administrative in nature and thus are not anticipated to result in direct economic effects. However, indirect adverse economic effects could result from these actions should harvest restrictions result from changes to the management unit, to the framework procedure or to the structure of the cobia migratory group. In addition, indirect economic effects could result from a speedier implementation of management measures under the proposed framework. The magnitude of these indirect economic effects would be determined by the timing as well as by the nature and extent of the measures implemented. These impacts cannot be quantified at this time because the overages, and necessary corrections, cannot be forecast. However, any harvest corrections, and associated reduction in short-term economic benefits, would be expected to preserve the long-term biological goals, and associated long-term economic benefits, associated with the harvest of these stocks.

Gulf of Mexico Actions

With the exception of management alternatives that would implement AMs should the Gulf of Mexico (Gulf) migratory group cobia, Spanish mackerel, or king mackerel ACLs be exceeded, none of the proposed preferred alternatives would be expected to result in direct economic effects. For Gulf migratory group cobia, Spanish mackerel, and king mackerel, the magnitude of harvest levels recorded to date suggests that the preferred alternatives for the selection of control rules to set ABCs and determination of the proposed ACLs and ACTs would not be expected to restrict the harvest or customary uses of these resources. The proposed AMs for cobia, Spanish mackerel, and king mackerel would be expected to result in direct economic effects on fishing participants. The timing and extent to which harvest levels would be reduced and/or fishing seasons shortened would determine the magnitude of these potential economic effects. These impacts cannot be quantified at this time because the overages, and necessary corrections, cannot be forecast. However, any harvest corrections, and associated reduction in short-term economic benefits, would be expected to preserve the long-term biological goals, and associated long-term economic benefits, associated with the harvest of these stocks.

South Atlantic Actions

The preferred alternatives for the majority of the actions in this proposed amendment applicable to the South Atlantic CMP fishery would not be expected to result in any economic effects because the actions are either administrative, the preferred alternatives allow status quo harvests and associated economic performance, or result in indirect impacts that directly occur as a result of other proposed actions. Only the proposed Spanish mackerel ACL, and AMs for king mackerel, Spanish mackerel, and cobia, if implemented, would be expected to result in short-term economic impacts. The proposed specification of the Spanish mackerel ACL would be expected to result in a reduction in ex-vessel revenues to commercial fishermen of approximately $680,000 (2010 dollars) due to a reduction in commercial harvest and the AM requirement that harvest, possession, and sale of Spanish mackerel be prohibited when the commercial quota is met. The economic activity associated with these revenues is an estimated 17 harvester and 10 dealer/processor full-time equivalent jobs. The proposed AMs for each species would be expected to result in unquantifiable short-term reductions in economic benefits associated with the implementation of harvest restrictions necessary to correct for harvest overages, should overages occur. These impacts cannot be quantified at this time because the overages, and necessary corrections, cannot be forecast. However, any harvest corrections, and associated reduction in short-term economic benefits, would be expected to preserve the long-term biological goals, and associated long-term economic benefits, associated with the harvest of these stocks.

Public and Private Costs of Regulations
The preparation, implementation, enforcement, and monitoring of this or any Federal action involves the expenditure of public and private resources which can be expressed as costs associated with the regulations. Costs associated with this amendment include:

Council costs of document preparation, meetings, public hearings, and
Information dissemination $300,000

NOAA Fisheries administrative costs of document
preparation, meetings and review $200,000

Annual law enforcement costs..unknown

TOTAL $500,000

Law enforcement monitors regulatory compliance in the CMP fishery under routine operations and does not allocate budgetary outlays specifically to these fisheries and increased enforcement budgets are not expected to be requested to facilitate enforcement of any components of this proposed amendment. In practice, enhanced enforcement activity may initially occur while fishery participants become familiar with the new regulations. However, the costs of such enhancement cannot be forecast. As a result, no specific law enforcement costs have been identified.

Determination of Significant Regulatory Action
Pursuant to E.O. 12866, a regulation is considered a “significant regulatory action” if it is expected to result in: 1) an annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; 3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order. Based on the information provided above, this regulatory action has been determined to not be economically significant for the purposes of E.O. 12866.

7.0 REGULATORY FLEXIBILITY ANALYSIS

Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to establish a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their 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 fishery management plan (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.

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.

Description and estimate of the number of small entities to which the proposed action would apply

The proposed rule would apply to all fishing that is managed under the FMP for Coastal Migratory Pelagic (CMP) Resources in the Gulf of Mexico and Atlantic Region. Using approximations, the proposed rule would apply to 1,000 to 2,000 commercial fishing vessels, with average gross revenue of $28,000 to $46,000 (2008 dollars) per vessel for those fishing for king and Spanish mackerel, and $16,000 to $277,000 for vessels harvesting other CMP species (the lower value is for vessels harvesting cero while the upper value is for vessels harvesting dolphin; this range encompasses the vessels harvesting all the remaining CMP species). The proposed rule would also apply to as many as 2,500 vessels that have permits to engage in for-hire fishing for coastal migratory pelagic species. These vessels are mostly charter boats, which charge by the trip, often with six or fewer anglers (paying passengers), and a smaller number of head boats, which charge for each individual angler (only 15% of all of the CMP for-hire vessels can carry more than six anglers).[1] Including all vessels and activities, charter boat average gross revenue is approximately $88,000 (2008 dollars) per year, while the headboat average is $461,000 (2008 dollars).

