

# **Modifications to the Annual Catch Limits using the Marine Recreational Information Program**

## **Draft Framework Action to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico**

**Including Environmental Assessment,  
Regulatory Impact Review,  
and Regulatory Flexibility Act Analysis**

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# ENVIRONMENTAL ASSESSMENT COVER SHEET

## Name of Action

Modifications to the Annual Catch Limits using the Marine Recreational Information Program, Framework Action to the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico, Including Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Act Analysis.

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## Type of Action

<input type="checkbox"/> Administrative	<input type="checkbox"/> Legislative
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## Summary/Abstract

The Generic Annual Catch Limits/Accountability Measures Amendment for the Gulf of Mexico Fishery Management Council's Red Drum, Reef Fish, Shrimp, Coral and Coral Reefs Fishery Management Plans (Generic ACL/AM Amendment, GMFMC 2011) established acceptable biological catches (ABCs), annual catch limits (ACLs), annual catch targets (ACTs), and accountability measures (AMs) for species in their respective fishery management plans. Recreational catch estimates in the Generic ACL/AM Amendment were computed using data generated by the Marine Recreational Fisheries Statistics Survey (MRFSS). Following an independent review by the National Research Council and a mandate from Congress, the National Marine Fisheries Service (NMFS) overhauled the MRFSS. The Marine Recreational Information Program (MRIP) was developed to provide more accurate recreational catch estimates by accounting for potential biases such as possible differences in catch rates at high- and low-activity fishing sites, and the amount of fishing occurring at different times of the day. MRIP methods have been used to recalculate previous MRFSS estimates dating back to 2004, and will be the basis for all new recreational catch estimates moving forward. The NMFS Southeast Regional Office and NMFS Southeast Fisheries Science Center have used ratio estimators to further revise the MRFSS estimates back to 1986. In addition to using MRIP data, ACLs will be updated to include revisions to commercial and for-hire landings. The

recalculations using MRIP data will affect the commercial and recreational sectors' ACLs because the underlying formula used to establish the quotas remains unchanged from what was implemented previously in the Generic ACL/AM Amendment. In the near future, NMFS Office of Science and Technology will attempt to use MRFSS data to develop MRIP re-estimates for the years 1998-2003; however, it is not expected these re-estimates will be completed in 2015. In 2013 (sample wave 2), MRIP implemented changes to the sampling methodology to improve the estimation process. These changes expanded sampling to include all hours of the day, removed the daily interview limit of 30 per day, and sampling site clusters were developed. Additionally, interviewers were instructed to abide by the randomized site selection and sampling times. In 2013, large changes in estimated catch and effort were observed relative to historical periods (using a different survey methodology). It is unknown if the survey methodology changes or actual increases in catch and effort coincident with the survey design caused the large differences in 2013 relative to previous years. However, if the difference in landings is attributed to improvements to survey methodology, additional calibrations (that are not encompassed in this framework action) are necessary to accurately calibrate historical and current catch and effort estimates.

Chapter 1.5 of the Generic ACL/AM Amendment states that necessary changes to the ABCs, ACLs, ACTs, and AMs for species would be made through a plan amendment or a framework procedure, which is a more rapid process than a plan amendment. If the ABC, ACL, and ACT values are not updated with the new MRIP estimates, the result would be ACLs being set using MRFSS data while the landings used to track the ACLs will be estimated using MRIP data. This would result in an inconsistency between how ACLs are calculated and how they are monitored.

This framework action revises the overfishing limits (OFLs), ABCs, ACLs, and optionally, the ACTs for 18 species in the reef fish fishery that are considered data poor stocks by the Council's Scientific and Statistical Committee, and four species that have had stock assessments completed. Updates will include data through 2008 since that was the last year used in the Generic ACL/AM Amendment to establish ACLs.

