South Atlantic Coastal Migratory Pelagics Framework Action 2013



February 2013

DRAFT





Environmental Assessment Regulatory Impact Review Fishery Impact Statement A publication of the South Atlantic Fishery Management Council pursuant to National Oceanic and Atmospheric Administration Award Number FNA10NMF4410012

Abbreviations and Acronyms Used in the FMP

ABC	acceptable biological catch	FMP	fishery management plan
ACL	annual catch limits	FMU	fishery management unit
AM	accountability measures	Μ	natural mortality rate
ACT	annual catch target	MARMAP	Marine Resources Monitoring Assessment and Prediction Program
В	a measure of stock biomass in either weight or other appropriate unit	MFMT	maximum fishing mortality threshold
B _{MSY}	the stock biomass expected to exist under equilibrium conditions when	MMPA	Marine Mammal Protection Act
	fishing at F _{MSY}	MRFSS	Marine Recreational Fisheries Statistics Survey
B _{OY}	the stock biomass expected to exist under equilibrium conditions when fishing at Fox	MRIP	Marine Recreational Information Program
B _{CURR}	The current stock biomass	MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
CDUE	actale more unit affort	MSST	minimum stock size threshold
DEIS	das fe anciente entre l'inne et statement	MSY	maximum sustainable yield
DEIS	drait environmental impact statement	NEPA	National Environmental Policy Act
EA	environmental assessment	NMFS	National Marine Fisheries Service
EEZ	exclusive economic zone	NOAA	National Oceanic and Atmospheric
EFH	essential fish habitat		Administration
F	a measure of the instantaneous rate of fishing mortality	OFL	overfishing limit
Facegor	fishing mortality that will produce a static SPR = 30%	OY	optimum yield
1 30%SPR		RIR	regulatory impact review
F _{CURR}	the current instantaneous rate of	SAMFC	South Atlantic Fishery Management Council
Б		SEDAR	Southeast Data Assessment and Review
F _{MSY}	the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B _{MSY}	SEFSC	Southeast Fisheries Science Center
		SERO	Southeast Regional Office
F _{OY}	the rate of fishing mortality expected	SIA	social impact assessment
	conditions and a corresponding	SPR	spawning potential ratio
FEIS	final environmental impact statement	SSC	Scientific and Statistical Committee
	mar environmental impact statement		

South Atlantic Coastal Migratory Pelagics Framework Action with Environmental Assessment, Regulatory Impact Review, and Fishery Impact Statement

Proposed action:	
Lead agency:	FMP Amendment – South Atlantic Fishery Management Council Environmental Assessment – National Marine Fisheries Service (NMFS) Southeast Regional Office
For Further Information Contact:	Robert K. Mahood South Atlantic Fishery Management Council 4055 Faber Place, Suite 201 North Charleston, SC 29405 843-571-4366 866-SAFMC-10 <u>Robert.Mahood@safmc.net</u>
	Phil Steele NMFS, Southeast Region 263 13 th Avenue South St. Petersburg, FL 33701 727-824-5301 Phil.Steele@noaa.gov

Summary

Table of Contents

Summary	. III
List of Appendices	VII
List of Figures	/III
List of Tables	. IX
Chapter 1. Introduction	. 10
<i>1.1</i> What Actions Are Being Proposed?	. 10
1.2 Who is Proposing the Actions?	. 10
1.3 Why is the South Atlantic Council Considering Action?	. 11
1.4 Which species and areas would be affected by the actions?	. 12
Chapter 2. Proposed Actions	. 15
Action 1: Modify the Atlantic migratory group king mackerel minimum size lim	it.
15	
Action 2. Modify regulations for the Atlantic migratory group Spanish mackerel	
minimum commercial size limit.	. 17
Action 3. Modify restrictions on transfer-at-sea and gillnet allowances for Atlant	tic
migratory group Spanish mackerel.	. 18
Action 4. Modify the king mackerel commercial trip limit in the East Coast Florid	da
Subzone. 20	
Chapter 3. Affected Environment	. 23
3.1 Habitat Environment	. 23
3.1.1 Inshore/Estuarine Habitat	. 23
3.1.2. Offshore Habitat	23
3.1.3 Essential Fish Habitat	. 23
3.2 Biological and Ecological Environment	23
3.2.1 Fish Populations Affected by this Amendment	23
3.2.2 Protected Species	24
3.3 Human Environment	24
3.3.1 Economic Description of the Fishery	24
3.3.2 Social and Cultural Environment	24
3.3.2 Social and California Environmental Sector (FI)	24
3.5.5 Environmental Justice (EJ)	2-7
3.4.1. The Fishery Management Process and Applicable Laws	21
3.4.1.1 Federal Fishery Management	24
3.4.1.2 State Fishery Management	25
3 4 1 3 Enforcement	, 25 26
Chapter 4 Environmental Effects and Comparison of Alternatives	. 20
4.1 Action 1: Modify the Atlantic migratory group king mackaral minimum	. 21
4.1 Action 1. Mourry the Atlantic Inigratory group king macketer minimum	
A 1.1 Piological Effects	77
4.1.1 Diological Effects	. 27
4.1.2 ECONOMIC Effects	. 21 27
4.1.5 SOCIAL Effects	. 21
4.1.4 Administrative Effects	. 21
4.2 Action 2. Would regulations for the Atlantic inigratory group Spanish	20
mackerei minimum commercial size iimit	. 28

4.2.1	Biological Effects	28
4.2.2	Economic Effects	28
4.2.3	Social Effects	28
4.2.4	Administrative Effects	28
4.3	Action 3. Modify restrictions on transfer-at-sea and gillnet allowances for	or
Atlan	tic migratory group Spanish mackerel.	29
4.3.1	Biological Effects	29
4.3.2	Economic Effects	29
4.3.3	Social Effects	29
4.3.4	Administrative Effects	29
4.4	Action 4. Modify the king mackerel commercial trip limit in the East Co	ast
Flori	da Subzone	30
4.4.1	Biological Effects	30
4.4.2	Economic Effects	30
4.4.3	Social Effects	30
4.4.4	Administrative Effects	30
Chapter 5.	Council's Choice for the Preferred Alternatives	31
5.1	Action 1: Modify the Atlantic migratory group king mackerel minimum	
size l	imit. 31	
5.1.1	Mackerel Advisory Panel Comments and Recommendations	31
5.1.2	Law Enforcement Advisory Panel Comments and Recommendations	31
5.1.3	Scientific and Statistical Committee Comments and Recommendations	31
5.1.4	Public Comments and Recommendations	31
5.1.5	South Atlantic Council Choice for Preferred Alternative	31
5.2	Action 2. Modify regulations for the Atlantic migratory group Spanish	
mack	erel minimum commercial size limit	32
5.2.1	Mackerel Advisory Panel Comments and Recommendations	32
5.2.2	Law Enforcement Advisory Panel Comments and Recommendations	32
5.2.3	Scientific and Statistical Committee Comments and Recommendations	32
5.2.4	Public Comments and Recommendations	32
5.2.5	South Atlantic Council Choice for Preferred Alternative	32
5.3	Action 3. Modify restrictions on transfer-at-sea and gillnet allowances for	or
Atlan	tic migratory group Spanish mackerel.	33
5.3.1	Mackerel Advisory Panel Comments and Recommendations	33
5.3.2	Law Enforcement Advisory Panel Comments and Recommendations	33
5.3.3	Scientific and Statistical Committee Comments and Recommendations	33
5.3.4	Public Comments and Recommendations	33
5.3.5	South Atlantic Council Choice for Preferred Alternative	33
5.4	Action 4. Modify the king mackerel commercial trip limit in the East Co	ast
Flori	da Subzone	34
5.4.1	Mackerel Advisory Panel Comments and Recommendations	34
5.4.2	Law Enforcement Advisory Panel Comments and Recommendations	34
5.4.3	Scientific and Statistical Committee Comments and Recommendations	34
5.4.4	Public Comments and Recommendations	34
5.4.5	South Atlantic Council Choice for Preferred Alternative	34
Chapter 6.	Cumulative Effects	35

6.1 Biological	. 35
6.2 Socioeconomic	. 36
Chapter 7. List of Interdisciplinary Plan Team (IPT) Members	. 37
Chapter 8. Agencies and Persons Consulted	. 38
Chapter 9. References	. 39
Appendix A. Glossary	. 53
Appendix B. Alternatives Considered but Rejected	. 54
Appendix C. History of Management	. 55
Appendix D. Bycatch Practicability Analysis	. 56
Appendix E. Regulatory Impact Review	. 57
Appendix F. Regulatory Flexibility Analysis	. 58
Appendix G. Other Applicable Law	. 59

List of Appendices

Appendix A.	Glossary
Appendix B.	Alternatives Considered but Rejected
Appendix C.	History of Management
Appendix D.	Bycatch Practicability Analysis
Appendix E.	Regulatory Impact Review
Appendix F.	Regulatory Flexibility Analysis
Appendix G.	Other Applicable Law



List of Tables

No table of figures entries found.