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.

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 would 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.

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.

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 exclusive economic zone (EEZ) that is managed under the FMP for CMP 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

[1]Source: author's statistical summaries of NMFS, SERO, vessel permits data, wherein each vessel is counted only once per year, recognizing that vessels may have Atlantic (CHS) permits, and/or Gulf (CHG) permits for for-hire fishing for coastal migratory pelagic species. Estimates may vary with methods and assumptions. The frequency distribution classes containing the medians are 30-35 feet for vessel length, and 400-499 for engine horsepower. Most vessels can carry 6 or fewer passengers (paying customers); fewer than 15% can carry more.

for the purpose of this analysis to be small business entities, so the issue of Disproportionality does not arise in the present case.

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

Joint Actions

All of the proposed actions jointly applicable to the Gulf of Mexico and South Atlantic CMP fishery would be administrative in nature or allow status quo harvest behavior. As a result, none of these actions would be expected to result in any direct economic impacts on small entities.

Gulf of Mexico

With the exception of the accountability measures (AMs) for king mackerel, Spanish mackerel, and cobia, the actions in this proposed amendment applicable to the Gulf of Mexico CMP fishery are either administrative or allow status quo harvests and fishing behavior. As a result, these actions would not be expected to result in any direct economic impacts on small entities. The proposed AMs for each species would be expected to result in unquantifiable short-term reductions in economic benefits associated with the implementation of harvest restrictions necessary to correct for harvest overages, should overages occur. These impacts cannot be quantified at this time because the overages, and necessary corrections, cannot be forecast. However, any harvest corrections, and associated reduction in short-term economic benefits, would be expected to preserve the long-term biological goals, and associated long-term economic benefits, associated with the harvest of these stocks.

South Atlantic

Because the majority of the actions in this proposed amendment applicable to the South Atlantic CMP fishery are either administrative or allow status quo harvests and fishing behavior, few economic effects would be expected to occur. Only the proposed Spanish mackerel annual catch limit (ACL) and AMs for king mackerel, Spanish mackerel, and cobia, if implemented, would be expected to result in adverse economic impacts. The proposed specification of the Spanish mackerel ACL would be expected to result in a reduction in ex-vessel revenues to commercial fishermen due to a reduction in commercial harvest and the AM requirement that harvest, possession, and sale of Spanish mackerel be prohibited when the commercial quota is met. The economic activity associated with this reduction in revenues is an estimated 17 harvester and 10 dealer/processor full-time equivalent jobs. The relative effect of this estimated reduction per small entity is unknown. For the 2004/2005 through 2008/2009 fishing years, an average of 349 vessels recorded Atlantic group Spanish mackerel harvests in the Southeast federal logbook program. These vessels averaged approximately $28,000 per vessel per year from all species recorded in the logbook. If divided among these vessels, the estimated reduction in ex-revenue for Spanish mackerel alone (approximately $680,000) would equate to a reduction in average vessel gross revenue of approximately 7 percent. These results do not include any reduction in gross revenue for other species if trips do not occur (are cancelled) as a result of a prohibition on Spanish mackerel commercial harvest. The total vessel (logbook) landings accounted for approximately 57 percent (approximately 2.03 million pounds (mp)) of the total Atlantic migratory group Spanish mackerel harvest during this period (approximately 3.57 mp). A significant portion of the difference between these harvest totals may be attributed to harvest in Florida waters where federal permits and logbooks are not required for Spanish mackerel. The average annual revenue profile of the vessels that harvested the remaining portion of the species is unknown. As a result, the total relative effect of the projected reduction in ex-vessel revenues on the profits of small entity commercial vessels is not known.

The proposed AMs for each species would be expected to result in unquantifiable short-term reductions in economic benefits associated with the implementation of harvest restrictions necessary to prevent or minimize harvest overages, should such be overages be forecast or occur. These impacts cannot be quantified at this time because the overages, and necessary corrections, cannot be forecast. However, any harvest corrections, and associated reduction in short-term economic benefits, would be expected to preserve the long-term biological goals, and associated long-term economic benefits, associated with the harvest of these stocks.

Description of significant alternatives to the proposed action and discussion of how the alternatives attempt to minimize economic impacts on small entities

Although most of the proposed actions would not be expected to result in significant economic impacts on small entities, this section discusses all of the actions and alternatives considered in this proposed amendment for which management action occurred.