## ABBREVIATIONS USED IN THIS DOCUMENT

ABC	Acceptable biological catch
ACL	Annual catch limit
ACT	Annual catch target
ALS	Accumulated Landings System
AMs	Accountability measures
B <sub>MSY</sub>	Stock biomass level capable of producing an equilibrium yield of MSY
CEA	Cumulative Effects Analysis
CEQ	Center for Environmental Quality
Council	Gulf of Mexico Fishery Management Council
EEZ	Exclusive Economic Zone
EFH	Essential fish habitat
EIS	Environmental impact statement
EJ	Environmental justice
ELMR	Estuarine living marine resources
ESA	Endangered Species Act
F <sub>MSY</sub>	Fishing mortality rate corresponding to an equilibrium yield of MSY
F <sub>30% SPR</sub>	Fishing mortality corresponding to 30% spawning potential ratio
FMP	Fishery Management Plan
FWRI	Florida Wildlife Research Institute
GMFMC	Gulf of Mexico Fishery Management Council
Gulf	Gulf of Mexico
Gulf Council	Gulf of Mexico Fishery Management Council
HAPC	Habitat area of particular concern
HBS	Headboat Survey
LNG	liquid natural gas
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MFMT	Maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
mp	million pounds
MRFSS	Marine Recreational Fisheries Survey and Statistics
MRIP	Marine Recreational Information Program
MSY	Maximum sustainable yield
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Services
NRC	National Research Council
OFL	Overfishing level
OY	Optimum yield
QA	quality assurance/quality control
SEAMAP	Southeast Area Monitoring and Assessment Program
Secretary	Secretary of Commerce
SEDAR	Southeast Data, Assessment and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office

SPR	Spawning potential ratio
SSBR	Spawning stock biomass per recruit
SSC	Scientific and Statistical Committee
TAC	Total allowable catch
ww	whole weight

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# CHAPTER 1. INTRODUCTION

## 1.1 Background

The Gulf of Mexico Fishery Management Council (Council) is proposing revisions to acceptable biological catches (ABCs), annual catch limits (ACLs) and annual catch targets (ACTs) implemented through the Generic Annual Catch Limits/Accountability Measures Amendment (Generic ACL/AM Amendment, GMFMC 2011) for select species in the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP).

### *Gulf of Mexico Fishery Management Council*

- Responsible for conservation and management of fish stocks
- Consists of 17 voting members, 11 of whom are appointed by the Secretary of Commerce, the National Marine Fisheries Service Regional Administrator, and 1 representative from each of the 5 Gulf states marine resource agencies
- Responsible for developing fishery management plans and amendments, and recommends actions to National Marine Fisheries Service for implementation

### *National Marine Fisheries Service*

- Responsible for conservation and management of fish stocks
- Approves, disapproves, or partially approves Council recommendations
- Implements regulations

Recreational catch estimates in the Generic ACL/AM Amendment were computed using data generated by the Marine Recreational Fisheries Statistics Survey (MRFSS). Following an independent review by the National Research Council (NRC) and a mandate from Congress, the National Marine Fisheries Service (NMFS) has overhauled MRFSS and developed the Marine Recreational Information Program (MRIP). The MRIP was designed and implemented to improve recreational catch estimates as compared to MRFSS (MRIP 2012). The Council stated in the Generic ACL/AM Amendment that they would take action as needed, via plan amendment or framework action, to revise the appropriate catch levels based on MRIP methodology. The MRIP methods were used to recalculate previous MRFSS estimates dating back to 1986 and will be the basis for all new estimates moving forward.

Revisions to the ABC and ACL values are necessary because if they are not updated with the new MRIP estimates, ACLs would be set using MRFSS data while the landings being used to track the ACLs would be estimated using MRIP data monitoring protocols. This would result in an inconsistency between how ACLs are calculated and how they are monitored. In addition, ACLs would be updated to include revisions to commercial and for-hire landings. The

recalculations using MRIP data will affect the commercial and recreational sectors' ACLs because the underlying formula used to establish the ACLs remains unchanged from what was implemented previously in the Generic ACL/AM Amendment. Additionally, using MRIP values to estimate recreational landings, as well as updates to commercial and for-hire landings, represent the best available data and are therefore in accordance with National Standard 2 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Twenty-two of the 31 species in the Gulf of Mexico Reef Fish Resources Fishery Management Plan (FMP) are included in this Amendment with five species complexes representing 18 species, and the remaining four individual species (Table 1.1) are not in any species complex. Four of the 22 species have had stock assessments completed in the past and are noted in ***bold italics***. Hogfish is currently undergoing a stock assessment with completion expected in 2014.