Chapter 1. Introduction

1.1 What Actions Are Being Proposed?

Framework actions include a modification to the Atlantic migratory group king mackerel minimum size limit (recreational and/or commercial); an exemption from the minimum size limit for commercial pound net harvest of Atlantic migratory group Spanish mackerel; modifications to the prohibition on transfer of fish at sea for Atlantic migratory group Spanish mackerel and the restriction on the number of gillnets allowed for each Spanish mackerel vessel; and changes to the commercial trip limit for king mackerel in the Florida East Coast subzone.

1.2 Who is Proposing the Actions?

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing the actions with approval by the Gulf of Mexico Fishery Management Council. The South Atlantic Council develops the fishery management plans and amendments, and submits them to the National Marine Fisheries Service (NMFS) who ultimately approves, disapproves, or partially approves the actions in the amendment on behalf of the Secretary of Commerce. NMFS is an agency in the National Oceanic and Atmospheric Administration.





1.3 Why is the South Atlantic Council Considering Action?

Atlantic Migratory Group King Mackerel

Changes for the Atlantic migratory group king mackerel fishery are being considered in response to concern about lost opportunities to fish for the species due to the current system of trip limits, which may increase the rate of harvest causing the fishery to close before Lent, the most lucrative part of the fishing season. Additionally, Atlantic migratory group king mackerel fishermen have questioned the utility of the current size limit restriction on the species (24 inches fork length (FL)) because any undersize king mackerel they capture in gillnets, in excess of the 5% allowance, would be discarded dead.

Atlantic Migratory Group Spanish Mackerel

Atlantic migratory group Spanish mackerel caught in North Carolina waters with pound nets in late summer are often smaller in size and do not meet the 12-inch FL minimum size requirement. An exemption from the size limit during August and September would allow fishermen harvesting Spanish mackerel with pound nets to keep smaller Spanish mackerel to reduce discards and maximize economic benefits in the pound net sector.

The South Atlantic Council is considering allowing a portion of a third net to be transferred from a vessel that has met the Spanish mackerel trip limit to another vessel, which has not yet reached its trip limit. This provision is intended to reduce dead discards and minimize waste when catch in one net exceeds the trip limit for the vessel by allowing Spanish mackerel to be transferred at sea by vessels holding a valid federal commercial permit for Spanish mackerel. Additionally, this amendment would modify the rule restricting federally-permitted Spanish mackerel vessels to a maximum of two gillnets on board in order to allow the use of a third net for Spanish mackerel harvest.

Atlantic migratory group Spanish mackerel are currently managed through a complicated system of trip limit step-downs throughout the fishing year with separate trip limits the weekends during a specific time of the year, and no trip limit at all during other parts of the year. The South Atlantic Council may wish to streamline the management system for Atlantic migratory group Spanish mackerel to remove the use of the "adjusted quota" and various other elements currently contained in the management regime to increase efficiency of Spanish mackerel management in the South Atlantic.

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

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

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

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

The actions proposed in the amendment specifically help to meet FMP Objectives 1, 6, 7 and 8.

Purpose for Actions

The purpose of this amendment is to modify the following management measures in the Atlantic migratory group king mackerel and Atlantic migratory group Spanish mackerel: (1) minimum size limit for king mackerel, (2) regulations that prevent harvest of undersized Spanish mackerel in pound nets off of North Carolina, (3) the restrictions on transfer-at-sea and gillnet allowances for Spanish mackerel, (4) the king mackerel trip limit, and (5) the system of quota and trip limit adjustments for Spanish mackerel.

Need for Actions

The need for the action is to modify current king and Spanish mackerel regulations to minimize dead discards and reduce the potential of lost fishing opportunities for mackerel fishermen in the Atlantic, and optimize utilization of the resource, while minimizing adverse biological impacts.

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

Three species—king mackerel, Spanish mackerel, and cobia—are included in the Coastal Migratory Pelagic (CMP) Joint fishery management plan (FMP). The proposed actions in this amendment would affect king mackerel and Spanish mackerel, and could affect fishermen harvesting king mackerel and Spanish mackerel in the federal waters of North Carolina, South Carolina, Georgia, the east coast of Florida and the Florida Keys.

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

<u>King mackerel</u>: These two migratory groups seasonally mix off the East Coast of Florida and in Monroe County, Florida. For management and assessment purposes, a boundary between these migratory groups of king mackerel was specified at the Volusia/Flagler County border on the Florida east coast in the winter (November 1 - March 31) and the Monroe/Collier County border on the Florida southwest coast in the summer (April 1 - October 31) (Figures 1-1 and 1-2).

<u>Spanish mackerel</u>: Although these two migratory groups mix in south Florida, abundance trends along each coast of Florida are different, indicating sufficient isolation between the two migratory groups. Consequently, the boundary for Spanish mackerel is fixed at the Miami-Dade/Monroe County border on Florida's southeast coast (Figure 1-3). Within the Atlantic migratory group there are different regulations in Florida (Atlantic Migratory group South) and north of Florida (Atlantic Migratory group North).



Figure 1-1. King mackerel seasonal boundaries April 1-October 31



Figure 1-2. King mackerel seasonal boundaries November 1- March 31



Figure 1-3. Spanish mackerel boundaries

Chapter 2. **Proposed Actions**

Action 1: Modify the Atlantic migratory group king mackerel minimum size limit.

Alternative 1 (No Action). Do not change the Atlantic migratory group king mackerel minimum size limit of 24 inches fork length (FL) for the commercial and recreational sectors.

Alternative 2. Reduce the Atlantic migratory group king mackerel recreational and commercial minimum size limit to 23 inches FL.

Alternative 3. Reduce the Atlantic migratory group king mackerel recreational and commercial minimum size limit to 22 inches FL.

Alternative 4. Reduce the Atlantic migratory group king mackerel commercial minimum size limit to 23 inches FL for the commercial sector only, from the Georgia/Florida line south to the Miami-Dade/Monroe County line. The commercial minimum size limit in areas north of the Georgia/Florida state line and South of the Miami-Dade/Monroe County line would remain 24 inches FL. The recreational minimum size limit would remain 24 inches FL.

******These alternatives will be reviewed by the Council in March 2013; the language has not been approved.

Discussion

Amendment 9 to the Fishery Management Plan for the Coastal Migratory Pelagic Resource in the Southeast Region (Amendment 9) (1998) included an action to increase the minimum size limit for Gulf migratory group king mackerel from 20 inches FL to 24 inches FL with the intention of reducing risk of exceeding the total allowable catch (now known as an annual catch limit or ACL) and to improve likelihood that the fish would reach spawning size before harvest. The South Atlantic Fishery Management Council (South Atlantic Council) modified the Atlantic migratory group king mackerel minimum size limit from 20 inches FL to 24 inches FL through a Framework Adjustment in August 1998. The primary intention of the increased minimum size limit for both Gulf migratory group and Atlantic migratory group king mackerel in addition to the biological benefits noted by the Amendment 9 modification.

Recently the South Atlantic Council has resurrected discussions of the utility of the minimum size limit due to the increased chance of catching undersized king mackerel in late winter and early spring, and some concern about discard mortality, particularly in Florida. The South Atlantic Council is considering a reduction in the minimum size limit to reduce dead discards

and optimize use of the resource. There is no known harvest reduction target associated with this action.