Modification of the Fishery Management Unit (Action 1)

Three alternatives, including 13 options or sub-options and the no-action alternative (status quo), were considered for the action to modify the fishery management unit (FMU). The proposed action, which incorporates seven of the 13 options and sub-options, would remove cero, little tunny, dolphin from the FMP for both the Gulf of Mexico and South Atlantic regions, and remove bluefish from the FMP for the Gulf of Mexico region. The no-action alternative, which would retain the four subject species in the FMP for data-collection purposes only, was not adopted because it would not satisfy the Magnuson-Stevens Act guidelines which do not allow species to retained for data collection purposes only. Together, the remaining six options and sub-options to the proposed action would add the four species to the FMU and set ACLs and AMs for each, following the stated geographic designations. These options and sub-options were not adopted because the Councils determined that these species no longer required federal management in the respective regions. It is noted that the proposed action would not be expected to result in any direct economic impact on small entities.

Modify the Framework Procedure (Action 2)

Five alternatives, including three options and the no-action alternative (status quo), were considered for the action to modify the framework procedure. The proposed action would revise and adopt the base framework procedure. The no-action alternative would not change the framework procedure and was not adopted because the current framework procedure is out of date and not consistent with current assessment and management methods. One alternative to the proposed action would have updated the framework but was not adopted because it would remain restrictive in the items that could be changed and did not specify a specific framework procedure. The remaining two options were not adopted because they would have given the Councils and NOAA Fisheries Service too much and too little authority, respectively, to change management outside of the plan amendment process. It is noted that the proposed action is administrative in nature and would not be expected to result in any direct economic impact on small entities. The proposed action would be expected to facilitate the incorporation of new information into the management process and expedite the implementation of necessary and appropriate management changes.

Establish Separate Atlantic and Gulf Migratory Groups of Cobia (Action 3)

Three alternatives, including the no-action alternative (status quo), were considered for the action to establish separate Atlantic and Gulf migratory groups of cobia. The proposed action would separate cobia into two groups at the SAFMC/GMFMC jurisdictional boundary. The no-action alternative would not split cobia into two migratory groups. This alternative was not adopted because the Councils believe that sufficient information exists to demonstrate that there are at least two different migratory groups and regional management is appropriate. The second alternative to the proposed action would split the two migratory groups at the Miami-Dade/Monroe County line. This alternative was not adopted because this division would not best meet the Councils goals and objectives for the FMP. It is noted that this proposed action is administrative in nature and would not be expected to result in any direct economic impact on small entities.

Acceptable Biological Catch (ABC) Control Rule for Gulf Migratory Group Cobia (Action 4)

Three alternatives, including the no-action alternative (status quo), were considered for the action to establish an ABC control rule for Gulf migratory group cobia. The proposed action would determine the appropriate level of risk and/or buffer to set between the overfishing limit (OFL) and ABC based on a tiered approach that considers new information available on the stock and identified through updated stock assessment. The no-action alternative was not adopted because it would not establish an ABC control rule, as recommended by the Magnuson-Stevens Act guidelines. The second alternative to the proposed action was not adopted because it would establish an ABC control rule that sets the ABC using a static definition which would not allow for changes in the level of risk based on updated stock assessments and, therefore, would not be as flexible as the proposed action.

Allowable Catch Limit (ACL) for Gulf Migratory Group Cobia (Action 5.1)

Four alternatives, including six options and the no-action alternative (status quo), were considered for the action to set the ACL for Gulf migratory group cobia. The proposed action would establish a single stock ACL and set the ACL equal to the ABC. The no-action alternative was not adopted because it would not establish an ACL, as required by the Magnuson-Stevens Act. One option to the proposed action would also set the total ACL equal to the ABC, but would separate the ACL into separate sector ACLs. This option was not adopted because both sectors are currently managed under the same harvest restrictions and sector separation would not be expected to be beneficial at this time. The remaining two alternatives and associated four options to the proposed action would establish a buffer between the ACL and ABC and result in lower stock or sector ACLs. These alternatives and options were not adopted because the Councils elected to establish a buffer to the ABC for this species through the ACT rather than the ACL.

Annual Catch Target (ACT) for Gulf Migratory Group Cobia (Action 5.2)

Three alternatives, including four options and the no-action alternative (status quo), were considered for the action to set the ACT for Gulf migratory group cobia. The proposed action would specify a single stock ACT and set the ACT equal to 90 percent of the ACL. The no-action alternative would not establish an ACT, but would be an acceptable action because an ACT is not required. This alternative was not adopted because the Councils determined that a buffer between the ABC and allowable harvest was appropriate for this stock and the adoption of the no-action alternative would be inconsistent with their decision to establish this buffer through the ACT instead of the ACL. One option would use the same stock ACT (90 percent of ACL) as the proposed action, but add sector ACTs. The second alternative to the proposed action would establish a lower stock ACT (85% of the ACL), with or without sector ACTs. Options that would establish sector ACTs would be inconsistent with the Council's decision to establish a single stock ACL. The second alternative would specify a lower ACT than the proposed action was not adopted because it would establish a larger buffer than is expected to be necessary for this stock.