**Table 1.1.** Species that are associated with a species complex and non-complex species from GMFMC 2011. Species with an accepted stock assessment are in ***bold italics***.

Shallow-water grouper Complex	Deep-water grouper Complex	Tilefishes Complex	Jacks Complex	Mid-water snapper Complex	Individual Species
<b><i>Black grouper</i></b>	Warsaw Grouper	<b><i>Golden Tilefish</i></b>	Almaco Jack	Silk Snapper	Gray Snapper
Scamp	Snowy Grouper	Blueline Tilefish	Banded Rudderfish	Wenchman	Lane Snapper
Yellowmouth Grouper	Speckled Hind	Goldface Tilefish	Lesser Amberjack	Blackfin Snapper	Cubera Snapper
Yellowfin Grouper	<b><i>Yellowedge Grouper</i></b>			Queen Snapper	<b><i>Hogfish</i></b>

## 1.2 What are the data sources considered in this amendment?

The Generic ACL/AM Amendment established preferred methods for the computation of ABCs, ACLs, and ACTs. The Generic ACL/AM Amendment contained computations of these values using datasets from September 15, 2010 (recreational ACL dataset), and October 8, 2010 (commercial ACL dataset), that were provided by the Southeast Fisheries Science Center (SEFSC). These data sets are known herein as the "MRFSS-Based Data." The Scientific and Statistical Committee (SSC) reviewed the MRFSS-Based Data and determined which years of historical catches were most appropriate to determine appropriate catch levels of each individual species. The selected year series were then used to calculate ACLs based upon average landings. The SSC also defined overfishing limits (OFLs) and ABCs above mean landings using buffers based on scientific uncertainty and the ACL/ACT Control Rule. The buffer generated for each individual species was based upon standard deviations from the average annual landings. The commercial ACL dataset provided additional quality assurance and quality control (QA/QC) on commercial data obtained from the Accumulated Landings System, which assimilates landings data obtained from dealer reporting and assigns catch to a region based on fisher-reported catch area. The recreational ACL dataset provided additional QA/QC on recreational

catch data reported by the Southeast Headboat Survey (HBS) and MRFSS. One of the major features of this QA/QC is that the MRFSS survey periodically provides no poundage for landings estimates for fish if there is insufficient biological sampling. The SEFSC methodology backfills these gaps using statistically-robust weight estimation methods.

Since implementation of the Generic ACL/AM Amendment, there have been substantial improvements in the data collection and catch estimation methodologies that are used to generate landings estimates for the computation of OFLs, ABCs, ACLs, and ACTs. This framework action presents OFL, ABCs, ACLs, and ACTs computed using methods identical to those used in the Generic ACL/AM Amendment to update these management parameters to be consistent with MRIP data that will be used to monitor ACLs in the future. The same computational methodologies are used so that the new values reflect the Gulf Council's SSC's intent as specified in the Generic ACL/AM Amendment. All changes are due to improvements in the underlying data only.

### ***Annual Catch Limits (ACLs)***

The amount of fish that can be harvested from the stock each year.

### ***Annual Catch Targets (ACTs)***

A harvest level set lower than the annual catch limit to create a buffer so that overharvest does not occur.

### ***Accountability Measures (AMs)***

Actions taken to prevent harvest from exceeding the annual catch limit and if exceeded can mitigate or correct the overage.