Amendment 8 (GMFMC/SAFMC 1996) established the Councils' responsibilities for regulating the migratory groups of king mackerel, Spanish mackerel, and cobia, including allowing the South Atlantic Council to set regulations within what is now called the East Coast Subzone for Gulf migratory group king mackerel. Amendment 18 (GMFMC/SAFMC 2011) created a new framework for the CMP FMP that provided the Councils and NOAA Fisheries Service the flexibility to respond quickly to changes in the CMP fishery. Measures that can be changed under the procedure are identified, as well as the appropriate process needed for each type of change. However, the provision to allow each Council to set regulations in the East Coast Subzone was inadvertently not retained. Amendment 20 proposes to correct that omission, but until that amendment is approved, both Councils must approve any action affecting the CMP fishery.

Note from IPT: The action would also affect the Florida East Coast Subzone, which is considered to contain Gulf migratory group king mackerel from November 1 through March 31. The original framework allowed the South Atlantic Council to set management measures in this subzone (Amendment 8 1998); however, changes to the framework in Amendment 18 inadvertently omitted this provision. Through the framework modification proposed in Amendment 20, the South Atlantic Council would have that authority reinstated. However, until Amendment 20 is approved, the Gulf Council would need to approve any changes to management in this subzone.

Action 2. Modify regulations for the Atlantic migratory group Spanish mackerel minimum commercial size limit.

Alternative 1 (No Action). Continue to prohibit harvest of undersized Atlantic migratory group Spanish mackerel except for vessels fishing under a quota for Spanish mackerel specified in Section 622.42(c)(2), which may possess undersized Spanish mackerel in quantities not exceeding five percent, by weight, of the Spanish mackerel on board. The current commercial and recreational minimum size limit is 12 inches fork length (FL).

Alternative 2. Allow commercial harvest of undersized Atlantic migratory group Spanish mackerel in waters off North Carolina with pound nets between August 1 and September 30 each year.

Sub-Alternative 2a. Decrease the minimum size limit to 11 inches FL. **Sub-Alternative 2b.** Eliminate the minimum size limit.

Alternative 3. Allow commercial harvest of undersized Spanish mackerel with pound nets in waters within the Atlantic northern zone (GA-NY) between August 1 and September 30 each year.

Sub-Alternative 3a. Decrease the minimum size limit to 11 inches FL. **Sub-Alternative 3b.** Eliminate the minimum size limit.

******These alternatives will be reviewed by the Council in March 2013; the language has not been approved.

Discussion

Smaller Spanish mackerel in North Carolina waters in late summer are caught in pound nets but do not meet the 12-inch FL minimum size requirement. Reports from fishermen and North Carolina Division of Marine Fisheries indicate that smaller fish caught are around 11 inches, just below the minimum size limit. An exemption from the size limit during August and September would allow fishermen harvesting with pound nets to keep smaller Spanish mackerel and reduce discards. Sizes at first maturity differ depending the source. Males are thought to reach sexual maturity at 8 inches, while females are thought to reach sexual maturity at 11 inches, but other sources indicate females reach sexual maturity at 12 inches.

Action 3. Modify restrictions on transfer-at-sea and gillnet allowances for Atlantic migratory group Spanish mackerel.

Alternative 1 (No Action). No more than two gillnets, including any net in use, may be possessed at any one time; provided, however, that if two gillnets, including any net in use, are possessed at any one time, they must have stretched mesh sizes (as allowed under the regulations) that differ by at least .25 inch (.64 cm) (622.41(c)(3)(ii)(B)(3). A species subject to a trip limit specified in this section taken in the EEZ may not be transferred at sea, regardless of where such transfer takes place, and such species may not be transferred in the EEZ (§ 622.44).

Alternative 2: Modify commercial gear specifications for Atlantic migratory group Spanish mackerel.

Option a. Remove the maximum number of gillnets.Option b. Remove the requirement for different mesh sizes.Option c. Allow federally-permitted Spanish mackerel vessels to possess three gillnets.

Alternative 3. Allow transfer of a portion an Atlantic migratory group Spanish mackerel gillnet and its catch from one vessel that has reached its trip limit to another vessel that has not caught the trip limit.

- a) Transfer is allowed if directed harvesting gear used to harvest the Spanish mackerel being transferred is allowable net gear. Spanish mackerel harvested with other than directed allowable net harvesting gear shall not be transferred.
- b) Transfer shall only take place in the EEZ between vessels with valid Spanish mackerel commercial permits.
- c) The Spanish mackerel removed from the directed harvesting gear aboard the harvesting vessel shall be isolated aboard the vessel and shall not exceed the applicable daily vessel limit specified in this subsection. All fish exceeding the applicable daily vessel limit shall remain entangled in the meshes of the net until another vessel operated by a person possessing a valid permit (applicable to himself or the vessel) is within 50 yards of the vessel from which the transfer shall take place. The fish shall then be removed from the net in a continuous process and transferred singly or in a container to the second vessel. The quantity of fish transferred to any single vessel shall not exceed the applicable daily harvest limit.
- d) Vessels must transit together after transfer. Call-in and immediate termination of the fishing trip is required for both vessels.
- e) Transfer allowed [x] times per year per vessel.

******These alternatives will be reviewed by the Council in March 2013; the language has not been approved.

Discussion:

At times a vessel harvesting Spanish mackerel with gillnet will exceed the trip limit with one set. Overages are difficult to estimate when the gillnet is in the water and fish caught in this gear tend to not survive when released. Modification to the prohibition on trnasfer at sea and to gear specification for Spanish mackerel commercial harvest would provide provisions to allow part of the gillnet and its contents to be transferred to another vessel that has not met its trip limit would prevent waste in the fishery, because fish caught in gillnets have high discard mortality.

The South Atlantic Council considered allowing transfer at sea in the Spanish mackerel gillnet fishery when a trip limit had been exceeded in Amendment 8 but did not approve the alternative, concluding that transfer at sea precludes effective enforcement and may reduce the effectiveness of trip limits.

Action 4. Modify the king mackerel commercial trip limit in the East Coast Florida Subzone.

Alternative 1 (No Action). Retain the current commercial trip limit regulations in place for East Coast Florida Subzone king mackerel. In the Florida East Coast Subzone (Flagler/Volusia County line south to the Miami-Dade/Monroe County line, November 1 – March 31 each year), king mackerel in or from the EEZ may be possessed on board at any time or landed in a day from a vessel with a commercial permit for king mackerel as follows:

(A) From November 1 through January 31--not to exceed 50 fish.

(B) Beginning on February 1 and continuing through March 31--

(1) If 75 percent or more of the [Gulf group] Florida east coast subzone quota has been taken-- not to exceed 50 fish.

(2) If less than 75 percent of the [Gulf group] Florida east coast subzone quota has been taken --not to exceed 75 fish.

Alternative 2. Change the king mackerel commercial trip limit in the Florida East Coast Subzone to 50 fish for the entire fishing season (November 1- March 31). AP Recommended.

Alternative 3. Change the king mackerel commercial trip limit in the Florida East Coast Subzone to 75 fish for the entire fishing season (November 1- March 31).

IPT Suggestion Alternative 4. In the Florida East Coast Subzone, king mackerel in or from the EEZ may be possessed on board at any time or landed in a day from a vessel with a commercial permit for king mackerel as follows:

(A) From November 1 through January 31--not to exceed 50 fish.

(B) Beginning on March 1 and continuing through March 31--

(1) If 75 percent or more of the [Gulf group] Florida east coast subzone quota has been taken-- not to exceed 50 fish.

(2) If less than 75 percent of the [Gulf group] Florida east coast subzone quota has been taken --not to exceed 75 fish.

IPT Suggestion Alternative 5. In the Florida East Coast Subzone, king mackerel in or from the EEZ may be possessed on board at any time or landed in a day from a vessel with a commercial permit for king mackerel as follows:

(A) From November 1 through January 31--not to exceed <u>25 fish</u>.

(B) Beginning on February 1 and continuing through March 31--

(1) If 75 percent or more of the [Gulf group] Florida east coast subzone quota has been taken-- not to exceed <u>25 fish</u>.

(2) If less than 75 percent of the [Gulf group] Florida east coast subzone quota has been taken --not to exceed <u>50 fish</u>.