Accountability Measures (AMs) for Gulf Migratory Group Cobia (Action 6)

Three alternatives, including seven options (options listed under the no-action alternative were not included in this tabulation) and the no-action alternative (status quo), were considered for the action to set AMs for Gulf migratory group cobia. The proposed action would set an in-season AM and prohibit harvest for the remainder of the fishing year from the date the ACT is reached or is projected to be reached. An AM for the commercial harvest of this stock does not currently exist under the status quo. As a result, the no-action alternative was not adopted because it would not establish AMs that account for the harvest from all sectors, as required by the Magnuson-Stevens Act. Two options to the proposed action would also establish in-season AMs but would trigger the AMs when 90 percent of the ACT is reached or projected to be reached. Both options would reduce the possession limit to one fish per person per day, but only one option would prohibit possession of cobia and only then if the ACL is reached and not the ACT. These options were not adopted because the option that would just reduce the possession limit would provide insufficient assurance that the ACL would not be exceeded, while data monitoring issues would likely render the other option inoperational. The remaining alternative and associated four options to the proposed action would establish post-season AMs, each varying in method (overage payback, reduction in possession limit, reduced season) or period of assessment (overage assessment would be based on multi-year averages). These options were not adopted because the Councils determined that in-season assessment would be more effective in ensuring the ACL is not exceeded. It is noted that the proposed action would not be expected to result in any direct economic impact on small entities because the proposed ACT (1.31 million pounds (mp)) exceeds the estimated status-quo harvest (1.07 mp) for Gulf group cobia.

ABC Control Rule for Gulf Migratory Group King Mackerel (Action 7)

Three alternatives, including the no-action alternative, were considered for the action to establish an ABC control rule for Gulf migratory group king mackerel. The proposed action would determine the appropriate level of risk and/or buffer to set between the OFL and ABC based on a tiered approach that considers new information available on the stock and identified through updated stock assessment. The no-action alternative was not adopted because it would not establish an ABC control rule, as recommended by the Magnuson-Stevens Act guidelines. The second alternative to the proposed action was not adopted because it would establish an ABC control rule that sets the ABC using a static definition which would not allow for changes in the level of risk based on updated stock assessments and, therefore, would not be as flexible as the proposed action.

ACL for Gulf Migratory Group King Mackerel (Action 8.1)
Five alternatives, including 12 options and the no-action alternative (status quo), were considered for the action to set the ACL for Gulf migratory group king mackerel. The proposed action would set the aggregate ACL equal to the ABC, and it would set sector ACLs using current allocation percentages. The no-action alternative would set stock ACL equal to the current total allowable catch (TAC) for Gulf migratory group king mackerel. The no-action alternative was not adopted because the TAC is less than the ABC and, as a result, this action would have resulted in less economic benefits than the proposed action. The remaining three alternatives to the proposed action would set the stock ACL at 80-90 percent of ABC, and were not adopted because each would have allowed lower harvest, and associated economic benefits, than the proposed action, and the Councils determined that the condition of this stock and level of management uncertainty does not require a buffer between the ACL and ABC. Some options would have set allocations that are not consistent with the Council's decision to set ACLs in accord with current allocation percentages. It is noted that the proposed stock ACL would be expected to allow continued average annual harvest. As a result, the proposed action would not be expected to result in any direct economic impacts on small entities.

ACT for Gulf Migratory Group King Mackerel (Action 8.2)
Three alternatives, including six options and the no-action alternative (status quo), were considered for the action to set ACTs for Gulf migratory group king mackerel. The proposed action, the no-action alternative, would not set an aggregate ACT. The remaining alternatives and associated options would all set the aggregate ACT equal to a portion of the ACL, varying from 85-90 percent, with or without sector ACTs. These alternatives and options were not adopted because they would have allowed lower harvest, and associated economic benefits, than the proposed action and the Councils determined that the condition of this stock and level of management uncertainty did not require a buffer between the ACT and ACL. Four options would have set ACTs that not consistent with the Council's decision to set ACLs in accord with current allocation percentages.

AMs for Gulf Migratory Group King Mackerel (Action 9)
Three alternatives, including 7 options or sub-options (options and sub-options listed under the no-action alternative were not included in this tabulation) and the no-action alternative (status quo), were considered for the action to set AMs for Gulf migratory group king mackerel. The proposed action, the no-action alternative, would not set new AMs for this stock. The alternatives, and associated options or sub-options, to the proposed action can be divided into two general categories, alternatives that would change the current in-season AMs (two options), and alternatives that would set post-season AMs (two options encompassing five sub-options). None of these options or sub-options were adopted because the Councils determined that the current regulations provide sufficient AMs for the recreational and commercial sectors. It is noted that the proposed action is not expected to have a direct economic impact on small.