The revised dataset used to compute the updated OFLs, ABCs, ACLs, and ACTs (the MRIP-based data), replaces the MRFSS-based recreational data with MRIP-based recreational data. These data are used in this Framework Action under Alternative 2 and Preferred Alternative 3 to generate the final OFL, ABC, ACL, and ACT values. These data are based upon the July 3, 2012, commercial ACL and October 1, 2012, recreational ACL datasets. The updated recreational ACL dataset contains MRIP official re-estimates (2004-2008) and recalibrated MRFSS data (1986-2003). The MRIP process was initiated in 2004 to address issues identified by the National Research Council (NRC) in the existing MRFSS program. The goal of MRIP is to provide more detailed, timely, and reliable estimates of marine recreational fishing catch and effort. One step in this process was to take historical MRFSS data (2004-2011) and re-estimate it using MRIP methods that addressed sources of bias identified by the NRC. Using these official MRIP estimates, the Southeast Regional MRIP Recalibration Working Group developed

recalibration methods to address regional needs, following the procedures recommended by the MRIP Ad-Hoc Working Group. The MRFSS data (1986-2003) were recalibrated to be more appropriately scaled to MRIP using a ratio of mean landings in numbers at the stock, sub-region, and mode level (when available), based upon the MRFSS (2004-2011) and MRIP (2004-2011) data. These ratios were then applied at each stratum (stock, sub-region, year, wave, state, mode, and area) to the catches to develop the recalibrated MRFSS dataset. Average weights were then assigned to strata using the SEFSC's statistically robust weight estimation procedure, and total landings in pounds were computed.

Black grouper, golden tilefish, hogfish and yellowedge grouper are four assessed stocks, where the ABC recommendation from a stock assessment was based, in part, upon MRFSS data. The MRIP data will be recalibrated to be consistent to MRFSS data, to ensure monitoring efforts are consistent with the units of the assessment until such time as the assessment is re-run using MRIP data. Although golden tilefish and hogfish had accepted stock assessments, the expert advice of the SSC recommended that OFLs, ABCs, ACLs, and ACTs be established based on annual landings in the Generic ACL/AM Amendment. This same methodology was used in this Framework Action.

### 1.3 Purpose and Need

The purpose of this framework action is to revise the OFLs, ABCs, ACLs, and ACTs implemented by the Generic ACL/AM Amendment (GMFMC 2011). The revisions are needed to ensure that the best available science is utilized, as per National Standard 2, and are intended to address the inconsistency between the method used to establish ACLs and the method used to monitor the landings, which ultimately determines if accountability measures (AMs) are triggered. The need is to prevent unnecessary negative socio-economic impacts that may otherwise be realized in the reef fish fishery and fishing community, in accordance with the provisions set forth in the Magnuson-Stevens Act.

### 1.4 History of Management

**Final Generic Annual Catch Limits/Accountability Measures Amendment (Generic ACL/AM Amendment, 2011)** implemented measures to prevent overfishing and achieve optimum yield (OY) while minimizing to the extent practicable adverse social and economic effects. Long-term measures included the implementation of the following items: 1) changed the reef fish fishery management unit, including the removal of some species and the development of species groups; 2) established ABC and ACL/ACT control rules; 3) established ACLs and ACTs; 4) established a framework procedure for modifying ACLs and ACTs, control rules, and management measures; 5) established a commercial and recreational allocation for black grouper; 6) established AMs if limits and targets are projected to be exceeded or have been exceeded; and 7) established regulations necessary to ensure mortality is at or below the ACLs and ACTs.

## CHAPTER 2. MANAGEMENT ALTERNATIVES

### 2.1 Action 1 - Revise the overfishing limits (OFLs), acceptable biological catches (ABCs), annual catch limits (ACLs), and annual catch targets (ACTs) for select species managed under the Gulf of Mexico (Gulf) Reef Fish Resources Fishery Management Plan (FMP).

**Alternative 1:** No Action - Do not revise OFLs, ABCs, ACLs, and ACTs for species listed in Table 2.1.1. Data would not incorporate information from the Marine Recreational Information Program (MRIP), commercial, and for-hire landings.