******These alternatives will be reviewed by the Council in March 2013; the language has not been approved.

Discussion

The trip limit increase was originally implemented at the request of king mackerel fishermen because they were not harvesting the full quota before the end of the fishing season (July 2000 Regulatory Amendment). However, the percentage of quota reached by king mackerel commercial landings in the past two years has decreased earlier in the year, triggering the trip limit increase when the king mackerel are abundant. This in turn allowed the quota to be filled quickly, requiring NMFS to close the subzone in February or March (Table 2-1) which is around Lent, the most profitable time of the year for these fishermen. The South Atlantic Council may wish to reverse this trend and implement measures to slow the rate of harvest by enough to extend fishing opportunities through the Lent season each year.



Figure 2-1. Gulf migratory group king mackerel Eastern zone subzones for A) November 1 – March 31 and B) April 1- October 31.

Table 2-1. Trip limit increases and closures dates for the Florida East Coast Subzone for the
most recent 12 years. Note: This area is considered to contain Atlantic migratory group king
mackerel beginning April 1, at which time harvesting can resume under the Atlantic quota.

Fishing Season	Trip limit increase to 75 fish?	Closure date
01/02	Yes	None
02/03	Yes	None
03/04	Yes	None
04/05	Yes	None
05/06	Yes	None
06/07	Yes	None
07/08	Yes	2/21/08

08/09	No	3/6/09
09/10	No	2/4/10 (reopened for an additional 6 days)
10/11	No	2/26/11
11/12	Yes	3/14/12
12/13	Yes	?

Chapter 3. Affected Environment

This section describes the affected environment in the proposed project area. The affected

	• Habitat environment (Section 3.1)	environment is divided into four
	• Biological environment (Section 3.2)	components:
	• Human environment (Sections 3.3)	
	• Administrative environment (Section 3.4)	
		3.1 Hab
itat	Environment	IIuo

3.1.1 Inshore/Estuarine Habitat

3.1.2 Offshore Habitat

- 3.1.3 Essential Fish Habitat
- 3.1.4 Habitat Areas of Particular Concern

3.2 Biological and Ecological Environment

3.2.1 Fish Populations Affected by this Amendment

3.2.2 Protected Species

3.3 Human Environment

3.3.1 Economic Description of the Fishery

3.3.2 Social and Cultural Environment

3.3.3 Environmental Justice (EJ)

3.4 Administrative Environment

3.4.1 The Fishery Management Process and Applicable Laws

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

Responsibility for federal fishery management decision-making is divided between the U.S. Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for collecting and providing the data necessary for the councils to prepare fishery management plans and for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act and with other applicable laws. In most cases, the Secretary has delegated this authority to NMFS.

The South Atlantic Council is responsible for conservation and management of fishery resources in federal waters of the U.S. South Atlantic. These waters extend from 3 to 200 mi offshore

from the seaward boundary of North Carolina, South Carolina, Georgia, and east Florida to Key West. The South Atlantic Council has thirteen voting members: one from NMFS; one each from the state fishery agencies of North Carolina, South Carolina, Georgia, and Florida; and eight public members appointed by the Secretary. On the South Atlantic Council, there are two public members from each of the four South Atlantic States. Non-voting members include representatives of the U.S. Fish and Wildlife Service, U.S. Coast Guard, State Department, and Atlantic States Marine Fisheries Commission (ASMFC). The South Atlantic Council has adopted procedures whereby the non-voting members serving on the South Atlantic Council Council level. South Atlantic Council members serve three-year terms and are recommended by state governors and appointed by the Secretary from lists of nominees submitted by state governors. Appointed members may serve a maximum of three consecutive terms.

Public interests also are involved in the fishery management process through participation on Advisory Panels and through council meetings, which, with few exceptions for discussing personnel matters, are open to the public. The South Atlantic Council uses its SSC to review the data and science being used in assessments and fishery management plans/amendments. In addition, the regulatory process is in accordance with the Administrative Procedure Act, in the form of "notice and comment" rulemaking.

3.4.1.2 State Fishery Management

The state governments of North Carolina, South Carolina, Georgia, and Florida have the authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. North Carolina's marine fisheries are managed by the Marine Fisheries Division of the North Carolina Department of Environment and Natural Resources. The Marine Resources Division of the South Carolina Department of Natural Resources regulates South Carolina's marine fisheries. Georgia's marine fisheries are managed by the Coastal Resources Division of the Department of Natural Resources. The Marine Fisheries Division of the Department of Natural Resources. The Marine Fisheries Division of the Department of Natural Resources. The Marine Fisheries Division of the Florida Fish and Wildlife Conservation Commission is responsible for managing Florida's marine fisheries. Each state fishery management agency has a designated seat on the South Atlantic Council. The purpose of state representation at the South Atlantic 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 South Atlantic States are also involved through the ASMFC in management of marine fisheries. This commission was created to coordinate state regulations and develop management plans for interstate fisheries. It has significant authority, through the Atlantic Striped Bass Conservation Act and the Atlantic Coastal Fisheries Cooperative Management Act, to compel adoption of consistent state regulations to conserve coastal species. The ASFMC is also represented at the South Atlantic Council level, but does not have voting authority at the South Atlantic Council level.

NMFS's 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 ASMFC to develop and implement cooperative State-Federal fisheries regulations.

3.4.1.3 Enforcement

Both the NMFS Office for Law Enforcement (NOAA/OLE) and the United States Coast Guard (USCG) have the authority and the responsibility to enforce South Atlantic Council regulations. NOAA/OLE agents, who specialize in living marine resource violations, provide fisheries expertise and investigative support for the overall fisheries mission. The USCG is a multi mission agency, which provides at sea patrol services for the fisheries mission.

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

NOAA General Counsel issued a revised Southeast Region Magnuson-Stevens Act Penalty Schedule in June 2003, which addresses all Magnuson-Stevens Act violations in the Southeast Region. In general, this penalty schedule increases the amount of civil administrative penalties that a violator may be subject to up to the current statutory maximum of \$120,000 per violation. The Final Penalty Policy was issued and announced on April 14, 2011 (76 FR 20959).

Chapter 4. Environmental Effects and Comparison of Alternatives

4.1 Action 1: Modify the Atlantic migratory group king mackerel minimum size limit.

- 4.1.1 Biological Effects
- 4.1.2 Economic Effects
- 4.1.3 Social Effects
- 4.1.4 Administrative Effects

4.2 Action 2. Modify regulations for the Atlantic migratory group Spanish mackerel minimum commercial size limit.

4.2.1 Biological Effects

- 4.2.2 Economic Effects
- 4.2.3 Social Effects
- 4.2.4 Administrative Effects

4.3 Action 3. Modify restrictions on transfer-at-sea and gillnet allowances for Atlantic migratory group Spanish mackerel.

4.3.1 Biological Effects

- 4.3.2 Economic Effects
- 4.3.3 Social Effects
- 4.3.4 Administrative Effects

4.4 Action 4. Modify the king mackerel commercial trip limit in the East Coast Florida Subzone.

4.4.1 Biological Effects

- 4.4.2 Economic Effects
- 4.4.3 Social Effects
- 4.4.4 Administrative Effects

Chapter 5. Council's Choice for the Preferred Alternatives

5.1 Action 1: Modify the Atlantic migratory group king mackerel minimum size limit.

5.1.1 Mackerel Advisory Panel Comments and Recommendations

5.1.2 Law Enforcement Advisory Panel Comments and Recommendations

5.1.3 Scientific and Statistical Committee Comments and Recommendations

5.1.4 Public Comments and Recommendations

5.1.5 South Atlantic Council Choice for Preferred Alternative

5.2 Action 2. Modify regulations for the Atlantic migratory group Spanish mackerel minimum commercial size limit.

5.2.1 Mackerel Advisory Panel Comments and Recommendations

5.2.2 Law Enforcement Advisory Panel Comments and Recommendations

- 5.2.3 Scientific and Statistical Committee Comments and Recommendations
- 5.2.4 Public Comments and Recommendations
- 5.2.5 South Atlantic Council Choice for Preferred Alternative

5.3 Action 3. Modify restrictions on transfer-at-sea and gillnet allowances for Atlantic migratory group Spanish mackerel.

