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

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

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WILL BE ADDED FOR PUBLIC HEARING VERSION

1.0 INTRODUCTION

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

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

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

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

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

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

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

1.1 Background

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

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

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

To be considered for possible classification as an ecosystem component species, the species should:

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

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

1.2 Purpose and Need

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

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

1.3 Boundaries

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

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

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

Cobia: Cobia have historically been managed as a unit stock with each council establishing management regulations for their respective jurisdictions. However, a stock assessment was completed in 2001 that indicates there is little mixing between the Atlantic and the Gulf. Consequently, a strong argument can be made for a separation into two migratory groups for management purposes. 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."

Previous assessment efforts support separation of Gulf and Atlantic Migratory Groups of cobia at the Miami-Dade/Monroe County line which is also used for Spanish mackerel. This separation has never been formally implemented through the CMP FMP and is included in Amendment 18 as an action item.

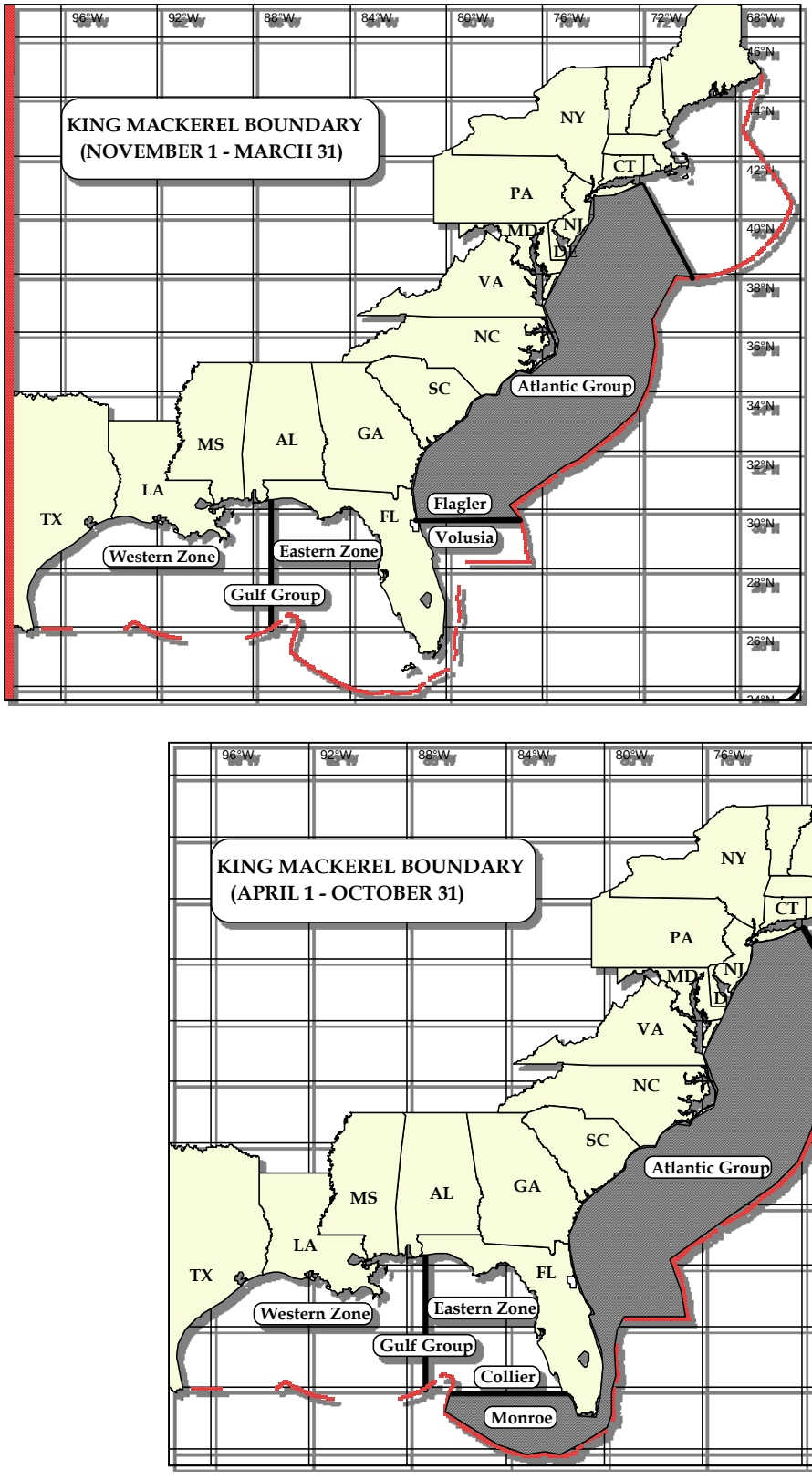

Figure 1.3.1. Seasonal boundary between Atlantic and Gulf Migratory Groups of king mackerel.

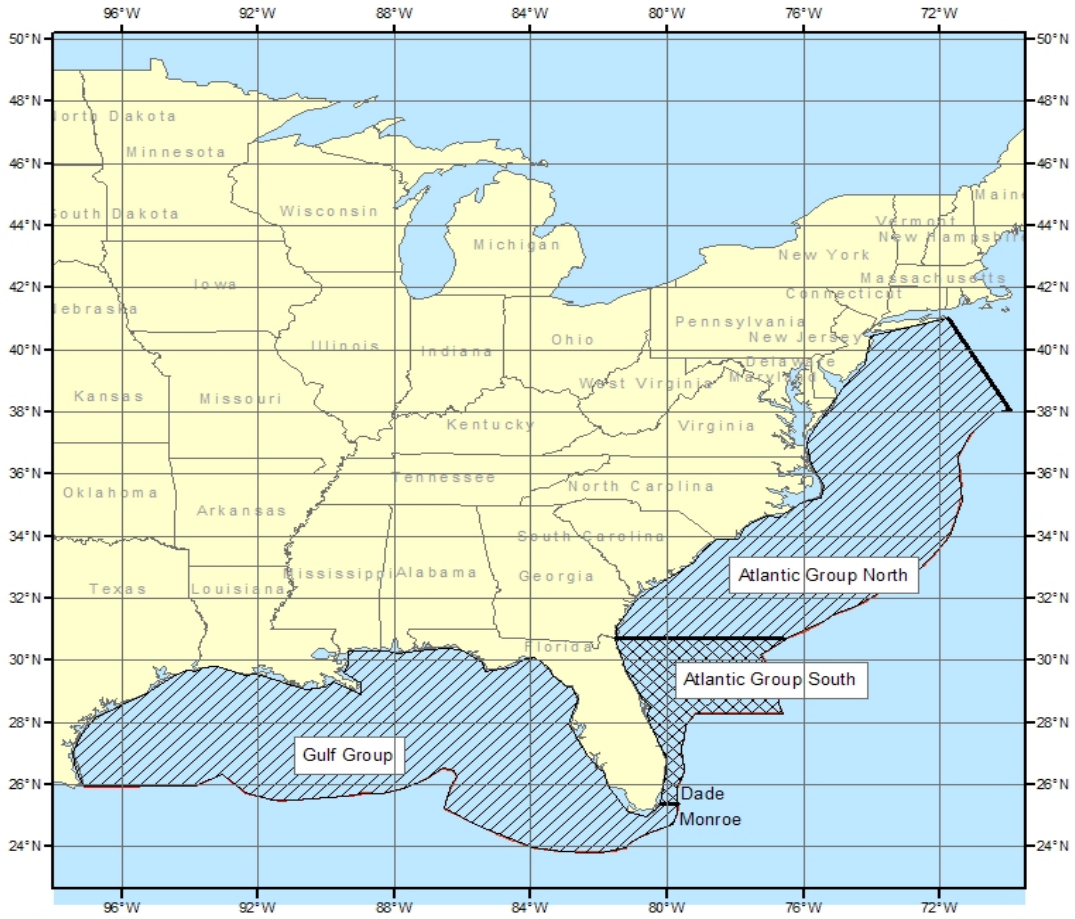

Figure 1.3.2. Fixed boundary between Atlantic and Gulf Migratory Groups of Spanish mackerel.
Source: Council Staff.

1.4 Allocations

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

1.5 Mixing Percentage

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

1.6 History of Management

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

FMP Amendments

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

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

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

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

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

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

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

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

- Identified additional problems and an objective in the fishery;
- Provided for rebuilding overfished stocks of mackerels within specific periods;
- Provided for biennial assessments and adjustments;
- Provided for more seasonal adjustment actions;
- Allowed for Gulf king mackerel stock identification and allocation when appropriate;
- Provided for commercial Atlantic Spanish mackerel possession limits;
- Changed commercial permit requirements to allow qualification in one of three preceding years;

- Discontinued the reversion of the bag limit to zero when the recreational quota is filled;
- Modified the recreational fishing year to the calendar year; and
- Changed the minimum size limit for king mackerel to 20 inches FL, and changed all size limit measures to fork length only.

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

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

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

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

- Reallocated the percentage of the commercial allocation of TAC for the North Area (Florida east coast) and South/West Area (Florida west coast) of the Eastern Zone to 46.15% North and 53.85% South/West and retained the recreational and commercial allocations of TAC at 68% recreational and 32% commercial;

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

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

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

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

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

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

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

Amendment 16, was not developed.

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

Do we need some or all of the regulatory amendments?

1.7 Description of the Fishery and Status of the Stocks

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

1.7.1 Description of the Fishery

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

1.7.1.1 King Mackerel

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

Gulf of Mexico

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

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

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

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

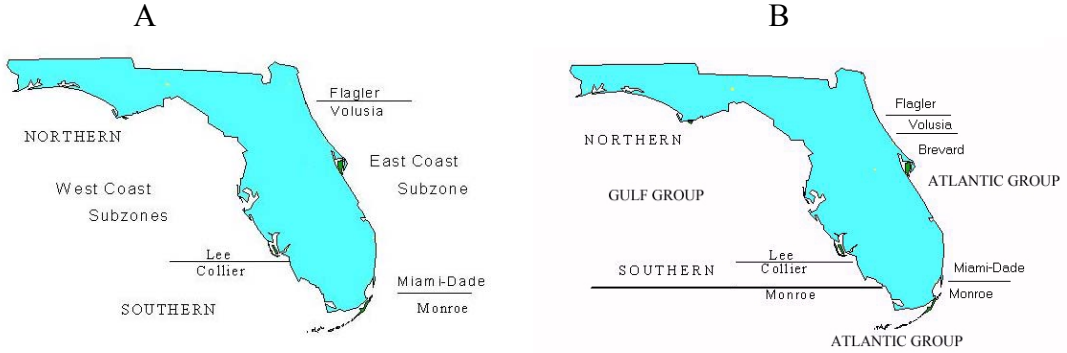

Figure 1.7.1.1.1. Gulf group king mackerel Eastern zone subzones for A) November 1 – March 31 and B) April 1- October 31.

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

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

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

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

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

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

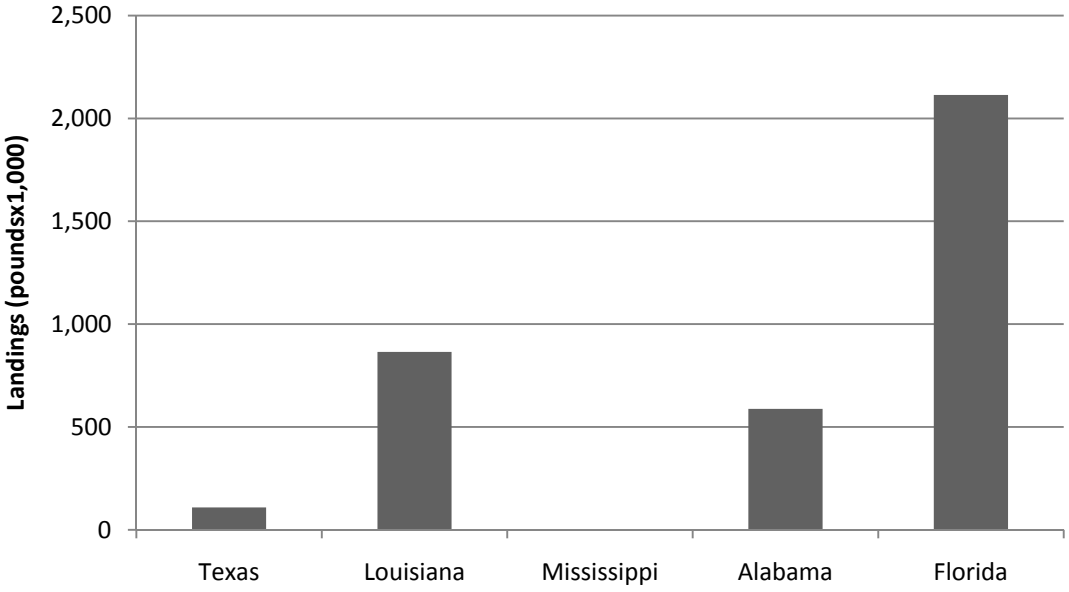

Figure 1.7.1.1.2. Average commercial landings of Gulf group king mackerel by state for 1997-2009.

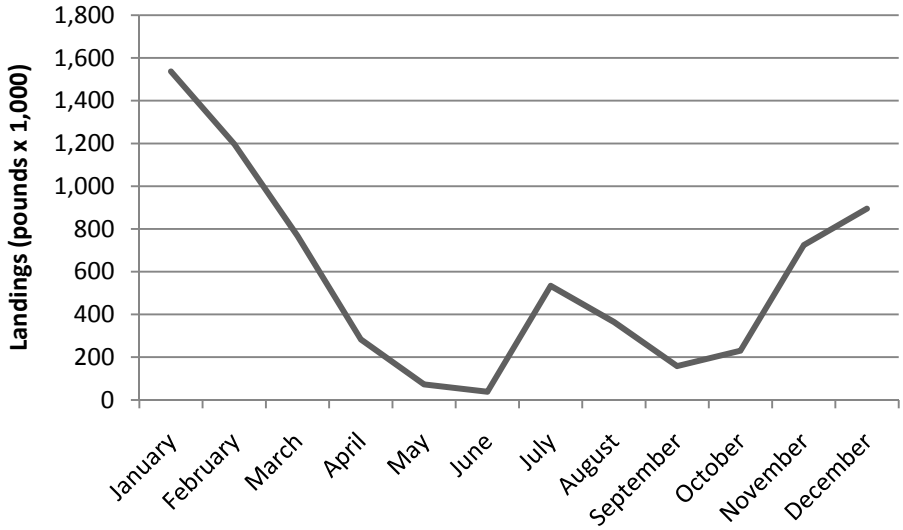

Figure 1.7.1.1.3. Average commercial landings of Gulf group king mackerel by month for 1997-2009.

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

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

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

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

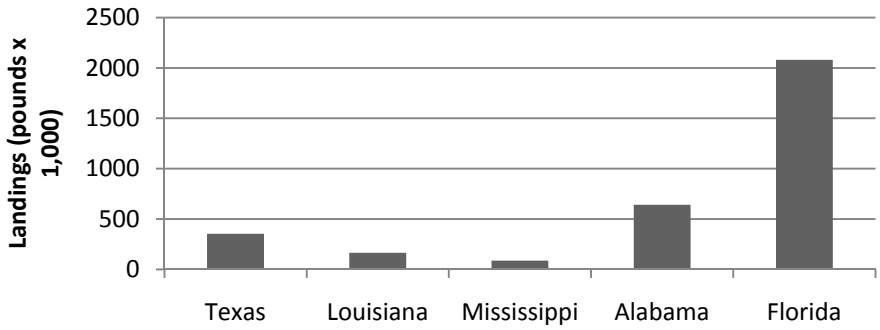

Figure 1.7.1.1.4. Average recreational landings of Gulf group king mackerel by state for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases.

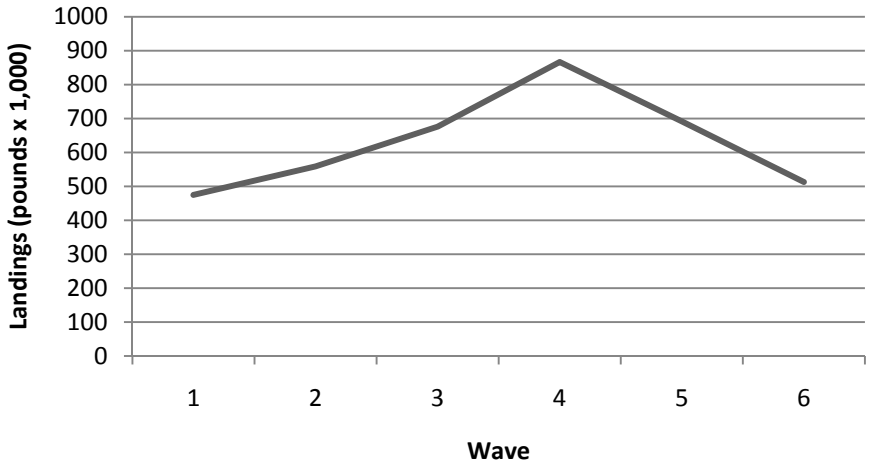

Figure 1.7.1.1.5. Average recreational landings of Gulf group king mackerel by wave for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

Atlantic

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

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

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

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

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

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

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

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

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

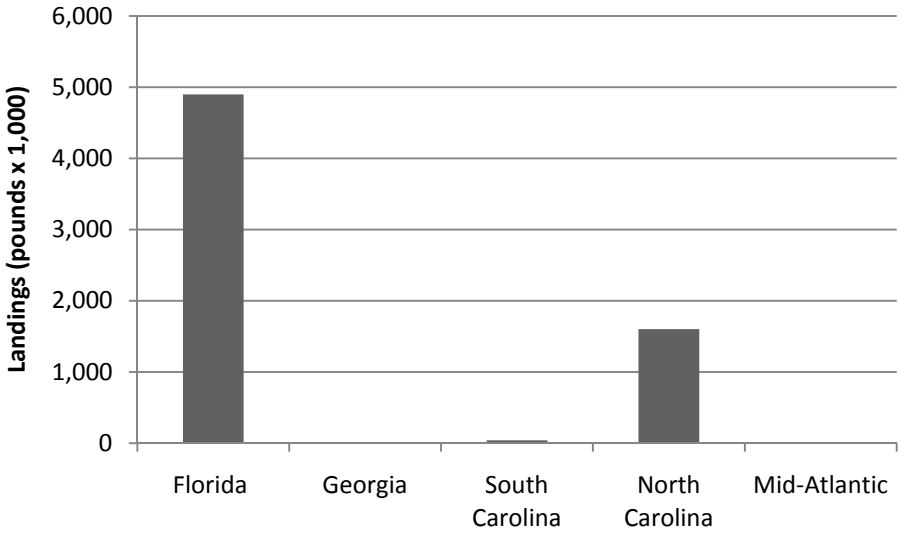

Figure 1.7.1.1.6. Average commercial landings of Atlantic group king mackerel by state for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

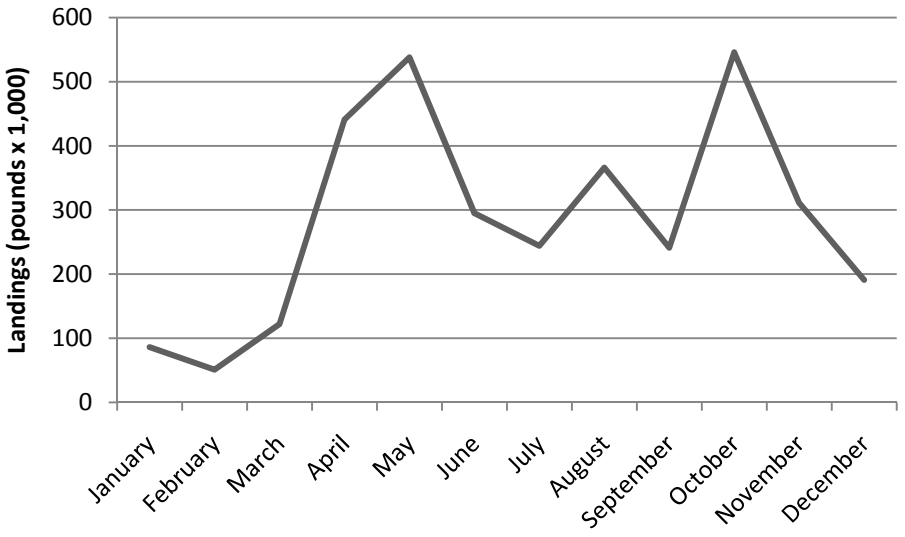

Figure 1.7.1.1.7. Average commercial landings of Atlantic group king mackerel by month for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

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

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

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

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

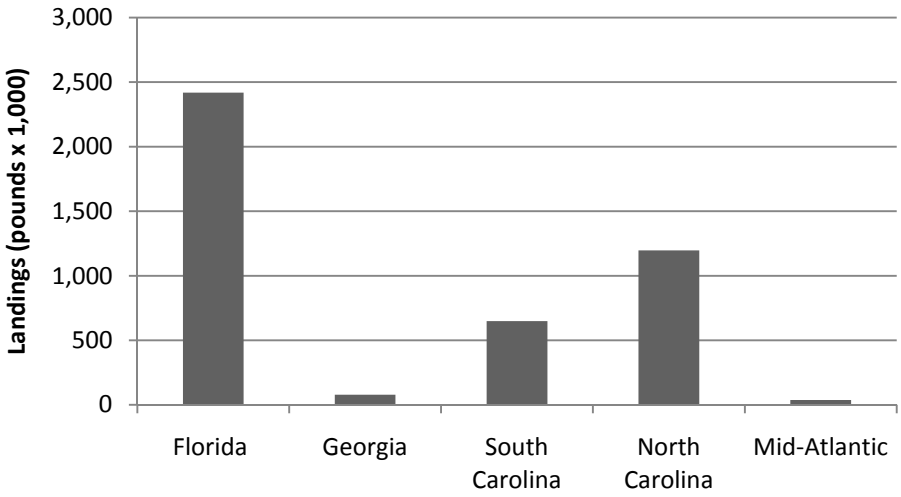

Figure 1.7.1.1.8. Average recreational landings of Atlantic group king mackerel by state for 1980-2009. Mid-Atlantic states include Virginia, Maryland, Delaware, New Jersey, and New York.
Source: SEFSC; MRFSS, HBS, and TPW databases

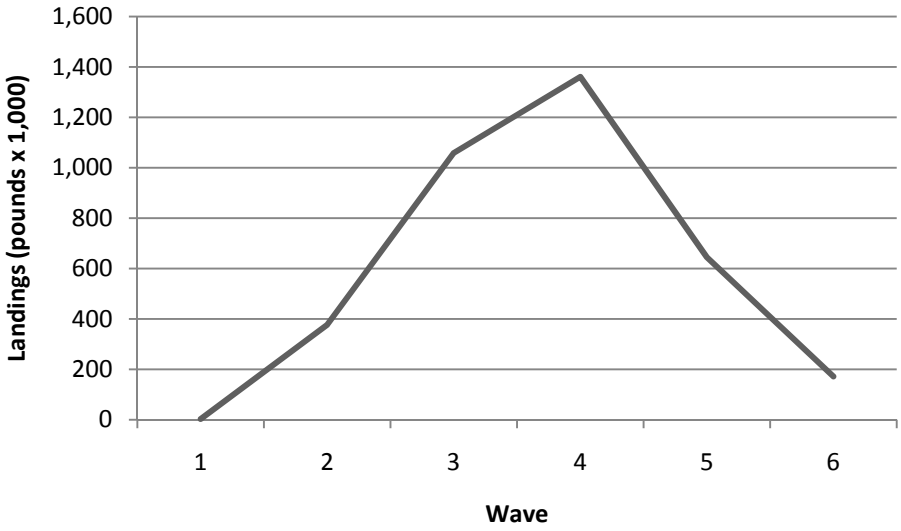

Figure 1.7.1.1.9. Average recreational landings of Atlantic group king mackerel by wave for 1980-2009.
Source: SEFSC; MRFSS, HBS, and TPW databases

1.7.1.2 Spanish Mackerel

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

Gulf of Mexico

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

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

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

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

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

Source: Vondruska, 2010; ALS and CFDBS databases

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

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

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

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

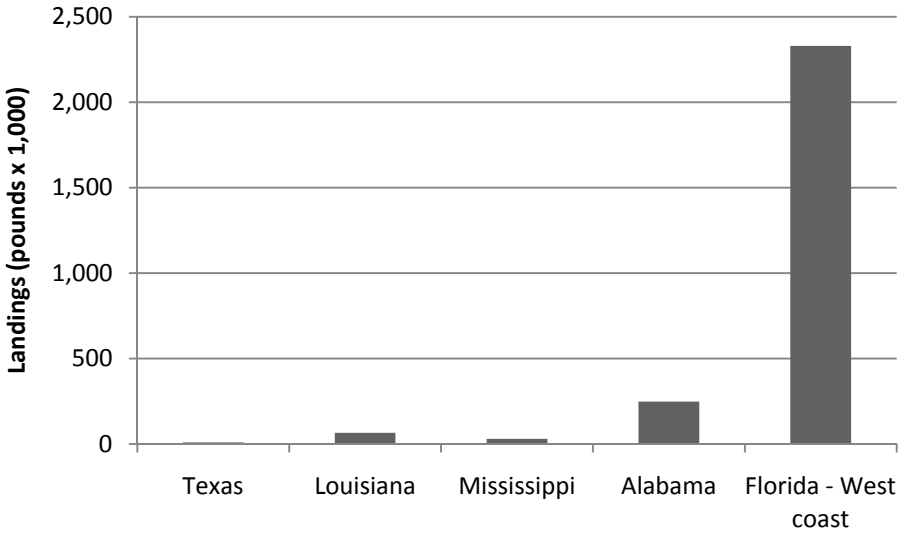

Figure 1.7.1.2.1. Average recreational landings of Gulf group Spanish mackerel by state for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

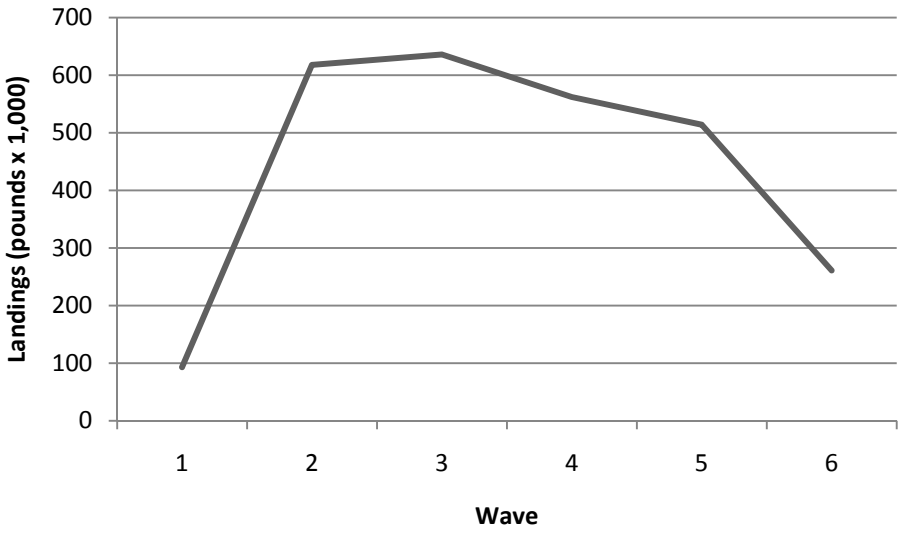

Figure 1.7.1.2.2. Average recreational landings of Gulf group Spanish mackerel by wave for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

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

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

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

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

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

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

Source: Vondruska, 2010; ALS database

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

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

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

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

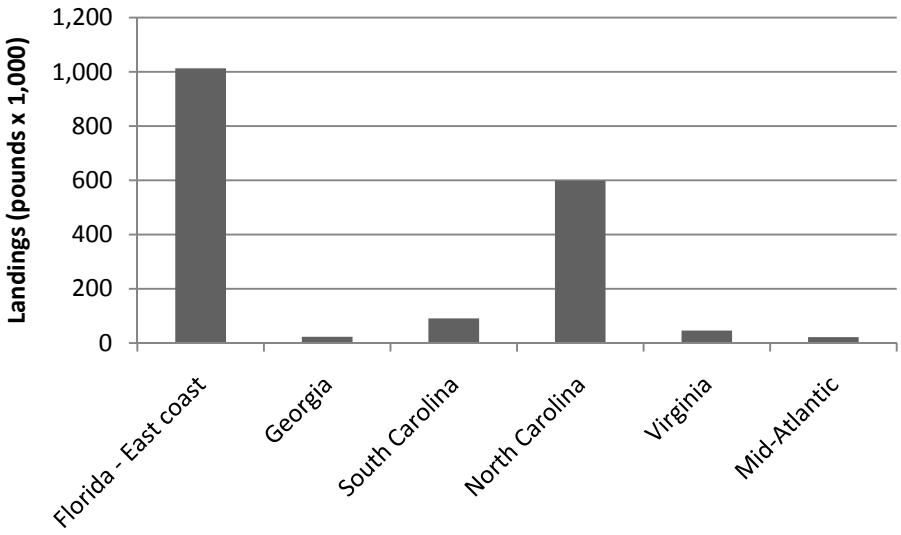

Figure 1.7.1.2.3. Average recreational landings of Atlantic group Spanish mackerel by state for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

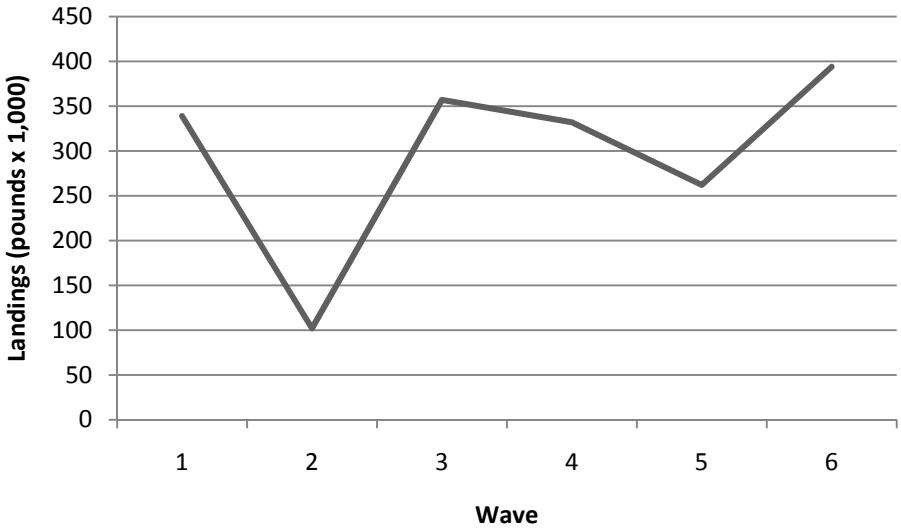

Figure 1.7.1.2.4. Average recreational landings of Atlantic group Spanish mackerel by wave for 1999-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

1.7.1.3 Cobia

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

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

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

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

Source: SEFSC; ALS database

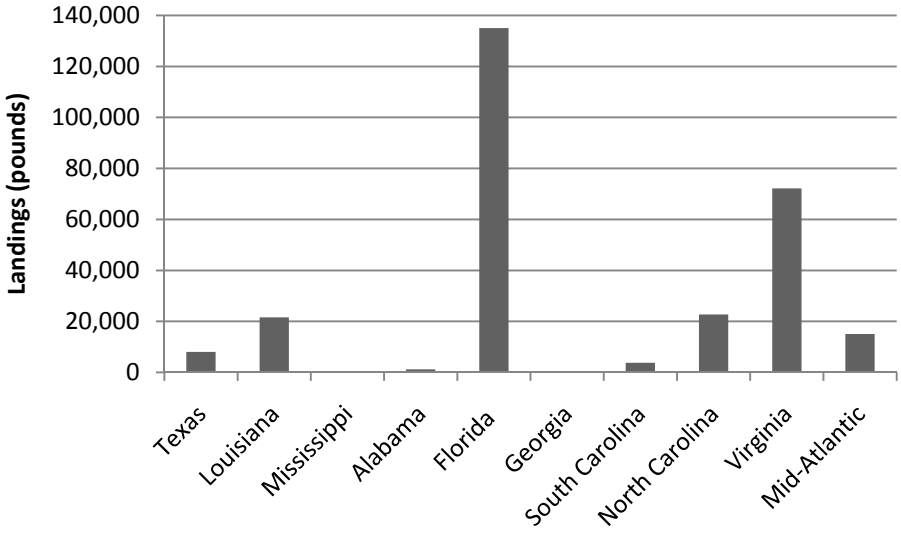

Figure 1.7.1.3.1. Average commercial landings of cobia by state for 2000-2009.

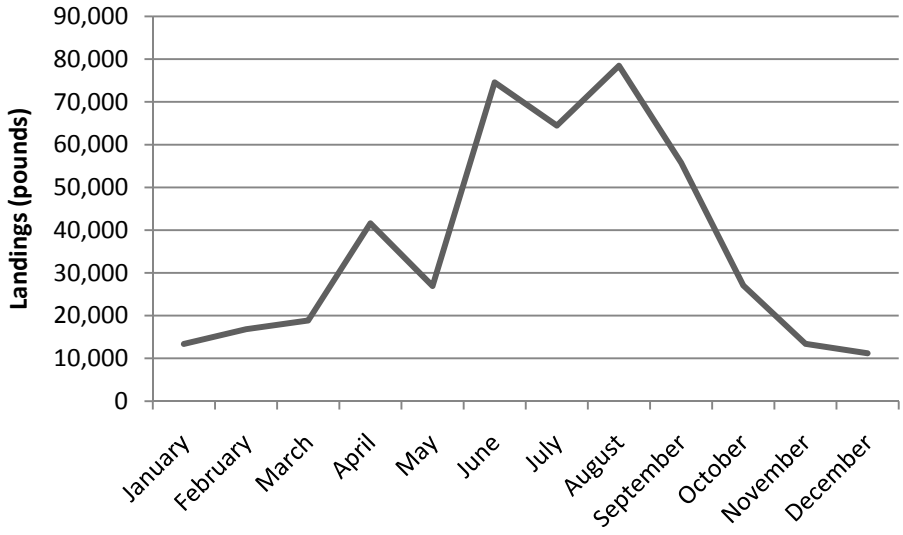

Figure 1.7.1.3.2. Average commercial landings of cobia by month for 2000-2009.

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

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

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

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

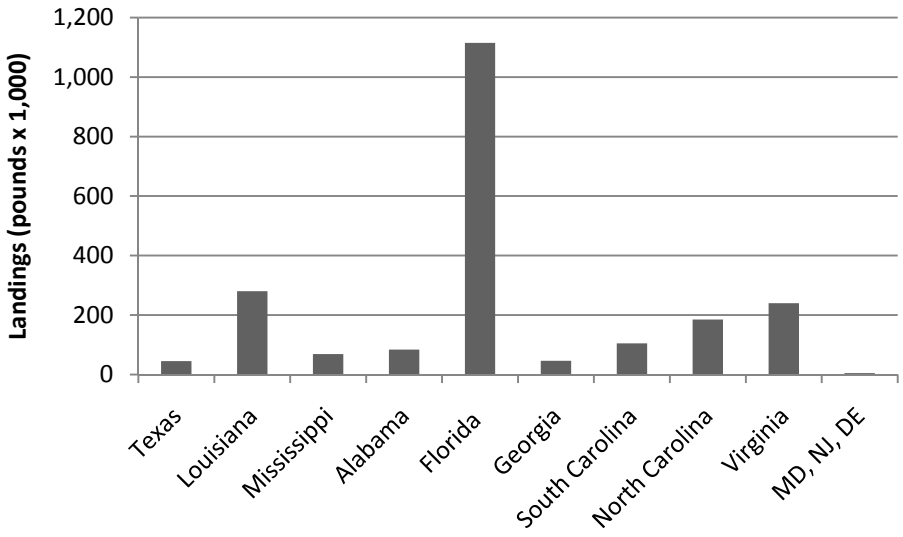

Figure 1.7.1.3.3. Average recreational landings of cobia by state for 2000-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

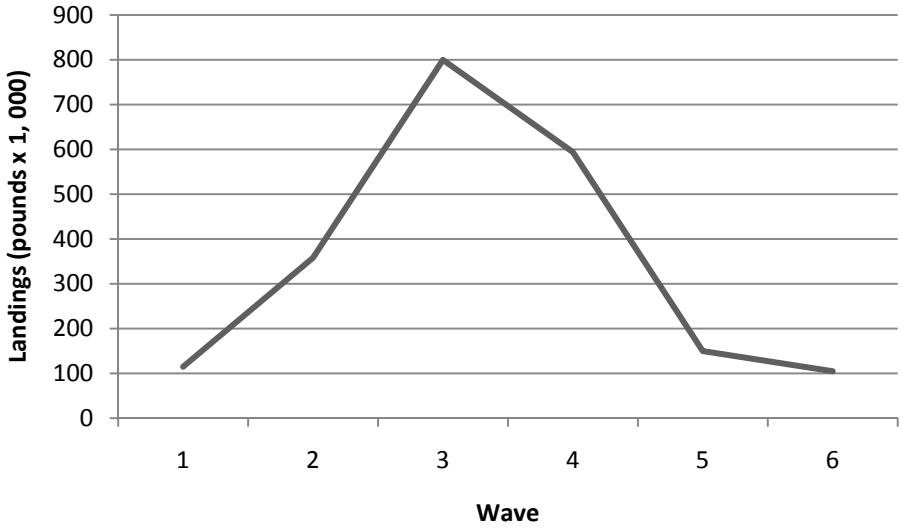

Figure 1.7.1.3.4. Average recreational landings of cobia by wave for 2000-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

1.7.1.4 Cero, Little Tunny, Dolphin, Bluefish

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

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

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

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

Source: Vondruska, 2010; CFL database

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

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

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

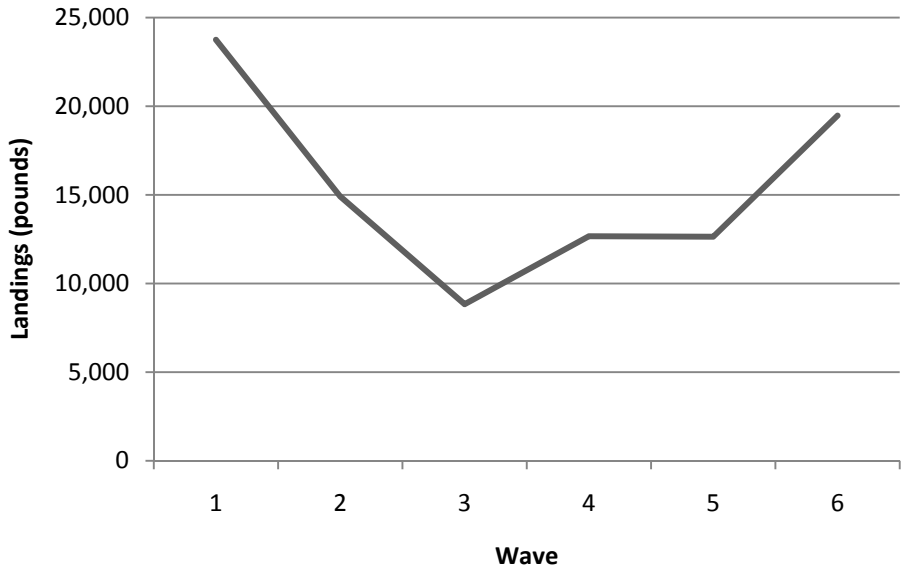

Figure 1.7.1.4.1. Average recreational landings of cero by wave for 2000-2009.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

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

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

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

Source: SEFSC; ALS and CFDBS databases

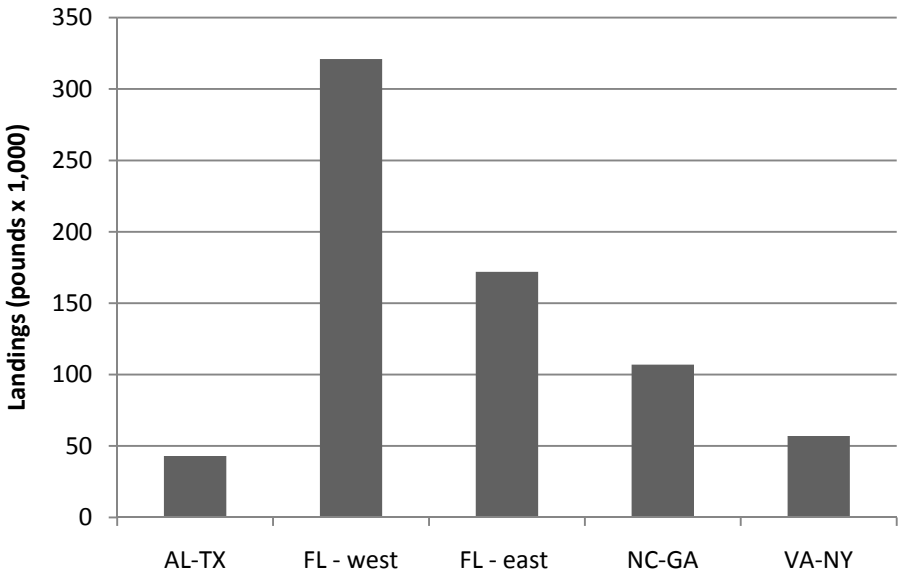

Figure 1.7.1.4.2. Average commercial landings of little tunny by region for 2000-2009. Source: SEFSC, ACL and CFDBS data sets.

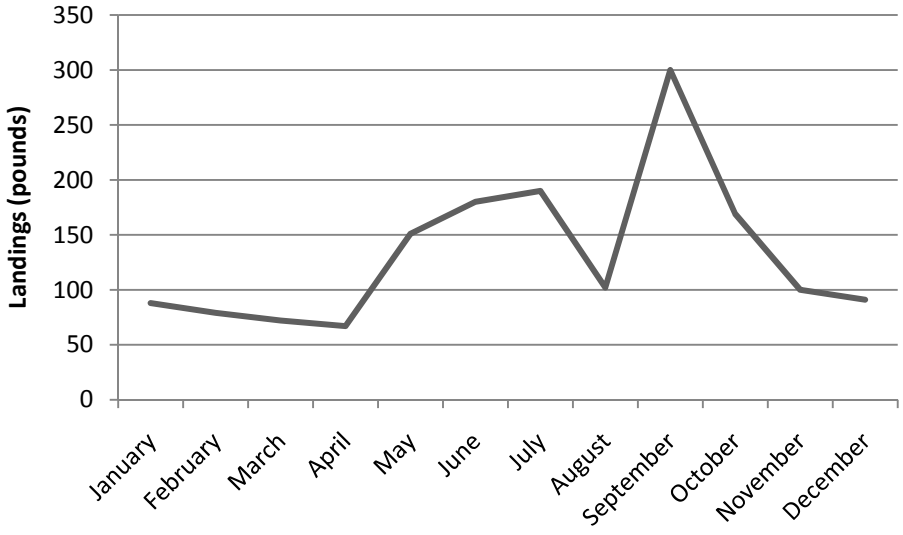

Figure 1.7.1.4.3. Average commercial landings of little tunny by month for 2000-2009. Source: SEFSC, ACL and CFDBS data sets.

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

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

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

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

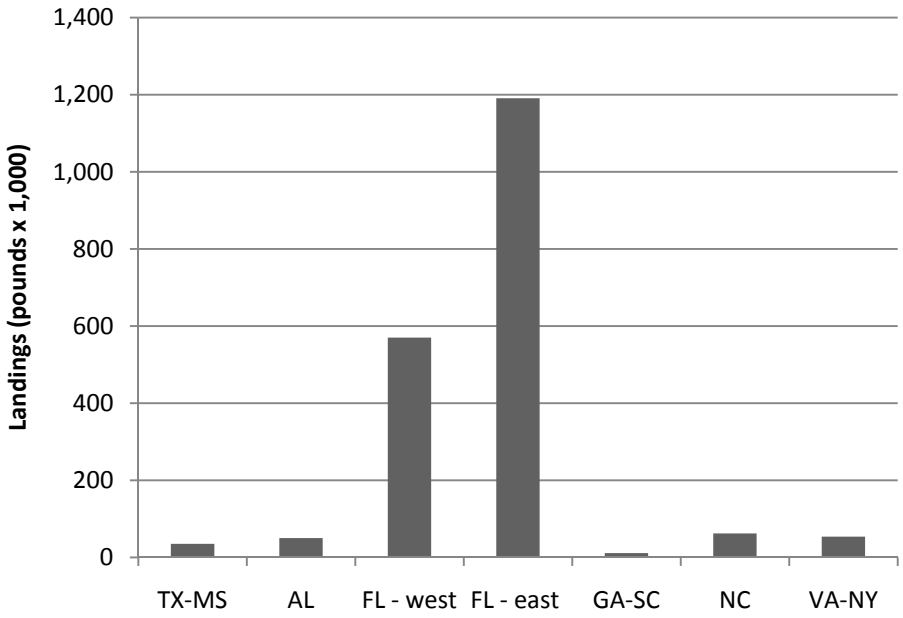

Figure 1.7.1.4.4. Average recreational landings of little tunny by region for 2000-2009. Source: SEFSC, January 2011 data set; MRFSS, HBS, TPWD

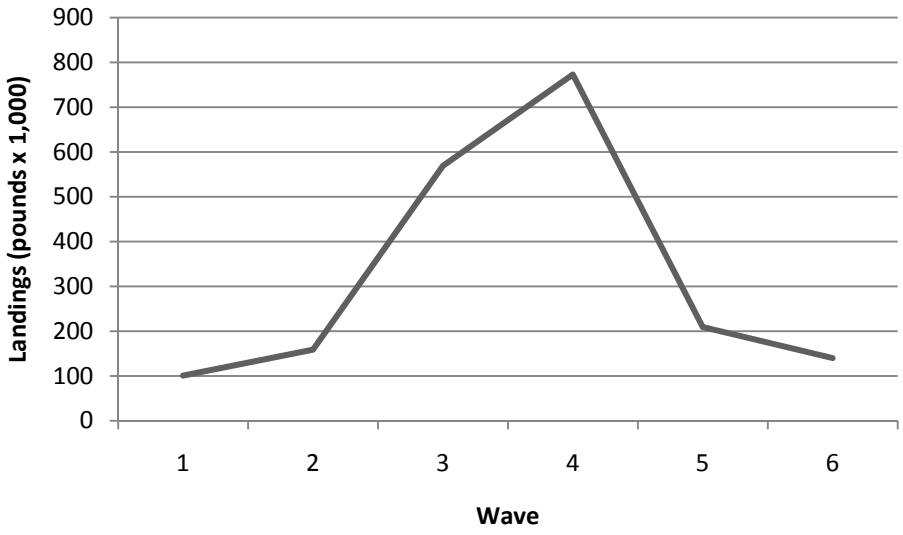

Figure 1.7.1.4.5. Average recreational landings of little tunny by wave for 2000-2009. Source: SEFSC, January 2011 data set; MRFSS, HBS, TPWD

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

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

Source: Vondruska, 2010; ALS database

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

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

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

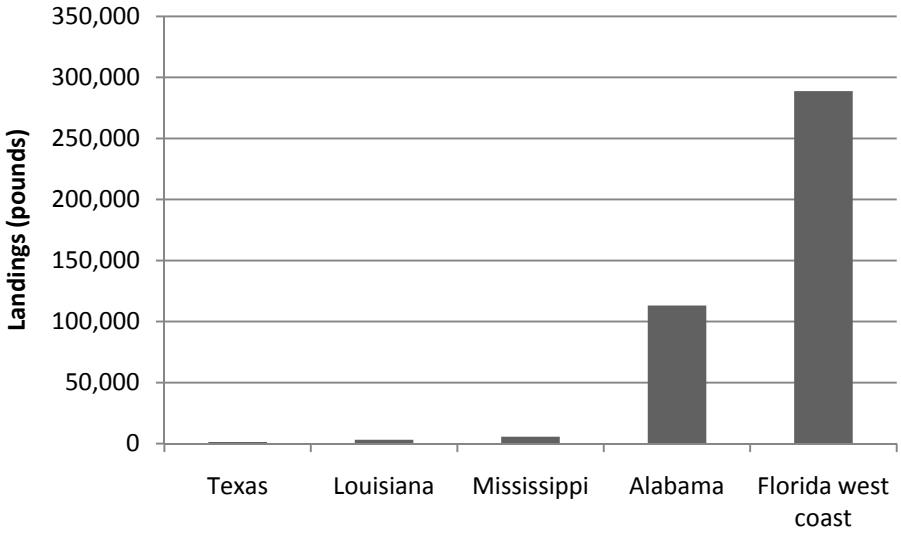

Figure 1.7.1.4.6. Average recreational landings of bluefish by Gulf state for 2000-2008.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

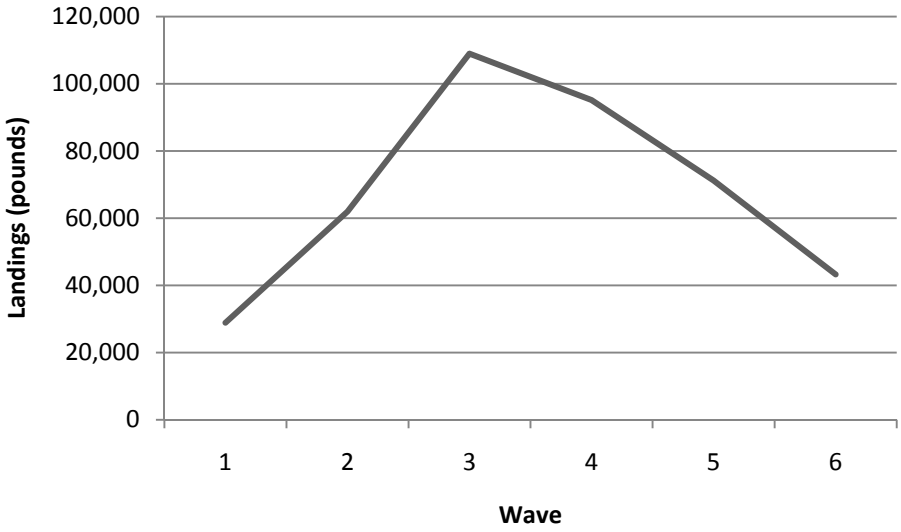

Figure 1.7.1.4.7. Average recreational landings of bluefish by wave for 2000-2008.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

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

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

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

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

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

Source: Vondruska, 2010; ALS database

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

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

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

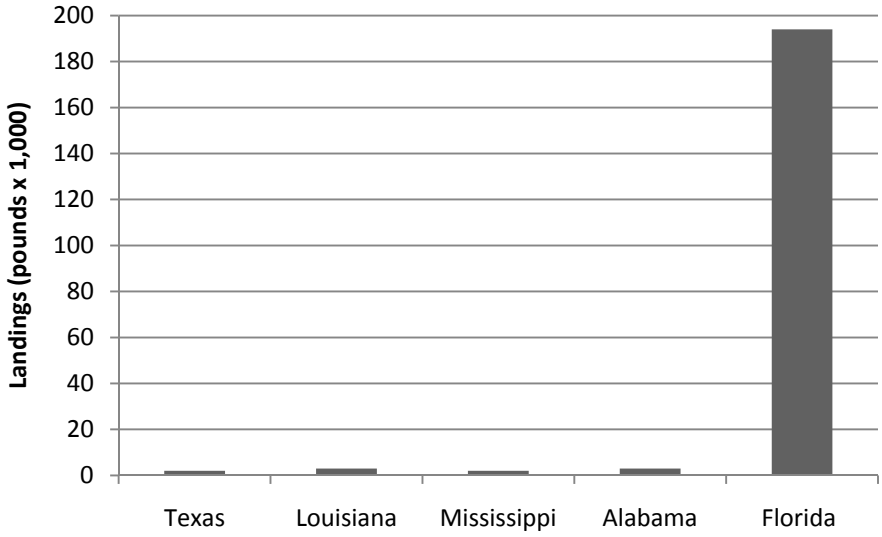

Figure 1.7.1.4.8. Average recreational landings of dolphin by state for 2000-2008.
Source: SEFSC, September 2010 ACL data sets; MRFSS, HBS, TPWD

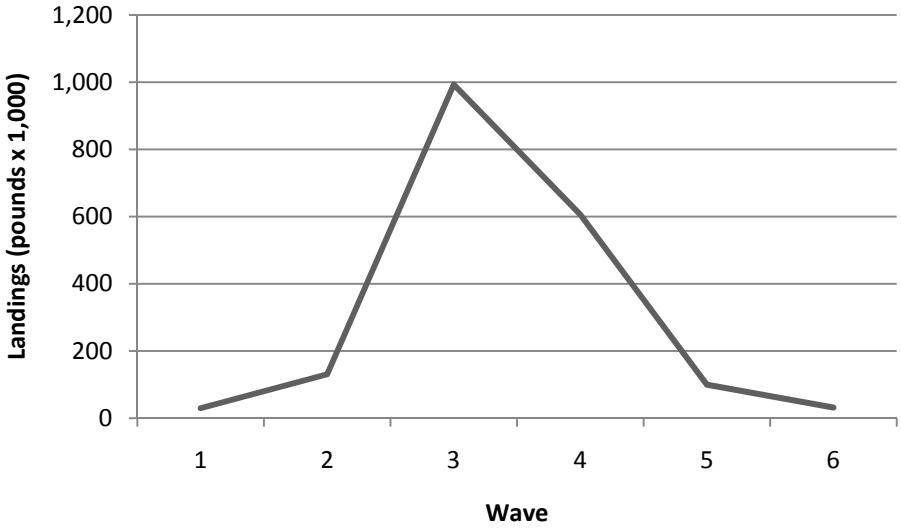

Figure 1.7.1.4.9. Average recreational landings of dolphin by wave for 2000-2008.
Source: SEFSC, September 2010 ACL data sets; MRFSS, TPWD

The South Atlantic Dolphin/Wahoo FMP sets a non-binding 1.5-mp cap on commercial landings in the Atlantic (Florida through Maine). The minimum size limit for both the commercial and recreational sectors is 20 inches FL off the coasts of Georgia and Florida with no size restrictions elsewhere. Allowable gear includes hook-and-line gear including manual, electric, and hydraulic rods and reels; bandit gear; handlines; longlines; and spearfishing (including powerheads) gear. Owners of commercial vessels and/or charter vessels/headboats must have vessel permits and also operator permits. For a commercially permitted vessel fishing north of 39^{o} N latitude that does not have a federal commercial vessel permit for dolphin or wahoo, the trip limit is 200 pounds of dolphin and wahoo combined. The recreational bag limit is 10 dolphin per person per

day, with a limit of 60 dolphin per boat per day (headboats are excluded from the boat limit). No sale of dolphin caught under the bag limit is allowed unless the seller holds the necessary commercial permits. Average annual landings in the South Atlantic over the recent five years were about 834,000 pounds for the commercial sector and about 9.9 mp for the recreational sector.