ABC Control Rule for Gulf Migratory Group Spanish Mackerel (Action 10)
Three alternatives, including the no-action alternative, were considered for the action to establish an ABC control rule for Gulf migratory group Spanish mackerel. The proposed action would determine the appropriate level of risk and/or buffer to set between the OFL and ABC based on a tiered approach that considers new information available on the stock and identified through updated stock assessment. The no-action alternative was not adopted because it would not

establish an ABC control rule, as recommended by the Magnuson-Stevens Act guidelines. The second alternative to the proposed action was not adopted because it would establish an ABC control rule that sets the ABC using a static definition which would not allow for changes in the level of risk based on updated stock assessments and, therefore, would not be as flexible as the proposed action.

ACL for Gulf Migratory Group Spanish Mackerel (Action 11.1)

Four alternatives, including nine options and the no-action alternative (status quo), were considered for the action to set the ACL for Gulf migratory group Spanish mackerel. The proposed action would set the aggregate ACL equal to the ABC and establish a stock ACL encompassing harvest by both sectors. The no-action alternative would maintain ACL equal to the current total allowable catch (TAC) for Gulf migratory group Spanish mackerel. This action was not adopted because the ACL cannot exceed the ABC and the status quo TAC is greater than the proposed ABC. Compared with the proposed action, some options would establish sector ACLs. These options were not adopted because the Councils felt the establishment of sector ACLs would unnecessarily restrict catch and not allow the achievement of optimum yield. The remaining two alternatives, encompassing six options, would specify a stock ACL as a portion of ABC (80 percent or 90 percent of ABC, rather than 100 percent). These alternatives and options would have resulted in reductions in economic benefits relative to the proposed action and were not adopted because the Councils determined that a buffer between the ACL and ABC was not needed for this stock.

ACT for Gulf Migratory Group Spanish Mackerel (Action 11.2)

Four alternatives, including six options and the no-action alternative (status quo), were considered for the action to set an ACT for Gulf migratory group Spanish mackerel. The proposed action, the no-action alternative, would not set ACT for Gulf group Spanish mackerel. The alternatives to the proposed action, and associated options, would implement a stock ACT lower than the ACL and result in lower harvest, and associated economic benefits than the proposed action. These alternatives and options were not adopted because the Councils determined that a buffer between the ACT and ACL was not needed for this stock. Some options would have set ACTs that are not consistent the Council's decision to specify a single (stock) ACL.

AMs for Gulf Migratory Group Spanish Mackerel (Action 12)

Three alternatives, including six options or sub-options (options and sub-options listed under the no-action alternative were not included in this tabulation) and the no-action alternative (status quo), were considered for the action to set AMs for Gulf migratory group Spanish mackerel. The proposed action would establish in-season AMs that would allow harvest to be prohibited if the stock ACL is reached or projected to be reached. The no-action alternative would maintain current AMs for Gulf migratory group Spanish mackerel and was not adopted because the current AMs are implemented by sector and are inconsistent with the proposed action to establish a stock ACL. One option to the proposed action would establish in-season AMs that implement a commercial trip limit and reduced recreational bag limits if the stock ACL is reached or projected to be reached. This option was not adopted because it would require multiple in-season actions and may result in a lower certainty that the ACL not be exceeded compared to the proposed action because harvest would not be prohibited. The remaining alternative and associated options would establish post-season AMs. These options were not adopted because they would be expected to impose an increased and unnecessary burden on fishermen and the administration. It is noted that the proposed action is not expected to have an economic impact on small entities because the proposed stock ACL (5.15 mp) is greater than the 5-year average (3.63 mp) or 10-year average (3.95 mp) landings.

ABC Control Rule for Atlantic Migratory Group King Mackerel (Action 13.3)
Four alternatives, including three options and the no-action alternative (status quo), were considered for the action to establish an ABC control rule for Atlantic migratory group king mackerel. The proposed action would determine the appropriate level of risk and/or buffer to set between the OFL and ABC based on a tiered approach that considers new information available on the stock and identified through updated stock assessment. The no-action alternative was not adopted because it would not establish an ABC control rule, as recommended by the Magnuson-Stevens Act guidelines. The remaining alternatives and associated options to the proposed action were not adopted because they would establish an ABC control rule that sets the ABC using a static definition which would not allow for changes in the level of risk based on updated stock assessments and, therefore, would not be as flexible as the proposed action.

ACL and Optimum Yield (OY) for Atlantic Migratory Group King Mackerel (Action 13.4)
Five alternatives, including five options and the no-action alternative (status quo), were considered for the action to set the ACL and OY for Atlantic migratory group king mackerel. The proposed action would set the ACL and OY equal to the ABC, with the ABC set equal to the average of the current SAFMC's Scientific and Statistical Committee (SSC) ABC recommendations for the 2011-2013 seasons. This would result in an ACL of 10.46 mp. The no-action alternative was not adopted because it would not have resulted in as concise a rule for setting the ACL and OY and would have resulted in a lower ACL, 10.0 mp, than the proposed action. Two alternatives to the proposed action would have also set the ACL and OY equal to the ABC but with the ABC equal to, alternatively, the lowest and highest SSC recommended ABCs for 2011-2013. These alternatives were not adopted because they were determined to be, alternatively, excessively or insufficiently conservative compared to the proposed action. The final alternative to the proposed action, which included five options, would have set the ACL and OY equal to a percentage of the ABC, varying from 65-90 percent. These options were not adopted because the Councils determined that the status and management certainty of the king mackerel stock did not require a buffer between the ACL or OY and the ABC.