5.3.1 Mackerel Advisory Panel Comments and Recommendations

- 5.3.2 Law Enforcement Advisory Panel Comments and Recommendations
- 5.3.3 Scientific and Statistical Committee Comments and Recommendations
- 5.3.4 Public Comments and Recommendations
- 5.3.5 South Atlantic Council Choice for Preferred Alternative

5.4 Action 4. Modify the king mackerel commercial trip limit in the East Coast Florida Subzone.

5.4.1 Mackerel Advisory Panel Comments and Recommendations

- 5.4.2 Law Enforcement Advisory Panel Comments and Recommendations
- 5.4.3 Scientific and Statistical Committee Comments and Recommendations
- 5.4.4 Public Comments and Recommendations
- 5.4.5 South Atlantic Council Choice for Preferred Alternative

Chapter 6. Cumulative Effects

6.1 Biological

6.2 Socioeconomic

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

Name	Agency/Division	Title
Kari MacLauchlin	SAFMC	Interdisciplinary plan team (IPT) Lead/Fishery Social Scientist
Kate Michie	SERO /SF	IPT Lead/Fishery Biologist
Adam Brame		
Shannon Calay		
Brian Cheuvront	SAFMC	Fishery Economist
Nancie Cummings		
David Dale	SERO /HC	EFH Specialist
Anne Marie Eich	SERO	Technical Writer and Editor
Nick Farmer	SERO	Biologist
Stephen Holiman	SERO /SF	Economist
Denise Johnson	SERO/SF	Economist
David Keys	NMFS	Regional NEPA Coordinator
Mara Levy	NOAA GC	GeneralCounsel
Christopher Liese	SEFSC	Economist
Jack McGovern	SERO/SF	Fishery Scientist
Andy Strelcheck	SERO/SF	Fishery Biologist
Gregg Waugh	SAFMC	Deputy Director

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

Chapter 8. Agencies and Persons Consulted

Responsible Agency South Atlantic Coastal Migratory Pelagics Framework Action 2013

South Atlantic Fishery Management Council 4055 Faber Place Drive, Suite 201 Charleston, South Carolina 29405 (843) 571-4366 (TEL) Toll Free: 866-SAFMC-10 (843) 769-4520 (FAX) safmc@safmc.net

Environmental Assessment:

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

List of Agencies, Organizations, and Persons Consulted

SAFMC Law Enforcement Advisory Panel SAFMC Snapper Grouper Advisory Panel SAFMC Scientific and Statistical Committee SAFMC Information and Education Advisory Panel North Carolina Coastal Zone Management Program South Carolina Coastal Zone Management Program Georgia Coastal Zone Management Program Florida Coastal Zone Management Program Florida Fish and Wildlife Conservation Commission Georgia Department of Natural Resources South Carolina Department of Natural Resources North Carolina Division of Marine Fisheries North Carolina Sea Grant South Carolina Sea Grant Georgia Sea Grant Florida Sea Grant Atlantic States Marine Fisheries Commission Gulf and South Atlantic Fisheries Development Foundation Gulf of Mexico Fishery Management Council National Marine Fisheries Service

- Washington Office
- Office of Ecology and Conservation
- Southeast Regional Office
- Southeast Fisheries Science Center

Chapter 9. References

- Acropora Biological Review Team (BRT). 2005. Atlantic Acropora Status Review Document. Report to National Marine Fisheries Service, Southeast Regional Office. March 3, 2005. 152pp + App.
- Adams, W.F. and C. Wilson. 1995. The status of the smalltooth sawfish, *Pristis pectinata* Latham 1794 (Pristiformes: Pristidae) in the United States. Chondros 6(4): 1-5.
- Allen, G.R. 1985. FAO species catalogue. Vol. 6. Snappers of the world. An annotated and illustrated catalogue of lutjanid species known to date. FAO Fish. Synop. 6(125):208 p.
- Alsop, III, F. J. 2001. Smithsonian Handbooks: Birds of North America eastern region. DK Publishing, Inc. New York, NY.
- Anderes Alvarez, B.A. and I. Uchida. 1994. Study of the Hawksbill turtle (*Eretmochelys imbricata*) stomach content in Cuban waters. In: Study of the Hawksbill turtle in Cuba (I), Ministry of Fishing Industry, Cuba.
- Bak, R.P.M., J.J.W.M. Brouns, and F.M.L. Hayes. 1977. Regeneration and aspects of spatial competition in the scleractinian corals *Agaricia agaricites* and *Monastrea annularis*. Proceedings of the 3rd International Coral Reef Symposium, Miami, pp 143-148.
- Bigelow, H.B. and W.C. Schroeder. 1953. Sawfishes, guitarfishes, skates and rays, pp. 1-514. In: Tee-Van, J., C.M Breder, A.E. Parr, W.C. Schroeder and L.P. Schultz (eds). Fishes of the Western North Atlantic, Part Two. Mem. Sears Found. Mar. Res. I.
- Bjorndal, K.A. 1980. Nutrition and grazing behavior of the green sea turtle, *Chelonia mydas*. Marine Biology 56:147.
- Bjorndal, K.A. 1997. Foraging ecology and nutrition of sea turtles. In: Lutz, P.L. and J.A. Musick (eds.), The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.
- Boardman, C. and D. Weiler. 1980. Aspects of the life history of three deep water snappers Proceeding of the Gulf Caribbean Fisheries Institute 32:158-172.
- Bolten, A.B. and G.H. Balazs. 1995. Biology of the early pelagic stage the "lost year." In: Bjorndal, K.A. (ed.), Biology and Conservation of Sea Turtles, Revised edition. Smithsonian Institute Press, Washington, D.C., 579.
- Brongersma, L.D. 1972. European Atlantic Turtles. Zool. Verhand. Leiden, 121:318
- Bullock L.H. and Smith G.B. 1991. Seabasses (Pisces: Serranidae). Florida Marine Research Institute, St. Petersburg, FL. Memoirs of the Hourglass Cruises. 243 p.

- Bullock, L. H., M. F. Godcharles, and R. E. Crabtree. 1996. Reproduction of yellowedge grouper, *Epinephelus flavolimbatus*, for the eastern Gulf of Mexico. Bull. Mar. Sci. 59:216-224.
- Burke, V.J., E.A. Standora, and S.J. Morreale. 1993. Diet of juvenile Kemp's ridley and loggerhead sea turtles from Long Island, New York. Copeia, 1993, 1176.
- Byles, R.A. 1988. Behavior and Ecology of Sea Turtles from Chesapeake Bay, Virginia. Ph.D. dissertation, College of William and Mary, Williamsburg, VA.
- Burns, K.M., C.C. Koenig, and F.C. Coleman. 2002. Evaluation of multiple factors involved in release mortality of undersized red grouper, gag, red snapper, and vermilion snapper. Mote Marine Laboratory Technical Report No. 790.
- Burns, K.M., N.F. Parnell, and R.R. Wilson. 2004. Partitioning release mortality in the undersized red snapper bycatch: comparison of depth versus hooking effects. Mote Marine Laboratory Technical Report No. 932.
- Carr, A. 1986. Rips, FADS, and little loggerheads. BioScience 36:92.
- Carr, A. 1987. New perspectives of the pelagic stage of sea turtle development. Conservation Biology 1(2):103.
- CEQ (Council on Environmental Quality). 1997. Considering Cumulative Effects Under the National Environmental Policy Act. U.S. Council on Environmental Quality, Washington, DC. 64 pp.
- Cass-Calay, S.L. and M. Bahnick. 2002. Status of the yellowedge grouper fishery in the Gulf of Mexico. Sustainable Fisheries Division Contribut ion No. SFD-02/03-172. NMFS, Southeast Fisheries Science Center, Miami, FL.
- Coleman, F.C., C.C. Koenig, G.R. Huntsman, J.A. Musick, A.M. Eklund, J.C. McGovern, R.W. Chapman, G.R. Sedberry, and C.B. Grimes. 2000. Long-lived reef fishes: The groupersnapper complex. Fisheries 25(3): 14-21.
- Collins, M.R., J.C. McGovern, G. R. Sedberry, H.S. Meister, and R. Pardieck. 1999. Swim bladder deflation in black sea bass and vermilion snapper: potential for increasing postrelease survival. North American. Journal of Fisheries Management. 19:828-832.
- Cooke, S.J., Philipp, D.P. Dunmall, K.M., and J.F. Schreer. 2001. The influence of terminal tackle on injury, handling time, and cardiac disturbance of rock bass. North American Journal of Fisheries Management. Vol. 21, no. 2, pp. 333-342.