1.7.2 Status of Stocks

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

1.7.2.1 King Mackerel

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

1.7.2.2 Spanish Mackerel

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

1.7.2.3 Cobia

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

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

1.7.2.4 Cero, Little Tunny, Dolphin, Bluefish

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

2.0 MANAGEMENT ALTERNATIVES

Note: Changes made by the SAFMC are shown in yellow.

2.1 ACTION 1: Modifications to the Fishery Management Unit

Alternative 1. No Action - ~~Status quo~~ retain only Gulf and Atlantic group king and Spanish mackerel and cobia in the management unit for management purposes and clarify that the other species are included in the management unit of the CMP FMP for data collection purposes only.

Alternative 2. Retain only Gulf and Atlantic group king and Spanish mackerel and cobia in the management unit and designate ~~all~~ other species as ecosystem component species.

Subalternative a: Cero
Subalternative b: Little Tunny
Subalternative c: Dolphin in the Gulf
Subalternative d: Bluefish in the Gulf

Alternative 3. Retain only Gulf and Atlantic group king and Spanish mackerel and cobia in the management unit, remove dolphin in the Atlantic, and designate ~~all~~ other species in the CMP FMP management plan as ecosystem component species.

Subalternative a: Cero
Subalternative b: Little Tunny
Subalternative c: Dolphin in the Gulf
Subalternative d: Bluefish in the Gulf

Alternative 4. Remove ~~all~~ species other than king mackerel, Spanish mackerel, and cobia from the CMP FMP.

Subalternative a: Cero
Subalternative b: Little Tunny
Subalternative c: Dolphin in the Gulf
Subalternative d: Bluefish in the Gulf

SAFMC Preferred Alternative 5. Include and analyze alternatives to retain Little Tunny in the management unit. SAFMC staff has developed the following approaches that are necessary to retain Little Tunny based on guidance from Council:

Approach #1. If the Gulf Council agrees to retain Little Tunny, then the actions/alternatives will be included as joint actions to be approved by both Councils. The Councils could also agree to a management boundary and manage as two separate migratory groups as is being proposed for Cobia. This would require both Councils to establish ACLs/AMs/etc. for their respective management groups.

Approach #2. If the Gulf Council does not agree to retain little Tunny, then the one joint action would be to create a separate Atlantic Migratory Group at the Council boundary similar to what is being proposed by the South Atlantic Council for Cobia. The South Atlantic Council would

then develop ACLs/AMs/etc. for Atlantic Migratory Group Little Tunny.
Management Boundary:
Alternative 1. No Action. Maintain one group of Little Tunny.
Alternative 2. Separate the two migratory groups at the Miami-Dade/Monroe County line.
Alternative 3. Separate the two migratory groups at the SAFMC/GMFMC boundary.
Alternative 4. Establish an Atlantic Migratory Group of Little Tunny including the SAFMC and MAFMC areas of jurisdiction.

Other Decisions – see spreadsheet with tab for Little Tunny Decisions.

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

Alternative 2 would designate bluefish, cero, little tunny, and dolphin as ecosystem component species, and **Alternative 3** would be the same as **Alternative 2**, except that it would remove dolphin (Atlantic) from the CMP FMP, which is necessary since in the Atlantic dolphin are currently being managed via the Dolphin and Wahoo FMP. The designation as ecosystem component species would preclude the need to set ACLs and AMs for these stocks; however, it is doubtful that these species would meet the criteria as stated in Section 1.1. **Alternative 4** would simply remove these species from the CMP FMP, which is justified based on the discussions above and those provided in the Environmental Consequences section for Action 1.

2.2 ACTION 2: Modify the Framework Procedure

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

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

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

Option 1: Adopt the base Framework Procedure (Appendix B)

SAFMC Preferred Option 2: Adopt the more broad Framework Procedure (Appendix C)

Option 3: Adopt the more narrow Framework Procedure (Appendix D)

Discussion:

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

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

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

assessment or survey results.

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

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

The Council is also considering revisions that incorporate the SEDAR process as well as provide a more generic framework procedure (**Alternative 3**). Generic frameworks as described in **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. **Option a** is a base procedure, **Option b** has a broad focus, and **Option c** has a narrow focus. The options in **Alternative 3** would increase the flexibility of the Councils and NOAA Fisheries Service by identifying additional measures that could be changed under the procedure. In addition, these framework options would clarify the appropriate process needed for each type of change. The major differences among the options are highlighted in Table 2.2.1.

Table 2.2.1. Comparison of Alternative 3 options for a framework procedure.

	Option a (Base)	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 *Representative lists of actions that can be taken under Abbreviated and Standard Open framework are given, but are not exclusive* Closed framework can be used for a specific list of actions	Open framework can be used for a representative list of actions, plus other measures deemed appropriate by the Councils Closed framework can be used for a specific list of actions, plus any other immediate action specified in the regulations	Open framework can only be used for specific listed actions Closed framework can only be used for a specific list of actions
Public input	Requires public discussion at one meeting for each Council	Requires public discussion at one meeting for each Council	Requires public discussion during at least three meetings for each Council, and discussion at separate public hearings within the areas most affected by the proposed measures.
AP/SSC participation	Each Council may convene their SSC, SEP, or AP, as appropriate	Convening the SSC, SEP, or AP, prior to final action is not required	Each Council shall convene their SSC, SEP, and AP
How a request of action is made	Abbreviated requires a letter or memo from the Councils with supporting analyses Standard requires a completed framework document with supporting analyses	Via letter, memo, or the completed framework document with supporting analyses.	Via letter, memo, or completed framework document with supporting analyses.

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

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

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

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

Discussion: Currently, the CMP FMP considers that there is only one stock of cobia that includes the Gulf and Atlantic. Although Franks et. al (1992), Franks and McBee (1994), Franks and Moxey (1996), and Burns et. al (1998) observed migrations of cobia from wintering grounds in the Florida Keys up the Atlantic and Gulf coasts, they also noted that some portion of the cobia stocks 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) as quoted in Section 1.3 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.

Alternative 1 would maintain the one stock hypothesis, but it is not supported by the assessment scientists in the past, and as discussed above it may not represent the best available science. **Alternative 2** would separate the migratory groups at the 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. Furthermore, it is the separation line used in the most recent cobia stock assessment. **Alternative 3** would separate the groups at the jurisdictional boundary between the Gulf and South Atlantic Councils similar to the boundary being proposed by the two councils for black grouper. Although it is not possible at this time to evaluate biological, economic and social differences in impacts of the choice of either **Alternative 2** or **Alternative 3**, there could be substantial differences in the assignment of ACLs and any subsequent AMs. As shown in Tables ___ and ____ approximately 90% of the cobia harvest comes from the recreational sector. Landings for the recreational sector are determined from the MRFSS which only defines landings to the "by-county" level. Consequently, the choice of **Alternative 3** would result in having to assign a portion of the ACL for the Atlantic and a portion to the Gulf based on some unsupported percentage (in the case of Table ____ 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 an arbitrary percentage split of the recreational catch data. This would allow the Councils to use the most current stock assessment to set ACL in the Gulf. Furthermore, it would provide a better scientific basis for future assessments of both Atlantic and Gulf group cobia. VERSUS Furthermore, it would make it easier to conduct future assessments.

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

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

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

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

2.4 ACTION 4: Set Annual Catch Limit (ACL) for Gulf Group Cobia

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

Alternative 2. Set ACL = MSY at 1.5 MP for Gulf group cobia

Option a. Set a single ACL

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

Option c. Set separate commercial and recreational ACLs based on current average percent of catches for the period 1986 through 2009 – suggest moving to considered but rejected because the time period exceeds the longevity of the stock

Alternative 3. Set ACL = ABC (yield corresponding 0.75*FMSY when the stock is at equilibrium [currently estimated at 1.45 MP] for Gulf group cobia)

Option a. Set a single ACL

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

Option c. Set separate commercial and recreational ACLs based on current average percent of catches for the period 1986 through 2009– suggest moving to considered but rejected because the time period exceeds the longevity of the stock

Discussion: Gulf group cobia have not been assessed since 2000; however this stock is managed by a two-fish per person per day bag limit for the commercial and recreational fisheries. Additionally, approximately 90% of the landings are recreational. The stock assessment concluded that there was only a 30% chance that the stock was overfished and only a 40% chance of overfishing occurring in 2000. Although the Gulf stock is healthy according to the last assessment, the MSAP (2001) recommended that the ABC should not exceed the yield when fishing at 75% Fmsy which was estimated at 1.45 MP. As shown in Tables 2.3.1 and 2.3.2, this catch level has not been reached in any year from 2000 through 2009, and recent catches have been well below the highest catch levels in 2004 and 2005. Consequently, setting ACL equal to the ABC recommendation **(Alternative 3)** is unlikely to result in exceeding this catch level and triggering accountability measures. The selection of **Alternative 2** which would set ACL equal to MSY or OFL is even more unlikely to invoke AMs; however, it would likely be rejected unless an alternative method of assessment from Williams (2000) is used since this level exceeds the ABC recommendation of MSAP (2001) and accepted as best available science by the SSC at that time. **Alternative 1** is not feasible unless cobia were removed from the fishery since the setting of ACL is a requirement of the law. It is included for NEPA analysis. Because the stock assessment is somewhat outdated, it is more precautionary to select (**Alternative 3**) until a new assessment for both Gulf and Atlantic groups of cobia is completed (currently scheduled for 2012).

Alternatives 2 and 3 also offer the options of having a single ACL for the Gulf stock or setting separate ACLs for the commercial and recreational sector 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 cobia. On the other hand, choosing **Option b or Option c** under either of these alternatives would have the effect of setting allocations, and it would invoke separate sets of accountability measures if either was exceeded. For Gulf cobia such a separation would not seem to be necessary because both

sectors are managed by exactly the same regulations, namely a 2-fish per person/day bag limit and a 33-inch FL minimum size limit. The 33-inch FL regulation has been in effect since 1985 and the 2-fish bag limit since August 1990. Consequently, these regulations have been in effect for a period that exceeds the longevity of this species. Since catch has been managed at a level below that which would be expected to result in overfishing, and since both sectors are managed by the exact same regulations, the simplest choice would be **Option a.**

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

Alternative 1. No action – do not set ACT for Gulf group cobia
SAFMC PREFERRED FOR COMMERCIAL ATLANTIC COBIA

Alternative 2. Set ACT = ACL = MSY = 1.5 MP for Gulf group cobia

Option a. Set a single ACT

Option b. Set separate commercial and recreational ACTs based on current average percent of catches for the period 1999 through 2009

Option c. Set separate commercial and recreational ACTs based on current average percent of catches for the period 1986 through 2009

Alternative 3. Set ACT = ABC (yield corresponding 0.75*FMSY when the stock is at equilibrium [currently estimated at 1.45 MP] for Gulf group cobia)

Option a. Set a single ACT

Option b. Set separate commercial and recreational ACTs based on current average percent of catches for the period 1999 through 2009

Option c. Set separate commercial and recreational ACTs based on current average percent of catches for the period 1986 through 2009

Alternative 4. Set ACT at 0.90*ABC (yield corresponding 0.75*FMSY when the stock is at equilibrium [currently estimated at 1.45 MP] for Gulf group cobia) which is 1.23 MP

Option a. Set a single ACT

Option b. Set separate commercial and recreational ACTs based on current average percent of catches for the period 1999 through 2009

Option c. Set separate commercial and recreational ACTs based on current average percent of catches for the period 1986 through 2009

Discussion: Note: SAFMC moved to set ACT for the recreational sector at ACL[(1-PSE) or 0.5, whichever is greater. Note: SAFMC moved all ACT alternatives for commercial to Considered but Rejected Section. Alternatives 1 and 4 are the only viable ones since Alternatives 2 and 3 are the same as Alternatives 2 and 3 of Action 4.

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

Alternative 1. No Action – Retain current in-season accountability measures (AMs) for Gulf group cobia.

Option a. Commercial bag limit of 2 per person per day

Option b. Recreational bag limit of 2 per person per day

Alternative 2. Change in-season AMs

Option a. Commercial

Suboption i. Closure when commercial/stock ACL/ACT reached

Suboption ii. Trip limit implemented when x% of stock/commercial ACL/ACT reached

Option b. Recreational

Suboption i. Closure when stock/recreational ACL/ACT reached

Suboption ii. Bag limit reduced when x% of stock/recreational ACL/ACT reached

Alternative 3. Set post-season AMs

Option a. Commercial

Suboption i. Payback of overage from quota in the following year

Suboption ii. Implement trip limit in the following year

Option b. Recreational

Suboption i. Payback of overage from quota in the following year

Suboption ii. Reduce bag limit in the following year

Suboption iii. Shorten season in the following year

Note: **If the Council selects Alternative 3, Option a under Action 4, Alternatives 2 and 3 above would need to be revised to reflect the single ACL preference, as well as the discussion below. The Council may choose more than one preferred alternative.**

Discussion: Current regulations for cobia include bag limits that apply to both the commercial and recreational sectors.

In-season commercial closures could be applied if a commercial quota is set based on the ACL or ACT. If **Alternative 2aii** is chosen, a trip limit would need to be determined because one currently does not exist. In-season recreational AMs are more difficult to implement because they require in-season tracking of the recreational catch.

Post-season AMs do not currently exist for either sector. Paybacks of overages reduce the next year's quota by the amount of the current year's overage. For the commercial sector (**Alternative 3ai**), this quota reduction could result in early closures. For the recreational sector (**Alternative 3bi**), paybacks would necessitate either a reduction in the bag limit (**Alternative 3bii**) or season (**Alternative 3biii**) to constrain harvest within a lower quota. However, even without payback of an overage, reductions of the bag limit or season could be applied to constrain harvest within the current quota.

2.7 ACTION 7: Set Annual Catch Limit (ACL) for Gulf Migratory Group King Mackerel

Alternative 1. No Action - ~~Status quo -~~ Set ACL for Gulf group king mackerel at 10.2 MP

Alternative 2. Set ACL = ABC (13.215 MP) for Gulf group king mackerel

Option a. Set a single ACL

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

Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

Alternative 3. Set ACL = 0.90* ABC (11.894 MP) for Gulf group king mackerel

Option a. Set a single ACL

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

Option c. For the commercial sector, set separate ACLs for hook-and-line and run-around gillnets

Note: Options b and c of Alternatives 2 and 3 could be combined and reduce analysis because it is likely that separate ACLs will be needed for each of the commercial hook and line zones and subzones, as well as the gill net sector, assuming that the Council maintains the split of the TAC/ACL as established in Amendment 9 (See History of Management)

Discussion: SEDAR 16 in 2008 developed deterministic estimates of yields at various benchmarks from 2007 through 2016 (Table 3 – Appendix). The SSC reviewed these estimates and recommended an ABC in 2011 of 13.215 MP which is the estimated yield when fishing at 85%*F30%SPR (the proxy for Fmsy). The SSC also noted that the estimate of biomass/MSST in 2006 was 1.471, and the estimate of F/MFMT was 0.828 (Table 1 – Appendix). Consequently, the stock was not overfished and not undergoing overfishing. It is also noted that catches since approximately 2000 have been well below the current TAC/ACL of 10.2 MP, averaging only **7……** MP. Additionally, these past catch values are based on the assumption of 100% Gulf group king mackerel in the winter mixing zone (Figure 1.3.1). Based on new information from SEDAR 5 in 2004 and SEDAR 16, annual catch limits being considered in this amendment assume that this winter population is made up of 50% Gulf and 50% Atlantic group king mackerel; consequently, past commercial catches for Gulf group king mackerel are probably overestimated.

Alternative 2 would set ACL equal to the ABC recommendation which would be the least conservative alternative. **Alternative 1** would retain the existing TAC/ACL which would be the most conservative, and **Alternative 3** would represent a middle-of-the-road risk alternative. Although **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. None of the alternatives are likely to trigger accountability measures for the recreational sector because their catches have been well below their allocation even under **Alternative 1**.

NEED TO ADD COMPARISON OF OPTIONS BASED ON COUNCIL'S DECISION ON COMBINING OPTIONS B AND C

2.8 ACTION 8: Set Annual Catch Target (ACT) for Gulf Migratory Group King Mackerel

Alternative 1. No action – do not set ACT for Gulf group king mackerel
SAFMC PREFERRED FOR ATLANTIC GROUP COMMERCIAL
Alternative 2. Status Quo – Set ACT = current TAC (10.2 MP)

Alternative 3. Set ACT = ACL = ABC (13.215 MP) for Gulf group king mackerel

Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations
Option c. For the commercial sector, set separate ACTs for hook-and-line and run-around gillnets

Alternative 4. Set ACT = 0.90* ABC (11.894 MP) for Gulf group king mackerel

Option a. Set a single ACT
Option b. Set separate commercial and recreational ACTs based on current allocations
Option c. For the commercial sector, set separate ACTs for hook-and-line and run-around gillnets

Discussion: Note: SAFMC moved to set ACT for the recreational sector at ACL[(1-PSE) or 0.5, whichever is greater. Based on the level of catches relative to any of the choices of ACL, it would not appear that an ACT below ACL is needed. Consequently, this action may not be needed, but the Council needs to make that determination, or select a preferred alternative before further analyses can be done.

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

Alternative 1. No Action - ~~Status quo -~~ Retain current in-season accountability measures (AMs) for Gulf group king mackerel.

Option a. Commercial

Supoption i. Quota closures by zone, subzone, and gear (see Table 1)

Suboption ii. Trip limits and trip limit triggers (see Table 2)

Option b. Recreational bag limit of 2 per person, including captain and crew of for-hire vessels with authority of Regional Administrator to revert bag limit to zero

Alternative 2. Change in-season AMs

Option a. Commercial

Suboption i. Closure when stock/commercial ACL/ACT PROJECTED TO BE reached **SAFMC PREFERRED IN ATLANTIC**

Suboption ii. Trip limit(s) reduced when x% of stock/commercial ACL/ACT reached

Option b. Recreational

Suboption i. Closure when stock/recreational ACL/ACT reached

Suboption ii. Bag limit reduced ~~to one~~ when ~~x% of stock/~~recreational ACL/ACT PROJECTED TO BE reached **SAFMC PREFERRED FOR ATLANTIC**

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

Option a. Commercial

Suboption i. Payback of overage from quota in the following year **SAFMC PREFERRED FOR ATLANTIC**

Suboption ii. Reduce trip limit in the following year

Option b. Recreational

Suboption i. Payback of overage from quota in the following year **SAFMC PREFERRED FOR ATLANTIC**

Suboption ii. Reduce bag limit in the following year

Suboption iii. Shorten season in the following year

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

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

Alternative 1 would maintain current regulations for the commercial sector that include in-season closures when the quota for each zone, subzone, or gill-net gear is projected to be reached. Table 1 shows the quota for each area and the date when a closure occurred since the 2001-2002 fishing season. Each zone, subzone, and gill-net gear has separate trip limits and some areas have triggers to adjust the trip limits (Table 2). The recreational bag limit is the same in all areas.

In-season commercial AMs could be applied to each zone, subzone, or gear as they currently are, or they could be applied according to how the ACLs and ACTs are set in Action 1. Choosing **Alternative 2ai** would effectively eliminate the individual quotas for each area. If **Alternative 2aii** were chosen, separate trip limits could still exist for each area, but triggers for trip limit reductions would all be the same and occur at the same point. In-season recreational AMs are more difficult to implement because they require in-season tracking of the recreational catch. However, it has been done; in 1988, 1989, 1990, and 1992, the recreational bag limit was reduced to zero during the fishing year. As previously discussed, recreational catches have decreased significantly since the mid 1990s, and it is unlikely that any of the aforementioned accountability measures would be triggered.

Alternative 3ai would institute an immediate post-season payback via a quota reduction either for the offending zone or gill-net gear or for the entire commercial ACL (Council needs to select). **Alternative 3aii** would implement post-season reduction through trip limit decreases for the commercial sector either for the offending zone or gill-net gear or for the entire commercial sector (Council needs to select). **Alternative 3, Option b** would implement post-season accountability measures for the recreational sector either by a quota reduction, bag limit reduction, or a shortened season. Both **Suboptions ii and iii** could be selected as preferred suboptions.

2.10 ACTION 10: Set Annual Catch Limit (ACL) for Gulf Migratory Group Spanish Mackerel

Alternative 1. No Action - ~~Status quo -~~ Set ACL for Gulf group Spanish mackerel equal to current TAC of 9.1 MP

Alternative 2. Set ACL = yield when fishing at F30% SPR = MSY = 9.0 MP for Gulf group Spanish mackerel

Option a. Set a single ACL

Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational)

Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 3. Set ACL = ABC = yield corresponding to a fishing mortality rate (FOY) defined as: FOY=0.75*FMSY when the stock is at equilibrium (currently estimated at 8.3 MP) for Gulf group Spanish mackerel

Option a. Set a single ACL

Option b. Set separate commercial and recreational ACLs based on current allocations (57% commercial, 43% recreational)

Option c. Set separate commercial and recreational ACLs based on recent landings

Discussion: Gulf group Spanish mackerel have not been assessed since 2003. At that time catch from the 2001/2002 fishing year was approximately 3.8 million pounds and TAC was set at 9.1 million pounds. Subsequent catches have ranged between approximately 2.7 and 4.9 MP (Table 3 from Sue). Additionally, there was only a 3% chance that SSB2003<MSST and only a 9% chance that F2003>MFMT. Consequently, the stock was neither overfishing nor overfished.

The 2003 Mackerel Stock Assessment Report included a range of ABC between 9.0 MP and 6.3 MP based on fishing at F_{msy} and F_{oy}, respectively. However, the MSAP used a F_{oy} proxy of $F_{40\%SPR}$, as opposed to the approved definition of F_{oy} equal to $0.75\%*F_{msy}$ when the stock is at equilibrium which would provide an F_{oy} equal to 8.3 MP (Ortiz, unpublished data). Nevertheless, the fishery has never landed 6.3 MP since the 1987/88 fishing year (Table 3 from Sue).

Alternative 1 would be the most risk prone while **Alternative 3** would be the most risk adverse with **Alternative 2** being only slightly less risky than **Alternative 1.** However, as noted it is very unlikely that any of these choices for ACL would be exceeded. Under **Alternatives 2 and 3**, **Option a** would set a single ACL for both the commercial and recreational sectors. Although this may not be the popular choice, it is the simplest option, and it is highly improbable that either sector would be subject to accountability measures because catches are so much lower than the choice of ACL under any of the alternatives being considered. **Option b** under either **Alternative 2 or Alternative 3** would maintain the current allocation of ACL between the commercial and recreational sectors; however, average catches from the 2000/2001 to the 2009/2010 fishing year have been approximately 67% recreational and 33% commercial. This timeframe and allocation percentages could be used for **Option c**.

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

Alternative 1. No action – do not set ACT for Gulf group Spanish mackerel **SAFMC PREFERRED FOR ATLANTIC GROUP COMMERCIAL**

Alternative 2. Status quo – set ACT equal to current TAC for Gulf group Spanish mackerel at 9.1 MP

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 ACLs based on recent landings

Alternative 3. Set ACT = yield when fishing at F30% SPR = MSY = 8.7 MP for Gulf group Spanish mackerel

Option a. Set a single ACT

Option b. Set separate commercial and recreational ACTs based on current allocations (57% commercial, 43% recreational)

Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 4. Set ACT = ABC = ACL = yield corresponding to a fishing mortality rate (FOY) defined as: FOY=0.75*FMSY when the stock is at equilibrium (currently estimated at 8.3 MP) for Gulf group Spanish mackerel

Option a. Set a single ACT

Option b. Set separate commercial and recreational ACTs based on current allocations (57% commercial, 43% recreational)

Option c. Set separate commercial and recreational ACLs based on recent landings

Alternative 5. Set ACT = 0.90*yield corresponding to a fishing mortality rate (FOY) defined as: FOY=0.75*FMSY when the stock is at equilibrium (currently estimated at 8.3 MP) for Gulf group Spanish mackerel. ACT=7.47 MP

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 ACLs based on recent landings

Discussion: Note: SAFMC moved to set ACT for the recreational sector at ACL[(1-PSE) or 0.5, whichever is greater. None of the choices for ACT are likely to be met since catches have never exceeded 6.2 MP. **Based on the level of catches relative to any of the choices of ACL, it would not appear that an ACT below ACL is needed. Consequently, this action may not be needed, but the Council needs to make that determination, or select a preferred alternative before further analyses can be done.**

NEED TO ADD COMPARISON OF ALTERNATIVES

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

Alternative 1. No Action - ~~Status quo -~~ Retain current in-season accountability measures (AMs) for Gulf group Spanish mackerel.

Option a. Commercial quota closure

Option b. Recreational bag limit of 15 per person per day

Alternative 2. Change in-season AMs

Option a. Commercial

Suboption i. Closure when stock ACL/ACT reached

Suboption ii. Trip limit implemented when x% of stock/commercial ACL/ACT reached

Option b. Recreational

Suboption i. Closure when stock/recreational ACL/ACT reached

Suboption ii. Bag limit reduced when x% of stock/recreational ACL/ACT reached

Alternative 3. Set post-season AMs

Option a. Commercial

Suboption i. Payback of overage from quota in the following year

Suboption ii. Implement trip limit in the following year

Option b. Recreational

Suboption i. Payback of overage from quota in the following year

Suboption ii. Reduce bag limit in the following year

Suboption iii. Shorten season in the following year

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

Discussion: Current regulations for Gulf group Spanish mackerel **(Alternative 1)** include in-season closures for the commercial sector when the 5.187 million-pound quota is projected to be reached. However, the fishery has not been closed since the 1988-1989 fishing season, and commercial landings have decreased since 1991/1992 even as the quota increased with the highest catch for the 2000/2001 through 2009/2010 period being only approximately 2.3 MP (Table 1.7.1.2.1). Consequently, it is unlikely that in-season accountability measures would be triggered for the commercial sector under any of the choices for ACL.

~~In-season commercial closures could be applied when the commercial quota is reached as they currently are, or they could be applied when the stock ACL or ACT is reached. Any choice of a commercial ACL or ACT is not likely to invoke AMs of any kind because historical catches have been well below these limits/targets.~~ Choosing **Alternative 2ai** would effectively be the same as **Alternative 1a** ~~eliminate the commercial quota~~. If **Alternative 2aii** is chosen, a trip limit would need to be determined because one does not currently exist.

In-season recreational AMs are more difficult to implement because they require in-season tracking of the recreational catch. However, as with the commercial sector, it is unlikely that accountability measures would be triggered under any choice of ACL because of the low catch levels in more recent years (Table 1.7.1.2.2).

Post-season AMs **(Alternative 3)** do not currently exist for either sector. Paybacks of overages would reduce the next year's quota by the amount of the current year's overage. For the commercial sector, **Alternative 3ai** would result in quota reductions the following year. **(Note: There could be options for a 3-year rolling average). Alternative 3aii** would require establishing trip limits that do not currently exist.

For the recreational sector **(Alternative 3bi)**, paybacks would necessitate either a reduction in the bag limit **(Alternative 3bii)** or season **(Alternative 3biii)** or some combination thereof to constrain harvest within a lower quota. However, even without payback of an overage, reductions of the bag limit or season could be applied to constrain harvest within the current quota.

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

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

The Council has determined that the value for MSY is the value of yield at F_{MSY} from the most recent stock assessment. Currently MSY = 10.4 million pounds. Based on the SEDAR 16 assessment, MSY = 8.964 million pounds (Table 2.13.2.1). Based on updated projections, MSY = 9.357-12.836 million pounds (Table 2.13.3.1).

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

The Council has determined that the value for MFMT is the value of F_{MSY} or proxy from the most recent stock assessment. Currently MFMT = F_{MSY} = $F_{30\%SPR}$ with no poundage estimated. Based on the SEDAR 16 assessment, MFMT = F_{MSY} = $F_{30\%SPR}$ = 0.256 (Table 2.13.2.1).

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

The Scientific and Statistical Committee provided the following OFL at their April 2010 meeting: "The OFL for king mackerel is 12.8359 million pounds (corresponds to yield at $F_{30\%SPR}$, the accepted MSY proxy from the last stock assessment)." Note: This is the expected yield in 2011 (Table 2.13.3.2).

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

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

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

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

The following NS1 excerpts describe the process:

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

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

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

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

in the estimate of OFL and any other scientific uncertainty. The ABC control rule should consider uncertainty in factors such as stock assessment results, time lags in updating assessments, the degree of retrospective revision of assessment results, and projections. The control rule may be used in a tiered approach to address different levels of scientific uncertainty.

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

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

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

The SSC met again in April 2010 to further develop the ABC control rule for stocks which are unassessed and for which no P* analyses are available. An alternative control rule was developed and presented to the Council in June 2010. However, some aspects of the proposed rule and its criteria were considered inappropriate considering guidance that the rule should

account for scientific uncertainty. The Council ultimately rejected the unassessed stocks control rule as put forth by the SSC, and provided specific recommendations and guidance for further consideration. The SSC met again in August 2010 to reconsider the control rule for unassessed stocks. During this meeting they developed a rule incorporating several tiers reflecting varying levels of data availability for the unassessed stocks. This approach was presented to the Council in September 2010. The final proposed ABC Control rule is included as **Alternative 2** in the ABC control rule alternatives of this amendment and included below:

Level 1: Assessed Stocks

- Apply the assessed stocks control rule to determine ABC.

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

  I. Assessment Information (10%)
  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%)

  II. Uncertainty Characterization (10%)
  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 Fmsy and MSY are lacking. (7.5%)
  5. **None**. Only single point estimates; no sensitivities or uncertainty evaluations. (10%)

  III. Stock Status (10%)
  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%)

IV. Productivity and Susceptibility – Risk Analysis (10%)

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%)

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

- OFL derived from "Depletion-Based Stock Reduction Analysis" (DBSRA).
- ABC derived from applying the assessed stocks rule to determine adjustment factor if possible, or from expert judgment if not possible.

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

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

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

- OFL and ABC derived on a case by case basis.

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

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

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

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

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

Source: Table 5a SEDAR 16.

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

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

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

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

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

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

Alternative 3. Establish an ABC Control Rule where ABC equals OFL.

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

Alternative 4a. ABC = 65%OFL (8.3433 million pounds)

Alternative 4b. ABC = 75%OFL (9.6269 million pounds)

Alternative 4c. ABC = 85%OFL (10.9105 million pounds)

The South Atlantic Council's SSC developed an ABC Control rule for assessed stocks based on the guidance provided by the Council on the level of risk (10-40%)(**Alternative 2**). The ABC values for the years 2011, 2012 and 2013, as recommended by the SSC based on the SSC control rule, are shown in Table 2.13.3.4. An average value has been added for discussion purposes. The SSC expects to receive an updated assessment prior to providing an ABC for 2014 onwards. The current SEDAR schedule through 2015 does not include Atlantic migratory group king mackerel.

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

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

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

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

The IPT recommends adding OY to the alternatives as shown below and adding two subalternatives under Alternative 5.

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 2.13.3.1), the updated projections (Table 2.13.3.2), and the SSC recommendations (Table 2.13.4.1), the Council is considering the following options. Landings data are provided in Table 2.13.5.1 to assist in choosing ACL.

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

The Mackerel Advisory Panel considered state by state quotas but instead recommended that the commercial quota be allocated into two regions: NC/SC and GA/FL. The Mackerel Advisory Panel recommended an ACL = 8.356 million pounds based on the values in Table 2.13.3.1.

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

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

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

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

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

Sub-Alternative 5a. ACL = 65%ABC.

Sub-Alternative 5b. ACL = 75%ABC.

Sub-Alternative 5c. ACL = 85%ABC.

Sub-Alternative 5d. ACL = 80%ABC.

Sub-Alternative 5e. ACL = 90%ABC.

Under **Alternative 1** the recreational allocation (62.9%) is 6.30 million pounds (recreational sector ACL) and the commercial allocation (37.1%) is 3.71 million pounds (commercial sector ACL). The recreational allocation has not been exceeded since 1997/98 (Table 2.13.5.1). This contributed to the TAC being exceeded. The commercial allocation has not been exceeded since

1997/98 and contributed to the TAC being exceeded.

Under **Alternative 2** the recreational allocation (62.9%) would be 6.58 million pounds (recreational sector ACL) and the commercial allocation (37.1%) would be 3.88 million pounds (commercial sector ACL). The recreational allocation would not have been exceeded and is not expected to be exceeded (Table 2.13.5.1). The commercial allocation would not have been exceeded but did come close in 2009/10 with landings of 3.559 million pounds versus the potential allocation of 3.88 million pounds. ACL would not have been exceeded.

Under **Alternative 3** the recreational allocation (62.9%) would be 6.33 million pounds (recreational sector ACL) and the commercial allocation (37.1%) would be 3.73 million pounds (commercial sector ACL). The recreational allocation would not have been exceeded and is not expected to be exceeded (Table 2.13.5.1). The commercial allocation would not have been exceeded but did come close in 2009/10 with landings of 3.559 million pounds versus the potential allocation of 3.73 million pounds. ACL would not have been exceeded.

Under **Alternative 4** the recreational allocation (62.9%) would be 6.89 million pounds (recreational sector ACL) and the commercial allocation (37.1%) would be 4.06 million pounds (commercial sector ACL). The recreational allocation would not have been exceeded and is not expected to be exceeded (Table 2.13.5.1). The commercial allocation would not have been exceeded but did come close in 2009/10 with landings of 3.559 million pounds versus the potential allocation of 4.06 million pounds. ACL would not have been exceeded.

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

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

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

Notes & Sources:

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

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

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

Source: Data from 1986/87 - 2005/06 from Table 2.5.4 in SEDAR 16 updated as follows: Commercial 1997-98 onwards from SEFSC, ALS database as shown in Table 1.7.1.1.3. Recreational 2000-01 onwares from SEFSC, MRFSS, HBS, and TPW databases as shown in Table 1.7.1.1.4.

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

Action 2.13.5a. Commercial Sector ACT

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

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

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

Table 2.13.5.1. The commercial sector ACT for each of the alternatives. Values are in lbs whole weight.
Note: This table will be completed once the Council chooses the preferred ACL alternative. The SSC's recommended average ABC value is used as an example.

Species	Preferred Commercial ACL	Commercial Sector ACT		
		ACT Alt. 2; ACT=ACL	ACT Alt. 3; ACT=90%(ACL)	ACT Alt. 4; ACT=80%(ACL)
Atlantic migratory group king mackerel	3.88	3.88	3.49	3.10

Reducing the commercial quota will increase the likelihood that the season will be closed early. **Alternative 3** has the greatest potential to shorten the season and **Alternative 2** the least.

Action 2.13.5b. Recreational Sector ACT

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

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

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

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

Table 12.13.5.2. Proportional Standard Errors (PSEs) for Atlantic migratory group king mackerel from numbers estimates (A+B1) for all modes.
Source: Obtained from http://www.st.nmfs.noaa.gov on May 12, 2010.

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

The Council should provide guidance on which PSE to use. The 5-year average is used below as an example.

Table 2.13.5.3. The recreational ACT for each of the alternatives. Values are in lbs whole weight.
Note: This table will be completed once the Council chooses the preferred ACL alternative. The SSC's recommended average ABC value is used as an example.

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

Reducing the recreational allocation will increase the likelihood that the recreational catch will exceed their allocation. **Alternative 3** has the greatest potential and **Alternative 2** the least. None of these ACTs would have been exceeded based on catches (Table 2.13.4.1).

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

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

The Councils may specify multiple preferred from among the following:

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

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

Sub-Alternative a. Reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year.

Sub-Alternative b (SAFMC Preferred). Reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following fishing year.

Alternative 3. Commercial payback of any overage.

SAFMC Preferred Sub-Alternative 3a. Payback regardless of stock status.

Sub-Alternative 3b. Payback only if overfished.

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

SAFMC Preferred Sub-Alternative 4a. Payback regardless of stock status.

Sub-Alternative 4b. Payback only if overfished.

NEED TO ADD COMPARISON OF ALTERNATIVES

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

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, Fmsy, and Bmsy were quite sensitive to the assumptions being examined via the sensitivity runs. However, the ratio of current fishing mortality to Fmsy 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 Bmsy, 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 the even though the model could estimate the steepness parameter for the stock-recruit curve, the Review Panel expressed concern over its uncertainty. The SSC noted that we will likely never have precise estimates of such parameters and must make decisions despite this uncertainty.

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

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

The Council will set OY and potential values are shown in Table 2.16.2.1.

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

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

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

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

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

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

The OFL is unknown.

Table 2.16.2.1. Spanish mackerel status determination criteria.

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

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

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

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

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

ABC is recommended by the SSC and specified by the Council. The SSC provided an ABC Control Rule and value at their April 2010 meeting. Prior to the April 2010 meeting, the Council was using the projections of yield at various portions of the yield at MSY as the ABC range (Table 2.16.3.1). This results in ABC = 10.608 – 11.320 million pounds. The current ABC = 5.7 – 9.0 million pounds.

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

IPT recommends changing Alternative 2 to read:
SAFMC Preferred Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as 4.91 million pounds (MP).

Alternative 2. Establish ABC based on the SSC's recommendation.

Discussion: See Section 2.13.3 for discussion of the SSC's ABC Control Rule. This material is incorporated by reference. Since no estimate of MSY is available for Spanish mackerel the SSC decided to develop ABC recommendations based on landings data. Based on the SEDAR 17 review panel recommendation that overfishing was not occurring, the SSC decided to bypass the OFL estimate and recommend ABC as the median of landings over the last 10 years. Therefore, ABC for Spanish mackerel = 4,913,254 pounds.

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

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

NEED TO ADD COMPARISON OF ALTERNATIVES

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

The IPT recommends adding OY to the alternatives shown below and adding two sub-alternatives.

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

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

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

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

Sub-Alterantive 3a. ACL = 75%ABC = 3.97 million pounds.

Sub-Alterantive 3b. ACL = 85%ABC = 4.50 million pounds.

Sub-Alternative 3c. ACL = 95%ABC = 5.03 million pounds.

Sub-Alternative 3d. ACL = 80%ABC = 4.23 million pounds.

Sub-Alternative 3e. ACL = 90%ABC = 4.76 million pounds.

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

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

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

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

Fishing Year	ABC Range[1] (lbs)	TAC (M lbs)	Recreational Allocation/Quota[2] (lbs. /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	2.74	6.261
1989/90	4.1 - 7.4	6	2.76 / 1,725,000	4 in FL, 10 GA-NC	3.24	3.941	1.569	5.51
1990/91	4.2 - 6.6	5	1.86 / 1,216,000	4 in FL, 10 GA-NC	3.14	3.535	2.075	5.61
1991/92	5.5 - 13.5	7	3.50 / 2,778,000	5 in FL, 10 GA-NC	3.5	4.707	2.287	6.994
1992/93	4.9 - 7.9	7	3.50 / 2,536,000	10 FL - NY	3.5	3.727	1.995	5.722
1993/94	7.3 - 13.0	9	4.50 / 3,214,000	10 FL - NY	4.5	4.811	1.493	6.304
1994/95	4.1 - 9.2	9.2	4.60 / 3,262,000	10 FL - NY	4.6	5.254	1.378	6.632
1995/96	4.9 - 14.7	9.4	4.70 / 3,113,000	10 FL - NY	4.7	1.834	1.089	2.923
1996/97	5.0 - 7.0	7	3.50 / 2,713,000	10 FL - NY	3.5	3.098	0.849	3.947
1997/98	5.8 - 9.4	8	4.00 / 2,564,000	10 FL - NY	4	3.057	1.66	4.717
1998/99	5.4 - 8.2	8	4.00 / 2,564,000	10 FL - NY	4	3.272	0.817	4.089
1999/00	5.7 - 9.0	7.04	3.17 / 2,032,000	10 FL - NY	3.52	2.608	1.505	4.113
2000/01	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.007	2.28	5.287
2001/02	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.329	2.034	5.363
2002/03	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.679	1.605	5.284
2003/04	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	4.091	1.846	5.937
2004/05	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.761	1.365	5.126
2005/06	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	4.041	1.649	5.69
2006/07	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	4.038	1.653	5.691
2007/08	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	3.5	1.711	5.211
2008/09	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	2.508	2.047	4.555
2009/10	5.7 - 9.0	7.04	3.17 / 2,032,000	15 FL - NY	3.87	2.633	2.108	4.741

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

Source: ALS data, MRFSS, HBS, TPWD as shown in Table 1.7.1.2.3 for commercial and Table 1.7.1.2.4 for recreational; 2009/10 commercial from NMFS Quota Report dated March 18, 2010 (#11 Report, 2008/2009).

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

Action 2.16.5a Commercial Sector ACT

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

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

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

Reducing the commercial quota will increase the likelihood that the season will be closed early. **Alternative 4** has the greatest potential to shorten the season and **Alternative 2** the least.

Table 2.16.5.1. The commercial sector ACT for each of the alternatives. Values are in lbs whole weight.
Note: This table will be completed once the Council chooses the preferred ACL alternative. The SSC's recommended ABC value is used as an example.

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

Action 2.16.5b Recreational Sector ACT

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

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

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

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

Reducing the recreational allocation will increase the likelihood that recreational catches will exceed their allocation. **Alternative 3** has the greatest potential and **Alternative 4** the least.

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

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

The Council should provide guidance on which PSE to use. The 5-year average is used below as an example.

Table 2.16.5.3. The recreational ACT for each of the alternatives. Values are in lbs whole weight.
Note: This table will be completed once the Council chooses the preferred ACL alternative. The SSC's recommended ABC value is used as an example.

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

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

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

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

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

Sub-Alternative a. Reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing year.

Sub-Alternative b (**Preferred**). Reduce the bag limit to ensure landings do not exceed the recreational sector ACL for the following fishing year.

Alternative 3. Commercial payback of any overage.

SAFMC Preferred Sub-Alternative 3a. Payback regardless of stock status.

Sub-Alternative 3b. Payback only if overfished.

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

SAFMC Preferred Sub-Alternative 4a. Payback regardless of stock status.

Sub-Alternative 4b. Payback only if overfished.

NEED TO ADD COMPARISON OF ALTERNATIVES

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

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

The IPT recommends not including bag limit sales in this amendment. See Action 15 for details. Bag limit reductions may not be necessary; however, reducing the bag limit from 15 to 10 has been analyzed. The boat limit has not been analyzed and the IPT is recommending that consideration of a boat limit be deferred to a future amendment. In addition, trip limit alternatives should be deferred into the next amendment given the limited time available to compile and analyze these alternatives. There are trip limit modifications that the Council wants evaluated for king mackerel and they both could be covered in the next mackerel amendment.

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

1. April 1 - November 30 -- 3,500 pounds per vessel per day.
2. December 1 until 75% of the adjusted allocation is taken:
   Monday - Friday Unlimited
   Other days 1,500 pounds
   (Vessel fishing days begin at 6:00 a.m. and extend until 6:00 a.m. the following day, and vessels must be unloaded by 6:00 p.m. of that following day.)
3. After 75% of the adjusted allocation is taken 1,500 pounds per vessel per day for all days.
4. When 100% of the adjusted allocation is reached: 500 pounds per vessel per day to the end of the fishing year (March 31). Adjusted allocation compensates for estimated catches of 500 pounds per vessel per day to the end of the season.

~~**Alternative 2 (Preferred).** Prohibit bag limit sales. (Note: This refers to all sales of bag limit caught fish whether recreational or commercial.)~~

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

Alternative 4. Set a maximum bag limit of 60 Spanish mackerel per boat for private recreational boats.

SAFMC Preferred Alternative 5. Reduce the individual bag limit from 15 to 10 per person.

~~**Alternative 6.** Change the unlimited opening from December 1 to November 1st or 15th.~~

~~**Alternative 7.** Change the unlimited opening from December 1 to March 1.~~

~~**Alternative 8.** Track Florida state regulations (3,500 pounds Monday through Friday and then 1,500 pounds on Saturday and Sunday).~~

Discussion:
Reducing the individual bag limit from 15 to 10 per person will not impact catches in the Mid-Atlantic other than Virginia where the reduction was 36% in 2008 (Table 2.17.1). On average (2005-2009) catches, would be reduced by 13% in Florida, 11% in Georgia, 3% in South Carolina, 17% in North Carolina, and 7% in Virginia (Table 2.18.1).

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

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

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

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

The Councils will review recommendations from the April 2010 SSC meeting and develop alternatives at the June 2010 Council meeting.

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

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

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

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

2.19.2 Overfishing Level (OFL) for Atlantic Migratory Group Cobia

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

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

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

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

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

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

Alternative 2. Adopt the SAFMC SSC recommended ABC control rule and establish ABC as xxxx pounds.

Discussion: Since no estimate of MSY is available for cobia the SSC decided to estimate OFL as the median of landings data for the period 1986-2008. Therefore, OFL = 857,714 pounds. The Council used the SSC methodology (median of 10 years of landings) and updated landings data to calculate a new OFL = 1,302,740 pounds. ~~Application of the data-poor control rule generated the following adjustments (Tier 1: +0%, Tier 2: +15%, Tier 3: +20%, Tier 4: +20%), so ABC will be set at 55% of OFL. Therefore, ABC for cobia = 471,743 pounds.~~

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

Alternative 4. Adopt the SAFMC SSC recommended ABC control rule and establish an ABC Control Rule where ABC equals a percentage of OFL.

Alternative 4a. ABC=65%OFL. (846,781 pounds)

Alternative 4b (Preferred). ABC=75%OFL (977,055 pounds)

Alternative 4c. ABC=85%OFL (1,107,329 pounds)

Alternative 5. Establish an ABC equal to the mean plus 1.5 times the standard deviation of the most recent10 years of landings data (ABC = 1,571,399 pounds).

NEED TO ADD COMPARISON OF ALTERNATIVES

2.19.4 Allocations for Atlantic Migratory Group Cobia

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

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

Alternative 3 (Preferred). Define allocations for Atlantic migratory group cobia based upon landings from the ALS, MRFSS, and headboat databases. The allocation would be based on the following formula for each sector:

Sector apportionment = (50% * average of long catch range (lbs) 2000-2008 + (50% * average of recent catch trend (lbs) 2006-2008). The allocation would be 8% commercial and 92% recreational. The commercial and recreational allocation specified for 2011 would remain in effect beyond 2011 until modified.

Discussion: Cobia catch by recreational and commercial sectors is shown using two sources in Tables 2.19.5.1 and 2.19.5.2. Unfortunately the more recent data (Table 2.19.6.2) don't include 2009 data so they are not helpful for the allocation alternatives unless the Council wants to choose different years. The potential allocations are different between the two tables for comparable years so guidance is requested on which data to use.

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

				Prefered		
		Allocation Alt.2		Allocation Alt.3		Source
Year	ABC	Rec (92%)	Com (8%)	Rec (92%)	Com (8%)	
2011	643,286	591,823	51,463	591,823	51,463	SSC
2011	977,055	957,514	19,541	977,514	19,541	SSC's method & updated landings

NEED TO ADD COMPARISON OF ALTERNATIVES

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

The IPT recommends adding OY to the alternatives as shown below and adding two new sub-alternatives.

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

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

Preferred Alternative 2. ACL = OY = ABC = 977,055 pounds based on the SSC recommendation.

Alternative 3. ACL = X% of ABC = ???? thousand pounds.

Sub-Alterantive 3a. ACL = 65%ABC = 635,086 pounds.

Sub-Alternative 3b. ACL = 75%ABC = 732,791 pounds.

Sub-Alterantive 3c. ACL = 85%ABC = 830,497 pounds.

Sub-Alterantive 3d. ACL = 80%ABC = 781,644 pounds.