ACT for Atlantic Migratory Group King Mackerel (Action 13.5)
Seven alternatives, including the no-action alternative (status quo), were considered for the action to set the ACT for Atlantic migratory group king mackerel. Three of the alternatives would apply to the commercial sector and four would apply to the recreational sector. The no-action alternative is the proposed action for the commercial sector and would not set an ACT for this sector. Two alternatives to this proposed action would set ACTs that establish a buffer between the commercial sector ACT and the commercial sector ACL, resulting in lower allowable harvest and reduced economic benefits. These alternatives were not adopted because the Councils determined that management uncertainty for this sector of this stock does not require a harvest buffer between the ACT and ACL. The proposed action for the recreational sector would be based on the uncertainty associated with the estimate of the ACL and would result in an ACT of 6.11 mp, which would be less than the proposed recreational sector ACL, but greater than current average annual harvests. As a result, no reduction in current economic benefits or impacts on small entities would be expected to occur. The no-action alternative would not set a recreational

sector ACT and was not adopted because the Councils determined that the management uncertainty associated with the recreational harvest of this stock requires a buffer between allowable harvest and the ACL. The two remaining alternatives to the proposed action would set the recreational sector ACT based on alternative fixed percentages of the ACL. These alternatives were not adopted because they would result in an ACT that was less reflective of the uncertainty associated with the estimation of the ACL than the proposed action. As applied to the proposed estimate of the ACL, each of these alternatives would also result in a lower recreational harvest, and reduced economic benefits, than the proposed action.

AMs for Atlantic Migratory Group King Mackerel (Action 14)
Four alternatives, including ten options and the no-action alternative (status quo), were considered for the action to set AMs for Atlantic migratory group king mackerel. The proposed action includes seven of the options spread over three alternatives. It would continue in-season quota monitoring and closure if the commercial sector ACL is met or projected to be met, as occurs under the status quo. In addition, the proposed action would adopt post-season adjustments. These adjustments include post-season reductions in bag limits for the recreational sector based on moving multi-year average harvests, to assure that the recreational sector ACL is not exceeded. Post-season bag limits would only be reduced if the stock ACL (both sectors) is exceeded. Post-season overage payback would be required for both sectors, where appropriate, if the stock is overfished and the stock ACL is exceeded. The no-action alternative would continue the current quota monitoring for the commercial sector, and closure when appropriate; it also includes authority under framework procedures for the Regional Administrator to carry out several actions, including reduction of the recreational bag limit to zero, if the recreational allocation has been met or is projected to be met. This alternative was not adopted because it would not have been as flexible as the proposed action in factoring in the status of the stock, the total harvest, and annual harvest variability by the recreational sector into the AM decision. One option to the proposed action would have reduced the length of the subsequent recreational fishing year instead of a reduction in the bag limit in the event of a recreational overage. This alternative was not adopted because allowing the sector to continue harvest all year under a reduced bag, as would be allowed under the proposed action, would be expected to result in more economic benefits than a closed season. The remaining options to the proposed action would have imposed sector paybacks regardless of stock status. These options were not adopted because each would be expected to result in unnecessary reductions in economic benefits.

ABC Control Rule for Atlantic Migratory Group Spanish Mackerel (Action 16.3)
Two alternatives, including the no-action alternative (status quo), were considered to establish an ABC control rule for Atlantic migratory group Spanish mackerel. The proposed action would determine the appropriate level of risk and/or buffer to set between the OFL and ABC based on a tiered approach that considers new information available on the stock and identified through updated stock assessment. The no-action alternative was not adopted because it would not establish an ABC control rule, as recommended by the Magnuson-Stevens Act guidelines.

ACL and OY for Atlantic Migratory Group Spanish Mackerel (Action 16.4)
Three alternatives, including five options and the no-action alternative (status quo), were considered for the action to set the ACL and OY for Atlantic migratory group Spanish mackerel. The proposed action would set the ACL and OY equal to the ABC. The no-action alternative was not adopted because it would not have resulted in as concise a procedure as the proposed action to

determine the ACL based on the ABC, and the resultant ACL would exceed the proposed ABC, which would be inconsistent with the Magnuson-Stevens Act guidelines. The third alternative to the proposed action, which included five options, would have set the ACL equal to a percentage of the ABC, varying from 75-95 percent. These options were not adopted because they would be inconsistent with the Council's determination that specification of a buffer for this stock could be adequately accomplished through the proposed ACT.