Cutter, Susan L. Byron J. Boruff, and W. Lynn Shirley. 2003. Social Vulnerability to Environmental Hazards. Social Science Quarterly 84(2):242-261.

- Diamond, S.L. and M.D. Campbell. 2009. Linking "sink or swim" indicators to delayed mortality in red snapper by using a condition index. Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science. 1:107-120.
- Dooley, J.K. 1978. Malacanthidae. In W. Fischer (ed.) FAO species identification sheets for fishery purposes. Western Central Atlantic (Fishing Area 31). Volume 3. FAO, Rome.
- Eckert, S.A., D.W., Nellis, K.L., Eckert, and G.L., Kooyman. 1986. Diving patterns of two leatherback sea turtles (*Dermochelys coriacea*) during internesting intervals at Sandy Point, St. Croix, U.S. Virgin Islands. Herpetologica 42:381.
- Eckert, S.A., K.L., Eckert, P., Ponganis, and G.L., Kooyman. 1989. Diving patterns of two leatherback sea turtles (*Dermochelys coriacea*). Canadian Journal of Zoology 67:2834.
- EPA. 1999. EPA Region 4: Interim Policy to Identify and Address Potential Environmental Justice Areas. EPA-904-R-99-004.
- Frick, J. 1976. Orientation and behavior of hatchling green turtles (*Chelonia mydas*) in the sea. Animal Behavior 24:849.
- Froese, R. and D. Pauly, Editors. 2003. FishBase. World Wide Web electronic publication. www.fishbase.org, version 24 September 2003.
- Ghiold, J. and S. H. Smith. 1990. Bleaching and recovery of deep-water, reef-dwelling invertebrates in the Cayman Islands, BWI. Caribbean Journal of Science 26:52-61.
- GMFMC and SAFMC. 2011a. Amendment 18 to the Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region Including Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Act Analysis. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, FL 33607 and South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405
- GMFMC and SAFMC. 2011b. Amendment 10 to the Fishery Management Plan for Spiny Lobster in the Gulf of Mexico and South Atlantic Including Final Environmental Impact Statement, Regulatory Impact Review, and Regulatory Flexibility Act Analysis July 2011 Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, FL 33607 and South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405
- Goreau, T. F. and J. W. Wells. 1967. The shallow-water Scleractinia of Jamaica: revised list of species and their vertical range. Bulletin of Marine Science 17:442-453.
- Goreau, T. F. and N. I. Goreau. 1973. Coral Reef Project-Papers in Memory of Dr. Thomas F. Goreau. Bulletin of Marine Science 23:399-464.

- Grimes, C.B. 1987. Reproductive biology of the Lutjanidae: a review. Pages 239-294 In J.J. Polovina and S. Ralston (eds.) Tropical snappers and groupers: biology and fisheries management. Westview Press. Boulder, Colorado.
- Hannah, R.W., Parker, S.J., and K.M. Matteson. 2008. Escaping the surface: the effect of capture depth on submergence success of surface-released Pacific rockfish. North American Journal of Fisheries Management. 28: 694-700.
- Harris, P. J., D.M. Wyanski, and P.T.P. Mikell. 2004. Age, growth and reproductive biology of blueline tilefish along the southeastern coast of the United States, 1982–1999. Transactions of the American Fisheries Society 133, 1190–1204.
- Heemstra, P.C. and J.E. Randall. 1993. FAO species catalogue. Vol. 16. Groupers of the world. (Family Serranidae, Subfamily Epinephelinae). An annotated and illustrated catalogue of the grouper, rockcod, hind, coral grouper and lyretail species known to date. FAO Fish. Synops. 16(125).
- Holland, S. M., A. J. Fedler, and J. W. Milon. 1999. The Operation and Economics of the Charter and Headboat Fleets of the Eastern Gulf of Mexico and South Atlantic Coasts. University of Florida Office of research, Technology, and Graduate Education. Report prepared for the National Marine Fisheries Service. Grant Number NA77FF0553.
- Hughes, G.R. 1974. The sea-turtles of south-east Africa. II. The biology of the Tongaland loggerhead turtle Caretta caretta L. with comments on the leatherback turtle Dermochelys coriacea L. and green turtle Chelonia mydas L. in the study region. Oceanographic Research Institute (Durban) Investigative Report. No. 36.
- Huntsman, G.R., J.C. Potts, and R.W. Mays. 1993. Estimates of spawning stock biomass per recruit ratio based on catches and samples from 1991 for five species of reef fish from the U.S. South Atlantic. Report to the South Atlantic Fishery Management Council, June 1993. NMFS Beaufort Lab, 101 Pivers Island Road, Beaufort, NC, 28516-9722.
- Huntsman, G.R. and R.L. Dixon. 1976. Recreational catches of four species of groupers in the Carolina headboat fishery. Proceedings of the Annual Conference Southeastern Association of Game and Fish Commissioners. 29:185-194.
- IPCC. 2007: Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp.
- Jaap, W.C., W.G. Lyons, P. Dustan, and J.C. Halas. 1989. Stony coral (Scleractinia and Milleporina) community structure at Bird Key Reef, Ft. Jefferson National Monument, Dry Tortugas, Florida. Fla. Mar. Res. Publ. 46.

- Jepson, M., K. Kitner, A. Pitchon, W.W. Perry, and B. Stoffle. 2005. Potential fishing communities in the Carolinas, Georgia, and Florida: An effort in baseline profiling and mapping. NOAA Technical Report No. (TBD).
- Keener, P. 1984. Age, growth, and reproductive biology of the yellowedge grouper, *Epinephelus fiavolimbatus*. off the coast of South Carolina. M.S. Thesis, College of Charleston, Charleston, South Carolina. 65 p.
- Keinath, J.A. and J.A. Musick. 1993. Movements and diving behavior of a leatherback sea turtle, *Dermochelys coriacea*. Copeia 1993:1010.
- Lanyon, J.M., C.J. Limpus, and H., Marsh. 1989. Dugongs and turtles: grazers in the seagrass system. In: Larkum, A.W.D, A.J., McComb and S.A., Shepard (eds.) Biology of Seagrasses. Elsevier, Amsterdam, 610.
- Lewis, J.B. 1977. Suspension feeding in Atlantic reef corals and the importance of suspended particulate matter as a food source. Proceedings of the 3rd International Coral Reef Symposium. pp. 405-408.
- Liese, C., D.W. Carter, and R. Curtis. 2009. "Surveying the For-Hire Sector: Economic Heterogeneity in the Southeast Charter Boat Industry. Submitted to the Proceedings of the 5th World Recreational Fishing Conference".
- Limpus, C.J. and N. Nichols. 1988. The southern oscillation regulates the annual numbers of green turtles (*Chelonia mydas*) breeding around northern Australia. Australian Journal of Wildlife Research 15:157.
- Limpus, C.J. and N. Nichols. 1994. Progress report on the study of the interaction of El Niño Southern Oscillation on annual *Chelonia mydas* numbers at the southern Great Barrier Reef rookeries. In: Proceedings of the Australian Marine Turtle Conservation Workshop, Queensland Australia.
- Lutz, P.L. and J.A. Musick (eds.). 1997. The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.
- Lutz, P.L., J.A., Musick, and J. Wyneken (eds.). 2002. The Biology of Sea Turtles, Volume II. CRC Press, Boca Raton, Florida.
- MacDonald, L.H. 2000. Evaluating and managing cumulative effects: process and constraints. Environmental Management 26(3): 299-315.
- MacIntyre, I. G. and J. D. Milliman. 1970. Physiographic features on the outer shelf and upper slope, Atlantic Continental Margin, southeastern United States. Geological Society of America Bulletin 81:2577-2598.

Manooch, C.S. 1984. Fisherman's Guide: Fishes of the Southeastern United States. Raleigh,

NC: Museum of Natural History. 362 pp.