**Alternative 2:** Revise the OFLs, ABCs, ACLs, and ACTs for stocks listed in Table 2.1.1. Data are updated with information from MRIP, commercial, and for-hire landings.

**Preferred Alternative 3:** Revise the OFLs, ABCs, and ACLs, but remove current ACTs and do not establish new ACTs or sector ACTs for stocks listed in Table 2.1.1. Data are updated with information from MRIP, commercial, and for-hire landings.

#### **Discussion:**

The preferred methods for computing OFLs, ABCs, ACLs, and ACTs were established previously based on guidance from the Gulf of Mexico Fishery Management Council (Gulf Council) and the Scientific and Statistical Committee (SSC). The preferred method for the species addressed in this framework action established harvest limits based on the time series of annual landings. In general, time periods were selected that were as long as practicable with the caveat that periods of “trends” in the landings be excluded from the calculations when possible. Data were initially considered from 1986 through 2008, although a subset of these years were selected based on the criteria above. The Generic ACL Amendment contained computations of these values using datasets from 15 September 2010 (Recreational ACL Data) and 8 October 2010 (Commercial ACL Data), both provided by the Southeast Fisheries Science Center (SEFSC). These data sets are known herein as the “MRFSS-Based Data.” The commercial ACL dataset provided additional quality assurance and quality control (QA/QC) on commercial data obtained from the Accumulated Landings System, which assimilates landings data obtained from dealer reporting and assigns catch to region based on the fisher-reported catch area. The recreational ACL dataset provided additional QA/QC on recreational catch data reported by the SEFSC Headboat Survey (HBS) and MRFSS. One of the major features of this QA/QC is that the Marine Recreational Fisheries Survey and Statistics (MRFSS) survey periodically provides no poundage for landings estimates for fish if there is insufficient biological sampling; whereas, the SEFSC methodology backfills these gaps using statistically-robust weight estimation methods. For assessed stocks where the assessment's ABC recommendation was based, in part, upon MRFSS data, MRIP data were recalibrated to be consistent to MRFSS data, to ensure monitoring efforts are consistent with the units of the assessment until such time as the assessment is re-run using MRIP data.

**Alternative 1 (no action)** would retain OFLs, ABCs, ACLs, and ACTs that were implemented in the Generic ACL/AM Amendment (Table 2.1.2). **Alternative 2** and **Preferred Alternative 3** address an estimation method conversion between MRFSS to MRIP units (described above). The change from MRFSS-based units to MRIP-based units in both the methodology used to specify the catch levels and the methodology used to monitor the harvest is expected to have minimal impact upon recreational fisherman. The differences in specified catch levels are absorbed by the differences in the estimation methodology. Only allocated stocks have ABCs based upon stock assessment outcomes; therefore, there are no impacts to the allocation between the commercial and recreational sectors. However, recalculating the recreational ABCs will result in a change to each individual or species complex’s ABC; therefore, **Alternatives 2** and **Preferred Alternative 3** are expected to have minimal impact upon the recreational and commercial effort and landings.

In instances where there is a commercial allocation, the commercial sector will experience an actual increase or decrease in allowable catch (Table 2.1.3). **Alternatives 2** and **Preferred Alternative 3** address an estimation method conversion between MRFSS to MRIP units (described above); however, **Preferred Alternative 3** does not establish ACTs or sector ACTs for the stocks listed in Table 2.1.1. The OFLs, ABCs, and ACLs are identical in **Alternative 2** and **Preferred Alternative 3** and fishery impacts (as described above) would be identical for **Alternative 2** and **Preferred Alternative 3**. A summary of the percent difference in the OFLs, ABCs, and ACLs between **Alternative 1** and **Alternatives 2** and **Preferred Alternative 3** are described in Table 2.1.3. In general, every stock but gray snapper will experience moderate increases (in poundage) in OFLs, ABCs, ACLs, and ACTs using the MRIP-based landings with updated commercial and for-hire landings (i.e., **Alternative 2** or **Preferred Alternative 3**).