ACT for Atlantic Migratory Group Spanish Mackerel (Action 16.5)

Seven alternatives, including the no-action alternative (status quo), were considered for the action to set ACTs for Atlantic migratory group Spanish mackerel. Three of the alternatives would apply to the commercial sector and four would apply to the recreational sector. The no-action alternative is the proposed action for the commercial sector and would not set an ACT for this sector. Two alternatives to the proposed action would set ACTs that establish a buffer between the commercial sector ACT and the commercial sector ACL, resulting in an allowable harvest that is further below the current harvest and greater reduction in economic benefits. These alternatives were not adopted because the Councils determined that management uncertainty for this sector of this stock does not require a harvest buffer between the ACT and ACL. The proposed action for the recreational sector would be based on the uncertainty associated with the estimate of the sector's ACL and would result in an ACT of 2.32 mp, which would be less than the proposed recreational sector ACL, but greater than current average annual harvests. As a result, no reduction in current economic benefits or impacts on small entities in the recreational sector would be expected to occur. The no-action alternative would not set a recreational sector ACT and was not adopted because the Councils determined that the management uncertainty associated with the recreational harvest of this stock requires a buffer between allowable harvest and the ACL. The two remaining alternatives to the proposed action would set the recreational sector ACT based on alternative fixed percentages of the ACL. These alternatives were not adopted because they would result in an ACT that was less reflective of the uncertainty associated with the estimation of the ACL than the proposed action. As applied to the proposed estimate of the ACL, each of these alternatives would also result in a lower recreational harvest, and reduced economic benefits, than the proposed action.

AMs for Atlantic Migratory Group Spanish Mackerel (Action 17)

Four alternatives, including nine options and the no-action alternative (status quo), were considered to set AMs for Atlantic migratory group Spanish mackerel. The proposed action includes six of the options spread over three alternatives. The proposed action would implement enhanced quota monitoring the commercial sector, should in-season closure be necessary, and would adopt post-season adjustment of the bag limit for the recreational sector based on moving multi-year average harvests if the total (stock) ACL is exceeded. The proposed action would also require overage payback for both sectors, if the stock is overfished and the stock ACL is exceeded. The no-action alternative would continue the current quota monitoring and staged trip limits for the commercial sector in place of sector closure. It also includes authority under framework procedure for the Regional Administrator to carry out several actions, including reduction of the recreational bag limit to zero, if the recreational allocation has been met or is projected to be met. This alternative was not adopted because it would not have been as flexible as the proposed action in factoring in the status of the stock, the total harvest, and annual harvest variability by the recreational sector into the AM decision. This alternative was also not adopted because it would not provide for in-season closure for the commercial sector. In the event of a sector overage, one option to the proposed action would have reduced the length of the subsequent recreational fishing year (no reduction in the bag limit) to assure that the sector ACL is not exceeded. This option was not adopted because it would result in lower economic benefits than the proposed action. The remaining two options to the proposed action would have imposed sector paybacks regardless of stock status. These options were not adopted because each would be expected to result in unnecessary reductions in economic benefits.

Management Measures for Atlantic Migratory Group Spanish Mackerel (Action 18)
Five alternatives, including the no-action alternative (status quo), were considered for the action to change the management measures for the Atlantic migratory group Spanish mackerel. The proposed action, the no-action alternative, would not make any changes in the management measures for this stock. The four alternatives to the proposed action would have increased the restrictions on recreational harvests through reduced bag limits and/or vessel limits. These alternatives were not adopted because current harvest would not need to be reduced under the proposed allowable recreational harvest for this stock. As a result, increased restrictions on recreational harvest would be expected to unnecessarily reduce economic benefits to fishery participants and associated businesses.

ABC Control Rule for Atlantic Migratory Group Cobia (Action 19.3)
Five alternatives, including three options and the no-action alternative (status quo), were considered for the action to establish an ABC control rule for Atlantic migratory group cobia. The proposed action adopts the Gulf Council's SSC-recommended ABC control rule, which is ostensibly the same as the SAFMC SSC-recommended control rule (and counted under a separate alternative). It would determine the appropriate level of risk and/or buffer to set between the OFL and ABC based on a tiered approach that considers new information available on the stock, as identified through updated stock assessments. As applied to this stock, this approach would set the ABC equal to the mean plus 1.5 times the standard deviation of the most recent 10 years of landings data. The no-action alternative was not adopted because it would not establish an ABC control rule, as recommended by the Magnuson-Stevens Act guidelines. The remaining two alternatives and associated options to the proposed action were not adopted because they would establish an ABC control rule that sets the ABC using a static definition which would not allow for changes in the level of risk based on updated stock assessments and, therefore, would not be as flexible as the proposed action. Additionally, application of the rule specified by these alternatives and options would require an estimate of the OFL, which is considered unknown by the SSC.

Allocations for Atlantic Migratory Group Cobia (Action 19.4)
Three alternatives, including the no-action alternative (status quo), were considered for the action to define sector allocations for Atlantic migratory group cobia. The proposed action would define allocations based on weighted averages of 2000-2008 and 2006-2008 harvest data. The no-action alternative would not define sector allocations and was not adopted because this alternative would not be consistent with the proposed actions to establish sector ACLs, ACTs (recreational sector only), and AMs. The second alternative to the proposed action would only use 2006-2008 data to determine the allocations and was not adopted because of the potential of this definition to not contain adequate consideration of historic landings. It is noted, however, that this alternative and the proposed action would result in identical allocations.