Sub-Alterantive 3e. ACL = 90%ABC = 879,350 pounds.

NEED TO ADD COMPARISON OF ALTERNATIVES

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

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

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

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

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

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

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

Action 2.19.6a Commercial Sector ACT

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

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

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

Discussion:

Table 2.19.6.1. The commercial sector ACT for each of the alternatives. Values are in lbs whole weight.
Note: This table will be completed once the Council chooses the preferred ACL alternative.

Species	Preferred Commercial ACL	Commercial Sector ACT	
		ACT Alt. 3; ACT=90%(ACL)	ACT Alt. 4; ACT=80%(ACL)
Atlantic migratory group cobia	51,463	46,317	41,170

NEED TO ADD COMPARISON OF ALTERNATIVES

Action 2.19.6b Recreational Sector ACT

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

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

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

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

Discussion:

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

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

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

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

NEED TO ADD COMPARISON OF ALTERNATIVES

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

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

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

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

Alternative 3. 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. Implement Accountability Measures (AMs) for the recreational sector for this stock. If the ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the sector ACL for the following fishing year. Compare recreational ACL with recreational landings over a range of years. For 2011, use only 2011 landings. For 2012, use the average landings of 2011 and 2012. For 2013 and beyond, use three-year running average.

Alternative 4. Commercial payback of any overage.

Sub-Alternative 4a. Payback regardless of stock status.

Sub-Alternative 4b. Payback only if overfished.

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

Sub-Alternative 4a. Payback regardless of stock status.

Sub-Alternative 4b. Payback only if overfished.

Discussion:

NEED TO ADD COMPARISON OF ALTERNATIVES

2.21 ACTION 21: Management Measures for Atlantic Migratory Group Cobia

The IPT recommends not including bag limit sales in this amendment. See Action 15 for details. In addition, trip limit alternatives should be deferred into the next amendment given the limited time available to compile and analyze these alternatives. There are trip limit modifications that the Council wants evaluated for king mackerel and they both could be covered in the next mackerel amendment.

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

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

~~**Alternative 2**. Prohibit recreational bag limit sales.~~

Alternative 3. Specify a commercial trip limit:
Sub-Alternative 3A. Two cobia per person.
Sub-Alternative 3B. One cobia per person.

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

Comparison of Alternatives: Reducing the recreational bag limit from 2 to 1 per person (**Alternative 4**) will not impact catches in the Mid-Atlantic except for Virginia where the reduction would be 10% based on 2007 catches (Table 2.21.1). Catches, based on 2005-2009 data, would be reduced on average by 6% in Florida, 64% in Georgia, 16% in South Carolina, and 13% in North Carolina (Table 2.21.1). The bag limit reduction (**Alternative 4**) would help prevent the recreational ACL from being exceeded whereas **Alternative 1** would not reduce catches and would likely result in the recreational ACL being met.

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

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

3.0 AFFECTED ENVIRONMENT

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

3.1 Physical Environment

3.1.1 Gulf of Mexico

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

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

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

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

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

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

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

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

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

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

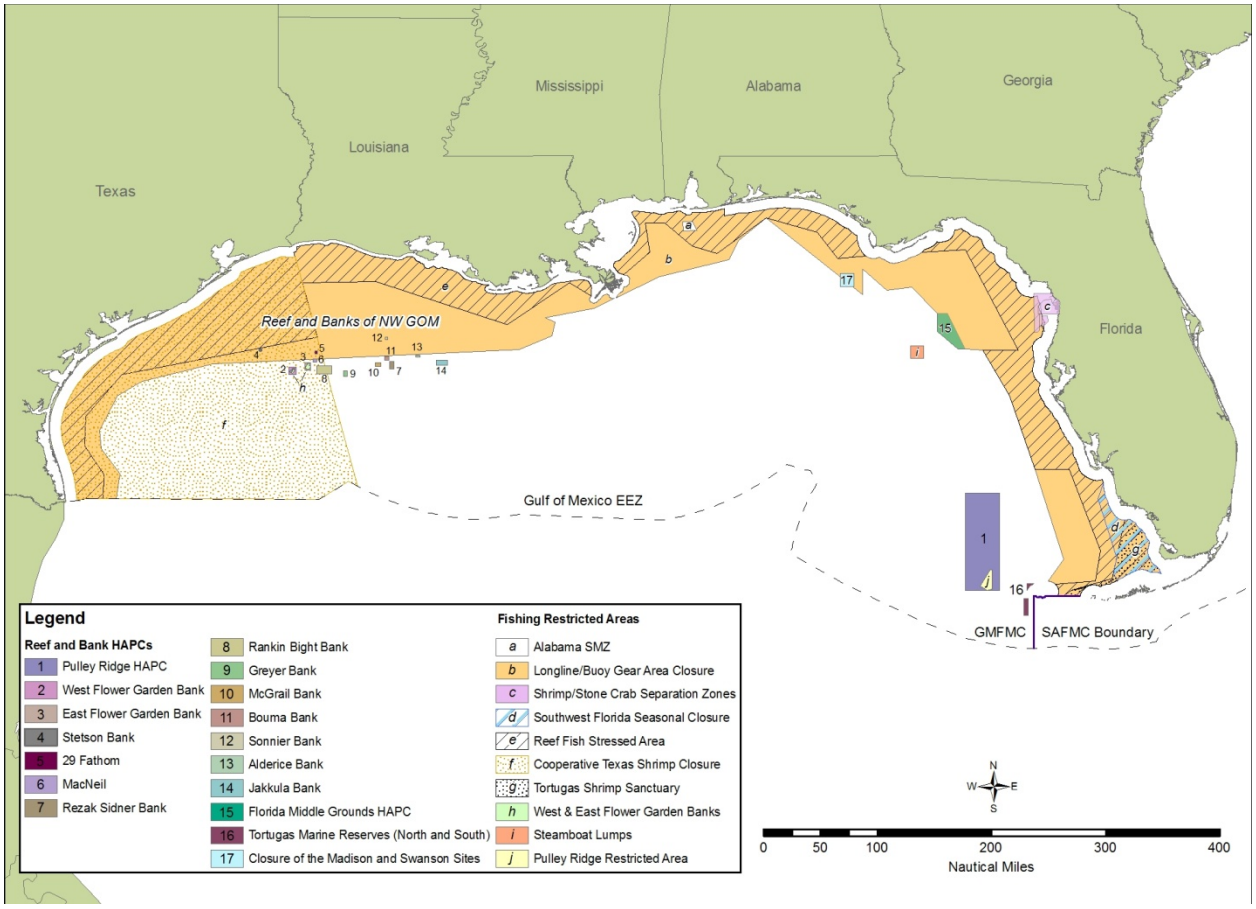

Figure 3.1.1.1 Environmental Sites of Special Interest Relevant to CMP Species in the Gulf of Mexico.

3.1.2 South Atlantic

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

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

Spatial and temporal variation in the position of the western boundary current has dramatic affects on water column habitats. Variation in the path of the Florida Current near the Dry Tortugas induces formation of the Tortugas Gyre (Lee et al., 1992 and 1994). This cyclonic eddy has horizontal dimensions on the order of 100 km and may persist in the vicinity of the Florida Keys for several months. The Pourtales Gyre, which has been found to the east, is formed when the Tortugas Gyres moves eastward along the shelf. Upwelling occurs in the center of these gyres, thereby adding nutrients to the near surface (<100 m) water column. Wind and input of Florida Bay water also influence the water column structure on the shelf off the Florida Keys (Smith, 1994; Wang et al., 1994). Similarly, further downstream, the Gulf Stream encounters the "Charleston Bump", a topographic rise on the upper Blake Ridge. Here the current is often deflected offshore, again resulting in the formation of a cold, quasi-permanent cyclonic gyre and associated upwelling (Brooks and Bane, 1978). Along the entire length of the Florida Current and Gulf Stream, cold cyclonic eddies are imbedded in meanders along the western front. Three areas of eddy amplification are known: Downstream of Dry Tortugas, downstream of Jupiter Inlet (27°N to 30°N latitude), and downstream of the "Charleston Bump" (32°N to 34°N latitude). Meanders propagate northward (i.e., downstream) as waves. The crests and troughs represent the onshore and offshore positions of the Gulf Stream front. Cross-shelf

amplitudes of these waves are on the order 10 to 100 km. Upwelling within meander troughs is the dominant source of "new" nutrients to the southeastern U.S. shelf and supports primary, secondary, and ultimately fisheries production (Yoder, 1985; Menzel 1993). Off Cape Hatteras, the Gulf Stream turns offshore to the northeast. Here, the confluence of the Gulf Stream, the Western Boundary Under Current (WBUC), Mid-Atlantic Shelf Water (MASW), Slope Sea Water (SSW), CCW, and VCW create a dynamic and highly productive environment known as the "Hatteras Corner" or "The Point" (Figure 3.1.2.1).

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

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

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

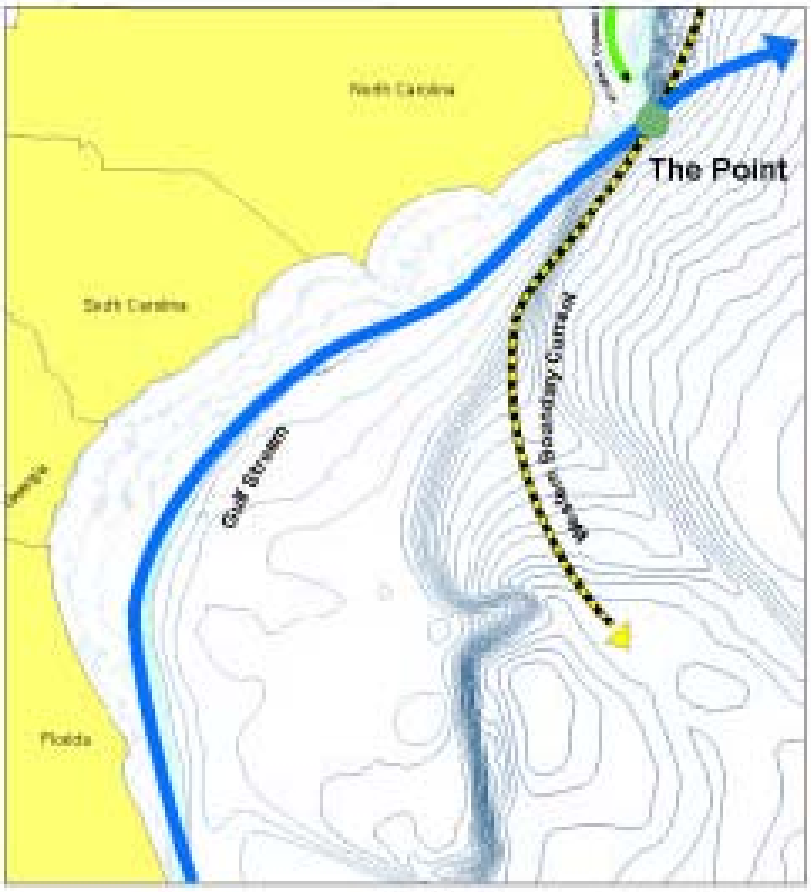

Figure 3.1.2.1. Water masses off Cape Hatteras, North Carolina.
Source: Roger Pugliese, SAFMC; Adapted from Shepard and Hulbert, 1994.

3.2 Biological Environment

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

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

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

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

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

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

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

King Mackerel

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

Spanish Mackerel

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

Cobia

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

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

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

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

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

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

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

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

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

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

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

3.2.1 Reproduction

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

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

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

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

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

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

Little Tunny
????

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

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

3.2.2 Development, Growth and Movement Patterns

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

Spanish Mackerel
Juveniles are most often found in coastal and estuarine habitats and at temperatures >25°C and salinities >10 ppt. Although they occur in waters of varying salinity, juveniles appear to prefer marine salinity levels and generally are not considered estuarine dependent. Like king mackerel, adult Spanish mackerel are migratory, generally moving from wintering areas of south Florida and Mexico to more northern latitudes in spring and summer. Spanish mackerel generally mature at age 1 to 2 and have a maximum age of approximately 11 years (Powell 1975).

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

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

were 14 and 13 years. Females reach sexual maturity at 3 years of age and males at 2 years in the Chesapeake Bay region.

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

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

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

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

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

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

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

3.2.3 Ecological Relationships

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Gillnets can adversely affect sea turtles via entanglement and forced submergence. Captured sea turtles can be released alive or can be found dead upon retrieval of the gear as a result of forced submergence. Sea turtles released alive may later succumb to injuries sustained at the time of capture or from exacerbated trauma from netting that was still attached when they were released. Entangled sea turtles that do not die from their wounds may suffer impaired swimming or foraging abilities, altered migratory behavior, and altered breeding or reproductive patterns. The 2007 Biological Opinion (NMFS 2007) determined the continued operation of the Gulf of Mexico and South Atlantic CMP fishery is not likely to jeopardize the continued existence of green, hawksbill, Kemp's ridley, leatherback, or loggerhead sea turtles.

Smalltooth sawfish are particularly vulnerable to entanglement in gillnets. Their frequent catch in this gear type are believed to be one of the primary causes for the species decline. The long,

toothed rostrum of the smalltooth sawfish easily penetrates netting, causing entanglement when the animal attempts to escape. The monofilament mesh can inflict abrasions and cuts, cause bleeding, and hinder feeding behavior. The 2007 Biological Opinion (NMFS 2007) determined the continued operation of the CMP fishery is not likely to jeopardize the continued existence of smalltooth sawfish.

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

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

3.3 Social Environment

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

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

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

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

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

3.3.1 Fishing Communities

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

3.3.2 Coastal Pelagic Fishing Communities

The figures below present the top fifteen communities based upon a regional quotient of commercial landings and value for coastal migratory pelagic species. 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.

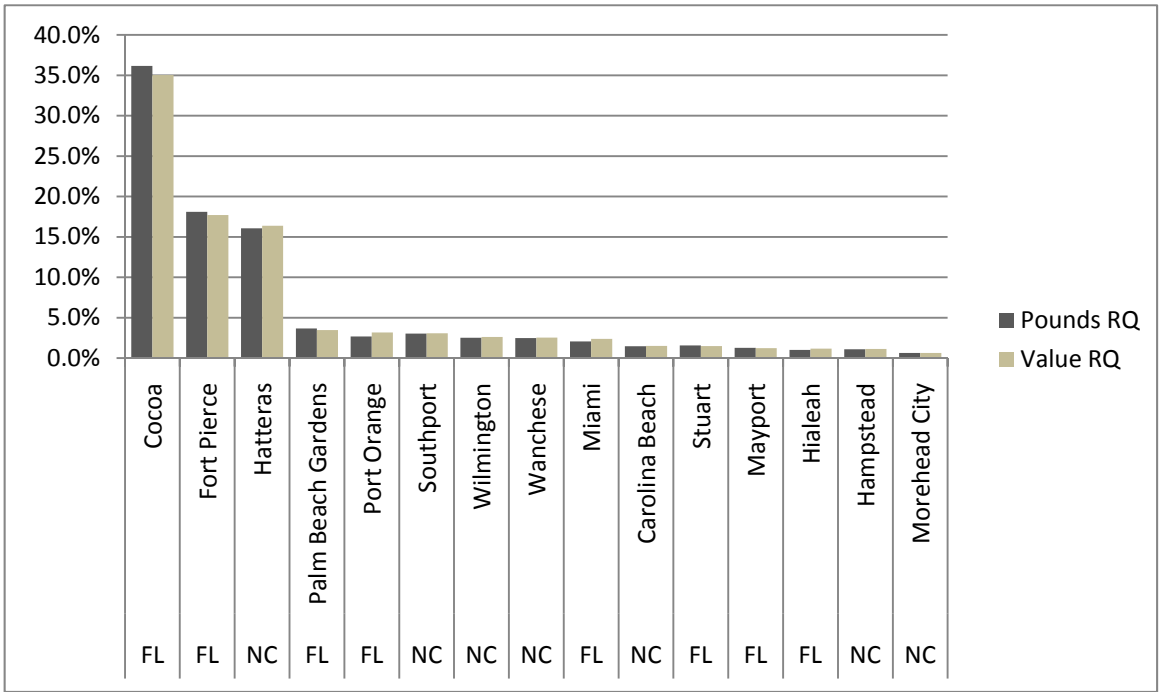

Figure 3.3.2.1. Top Fifteen South Atlantic Communities Ranked by Pounds and Value Regional Quotient of King Mackerel.
Source: ALS 2008

Top landings of king mackerel for Gulf communities, 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%.

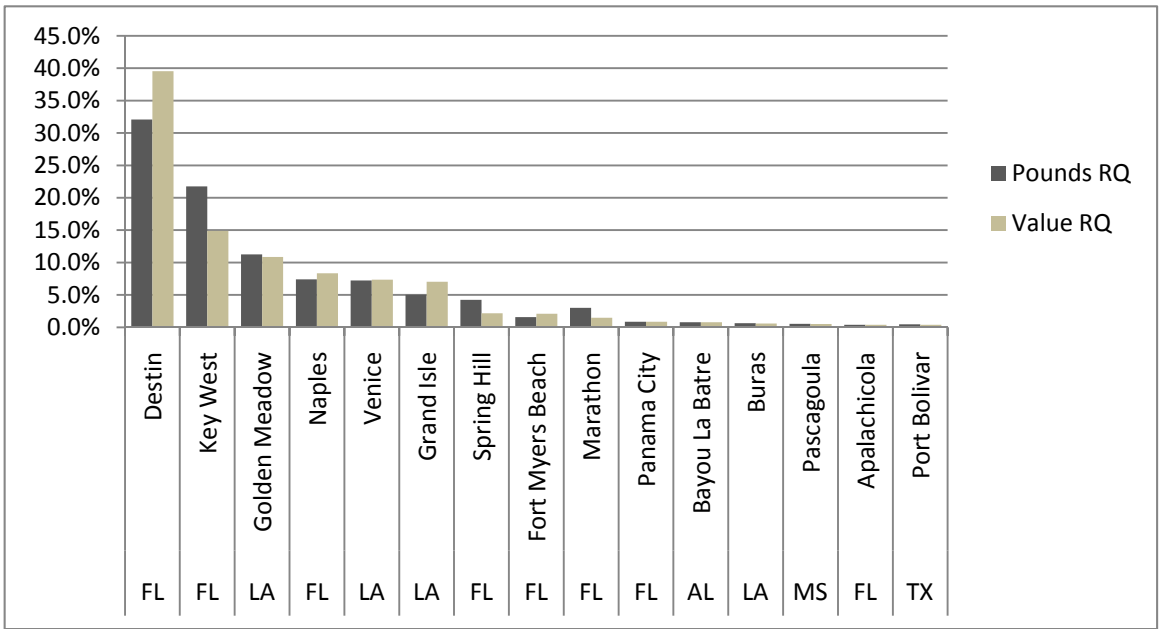

Figure 3.3.2.2. Top Fifteen Gulf Communities Ranked by Pounds and Value of Regional Quotient of King Mackerel.
Source ALS 2008

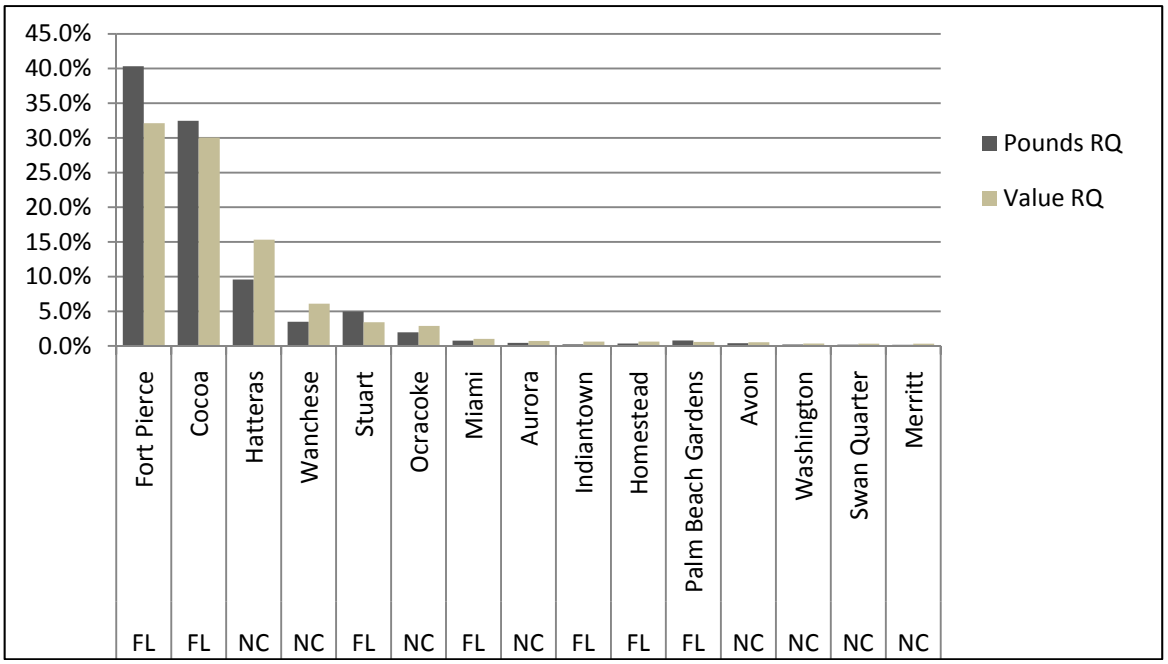

Figure 3.3.2.3. Top Fifteen South Atlantic Communities Ranked by Pounds and Value of Regional Quotient of Spanish Mackerel.
Source: ALS 2008

For Spanish mackerel in the Atlantic, 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.

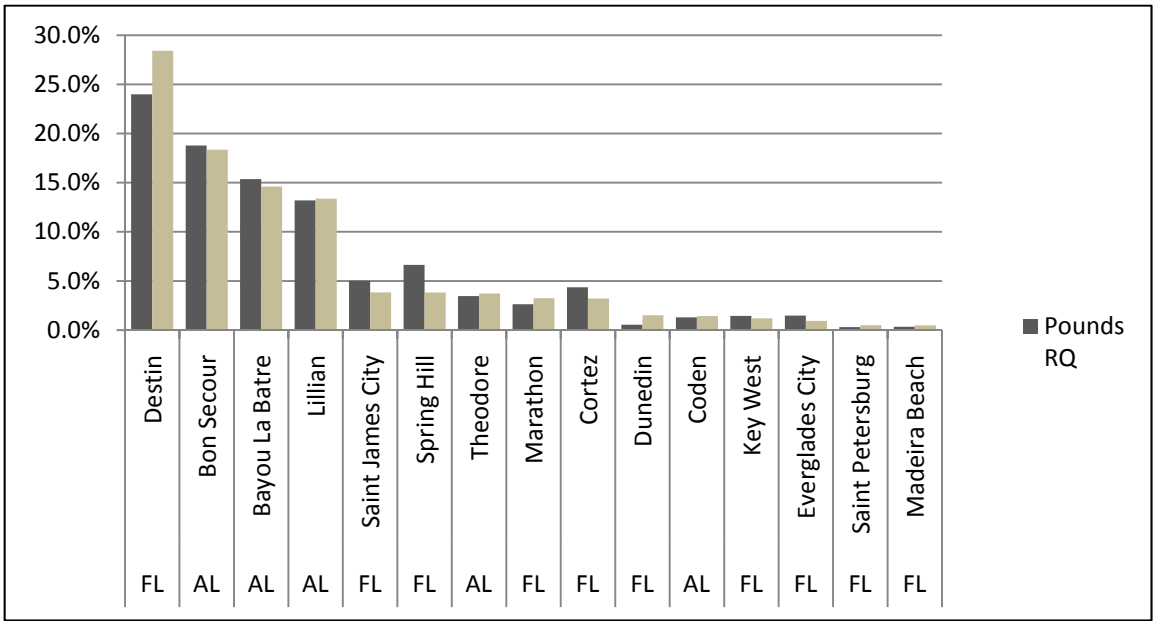

Figure 3.3.2.4. Top Fifteen Gulf Communities Ranked by Pounds and Value of Regional Quotient of Spanish Mackerel.
Source: ALS 2008

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. 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.

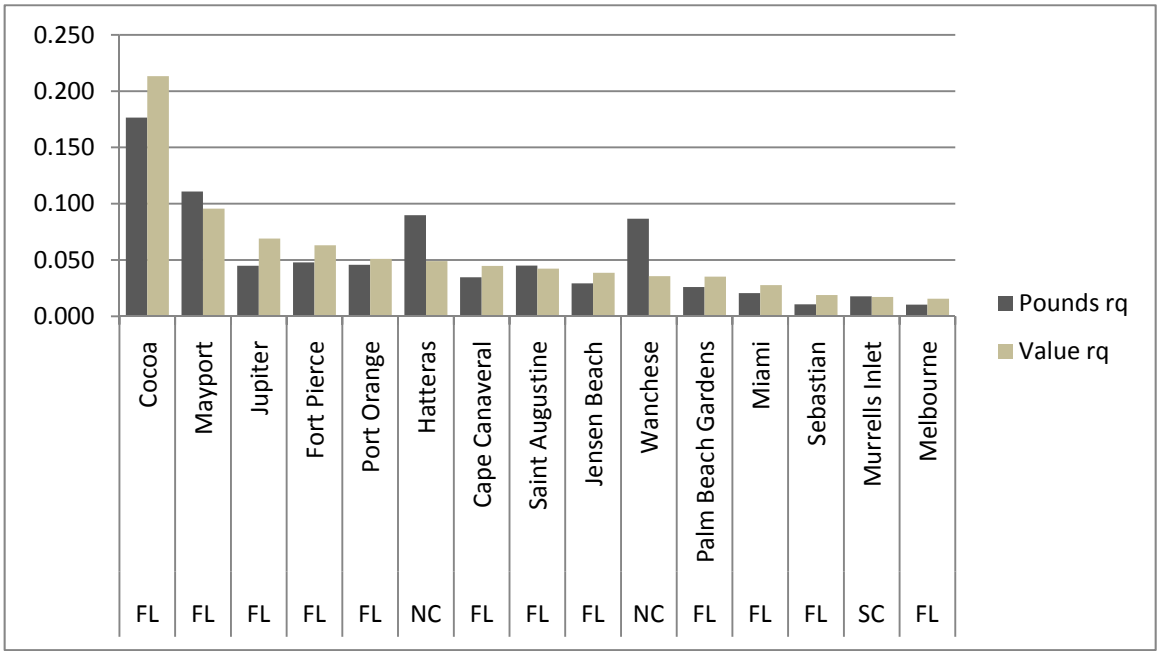

Figure 3.3.2.5. Top Fifteen Atlantic Communities Ranked by Pounds and Value Regional Quotient (rq) of Cobia.
Source ALS 2008.

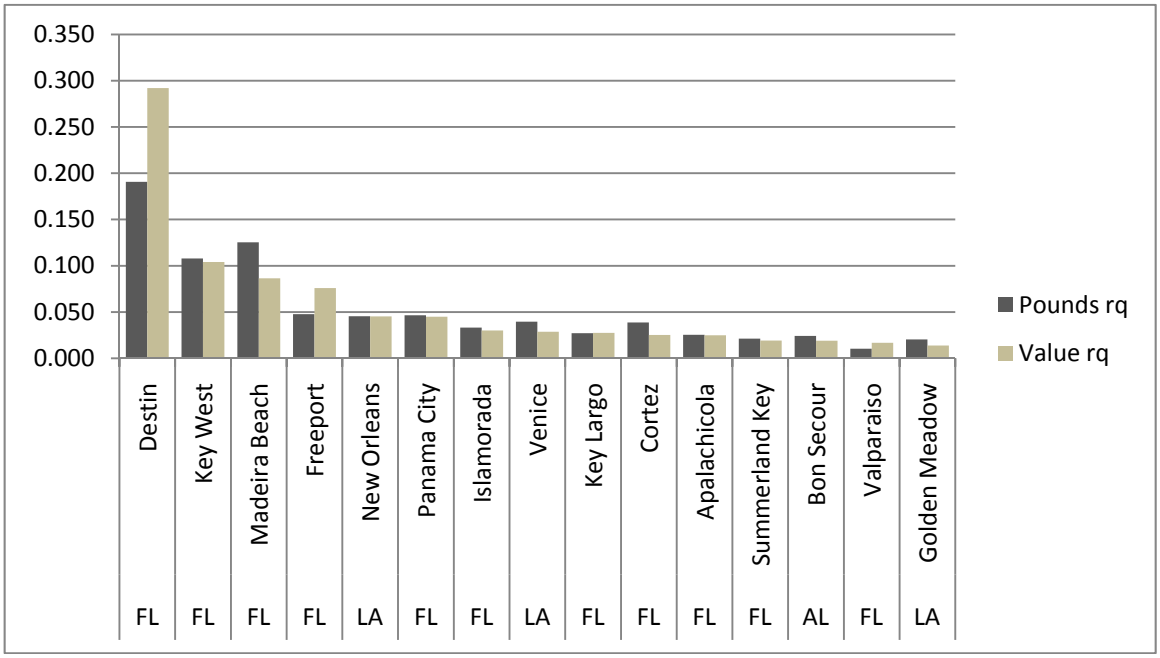

Figure 3.3.2.6. Top Fifteen Gulf Communities Ranked by Pounds and Value Regional Quotient (rq) of Cobia.
Source ALS 2008.

The top Gulf community in terms of cobia landings was Destin 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 3.3.1 and those in the Gulf in Table 3.3.2. These communities were selected by their ranking on a number of criteria including number of charter permits per thousand population and recreational fishing infrastructure as listed under the MRIP survey identified within each community.

Table 3.3.2.1. South Atlantic Recreational Fishing Communities.

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

Table 3.3.2.2. Gulf Recreational Fishing Communities.

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

3.3.3 Social Vulnerability

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

The communities displayed in Figure 3.3.7 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

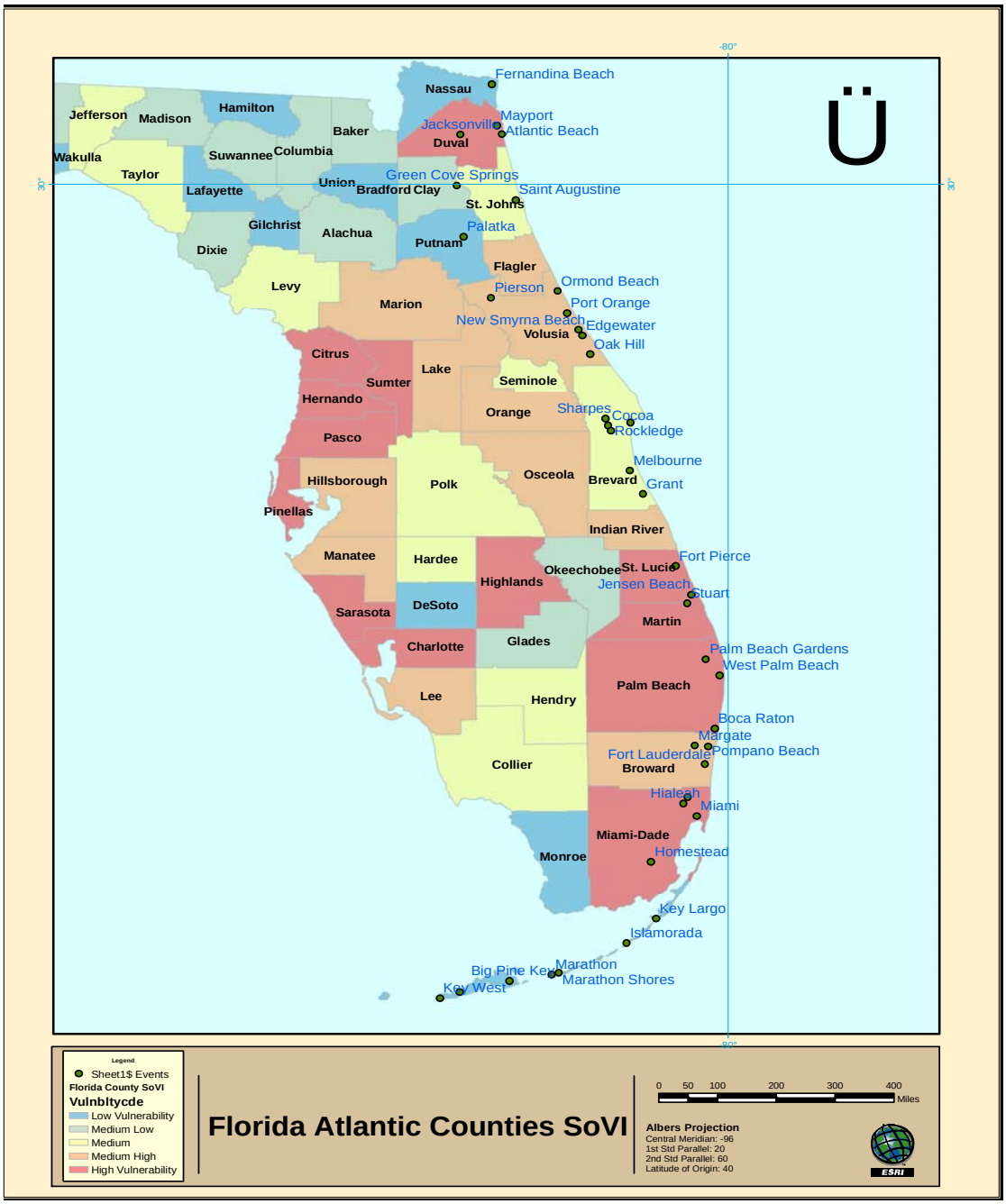

Figure 3.3.5.1. The Social Vulnerability Index applied to South Atlantic Florida Counties.

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

Table 3.3.5.1. Marine Related Employment for 2007 in Florida East Coast Counties.
Source: Census Bureau 2010.

County	Duval		Flagler		Volusia		Brevard	
Sector	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp
Boat Dealers	19	.	7	.	11	.	26	.
Seafood Dealers	.	92	.	14	.	16	.	75
Seafood Harvesters	199	.	17	.	183	.	282	.
Seafood Retail	20	60	0	2	.	.	0	7
Marinas	.	216	.	21	.	137	.	223
Processors	12	210	0	.	.	.	0	27
Scenic Water	.	27	.	1	.	50	.	22
Ship Boat Builders	.	827	.	692	.	758	.	846
Shipping Support	.	1598	.	1	.	38	.	193
Shipping	.	1522	.	1	.	15	.	137

Duval County

Duval County had a total population of 778,866 in 2000 that is estimated to have grown to 846,237 by 2007. Population density was 1022 persons per square mile in 2000 and has grown to 1114 persons in 2007. The majority of county residents were White (65.0) and the Hispanic population was 6.1 % in 2007. The percent of population that identified themselves as White alone was 59.5% and 29.9% Black. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for the state was estimated to be 60.7% and 16.0% Black in 2007. The median age for residents of Duval County was estimated to have been 36.3, so Duval County's median age is younger than the state's 40.1 as a whole. Median household income for 2007 was estimated to be $50,301, higher than that for the state which was $48,637. There was an estimated 6.5 % of the population in the civilian force that was estimated to be unemployed in Duval County, which was slightly higher the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 12.7% which was almost equal to the 12.6% for the state as a whole during 2007. Duval County had a lower owner occupied housing rate higher than the state with 64.1% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

Mayport has just over 3% of landings consisting of coastal migratory pelagic with king mackerel contributing the most in Fig. 3.3.8.

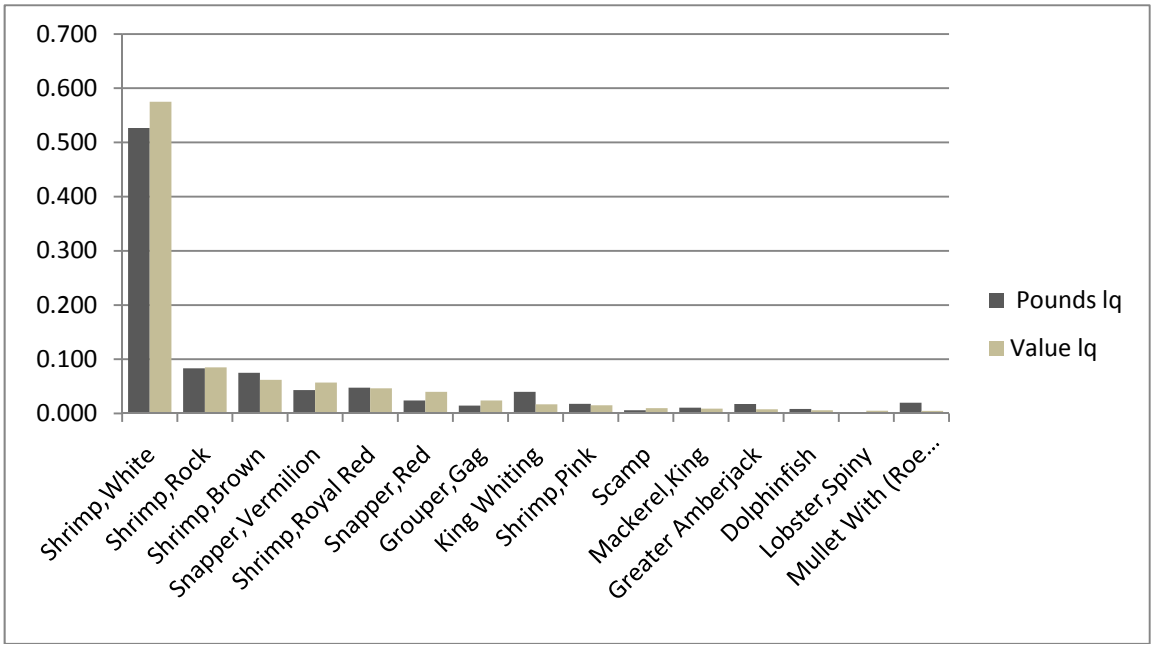

Figure 3.3.8. The top fifteen species in terms of proportion (lq) of total landings and value for Mayport, Florida.
Source: ALS 2008

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 Fig. 3.3.9 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.

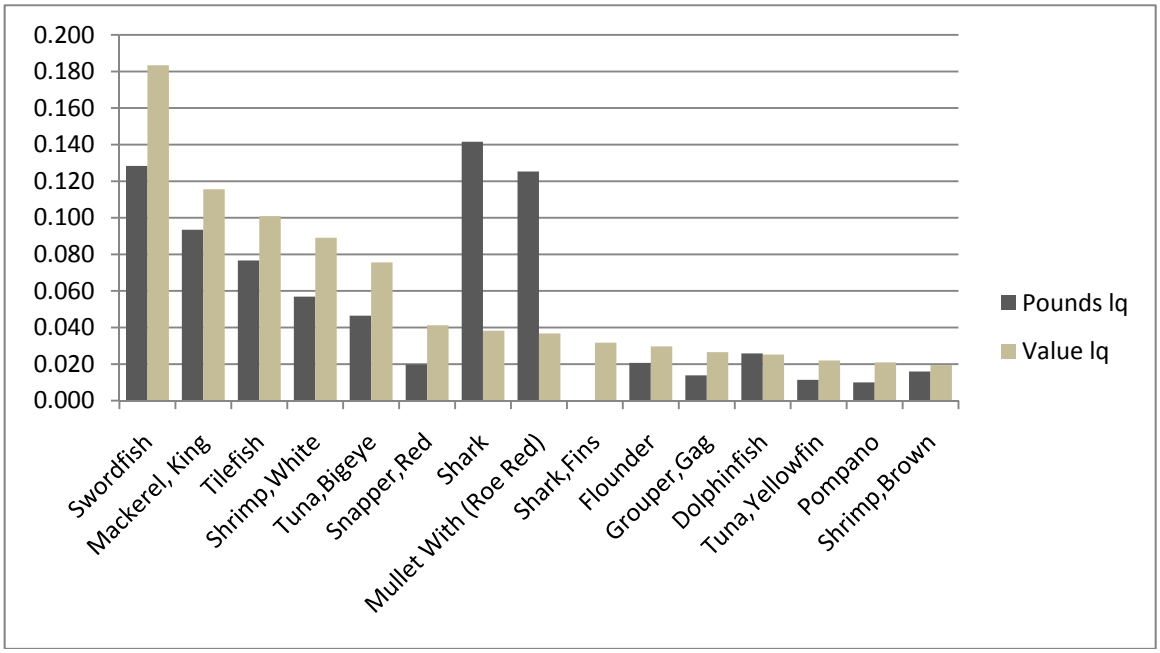

Figure 3.3.9. The top fifteen species in terms of proportion (lq) of total landings and value for Port Orange, Florida.
Source: ALS 2008

Brevard County
Brevard County had a total population of 476,230 in 2000 that is estimated to have grown to 534,165 by 2007. Population density was 467 persons per square mile in 2000 and has grown to 527 persons in 2007. The majority of residents (86.0%) were identified a White in 2007 and the Hispanic population was 6.9% in 2007, while Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for Brevard County was 79.5% with a Black population of 10.4%, while the state was estimated to be 60.7% White alone with 16.0% of the population Black in 2007. The median age for residents of Brevard County was estimated to have been 43.6 while the median age for the State of Florida was 40.1 by 2007 so Brevard County's median age is older than the state as a whole. Median household income for 2007 was estimated to be $50,080, higher than that for the state which was $48,637. There was an estimated 6.3 % of the population in the civilian force that was estimated to be unemployed in Brevard County, which was almost equal to the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 9.6% which was below the 12.6% for the state as a whole during 2007. Brevard County had a higher owner occupied housing rate than the state with over 76.9% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

Landings of coastal migratory pelagics contribute a considerable amount to the total landings and value for Cocoa, Florida in Brevard County. As shown in Fig. 3.3.10 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.

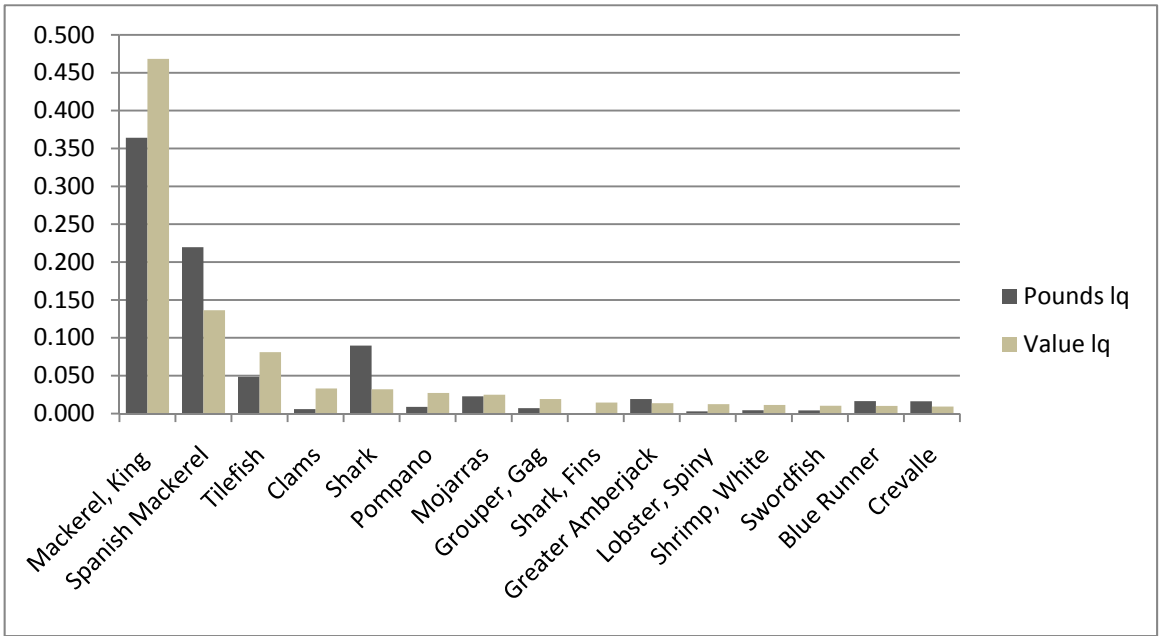

Figure 3.3.10. The top fifteen species in terms of proportion (lq) of total landings and value for Cocoa, Florida.
Source: ALS 2008

Table 3.3.4 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 3.3.4. Marine Related Employment for 2007 in Florida Southeast Coast Counties.
Source: Census Bureau 2010.

Florida County	St. Lucie		Martin		Palm Beach		Broward		Miami-Dade		Monroe	
Sector	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp
Boat Dealers	16	.	60	.	108	.	253	.	108	.		
Seafood Dealers	136	.	.	9	.	46	.	406	.	.	.	112
Seafood Harvesters	0	.	128	.	287	.	228	.	287	.	934	.
Seafood Retail	.	2	0	93	18	57	28	291	18	.	7	7
Marinas	.	49	.	113	10	887	.	707	10	.	.	191
Processors	.	.	0	.	.	176	0	142	.	.	0	.
Scenic Water	.	9	.	42	.	94	.	313	.	.	.	315
Ship Boat Builders	.	502	.	340	.	100	.	776	.	.	.	17
Shipping Support	.	7	.	13	.	756	.	1557	.	.	.	67
Shipping	.	38	.	2		69		995	.	.	.	35

St. Lucie County

St. Lucie County had a total population of 192,695 in 2000 that is estimated to have grown to 258,272 by 2007. Population density was 336 persons per square mile in 2000 and has grown to 456 persons in 2007. The majority of residents (77.5%) were identified a White in 2007 and the Hispanic population was 14.9% in 2007, while Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for St. Lucie County was 65.2% with a Black population of 18.1%, while the state was estimated to be 60.7% White alone with 16.0% of the population Black in 2007. The median age for residents of St. Lucie County was estimated to have been 40.1 while the median age for the State of Florida was 40.1 by 2007 so St. Lucie County's median age is equal to the state as a whole. Median household income for 2007 was estimated to be $46,829, lower than that for the state which was $48,637. There was an estimated 8.7 % of the population in the civilian force that was estimated to be unemployed in St. Lucie County, which was higher than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 11.6% which was below the 12.6% for the state as a whole during 2007. St. Lucie County had a higher owner occupied housing rate than the state with over 76.0% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

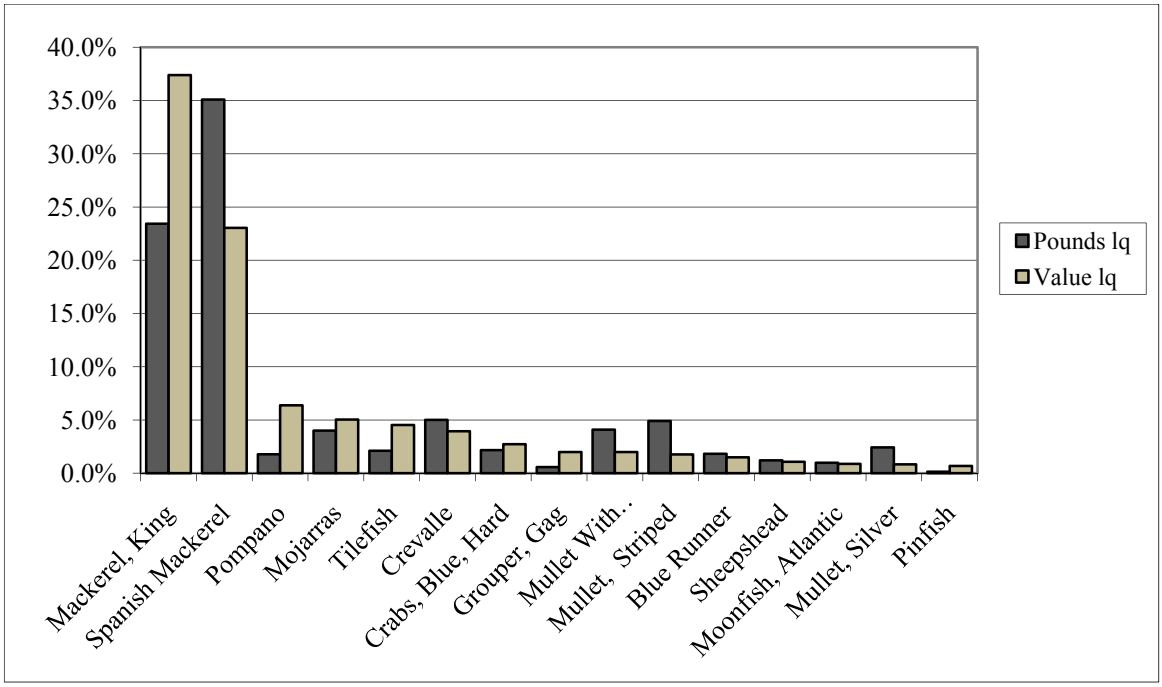

Figure 3.3.11. The top fifteen species in terms of proportion (lq) of total landings and value for Fort Pierce, Florida.
Source: ALS 2008

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 Fig 3.3.11.

Martin County

Martin County had a total population of 126,731 in 2000 that is estimated to have grown to 138,495 by 2007. The majority of residents (88.2%) were identified a White in 2007 and the Hispanic population was 10.1% in 2007, while Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population. The White alone population for Martin County was 81.6% with a Black population of 6.8%, while the state was estimated to be 60.7% White alone with 16.0% of the population Black in 2007. The median age for residents of Martin County was estimated to have been 47.1 while the median age for the State of Florida was 40.1 by 2007 so Martin County's median age is higher than the state as a whole. Median household income for 2007 was estimated to be $54,182, higher than that for the state which was $48,637. There was an estimated 6.9 % of the population in the civilian force that was estimated to be unemployed in Martin County, which was slightly higher than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 9.3% which was below the 12.6% for the state as a whole during 2007. Martin County had a higher owner occupied housing rate than the state with over 79.1% of owner occupied housing to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

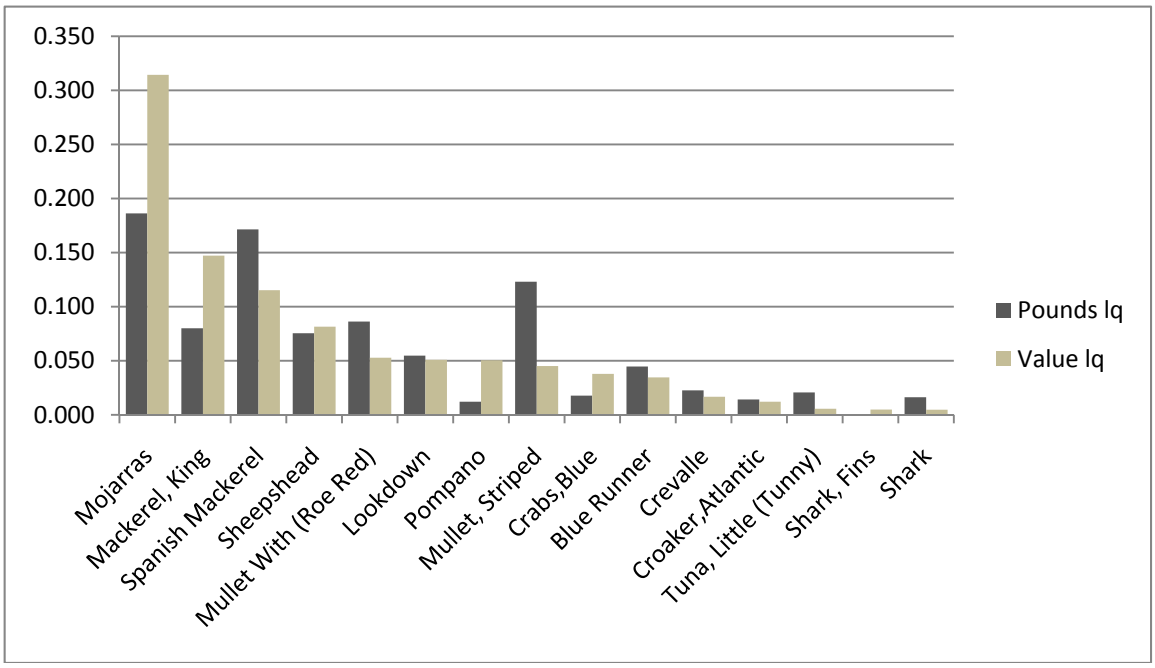

Figure 3.3.12. The top fifteen species in terms of proportion (lq) of total landings and value for Stuart, Florida.
Source: ALS 2008

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 Fig. 3.3.12.