**Table 2.1.1.** Select species complexes and individual species subject to action in this document.

Species Complexes	Individual Species
Shallow-water grouper	Gray Snapper
Deep-water grouper	Lane Snapper
Tilefishes	Cubera Snapper
Jacks	Hogfish
Mid-water snapper	

**Table 2.1.2.** The OFLs, ABCs, ACLs, and ACTs for species listed in Table 2.1.1 as defined in GMFMC 2011. Data does not incorporate updated information from MRIP or revisions to commercial and for-hire landings (Alternative 1). Species complexes are in all capital letters. Black grouper has an accepted stock assessment with yield stream for years 2014 and 2015 and is part of the shallow-water grouper complex. Therefore, the OFL, ABC, ACL, and ACT for 2014 and 2015 include the yield stream for black grouper. Yellowedge grouper also has an accepted stock assessment with yield stream for years 2014 through 2016 and is part of the deep-water grouper complex. Therefore the OFL, ABC, ACL, and ACT for 2014 through 2016 include the yield stream for yellowedge grouper. Hogfish has been assessed but OFL, ABC, ACL, and ACT were established based on landings history using the methodology developed in the Generic ACL/AM Amendment (GMFMC 2011).

Stock (Year)	MRFSS-BASED					TOTAL	ACT		
	OFL	ABC	ACL				TOTAL	COM	REC
			TOTAL	COM	REC				
SHALLOW-WATER GROUPER (2014)	not defined	707,000	707,000	545,000	<i>not defined</i>	<i>not defined</i>	523,000	<i>not defined</i>	
SHALLOW-WATER GROUPER (2015)	not defined	710,000	710,000	547,000	<i>not defined</i>	<i>not defined</i>	526,000	<i>not defined</i>	
DEEP-WATER GROUPER (2014)	1,220,000	1,198,000	1,198,000	1,160,000	<i>not defined</i>	<i>not defined</i>	1,110,000	<i>not defined</i>	
DEEP-WATER GROUPER (2015)	1,210,000	1,189,000	1,189,000	1,150,000	<i>not defined</i>	<i>not defined</i>	1,101,000	<i>not defined</i>	
DEEP-WATER GROUPER (2016+)	1,110,000	1,105,000	1,105,000	1,070,000	<i>not defined</i>	<i>not defined</i>	1,024,000	<i>not defined</i>	
TILEFISHES	747,000	608,000	608,000	606,000	<i>not defined</i>	<i>not defined</i>	582,000	<i>not defined</i>	
JACKS COMPLEX	372,000	312,000	312,000	<i>not allocated</i>		278,000	<i>not allocated</i>		
MID-WATER SNAPPER	209,000	166,000	166,000	<i>not allocated</i>		136,000	<i>not allocated</i>		
<b>INDIVIDUAL ACLS</b>									
Gray snapper	2,880,000	2,420,000	2,420,000	<i>not allocated</i>		2,081,000	<i>not allocated</i>		
Lane snapper	358,000	301,000	301,000	<i>not allocated</i>		259,000	<i>not allocated</i>		
Cubera snapper	7,000	5,065	5,065	<i>not allocated</i>		4,360	<i>not allocated</i>		
Hogfish	272,000	208,000	208,000	<i>not allocated</i>		179,000	<i>not allocated</i>		

**Table 2.1.3.** The OFLs, ABCs, ACLs, and ACTs for species listed in Table 2.1.1 incorporating information from MRIP as well as revisions to commercial, and for-hire landings (Alternative 2 and Preferred Alternative 3). Species complexes are in all capital letters. Black grouper has an accepted stock assessment with yield stream for years 2014 and 2015 and is part of the shallow-water grouper complex. Therefore, the OFL, ABC, ACL, and ACT for 2014 and 2015 include the yield stream for black grouper. Yellowedge grouper also has an accepted stock assessment with yield stream for years 2014 through 2016 and is part of the deep-water grouper complex. Therefore, the OFL, ABC, ACL, and ACT for 2014 through 2016 include the yield stream for yellowedge grouper. Hogfish has been assessed, but OFL, ABC, ACL, and ACT were established based on landings history using the methodology developed in the Generic ACL/AM Amendment (GMFMC 2011).