ACL and OY for Atlantic Migratory Group Cobia (Action 19.5)

Three alternatives, including five options and the no-action alternative (status quo), were considered for the action to set the ACL and OY for Atlantic migratory group cobia. The proposed action would set the ACL and OY equal to the ABC. The no-action alternative was not adopted because it would not set the ACL or OY, as required by the Magnuson-Stevens Act guidelines. The third alternative to the proposed action, which included five options, would have set the ACL and OY equal to a percentage of the ABC, varying from 75-95 percent. These options were not adopted because they would be inconsistent with the Council's determination that specification of a buffer for this stock could be adequately accomplished through the proposed ACT.

ACT for Atlantic Migratory Group Cobia (Action 19.6)

Seven alternatives, including the no-action alternative (status quo), were considered for the action to set the ACT for Atlantic migratory group cobia. Three of the alternatives would apply to the commercial sector and four alternatives would apply to the recreational sector. The no-action alternative is the proposed action for the commercial sector and would not set an ACT for this sector. Two alternatives to this proposed action would set ACTs that establish a buffer between the commercial sector ACT and the commercial sector ACL, resulting in lower allowable harvest and reduced economic benefits. These alternatives were not adopted because the Councils determined that management uncertainty for this sector of this stock does not require a harvest buffer between the ACT and ACL. The proposed action for the recreational sector would be based on the uncertainty associated with the estimate of the ACL and would result in an ACT of 1.18 mp, which would be less than the proposed sector ACL but equal to current average annual harvests. As a result, no reduction in current economic benefits or impacts on small entities would be expected to occur. The no-action alternative would not set a recreational sector ACT and was not adopted because the Councils determined that the management uncertainty associated with the recreational harvest of this stock requires a buffer between allowable harvest and the sector ACL. The two remaining alternatives to the proposed action would set the recreational sector ACT based on alternative fixed percentages of the ACL. These alternatives were not adopted because they would result in an ACT that was less reflective of the uncertainty associated with the estimation of the ACL than the proposed action.

AMs for Atlantic Migratory Group Cobia (Action 20)

Five alternatives, including seven options and the no-action alternative (status quo), were considered for the action to set AMs for Atlantic migratory group cobia. The proposed action includes five of the options spread over three alternatives and would: implement in-season quota monitoring for the commercial sector; adopt post-season adjustments for the recreational sector based on moving multi-year average harvests if the stock ACL is exceeded; and require overage payback for both sectors but only if the stock is overfished and the total ACL is exceeded. The no-action alternative would continue the current authority to revert the recreational and commercial possession limit to zero if the sectors have met or are projected to meet their allocation. This alternative was not adopted because it would not have been as flexible as the proposed action in factoring the status of the stock, the total harvest, and annual harvest variability by the recreational sector into the AM decision. One alternative to the proposed action would explicitly prohibit the purchase and sale of cobia if the commercial quota is met or projected to be met, though this may be functionally equivalent to the status quo as a zero possession limit may preclude purchase or sale. This alternative would additionally not establish additional AMs for the recreational sector, resulting in current recreational AMs remaining in effect. Thus, this alternative could, in total, be functionally equivalent to the status quo. Nevertheless, this alternative was not adopted because it would not be as flexible as the proposed action, similar to the no-action alternative, in factoring the status of the stock, the total harvest, and annual harvest variability by the recreational sector into the AM decision. The remaining options to the proposed action would have imposed sector paybacks regardless of stock status. These options were not adopted because each would be expected to result in unnecessary reductions in economic benefits.

Management Measures for Atlantic Migratory Group Cobia (Action 21)

Six alternatives, including two options and the no-action alternative (status quo), were considered for the action to change the management measures for the Atlantic migratory group cobia. The proposed action, the no-action alternative, would not make any changes in the management measures for this stock. The five alternatives, and associated options, to the proposed action would have increased restrictions on either commercial or recreational harvests through reduced possession limits per trip, person, or day. These alternatives were not adopted because current harvest would not need to be reduced under the proposed allowable sector harvests for this stock. As a result, increased restrictions on harvest would be expected to unnecessarily reduce economic benefits to fishery participants and associated businesses.

8.0 LIST OF PREPARERS

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

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No outside agencies were consulted.

9.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS WHO RECEIVED COPIES

Department of Commerce Office of General Counsel
Texas Parks and Wildlife Department
Alabama Department of Conservation and Natural Resources/Marine Resources Division
Louisiana Department of Wildlife and Fisheries
Mississippi Department of Marine Resources
Florida Fish and Wildlife Conservation Commission
Georgia Department of Natural Resources/Coastal Resources Division
South Carolina Department of Natural Resources/Marine Resources Division
North Carolina Division of Marine Fisheries
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
United States Coast Guard
United States Fish and Wildlife Services

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