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).

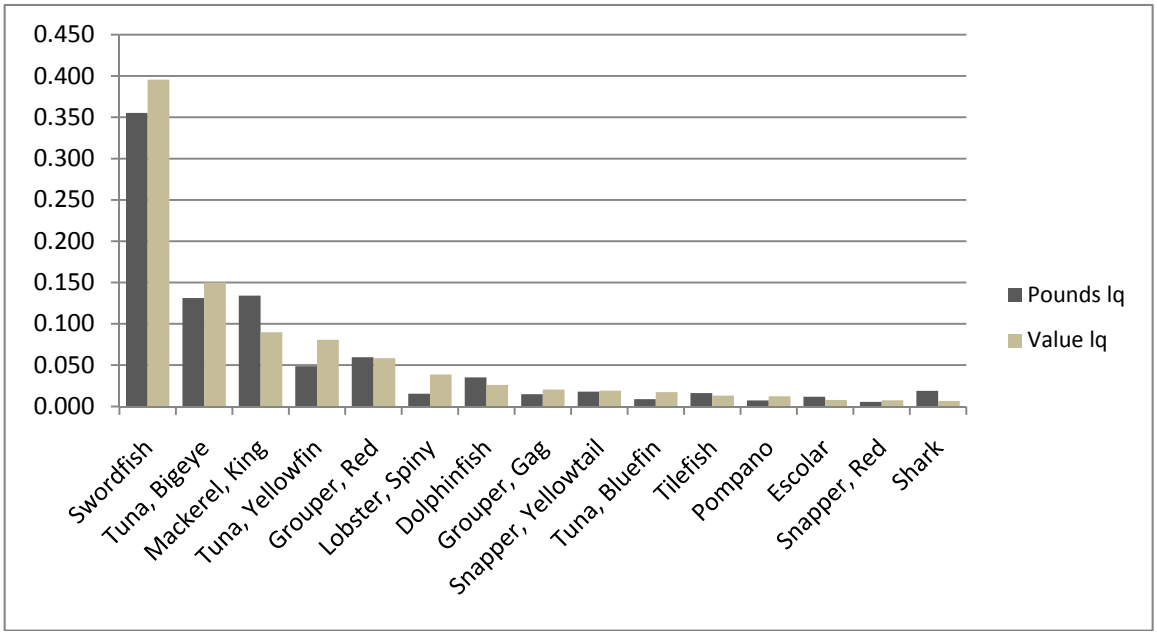

Figure 3.3.13. The top fifteen species in terms of proportion (lq) of total landings and value for Palm Beach Gardens, Florida.
Source: ALS 2008

King mackerel is over 10% of landings for Palm Beach Gardens and just under 10% of landed value in Fig.3.3.13. 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).

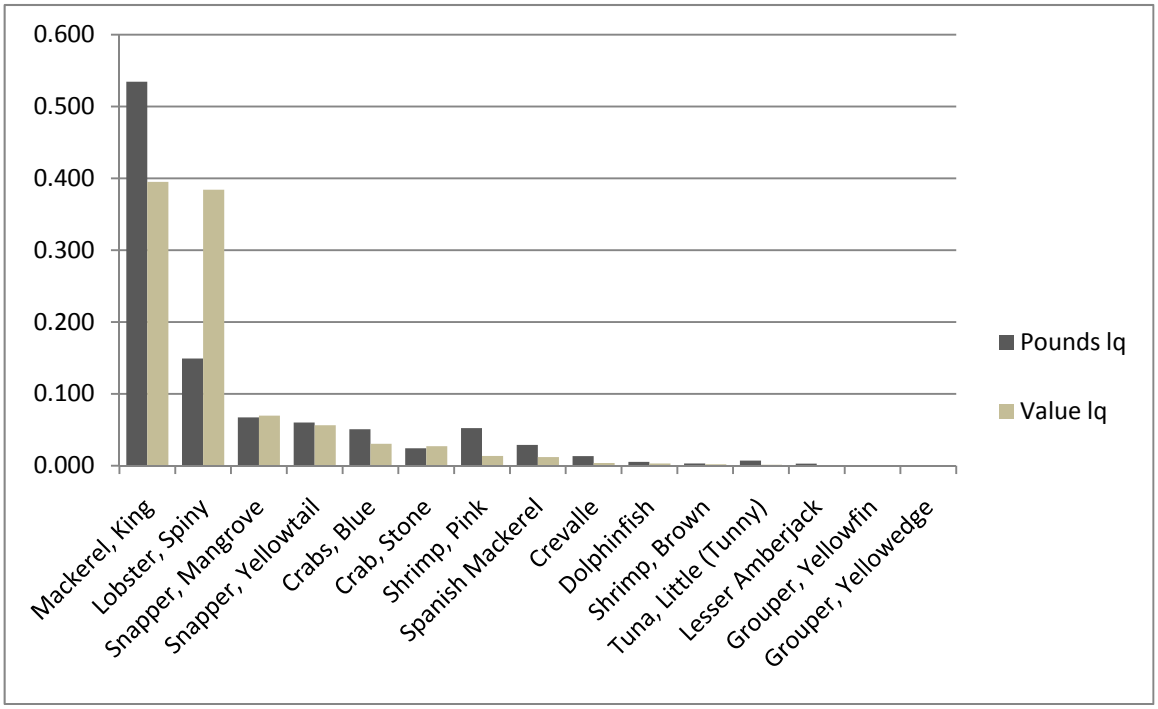

Figure 3.3.14. The top fifteen species in terms of proportion (lq) of total landings and value for Hialeah, Florida.
Source: ALS 2008

King Mackerel leads all species with over 50% of landed value and near 40% of landings in Hialeah in Fig. 3.3.14. Spanish mackerel is well back with less than 5% of landings and value within the community.

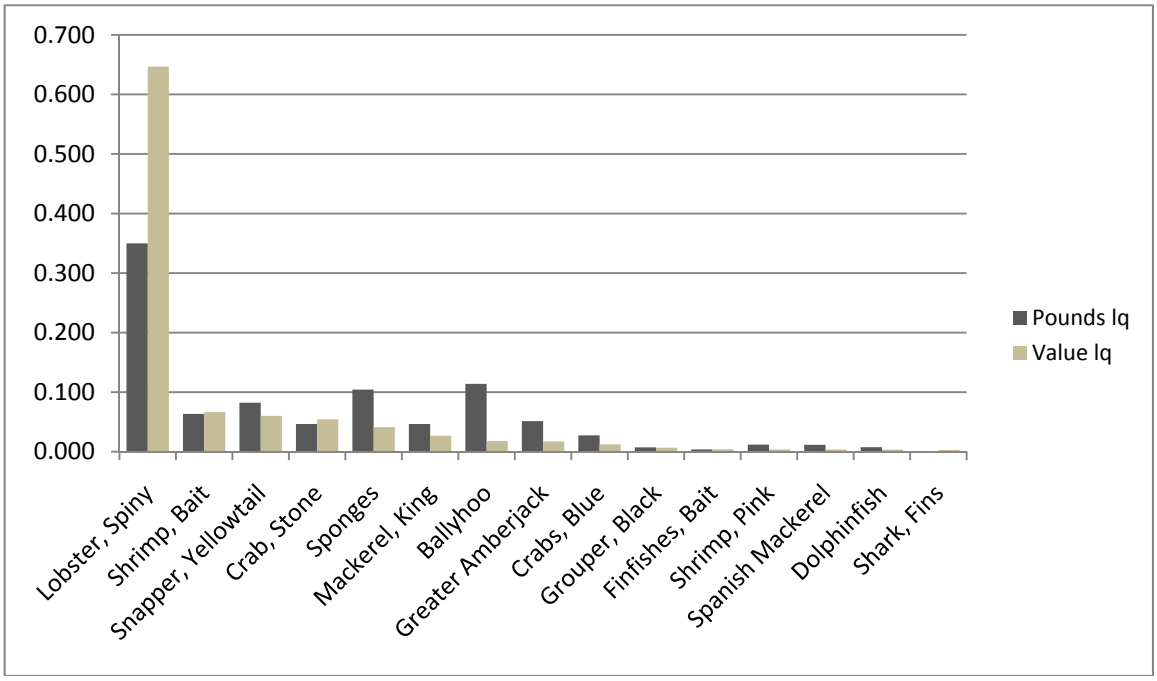

Figure 3.3.15. The top fifteen species in terms of proportion (lq) of total landings and value for Miami, Florida.
Source: ALS 2008.

King mackerel landings for Miami are just below 5% as is the value for the species in Fig. 3.3.15. Spanish mackerel are below 3% in terms of overall landings and value for the community.

Georgia Counties

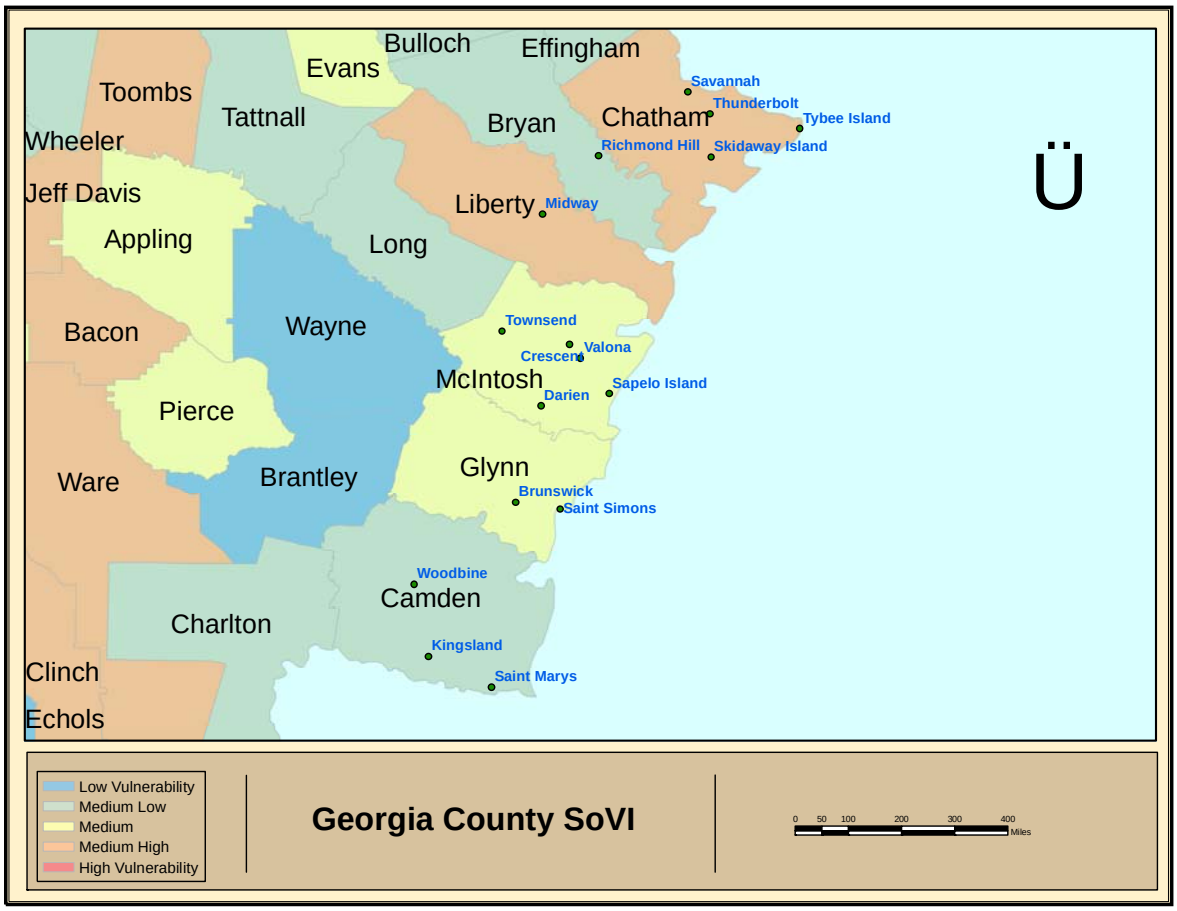

Figure 3.3.16. The Social Vulnerability Index applied to Georgia Coastal Counties.

There were two counties in Georgia with medium high vulnerability and those were Liberty and Chatham. 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 3.3.1.

South Carolina Counties

Coastal South Carolina had no counties that were either medium or highly vulnerable. 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 3.3.1.

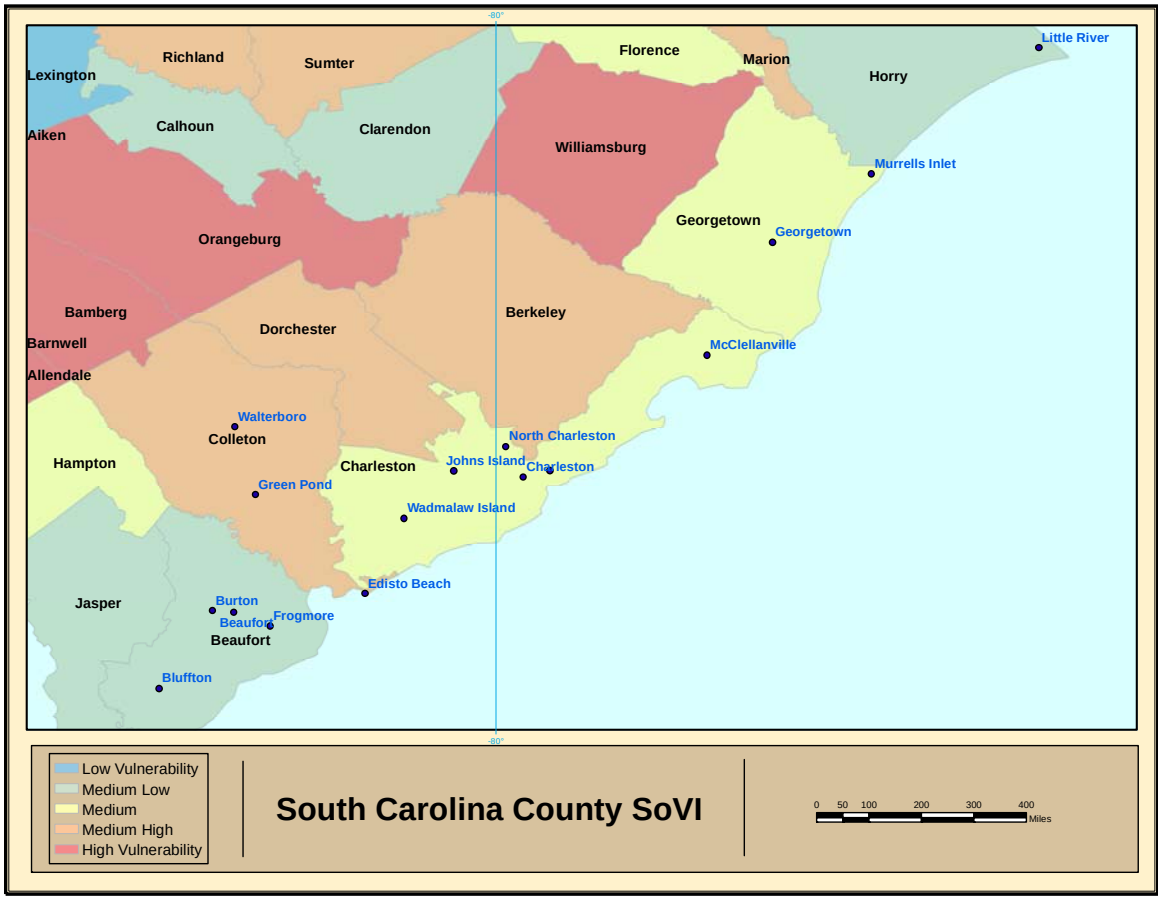

Figure 3.3.17. The Social Vulnerability Index applied to South Carolina Coastal Counties.

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. 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.

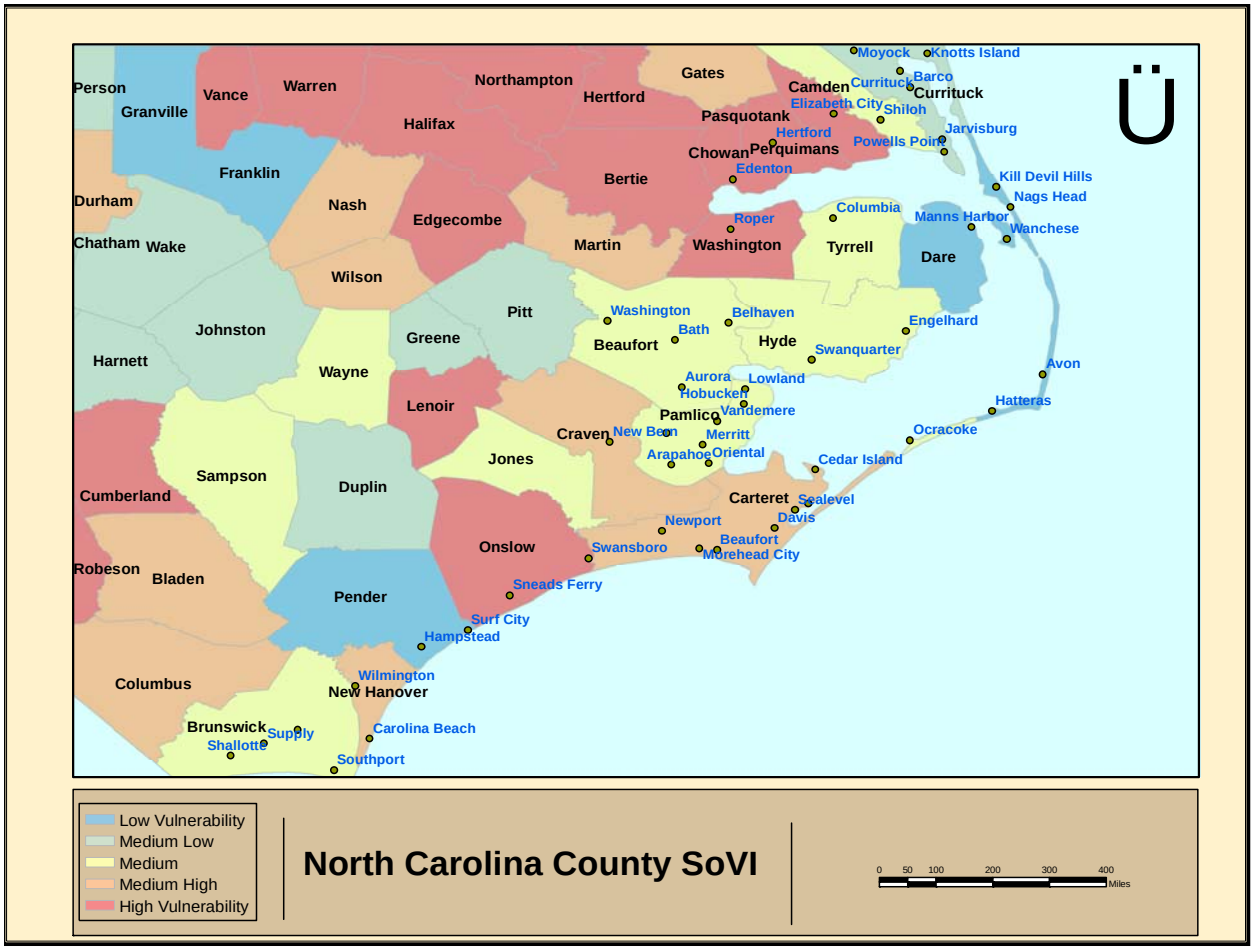

Figure 3.3.18. The Social Vulnerability Index applied to North Carolina Coastal Counties.

Table 3.3.5. Marine Related Employment for 2007 in North Carolina Coastal Counties.

Source: Census Bureau 2010.

County	Brunswick		Dare		Hyde		New Hanover		Pamlico		Pender	
Sector	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp	# Prop	# Emp
Boat Dealers	7	.	3	.	.	.	19	.	.	.	.	.
Seafood Dealers	.	28	.	.	.	.	.	.	.	.	.	.
Seafood Harvesters	240	.	488	.	136	.	151	.	130	.	67	.
Seafood Retail	12	12	9	14	.	5	.	34	.	.	3	3
Marinas	.	24	.	37	.	3	.	74	.	12	.	4
Processors	.	29	.	.	.	56	.	.	.	55	.	.
Scenic Water	.	13	.	31	.	2	.	28	.	.	.	.
Ship Boat Builders	.	295	.	392	.	.	.	43	.	14	.	16
Shipping Support	.	11	.	2	.	.	.	367	.	15	.	15
Shipping	.	67	.	.	.	.	.	6	.	.	.	.

Table 3.3.5 shows the marine related employment for those counties with substantial commercial landings of coastal pelagics in North Carolina. All of the counties below have seafood harvesters listed as sole proprietors, all but Pender with over one hundred. Dare County has the most with

close to 500 seafood harvesters. Brunswick, Dare, Hyde and New Hanover all have employment in scenic water category which includes charter fishing.

Brunswick County

Brunswick County had a total population of 73,141 in 2000 that is estimated to have grown to 98,667 by 2007. Population density was 86 persons per square mile in 2000 and has grown to 117 persons in 2007. The majority of county residents were White (71.6%) and the Hispanic population was 3.8% in 2007. The percent of population that identified themselves as White alone was 82.1% with 12.7% of the population Black. North Carolina as a state had an estimated 71.6% White population and Hispanics made up 7.0% of its total population and 22% of persons were Black. The White alone population for the state was estimated to be 67.5% in 2007. The median age for residents of Brunswick County was estimated to have been 41.0, so Brunswick County's median age is older than the State's 36.8. Median household income for 2007 was estimated to be $45,596, lower than that for the state which was $46,107. There was an estimated 4.9% of the population in the civilian force that was estimated to be unemployed in Brunswick County, which was just slightly higher than the State's unemployment rate of 4.3%. The percentage of persons below the poverty level was estimated at 12.4% which was lower than the 14.6% for the state as a whole during 2007. Brunswick County had a lower owner occupied housing rate than the state with 60.1% compared to the State's 85.5% estimated for 2007 (U.S. Census Bureau).

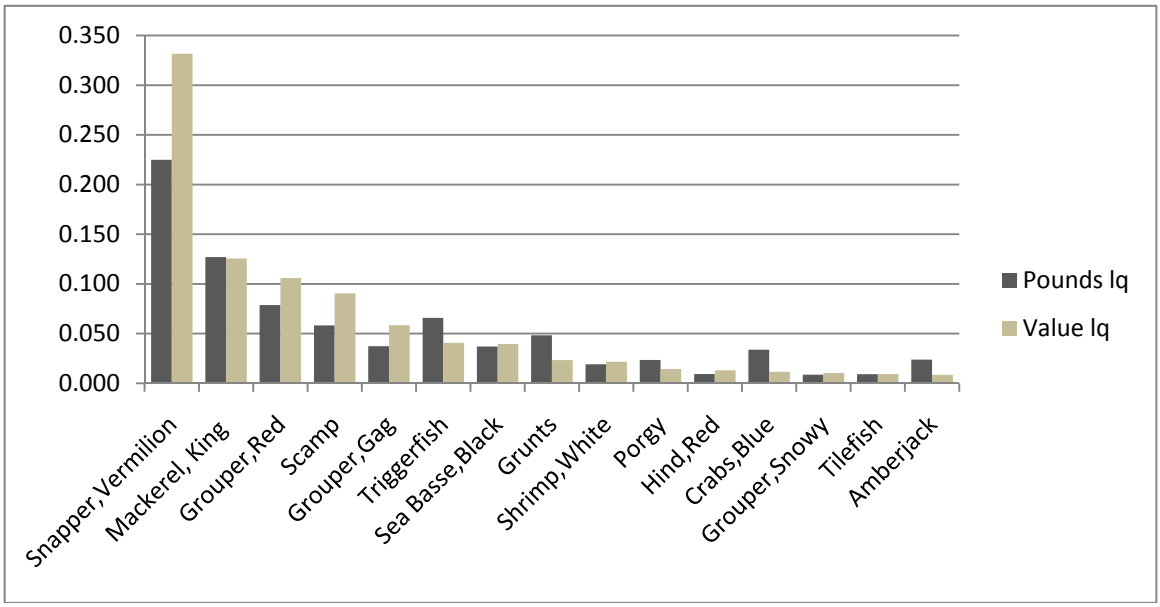

Figure 3.3.19. The top fifteen species in terms of proportion (lq) of total landings and value for Southport, North Carolina.

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 Fig. 3.3.19.

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).

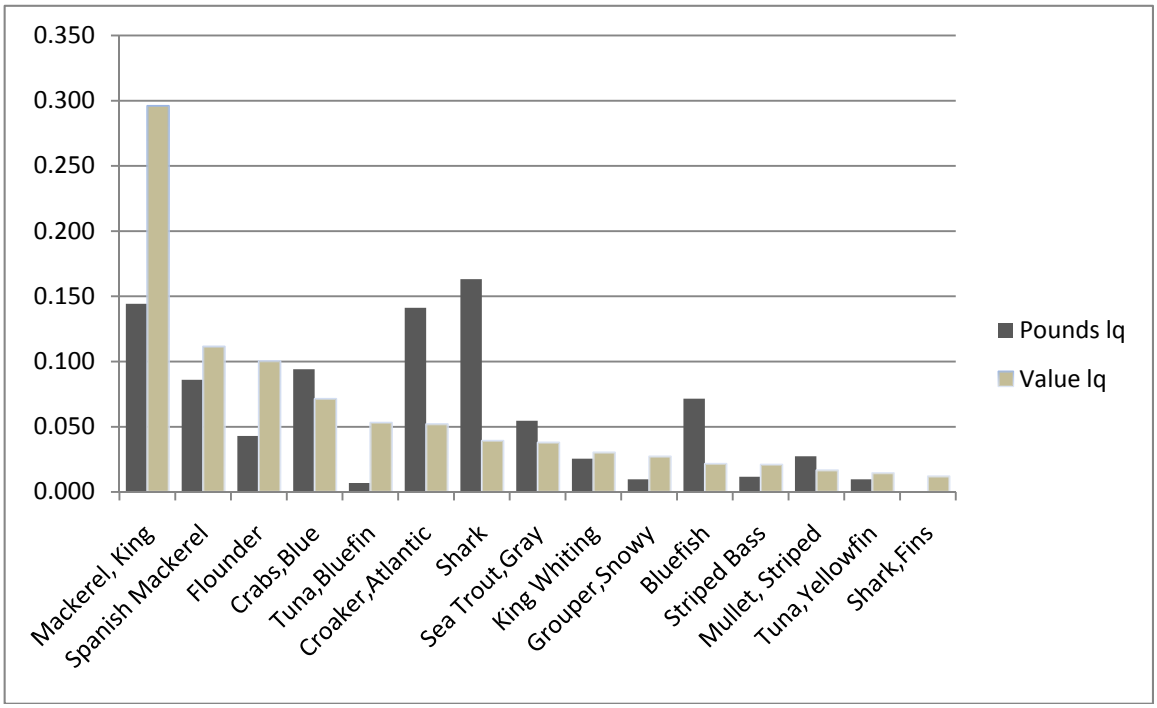

Figure 3.3.20. The top fifteen species in terms of proportion (lq) of total landings and value for Hatteras, North Carolina.

Source: ALS 2008.

Hyde County

Hyde County has a smaller population base than the other coastal counties in North Carolina, which prevents the county from census estimated updates as only populations greater than 65,000 are updated at this time. Ocracoke and Swan Quarter were the only communities identified as being either primarily or secondarily involved in fishing within Hyde County.

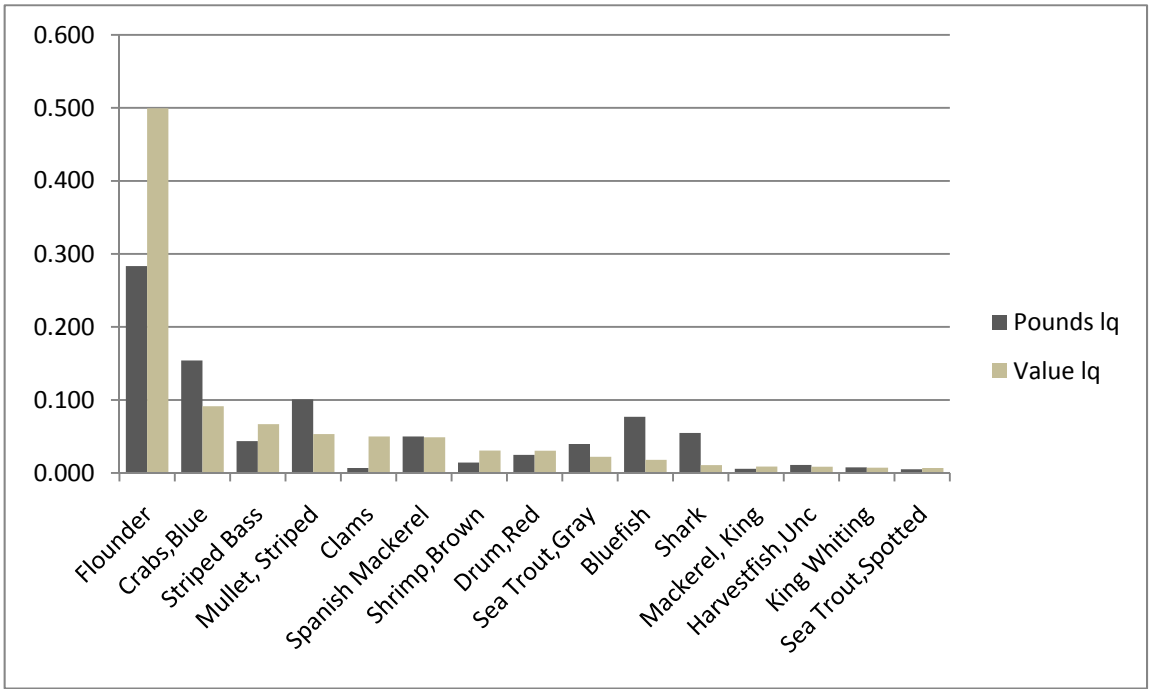

Figure 3.3.21. The top fifteen species in terms of proportion (lq) of total landings and value for Ocracoke, North Carolina.
Source: ALS 2008

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 Fig. 3.3.21.

New Hanover County

New Hanover County had a total population of 160,327 in 2000 that is estimated to have grown to 189,860 by 2007. Population density was 835 persons per square mile in 2000 and has grown to 994 persons in 2007. The majority of county residents were White (80.7%) and the Hispanic population was 3.3% in 2007. The percent of population that identified themselves as White alone was 78.4% with 16.2% of the population Black. North Carolina as a state had an estimated 71.6% White population and Hispanics made up 7.0% of its total population and 22% of persons were Black. The White alone population for the state was estimated to be 67.5% in 2007. The median age for residents of New Hanover County was estimated to have been 37.4, so New Hanover County's median age is just slightly older than the State's 36.8. Median household income for 2007 was estimated to be $49,068, higher than that for the state which was $46,107. There was an estimated 3.6% of the population in the civilian force that was estimated to be unemployed in New Hanover County, which was just lower than the State's unemployment rate of 4.3%. The percentage of persons below the poverty level was estimated at 13.9% which was lower than the 14.6% for the state as a whole during 2007. New Hanover County had a slightly lower owner occupied housing rate than the state with 84.1% compared to the State's 85.5% estimated for 2007 (U.S. Census Bureau).

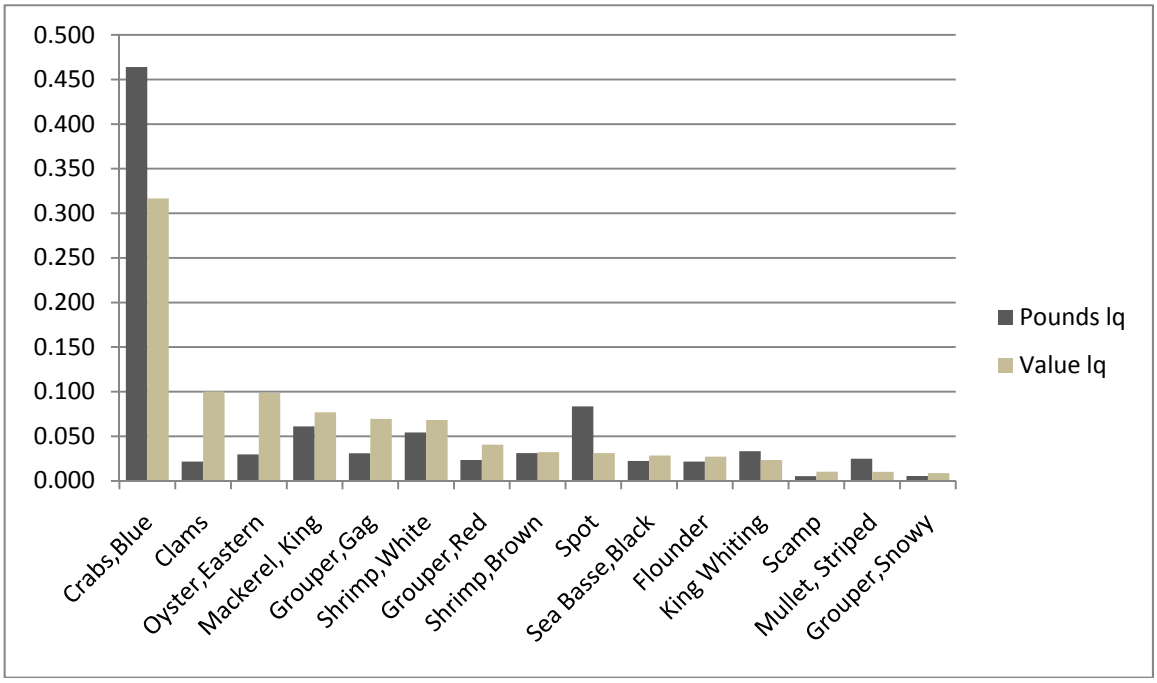

Figure 3.3.22. The top fifteen species in terms of proportion (lq) of total landings and value for Wilmington, North Carolina.
Source: ALS 2008

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 Fig. 3.3.22 King mackerel shows over 5% of landings and landed value out of total landings for the community. For Carolina Beach, king mackerel represents almost 20% of value of total landings and approximately 18% of landings overall.

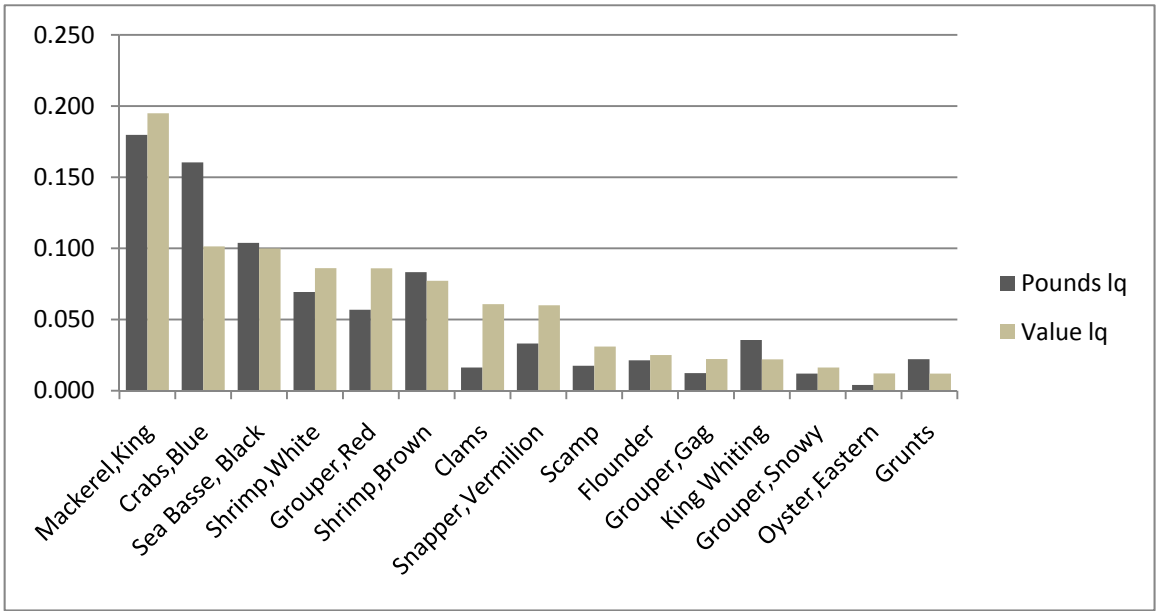

Figure 3.3.23. The top fifteen species in terms of proportion (lq) of total landings and value for Carolina Beach, North Carolina.
Source: ALS 2008

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).

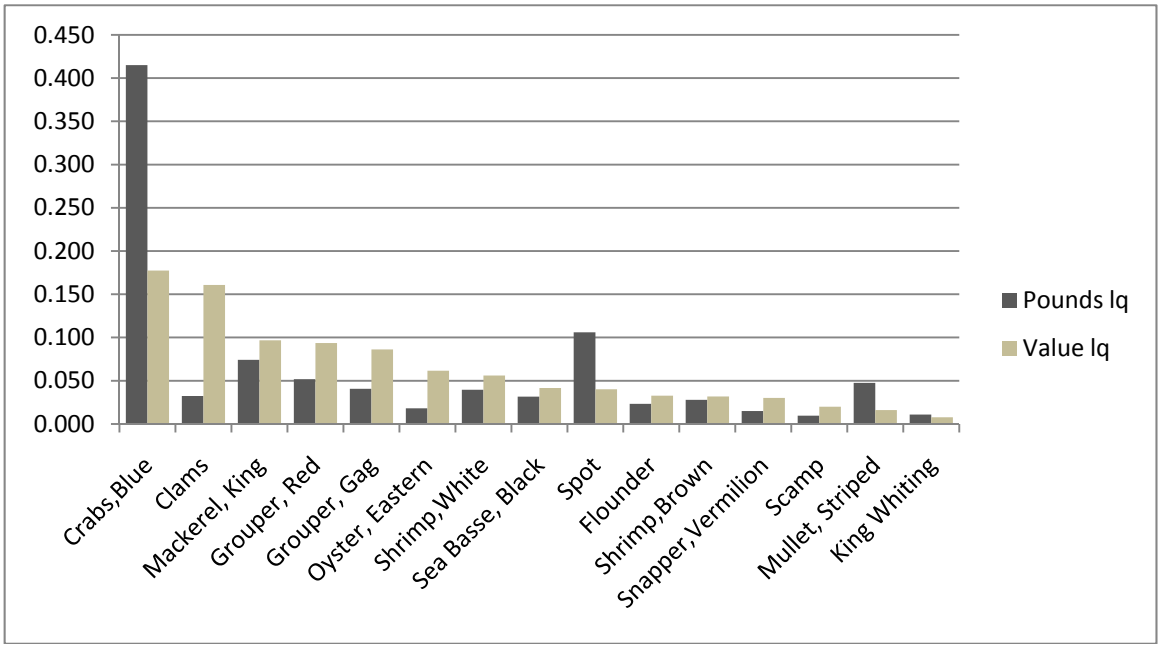

Figure 3.3.24. The top fifteen species in terms of proportion (lq) of total landings and value for Hampstead, North Carolina.
Source: ALS 2008.

Hampstead had king mackerel landings close to 7% of total landings and a value close to 10% according to Fig. 3.3.24. There were no other coastal pelagics within the top fifteen species landed within the community.

3.3.6 Gulf Communities

Florida Gulf Counties

Figure 3.3.25. The Social Vulnerability Index applied to Florida Gulf Coastal Counties.

The majority of Florida Gulf coast counties that are classified as being vulnerable in Fig. 3.3.25 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. 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 have substantial employment in the seafood harvester sector. Several also have numerous persons employed in the scenic water sector which includes charter fishing. Monroe County has the most in both categories with over 900 harvesters and over 300 in the scenic water sector.

Okaloosa County

Okaloosa County had a total population of 170,497 in 2000 that is estimated to have grown to 181,205 by 2007. Population density was 163 persons per square mile in 2000 and has grown to 195 persons in 2007. The majority of county residents were White (85.1%) and the Hispanic population was 5.7 % in 2007. The percent of population that identified themselves as White alone was 78.3% with 10.8% of the population Black. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population and 16% of persons were Black. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Okaloosa County was estimated to have been 39.0, so Okaloosa County's median age is slightly younger than the State's 40.1 as a whole. Median household income for 2007 was estimated to be $57,111, greater than that for the state which was $48,637. There was an estimated 4.4% of the population in the civilian force that was estimated to be unemployed in Okaloosa County, which was lower than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 8.9% which was also lower than the 12.6% for the state as a whole during 2007. Okaloosa County had a lower owner occupied housing rate

than the state with 67.4% of owner occupied housing compared to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

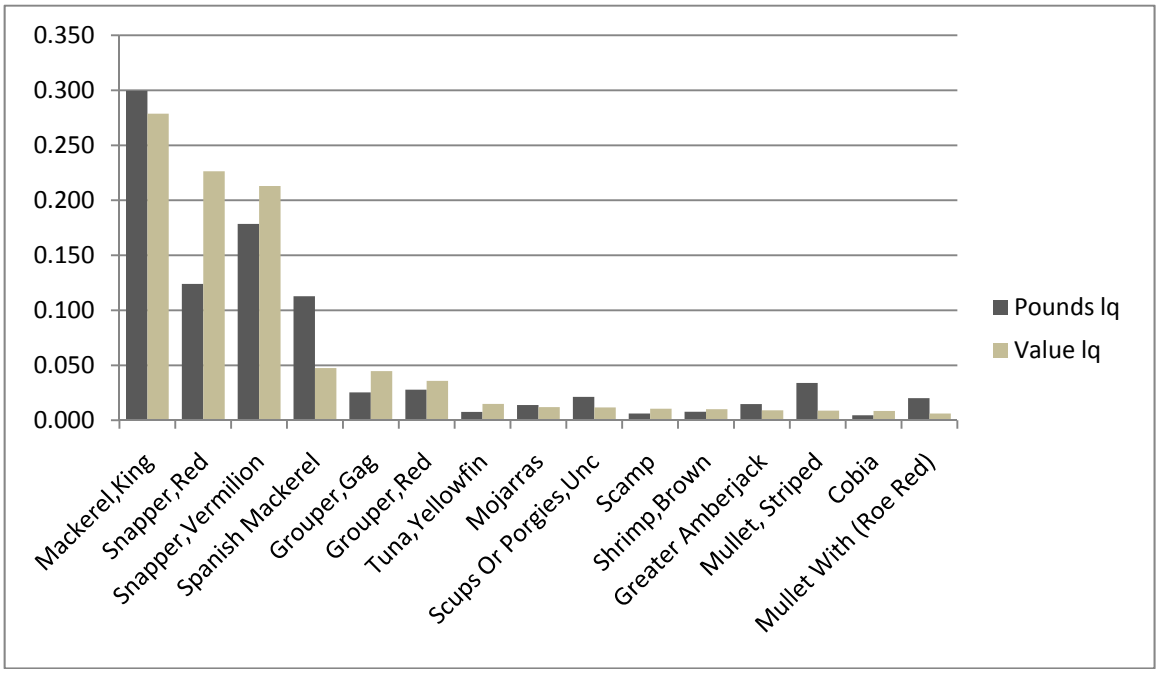

Figure 3.3.26. The top fifteen species in terms of proportion (lq) of total landings and value for Destin, Florida.
Source: ALS 2008

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 Fig.3.3.26.

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).

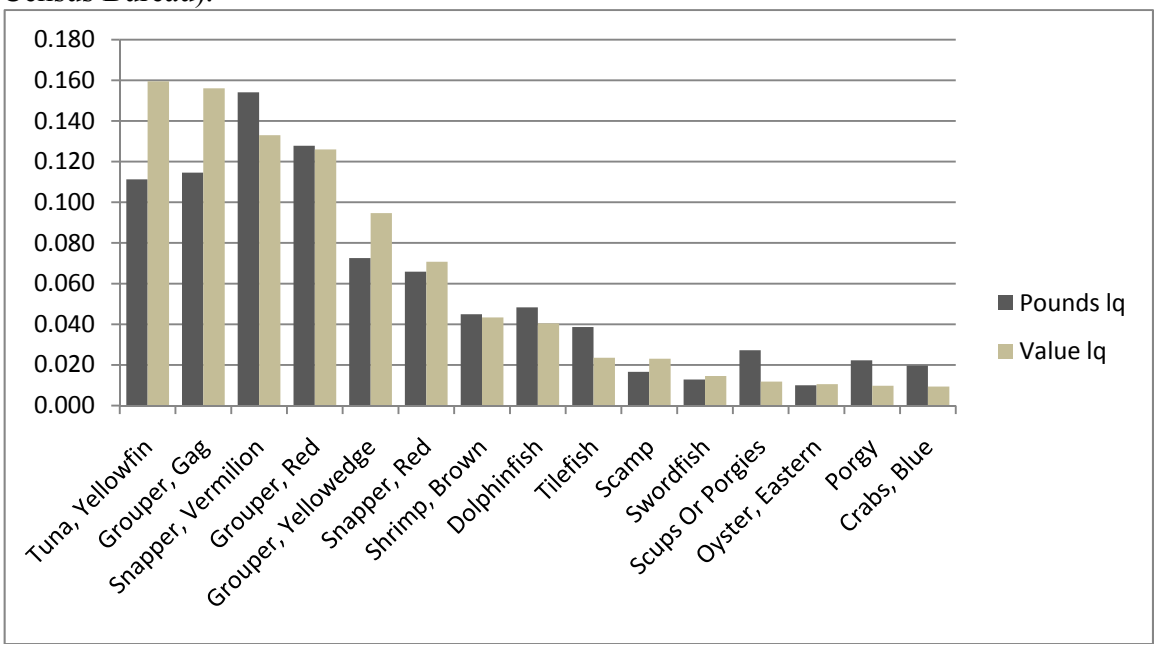

Figure 3.3.27. The top fifteen species in terms of proportion (lq) of total landings and value for Panama City, Florida.

Panama City landings and value are not dominated by any particular species as shown in Fig. 3.3.27, 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).

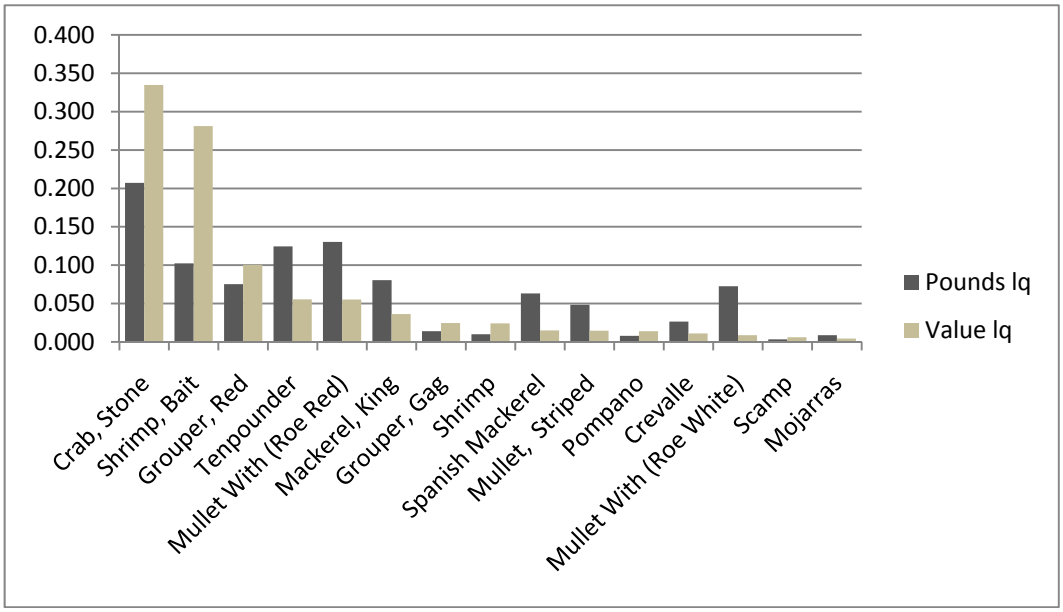

Figure 3.3.28. The top fifteen species in terms of proportion of total landings and value (lq) for Spring Hill, Florida.
Source: ALS 2008

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 Fig. 3.3.28.

Pinellas County

Pinellas County had a total population of 921,495 in 2000 that is estimated to have contracted to 915,079 by 2007. Population density was 3363 persons per square mile in 2000 and has lessened to 3350 persons in 2007; still highest density in the state. The majority of county residents were White (85.5%) and the Hispanic population was 6.9 % in 2007. The percent of population that identified themselves as White alone was 78.7% with 10.7% of the population Black. Florida as a state had an estimated 77.8% White population and Hispanics made up 20.5% of its total population and 16% of persons were Black. The White alone population for the state was estimated to be 60.7% in 2007. The median age for residents of Pinellas County was estimated to have been 45.2, so Pinellas County's median age is older than the State's 40.1 as a whole. Median household income for 2007 was estimated to be $45,650, less than that for the state which was $48,637. There was an estimated 5.4% of the population in the civilian force that was estimated to be unemployed in Pinellas County, which was lower than the State's unemployment rate of 6.4%. The percentage of persons below the poverty level was estimated at 11.2% which was lower than the 12.6% for the state as a whole during 2007. Pinellas County had a slightly higher owner occupied housing rate than the state with 71.0% compared to the State's 70.3% estimated for 2007 (U.S. Census Bureau).