Stock (Year)	MRIP-BASED					TOTAL	ACT	
	OFL	ABC	ACL				COM	REC
			TOTAL	COM	REC			
SHALLOW-WATER GROUPER (2014)	812,000	754,000	754,000	551,000	not defined	<i>not defined</i>	529,000	not defined
SHALLOW-WATER GROUPER (2015)	815,000	757,000	757,000	553,000	not defined	<i>not defined</i>	531,000	not defined
DEEP-WATER GROUPER (2014)	1,424,000	1,404,000	1,404,000	1,353,000	not defined	<i>not defined</i>	1,299,000	not defined
DEEP-WATER GROUPER (2015)	1,414,000	1,394,000	1,394,000	1,354,000	not defined	<i>not defined</i>	1,300,000	not defined
DEEP-WATER GROUPER (2016+)	1,314,000	1,314,000	1,314,000	1,274,000	not defined	<i>not defined</i>	1,223,000	not defined
TILEFISHES	757,000	683,000	683,000	681,000	not defined	<i>not defined</i>	654,000	not defined
JACKS COMPLEX	388,000	351,000	351,000	<i>not allocated</i>		288,000	<i>not allocated</i>	
MID-WATER SNAPPER	244,000	183,000	183,000	<i>not allocated</i>		163,000	<i>not allocated</i>	
<b>INDIVIDUAL ACLS</b>								
Gray snapper	2,653,000	2,248,000	2,248,000	<i>not allocated</i>		1,933,000	<i>not allocated</i>	
Lane snapper	415,000	350,000	350,000	<i>not allocated</i>		301,000	<i>not allocated</i>	
Cubera snapper	15,000	9,000	9,000	<i>not allocated</i>		8,000	<i>not allocated</i>	
Hogfish	447,000	331,000	331,000	<i>not allocated</i>		285,000	<i>not allocated</i>	