- Manooch, C.S. and D.L. Mason. 1987. Age and growth of warsaw grouper from the southeast region of the United States. Northeast Gulf Sci. 9(2):65-75.
- Márquez-M, R. 1994. Synopsis of biological data on the Kemp's ridley turtles, *Lepidochelys kempii* (Garman, 1880). NOAA Technical Memo, NMFS-SEFSC-343. Miami, FL.
- Matheson, R.H., III and G.R. Huntsman. 1984. Growth, mortality, and yield-per-recruit models for speckled hind and snowy grouper from the United States South Atlantic Bight. Transactions of the American Fisheries Society 113: 607-616.
- Mendonca, M.T. and P.C.H. Pritchard. 1986. Offshore movements of post-nesting Kemp's ridley sea turtles (*Lepidochelys kempi*). Herpetologica 42:373.
- Meylan, A. 1984. Feeding Ecology of the Hawksbill turtle (*Eretmochelys imbricata*): Spongivory as a Feeding Niche in the Coral Reef Community. Dissertation, University of Florida, Gainesville, FL.
- Meylan, A. 1988. Spongivory in hawksbill turtles: a diet of glass. Science 239:393-395.
- Meylan, A.B. and M. Donnelly. 1999. Status justification for listing the hawksbill turtle (*Eretmochelys imbricata*) as critically endangered on the 1996 IUCN Red List of Threatened Animals. Chelonian Conservation and Biology 3(2): 200-204.
- Miller, G. C. and W. J. Richards. 1979. Reef fish habitat, faunal assemblages and factors determining distributions in the South Atlantic Bight. Proceedings of the Gulf and Caribbean Fisheries Institute 32:114-130.
- Moore, C.M. and R.F. Labinsky. 1984. Population parameters of a relatively unexploited stock of snowy groupers in the lower Florida Keys. Trans. Am. Fish. Soc. 113:322-329.
- Mortimer, J.A. 1981. The feeding ecology of the West Caribbean green turtle (*Chelonia mydas*) in Nicaragua. Biotropica 13:49.
- Mortimer, J.A. 1982. Feeding ecology of sea turtles. In: Bjorndal, K.A. (ed.), Biology and Conservation of Sea Turtles. Smithsonian Institute Press, Washington, D.C.
- Murray, P.A., L.E. Chinnery, and E.A. Moore. 1988. The recruitment of the queen snapper *Etelis oculatus* Val., into the St. Lucian fishery: Recruitment of fish and recruitment of fishermen. Proceedings of the Gulf and Caribbean Fisheries Institute 41:297-303.
- Naranjo, A. 1956. Cordel y anzuelo. Editorial Cenit, La Habana, Cuba. 251 pp.
- Newton J.G., O.H. Pilkey, and J.O. Blanton. 1971. An Oceanographic Atlas of the Carolina and continental margin. North Carolina Dept. of Conservation and Development. 57 p.

- NMFS (National Marine Fisheries Service). 2006. Endangered Species Act section 7 consultation on the Continued Authorization of Snapper-Grouper Fishing under the South Atlantic Snapper-Grouper Fishery Management Plan (RFFMP) and Proposed Amendment 13C. Biological Opinion. June 7.
- NMFS (National Marine Fisheries Service). 2009a. Fisheries Economics of the United States 2006. U.S. Depart. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-97. 158 p. Available at: <u>http://www.st.nmfs.gov/st5/publications/index.html</u>.
- NMFS (National Marine Fisheries Service). 2009b. "Economic Value of Angler Catch and Keep in the Southeast United States: Evidence from a Choice Experiment." NOAA SEFSC SSRG.
- NMFS (National Marine Fisheries Service). 2010. Interim Rule for Red Snapper. Federal Register, September 24, 2010 (Volume 75, Number 185).
- Norman, J. R. and F. C. Fraser. 1938. Giant Fishes, Whales and Dolphins. W. W. Norton and Company, Inc, New York, NY. 361 pp.
- Ogren, L.H. 1989. Distribution of juvenile and subadult Kemp's ridley turtles: Preliminary results from the 1984-1987 surveys. In: C.W. Caillouet Jr. and A.M. Landry Jr. (eds.) Proceedings from the 1st Symposium on Kemp's ridley Sea Turtle Biology, Conservation, and Management. Sea Grant College Program, Galveston, TX. 116.
- O'Hop, J., M. Murphy, and Chagaris, D. 2012. The 2012 stock assessment report for yellowtail snapper in the South Atlantic and Gulf of Mexico. Florida FWC, St. Petersburg, FL. 341 p.
- Paredes, R.P. 1969. Introduccion al Estudio Biologico de Chelonia mydas agassizi en el Perfil de Pisco, Master's thesis, Universidad Nacional Federico Villareal, Lima, Peru.
- Parker, R. O., D. R. Colby, and T. D. Willis. 1983. Estimated amount of reef habitat on a portion of the US South Atlantic and Gulf of Mexico continental shelf. Bulletin of Marine Science 33:935-940.
- Parker, Jr., R.O. and R.W. Mays. 1998. Southeastern U.S. deepwater reef fish assemblages, habitat characteristics, catches, and life history summaries. NOAA Tech. Report, National Marine Fisheries Service 138.
- Parker, Jr., R.O. and S. W. Ross. 1986. Observing reef fishes from submersibles off North Carolina. Northeast Gulf Science 8(1): 31-49.
- Parker, S.J., McElderry, H.I., Rankin, P.S., and R.W. Hannah. 2006. Buoyancy regulation and barotrauma in two species of nearshore rockfish. Transactions of the American Fisheries Society. 135: 1213-1223.

- Porter, J.W. 1976. Autotrophy, heterotrophy, and resource partitioning in Caribbean reefbuilding corals. American Naturalist 110: 731-742.
- Potts, J.C., M.L. Burton, and C.S. Manooch, III. 1998. Trends in catch data and static SPR values for 15 species of reef fish landed along the southeastern United States. Report for South Atlantic Fishery Management Council, Charleston, SC.
- Potts, J.C. and K. Brennan. 2001. Trends in catch data and static SPR values for 15 species of reef fish landed along the southeastern United States. Report for South Atlantic Fishery Management Council, Charleston, SC.
- Poulakis, G. R. and J. C. Seitz. 2004. Recent occurrence of the smalltooth sawfish, *Pristis pectinata* (Elasmobranchiomorphi: Pristidae), in Florida Bay and the Florida Keys, with comments on sawfish ecology. Florida Scientist 67(27): 27-35.
- Robins, C.R. 1967. The juvenile of the serranid fish *Epinephelus mystacinus* and its status in Florida waters. Copeia 1967(4):838-839.
- Robins, C.R. and G.C. Ray. 1986. A field guide to Atlantic coast fishes of North America. Houghton Mifflin Company, Boston, U.S.A. 354 p.
- Ross, S.W. 1978. Life history aspects of the gray tilefish *Caulolatilus microps* (Goode and Bean, 1878). M.S. Thesis, College of William and Mary, Williamsburg, VA. 125 p.
- Ross, S.W. and G.R. Huntsman. 1982. Age, growth, and mortality of blueline tilefish from North Carolina and South Carolina. Trans. Am. Fish. Soc. 111:585-592.
- Rothschild, B.J. 1986. Dynamics of Marine Fish Populations. Harvard University Press. Cambridge, Massachusetts. 277pp.
- Rudershausen, P.J., J.A. Buckel and E.H. Williams. 2007. Discard composition and release fate in the snapper and grouper commercial hook-and-line fishery in North Carolina, USA, Fish. Man. Ecol. 14:103–113.
- Rummer, J.L. and W.A. Bennett. 2005. Physiological effects of swim bladder overexpansion and catastrophic decompression on red snapper. Transactions of the American Fisheries Society. 134(6): 1457-1470.
- Rummer, J.L. 2007. Factors affecting catch and release (CAR) mortality in fish: Insight into CAR mortality in red snapper and the influence of catastrophic decompression. American Fisheries Society. 60:123-144.
- Rylaarsdam, K.W. 1983. Life histories and abundance patterns of colonial corals on Jamaican reefs. Marine Ecology Progress Series 13:249-260.