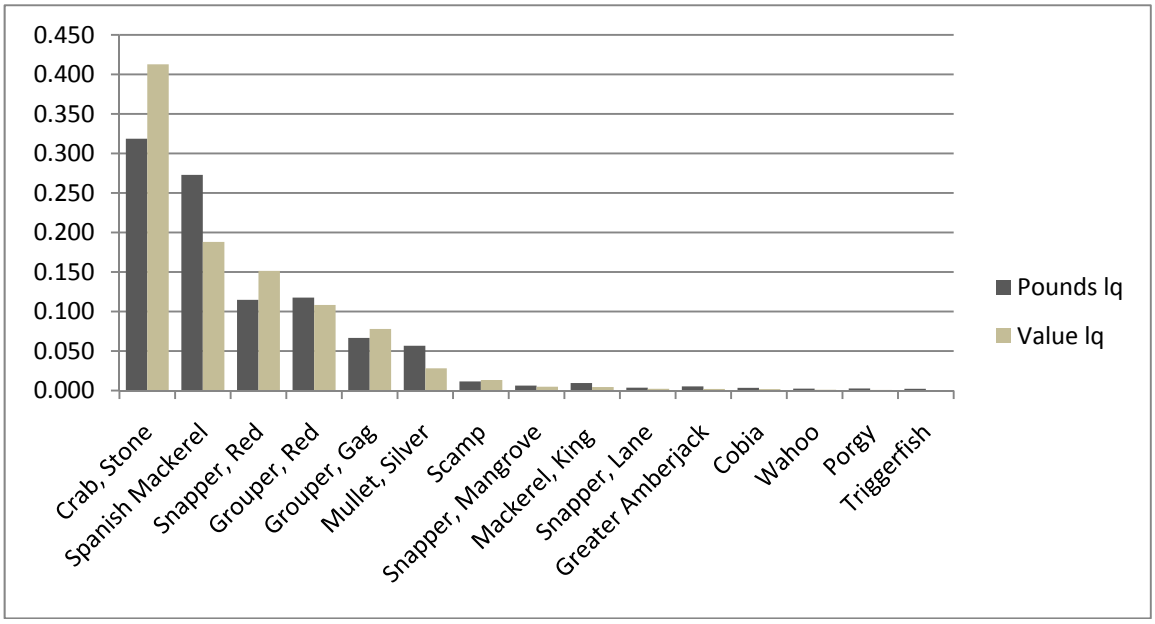

Figure 3.3.29. The top fifteen species in terms of proportion of total landings and value (lq) for Dunedin, Florida.
Source: ALS 2008

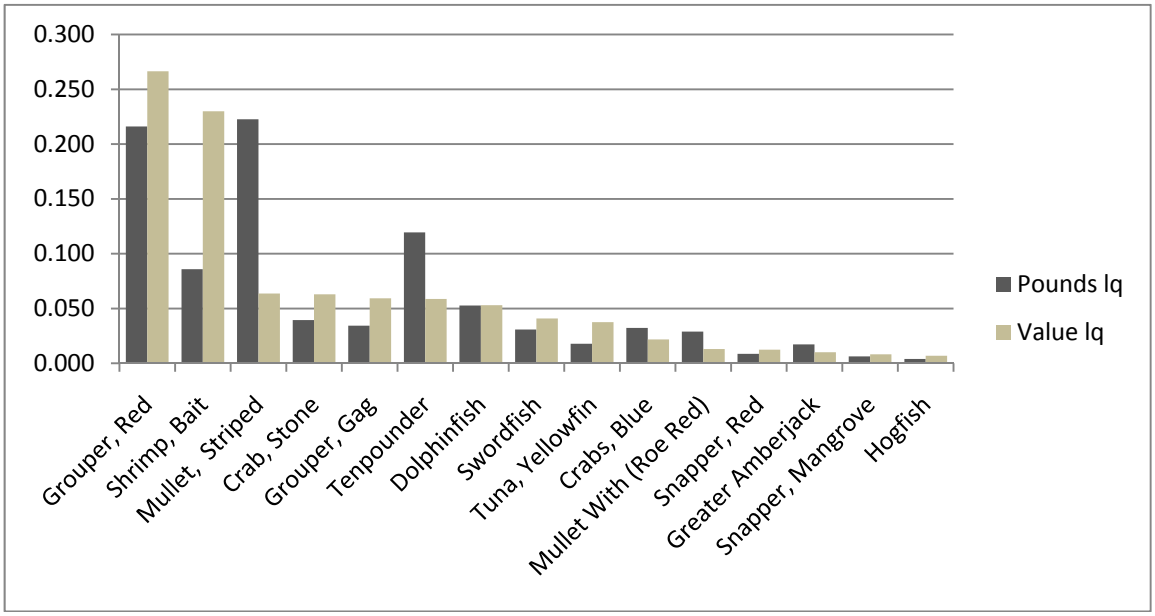

Figure 3.3.30. The top fifteen species in terms of proportion of total landings and value (lq) for St. Petersburg, Florida.
Source: ALS 2008

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 Fig. 3.3.29. 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 Fig. 3.3.30.

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).

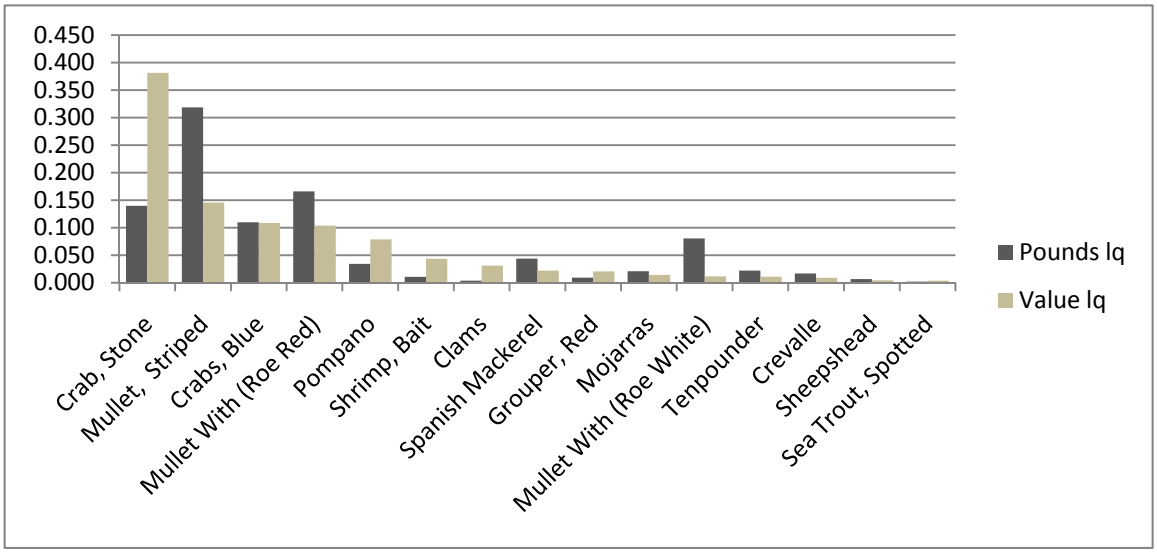

Figure 3.3.31. The top fifteen species in terms of proportion of total landings and value (lq) for St. James City, Florida.
Source: ALS 2008

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 Fig. 3.3.31.

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).

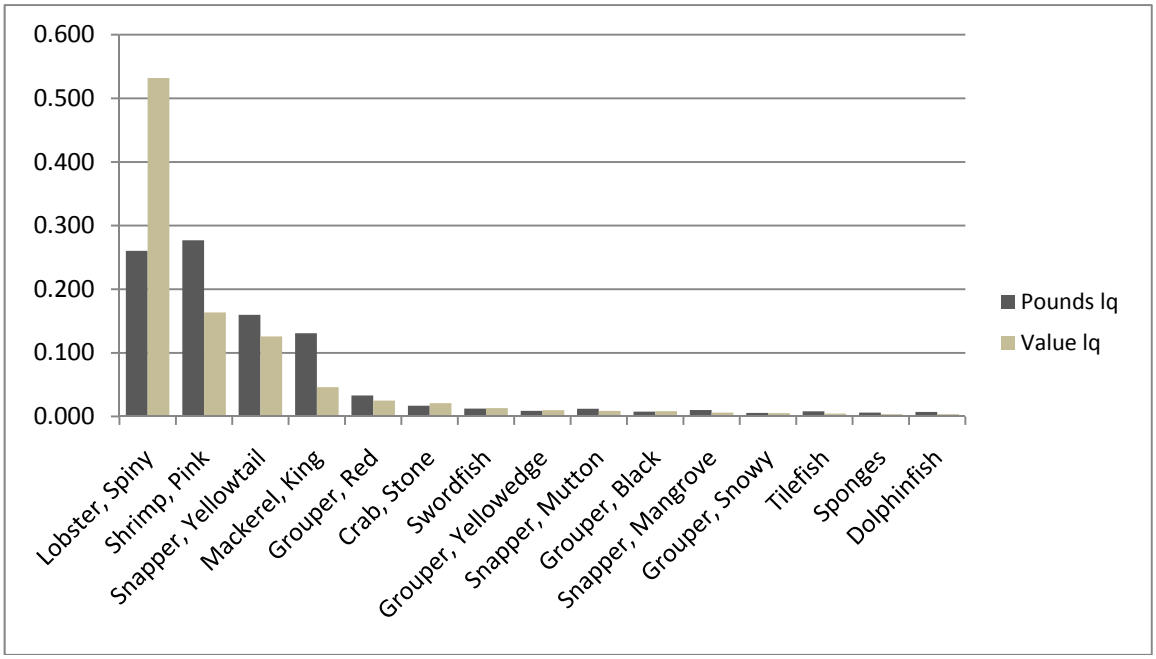

Figure 3.3.32. The top fifteen species in terms of proportion of total landings and value (lq) for Key West, Florida.
Source: ALS 2008

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 Fig. 3.3.32, 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 Fig. 3.3.33.

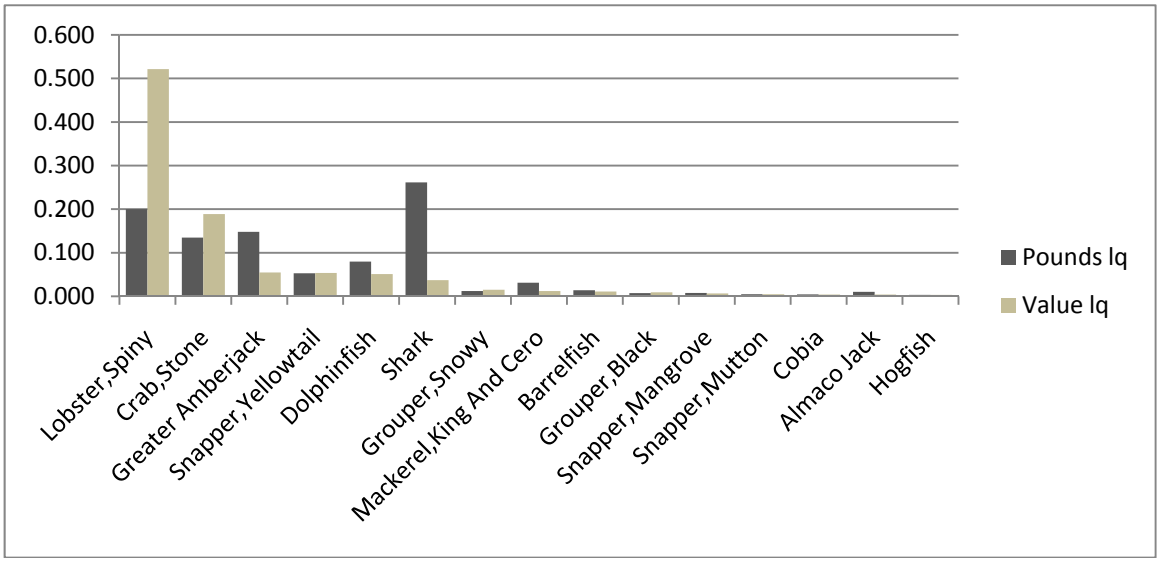

Figure 3.3.33. The top fifteen species in terms of proportion of total landings and value (lq) for Islamorada, Florida.
Source: ALS 2008

Mississippi-Alabama Counties

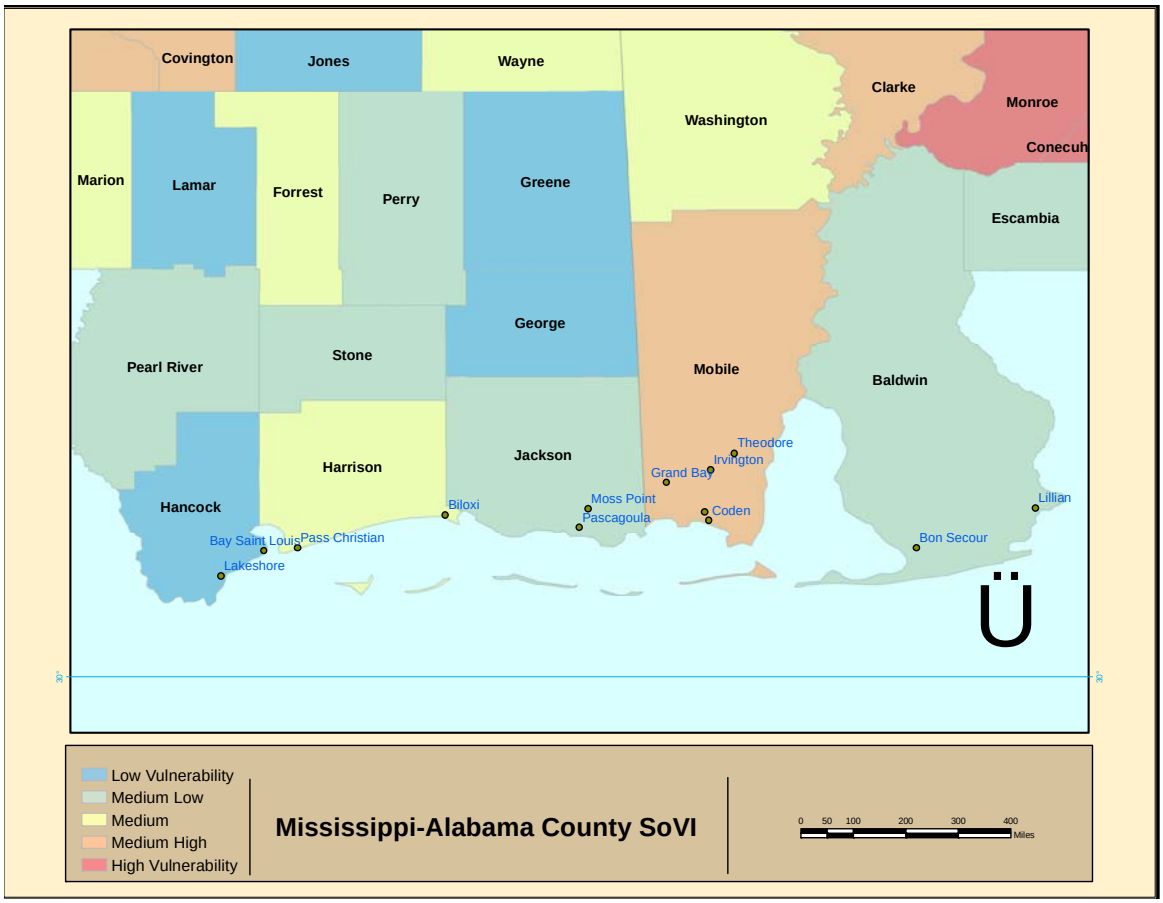

Figure 3.3.34. The Social Vulnerability Index applied to Mississippi-Alabama Coastal Counties.

Table 3.3.7. Marine Related Employment for 2007 in Alabama Coastal Counties.
Source: Census Bureau 2010.

County	Baldwin		Mobile	
Sector	# Prop	# Emp	# Prop	# Emp
Boat Dealers	10		11	
Seafood Dealers		5		338
Seafood Harvesters			500	
Seafood Retail		32		58
Marinas		130		34
Processors		170		407
Scenic Water		42		5
Ship Boat Builders		15		3418
Shipping Support		16		1073
Shipping		3		98

While Mississippi had no counties with medium or high vulnerability, Mobile County in Alabama was rated as having medium high vulnerability (Fig. 3.3.34). 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 3.3.7. Seafood dealers and processors also employ well over 700 within the county with boat building also a major activity. Baldwin County has more employed in Marinas with 130 persons, but does have 170 persons employed in processing of seafood.

Mobile County

Mobile County had a total population of 399,848 in 2000 that is estimated to have grown to 404,012 by 2007. Population density was 325 persons per square mile in 2000 and has grown to 329 persons in 2007. The majority of county residents were White (62.8%) and the Hispanic population was 1.8% in 2007. The percent of population that identified themselves as White alone was 60.6% with 34.5% of the population Black. Alabama as a state had an estimated 71.4% White population and Hispanics made up 2.7% of its total population and 26.7% of persons were Black. The White alone population for the state was estimated to be 68.7% in 2007. The median age for residents of Mobile County was estimated to have been 36.0, so Mobile County's median age is younger than the State's 37.3. Median household income for 2007 was estimated to be $54,729, lower than that for the state which was $57,597. There was an estimated 4.4% of the population in the civilian force that was estimated to be unemployed in Mobile County, which was slightly higher than the State's unemployment rate of 4.1%. The percentage of persons below the poverty level was estimated at 19.4% which was higher than the 16.3% for the state as a whole during 2007. Mobile County had a lower owner occupied housing rate than the state with 68.9% compared to the State's 71.3% estimated for 2007 (U.S. Census Bureau).

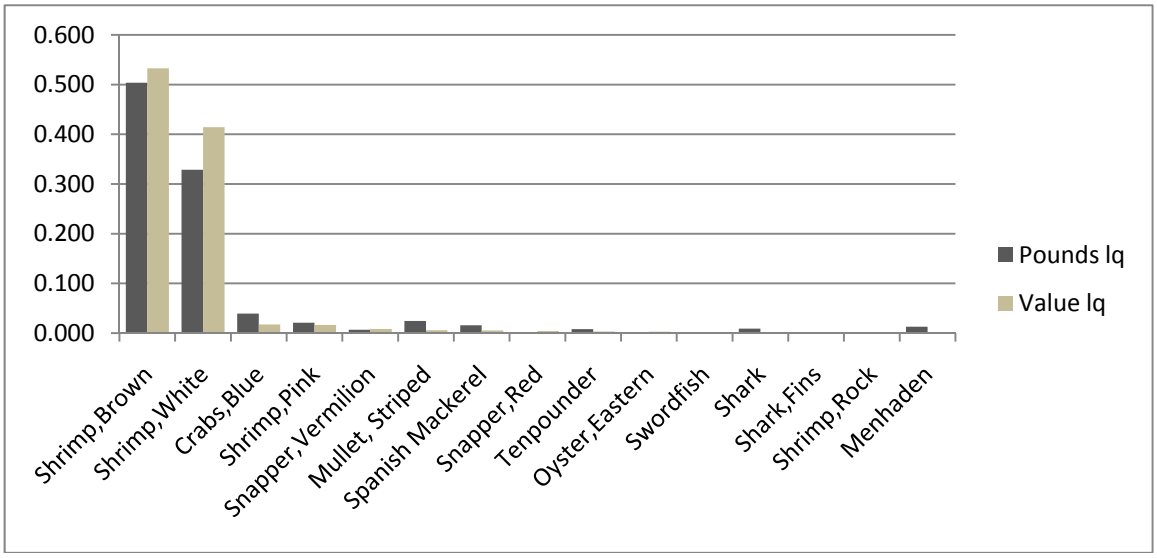

Figure 3.3.35. The top fifteen species in terms of proportion of total landings and value (lq) for Bayou LaBatre, Alabama.
Source: ALS 2008

Baldwin County

Baldwin County had a total population of 140,415 in 2000 that is estimated to have grown to 171,447 by 2007. Population density was 88 persons per square mile in 2000 and has grown to 108 persons in 2007. The majority of county residents were White (87.3%) and the Hispanic population was 2.7% in 2007. The percent of population that identified themselves as White alone was 85.2% with 10.3% of the population Black. Alabama as a state had an estimated 71.43% White population and Hispanics made up 2.7% of its total population and 26.7% of persons were Black. The White alone population for the state was estimated to be 68.7% in 2007. The median age for residents of Baldwin County was estimated to have been 39.2, so Baldwin County's median age is higher than the State's 37.3. Median household income for 2007 was estimated to be $66,189, higher than that for the state which was $57,597. There was an estimated 2.6% of the population in the civilian force that was estimated to be unemployed in Baldwin County, which was lower than the State's unemployment rate of 4.1%. The percentage of persons below the poverty level was estimated at 10.3% which was lower than the 16.3% for the state as a whole during 2007. Baldwin County had a higher owner occupied housing rate than the state with 75.9% compared to the State's 71.3% estimated for 2007 (U.S. Census Bureau).

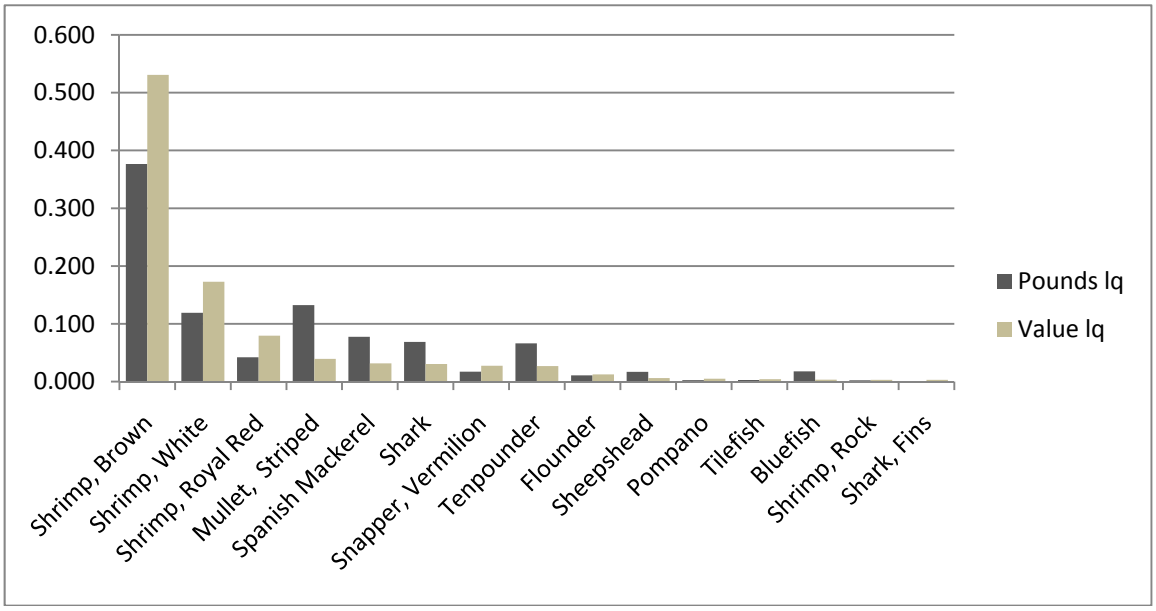

Figure 3.3.36. The top fifteen species in terms of proportion of total landings and value (lq) for Bon Secour, Alabama.
Source: ALS 2008

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 Fig. 3.3.36.

Table 3.3.8. 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 3.3.8.

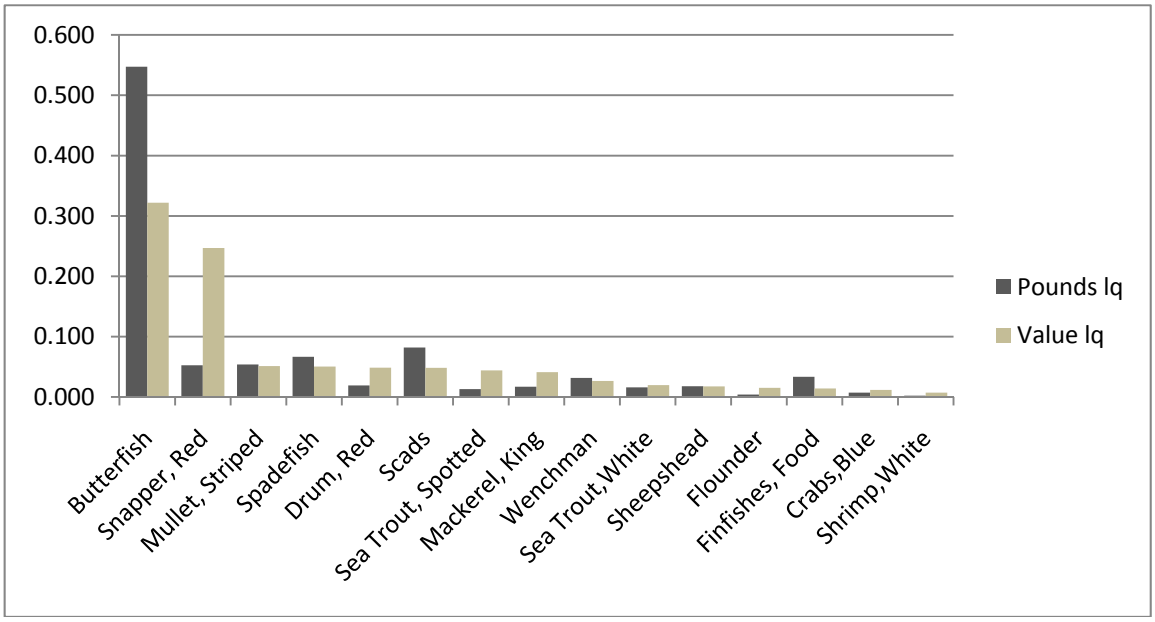

Figure 3.3.37. The top fifteen species in terms of proportion of total landings and value (lq) for Pascagoula, MS.
Source: ALS 2008

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 Fig. 3.3.37.

Louisiana Counties

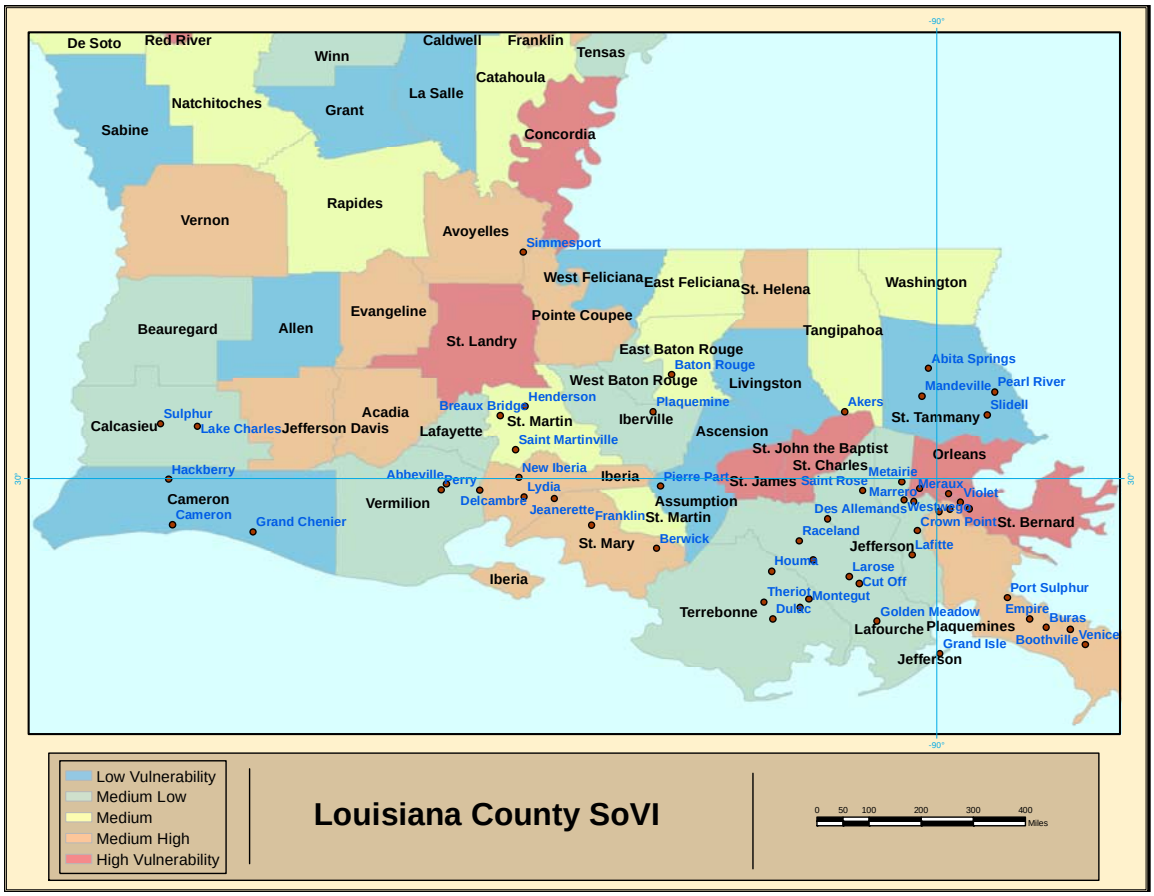

Figure 3.3.38. The Social Vulnerability Index applied to Louisiana Coastal Counties.

Several Parishes in Louisiana are categorized as medium high or high social vulnerability. 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 3.3.9. 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 3.3.9 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.

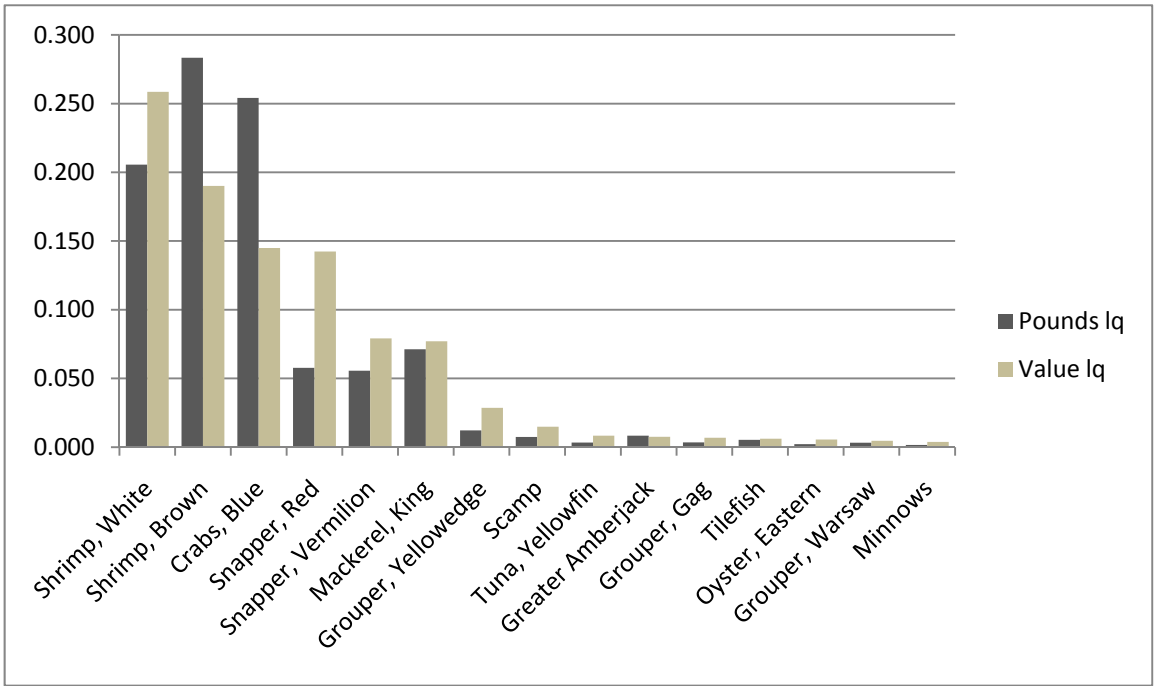

Figure 3.3.39. The top fifteen species in terms of proportion (lq) of total landings and value for Golden Meadow, Louisiana.
Source: ALS 2008.

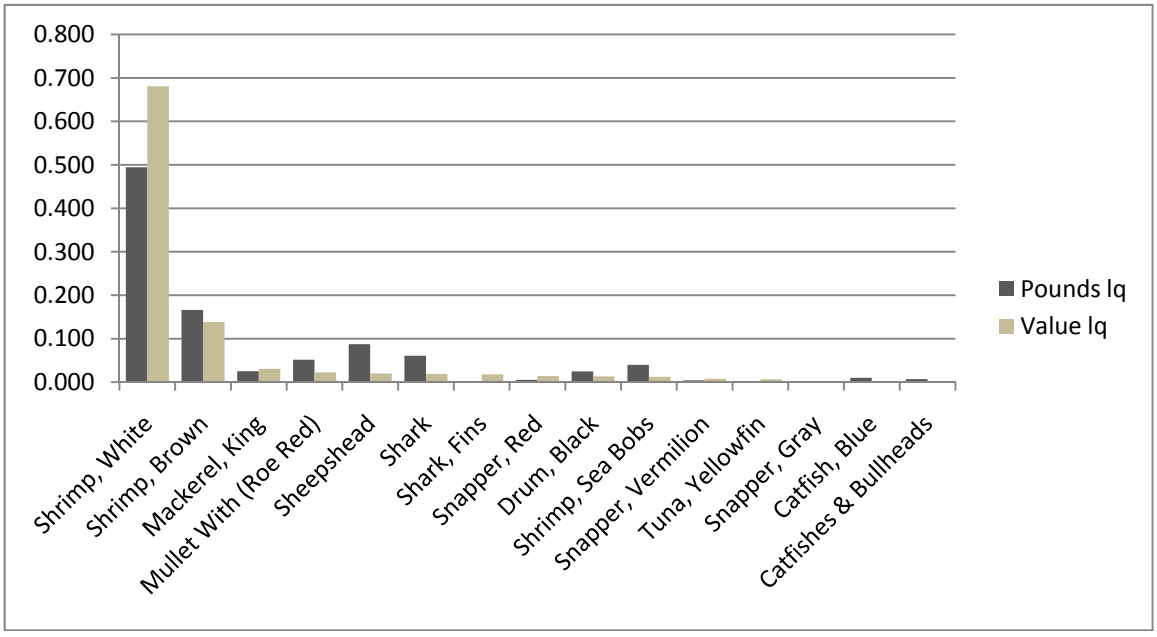

Figure 3.3.40. The top fifteen species in terms of proportion (lq) of total landings and value for Venice, Louisiana.
Source: ALS 2008.

Golden Meadow has close to 6% of value and landings in king mackerel out of total landings for the community in Fig. 3.3.39. Venice has just over 3% of value for king mackerel and a little less than that for landings out of total landings.

Texas Counties

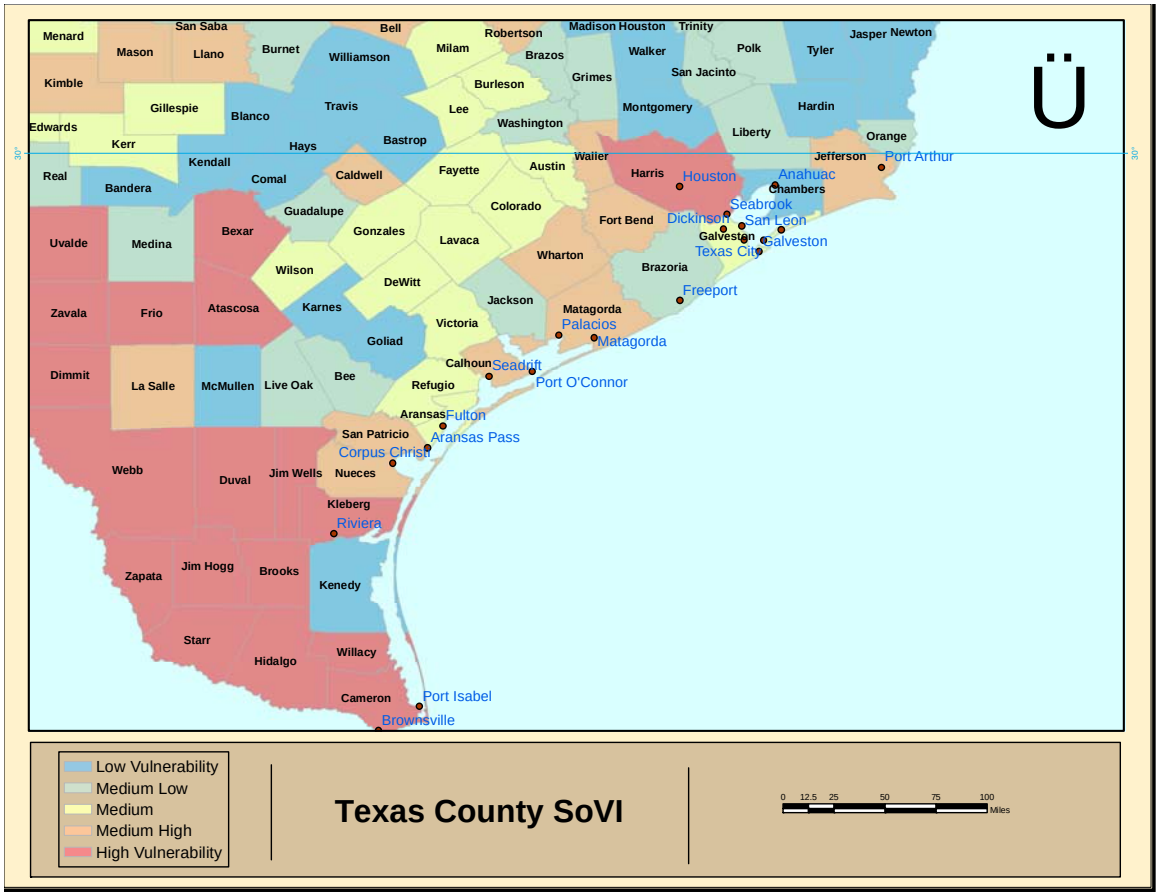

Figure 3.3.41. The Social Vulnerability Index applied to Texas Coastal Counties.

Those counties within Texas that are either medium high or high vulnerability cover a considerable part of the coast. Those counties that are highly vulnerable are: Harris, Kleberg, Willacy and Cameron. Those that are medium high for social vulnerability are: Jefferson, Matagorda, Calhoun, San Patricio and Nueces.

While Texas did not have any communities other than Port Bolivar with substantial landings of coastal pelagics, both private recreational and charter fishing for coastal pelagics is an important seasonal fishing activity. The communities of Port O'Connor, Port Aransas, Matagorda, South Padre Island, Freeport, Port Mansfield and Sabine Pass are all categorized has having substantial recreational fishing infrastructure. The communities of Matagorda and Port O' Connor are located in counties that are also identified as having medium high social vulnerability.

3.3.7 Environmental Justice

As mentioned, environmental justice is related to the idea of social vulnerability; however, there are no thresholds with regard to social vulnerability. Environmental Justice is addressed through Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations and requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Impacts of commercial and recreational fishing on subsistence fishing are a concern in fisheries management; however, there are no such implications from the action proposed in this amendment.

Although it is anticipated that the impacts of this amendment may affect communities with environmental justice concerns, because the impacts should not discriminate against any group, this action should not trigger any environmental justice concerns. In reviewing the thresholds for minorities among all coastal counties involved, Liberty County in Georgia, Miami-Dade and Broward in Florida, Mobile County in Alabama; Orleans Parish in Louisiana; Harris, Nueces Kleberg, and Cameron in Texas all exceed the threshold for minorities. With regard to poverty, Georgetown County in South Carolina; Escambia, Levy and Miami-Dade Counties in Florida; Orleans Parish in Louisiana; Matagorda, Aransas, Nueces, Willacy, Kleberg and Cameron Counties in Texas all exceed the poverty threshold. Again, as illustrated by the SoVI, environmental justice is closely tied to social vulnerability index as most of the counties that do not meet these thresholds are also considered medium high or highly vulnerable. It is anticipated that the impacts from the following management actions may impact minorities and the poor, but not through discriminatory application of these regulations.

3.4 Economic Environment

3.4.1 Economic Description of the Commercial Fishery

Number of Vessels, Harvest, and Ex-vessel Value
An economic description of the commercial fisheries for the CMP species is contained in NMFS (2010) and is incorporated herein by reference. Select summary statistics are provided in Table 3.4.1.1. Landings information is provided in Section 1.5.

Table 3.4.1.1. Five-year[1] average performance statistics.

Species	Vessels	Ex-vessel Value[2] Species (millions)	Ex-vessel Value All Species (millions)	Average Ex-vessel Value per Vessel
Atlantic Group King Mackerel	742	$4.57	$23.41	$31,600
Atlantic Group Spanish Mackerel	349	$1.85	$9.76	$28,000
Gulf Group King Mackerel	669	$4.99	$29.48	$44,100
Gulf Group Spanish Mackerel	197	$0.31	$9.00	$45,900
Cobia (whole Southeast)	689	$0.27	$56.20	$81,700

[1]Fishing-year (2004/2005, 2005/2006,…, 2008/2009) for king and Spanish mackerel and calendar year (2005-2009) for cobia.
[2]2008 dollars.
Source: NMFS SEFSC Coastal Fisheries Logbook and NMFS NEFSC Commercial Fisheries Data Base System

Economic Activity
Estimates of the average annual economic activity (impacts) associated with the commercial fisheries for CMP species addressed in the amendment were derived using the model developed for and applied in NMFS (2009c) and are provided in Table 3.4.1.2. Business activity for the commercial sector is characterized in the form of full-time equivalent (FTE) jobs, income impacts (wages, salaries, and self-employed income), and output (sales) impacts (gross business sales). Income impacts should not be added to output (sales) impacts because this would result in double counting.

As noted in Table 3.4.1.1, the annual period refers to either the fishing year or calendar year, as appropriate to the management of the species. The estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors). Estimates are provided for the economic activity associated with the ex-vessel revenues from the individual CMP species as well as the revenues from all species harvested by these same vessels. The estimates of ex-vessel value are replicated from Table 3.4.1.1.

Table 3.4.1.2. Average annual economic activity associated with the CMP fisheries.

Species	Average Ex-vessel Value[1] (millions)	Total Jobs	Harvester Jobs	Output (Sales) Impacts (millions)	Income Impacts (millions)
Atlantic Group King Mackerel	$4.57	862	112	$60.21	$25.66
- All Species[2]	$23.41	4,412	576	$308.26	$131.38
Atlantic Group Spanish Mackerel	$1.85	348	45	$24.31	$10.36
- All Species	$9.76	1,840	240	$128.52	$54.77
Gulf Group King Mackerel	$4.99	941	123	$65.72	$28.01
- All Species	$29.48	5,556	725	$388.17	$165.43
Gulf Group Spanish Mackerel	$0.31	59	8	$4.10	$1.75
- All Species	$9.00	1,697	221	$118.56	$50.53
Cobia (All Southeast)	$0.27	50	6	$3.53	$1.50
- All Species	$56.20	10,560	1,355	$741.68	$314.28

[1]2008 dollars.

[2]Includes ex-vessel revenues and economic activity associated with the average annual harvests of all species harvested by vessels that harvested the subject CMP species.

Permits

Commercial Permits

The numbers of commercial permits associated with the CMP fishery on January 21, 2011, are provided in Table 3.4.1.3

Table 3.4.1.3. Number of permits associated with the CMP fishery.

	Valid[1]	Valid or Renewable
King Mackerel	1,452	1,530
King Mackerel Gillnet	21	23
Spanish Mackerel	1,704	Not applicable

[1]Non-expired. Expired permits may be renewed within one year of expiration.

Recreational Permits

The numbers of pelagic for-hire (charter or headboat) permits on January 21, 2011, are provided in Table 3-x13. There are no specific permitting requirements for recreational anglers to harvest reef fish. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions.

Table 3-x13. Number of pelagic for-hire (charter or headboat) permits.

	Valid[1]	Valid or Renewable
Gulf of Mexico	1,260	1,377
Gulf Historical Captain	36	44
South Atlantic	1,467	Not applicable

[1]Non-expired. Expired permits may be renewed within one year of expiration.

3.4.2 Economic Description of the Recreational Fishery

The recreational fishery is comprised of the private sector and for-hire sector. The private sector includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire sector is composed of the charterboat and headboat (also called partyboat) sectors. Charterboats generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person.

Harvest
Recreational harvest information is provided in Section 1.5.

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

Target effort - The number of individual angler trips, regardless of trip duration, where the intercepted angler indicated that the species was targeted as either the first or the second primary target for the trip. The species did not have to be caught.

Catch effort - The number of individual angler trips, regardless of trip duration and target intent, where the individual species was caught. The fish caught did not have to be kept.

All recreational trips - The total estimated number of recreational trips taken, regardless of target intent or catch success.

Estimates of average annual recreational effort, 2005-2009, for the CMP species addressed in this amendment are provided in Table 3.4.2.4-15. In each table, where appropriate, the "total" refers to the total number of target or catch trips, as appropriate, while "all trips" refers to the total number of trips across all species regardless of target intent of catch success. The estimates were evaluated by calendar year and not fishing year. As a result, while the results may not be fully reflective of effort associated with specific stocks (e.g., Gulf Migratory Group versus Atlantic Migratory Group for king or Spanish mackerel), the results are consistent with fishing activity based on area fished.

Among the three species examined, Spanish mackerel is subject to more target and catch effort than the other two species for the Gulf states (Table 3.4.2.1). Spanish mackerel is also subject to more catch effort than target effort, whereas more trips target king mackerel than catch the species.

The effort situation is somewhat different for the South Atlantic states (Table 3.4.2.2). While Spanish mackerel still records the highest average number of catch trips per year, the difference over king mackerel is not as pronounced as in the Gulf of Mexico. Further, more trips target king mackerel than Spanish mackerel (and cobia). Further, both species, as well as cobia, are subject to more target effort than catch effort.

W Florida dominates for all three species and effort type.

If examined by mode, in the Gulf of Mexico, the private mode accounts for the most target and catch effort for king mackerel and cobia (Table 3.4.2.3). For Spanish mackerel, however, the shore mode dominates target effort, while the private mode accounts for the most catch trips. In the South Atlantic, the private mode leads for all three species and effort type (Table 3.4.2.4).

Table 3.4.2.1. Average annual (calendar year) recreational effort (thousand trips) in the Gulf of Mexico, across all modes, 2005-2009.

	Target Trips					
Species	Alabama	WFlorida	Louisiana	Mississippi	Total	All Trips
King Mackerel	50	425	2	3	480	23,288
Spanish Mackerel	48	753	0	0	801	
Cobia	9	177	13	10	210	
	Catch Trips					
King Mackerel	49	270	7	3	329	23,288
Spanish Mackerel	63	1,011	30	11	1,115	
Cobia	7	72	19	3	101	

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.2. Average annual (calendar year) recreational effort (thousand trips) in the South Atlantic, across all modes, 2005-2009.

	Target Trips					
	EFlorida	Georgia	North Carolina	South Carolina	Total	All Trips
King Mackerel	423	11	214	100	748	22,419
Spanish Mackerel	189	6	254	63	512	
Cobia	96	3	53	18	171	
	Catch Trips					
King Mackerel	333	7	99	24	462	22,419
Spanish Mackerel	255	9	192	50	507	
Cobia	30	2	15	5	53	

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.3. Average annual (calendar year) recreational effort (thousand trips) in the Gulf of Mexico, across all states, 2005-2009.

	Target Trips				
	Shore	Charter	Private	Total	All Trips
King Mackerel	191	31	257	480	23,288
Spanish Mackerel	500	12	288	801	
Cobia	88	9	112	210	
	Catch Trips				
King Mackerel	56	106	167	329	23,288
Spanish Mackerel	489	44	581	1,115	
Cobia	10	14	76	101	

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.4. Average annual (calendar year) recreational effort (thousand trips) in the South Atlantic, across all states, 2005-2009.

	Target Trips				
	Shore	Charter	Private	Total	All Trips
King Mackerel	109	34	605	748	22,419
Spanish Mackerel	229	6	277	512	
Cobia	32	3	136	171	
	Catch Trips				
King Mackerel	12	73	376	462	22,419
Spanish Mackerel	178	18	311	507	
Cobia	6	5	42	53	

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Tables 3.4.2.5-12 contain estimates of the average annual (2005-2009) target trips and catch trips, by species, for each state and mode.

Table 3.4.2.5. Average annual (calendar year) recreational effort (thousand trips), Alabama, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	7	2	3	10	40	37	50	49
Spanish Mackerel	21	17	1	5	26	41	48	63
Cobia	0	0	1	0	9	7	9	7

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.6. Average annual (calendar year) recreational effort (thousand trips), WFlorida, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	184	55	28	92	213	124	425	270
Spanish Mackerel	479	465	11	32	262	513	753	1,011
Cobia	88	10	4	7	86	56	177	72

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.7. Average annual (calendar year) recreational effort (thousand trips), Louisiana, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	0	0	0	3	1	4	2	7
Spanish Mackerel	0	7	0	2	0	22	0	30
Cobia	0	0	5	7	8	11	13	19

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.8. Average annual (calendar year) recreational effort (thousand trips), Mississippi, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	0	0	0	1	3	2	3	3
Spanish Mackerel	0	0	0	5	0	6	0	11
Cobia	0	0	0	0	10	2	10	3

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.9. Average annual (calendar year) recreational effort (thousand trips), EFlorida, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	21	11	26	52	377	270	423	333
Spanish Mackerel	124	118	1	2	64	134	189	255
Cobia	9	2	2	4	86	25	96	30

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.10. Average annual (calendar year) recreational effort (thousand trips), Georgia, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	0	0	0	1	11	6	11	7
Spanish Mackerel	2	2	0	1	4	6	6	9
Cobia	0	0	0	0	3	2	3	2

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.11. Average annual (calendar year) recreational effort (thousand trips), North Carolina, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	45	1	3	16	165	82	214	99
Spanish Mackerel	64	34	2	10	187	148	254	192
Cobia	23	4	1	1	30	10	53	15

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3.4.2.12. Average annual (calendar year) recreational effort (thousand trips), South Carolina, 2005-2009.

	Shore		Charter		Private		Total	
	Target	Catch	Target	Catch	Target	Catch	Target	Catch
King Mackerel	43	1	5	5	53	18	100	24
Spanish Mackerel	39	23	2	5	21	22	63	50
Cobia	1	0	0	0	17	5	18	5

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Similar analysis of recreational effort is not possible for the headboat sector because the headboat data are not collected at the angler level. Estimates of effort in the headboat sector are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats.

The average annual (2005-2009) number of headboat angler days is presented in Table 3.4.2.13. Due to confidentiality issues, Georgia estimates are combined with those of E Florida on the Atlantic, while Alabama is combined with W Florida as part of the summarization process for the Gulf (i.e., as part of the estimation process and not a result of confidentiality merging). As shown in Table 3.4.2.5, while the total (across all states) average number of headboat angler days has been more stable from 2005-2009 in the Gulf, more headboat effort normally occurs in the South Atlantic.

Table 3.4.2.13. Southeast headboat angler days, 2005-2009.

	Gulf of Mexico			
	Louisiana	Texas	WFlorida/ Alabama	Total
2005	0	59,857	130,233	190,090
2006	5,005	70,789	124,049	199,843
2007	2,522	63,764	136,880	203,166
2008	2,945	41,188	130,176	174,309
2009	3,268	50,737	142,438	196,443
Average	2,748	57,267	132,755	192,770
	South Atlantic			
	EFlorida/ Georgia	North Carolina	South Carolina	Total
2005	171,078	31,573	34,036	236,687
2006	175,522	25,736	56,074	257,332
2007	157,150	29,002	60,729	246,881
2008	124,119	16,982	47,287	188,388
2009	136,420	19,468	40,919	196,807
Average	152,858	24,552	47,809	225,219

Source: The Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab.

Permits

Information on the number of permits will be provided in a subsequent version of this amendment.

Table 3.4.2.14. South Atlantic snapper grouper for-hire permit holders by home port state, 2005-2009.

Source: Southeast Permits Database, NOAA Fisheries, SERO.

Economic Value, Expenditures, and Economic Activity

Participation, effort, and harvest are indicators of the value of saltwater recreational fishing. However, a more specific indicator of value is the satisfaction that anglers experience over and above their costs of fishing. The monetary value of this satisfaction is referred to as consumer surplus. The value or benefit derived from the recreational experience is dependent on several quality determinants, which include fish size, catch success rate, and the number of fish kept. These variables help determine the value of a fishing trip and influence total demand for recreational fishing trips.

The estimated consumer surplus per fish for king mackerel to anglers in both the Gulf of Mexico and South Atlantic, based on the estimated willingness-to-pay to avoid a reduction in the bag limit, is $7 (assumed 2006 dollars; Whitehead 2006). Comparable estimates have not been identified for Spanish mackerel or cobia.

While anglers receive economic value as measured by the consumer surplus associated with fishing, for-hire businesses receive value from the services they provide. Producer surplus is the measure of the economic value these operations receive. Producer surplus is the difference between the revenue a business receives for a good or service, such as a charter or headboat trip, and the cost the business incurs to provide that good or service. Estimates of the producer surplus associated with for-hire trips are not available. However, proxy values in the form of net operating revenues are available (David Carter, NMFS SEFSC, personal communication, August 2010). These estimates were culled from several studies – Liese et al. (2009), Dumas et al. (2009), Holland et al. (1999), and Sutton et al. (1999). Estimates of net operating revenue per angler trip (2009 dollars) on representative charter trips (average charter trip regardless of area fished) are $146 for Louisiana through east Florida, $135 for east Florida, $156 for northeast Florida, and $128 for North Carolina. For charter trips into the EEZ only, net operating revenues are $141 in east Florida and $148 in northeast Florida. For full-day and overnight trips only, net operating revenues are estimated to be $155-$160 in North Carolina. Comparable estimates are not available for Georgia, South Carolina, or Texas.

Net operating revenues per angler trip are lower for headboats than for charterboats. Net operating revenue estimates for a representative headboat trip are $48 in the Gulf of Mexico (all states and all of Florida), and $63-$68 in North Carolina. For full-day and overnight headboat trips, net operating revenues are estimated to be $74-$77 in North Carolina. Comparable estimates are not available for Georgia and South Carolina.

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

Estimates of the economic activity (impacts) associated with the recreational fishery for king mackerel, Spanish mackerel, and cobia were derived using average coefficients for recreational angling across all fisheries (species), as derived by an economic add-on to the MRFSS, and described and utilized in NMFS (2009c). Business activity is characterized in the form of FTE jobs, income impacts (wages, salaries, and self-employed income), output (sales) impacts (gross

business sales), and value-added impacts (difference between the value of goods and the cost of materials or supplies). Job and output (sales) impacts are equivalent metrics across both the commercial and recreational sectors. Income and value-added impacts are not equivalent, though similarity in the magnitude of multipliers may result in roughly equivalent values. Neither income nor value-added impacts should be added to output (sales) impacts because this would result in double counting. Job and output (sales) impacts, however, may be added across sectors.

Estimates of the average expenditures by recreational anglers are provided in NMFS (2009c) and are incorporated herein by reference. Estimates of the average recreational effort (2005-2009) and associated economic impacts (2008 dollars) are provided in Tables 3.4.18.4.23. 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. 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.

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 3.4.2.14, the average number of charter king mackerel target trips in W Florida (27,535 trips) was only approximately 13% of the number of private trips (213,641), whereas the estimated output (sales) impacts by the charter anglers (approximately $8.6 million) was approximately 89% of the output impacts of the private trips (approximately $9.7 million).

Table 3.4.2.15. Summary of king mackerel target trips (2005-2009 average) and associated economic activity (2008 dollars), Gulf states. Output and value added impacts are not additive.

	Alabama	WFlorida	Louisiana	Mississippi	Texas
	Shore Mode				
Target Trips	6,972	184,444	0	0	Unknown
Output Impact	$510,060	$12,499,596	$0	$0	
Value Added Impact	$274,383	$7,261,856	$0	$0	
Jobs	6	133	0	0	
	Private Mode				
Target Trips	39,581	213,461	1,312	2,608	Unknown
Output Impact	$2,302,878	$9,691,420	$106,992	$74,376	
Value Added Impact	$1,260,774	$5,762,882	$52,622	$35,646	
Jobs	24	97	1	1	
	Charter Mode				
Target Trips	3,336	27,535	457	122	Unknown
Output Impact	$1,736,893	$8,646,173	$217,556	$37,906	
Value Added Impact	$956,101	$5,126,290	$123,528	$21,360	
Jobs	23	89	2	0	
	All Modes				
Target Trips	49,889	425,440	1,769	2,730	Unknown
Output Impact	$4,549,831	$30,837,189	$324,547	$112,282	
Value Added Impact	$2,491,258	$18,151,028	$176,150	$57,006	
Jobs	54	318	3	1	

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.16. Summary of king mackerel target trips (2005-2009 average) and associated economic activity (2008 dollars), South Atlantic states. Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia	EFlorida
	Shore Mode			
Target Trips	45,057	43,054	0	20,543
Output Impact	$11,285,263	$4,384,103	$0	$586,864
Value Added Impact	$6,284,247	$2,441,172	$0	$340,707
Jobs	136	54	0	6
	Private Mode			
Target Trips	165,432	52,675	10,542	376,517
Output Impact	$9,029,852	$2,317,598	$164,705	$14,238,046
Value Added Impact	$5,091,654	$1,352,287	$99,907	$8,507,989
Jobs	97	26	1	150
	Charter Mode			
Target Trips	3,297	4,597	262	25,958
Output Impact	$1,283,468	$1,550,235	$16,470	$10,172,982
Value Added Impact	$720,285	$875,819	$9,613	$5,989,121
Jobs	16	20	0	105
	All Modes			
Target Trips	213,786	100,326	10,804	423,018
Output Impact	$21,598,582	$8,251,936	$181,176	$24,997,893
Value Added Impact	$12,096,185	$4,669,279	$109,520	$14,837,816
Jobs	250	100	2	261

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.17. Summary of Spanish mackerel target trips (2005-2009 average) and associated economic activity (2008 dollars), Gulf states. Output and value added impacts are not additive.

	Alabama	WFlorida	Louisiana	Mississippi	Texas
	Shore Mode				
Target Trips	20,894	478,844	0	0	Unknown
Output Impact	$1,528,570	$32,450,807	$0	$0	
Value Added Impact	$822,282	$18,852,855	$0	$0	
Jobs	19	344	0	0	
	Private Mode				
Target Trips	25,808	262,403	0	115	Unknown
Output Impact	$1,501,546	$11,913,453	$0	$3,280	
Value Added Impact	$822,062	$7,084,186	$0	$1,572	
Jobs	16	119	0	0	
	Charter Mode				
Target Trips	1,166	11,324	0	0	Unknown
Output Impact	$607,079	$3,555,811	$0	$0	
Value Added Impact	$334,177	$2,108,230	$0	$0	
Jobs	8	37	0	0	
	All Modes				
Target Trips	47,868	752,571	0	115	Unknown
Output Impact	$3,637,196	$47,920,072	$0	$3,280	
Value Added Impact	$1,978,521	$28,045,271	$0	$1,572	
Jobs	43	500	0	0	

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.18. Summary of Spanish mackerel target trips (2005-2009 average) and associated economic activity (2008 dollars), South Atlantic states. Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia	EFlorida
	Shore Mode			
Target Trips	64,374	39,137	1,739	124,223
Output Impact	$16,123,521	$3,985,242	$28,012	$3,548,752
Value Added Impact	$8,978,452	$2,219,077	$16,796	$2,060,245
Jobs	195	49	0	38
	Private Mode			
Target Trips	187,064	21,322	3,705	64,414
Output Impact	$10,210,602	$938,127	$57,886	$2,435,825
Value Added Impact	$5,757,442	$547,384	$35,113	$1,455,535
Jobs	110	11	1	26
	Charter Mode			
Target Trips	2,445	2,478	237	527
Output Impact	$951,798	$835,650	$14,899	$206,532
Value Added Impact	$534,151	$472,108	$8,695	$121,591
Jobs	12	11	0	2
	All Modes			
Target Trips	253,883	62,937	5,681	189,164
Output Impact	$27,285,921	$5,759,019	$100,796	$6,191,109
Value Added Impact	$15,270,045	$3,238,570	$60,605	$3,637,372
Jobs	316	70	1	65

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.19. Summary of cobia target trips (2005-2009 average) and associated economic activity (2008 dollars), Gulf states. Output and value added impacts are not additive.

	Alabama	WFlorida	Louisiana	Mississippi	Texas
	Shore Mode				
Target Trips	0	87,863	0	0	Unknown
Output Impact	$0	$5,954,393	$0	$0	
Value Added Impact	$0	$3,459,307	$0	$0	
Jobs	0	63	0	0	
	Private Mode				
Target Trips	8,689	85,502	8,017	10,150	Unknown
Output Impact	$505,538	$3,881,907	$653,775	$289,461	
Value Added Impact	$276,771	$2,308,328	$321,549	$138,730	
Jobs	5	39	6	3	
	Charter Mode				
Target Trips	799	3,909	4,587	0	Unknown
Output Impact	$416,000	$1,227,452	$2,183,650	$0	
Value Added Impact	$228,994	$727,753	$1,239,872	$0	
Jobs	6	13	23	0	
	All Modes				
Target Trips	9,488	177,274	12,604	10,150	Unknown
Output Impact	$921,539	$11,063,752	$2,837,425	$289,461	
Value Added Impact	$505,765	$6,495,387	$1,561,422	$138,730	
Jobs	11	115	29	3	

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

Table 3.4.2.20. Summary of cobia target trips (2005-2009 average) and associated economic activity (2008 dollars), South Atlantic states. Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia	EFlorida
	Shore Mode			
Target Trips	22,566	731	0	8,524
Output Impact	$5,652,024	$74,436	$0	$243,510
Value Added Impact	$3,147,354	$41,448	$0	$141,371
Jobs	68	1	0	3
	Private Mode			
Target Trips	29,623	17,238	2,961	85,694
Output Impact	$1,616,926	$758,439	$46,262	$3,240,531
Value Added Impact	$911,735	$442,539	$28,062	$1,936,390
Jobs	17	9	0	34
	Charter Mode			
Target Trips	856	488	34	1,813
Output Impact	$333,227	$164,567	$2,137	$710,518
Value Added Impact	$187,007	$92,974	$1,247	$418,302
Jobs	4	2	0	7
	All Modes			
Target Trips	53,045	18,457	2,995	96,031
Output Impact	$7,602,176	$997,442	$48,399	$4,194,559
Value Added Impact	$4,246,096	$576,960	$29,309	$2,496,062
Jobs	90	12	0	44

Source: effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2009c).

As previously noted, the values provided in Tables 3.4.2.14-19 only reflect effort derived from the MRFSS. Because the headboat sector in the Southeast is not covered by the MRFSS, the results in Tables 3.4.2.14-19 do not include estimates of the economic activity associated with headboat anglers. While estimates of headboat effort are available (see Table 3.4.2.13), species target information is not collected in the Headboat Survey, which prevents the generation of estimates of the number of headboat target trips for individual species. Further, because the model developed for NMFS (2009c) was based on expenditure data collected through the MRFSS, expenditure data from headboat anglers was not available and appropriate economic expenditure coefficients have not been estimated. As a result, estimates of the economic activity associated with the headboat sector comparable to those of the other recreational sector modes cannot be provided.

3.5 Administrative Environment

3.5.1 Federal Fishery Management

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

Responsibility for federal fishery management decision-making is divided between the Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act, and with other applicable laws summarized in Section 9. In most cases, the Secretary has delegated this authority to NOAA Fisheries Service.

The Gulf Council is responsible for fishery resources in federal waters of the Gulf of Mexico. These waters extend to 200 nautical miles offshore from the nine-mile seaward boundary of the states of Florida and Texas, and the three-mile seaward boundary of the states of Alabama, Mississippi, and Louisiana. The Council consists of 17 voting members: 11 public members appointed by the Secretary; one each from the fishery agencies of Texas, Louisiana, Mississippi, Alabama, and Florida; and one from NOAA Fisheries.

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

The Council uses a Scientific and Statistical Committee to review the data and science being used in assessments and fishery management plans/amendments. Regulations contained within FMPs are enforced through actions of the NOAA's Office for Law Enforcement, the USCG, and various state authorities

The public is involved in the fishery management process through participation at public meetings, on advisory panels and through council meetings that, with few exceptions for discussing personnel matters, are open to the public. The regulatory process is in accordance with the Administrative Procedures Act, in the form of "notice and comment" rulemaking, which provides extensive opportunity for public scrutiny and comment, and requires consideration of and response to those comments.

3.5.2 State Fishery Management

The purpose of state representation at the Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters. The state governments have the authority to manage their respective state fisheries including enforcement of fishing regulations. Each of the eight states exercises legislative and regulatory authority over their states' natural resources through discrete administrative units. Although each agency listed below is the primary administrative body with respect to the states natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources.

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

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

More information about these agencies can be found from the following webpages:
Texas Parks & Wildlife Department - http://www.tpwd.state.tx.us
Louisiana Department of Wildlife and Fisheries http://www.wlf.state.la.us/
Mississippi Department of Marine Resources http://www.dmr.state.ms.us/
Alabama Department of Conservation and Natural Resources http://www.dcnr.state.al.us/
Florida Fish and Wildlife Conservation Commission http://www.myfwc.com
Georgia Department of Natural Resources, Coastal Resources Division http://crd.dnr.state.ga.us/
South Carolina Department of Natural Resources http://www.dnr.sc.gov/
North Carolina Department of Environmental and Natural Resources
http://portal.ncdenr.org/web/guest/

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Action 1. Modifications to the Fishery Management Unit

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

4.1.1.1 Biological

Alternative 1 would not meet the National Standard 1 guidelines and have the same impacts to the physical or biological environments as currently exist. Leaving the species in the fishery management plan may offer the benefit of collecting data if the future that could be used in the development of conservation and management measures, and positive impacts to the physical and biological environments would be expected at a later date. However, no data collection programs are currently in place for any of these species.

Alternatives 2 and 3 would set ACLs and AMs for king mackerel, Spanish mackerel and cobia. This alternative would be expected to have positive impacts on the physical and biological environments if catch is constrained below current levels. Positive physical, ecological, and biological impacts may result from better monitoring and record keeping of the resource, and implementing accountability measures, when and if the ACLs are exceeded.

Alternative 4 would remove all of the other species from the fishery management plan. If other agencies, such as the individual states, took over management, positive physical and biological impacts could occur. If another agency did not take over management of other species, and overfishing or detriment to the resource occurred without our knowledge, negative physical and biological impacts would be expected.

4.1.1.2 Physical

If cero, little tunny, bluefish, or dolphin are designated as ecosystem component species, the impacts to the physical environment are likely to be unchanged. Leaving the species in the FMP may offer the benefit of collecting data that could be used later in the development of conservation and management measures. Positive impacts to the physical environment might be expected at a later date. Removal of these species from the FMP could allow another agency to take over management. In this case, positive physical impacts might be expected. However, if another agency did not take over management, and overfishing or detriment to the resource occurred without our knowledge, negative physical and biological impacts would be expected.

4.1.2 Direct and Indirect Effect on the Economic Environment

The economic effects of **Alternatives 1-4** hinge on the expectation of the biological impact of the alternatives. Removal of all species from the CMP FMP leaves the removed species more vulnerable than designation of the species as ecosystem component species (**Alternatives 2 and 3**) or retention of the other species for data collection purposes only. Therefore, **Alternative 1** is expected to offer the greatest long-term economic benefits followed by **Alternatives 2** and **3**. **Alternative 4** is expected to offer the smallest long-term economic benefits.

4.1.3 Direct and Indirect Effect on the Social Environment

The social impacts from modifying management of coastal migratory pelagics may be beneficial as it may make management decisions timelier and streamlined if fewer species are included in the management unit. **Alternative 1** would continue management as is for the primary species of king and Spanish mackerel and cobia. However, if clarifying that other species are for data collection purposes only continues to require ACLs, the management of other species can be cumbersome when data are not readily available for setting these thresholds. **Alternatives 2 and 3** with each subalternative could provide a more streamlined management system if other species are designated ecosystem species as in **Alternative 2** or with **Alternative 3** removing dolphin in the Atlantic as it is included under another plan for the South Atlantic**. Subalternative a** would apply rules to cero; **Subalternative b** would apply to little tunny; **Subalternative c** would apply to dolphin in the Gulf; and **Subalternative d** would apply the alternative to bluefish in the gulf. By removing other species under **Alternative 4** and the above subalternatives there would be no need to set ACLs for other species, but protection of those species may be put in jeopardy if no other management agency were to have oversight of those species removed. With the **South Atlantic Preferred Alternative 5** the councils would have to decide how to incorporate little tunny into the management regime. With **Subalternative a** there would remain one group of little tunny. **Subalternative b** would separate the species into two migratory groups at the Miami/Dade County line and with **Subalternative c** the dividing line would be at the SAFMC/GMFMC boundary. **Subalternative d** would establish a migratory group which includes the Mid-Atlantic area of jurisdiction with the SAFMC.

4.1.4 Direct and Indirect Effect on the Administrative Environment

Action 1:
Alternative 1 would not remove any species from the FMU and would result in increased administrative impacts associated with establishing ACLs and AMs. Under **Alternative 1**, king and Spanish mackerel and cobia would remain in the FMU and ACLs and AMs would be required. **Alternatives 2-4** would allow for consideration of cero, little tunny, dolphin in the Gulf and bluefish in the Gulf to be ecosystem component species. This would reduce the administrative burden associated with establishing ACLs and AMs for those species. The only difference between **Alternative 2** and **3** is that **Alternative 3** would remove dolphin from the FMP in the Atlantic. This would not change the administrative burden on the agency as dolphin is included in the Dolphin-Wahoo FMP and ACLs and AMs will be established in the Comprehensive ACL amendment. **Alternative 4** would remove from the FMP the same species resulting in less administrative burden with regards to establishing ACLs and AMs. However, removing these species from the FMP (rather than the FMU) may make it more difficult to develop management measures for these species if the need arises. **Alternative 5** considers the need to include little tunny in the management unit. At this point, administrative impacts of **Alternative 5** cannot be analyzed until decisions are made on how management of this species will be structured.

4.1.5 Council Conclusions

Will be added

4.2 Action 2. Modify the Framework Procedure

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

4.2.1.1 Biological

There are no direct physical, biological or ecological effects expected from modifications of the framework procedure. However, if modifications increase the ease with which regulations can be implemented as needed, long-term biological benefits will increase. Since **Alternatives 2 and 3** offer the greater management flexibility and therefore are expected to offer the greater long-term biological benefits than **Alternative 1 (No Action)** with **Alternative 3** offering the greatest efficiency and effectiveness of management change and therefore largest expected long-term biological benefits.

4.2.1.2 Physical

The physical environment would be indirectly impacted if a more flexible framework is implemented. Changes in harvest levels would change effort levels, either increasing or decreasing the impact on the physical environment. A quicker change to the regulations would result in a quicker change in the physical impacts of the fishery.

4.2.2 Direct and Indirect Effect on the Economic Environment

There are no direct economic effects expected from modifications to the framework procedure. However, if modifications increase the ease with which regulations can be implemented as needed, long-term economic benefits will increase as a consequence of increases in biological benefits. Since **Alternatives 2** and **3** offer the greater management flexibility and therefore are expected to offer the greater long-term economic benefits than **Alternative 1 (No Action)** with **Alternative 3** offering the greatest efficiency and effectiveness of management change and therefore largest expected long-term economic benefits.

4.2.3 Direct and Indirect Effect on the Social Environment

The development of a framework procedure would have beneficial impacts on the social environment as management can react to changes in the stock status or fishery in a timelier manner. **Alternative 1**, the no action alternative would not allow for these types of changes and could, over time, have negative indirect effects if implementation of management measures becomes too cumbersome. However, framework actions that are done rapidly do not always provide for as much public input and comment on the actions as other regulatory processes. The benefits of timely action often outweigh the diminished timeframe for comment and input though, as long as the public is aware that this is the management structure being considered and have time to comment. **Alternative 2** would provide consistency in language with regulatory changes and have few effects on the social environment. **Alternatives 3** provides options for implementing a framework procedure that becomes less restrictive in terms of timing and public input going from **Option 1 to Option 3**. As mentioned earlier, timing and public input become the parameters that are constrained by these options. While public input and participation by advisory panels can be beneficial, it is time consuming and can slow the process. Yet, that

participation can provide a more satisfactory regulation as long as the public considers that sufficient input has been offered.

4.2.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 would retain the current procedure, which does not include the SEDAR process or allow for adjustments of ACLs. **Alternative 2** and **Alternative 3** would allow the agency and Councils flexibility by including the SEDAR process and allowing for an adjustment of ACLs through a framework amendment. Framework amendments generally require less time and staff effort and would lessen the administrative burden on the agency. **Alternative 3** would include the SEDAR process, allow for the updates of ACLs and would provide the option for more flexibility on how and when framework amendments can be used. **Alternative 3** contains **Options 1-3**. **Alternative 3**, **Option 1** would provide the most flexibility in the preparation of framework amendments, resulting in the least administrative burden on the agency. **Alternative 3**, **Option 3** would have tighter guidelines of when a framework can be used as well as the amount of public discussion and the involvement of the SSC, SEP or APs. **Alternative 3, Option 3** is the most restrictive of options but would offer more flexibility than **Alternative 1** or **Alternative 2.**

(Question—Why aren't the options labeled as sub-alternatives?)

4.2.5 Council Conclusions

Will be added

4.3 Action 3. Establish Separate Atlantic and Gulf Migratory Groups of Cobia

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

4.3.1.1 Biological

There are no direct physical, biological or ecological effects from the separation of Atlantic and Gulf migratory groups of cobia because this is a management decision. Cobia mix in the Atlantic and Gulf and as long as both migratory groups are managed to prevent overfishing there will be no negative biological effects.

4.3.1.2 Physical

This action is not expected to have any direct or indirect impacts on the physical environment.

4.3.2 Direct and Indirect Effect on the Economic Environment

While there are no direct economic effects from the separation of Atlantic and Gulf migratory groups of cobia, where the management boundary is established could have distributional impacts on fishermen.

4.3.3 Direct and Indirect Effect on the Social Environment

Separating migratory groups of cobia under **Alternatives 2 & 3** would be more in line with other coastal pelagics, but does tend to create added management which can lead to problems with implementation, compliance and enforcement. Currently, cobia is managed as one stock and would continue to be managed as such under **Alternative 1**. The councils have experience with managing separate stocks as king and Spanish mackerel have separate stock boundaries. The difficulty in setting the boundary is clear when comparing **Alternatives 2 & 3**. **Alternative 2** would set the line at the Miami Dade County line which may provide more fish to the Gulf group if there is considerable mixing south of that line. Setting the boundary at the SAFMC/GMFMC line as in **Alternative 3** may cause problems in accounting for landings as it becomes problematic deciding where a fish was landed when fishermen move across the line on a regular basis in the Florida Keys.

4.3.4 Direct and Indirect Effect on the Administrative Environment

Establishing separate migratory groups of cobia for management purposes would be a procedural issue and would not increase the administrative burden. However, any permits associated with the single stock of cobia (status quo) would need to be revised and re-issued if **Alternative 2** or **Alternative 3** were selected. The administrative burden associated with revising and re-issuing necessary permits is expected to be significant.

4.3.5 Council Conclusions

Will be added

4.4 Action 4. Set ACL for Gulf Group Cobia

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

4.4.1.1 Biological

4.4.1.2 Physical

Setting an ACL could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACL, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. 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.

Need to add

4.4.2 Direct and Indirect Effect on the Economic Environment

Management measures considered under this action would either set a single annual catch limit for Gulf group cobia or establish separate commercial and recreational ACLs for gulf group cobia. Based on the magnitude of the annual catch limits under consideration relative to cobia landings in the Gulf, it is highly unlikely that Gulf group cobia harvests would exceed the annual catch limit(s). For example, the lowest ACL under consideration would be set under **Alternative 2** at 1.45 MP. For Gulf group cobia, recreational landings, which have been declining in recent years, account for about 90% of the landings. In 2009, recreational landings for the Gulf and all of Monroe County totaled 599,280 lbs; the most recent five-year average (2005-2009) is estimated at 1.01 MP, approximately. In the commercial sector, 2009 landings for the Gulf and all of Monroe County totaled only 71,152 lbs; the 2005-2009 average was estimated at 87,000 lbs, approximately. Therefore, this action is not expected to result in economic effects in the foreseeable future.

4.4.3 Direct and Indirect Effect on the Social Environment

According to the National Standard guidelines Annual Catch Limits have been relegated primarily to biological assessments and reference points to address scientific uncertainty. While setting the biological parameters on catch through ACLs can have indirect effects on the social environment, it is difficult to know what those effects will be until a definitive number has been assigned which translates into harvest levels. Certainly, setting thresholds that adequately assess biological risk through harvest levels on stocks that are vulnerable can help stabilize landings and thereby provide long-term benefits to the fishery which should translate into positive social benefits over time. It is the short term costs involved that often drive perceptions of negative impacts. These impacts can translate into real costs that have significant impacts to both the commercial and recreational sectors. For fisheries where information is scarce and management

is uncertain, it becomes a real possibility that there can be negative short term impacts that may not have been necessary if thresholds are too restrictive. In other fisheries which have more certainty in management and monitoring of catch, a more precise harvest level can be set with certainty and reduce volatility in the fishery which should produce positive effects.

In **Alternative 1** by not establishing an ACL the Councils would not be in compliance with National Standards. So, setting an some type of overall ACL will likely be established. By establishing separate sector allocations as in **Alternatives 2 & 3 options b & c**, there would likely be some changes in fishing behavior and impacts to the social environment. The mere act of separating the ACL into two sector ACLs has the perception of creating scarcity in that limits have been imposed on each individual sector. Setting an overall ACL has a similar impact, but does not have the same effect on perceptions as there is more flexibility with regard to catch between sectors. However, the risk of one sector causing a closure for the other is always a possibility if one ACL is selected as in **Alternative 2 Option a** or **Alternative 3 Option a.** Setting separate ACLs places accountability within each sector. However, each subsequent division will drive perceptions of scarcity and likely change the fishing behavior of those within a particular sector. The coastal pelagic FMP has already created sector separation with allocation between the recreational and commercial sectors. Management alternatives also exist to regulate certain sectors, so further allocation may not be viewed as intrusive as long as harvest remains stable with little volatility from management actions.

4.4.4 Direct and Indirect Effect on the Administrative Environment

Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for gulf 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 **Alternatives 2- 3** are minimal and would not differ much between the three action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

The action alternatives also provide options related to the allocation of the quota between the commercial and recreational sectors. **Option b** and **Option c** could increase the administrative impacts to NOAA Fisheries Service as landings would need to be monitored in relation to the commercial and recreational portion of the allocation for overage and commercial quota purposes.

Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.4.5 Council Conclusions

Will be added

4.5 Action 5. Set ACT for Gulf Group Cobia

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

4.5.1.1 Biological

4.5.1.2 Physical

Setting an ACT could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACT, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. Fishing can have negative impacts on the bottom as described in Action 4.

Need to add

4.5.2 Direct and Indirect Effect on the Economic Environment

Potential economic effects anticipated from the implementation of annual catch targets would depend on the extent to which the ACTs under consideration would affect the harvest or other customary uses of the resource. Annual catch targets under consideration range from setting ACT equal to the ACL (equal to MSY) at 1.5 MP to a minimum of 1.23 MP with the ACT equal to 90% of the ABC. As discussed in the action setting the annual catch limit for Gulf group cobia, the relative magnitude of the landings suggests that these thresholds would not be reached. Therefore, economic effects are not expected from the implementation of a single ACT (or of separate commercial and recreational ACTs). However, in the highly unlikely 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.

4.5.3 Direct and Indirect Effect on the Social Environment

The social effects of setting ACTs for Gulf Group cobia are similar to setting ACLs, especially if separate ACTs are developed. ACTs are utilized in fisheries where there may management uncertainty that adds risk to reaching target harvest levels beyond the biological risks. It usually entails a further reduction in harvest levels to ensure catch remains at or below the ACL or relevant biological threshold. Each reduction in harvest threshold will certainly have social effects which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. In understanding management uncertainty there are often other factors that need to be considered: law enforcement difficulties, monitoring issues or socio-economic aspects of the fishery. Certainly **Alternative 2, Option a** could have fewer negative social effects than **Alternative 3** with **Options a, b or c**. Although, **Alternative 3, Option a** could have fewer social effects than **Options b or c**. With **Alternative 4 Option a**, a single ACL, would be a further reduction from the ABC and could have negative social effect, as well as **Options b and c** which would set up separate ACLs. Moving from **Alternative 2** to **Alternative 4** there is a reduction in ACT that may have negative social effects if harvests are reduced significantly.

4.5.4 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. **Alternative 2, Options b or Option c** would require tracking the commercial and recreational landings every year. The tracking of recreational landings can be challenging and would likely impose a burden on the administrative environment. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.5.5 Council Conclusions

Will be added

4.6 Action 6. Set AMs for Gulf Group Cobia

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

4.6.1.1 Biological

4.6.1.2 Physical

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 4.

Need to add

4.6.2 Direct and Indirect Effect on the Economic Environment

Alternative 1, the no-action alternative, would retain existing in season accountability measures. **Alternatives 2** and **3** would introduce modified in-season or set post-season accountability measures, respectively. Accountability measures are expected to result in economic effects if they impact the harvest or customary uses of the resource. Based on the fact that ACLs and ACTs under consideration in this amendment are well above harvest levels recorded to date, accountability measures in this amendment are not expected to be triggered. As such, this action is not anticipated to be associated with economic effects. In the unlikely event that ACTs (or ACLs) are exceeded and that accountability measures are triggered, **Alternative 3** would be anticipated to result in greater adverse economic effects because more restrictive measures may be needed to correct overages when a fishery is closed ex-post.

4.6.3 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short term, they may at times induce other indirect effects through changes in fishing behavior. The coastal pelagic FMP does have accountability measures in place for other species; therefore fishermen are familiar with such management.

Alternative 1 would put no accountability measures in place and would risk further harm to the stock if bag limits in place were not sufficient to keep the ACLs or ACTs from being exceeded. This would avoid short term negative social impacts, but may incur longer term impacts if stock status were jeopardized. The implementation of in season AMs in **Alternative 2** would require projection of the harvest in the commercial fishery to ensure no overages. This type of quota monitoring is not as precise as post season, but **Option a, Suboption ii** setting trip limits is utilized already with other coastal pelagic species, but cobia has none at this time. Reducing the recreational bag limit in **Option b, Suboption ii** may be more difficult as ensuring compliance and sufficient public notice of the change in season can be difficult, although it has been accomplished in the past with other species. The many options under **Alternative 3**, post season monitoring, can be more precise in both determining the size of the overage, but also the payback

necessary. It does however, increase the risk of exceeding an ACL in season. What impacts are derived from either in season or post season accountability measures would depend upon the volatility of the fishery and the perceived risks of exceeding the ACL. However, as discussed earlier, fishing behaviors can change depending upon management measures chosen and the perception of scarcity. If ACLs begin to be exceeded and accountability measures are implemented which close the fishery, effort may be directed elsewhere. The ability to redirect fishing effort is becoming more difficult as limited entry management is becoming more common. Therefore, if there are fewer choices for redirecting effort, whether it is changing fisheries or choosing temporary work outside the fishery, the indirect effects on the social environment may extend beyond the coastal pelagic fishery.

4.6.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce near-term administrative impacts. Administrative impacts of **Alternatives 2-3** would increase the administrative burden from the status quo by changing AMs for gulf group cobia. The administrative burden of **Alternative 2** and **Alternative 3** would be similar as would the burden imposed by the various options and sub-options. All of the action alternatives, options and sub-options will result in a need for increased monitoring, enforcement, rule-making, education and outreach. As more options or sub-options are selected as preferred the administrative burden will increase. The sub-options associated with **Alternative 2, Option b** would have the greatest increase in administrative burden due to the difficulty with tracking recreational landings in season.

4.6.5 Council Conclusions

Will be added

4.7 Action 7. Set ACL for Gulf Migratory Group King Mackerel

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

4.7.1.1 Biological

4.7.1.2 Physical

Setting an ACL could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACL, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. 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.

Need to add

4.7.2 Direct and Indirect Effect on the Economic Environment

Management measures considered under this action would either set a single annual catch limit for Gulf group king mackerel or establish separate commercial and recreational ACLs for Gulf group king mackerel. At a minimum, the Gulf king mackerel ACL will be set at 10.32 MP under **Alternative 1**. For the past decade, total Gulf king mackerel harvests have been well under this value; averaging approximately 7.0 MP. The magnitude of landings relative to the Gulf group king mackerel ACL to be implemented suggests that harvests and typical use of king mackerel are not expected to be affected by this action. Therefore, economic effects are not anticipated to result from this action.

4.7.3 Direct and Indirect Effect on the Social Environment

As discussed under the cobia ACL **Action 4.4**, ACLs can have indirect effects on the social environment and it is difficult to know what those effects will be until a definitive number has been assigned which translates into harvest levels. In **Alternative 1** by not establishing an ACL the Councils would not be in compliance with National Standards. So, setting an some type of overall ACL will likely be established. By establishing separate sector allocations as in **Alternatives 2 & 3 options b & c**, there would likely be some changes in fishing behavior and impacts to the social environment as there are more sectors to allocate to. The mere act of separating the ACL into two sector ACLs has the perception of creating scarcity in that limits have been imposed on each individual sector in **Option b** under both **Alternatives 2 and** 3 with the lower ACL in **Alternative 3** likely to have increased social effects. Setting an overall ACL has a similar impact, but does not have the same effect on perceptions as there is more flexibility with regard to catch between sectors. However, the risk of one sector causing a closure for the other is always a possibility. Setting separate ACLs places accountability within each sector. However, each subsequent division will drive perceptions of scarcity and likely change the fishing behavior of those within a particular sector. In addition, further sector allocation places a greater burden on the administration of quotas and monitoring.

4.7.4 Direct and Indirect Effect on the Administrative Environment

Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for gulf migratory group king mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2- 3** are minimal and would not differ much between the two action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

The action alternatives also provide options related to the allocation of the quota between the commercial and recreational sectors (**Option b**) and between the hook and line and run-around gillnet sectors (**Option c**). **Option b** and **Option c** could increase the administrative impacts to NOAA Fisheries Service as landings would need to be monitored in relation to the commercial and recreational portion if **Option b** is selected. If **Option c** is selected, the administrative burden would increase as the landings of the hook-and-line and run-around gillnet sectors would need to be monitored.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.7.5 Council Conclusions

Will be added

4.8 Action 8. Set ACT for Gulf Migratory Group King Mackerel

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

4.8.1.1 Biological

4.8.1.2 Physical

Setting an ACT could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACT, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. Fishing can have negative impacts on the bottom as described in Action 7.

Need to add

4.8.2 Direct and Indirect Effect on the Economic Environment

The extent to which annual catch targets under consideration would affect the harvest or other typical uses of Gulf king mackerel would determine potential economic effects expected from the implementation of annual catch targets. Annual catch targets under consideration range from setting ACT equal to the current TAC at 10.2 MP to a maximum of 13.2 MP with the ACT equal to the ABC (and to the ACL). As discussed in the action setting the annual catch limit for Gulf group king mackerel, the relative magnitude of the landings suggests that proposed ACTs would not be reached. Therefore, neither a single ACT nor separate commercial and recreational ACTs for Gulf group king mackerel are expected to result in adverse economic effects. However, under the highly unlikely event that ACTs become binding constraints, the magnitude of adverse economic effects is expected to be positively related to the severity of the constraint imposed on fishery participants.

4.8.3 Direct and Indirect Effect on the Social Environment

The social effects of setting ACTs for Gulf Group king mackerel are similar to setting ACLs, especially if separate ACTs are developed. ACTs are utilized in fisheries where there may management uncertainty that adds risk to reaching target harvest levels beyond the biological risks. It usually entails a further reduction in harvest levels to ensure catch remains at or below the ACL or relevant biological threshold, but can be set equal to other thresholds. Each reduction in harvest threshold will certainly have social effects which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. In understanding management uncertainty there are often other factors that need to be considered: law enforcement difficulties, monitoring issues or socio-economic aspects of the fishery. In the no action **Alternative 1**, the harvesting threshold would fall back to the ACL, ABC or OFL. By establishing separate sector allocations as in **Alternatives 3 & 4 options b & c**, there would likely be some changes in fishing behavior and impacts to the social environment as there are more sectors to allocate to. The mere act of separating the ACT into two or more sector ACTs has the perception of creating scarcity in that limits have been imposed on each individual sector in **Option b and c** under both **Alternatives 3 and 4** with the lower ACT in **Alternative 4** likely to have increased social effects. Setting an

overall ACT in **Alternative 2** has a similar impact, but does not have the same effect on perceptions as there is more flexibility with regard to catch between sectors. However, the risk of one sector causing a closure for the others is always a possibility and depends on monitoring capabilities. Setting separate ACLs places accountability within each sector. However, each subsequent division will drive perceptions of scarcity and likely change the fishing behavior of those within a particular sector. In addition, further sector allocation places a greater burden on the administration of quotas and monitoring. The coastal pelagic FMP has already created sector separation with allocation between the recreational and commercial sectors. Within the commercial sector there are allocations divided among gear types as well. Management alternatives also exist to regulate particular sectors with trip limits and seasonal closures, so further allocation may not be viewed as intrusive as long as harvest remains stable while reducing unpredictability from management actions.

4.8.4 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. **Alternative 2** would establish the ACT as the current TAC for gulf group king mackerel. **Alternative 1** and **Alternative 2** would result in no change to the administrative impacts. **Alternative 3 and Alternative 4,** and associated options would require additional administrative support with regards to tracking landings of commercial and recreational sectors **(Option b)** and hook-and-line and run-around gillnet sectors **(Option c).** The tracking of recreational landings under **Option b** can be challenging and would likely impose a burden on the administrative environment. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.8.5 Council Conclusions

Will be added

4.9 Action 9. Set AMs for Gulf Migratory Group King Mackerel

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

4.9.1.1 Biological

4.9.1.2 Physical

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 7.

Need to add

4.9.2 Direct and Indirect Effect on the Economic Environment

Alternative 1, the no-action alternative, would retain existing in season accountability measures. **Alternatives 2** and **3** would introduce modified in-season or set post-season accountability measures, respectively. Accountability measures are expected to result in economic effects if they impact the harvest or customary uses of the resource. Based on the fact that ACLs and ACTs under consideration in this amendment are well above harvest levels recorded to date, accountability measures in this amendment are not expected to be triggered. This action is therefore not expected to be associated with economic effects. In the unlikely event that ACTs (or ACLs) are exceeded and that accountability measures are implemented, greater adverse economic effects would be expected from **Alternative 3** compared to **Alternative 2,** because more restrictive measures may be needed to correct overages when a fishery is closed ex-post.

4.9.3 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Gulf group King mackerel have in season accountability measures in place as trip limits and seasonal closures are already in use. The social effects from additional accountability measures will depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures.

Alternative 1 would utilize current accountability measures which should not incur further social effects if sufficient to keep the ACLs or ACTs from being exceeded. The implementation of in season AMs in **Alternative 2** would not be too intrusive as projection of the harvest through quota monitoring is already done in the commercial fishery to prevent overages. This type of quota monitoring is not as precise as post season, but **Option a, Suboption ii** setting trip limits is utilized already with king mackerel. It would depend on the trigger that is selected. Reducing the recreational bag limit in **Option b, Suboption ii** may be more difficult as ensuring compliance and sufficient public notice of the change in season can be difficult, although it has

been accomplished in the past with other species. The many options under **Alternative 3**, post season monitoring, can be more precise in both determining the size of the overage, but also the payback necessary. It does however, increase the risk of exceeding an ACL in season. What impacts are derived from either in season or post season accountability measures would depend upon the volatility of the fishery and the perceived risks of exceeding the ACL. However, as discussed earlier, fishing behaviors can change depending upon management measures chosen and the perception of scarcity. If ACLs begin to be exceeded and accountability measures are implemented which close the fishery, effort may be directed elsewhere. The ability to redirect fishing effort is becoming more difficult as limited entry management is becoming more common. Therefore, if there are fewer choices for redirecting effort, whether it is changing fisheries or choosing temporary work outside the fishery, the indirect effects on the social environment may extend beyond the coastal pelagic fishery.

4.9.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce near-term administrative impacts. Administrative impacts of **Alternatives 2-3** would increase the administrative burden from the status quo by establishing AMs for gulf king mackerel. The administrative burden of **Alternative 2** and **Alternative 3** would be similar as would the burden imposed by the various options and sub-options. All of the action alternatives, options and sub-options will result in an increase in monitoring, enforcement, rule-making, education and outreach. As more options or sub-options are selected as preferred the administrative burden will increase. The sub-options associated with **Alternative 2, Option b** would have the greatest increase in administrative burden due to the difficulty with tracking recreational landings in season.

4.9.5 Council Conclusions

Will be added

4.10 Action 10. Set ACL for Gulf Migratory Group Spanish Mackerel

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

4.10.1.1 Biological

4.10.1.2 Physical

Setting an ACL could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACL, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. Spanish mackerel are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral.

Need to add

4.10.2 Direct and Indirect Effect on the Economic Environment

Management alternatives included in this action would either set a single annual catch limit for Gulf group Spanish mackerel or establish separate commercial and recreational ACLs for Gulf group Spanish mackerel. At a minimum, the Gulf Spanish mackerel ACL will be set at 9.1 MP under **Alternative 1**. For the past decade, total Gulf Spanish mackerel harvests have been well under this value. The magnitude of landings relative to the Gulf group Spanish mackerel ACL to be implemented suggests that harvests and typical use of Spanish mackerel are not expected to be affected by this action. Therefore, economic effects are not anticipated to result from this action.

4.10.3 Direct and Indirect Effect on the Social Environment

The effects on the social environment from setting ACLs for Gulf group Spanish mackerel are similar to **Action 4.8** for king mackerel. Because Gulf group Spanish mackerel already have a quota for both commercial and recreational sectors, implementing ACLs would have few social effects. Certainly as ACL is reduced in **Alternatives 2 and 3** there is an increasing chance of negative social effects in the short term and possibly the long term, however, neither the commercial or recreational TACs have been exceeded so the risk of negative social effects may not be high. Setting separate ACLs for the recreational and commercial sectors would also have few social effects as long as current allocations remain the same as in **Alterative 2, Option b and Alternative 3, Option b**. Setting a single ACL in **Option a** for both **Alternatives 2 & 3** may have few social effects unless the ACL is met early and a closure is implemented. Such a closure could initiate some type of concern if a particular sector was responsible for the closure but both would be held accountable for any overages.

4.10.4 Direct and Indirect Effect on the Administrative Environment

Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for gulf migratory group Spanish mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2- 3** are minimal and would not differ much between the two action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

The action alternatives also provide options related to the allocation of the quota between the commercial and recreational sectors. **Option b** and **Option c** could increase the administrative impacts to NOAA Fisheries Service as landings would need to be monitored in relation to the commercial and recreational portion of the allocation for overage and commercial quota purposes.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.10.5 Council Conclusions

Will be added

4.11 Action 11. Set ACT for Gulf Migratory Group Spanish Mackerel

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

4.11.1.1 Biological

4.11.1.2 Physical

Setting an ACT could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACT, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. Fishing can have negative impacts on the bottom as described in Action 10.

Need to add

4.11.2 Direct and Indirect Effect on the Economic Environment

The extent to which annual catch targets under consideration would affect the harvest or other customary uses of Gulf Spanish mackerel would determine potential economic effects expected from the implementation of annual catch targets. Annual catch targets under consideration range from setting ACT equal to 7.47 MP to a maximum of 9.1 MP with the ACT equal to the current TAC for Gulf Spanish mackerel. As discussed in the action setting the annual catch limit for Gulf group Spanish mackerel, the relative magnitude of the landings suggests that proposed ACTs would not be reached. Therefore, neither a single ACT nor separate commercial and recreational ACTs for Gulf group king mackerel are expected to result in adverse economic effects. However, under the highly unlikely event that ACTs become binding constraints, the magnitude of adverse economic effects is expected to be positively related to the severity of the constraint imposed on fishery participants.

4.11.3 Direct and Indirect Effect on the Social Environment

The social effects of setting ACTs for Gulf Group Spanish mackerel are similar to setting ACTs for Gulf group king mackerel especially if separate ACTs are developed. ACTs are utilized in fisheries where there may management uncertainty that adds risk to reaching target harvest levels beyond the biological risks. It usually entails a further reduction in harvest levels to ensure catch remains at or below the ACL or relevant biological threshold, but can be set equal to other thresholds. Each reduction in harvest threshold will certainly have social effects which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. In understanding management uncertainty there are often other factors that need to be considered: law enforcement difficulties, monitoring issues or socio-economic aspects of the fishery. The no action Alternative 1 would likely have few social effects as it would impose no further reductions on harvesting. Moving from **Alternative 2** to **Alternative 5**, each alternative imposes a slightly greater reduction in ACT. Because the harvest levels have never exceeded 6.2 MP, there would likely be few negative social effects from choosing any of these alternatives. Although, **Option c** under **Alternatives 2 through 5** may change sector allocations from the present calculation.

4.11.4 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. **Alternative 2** would establish the ACT as the current TAC for gulf group Spanish mackerel. **Alternative 1** and **Alternative 2** would result in no change to the administrative impacts. **Alternative 3, Alternative 4, Alternative 5** and associated options would require additional administrative support with regards to tracking landings of commercial and recreational sectors**.** Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.11.5 Council Conclusions

Will be added

4.12 Action 12. Set AMs for Gulf Migratory Group Spanish Mackerel

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

4.12.1.1 Biological

4.12.1.2 Physical

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 10.

Need to add

4.12.2 Direct and Indirect Effect on the Economic Environment

Alternative 1, the no-action alternative, would retain existing in-season accountability measures. **Alternatives 2** and **3** would introduce modified in-season or set post-season accountability measures, respectively. Accountability measures are expected to result in economic effects if they impact the harvest or customary uses of the resource. Based on the fact that ACLs and ACTs under consideration in this amendment are well above harvest levels recorded to date, accountability measures in this amendment are not expected to be triggered. This action is therefore not expected to be associated with economic effects. In the unlikely event that ACTs (or ACLs) are exceeded and that accountability measures are implemented, greater adverse economic effects would be expected from **Alternative 3** compared to **Alternative 2,** because more restrictive measures may be needed to correct overages when a fishery is closed ex-post.

4.12.3 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Gulf group Spanish mackerel have in season accountability measures in place as trip limits and seasonal closures are already in use. The social effects from additional accountability measures will depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures.

4.12.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce near-term administrative impacts. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for gulf migratory group Spanish mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. Administrative impacts of **Alternatives 2-3** would increase the administrative burden from the status quo by establishing AMs for gulf group Spanish mackerel. The administrative burden of **Alternative 2** and **Alternative 3** would be similar as would the burden imposed by the various options and sub-options. All of the action alternatives,

options and sub-options will result in an increase in monitoring, enforcement, rule-making, education and outreach. As more options or sub-options are selected as preferred the administrative burden will increase. The sub-options associated with **Alternative 2, Option b** would have the greatest increase in administrative burden due to the difficulty with tracking recreational landings in season.

4.12.5 Council Conclusions

Will be added

4.13 Action 13. Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL & ACT for Atlantic Migratory Group King Mackerel

4.13.1 MSY, MSST & MFMT for Atlantic Migratory Group King Mackerel

There are no alternatives under consideration because these values are being updated from the latest SEDAR stock assessment.

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

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

4.13.3 ABC Control Rule and ABC for Atlantic Migratory Group King Mackerel

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

4.13.3.1.1 Biological

While there are no direct biological effects from identification of an ABC, it does set the upper limit on the level of landings that will be allowed for fishermen and prevents overfishing. **Alternative 1** (No Action) would not meet the new Magnuson-Stevens Act requirements. **Alternative 2** would adopt the SAFMC SSC recommended ABC control rule and would be expected to provide the greatest biological benefits over the long term by accounting for assessment uncertainty while preventing overfishing. **Alternative 3** provides the highest level of landings of all the alternatives but carries more biological risk and exceeds the SSC recommendations which could lead to overfishing and negative biological effects. **Alternative 4a-4c** range from providing less biological protection to more as compared to **Alternative 2**.

4.13.3.1.2 Physical

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. King mackerel are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Sink gillnets are allowable gear in the South Atlantic; however, usage is very limited in the EEZ. **Note: This needs to be**

4.13.3.2 Direct and Indirect Effect on the Economic Environment

While there are no direct economic effects from identification of an ABC, it does set the upper limit on the level of landings that will be allowed for fishermen. In general, a higher ABC is expected to result in higher short-term economic benefits and smaller long-term economic

benefits. **Alternative 3** provides the highest level of landings of all the alternatives and therefore is expected to bring about the highest short-term economic benefits. It could also bring about the highest long-term economic benefits as long as the risk of overfishing is very low. If the risk of overfishing is high, **Alternative 4** could provide the highest long-term economic benefits. However, **Alternative 4** offers lower small-term economic benefits than Alternatives 2 and 3.

4.13.3.3 Direct and Indirect Effect on the Social Environment

Setting of the biological parameters for harvest thresholds have few direct social effects as the effects are more indirect from the implementation of the allowable biological catch and any subsequent reduction. 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. **Alternatives 2 and 3** are not as risk averse as other alternatives and further reduction in thresholds may not introduce negative social effects. **Alternative 4a** is the most restrictive but may not reduce harvest to the extent that negative social effects would accrue.

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 established by the Council's SSC for consideration by the Council. Although the control rule can have implications on management actions, no specific management actions are required through the specification of the control rule. The administrative impacts of establishing a control rule are minimal and impacts would not differ much between the proposed alternatives.

4.13.3.5 Council Conclusions

Will be added

4.13.4 Optimum Yield (OY) for Atlantic Migratory Group King Mackerel

4.13.5 Annual Catch Limit (ACL) for Atlantic Migratory Group King Mackerel

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

Setting an ACL could affect the physical environment if harvest changes from current levels. However this is not expected to be the case as most alternatives would maintain catches close to **Alternative 1** (No Action). Setting an ACL potentially will have an impact on the biological environment if harvest changes from current levels; however, this is not expected to be the case. **Alternatives 2-4** are based on the SSC recommendations and would prevent overfishing. **Alternative 5** would provide more biological protection by setting the ACL below the ABC.

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. King mackerel are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Sink gillnets are allowable gear in the South Atlantic; however, usage is very limited in the EEZ. **Note: This needs to be edited and additional discussion for 4.13.1, 4.13.2, 4.13.3, and 4.13.4.**

4.13.5.2 Direct and Indirect Effect on the Economic Environment

Alternative 4 offers the largest ACL and therefore the greatest economic benefits to commercial and recreational fishermen. **Alternative 2, 3 and 1 (No Action)** follow in descending order. **Alternatives 2-4** would result in an economic gain to commercial and recreational fishermen in comparison to the 10 million pound ACL under **Alternative 1 (No Action)**.