- SAFMC (South Atlantic Fishery Management Council). 1983. Fishery Management Plan, Regulatory Impact Review and Final Environmental Impact Statement for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699.
- SAFMC (South Atlantic Fishery Management Council). 1988. Regulatory Amendment 2 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.
- SAFMC (South Atlantic Fishery Management Council). 1991. Amendment Number 4, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 200 pp.
- SAFMC (South Atlantic Fishery Management Council). 1993. Amendment Number 6, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 155 pp.
- SAFMC (South Atlantic Fishery Management Council). 1998. Comprehensive Amendment Addressing Sustainable Fishery Act Definitions and Other Required Provisions in Fishery Management Plans of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 151 pp.
- SAFMC (South Atlantic Fishery Management Council). 2006. Amendment 13C, Final Environmental Assessment, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 631 pp.
- SAFMC (South Atlantic Fishery Management Council). 2007. Final Amendment 14, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2008a. Amendment 15A, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South

Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. 325 pp.

- SAFMC (South Atlantic Fishery Management Council). 2008b. Amendment 15B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. 325 pp.
- SAFMC (South Atlantic Fishery Management Council). 2009a. Amendment Number 16, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2009b. Fishery Ecosystem Plan for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2009c. Comprehensive Ecosystem-Based Amendment 1, Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. 272 pp.
- SAFMC (South Atlantic Fishery Management Council). 2010a. Amendment 17A, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2010b. Amendment 17B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2011a. Regulatory Amendment 10 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

- SAFMC (South Atlantic Fishery Management Council). 2011b. Regulatory Amendment 9 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2011c. Comprehensive Annual Catch Limit (ACL) Amendment of the South Atlantic Region including Snapper Grouper Amendment 25. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2011d. Amendment 24 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2011e. Comprehensive Ecosystem-Based Amendment 2 (CEBA 2). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2012a. Amendment 18A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2012b. Regulatory Amendment 11 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2012c. Regulatory Amendment 12 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2012d. Amendment 20A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- Sammarco, P.W. 1980. Diadema and its relationship to coral spat mortality: grazing, competition, and biological disturbance. Journal of Experimental Marine Biology and Ecology, 45:245-272.

- SEDAR 4. 2004. Stock Assessment Report 1. Stock assessment of the deep-water snappergrouper complex in the South Atlantic. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/
- SEDAR 2. 2005. Stock Assessment Report 3 (revised June, 2006). Report of stock assessment: Black sea bass. Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- SEDAR 7. 2005. Stock Assessment Report 1 (Gulf of Mexico Red Snapper). Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- SEDAR 9. 2006. Stock Assessment Report 1 (Gulf of Mexico Gray Triggerfish). Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- SEDAR 10. 2006. Stock assessment of gag in the South Atlantic. Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- SEDAR 15. 2008. Stock Assessment Report 1. South Atlantic Vermilion Snapper. Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- SEDAR 17. 2008. Stock Assessment Report 2. South Atlantic Greater Amberjack. Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- SEDAR 19. 2010. Stock Assessment Report 1 (South Atlantic and Gulf of Mexico Black Grouper); and Stock Assessment Report 2 (South Atlantic Red Grouper). Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- SEDAR 24. 2010. Stock Assessment Report. South Atlantic Red Snapper. Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- SEDAR 25. 2011. Stock Assessment Report. South Atlantic Black Sea Bass. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/
- SEDAR Update Assessment. 2012a. Stock Assessment of Vermilion Snapper off the southeastern U.S. Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- SEDAR Update Assessment. 2012b. Stock Assessment of Red Porgy off the southeastern U.S. Available from the SEDAR website: <u>www.sefsc.noaa.gov/sedar/</u>
- Shaver. D.J. 1991. Feeding ecology of wild and head-started Kemp's ridley sea turtles in south Texas waters. Journal of Herpetology 25:327.
- Simpfendorfer, CA. 2001. Essential habitat of the smalltooth sawfish, *Pristis pectinata*. Report to the National Fisheries Service's Protected Resources Division. Mote Marine Laboratory, Technical Report (786) 21pp.

- Simpfendorfer, C.A. and T.R. Wiley. 2004. Determination of the distribution of Florida's remnant sawfish population, and identification of areas critical to their conservation. Mote Marine Laboratory, Technical Report July 2, 2004, 37 pp.
- Smith, C.L. 1971. A revision of the American groupers: *Epinephelus* and allied genera. Bull. Am. Mus. Nat. Hist. 146:1-241.
- Soma, M. 1985. Radio biotelemetry system applied to migratory study of turtle. Journal of the Faculty of Marine Science and Technology, Tokai University, Japan, 21:47.
- Soong, K. and J. C. Lang. 1992. Reproductive integration in coral reefs. Biological Bulletin 183:418-431.
- Standora, E.A., J.R. Spotila, J.A. Keinath, and C.R. Shoop. 1984. Body temperatures, diving cycles, and movements of a subadult leatherback turtle, *Dermochelys coriacea*. Herpetologica 40:169.
- St. John, J. and C.J. Syers. 2005. Mortality of the demersal West Australian dhufish, (Richardson 1845) following catch and release: the influence of capture depth, venting and hook type. Fisheries Research. 76: 106-116.
- Sutton, S. G., R. B. Ditton, J. R. Stoll, and J. W. Milon. 1999. A cross-sectional study and longitudinal perspective on the social and economic characteristics of the charter and party boat fishing industry of Alabama, Mississippi, Louisiana, and Texas. Report by the Human Dimensions of Recreational Fisheries Research Laboratory, Texas A&M University, MARFIN program grant number NA77FF0551.
- Szmant, A. M. and M. W. Miller. 2006. Settlement preferences and post-settlement mortality of laboratory cultured and settled larvae of the Caribbean hermatypic corals *Montastraea faveolata* and *Acropora palmata* in the Florida Keys, USA. Proceedings of the 10th International Coral Reef Symposium.
- Thayer, G.W., K.A. Bjorndal, J.C. Ogden, S.L. Williams, and J.C. Zieman. 1984. Role of large herbivores in seagrass communities. Estuaries 7:351.
- Thompson, R. and J.L. Munro. 1974. The biology, ecology and bionomics of Caribbean reef fishes: Lutjanidae (snappers). Zoology Dep., Univ. West Indies, Kingston, Jamaica Res. Rep. 3.
- Van Dam, R. and C. Diéz. 1997. Predation by hawksbill turtles on sponges at Mona Island, Puerto Rico. pp. 1421-1426 Proc. 8th International Coral Reef Symposium, v. 2.
- Van Voorhees, D., J.W. Schlechte, D.M. Donaldson, T.R. Sminkey, K.J. Anson, J.R. O'Hop, M.D.B. Norris, J.A. Shepard, T. Van Devender, and R.F. Zales, II. 2000. The new Marine Fisheries Statistics Survey method for estimating charter boat fishing effort. Abstracts of the 53rd Annual Meeting of the Gulf and Caribbean Fisheries Institute.

- Walker, T.A. 1994. Post-hatchling dispersal of sea turtles. p. 79. In: Proceedings of the Australian Marine Turtle Conservation Workshop, Queensland Australia.
- Wilde, G.R. 2009. Does venting promote survival of released fish? Fisheries Management. 34(1): 20-28.
- Williams, E. H. and L. Bunkley-Williams. 1990. The worldwide coral reef bleaching cycle and related sources of coral mortality. Atoll Research Bulletin 335:1-71.
- Witzell, W.N. 2002. Immature Atlantic loggerhead turtles (*Caretta caretta*): suggested changes to the life history model. Herpetological Review 33(4):266-269.
- Wyanski, D.M., D.B. White, and C.A. Barans. 2000. Growth, population age structure, and aspects of the reproductive biology of snowy grouper, *Epinephelus niveatus*, off North Carolina and South Carolina. Fish. Bull. 126:199-218.
- Ziskin, G.L. 2008. Age, growth, and reproduction of speckled hind, *Epinephelus drummondhayi*, off the Atlantic coast of the Southeast United States. Master's Thesis, The Graduate School of The College of Charleston. 120 pp.



Appendix B. Alternatives Considered but Rejected

Appendix C. History of Management

Appendix D. Bycatch Practicability Analysis

Appendix E. Regulatory Impact Review

Appendix F. Regulatory Flexibility Analysis

Appendix G. Other Applicable Law