Commercial
Commercial ex-vessel losses of each of the alternatives to the commercial sector specifically are estimated using the ex-vessel price received per pound in each year from 2006-09 multiplied by the landings that would have been foregone if the ACL under each of the alternatives was implemented in previous years. For example, under **Alternative 2**, if the proposed ACL of 10.46 million pounds had been in place in 2006-09, ex-vessel losses would have totaled approximately $36,000 in 2006/07 and $858,000 in 2008/09. Under **Alternative 3**, estimated ex-vessel losses would have totaled approximately $568,000. Similarly, **Alternative 3** would have resulted in estimated ex-vessel revenue losses of approximately $2,000 in 2006/07 and $826,000 in 2008/09 while **Alternative 4** would have resulted in estimated ex-vessel revenue losses of approximately $259,000 in 2008/09. It is apparent that **Alternative 4** provides the greatest economic benefits to commercial fishermen.

Recreational
To be completed for next draft.

4.13.5.3 Direct and Indirect Effect on the Social Environment

The effects on the social environment from setting ACLs for Atlantic group king mackerel are similar to **Action 4.8** for Gulf group king mackerel. Because Atlantic group king mackerel already have a quota for both commercial and recreational sectors, implementing ACLs would have few social effects if they remain at current quota levels. Although each sector has exceeded its quota in recent years, the total TAC was exceeded only once and was still within the ABC range. If the recent overages seem to imply a certain risk, the council could adopt the more restrictive levels in **Alternative 5** with the **Option 5a** having the most restrictive level and getting less restrictive through **Option 5e**. The other **Alternatives 2, 3, 4** offer less restrictive options respectively. **Alternative 1** would keep ACLs in line with current levels for TAC.

4.13.5.4 Direct and Indirect Effect on the Administrative Environment

OY Specification Atlantic King Mackerel

The specification of OY is a procedural exercise. Although OY can have implications on management actions, no specific management actions are required through the specification of OY. The administrative impacts of specifying OY are minimal and would not differ much between the proposed alternatives.

ACL Specification Atlantic King Mackerel

Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for Atlantic migratory group king mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2- 5,** and the **sub-alternatives** associated with **Alternative 5** are minimal and would not differ much between the action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.13.5.5 Council Conclusions

Will be added

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

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

Setting an ACT provides more biological protection by accounting for management uncertainty and provides greater assurance that overfishing will be prevented.

Commercial
Alternative 1 would not set and ACT. **Alternative 2** would set the ACT = ACL which indicates there is no management uncertainty. **Alternatives 3 and 4** would set the ACT below the ACL with **Alternative 4** providing more assurance overfishing would not occur.

Recreational
Alternative 1 would not set and ACT. **Alternatives 2 and 3** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur. **Alternative 4** takes into account the variability of recreational catches while preventing overfishing.

4.13.6.2 Direct and Indirect Effect on the Economic Environment

Commercial Sector ACT
Like the ACL, the ACT defined for Atlantic migratory group king mackerel will not directly impact economic benefits. However, in general, a higher ACL will result in greater short-term net economic benefits to commercial fishermen through less restrictive management measures. However, if the ACT is lower than historical landings, short-term negative impacts will be expected to occur. In this action, **Alternative 2** provides the greatest short-term economic benefits while **Alternative 4**, being the most conservative biologically, offer the smallest short-term economic benefits. Discussion of long-term economic benefits depend on the risk of the ACT being exceeded. If the risks are high, then **Alternative 3 or 4** can offer the highest long-term economic benefits and **Alternative 2**, the smallest.

Recreational Sector ACT
Like the ACL, the ACT defined for Atlantic migratory group king mackerel will not directly impact economic benefits. However, in general, a higher ACL will result in greater short-term net economic benefits to recreational fishermen through less restrictive management measures. However, if the ACT is lower than historical landings, short-term negative impacts will be expected to occur. In this action, **Alternative 2** provides the greatest short-term economic benefits while **Alternative 4**, being the most conservative biologically, offer the smallest short-term economic benefits. Discussion of long-term economic benefits depend on the risk of the ACT being exceeded. If the risks are high, then **Alternative 3 or 4** can offer the highest long-term economic benefits and **Alternative 2**, the smallest.

4.13.6.3 Direct and Indirect Effect on the Social Environment

The social effects of setting ACTs for Atlantic Group king mackerel are similar to setting ACTs for Gulf group king mackerel especially if separate ACTs are developed. ACTs are utilized in fisheries where there may management uncertainty that adds risk to reaching target harvest levels beyond the biological risks. It usually entails a further reduction in harvest levels to ensure catch

remains at or below the ACL or relevant biological threshold, but can be set equal to other thresholds. Each reduction in harvest threshold will certainly have social effects which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. In understanding management uncertainty there are often other factors that need to be considered: law enforcement difficulties, monitoring issues or socio-economic aspects of the fishery. The no action **Alternative 1** for the commercial sector should have few social effects since it imposes no further reduction in harvest levels, nor does **Alternative 2** as it is equal to the ACL. **Alternatives 3 and 4** may have negative social effects as they reduce harvest levels from the ACL. For the recreational sector, Alternative 1 would also have few if any negative social effects. **Alternative 3** would impose the largest reduction from the ACL, while **Alternative 4** would be close to the five year average. **Alternative 2** would below the average for recreational landings.

4.13.6.4 Direct and Indirect Effect on the Administrative Environment

Commercial ACT-Atlantic King Mackerel
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. Action **alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the commercial sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

Recreational ACT-Atlantic King Mackerel
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. Action **alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the recreational sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.13.6.5 Council Conclusions

Will be added

4.14 Action 14. Specify Accountability Measures (AMs) for Atlantic Migratory Group King Mackerel

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

4.14.1.1 Biological

Alternative 1 is not considered a viable option since it would specify no AMs for the recreational sector and therefore, would not limit harvest to the ACL; there is no commercial or recreational correction for an ACL overage. The Magnuson-Stevens Act requires that mechanisms of accountability be established for all federally managed species. **Alternative 1** would not comply with this mandate, and would provide no biological benefit to the species. **Alternative 2** would attempt to limit harvest to levels at or below the ACL or ACT by reducing and/or closing harvest once a particular landings threshold is met. **Alternative 3** would provide for a commercial payback of any overage with **Sub-Alternative 3a** providing more biological benefits. **Alternative 4** would provide for a recreational payback of any overage with **Sub-Alternative 4a** providing more biological benefits. **Alternative 5** would allow roll-over of overages and provide biological protection by ensuring the ABC is not 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 is not allow the ACL to be exceeded to begin with, then no post-season AM would be required and stock would realize the biological benefits of sustainable harvest conditions into perpetuity. Unfortunately, management and scientific uncertainty, and numerous other variables including economic and unforeseen biologic and weather events, play a major role in annual mackerel landings, which may fall above or below any number of harvest parameters. The advantage of implementing post-season AMs is that the landings data for any given year can be examined in totality before the AM is actually triggered, as opposed to in-season AMs that could rely largely on projections of harvest that may or may not have a high degree of uncertainty. Using actual landings data to calculate the precise magnitude of an overage is biologically beneficial in that it ensures an adequate level of payback is implemented.

The most biologically beneficial AM for king mackerel is most likely some combination of in-season AMs and post-season AMs. Under this scenario, if the in-season AM failed at preventing commercial ACL overage, the Regional Administrator would still have the option to implementing a post-season AM in both sectors to compensate for the overage.

Alternative 1 would perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. Establishing AMs is unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. The impacts from **Alternatives 2 - 3,** and the associated sub-alternatives**,** on sea turtles and smalltooth sawfish are unclear. If they perpetuate the existing amount of fishing effort, but causes effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

4.14.1.2 Physical

Setting AMs could positively affect the physical environment if effort is reduced from current levels. Fishing can have negative impacts on the bottom as described in Action 13.

4.14.2 Direct and Indirect Effect on the Economic Environment

In general, accountability measures lead to better management of the biological stock and therefore increase long-term economic benefits. However, accountability measures can have economic effects on the stability of the supply and market for king mackerel, ultimately impacting aggregate profitability of commercial and recreational fisheries in the short-term. **Alternatives 3 and 4** require payback of an overage with two Sub-Alternatives. While both have positive long-term economic benefits, both also have negative short-term economic benefits due to instability of landings, making maintaining customers more difficult. **Alternative 5**, on the other hand, allows for rollover of any underage which could be a short and long-term benefit to commercial and recreational fisheries. **Alternative 2** specifies prohibition of harvest, possession, and retention when the quota is met. This would result in positive long-term economic benefits and negative short-term economic benefits for commercial fisheries. Shortening the length of the recreational fishing season would likely have greater negative short-term economic benefits compared to **Alternatives 3 and 4** due to the importance of particular times of the year for recreational fishing.

4.14.3 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Atlantic group king mackerel have in season accountability measures in place as trip limits and seasonal closures are already in use. The social effects from additional accountability measures will depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures. **Alternative 1** would not change the current regime which closes the commercial fishery when the quota is met, but has no AMs for the recreational. With **Alternative 2** new AMs would be imposed on the recreational sector through a reduction in the fishing season the next year and present regulations for the commercial sector remain. **Alternative 3** would impose some payback for the commercial sector in any case through **Sub-alternative 3a**, but only if overfished with **Sub-alternative 3b**. In either case, the payback could involve negative short term effects depending upon the amount of payback needed. The same would be true for the recreational sector with **Alternative 4** and its similar sub-alternatives. With **Alternative 5** there may be positive social effects with additional harvest allowed for any underage from the previous year.

4.14.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce short-term administrative impacts. However, there are currently no AMs in place for the recreational sector of king mackerel and this alternative would not comply with Reauthorized Magnuson-Stevens Act requirements and therefore, may trigger some type of legal action. If this scenario were to occur, the burden on the administrative environment could be significant in the future. **Alternative 2** would implement AMs for the recreational sector and would comply with the Magnuson Stevens Act but would result in an increased administrative burden associated with monitoring and tracking landings on a continuing basis. **Alternatives 3-4,** associated sub-alternatives and **Alternative 5**, would result in a minimal increase in administrative burden associated with calculating payback of overages/underages for the commercial or recreational sectors. These alternatives would require outreach and education related to how the process would operate.

4.14.5 Council Conclusions

Will be added

4.15 Action 15. Management Measures for Atlantic Migratory Group King Mackerel

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

4.15.1.1 Biological

4.15.1.2 Physical

Any management measures that reduce effort could affect the physical environment. Fishing can have negative impacts on the bottom as described in Action 13.

Need to add

4.15.2 Direct and Indirect Effect on the Economic Environment

Need to add

4.15.3 Direct and Indirect Effect on the Social Environment

Need to add

4.15.4 Direct and Indirect Effect on the Administrative Environment

Under the **Alternative 1** (no action) the administrative impacts would not increase. **Alternative 2** and **Alternative 3** would result in a moderate increase in the administrative burden due to rule-making, monitoring, enforcement and outreach.

4.15.5 Council Conclusions

Will be added

4.16 Action 16. Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL & ACT for Atlantic Migratory Group Spanish Mackerel

4.16.1 MSY, MSST & MFMT for Atlantic Migratory Group Spanish Mackerel

There are no alternatives under consideration because these values are being updated from the latest SEDAR stock assessment.

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

There are no alternatives under consideration because the overfishing level is unknown. A value will be added once a SEDAR stock assessment can provide an estimate or a value has been provided by the SSC.

4.16.3 ABC Control Rule and ABC for Atlantic Migratory Group Spanish Mackerel

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

While there are no direct biological effects from identification of an ABC, it does set the upper limit on the level of landings that will be allowed for fishermen and prevents overfishing. **Alternative 1** (No Action) would not meet the new Magnuson-Stevens Act requirements. **Alternative 2** would adopt the SAFMC SSC recommended ABC control rule and would be expected to provide the greatest biological benefits over the long term by accounting for assessment uncertainty while preventing overfishing. **Alternative 3** provides the highest level of landings of all the alternatives but carries more biological risk and does not account for management uncertainty which could lead to overfishing and negative biological effects. **Alternative 4a-4c** provide more biological protection as compared to **Alternatives 2 and 3**.

4.16.3.2 Direct and Indirect Effect on the Economic Environment

In general, the higher the ABC, the greater the biological benefits and therefore, the greater the long-term economic benefits if there is little risk of overfishing. If the risk of overfishing is significant, a buffer between the OFL and the ABC would result in the greatest long-term economic benefits but smaller short-term economic benefits. Therefore, **Alternative 3** likely provides the greatest short-term economic benefits. **Alternatives 4a** would likely provide the greatest long-term economic benefits but also the smallest short-term economic benefits followed by **Alternative 4b and 4c** in declining order. **Alternative 5** offers a more accurate approach to preventing overfishing which would increase long-term economic benefits over **Alternative 4**.

4.16.3.3 Direct and Indirect Effect on the Social Environment

Setting of the biological parameters for harvest thresholds have few direct social effects as the effects are more indirect from the implementation of the allowable biological catch and any subsequent reduction. 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. As with Atlantic group king mackerel, **Alternatives 2 and 3** are not as risk averse as other alternatives

and further reduction in thresholds may not introduce negative social effects. **Alternative 4a** is the most restrictive.

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 established by the Council's SSC for consideration by the Council. Although the control rule can have implications on management actions, no specific management actions are required through the specification of the control rule. The administrative impacts of establishing a control rule are minimal and impacts would not differ much between the proposed alternatives.

4.16.3.5 Council Conclusions

Will be added

4.16.4 Optimum Yield (OY) for Atlantic Migratory Group Spanish Mackerel

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

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

Setting an ACL could affect the physical environment if harvest changes from current levels. However this is not expected to be the case as most alternatives would maintain catches close to **Alternative 1** (No Action). Setting an ACL potentially will have an impact on the biological environment if harvest changes from current levels; however, this is not expected to be the case. **Alternative 2** is based on the SSC recommendations and would prevent overfishing. **Alternative 3** would provide more biological protection by setting the ACL below the ABC.

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACL, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. Spanish mackerel are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. Stab gillnets are allowable gear in the South Atlantic; however, usage is very limited in the EEZ. **Note: As with 4.13, all of these subsections (1-6) need review and reworking**

4.16.5.2 Direct and Indirect Effect on the Economic Environment

In general, the higher the ACL, the higher the economic benefits as long as there is no significant overfishing risk. If there is a risk of overfishing, a buffer between the ABC and the ACL could provide positive long-term economic benefits but also negative short-term economic benefits. **Sub-Alternative 3a** offers the most conservative ACL, the least short-term economic benefits, and the greatest long-term economic benefits. **Sub-Alternative 3d** offers the next largest long-term economic benefit followed by **Sub-Alternatives 3b, 3e, and 3c**.

Commercial
Alternative 2 proposes an ACL of about 4.9 million pounds with the commercial sector allocated 2.7 million pounds. Using Table 2.16.5.1, average commercial landings total about 2.88 million pounds worth about $2.33 million. Using this data results in losses in economic benefits of about $146,000 in ex-vessel revenues. Compared to **Alternative 1 (No Action)**, **Alternative 2** results in commercial ex-vessel revenue losses of about $949,000. However, not all of that was caught under the status quo.

Recreational
To be completed after the December Council meeting.

4.16.5.3 Direct and Indirect Effect on the Social Environment

The effects on the social environment from setting ACLs for Atlantic group Spanish mackerel are similar to that for Atlantic group king mackerel. Because Atlantic group Spanish mackerel

already have a quota for both commercial and recreational sectors, implementing ACLs would have few social effects if they remain at current quota levels. **Alternative 1** would keep ACLs in line with current levels for TAC. The more restrictive levels are in **Alternative 3** with the **Option 3a** having the most restrictive level and getting less restrictive through **Option 3e** if the council chooses the recommended ABC. **Alternative 2** offers less restrictive option than **Alternative 3** with an ABC of 4.91.

4.16.5.4 Direct and Indirect Effect on the Administrative Environment

OY Atlantic Spanish Mackerel

The specification of OY is a procedural exercise. Although OY can have implications on management actions, no specific management actions are required through the specification of OY. The administrative impacts of specifying OY are minimal and would not differ much between the proposed alternatives.

ACL Atlantic Spanish Mackerel

Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for Atlantic migratory group Spanish mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2- 3,** and the **sub-alternatives** associated with **Alternative 3** are minimal and would not differ much between the action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.16.5.5 Council Conclusions

Will be added

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

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

Setting an ACT provides more biological protection by accounting for management uncertainty and provides greater assurance that overfishing will be prevented.

Commercial
Alternative 1 would not set and ACT. **Alternative 2** would set the ACT = ACL which indicates there is no management uncertainty. **Alternatives 3 and 4** would set the ACT below the ACL with **Alternative 4** providing more assurance overfishing would not occur.

Recreational
Alternative 1 would not set and ACT. **Alternatives 2 and 3** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur. **Alternative 4** takes into account the variability of recreational catches while preventing overfishing.

4.16.6.2 Direct and Indirect Effect on the Economic Environment

Commercial Sector ACT
In general, if there is no concern regarding exceeding the ACL, **Alternative 2** offers the greatest short-term and long-term economic benefits. If there is concern of an overage, **Alternatives 3 and 4** can provide greater long-term economic benefits than **Alternative 2**.

Recreational Sector ACT
In general, if there is no concern regarding exceeding the ACL, **Alternative 2** offers the greatest short-term and long-term economic benefits. If there is concern of an overage, **Alternatives 3 and 4** can provide greater long-term economic benefits than **Alternative 2**.

4.16.6.3 Direct and Indirect Effect on the Social Environment

The social effects of setting ACTs for Atlantic Group Spanish mackerel are similar to setting ACTs for Atlantic group king mackerel 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, but can be set equal to other thresholds. Each reduction in harvest threshold will certainly have social effects which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. In understanding management uncertainty there are often other factors that need to be considered: law enforcement difficulties, monitoring issues or socio-economic aspects of the fishery. The no action **Alternative 1** for the commercial sector should have few social effects since it imposes no further reduction in harvest levels, nor does **Alternative 2** as it is equal to the ACL. **Alternatives 3 and 4** may have negative social effects as they reduce harvest levels from the ACL with **Alternative 4** being the most restrictive and likely to shorten the season. For the recreational sector, Alternative 1 would also have few if any negative social effects. **Alternative 3** would impose the largest reduction from the ACL and increase the likelihood that recreational

catch will be exceeded, while **Alternative 4** would have less of a chance and **Alternative 2** would be somewhere in between.

4.16.6.4 Direct and Indirect Effect on the Administrative Environment

Commercial ACT-Atlantic Spanish Mackerel
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. Action **alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the commercial sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

Recreational ACT-Atlantic Spanish Mackerel
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. Action **alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the recreational sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.16.6.5 Council Conclusions

Will be added

4.17 Action 17. Accountability Measures (AMs) for Atlantic Migratory Group Spanish Mackerel

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

4.17.1.1 Biological

Alternative 1 is not considered a viable option since it would specify no AMs for the recreational sector and therefore, would not limit harvest to the ACL; there is no commercial or recreational correction for an ACL overage. The Magnuson-Stevens Act requires that mechanisms of accountability be established for all federally managed species. **Alternative 1** would not comply with this mandate, and would provide no biological benefit to the species. **Alternative 2** would attempt to limit harvest to levels at or below the ACL or ACT by reducing and/or closing harvest once a particular landings threshold is met. **Alternative 3** would provide for a commercial payback of any overage with **Sub-Alternative 3a** providing more biological benefits. **Alternative 4** would provide for a recreational payback of any overage with **Sub-Alternative 4a** providing more biological benefits.

The post-season AM options are designed to compensate or correct for the magnitude of the overage during the following fishing year. In doing so, harvest levels would return to their baseline ACL over the course of two fishing years, the year of the overage and the year of the overage correction. Biologically, the ideal scenario is not allow the ACL to be exceeded to begin with, then no post-season AM would be required and stock would realize the biological benefits of sustainable harvest conditions into perpetuity. Unfortunately, management and scientific uncertainty, and numerous other variables including economic and unforeseen biologic and weather events, play a major role in annual mackerel landings, which may fall above or below any number of harvest parameters. The advantage of implementing post-season AMs is that the landings data for any given year can be examined in totality before the AM is actually triggered, as opposed to in-season AMs that could rely largely on projections of harvest that may or may not have a high degree of uncertainty. Using actual landings data to calculate the precise magnitude of an overage is biologically beneficial in that it ensures an adequate level of payback is implemented.

The most biologically beneficial AM for Spanish mackerel is most likely some combination of in-season AMs and post-season AMs. Under this scenario, if the in-season AM failed at preventing commercial ACL overage, the Regional Administrator would still have the option to implementing a post-season AM in both sectors to compensate for the overage.

Alternative 1 would perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. Establishing AMs is unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. The impacts from **Alternatives 2 - 3,** and the associated sub-alternatives**,** on sea turtles and smalltooth sawfish are unclear. If they perpetuate the existing amount of fishing effort, but causes effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

4.17.1.2 Physical

Setting AMs could positively affect the physical environment if effort is reduced from current levels. Fishing can have negative impacts on the bottom as described in Action 16.

4.17.2 Direct and Indirect Effect on the Economic Environment

In general, accountability measures lead to better management of the biological stock and therefore increase long-term economic benefits. However, accountability measures can have economic effects on the stability of the supply and market for Spanish mackerel, ultimately impacting aggregate profitability of commercial and recreational fisheries in the short-term. **Alternatives 3 and 4** require payback of an overage with two Sub-Alternatives. While both have positive long-term economic benefits, both also have negative short-term economic benefits due to instability of landings, making maintaining customers more difficult. **Alternative 2** specifies prohibition of harvest, possession, and retention when the quota is met. This would result in positive long-term economic benefits and negative short-term economic benefits for commercial fisheries. However, shortening the length of the recreational fishing season would likely have greater negative short-term economic benefits compared to **Alternatives 3 and 4** due to the importance of particular times of the year for recreational fishing.

4.17.3 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Atlantic group Spanish mackerel have in season accountability measures in place with seasonal closures for the commercial sector. There are no closures for the recreational sector. The social effects from additional accountability measures will depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures. **Alternative 1** would not change the current regime which closes the commercial fishery when the quota is met, but has no AMs for the recreational. With **Alternative 2** new AMs would be imposed on the recreational sector through a reduction in the fishing season the next year and present regulations for the commercial sector remain. **Alternative 3** would impose some payback for the commercial sector in any case through **Sub-alternative 3a**, but only if overfished with **Sub-alternative 3b**. In either case, the payback could involve negative short term effects depending upon the amount of payback needed. The same would be true for the recreational sector with **Alternative 4** and its similar sub-alternatives.

4.17.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce short-term administrative impacts. However, there are currently no AMs in place for Spanish mackerel and this alternative would not comply with Reauthorized Magnuson-Stevens Act requirements and therefore, may trigger some type of legal action. If this scenario were to occur, the burden on the administrative environment could

be significant in the future. **Alternative 2** would implement AMs for the recreational sector and would comply with the Magnuson Stevens Act but would result in an increased administrative burden associated with monitoring and tracking landings on a continuing basis. **Alternatives 3-4** and associated sub-alternatives, would result in a minimal increase in administrative burden associated with calculating payback of overages for the commercial or recreational sectors. These alternatives would require administrative support in terms of education and outreach.

4.17.5 Council Conclusions

Will be added

4.18 Action 18. Management Measures for Atlantic Migratory Group Spanish Mackerel

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

4.18.1.1 Biological

4.18.1.2 Physical

Any management measures that reduce effort could affect the physical environment. Fishing can have negative impacts on the bottom as described in Action 16.

Need to add

4.18.2 Direct and Indirect Effect on the Economic Environment

Need to add

4.18.3 Direct and Indirect Effect on the Social Environment

The effects upon the social environment would depend upon the suite of management measures chosen by the council to include in the amendment.

4.18.4 Direct and Indirect Effect on the Administrative Environment

(Numbering is off in the alternative. Should be Alternative 1-4 since we are removing the bag limit sales alternative.)

Under the **Alternative 1** (no action) the administrative impacts would not increase. **Alternatives 2-4** would result in a moderate increase in the administrative burden due to rule-making, monitoring, enforcement and outreach.

4.18.5 Council Conclusions

Will be added

4.19 Action 19. Specify MSY, MSST, MFMT/OFL, ABC, OY, ACL & ACT for Atlantic Migratory Group Cobia

4.19.1 MSY, MSST & MFMT for Atlantic Migratory Group Cobia

There are no alternatives under consideration because these values are all unknown. They will be updated once a SEDAR stock assessment is completed.

4.19.2 Overfishing Level (OFL) for Atlantic Migratory Group Cobia

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

4.19.3 ABC Control Rule and ABC for Atlantic Migratory Group Cobia

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

While there are no direct biological effects from identification of an ABC, it does set the upper limit on the level of landings that will be allowed for fishermen and prevents overfishing. **Alternative 1** (No Action) would not meet the new Magnuson-Stevens Act requirements. **Alternative 2** would adopt the SAFMC SSC recommended ABC control rule and would be expected to provide the greatest biological benefits over the long term by accounting for assessment uncertainty while preventing overfishing. **Alternative 3** provides the highest level of landings of all the alternatives but carries more biological risk and does not account for management uncertainty which could lead to overfishing and negative biological effects. **Alternative 4a-4c** provide more biological protection as compared to **Alternatives 2 and 3**.

4.19.3.2 Direct and Indirect Effect on the Economic Environment

In general, the higher the ABC, the greater the biological benefits and therefore, the greater the long-term economic benefits if there is little risk of overfishing. If the risk of overfishing is significant, a buffer between the OFL and the ABC would result in the greatest long-term economic benefits but smaller short-term economic benefits. Therefore, **Alternative 3** likely provides the greatest short-term economic benefits. **Alternatives 4a** would likely provide the greatest long-term economic benefits but also the smallest short-term economic benefits followed by **Alternative 4b and 4c** in declining order.

4.19.3.3 Direct and Indirect Effect on the Social Environment

Setting of the biological parameters for harvest thresholds of Atlantic group cobia have few direct social effects as the effects are more indirect from the implementation of the allowable biological catch and any subsequent reduction through other thresholds. 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. **Alternatives 2** is the most risk averse using the ABC control rule and could introduce negative social effects if combined with other alternatives that further reduce harvest thresholds. **Alternative 3**is the least restrictive with Alternative 4 options a, b and c offering a range of from the least restrictive being **4 Option a** with **4 Option c** being the

most restrictive of the three.

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 established by the Council's SSC for consideration by the Council. Although the control rule can have implications on management actions, no specific management actions are required through the specification of the control rule. The administrative impacts of establishing a control rule are minimal and impacts would not differ much between the proposed alternatives.

4.19.3.5 Council Conclusions

Will be added

4.19.4 Optimum Yield (OY) for Atlantic Migratory Group Cobia

4.19.5 Allocation by Sector for Atlantic Migratory Group Cobia

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

There are no physical, biological or ecological effects from allocating by sector. The ACL or ACT and AMs provide biological protection and prevent overfishing.

4.19.5.2 Direct and Indirect Effect on the Economic Environment

Creating sector allocations for cobia will have positive benefits to each sector depending on the percentage allocated to that sector. The recreational sector will benefit more given a larger share while the same applies to the commercial sector. Deviations from the current harvest shares will have impacts, both positive and negative, while allocations close to current harvest shares will not have any effects.

4.19.5.3 Direct and Indirect Effect on the Social Environment

Creating sector allocations for cobia would have similar effects on the social environment as discussed previously for other coastal pelagic species. While cobia do not presently have separate quotas, coastal pelagic fishermen are accustomed to this type of allocation. Being managed primarily through bag limits, it is not clear to what extent the various alternatives would affect the social environment.

4.19.5.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1, no action, would not increase the administrative burden as it would not create allocations for cobia. Under any of the proposed action alternatives, administrative impacts will occur as allocations will need to be monitored and enforced to ensure that the sectors do not exceed their allocation and if so, appropriate overages are accounted for. The administrative impacts associated with the proposed alternatives are expected to be similar to the administrative impacts under **Alternative 1.** None of the action alternatives are expected to increase the administrative impacts more than the others.

4.19.5.5 Council Conclusions

Will be added

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

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

Setting an ACL could affect the physical environment if harvest changes from current levels. However this is not expected to be the case as most alternatives would maintain catches close to **Alternative 1** (No Action). Setting an ACL potentially will have an impact on the biological environment if harvest changes from current levels; however, this is not expected to be the case. **Alternative 2** is based on the SSC recommendations and would prevent overfishing. **Alternative 3** would provide more biological protection by setting the ACL below the ABC.

4.19.6.1.1 Biological

4.19.6.1.2 Physical

Setting an ACL or ACT could affect the physical environment if effort changes from current levels. If harvest is restricted under an ACL, fishing effort could be reduced through accountability measures such as a shortened season, and negative impacts might be decreased. CMP species are typically caught at the ocean surface and therefore neither hook-and-line nor run-around gillnet gear typically come in contact with bottom habitat. These gears still have the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth. If fouled gear becomes entangled on corals, the algae may eventually overgrow and kill the coral. **Note: As with 4.13 and 4.16, this needs to be incorporated throughout 4.19 as appropriate**

4.19.6.2 Direct and Indirect Effect on the Economic Environment

Alternative 2 offers the highest ACL level and therefore the greatest short-term and long-term economic benefits as long as there is no significant risk of overfishing. If there is a significant risk of overfishing, **Alternative 3** would offer higher long-term economic benefits but smaller short-term economic benefits compared to **Alternative 2**. Between 2006 and 2008, approximately 1.068 million pounds were landed by the commercial and recreational fisheries combined. This is significantly more than ACLs proposed in **Alternatives 2 and 3** with **Alternative 2** proposing a 40% decrease in landings and **Alternative 3a** proposing a 61% decrease in landings.

4.19.6.3 Direct and Indirect Effect on the Social Environment

According to the National Standard guidelines Annual Catch Limits have been relegated primarily to biological assessments and reference points to address scientific uncertainty. While setting the biological parameters on catch through ACLs can have indirect effects on the social environment, it is difficult to know what those effects will be until a definitive number has been assigned which translates into harvest levels. Certainly, setting thresholds that adequately assess biological risk through harvest levels on stocks that are vulnerable can help stabilize landings and thereby provide long-term benefits to the fishery which should translate into positive social benefits over time. It is the short term costs involved that often drive perceptions of negative

impacts. These impacts can translate into real costs that have significant impacts to both the commercial and recreational sectors. For fisheries where information is scarce and management is uncertain, it becomes a real possibility that there can be negative short term impacts that may not have been necessary if thresholds are too restrictive. In other fisheries which have more certainty in management and monitoring of catch, a more precise harvest level can be set with certainty and reduce volatility in the fishery which should produce positive effects. The no action **Alternative 1** would have the least negative social effects as it would not impose further reductions and may be similar to **Alternative 2** which is equal to the ABC. With **Alternative 3** and its **Sub-alternatives a – e**, **Sub-alternative a** is the most restrictive and would likely have the most negative social effects as catch would be reduced substantially.

4.19.6.4 Direct and Indirect Effect on the Administrative Environment

Atlantic Cobia OY
The specification of OY is a procedural exercise. Although OY can have implications on management actions, no specific management actions are required through the specification of OY. The administrative impacts of specifying OY are minimal and would not differ much between the proposed alternatives.

ACLs for Atlantic Group Cobia
Specifying an ACL or sector ACLs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track the ACL can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. **Alternative 1,** would not meet the requirements of the Magnuson-Stevens Act for Atlantic migratory group Spanish mackerel, and could be subject to litigation, which would result in a significant administrative burden on the agency. The administrative impacts of specifying an ACL through **Alternatives 2- 3,** and the **sub-alternatives** associated with **Alternative 3** are minimal and would not differ much between the action alternatives. However, once the ACL is specified, the administrative burden associated with monitoring and enforcement, implementing management measures, and accountability measures would increase.

Other administrative burdens that may result from all of the action alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.19.6.5 Council Conclusions

Will be added

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

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

Setting an ACT provides more biological protection by accounting for management uncertainty and provides greater assurance that overfishing will be prevented.

Commercial
Alternative 1 would not set and ACT. **Alternative 2** would set the ACT = ACL which indicates there is no management uncertainty. **Alternatives 3 and 4** would set the ACT below the ACL with **Alternative 4** providing more assurance overfishing would not occur.

Recreational
Alternative 1 would not set and ACT. **Alternatives 2 and 3** would set the ACT below the ACL with **Alternative 3** providing more assurance overfishing would not occur. **Alternative 4** takes into account the variability of recreational catches while preventing overfishing.

4.19.7.2 Direct and Indirect Effect on the Economic Environment

Commercial Sector ACT
Alternative 2 proposes the highest ACL and will result in the greatest short-term and long-term economic benefits. If there is a significant risk of overages, **Alternatives 3 and 4** would result in greater long-term economic benefits than **Alternative 2** but smaller short-term economic benefits. Between 2006-08, an average of almost 101,700 pounds were landed commercially, worth about $244,000 in ex-vessel revenues.

Recreational Sector ACT
Alternative 2 proposes the highest ACL and will result in the greatest short-term and long-term economic benefits. If there is a significant risk of overages, **Alternatives 3 and 4** would result in greater long-term economic benefits than **Alternative 2** but smaller short-term economic benefits.

4.19.7.3 Direct and Indirect Effect on the Social Environment

The social effects of setting ACTs for Atlantic Group cobia are similar to setting ACLs, especially if separate ACTs are developed as outlined in **Actions 4.19.7 a and 4.19.7.b**. ACTs are utilized in fisheries where there may management uncertainty that adds risk to reaching target harvest levels beyond the biological risks. It usually entails a further reduction in harvest levels to ensure catch remains at or below the ACL or relevant biological threshold. Each reduction in harvest threshold will certainly have social effects which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. In understanding management uncertainty there are often other factors that need to be considered: law enforcement difficulties, monitoring issues or socio-economic aspects of the fishery. The no action **Alternative 1** for the commercial sector should have few social effects since it imposes no further reduction in harvest levels, nor does **Alternative 2** as it is equal to the ACL. **Alternatives 3 and 4** may have negative social effects as they reduce harvest levels from the ACL with **Alternative 4** being the most restrictive. For the recreational

sector, **Alternative 1** would also have few if any negative social effects. **Alternative 3** would impose the largest reduction from the ACL, while **Alternative 4** may be less restrictive and **Alternative 2** may be somewhere in between.

4.19.7.4 Direct and Indirect Effect on the Administrative Environment

Commercial ACT for Atlantic Migratory Cobia
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. Action **Alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the commercial sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

Recreational ACL for Atlantic Migratory Cobia
Specifying an ACT or sector ACTs alone would not increase the administrative burden over the status-quo. However, the monitoring and documentation needed to track how much of the ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. Action **Alternatives 2-4** would result in minimal administrative impacts associated with tracking landings in the recreational sector. Other administrative burdens that may result from all of the alternatives considered would take the form of development and dissemination of outreach and education materials for fishery participants.

4.19.8 Council Conclusions

Will be added

4.20 Action 20. Accountability Measures (AMs) for Atlantic Migratory Group Cobia

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

4.20.1.1 Biological

Alternative 1 is not considered a viable option since it would specify no AMs for the recreational sector and therefore, would not limit harvest to the ACL; there is no commercial or recreational correction for an ACL overage. The Magnuson-Stevens Act requires that mechanisms of accountability be established for all federally managed species. **Alternative 1** would not comply with this mandate, and would provide no biological benefit to the species. **Alternative 2** would attempt to limit harvest to levels at or below the ACL or ACT by reducing and/or closing harvest once a particular landings threshold is met. **Alternative 3** would provide for a commercial payback of any overage with **Sub-Alternative 3a** providing more biological benefits. **Alternative 4** would provide for a recreational payback of any overage with **Sub-Alternative 4a** providing more biological benefits.

The post-season AM options are designed to compensate or correct for the magnitude of the overage during the following fishing year. In doing so, harvest levels would return to their baseline ACL over the course of two fishing years, the year of the overage and the year of the overage correction. Biologically, the ideal scenario is not allow the ACL to be exceeded to begin with, then no post-season AM would be required and stock would realize the biological benefits of sustainable harvest conditions into perpetuity. Unfortunately, management and scientific uncertainty, and numerous other variables including economic and unforeseen biologic and weather events, play a major role in annual mackerel landings, which may fall above or below any number of harvest parameters. The advantage of implementing post-season AMs is that the landings data for any given year can be examined in totality before the AM is actually triggered, as opposed to in-season AMs that could rely largely on projections of harvest that may or may not have a high degree of uncertainty. Using actual landings data to calculate the precise magnitude of an overage is biologically beneficial in that it ensures an adequate level of payback is implemented.

The most biologically beneficial AM for cobia is most likely some combination of in-season AMs and post-season AMs. Under this scenario, if the in-season AM failed at preventing commercial ACL overage, the Regional Administrator would still have the option to implementing a post-season AM in both sectors to compensate for the overage.

Alternative 1 would perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. Establishing AMs is unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. The impacts from **Alternatives 2 - 3,** and the associated sub-alternatives**,** on sea turtles and smalltooth sawfish are unclear. If they perpetuate the existing amount of fishing effort, but causes effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

4.20.1.2 Physical

Setting AMs could positively affect the physical environment if effort is reduced from current levels. Fishing can have negative impacts on the bottom as described in Action 19.

4.20.2 Direct and Indirect Effect on the Economic Environment

In general, accountability measures lead to better management of the biological stock and therefore increase long-term economic benefits. However, accountability measures can have economic effects on the stability of the supply of fish and market for cobia as well as headboat customers, ultimately impacting aggregate profitability of commercial and recreational fisheries in the short-term. **Alternatives 4 and 5** require payback of an overage with two Sub-Alternatives. While both have positive long-term economic benefits, both also have negative short-term economic benefits due to instability of landings, making maintaining customers more difficult. **Alternative 2** specifies prohibition of harvest, possession, and retention when the quota is met for the commercial fishery only. This would result in some positive long-term economic benefits and negative short-term economic benefits for commercial fisheries. However, **Alternative 3** proposes AMs for both the commercial and recreational sectors and this would have even greater long-term economic benefits for both sectors. However, shortening the length of the recreational fishing season would likely have greater negative short-term economic benefits compared to **Alternatives 4 and 5** together due to the importance of particular times of the year for recreational fishing.

4.20.3 Direct and Indirect Effect on the Social Environment

The setting of Accountability Measures can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery. Atlantic group cobia do not have in season accountability measures in place, so there are no closures for the commercial or recreational sector. The social effects from additional accountability measures will depend upon the restrictive nature and whether additional management uncertainty is introduced from the measures. **Alternative 1** would not change the current regime which closes the commercial fishery when the quota is met, but has no AMs for the recreational. With **Alternative 2** new AMs would be imposed on the commercial sector to prohibit sale and possession once the quota is met, but not impose restrictions on the recreational sector. **Alternative 3** would impose some payback for the commercial sector in any case through **Sub-alternative 3a**, but only if overfished with **Sub-alternative 3b**. In either case, the payback could involve negative short term effects depending upon the amount of payback needed. The same would be true for the recreational sector with **Alternative 4** and its similar sub-alternatives. In all cases where overages are paid back through reductions the next year, there may be important social effects depending upon the size of the overage and resulting changes to the next year's catch.

4.20.4 Direct and Indirect Effect on the Administrative Environment

Alternative 1 (No Action) would not produce near-term administrative impacts. However, there

are currently no AMs in place for cobia and this alternative would not comply with Reauthorized Magnuson-Stevens Act requirements and therefore, may trigger some type of legal action. If this scenario were to occur, the burden on the administrative environment could be significant in the future. **Alternative 2** would not implement ACLs or AMs for the recreational sector and would not comply with the Magnuson Stevens Act. **Alternative 3** would increase the administrative burden through the need for in-season monitoring, tracking of recreational landings, rule-making and education and outreach. **Alternatives 4-5**, would result in a minimal increase in administrative burden associated with calculating payback of overages for the commercial or recreational sectors.

4.20.5 Council Conclusions

Will be added

4.21 Action 21. Management Measures for Atlantic Migratory Group Cobia

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

4.21.1.1 Biological

4.21.1.2 Physical

Any management measures that reduce effort could affect the physical environment. Fishing can have negative impacts on the bottom as described in Action 19.

Reference

Barnette, M.C. 2001. A review of the fishing gear utilized within the Southeast Region and their potential impacts on essential fish habitat. NOAA Technical Memorandum NMFS-SEF SC-44 9, 62 pp.

Need to add

4.21.2 Direct and Indirect Effect on the Economic Environment

Need to add

4.21.3 Direct and Indirect Effect on the Social Environment

The effects upon the social environment would depend upon the suite of management measures chosen by the council to include in the amendment. With Alternative 1 there may be no negative social effects as regulations remain the same. With **Alternative 2** a commercial trip limit would be imposed that is similar to current regs under **Sub-alternative 2a**. A reduction would be imposed with **Sub-alternative 2b** to one fish per person. **Alternative 3** would reduce the recreational bag limit to one fish and may have negative social effects in the short term.

4.21.4 Direct and Indirect Effect on the Administrative Environment

(Numbering is off in the alternative. Should be Alternative 1-3 since we are removing the bag limit sales alternative.)

Under the **Alternative 1** (no action) the administrative impacts would not increase. **Alternatives 2-3** would result in a moderate increase in the administrative burden due to rule-making, monitoring, enforcement and outreach.

4.21.5 Council Conclusions

Will be added

5.0 FISHERY IMPACT ANALYSIS/SOCIAL IMPACT STATEMENT

Mandates to conduct Social Impact Assessments come from both the National Environmental Policy Act (NEPA) and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). NEPA requires federal agencies to consider the interactions of natural and human environments by using a "...systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making" [NEPA section 102 (2) (a)]. Under the Council on Environmental Quality's (CEQ, 1986) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, a clarification of the terms "human environment" expanded the interpretation to include the relationship of people with their natural and physical environment (40 CFR 1508.14). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects which may be direct, indirect or cumulative (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994).

Recent amendments to the Magnuson-Stevens Act require FMPs address the impacts of any management measures on the participants in the affected fishery and those participants in other fisheries that may be affected directly or indirectly through the inclusion of a fishery impact statement [Magnuson-Stevens Act section 303 (a) (9)]. Most recently, with the addition of National Standard 8, FMPs must now consider the impacts upon fishing communities to the extent practicable to assure their sustained participation and minimize adverse economic impacts upon those communities [Magnuson-Stevens Act section 301 (a) (8)]. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. With an increasing need for management action, the consequences of such changes need to be examined to minimize the negative impacts experienced by the populations concerned to the extent practicable.

5.1 Data Limitations and Methods

Social impacts are generally the consequences to human populations that follow from some type of public or private action. Those consequences may include alterations to "...the ways in which people live, work or play, relate to one another, organize to meet their needs and generally cope as members of a society..." (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994:1). In addition, included under this interpretation are cultural impacts that may involve changes in values and beliefs, which affect the way people identify themselves within their occupation, communities and society in general. Social impacts analyses help determine the consequences of policy action in advance by comparing the status quo with the projected impacts. Therefore, it is important that as much information as possible concerning a fishery and its participants be gathered for an assessment.

It is important to identify any foreseeable adverse effects on the human environment. With quantitative data often lacking, qualitative data can be used to provide a rough estimate of some of the impacts based on the best available science. In addition, when there is a body of empirical findings available from the social science literature, it needs to be summarized and referenced in the analyses.

5.2 Summary of Social Impact Assessment

Need to add

6.0 REGULATORY IMPACT REVIEW

7.0 REGULATORY FLEXIBILITY ANALYSIS

8.0 LIST OF PREPARERS

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

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Shannon Cass-Calay, Ph.D. NMFS/SEFSC		

9.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS WHO RECEIVED COPIES

MODIFIED FROM SPINY LOBSTER; NEEDS TO BE DOUBLE CHECKED

Department of Commerce Office of General Counsel
Environmental Defense
Florida Fish and Wildlife Conservation Commission
Florida Keys Commercial Fishermen's Association
National Fisheries Institute
National Marine Fisheries Service Office of General Counsel
National Marine Fisheries Service Office of General Counsel Southeast Region
National Marine Fisheries Service Southeast Regional Office
National Marine Fisheries Service Southeast Fisheries Science Center
National Marine Fisheries Service Silver Spring Office
National Marine Fisheries Service Office of Law Enforcement
United States Coast Guard
United States Fish and Wildlife Services

10.0 REFERENCES

EACH AUTHOR OF A SECTION NEEDS TO PROVIDE THEIR REFERENCES

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APPENDIX A – MODIFICATIONS TO FRAMEWORK

Section 12.6.1 Mechanism for Determination of Framework Adjustments, as modified by this and previous amendments is as follows:

Section 12.6.1.1:

A. ~~An assessment panel (Panel) appointed by the Councils will normally reassess the condition of each stock or migratory group of Spanish and Spanish mackerel and cobia in alternate (even numbered) years and other stocks when data allows for the purpose of providing for any needed preseason adjustment of TAC and other framework measures. However, in the event of changes in the stocks or fisheries~~, **T**he Councils may request ~~additional~~ assessments as may be needed. The Councils, however, may make annual seasonal adjustments based on the most recent assessment. ~~The Panel shall be composed of NMFS scientists, Council staff, Scientific and Statistical Committee members, and other state, university, and private scientists as deemed appropriate by the Councils.~~

Each stock assessment ~~The Panel~~ **should** ~~will~~ address the following **and perhaps other** items for each stock:

1. Stock identity and distribution. This should include situations where there are groups of fish within a stock which are sufficiently different that they should be managed as separate units. If several possible stock divisions exist, ~~the Panel~~ **they** should describe the likely alternatives.

2. MSY and/or B_{MSY} (or appropriate proxies) for each identified stock. If more than one possible stock division exists, MSY and/or B_{MSY} for each possible combination should be estimated.

3. Condition of the stock(s) or groups of fish within each stock which could be managed separately. For each stock, this should include but not be limited to:

   a. Fishing mortality rate**s** relative to F_{MSY} and $F_{0.1}$ as well as $F_{30\ percentSPR,}$ and $F_{40\ percentSPR,}$ **OFL, or other limits as deemed appropriate.**

   b. Spawning potential ratio**s** (SPR).

   c. Abundance relative to **biomass at MSY and MSST** ~~an adequate spawning biomass.~~

   d. Trends in recruitment.

   e. Acceptable Biological Catch (ABC) **estimates** which will result in long-term yield as near MSY as possible **based on the level of scientific uncertainty.**

   f. Calculation of catch ratios based on catch statistics using procedures defined in the FMP as modified.

   g. Estimate of current mix of Atlantic and Gulf migratory group Spanish mackerel in the mixing zone for use in tracSpanish quotas.

4. **Overfished and** Overfishing:

a. **Gulf group Spanish mackerel stocks in the Gulf of Mexico will be considered overfished if the probability that $B_{current}$ is less than MSST is greater than 50%. The minimum stock size threshold (MSST) is defined as (1-M)*B_{MSY} or 80% of B_{MSY}. Gulf group Spanish mackerel stocks and cobia stocks in the Gulf of Mexico will be considered overfished if the probability that $B_{current}$ is less than MSST is greater than 50%. The minimum stock size threshold (MSST) is defined as (1-M)*B_{MSY} or 70% of B_{MSY}.** ~~A mackerel stock or migratory group is considered to be overfished when the biomass is reduced below the MSST.~~

b. The South Atlantic Council's target level or OY is 40 percent static SPR. The Gulf Council's target level or optimum yield (OY) is **the yield corresponding to a fishing mortality rate (F_{OY}) defined as: F_{OY}=0.85*F_{MSY} when the stock is at equilibrium for Gulf group Spanish mackerel and the yield corresponding to a fishing mortality rate (F_{OY}) defined as: F_{OY}=0.75*F_{MSY} when the stock is at equilibrium for Gulf group Spanish mackerel and cobia** ~~30 percent static SPR.~~ ABC is calculated based on **both MSY (defined for Gulf group Spanish and Spanish mackerel as the yield associated with $F_{30\% SPR}$ when the stock is at equilibrium and the yield associated with F_{MSY} when the stock is at equilibrium for cobia) and OY as well as the consideration of scientific uncertainty.** ~~the target level or optimum yield (SAFMC = 40 percent static SPR and GMFMC = 30 percent static SPR).~~

c. When a stock or migratory group is overfished (biomass is below MSST), a rebuilding program that makes consistent progress towards restoring stock condition must be implemented and continued until the stock is restored to **B_{MSY}** ~~MSY~~. The rebuilding program must be designed to achieve recovery within an acceptable time frame consistent with the National Standard Guidelines, and as specified by the Councils. The Councils will continue to rebuild the stock above MSY until the stock is restored to the management target (OY) if different from MSY.

d. ~~When a stock or migratory group is not overfished,~~ **T**he act of overfishing is defined as **MFMT = F_{MSY} and OFL is the yield associated with this level of fishing mortality. The Gulf group Spanish mackerel, Gulf group Spanish mackerel and Gulf group cobia stocks would be considered undergoing overfishing if the probability that $F_{current}$ is larger than F_{MSY} is greater than 50%.** ~~a static SPR that exceeds the threshold of 30 percent (i.e., $F_{30 percent}$ or MFMT).~~ If fishing mortality rates that exceed the level associated with **these thresholds** ~~the static SPR threshold~~ are maintained, the stock**s** may become overfished. Therefore, if overfishing is occurring, a program to reduce fishing mortality rates toward management target levels (OY) will be implemented, even if the stock or migratory group is not in an overfished condition.

e. **The stock assessment process should** ~~The Councils have requested the Mackerel Stock Assessment Panel (MSAP)~~ provide a range of possibilities and options for specifying B_{MSY} and the MSST.

f. For species when there is insufficient information to determine whether the stock or migratory group is overfished, overfishing is defined as a fishing mortality rate in excess of the fishing mortality rate corresponding to a default threshold static SPR of 30 percent, which is the MFMT. If overfishing is occurring, a program to reduce fishing mortality rates to at least the level corresponding to management target levels will be implemented.

5. Management options. If recreational or commercial fishermen have achieved or are expected to achieve their allocations, the **stock assessment** ~~Panel~~ may **include** ~~delineate~~ possible options for non-quota restrictions on harvest, including effective levels for such actions as:

   a. Bag limits.
   b. Size limits.
   c. Gear restrictions.
   d. Vessel trip limits.
   e. Closed season or areas, and
   f. Other options as requested by the Councils.

6. **The stock assessment process may also evaluate and provide recommendations for** ~~The Panels may also recommend~~ more appropriate levels or statements for the MSY (or proxy), OY, MFMT, ~~and~~ MSST**, OFL and ABC** for any stock, including ~~their~~ rationale for the proposed change**s**.

7. Other biological questions, as appropriate, **may also be addressed through the stock assessment process**.

B. **The stock assessment process** ~~The Panel~~ will **develop** ~~prepare~~ a written report with ~~its~~ recommendations for submission to the councils **and their SSCs** ~~each year (even years - full assessment, odd years - mini assessments)~~ by such date as may be specified by the councils **in coordination with NMFS**. The report will contain the scientific basis for ~~their~~ recommendations and indicate the degree of reliability **and uncertainty** which the Council should place on the recommended stock divisions, levels of catch, ~~and~~ options for non-quota controls of the catch**, and any other recommendations**.

C. The Councils may take action based on the ~~panel~~ report or may take action based on issues/information that surface separate from the **report** ~~assessment group~~. The steps are as follows:

1. **The stock assessment process** ~~Assessment panel~~ report: The councils **and their SSCs** will consider the report and recommendations ~~of the Panel~~ and such public comments as are relevant to the ~~Panel's~~ report. Public hearings will be held at the time and place where the councils consider the ~~Panel's~~ report. The councils will consult their Advisory Panels and Scientific and Statistical Committees to review the report and provide advice prior to taSpanish final action. After receiving public input, the councils will make findings on the need for changes.

2. Information separate from **the stock assessment process** ~~assessment panel~~ report: The Councils will consider information that surfaces separate from **the stock**

assessment process ~~the assessment group~~. **The** Councils' staff will compile the information and analyze the impacts of likely alternatives to address the particular situation. The councils' staff report will be presented to the councils. A public hearing will be held at the time and place where councils consider the Councils' staff report. The council**s will** consult their Advisory Panels and Scientific and Statistical Committees to review the report and provide advice prior to taSpanish final action. After receiving public input, the councils will make findings on the need for changes.

D. If changes are needed in the following, the councils will advise the Regional Administrator (RA) of the Southeast Region of the National Marine Fisheries Service in writing of their recommendations, accompanied by the **stock assessment process report, staff reports,** ~~assessment panel's report~~, relevant background material, and public comments, **as appropriate**:

a. MSY or B_{MSY} (or proxies),
b. overfishing levels (MFMT) and overfished levels (MSST),
c. TACs and OY statements,
d. OFL, ABC, ACL, and possibly ACT
e~~d~~. quotas (including zero quotas),
f~~e~~. trip limits,
g~~f~~. bag limits (including zero bag limits),
h~~g~~. minimum sizes,
~~ih~~. reallocation of Atlantic group Spanish mackerel,
~~ji~~. gear restriction (ranging from modifying current regulations to a complete prohibition),
~~kj~~. permit requirements, or
~~lk~~. season/area closure and reopening (including spawning closure).
m. zones, subzones, and migratory group boundaries
n. allocations

Recommendations with respect to the Atlantic migratory groups of Spanish and Spanish mackerel **and cobia** will be the responsibility of the South Atlantic Council, and those for the Gulf migratory groups of Spanish and Spanish mackerel **and cobia** will be the responsibility of the Gulf Council. Except that the SAFMC will have responsibility to set vessel trip limits, closed seasons or areas, or gear restrictions for the northern area of the Eastern Zone (Dade through Volusia Counties, Florida) for the commercial fishery for Gulf group Spanish mackerel. ~~This report shall be submitted by such data as may be specified by the Councils.~~

For stocks~~, such as cobia,~~ where scientific information indicates it is a common stock that migrates through the Gulf and South Atlantic jurisdictions, both councils must concur on the recommendations. For other stocks~~, such as bluefish, cero, and little tunny, there is no scientific information that shows they are common stocks, and~~ each council will separately make management recommendations for these stocks in their jurisdictions.

E. The RA will review the councils' recommendations, supporting rationale, public comments and other relevant information, and if the RA concurs with the recommendations, the RA will draft regulations in accordance with the recommendations. The RA may also reject **any** ~~the~~ recommendation, providing written reasons for rejection. In the event the RA rejects **a** ~~the~~ recommendation, existing regulations shall remain in effect until resolved. However, if the RA finds that a proposed recreational bag limit for Gulf migratory group or groups of Spanish

mackerels is likely to exceed the allocation and rejects the Council**'s'** ~~'~~ recommendation, the bag limit reverts to one fish per person per day.

F. If the RA concurs that the councils' recommendations are consistent with the goals and objectives of the plan, the National Standards, and other applicable law, the RA shall implement the regulations by proposed and final rules in the Federal Register prior to the appropriate fishing year or such dates as may be agreed upon with the councils. A reasonable period for public comment shall be afforded, consistent with the urgency, if any, of the need to implement the management measure.

Appropriate regulatory changes that may be implemented by the RA by proposed and final rules in the Federal Register are:

1. Adjustment of the overfishing level (MFMT) for Spanish and Spanish mackerels and **cobia** ~~other stocks~~. Specification of B_{MSY} and the MSST for the stocks. Respecification of levels or statements of OY and MSY (proxy).

2. Setting **ACLs** ~~total allowable catches (TACs)~~ for each stock or migratory group of fish which should be managed separately, as identified in the FMP provided:

   a. No **ACL** ~~TAC~~ may exceed the best point estimate of MSY ~~by more than 10 percent for more than one year.~~

   b. No **ACL** ~~TAC~~ may exceed the upper range of ABC **or the ABC recommended by the respective SSC** ~~if it results in overfishing~~ **~~(as previously defined)~~**.

   c. Downward adjustments of **ACL** ~~TAC~~ of any amount **(i.e. to ACT)** are allowed in order to protect the stock and prevent overfishing.

   d. Reductions or increases in allocations as a result of changes in the **ACL** ~~TAC~~ are to be as equitable as may be practical utilizing similar percentage changes to allocations for participants in a fishery.

3. Adjusting user group allocations in response to changes in **ACLs** ~~TACs~~ according to the formula specified in the FMP.

4. The reallocation of Atlantic Spanish mackerel between recreational and commercial fishermen may be made through the framework after consideration of changes in the social and/or economic characteristics of the fishery. Such allocation adjustments shall not be greater than a ten percent change in one year to either sector's allocation. Changes may be implemented over several years to reach a desired goal, but must be assessed each year relative to changes in TAC and social and/or economic impacts to either sector of the fishery.

5. Modifying (or implementing for a particular species):

   a. quotas (including zero quotas)
   b. trip limits
   c. bag limits (including zero bag limits)
   d. minimum sizes

e. re-allocation of Atlantic group Spanish mackerel by no more than 10 percent per year to either the commercial or recreational sector.
f. gear restriction (ranging from modifying current regulations to a complete prohibition)
g. permit requirements, or
h. season/area closures and re-openings (including spawning closure)
i. zones, subzones, migratory group boundaries and allocations

Authority is also granted to the RA to close any fishery, i.e., revert any bag limit to zero, and close and reopen any commercial fishery, once a quota has been established through the procedure described above; and such quota has been filled. When such action is necessary, the RA will recommend that the Secretary publish a notice in the Federal Register as soon as possible.

APPENDIX B – BASE FRAMEWORK PROCEDURE

This framework procedure provides standardized procedures for implementing management changes pursuant to the provisions of the FMP. There are two basic processes, the open framework process and the closed framework process. Open frameworks address issues where there is more policy discretion in selecting among various management options developed to address an identified management issue, such as changing a size limit to reduce harvest. Closed frameworks address much more specific factual circumstances, where the FMP and implementing regulations identify specific action to be taken in the event of specific facts occurring, such as closing a sector of a fishery after their quota has been harvested.

Open Framework:

1. Situations under which this framework procedure may be used to implement management changes include the following:

    a. A new stock assessment resulting in changes to the overfishing limit, acceptable biological catch, or other associated management parameters.

        In such instances the Council may, as part of a proposed framework action, propose an annual catch limit (ACL) or series of ACLs and optionally an annual catch target (ACT) or series of ACTs, as well as any corresponding adjustments to MSY, OY, and related management parameters.

    b. New information or circumstances.

        The Council will, as part of a proposed framework action, identify the new information and provide rationale as to why this new information indicates that management measures should be changed.

    c. Changes are required to comply with applicable law such as MSA, ESA, MMPA, or are required as a result of a court order.

        In such instances the Regional Administrator will notify the Council in writing of the issue and that action is required. If there is a legal deadline for taking action, the deadline will be included in the notification.

2. Open framework actions may be implemented in either of two ways, abbreviated documentation, or standard documentation process.

    a. Abbreviated documentation process. Regulatory changes that may be categorized as a routine or insignificant may be proposed in the form of a letter or memo from the Council to the Regional Administrator containing the proposed action, and the relevant biological, social and economic information to support the action. If multiple actions are proposed, a finding that the actions are also routine or insignificant must also be included. If the Regional Administrator concurs with the determination and approves the proposed action, the action will be implemented through publication of appropriate notification in the Federal Register. Actions that may be viewed as routine or insignificant include, among others:

i. Reporting and monitoring requirements,

ii. Permitting requirements,

iii. Bag and possession limit changes of not more than 1 fish,

iv. Size limit changes of not more than 10% of the prior size limit,

v. Vessel trip limit changes of not more than 10% of the prior trip limit,

vi. Closed seasons of not more than 10% of the overall open fishing season,

vii. Species complex composition,

viii. Restricted areas (seasonal or year-round) affecting no more than a total of 100 nautical square miles,

ix. Respecification of ACL, ACT or quotas that had been previously approved as part of a series of ACLs, ACTs or quotas,

x. Specification of MSY proxy, OY, and associated management parameters (such as overfished and overfishing definitions) where new values are calculated based on previously approved specifications,

xi. Gear restrictions, except those that result significant changes in the fishery, such as complete prohibitions on gear types,

xii. Quota changes of not more than 10%, or retention of portion of an annual quota in anticipation of future regulatory changes during the same fishing year,

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

i. Specification of ACTs or sector ACTs,

ii. Rebuilding plans and revisions to approved rebuilding plans,

iii. The addition of new species to existing limited access privilege programs (LAPP),

iv. Changes specified in section 4(a) that exceed the established thresholds.

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

4. Prior to taking final action on the proposed framework action, the Council may convene its SSC, SEP, or AP, as appropriate, to provide recommendations on the proposed actions.

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

6. For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA[1] and other applicable law.

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[1] SEC. 304. ACTION BY THE SECRETARY 16 U.S.C. 1854

(a) REVIEW OF PLANS.—

(1) Upon transmittal by the Council to the Secretary of a fishery management plan or plan amendment, the Secretary shall—

(A) immediately commence a review of the plan or amendment to determine whether it is consistent with the national standards, the other provisions of this Act, and any other applicable law; and

(B) immediately publish in the Federal Register a notice stating that the plan or amendment is available and that written information, views, or comments of interested persons on the plan or amendment may be submitted to the Secretary during the 60-day period beginning on the date the notice is published.

(2) In undertaking the review required under paragraph (1), the Secretary shall—

(A) take into account the information, views, and comments received from interested persons;

(B) consult with the Secretary of State with respect to foreign fishing; and

(C) consult with the Secretary of the department in which the Coast Guard is operating with respect to enforcement at sea and to fishery access adjustments referred to in section 303(a)(6).

(3) The Secretary shall approve, disapprove, or partially approve a plan or amendment within 30 days of the end of the comment period under paragraph (1) by written notice to the Council. A notice of disapproval or partial approval shall specify—

(A) the applicable law with which the plan or amendment is inconsistent;

(B) the nature of such inconsistencies; and

(C) recommendations concerning the actions that could be taken by the Council to conform such plan or amendment to the requirements of applicable law. If the Secretary does not notify a Council within 30 days of the end of the comment period of the approval, disapproval, or partial approval of a plan or amendment, then such plan or amendment shall take effect as if approved.

(4) If the Secretary disapproves or partially approves a plan or amendment, the Council may submit a revised plan or amendment to the Secretary for review under this subsection.

(5) For purposes of this subsection and subsection (b), the term "immediately" means on or before the 5th day after the day on which a Council transmits to the Secretary a fishery management plan, plan amendment, or proposed regulation that the Council characterizes as final.

(b) REVIEW OF REGULATIONS.—

(1) Upon transmittal by the Council to the Secretary of proposed regulations prepared under section 303(c), the Secretary shall immediately initiate an evaluation of the proposed regulations to determine whether they are consistent with the fishery management plan, plan amendment, this Act and other applicable law. Within 15 days of initiating such evaluation the Secretary shall make a determination and—

(A) if that determination is affirmative, the Secretary shall publish such regulations in the Federal Register, with such technical changes as may be necessary for clarity and an explanation of those changes, for a public comment period of 15 to 60 days; or

(B) if that determination is negative, the Secretary shall notify the Council in writing of the inconsistencies and provide recommendations on revisions that would make the proposed regulations consistent with the fishery management plan, plan amendment, this Act, and other applicable law.

(2) Upon receiving a notification under paragraph (1)(B), the Council may revise the proposed regulations and submit

Closed Framework:

1. Consistent with existing requirements in the FMP and implementing regulations, the Regional Administrator is authorized to conduct the following framework actions through appropriate notification in the Federal Register:

   a. Close or adjust harvest any sector of the fishery for a species, sub-species, or species group that has a quota or sub-quota at such time as projected to be necessary to prevent the sector from exceeding its sector-quota for the remainder of the fishing year or sub-quota season,

   b. Reopen any sector of the fishery that had been prematurely closed,

   c. Implement an in-season AM for a sector that has reached or is projected to reach, or is approaching (e.g., within x percent) or is projected to approach its ACL, or implement a post-season AM for a sector that exceeded its ACL in the current year.

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them to the Secretary for reevaluation under paragraph (1).
(3) The Secretary shall promulgate final regulations within 30 days after the end of the comment period under paragraph (1)(A). The Secretary shall consult with the Council before making any revisions to the proposed regulations, and must publish in the Federal Register an explanation of any differences between the proposed and final regulations.

APPENDIX C – BROAD FRAMEWORK PROCEDURE

This framework procedure provides standardized procedures for implementing management changes pursuant to the provisions of the FMP. There are two processes, the open framework process and the closed framework process. Open frameworks address issues where there is more policy discretion in selecting among various management options developed to address an identified management issue, such as changing a size limit to reduce harvest. Closed frameworks address much more specific factual circumstances, where the FMP and implementing regulations identify specific action to be taken in the event of specific facts occurring, such as closing a sector of a fishery after their quota has been harvested.

Open Framework:

1. The council may utilize this framework procedure to implement management changes in response to any additional information or changed circumstances.

   The Council will, as part of a proposed framework action, identify the new information and provide rationale as to why this new information requires that management measures be adjusted.

2. Open framework actions may be implemented at any time based on information supporting the need for adjustment of management measures or management parameters:

   a. Actions that may be implemented via the framework procedure include:

      i. Reporting and monitoring requirements,

      ii. Permitting requirements,

      iii. Bag and possession limits,

      iv. Size limits,

      v. Vessel trip limits,

      vi. Closed seasons,

      vii. Species complex composition, or inclusion of new species under existing IFQs,

      viii. Restricted areas (seasonal or year-round),

      ix. Respecification of ACL, ACT or quotas that had been previously approved as part of a series of ACLs, ACTs or quotas,

      x. Specification of MSY proxy, OY, and associated management parameters (such as overfished and overfishing definitions) where new values are calculated based on previously approved specifications,

xi. Gear restrictions, except those that result in significant changes in the fishery, such as complete prohibitions on gear types,

xii. Quota changes,

xiii. Specification of ACTs or sector ACTs,

xiv. Rebuilding plans and revisions to approved rebuilding plans,

xv. Any other measures deemed appropriate by the council.

3. The Council will initiate the open framework process to inform the public of the issue and develop potential alternatives to address the issue. The framework process will include the development of documentation and public discussion during one council meeting.

4. For all framework actions, the Council will provide the letter, memo, or the completed framework document along with proposed regulations to the Regional Administrator following final action by the Council.

5. For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA and other applicable law.

Closed Framework:

2. Consistent with existing requirements in the FMP and implementing regulations, the Regional Administrator is authorized to conduct the following framework actions through appropriate notification in the Federal Register:

a. Close or adjust harvest any sector of the fishery for a species, sub-species, or species group that has a quota or sub-quota at such time as projected to be necessary to prevent the sector from exceeding its sector-quota for the remainder of the fishing year or sub-quota season,

b. Reopen any sector of the fishery that had been prematurely closed,

c. Implement an in-season AM for a sector that has reached or is projected to reach, or is approaching (e.g., within x percent) or is projected to approach its ACL, or implement a post-season AM for a sector that exceeded its ACL in the current year,

d. Take any other immediate action specified in the regulations.

APPENDIX D – NARROW FRAMEWORK PROCEDURE

This framework procedure provides standardized procedures for implementing management changes pursuant to the provisions of the FMP. There are two basic processes, the open framework process and the closed framework process. Open frameworks address issues where there is more policy discretion in selecting among various management options developed to address an identified management issue, such as changing a size limit to reduce harvest. Closed frameworks address much more specific factual circumstances, where the FMP and implementing regulations identify specific action to be taken in the event of specific facts occurring, such as closing a sector of a fishery after their quota has been harvested.

Open Framework:

1. Situations under which this framework procedure may be used to implement management changes include only the following:

    a. A new stock assessment resulting in changes to the overfishing limit, acceptable biological catch, or other associated management parameters.

        In such instances the Council may, as part of a proposed framework action, propose an annual catch limit (ACL) or series of ACLs and optionally an annual catch target (ACT) or series of ACTs, as well as any corresponding adjustments to MSY, OY, and related management parameters.

2. Open framework actions may be implemented only in response to the above conditions.

    a. Actions that may be implemented via the framework procedure include only the following:

        i. Reporting and monitoring requirements,

        ii. Bag and possession limits,

        iii. Size limits,

        iv. Closed seasons,

        v. Restricted areas (seasonal or year-round),

        vi. Quotas.

3. The Council will initiate the open framework process to inform the public of the issue and develop potential alternatives to address the issue. The framework process will include the development of documentation and public discussion during at least three council meetings, and shall be discussed at separate public hearings within the areas most affected by the proposed measures.

4. Prior to taking final action on the proposed framework action, the Council shall convene its SSC, SEP, and AP to provide recommendations on the proposed actions.

5. For all framework actions, the Council will provide the letter, memo, or the completed framework document, and all supporting analyses, along with proposed regulations to the Regional Administrator in a timely manner following final action by the Council.

6. For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA and other applicable law. The Regional Administrator will provide the Council weekly updates on the status of the proposed measures.

Closed Framework:

3. Consistent with existing requirements in the FMP and implementing regulations, the Regional Administrator is authorized to conduct the following framework actions through appropriate notification in the Federal Register:

   a. Close or adjust harvest any sector of the fishery for a species, sub-species, or species group that has a quota or sub-quota at such time as projected to be necessary to prevent the sector from exceeding its sector-quota for the remainder of the fishing year or sub-quota season,

   b. Reopen any sector of the fishery that had been prematurely closed,

Implement an in-season AM for a sector that has reached or is projected to reach, or is approaching (e.g., within x percent) or is projected to approach its ACL, or implement a post-season AM for a sector that exceeded its ACL in the current year.

APPENDIX E – TABLES

Table 1. Trends of Fishing Mortality & Spawning Stock Biomass – GOM Stock

SSB VPA estimated value Million hydrated eggs					SSB/MSST				
Year	Deterministic	low CI	Median	upp CI	Year	Deterministic	low CI	Median	upp CI
1981	2123	2103	2111	2124	1981	0.811	0.804	0.807	0.812
1982	2036	2015	2023	2036	1982	0.778	0.770	0.773	0.779
1983	1555	1532	1541	1556	1983	0.594	0.586	0.589	0.595
1984	1590	1565	1574.5	1591	1984	0.607	0.598	0.602	0.608
1985	1502	1473	1484	1503	1985	0.574	0.563	0.567	0.575
1986	1532	1495	1509	1534	1986	0.585	0.572	0.577	0.586
1987	1590	1543	1561	1592	1987	0.607	0.590	0.597	0.608
1988	1731	1676	1697	1733	1988	0.661	0.641	0.649	0.662
1989	1748	1680	1706	1751	1989	0.668	0.643	0.652	0.669
1990	1885	1796	1830	1888	1990	0.720	0.687	0.700	0.722
1991	2040	1929	1972	2045	1991	0.779	0.738	0.754	0.782
1992	2215	2072	2126.5	2220	1992	0.846	0.792	0.813	0.849
1993	2245	2070	2137.5	2252	1993	0.857	0.792	0.817	0.861
1994	2265	2052	2134	2273	1994	0.865	0.785	0.816	0.869
1995	2210	1932	2038.5	2220	1995	0.844	0.739	0.779	0.849
1996	2340	1987	2123	2353	1996	0.894	0.760	0.811	0.900
1997	2443	2006	2174	2459	1997	0.933	0.767	0.831	0.940
1998	2509	1979	2185.5	2531	1998	0.958	0.757	0.835	0.967
1999	2658	2036	2286.5	2700	1999	1.015	0.779	0.874	1.032
2000	2788	2106	2396.5	2850	2000	1.065	0.806	0.916	1.089
2001	2876	2162	2487	2968	2001	1.098	0.828	0.951	1.134
2002	2873	2180	2526	3032	2002	1.097	0.834	0.966	1.159
2003	2872	2226	2578	3091	2003	1.097	0.851	0.987	1.180
2004	2955	2343	2728	3218	2004	1.129	0.896	1.043	1.227
2005	3285	2645	3116	3644	2005	1.255	1.012	1.191	1.394
2006	3921	3224	3846	4512	2006	1.498	1.237	1.471	1.725

F apical VPA Estimate Fishing Mortality Rate				
Year	Deterministic	low CI	Median	upp CI
1981	0.340	0.340	0.342	0.343
1982	1.008	1.008	1.012	1.014
1983	0.413	0.413	0.414	0.415
1984	0.427	0.427	0.429	0.430
1985	0.558	0.558	0.561	0.563
1986	0.556	0.556	0.561	0.565
1987	0.493	0.492	0.499	0.504
1988	0.368	0.367	0.383	0.393
1989	0.548	0.548	0.557	0.563
1990	0.422	0.421	0.439	0.449
1991	0.568	0.568	0.586	0.597
1992	0.713	0.711	0.732	0.745
1993	0.508	0.505	0.552	0.584
1994	0.681	0.679	0.707	0.724
1995	0.537	0.535	0.582	0.614
1996	0.378	0.375	0.420	0.451
1997	0.294	0.292	0.336	0.369
1998	0.313	0.311	0.362	0.401
1999	0.346	0.306	0.339	0.365
2000	0.313	0.259	0.286	0.313
2001	0.212	0.191	0.214	0.239
2002	0.177	0.158	0.185	0.220
2003	0.225	0.202	0.263	0.332
2004	0.223	0.176	0.210	0.257
2005	0.239	0.195	0.233	0.279
2006	0.288	0.212	0.254	0.313

Fcurr/ MFMT				
Year	Deterministic	low CI	Median	upp CI
1983	1.446	1.385	1.530	1.647
1984	1.434	1.376	1.520	1.637
1985	1.398	1.347	1.489	1.607
1986	1.343	1.294	1.431	1.544
1987	1.440	1.387	1.532	1.654
1988	1.613	1.558	1.726	1.863
1989	1.846	1.790	1.983	2.141
1990	1.754	1.713	1.899	2.053
1991	2.027	1.974	2.187	2.367
1992	1.866	1.829	2.032	2.199
1993	1.984	1.957	2.186	2.382
1994	1.942	1.924	2.169	2.373
1995	2.095	2.077	2.365	2.603
1996	1.898	1.889	2.159	2.379
1997	1.536	1.516	1.754	1.935
1998	1.267	1.233	1.424	1.570
1999	1.231	1.165	1.323	1.453
2000	1.273	1.153	1.290	1.412
2001	1.132	0.974	1.119	1.236
2002	0.854	0.738	0.843	0.942
2003	0.765	0.709	0.826	0.958
2004	0.778	0.692	0.810	0.952
2005	0.826	0.728	0.899	1.106
2006	0.827	0.714	0.828	0.969

Table 2. Trends of Fishing Mortality and Spawning Stock Biomass - Atlantic Stock

SSB VPA Estimated Value Million Hydrated Eggs				
Year	Deterministic	low CI	Median	upp CI
1981	4508	4496	4509	4551
1982	4568	4555	4569	4615
1983	4587	4573	4589	4640
1984	4498	4483	4500	4555
1985	4418	4400	4420	4483
1986	4275	4253	4277	4353
1987	4086	4059	4089	4182
1988	3873	3842	3877	3985
1989	3555	3520	3559	3682
1990	3545	3500	3550	3705
1991	3580	3520	3587	3797
1992	3369	3294	3377	3640
1993	3098	3010	3108	3416
1994	2962	2861	2973	3328
1995	2873	2753	2887	3307
1996	2847	2698	2864	3383
1997	2824	2643	2844	3474
1998	2701	2494	2722.5	3439
1999	2641	2410	2664.5	3433
2000	2640	2382	2658.5	3442
2001	2476	2194	2485.5	3258
2002	2377	2069	2374	3119
2003	2341	2000	2320	3008
2004	2365	1958	2336	3038
2005	2433	1973	2426.5	3102
2006	2443	1951	2476.5	3203

SSB/MSST				
Year	Deterministic	low CI	Median	upp CI
1981	2.468	2.463	2.470	2.492
1982	2.501	2.495	2.503	2.528
1983	2.512	2.505	2.514	2.541
1984	2.463	2.455	2.465	2.495
1985	2.419	2.410	2.421	2.455
1986	2.341	2.330	2.343	2.383
1987	2.237	2.224	2.240	2.290
1988	2.121	2.105	2.124	2.182
1989	1.947	1.928	1.950	2.015
1990	1.941	1.917	1.945	2.028
1991	1.960	1.928	1.965	2.078
1992	1.845	1.804	1.851	2
1993	1.696	1.648	1.703	1.869
1994	1.622	1.567	1.629	1.820
1995	1.573	1.508	1.582	1.808
1996	1.559	1.478	1.570	1.849
1997	1.546	1.448	1.559	1.898
1998	1.479	1.367	1.493	1.877
1999	1.446	1.320	1.459	1.872
2000	1.446	1.305	1.456	1.883
2001	1.356	1.202	1.361	1.782
2002	1.302	1.134	1.300	1.706
2003	1.282	1.095	1.271	1.647
2004	1.295	1.074	1.280	1.657
2005	1.332	1.081	1.329	1.697
2006	1.338	1.071	1.357	1.749

F Apical VPA Estimate Fishing Mortality Rate

Year	Deterministic	low CI	Median	upp CI
1981	0.442	0.440	0.442	0.443
1982	0.386	0.383	0.386	0.387
1983	0.382	0.378	0.381	0.382
1984	0.287	0.284	0.287	0.288
1985	0.441	0.437	0.441	0.442
1986	0.288	0.284	0.288	0.289
1987	0.208	0.205	0.208	0.209
1988	0.287	0.282	0.287	0.289
1989	0.219	0.213	0.219	0.220
1990	0.331	0.320	0.331	0.334
1991	0.311	0.297	0.311	0.316
1992	0.345	0.325	0.344	0.351
1993	0.318	0.293	0.317	0.326
1994	0.252	0.226	0.251	0.260
1995	0.361	0.318	0.360	0.376
1996	0.366	0.314	0.364	0.383
1997	0.390	0.320	0.388	0.416
1998	0.315	0.240	0.312	0.346
1999	0.233	0.165	0.230	0.264
2000	0.263	0.203	0.259	0.298
2001	0.285	0.248	0.287	0.305
2002	0.269	0.245	0.274	0.294
2003	0.358	0.284	0.362	0.406
2004	0.377	0.324	0.393	0.455
2005	0.344	0.296	0.373	0.458
2006	0.359	0.310	0.409	0.534

Fcurr/ MFMT

Year	Deterministic	low CI	Median	upp CI
1983	0.914	0.784	0.854	0.919
1984	0.745	0.637	0.695	0.749
1985	0.754	0.645	0.704	0.758
1986	1.010	0.863	0.943	1.016
1987	0.804	0.684	0.751	0.808
1988	0.613	0.521	0.572	0.616
1989	0.623	0.528	0.581	0.625
1990	0.669	0.566	0.625	0.672
1991	0.683	0.575	0.638	0.684
1992	0.815	0.680	0.762	0.817
1993	0.974	0.802	0.912	0.977
1994	0.937	0.758	0.878	0.940
1995	0.831	0.658	0.780	0.835
1996	0.906	0.703	0.852	0.913
1997	1.154	0.873	1.086	1.165
1998	1.025	0.746	0.965	1.043
1999	0.783	0.530	0.737	0.814
2000	0.705	0.477	0.666	0.739
2001	0.725	0.517	0.687	0.747
2002	0.718	0.551	0.684	0.740
2003	0.771	0.628	0.741	0.814
2004	0.893	0.725	0.877	0.983
2005	0.984	0.811	0.985	1.150
2006	1.006	0.869	1.076	1.306

Table 3. Proportions of Catch by Stock Unit at Different Boundaries in the FL East Coast

Deterministic Run Yield Landings Million Pounds – Gulf of Mexico

Projections Final Model

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	11.810	11.810	11.810	11.810	11.810	11.810
2008	17.130	12.610	14.778	13.162	11.513	14.394
2009	17.491	13.543	15.496	14.050	12.513	15.157
2010	16.286	13.223	14.791	13.640	12.357	14.526
2011	14.240	12.046	13.215	12.366	11.369	13.023
2012	12.432	10.834	11.715	11.080	10.300	11.576
2013	11.277	10.018	10.732	10.221	9.568	10.622
2014	10.503	9.438	10.053	9.614	9.041	9.958
2015	10.148	9.200	9.755	9.361	8.834	9.672
2016	9.886	9.015	9.533	9.165	8.669	9.456

Projections adjusted for Dade-Monroe management unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	10.823	10.823	10.823	10.823	10.823	10.823
2008	15.258	11.200	13.164	11.726	10.258	12.992
2009	15.535	12.006	13.768	12.486	11.124	13.602
2010	14.524	11.772	13.194	12.170	11.028	13.067
2011	12.823	10.826	11.900	11.137	10.242	11.816
2012	11.293	9.814	10.638	10.060	9.351	10.585
2013	10.326	9.145	9.822	9.351	8.753	9.785
2014	9.685	8.677	9.265	8.858	8.330	9.234
2015	9.384	8.480	9.014	8.647	8.159	8.990
2016	9.162	8.328	8.828	8.485	8.024	8.807

Projections adjusted for Council boundary management unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	10.005	10.005	10.005	10.005	10.005	10.005
2008	14.271	10.488	12.312	10.967	9.594	12.085
2009	14.548	11.252	12.891	11.690	10.413	12.683
2010	13.578	11.013	12.333	11.375	10.307	12.172
2011	11.940	10.088	11.080	10.369	9.535	10.968
2012	10.477	9.115	9.871	9.335	8.678	9.794
2013	9.549	8.467	9.084	8.650	8.097	9.026
2014	8.930	8.010	8.545	8.171	7.683	8.495
2015	8.643	7.820	8.305	7.967	7.518	8.262
2016	8.431	7.673	8.126	7.811	7.387	8.088

Projections status quo catch Mixing-winter all GOM unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	14.266	14.266	14.266	14.266	14.266	14.266
2008	25.155	18.371	21.663	19.286	16.868	17.167
2009	24.956	19.180	22.068	20.000	17.805	18.082
2010	22.862	18.481	20.754	19.143	17.346	17.577
2011	19.698	16.685	18.323	17.176	15.820	15.999
2012	16.837	14.775	15.946	15.135	14.118	14.257
2013	14.601	13.102	13.986	13.380	12.586	12.696
2014	12.897	11.693	12.416	11.925	11.263	11.354
2015	12.086	11.039	11.676	11.244	10.653	10.734
2016	11.548	10.591	11.177	10.781	10.232	10.307

Table 4. Proportions of Catch by Stock Unit at Different Boundaries in the FL East Coast

Deterministic Run Yield Landings Million Pounds - Atlantic

Projections Final Model

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	9.277	9.277	9.277	9.277	9.277	9.277
2008	9.453	6.669	8.170	7.291	6.391	9.504
2009	9.248	6.956	8.236	7.498	6.706	9.288
2010	9.154	7.240	8.344	7.718	7.017	9.184
2011	9.132	7.522	8.477	7.943	7.319	9.156
2012	8.860	7.476	8.314	7.851	7.295	8.880
2013	8.788	7.549	8.309	7.893	7.379	8.805
2014	8.794	7.665	8.369	7.985	7.507	8.810
2015	8.737	7.672	8.338	7.979	7.520	8.750
2016	8.704	7.685	8.327	7.981	7.538	8.717

Projections adjusted for Dade-Monroe management unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	10.264	10.264	10.264	10.264	10.264	10.264
2008	11.326	8.079	9.784	8.726	7.645	10.906
2009	11.205	8.493	9.965	9.062	8.096	10.843
2010	10.915	8.692	9.941	9.188	8.346	10.644
2011	10.548	8.743	9.791	9.172	8.447	10.363
2012	9.999	8.495	9.391	8.871	8.244	9.871
2013	9.738	8.421	9.220	8.762	8.194	9.642
2014	9.612	8.427	9.157	8.741	8.218	9.534
2015	9.501	8.392	9.079	8.692	8.195	9.432
2016	9.427	8.372	9.031	8.661	8.182	9.366

Projections adjusted for Council boundary management unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	11.082	11.082	11.082	11.082	11.082	11.082
2008	12.312	8.791	10.636	9.486	8.310	11.813
2009	12.192	9.247	10.842	9.858	8.807	11.762
2010	11.861	9.450	10.802	9.983	9.068	11.539
2011	11.432	9.480	10.611	9.940	9.154	11.211
2012	10.815	9.194	10.158	9.596	8.917	10.663
2013	10.516	9.099	9.957	9.463	8.850	10.401
2014	10.367	9.093	9.877	9.429	8.865	10.273
2015	10.242	9.052	9.789	9.372	8.836	10.159
2016	10.159	9.027	9.734	9.335	8.819	10.085

Projections status quo catch Mixing-winter all GOM unit

Year	F30%SPR	F40%SPR	F 85%SPR30	F 75%SPR30	F 65%SPR30	Fcurrent
2007	7.756	7.756	7.756	7.756	7.756	7.756
2008	8.710	6.149	7.535	6.729	5.902	8.071
2009	8.221	6.202	7.335	6.687	5.990	7.747
2010	7.981	6.340	7.291	6.757	6.153	7.619
2011	7.897	6.543	7.355	6.905	6.376	7.617
2012	7.502	6.347	7.050	6.665	6.199	7.271
2013	7.423	6.389	7.026	6.682	6.252	7.222
2014	7.405	6.466	7.055	6.737	6.338	7.229
2015	7.330	6.442	7.002	6.702	6.318	7.167
2016	7.293	6.444	6.982	6.695	6.325	7.139

APPENDIX F - ALTERNATIVES CONSIDERED BUT REJECTED

1. Section 2.13.3 ABC Control Rule and ABC for Atlantic Migratory Group King Mackerel

Alternative 5. Establish an ABC Control Rule where ABC is a percentage of OFL. The percentage is based upon the level of risk of overfishing (P*).
Alternative 5a. ABC=X% of OFL. The X% is based upon P* equals .20.
Alternative 5b. ABC=X% of OFL. The X% is based upon P* equals .30.
Alternative 5c. ABC=X% of OFL. The X% is based upon P* equals .40.
Alternative 5d. ABC=X% of OFL. The X% is based upon P* equals .50.

2. Section 2.13.4 OY for Atlantic Migratory Group King Mackerel

The IPT recommends that OY be folded into the ACL action based on NOAA GC and NMFS RA guidance provided at the September 2010 South Atlantic Council meeting; a similar approach is being taken in the South Atlantic Council's Comprehensive ACL Amendment. This would move the OY alternatives shown below to Appendix F, Alternatives Considered but Eliminated from Detailed Consideration.

~~Currently OY = the yield from fishing at a fishing mortality rate equal to 40%Spawning Potential Ratio; however, a value was not previously estimated. Based on the SEDAR 16 assessment and the Council's actions on other species, the following options are likely (Tables 2.13.2.1 and 2.13.3.1).~~

~~**Alternative 1.** No action. Currently OY = yield at $F_{40\%SPR}$ with no poundage estimated. However, using the updated projections yields a range of 8.40 – 9.20 million pounds.~~

~~**Alternative 2.** OY = 65% of the yield at $F_{30\%SPR}$ = 7.96 – 8.36 million pounds based on projections of expected median yields under a constant fishing mortality rate over the years 2011 through 2021.~~

~~**Alternative 3.** OY = 75% of the yield at $F_{30\%SPR}$ = 8.46 – 9.37 million pounds based on projections of expected median yields under a constant fishing mortality rate over the years 2011 through 2021.~~

~~**Alternative 4.** OY = 85% of the yield at $F_{30\%SPR}$ = 8.80 – 10.46 million pounds based on projections of expected median yields under a constant fishing mortality rate over the years 2011 through 2021.~~

~~**Alternative 5.** OY = yield at $F_{30\%SPR}$ = 9.36 – 12.84 million pounds based on projections of expected median yields under a constant fishing mortality rate over the years 2011 through 2021.~~

3. Section 2.13.5 Annual Catch Target for Atlantic Migratory Group King Mackerel

Alternative 2. The commercial sector ACT equals the commercial sector ACL.

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

Alternative 5. Allow roll-over of underages but not to exceed the ABC.

Sub-Alternative 5a. 100%
Sub-Alternative 5b. 50%

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

Alternative 3. Establish an ABC Control Rule where ABC equals OFL.

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

Alternative 4a. ABC=65%OFL.

Alternative 4b (Preferred). ABC=75%OFL.

Alternative 4c. ABC=85%OFL.

Alternative 5. Establish an ABC Control Rule where ABC is a percentage of OFL. The percentage is based upon the level of risk of overfishing (P*).

Alternative 5a. ABC=X% of OFL. The X% is based upon P* equals .20.

Alternative 5b. ABC=X% of OFL. The X% is based upon P* equals .30.

Alternative 5c. ABC=X% of OFL. The X% is based upon P* equals .40.

Alternative 5d. ABC=X% of OFL. The X% is based upon P* equals .50.

6. 2.16.4 Optimum Yield (OY) for Atlantic Migratory Group Spanish Mackerel

The IPT recommends that OY be folded into the ACL action based on NOAA GC and NMFS RA guidance provided at the September 2010 South Atlantic Council meeting; a similar approach is being taken in the South Atlantic Council's Comprehensive ACL Amendment. This would move the OY alternatives shown below to Appendix F, Alternatives Considered but Eliminated from Detailed Consideration.

~~Currently OY = the yield from fishing at a fishing mortality rate equal to 40%Spawning Potential Ratio; however, a value was not previously estimated. Based on the SEDAR 17 assessment and the Council's actions on other species, the following options are likely (Table 11).~~

~~**Alternative 1.** No action. Currently OY = yield at $F_{40\%SPR}$ with no poundage estimated. Based on the SEDAR 17 assessment, the yield at $F_{40\%SPR}$ is 11,458,000 pounds.~~

~~**Alternative 2.** OY = 65% of the yield at F_{MSY} = 10.608 million pounds.~~

~~**Alternative 3.** OY = 75% of the yield at F_{MSY} = 11.051 million pounds.~~

~~**Alternative 4.** OY = 85% of the yield at F_{MSY} = 11.320 million pounds.~~

~~**Alternative 5.** OY = the yield at $F_{30\%SPR}$ = 10.565 million pounds.~~

~~**Alternative 6.** OY = the yield at F_{max} = 6.598 million pounds.~~

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

Alternative 2. The commercial sector ACT equals the commercial sector ACL.

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

~~**Alternative 5.** Establish an ABC Control Rule where ABC is a percentage of OFL. The percentage is based upon the level of risk of overfishing (P*).~~

~~**Alternative 5a.** ABC=X% of OFL. The X% is based upon P* equals .20.~~

~~**Alternative 5b.** ABC=X% of OFL. The X% is based upon P* equals .30.~~

~~**Alternative 5c.** ABC=X% of OFL. The X% is based upon P* equals .40.~~

~~**Alternative 5d.** ABC=X% of OFL. The X% is based upon P* equals .50.~~

9. 2.19.4 Optimum Yield (OY) for Atlantic Migratory Group Cobia

The IPT recommends that OY be folded into the ACL action based on NOAA GC and NMFS RA guidance provided at the September 2010 South Atlantic Council meeting; a similar approach is being taken in the South Atlantic Council's Comprehensive ACL Amendment. This would move the OY alternatives shown below to Appendix F, Alternatives Considered but Eliminated from Detailed Consideration.

~~Currently OY = the yield from fishing at a fishing mortality rate equal to 40%Spawning Potential Ratio; however, a value was not previously estimated.~~

~~**Alternative 1.** No action. Currently OY = yield at $F_{40\%SPR}$ with no poundage estimated.~~

~~**Alternative 2.** OY = ACL.~~

~~**Alterantive 3.** OY = ACT.~~

~~**Discussion:**~~

10. Section 2.19.4 Allocations for Atlantic Migratory Group Cobia

Alternative 4. Define allocations for Atlantic migratory group cobia based upon landings from the ALS, MRFSS, and headboat databases. The allocation would be based on the following formula for each sector:

Sector apportionment = (50% * average of long catch range (lbs) 1986(or 1999)-2008) + (50% * average of recent catch trend (lbs) 2006-2008). The allocation would be xx% commercial, yy% for-hire, and zz% private recreational. Beginning in 2011, the commercial allocation would be _____ lbs gutted weight, the for-hire allocation would be _____ fish (_____ lbs gutted weight), and the private recreational allocation would be _____ fish (_____ lbs gutted weight). The commercial, for-hire, and private recreational allocations specified for 2011 would remain in effect beyond 2011 until modified.

11. Section 2.19.6a Commercial Sector ACT

Alternative 2. The commercial sector ACT equals the commercial sector ACL.

12.

APPENDIX G – DETAILED BAG LIMIT TABLES

Table G.1a. Spanish Mackerel percent reduction under various bag limits based on 2009 catches.

2009	Florida			Georgia			South Carolina			North Carolina		
Number Caught	Harvest in Number Fish	Percent	Cum. Percent	Harvest in Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
20										4480	1%	1%
19											0%	1%
18											0%	1%
17											0%	1%
16											0%	1%
15										53319	10%	11%
14										8599	2%	13%
13										11277	2%	15%
12										8243	2%	16%
11							7994	13%	13%	2464	0%	17%
10							**7267**	12%	**24%**	**15103**	3%	**20%**
9								0%	24%	28287	5%	25%
8								0%	24%	34455	7%	32%
7	26889	7%	7%				1199	2%	26%	36164	7%	39%
6	34164	9%	17%				11215	18%	44%	58060	11%	50%
5	34000	9%	26%					0%	44%	39805	8%	57%
4	53829	15%	41%	1034	13%	13%	4539	7%	51%	50228	10%	67%
3	56488	16%	57%	279	4%	17%	10878	17%	68%	47475	9%	76%
2	48825	13%	70%	150	2%	19%	11028	17%	86%	59194	11%	88%
1	108669	30%	100%	6199	81%	100%	8958	14%	100%	65098	12%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	362864	100%		7662	100%		63078	100%		522251	100%	

Table G.1b. Spanish Mackerel percent reduction under various bag limits based on 2008 catches.

2008	Florida			Georgia			South Carolina			North Carolina			Virginia		
Number Caught	Harvest in Number Fish	Percent	Cum. Percent	Harvest in Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
20															
19															
18	22738	2%	2%												
17		0%	2%												
16		0%	2%												
15	131792	12%	14%							107024	9%	9%			
14		0%	14%							12970	1%	10%			
13		0%	14%							6903	1%	11%			
12		0%	14%							55840	5%	16%	30945	13%	13%
11		0%	14%							12137	1%	17%	54701	23%	36%
10	**39832**	**4%**	**18%**							**64486**	**6%**	**22%**	**1765**	**1%**	**37%**
9		0%	18%							25343	2%	24%		0%	37%
8	49776	5%	22%				2035	2%	2%	133790	11%	36%	11849	5%	42%
7	118750	11%	33%				12979	11%	13%	95579	8%	44%	33574	14%	56%
6	83532	8%	41%				24201	21%	34%	92437	8%	52%	37482	16%	71%
5	104264	9%	50%	465	2%	2%	20167	17%	51%	113091	10%	62%		0%	71%
4	120942	11%	61%	1116	4%	5%	11520	10%	61%	109219	9%	71%	16824	7%	78%
3	130804	12%	73%		0%	5%	7470	6%	67%	109852	9%	81%	22384	9%	88%
2	142512	13%	86%	10765	37%	42%	18827	16%	83%	126541	11%	91%	7353	3%	91%
1	153829	14%	100%	16832	58%	100%	19372	17%	100%	99040	9%	100%	21836	9%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	1098771	100%		29178	100%		116571	100%		1164252	100%		238713	100%	

Table G.1c. Spanish Mackerel percent reduction under various bag limits based on 2007 catches.

2007	Florida			Georgia			South Carolina			North Carolina		
Number Caught	Harvest in Number Fish	Percent	Cum. Percent	Harvest in Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
36	24809	4%	4%									
20	11561	2%	6%									
19		0%	6%									
18		0%	6%									
17		0%	6%									
16		0%	6%									
15	71297	12%	18%							65490	13%	13%
14		0%	18%							8513	2%	15%
13		0%	18%								0%	15%
12	8761	1%	19%							7297	1%	16%
11	6365	1%	20%							13377	3%	19%
10	**23450**	**4%**	**24%**							**56174**	**11%**	**30%**
9	15613	3%	27%							11932	2%	32%
8	44085	7%	34%							21554	4%	37%
7	4046	1%	35%							11921	2%	39%
6	15035	2%	37%				5881	6%	6%	22102	4%	43%
5	64608	11%	48%				5683	5%	11%	39636	8%	51%
4	65556	11%	59%	447	3%	3%	34519	33%	44%	35232	7%	58%
3	23046	4%	63%	5251	40%	43%	22268	21%	65%	61912	12%	71%
2	73448	12%	75%	2030	15%	58%	14098	13%	78%	70748	14%	85%
1	150795	25%	100%	5525	42%	100%	23223	22%	100%	76937	15%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	602475	100%		13253	100%		105672			502825	100%	

Table G.1d. Spanish Mackerel percent reduction under various bag limits based on 2006 catches.

2006	Florida			Georgia			South Carolina			North Carolina		
Number Caught	Harvest in Number Fish	Percent	Cum. Percent	Harvest in Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
28	2560	1%	1%									
27	2468	1%	1%									
26		0%	1%									
25	2285	1%	2%									
24		0%	2%									
23		0%	2%									
22		0%	2%									
21		0%	2%									
20		0%	2%									
19		0%	2%									
18		0%	2%							913	0%	0%
17		0%	2%							863	0%	1%
16		0%	2%							0	0%	1%
15		0%	2%							3575	1%	2%
14		0%	2%							0	0%	2%
13		0%	2%							23875	8%	10%
12	19351	5%	6%							16745	6%	16%
11		0%	6%							1675	1%	16%
10	**66352**	**16%**	**22%**							**3045**	**1%**	**17%**
9	16275	4%	26%							13794	5%	22%
8	5216	1%	28%				911	2%	2%	10881	4%	26%
7	32145	8%	35%					0%	2%	9625	3%	29%
6	15197	4%	39%				273	1%	3%	27481	9%	38%
5	23033	6%	45%	567	20%	20%	0	0%	3%	36852	13%	51%
4	46414	11%	56%	454	16%	36%	0	0%	3%	21644	7%	58%
3	57831	14%	70%	0	0%	36%	4154	9%	12%	38560	13%	71%
2	63821	15%	85%	454	16%	52%	25993	59%	72%	36636	12%	84%
1	62064	15%	100%	1356	48%	100%	12487	28%	100%	48208	16%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	415012	100%		2831	100%		43818	100%		294372	100%	

Table G.1e. Spanish Mackerel percent reduction under various bag limits based on 2005 catches.

2005	Florida			Georgia			South Carolina			North Carolina		
Number Caught	Harvest in Number Fish	Percent	Cum. Percent	Harvest in Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent	Number Fish	Percent	Cum. Percent
20										8679	3%	3%
19										6505	2%	5%
18				6251	53%	53%				6163	2%	6%
17						53%					0%	6%
16						53%					0%	6%
15	116641	18%	18%			53%				11645	4%	10%
14		0%	18%			53%				11983	4%	14%
13	18221	3%	21%			53%					0%	14%
12	43879	7%	27%			53%				5207	2%	15%
11		0%	27%			53%					0%	15%
10	**56345**	**9%**	**36%**			**53%**				**8559**	**3%**	**18%**
9	24529	4%	40%			53%				6987	2%	20%
8	15025	2%	42%			53%				24149	7%	27%
7	11862	2%	44%			53%				15104	5%	32%
6	60164	9%	53%	1250	11%	64%	6842	10%	10%	15287	5%	36%
5	67393	10%	63%	347	3%	66%	353	0%	10%	22886	7%	43%
4	39960	6%	69%			66%	17384	24%	34%	27405	8%	51%
3	55949	9%	78%			66%	14997	21%	55%	43084	13%	64%
2	63961	10%	88%			66%	16033	22%	77%	56921	17%	82%
1	80089	12%	100%	3956	34%	100%	16326	23%	100%	60722	18%	100%
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	654018	100%		11804	100%		71935			331286		

Table G.2. Cobia percent reduction under various bag limits.

2009	**Florida**			**Georgia**			**South Carolina**			**North Carolina**					
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.			
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent			
2	1557	8%	8%	47	100%	100%	1453	37%	37%	0	0%	0%			
1	**18564**	**92%**	**100%**	**0**	0%	**100%**	**2523**	63%	**100%**	**5747**	100%	**100%**			
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%			
	20121	100%		47	100%		3976	100%		5747	100%				
2008	**Florida**			**Georgia**			**South Carolina**			**North Carolina**					
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.			
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent			
2	0	0%	0%	4893	22%	22%	2103	42%	42%	0	0%	0%			
1	**35083**	100%	**100%**	**17157**	78%	**100%**	**2890**	58%	**100%**	**4997**	100%	**100%**			
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%			
	35083	100%		22050	100%		4993	100%		4997	100%				
2007	**Florida**			**Georgia**			**South Carolina**			**North Carolina**			**Virginia**		
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent
2	2616	10%	10%	0	0%	0%	0	0%	0%	0	0%	0%	997	10%	10%
1	**22719**	90%	**100%**	**961**	100%	**100%**	**3450**	100%	**100%**	**2965**	100%	**100%**	**9212**	90%	**100%**
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%
	25335	100%		961	100%		3450	100%		2965	100%		10209	100%	
2006	**Florida**			**Georgia**			**South Carolina**			**North Carolina**					
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.			
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent			
2	3085	11%	11%	49	100%	100%	0	0%	0%	477	10%	10%			
1	**25115**	89%	**100%**	**0**	0%	**100%**	**2200**	100%	**100%**	**4240**	90%	**100%**			
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%			
	28200	100%		49	100%		2200	100%		4717	100%				
2005	**Florida**			**Georgia**			**South Carolina**			**North Carolina**					
Number	Harvest in			Harvest in											
Cobia	Number		Cum.	Number		Cum.	Number		Cum.	Number		Cum.			
Caught	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent	Fish	Percent	Percent			
2	0	0%	0%	30	100%	100%	0	0%	0%	9493	56%	56%			
1	**12092**	100%	**100%**	**0**	0%	**100%**	**994**	100%	**100%**	**7459**	44%	**100%**			
0	0	0%	100%	0	0%	100%	0	0%	100%	0	0%	100%			
	12092	100%		30	100%		994	100%		16952	100%				