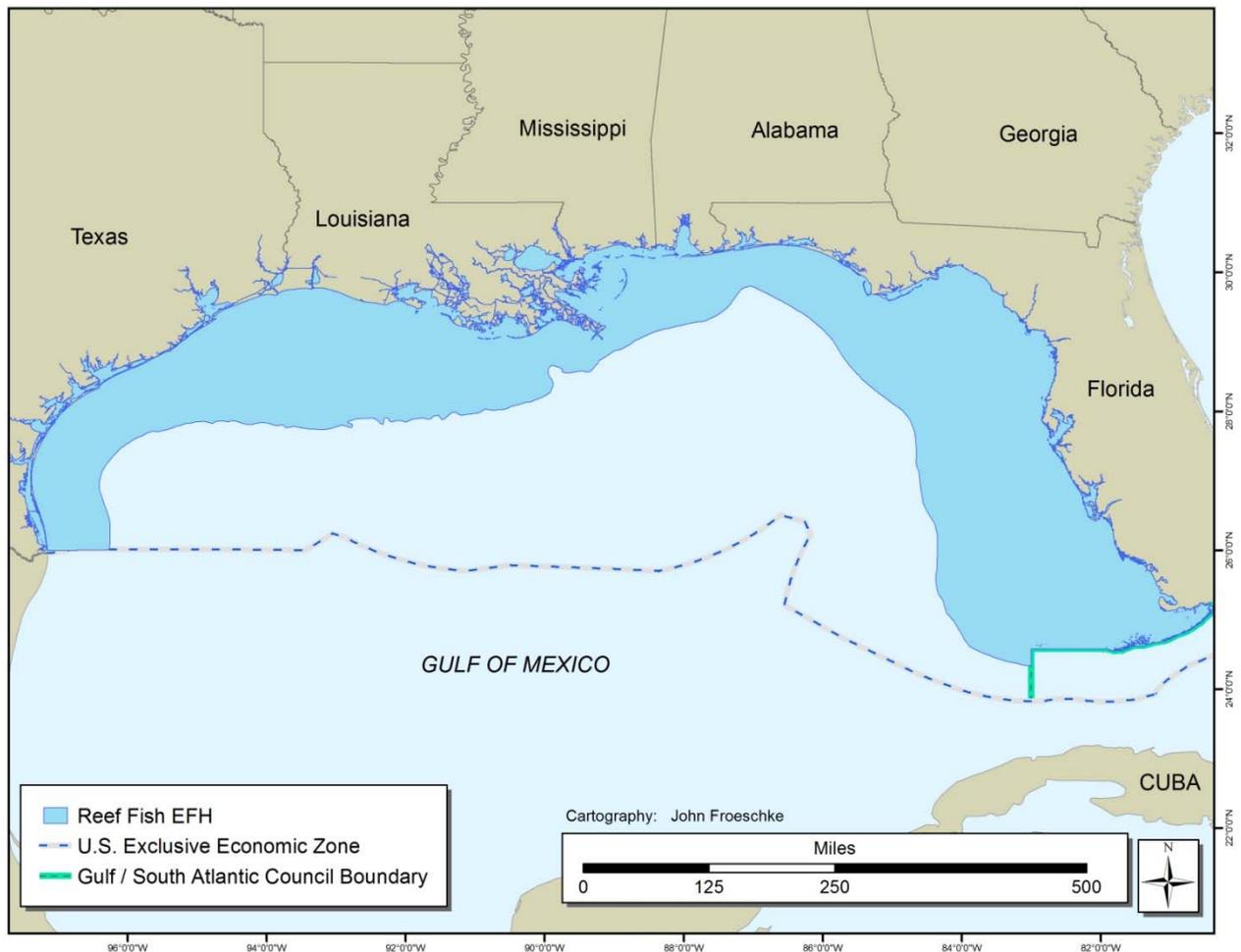
**Table 2.1.4.** A comparison of the change (by percent) of OFLs, ABCs, ACLs, and ACTs between the MRFSS and MRIP-based methodologies for species listed in Table 2.1.1.

Stock (Year)	PERCENT DIFFERENCES							
	OFL	ABC	ACL			ACT		
			TOTAL	COM	REC	TOTAL	COM	REC
SHALLOW-WATER GROUPER (2014)	not defined	7%	7%	1%	<i>not defined</i>	<i>not defined</i>	1%	<i>not defined</i>
SHALLOW-WATER GROUPER (2015)	not defined	7%	7%	1%	<i>not defined</i>	<i>not defined</i>	1%	<i>not defined</i>
DEEP-WATER GROUPER (2014)	17%	17%	17%	17%	<i>not defined</i>	<i>not defined</i>	17%	<i>not defined</i>
DEEP-WATER GROUPER (2015)	17%	17%	17%	18%	<i>not defined</i>	<i>not defined</i>	18%	<i>not defined</i>
DEEP-WATER GROUPER (2016+)	18%	19%	19%	20%	<i>not defined</i>	<i>not defined</i>	19%	<i>not defined</i>
TILEFISHES	1%	12%	12%	12%	<i>not defined</i>	<i>not defined</i>	12%	<i>not defined</i>
JACKS COMPLEX	4%	13%	13%	<i>not allocated</i>		4%	<i>not allocated</i>	
MID-WATER SNAPPER	17%	10%	10%	<i>not allocated</i>		20%	<i>not allocated</i>	
<b>INDIVIDUAL ACLS</b>								
Gray snapper	-8%	-7%	-7%	<i>not allocated</i>		-7%	<i>not allocated</i>	
Lane snapper	16%	16%	16%	<i>not allocated</i>		16%	<i>not allocated</i>	
Cubera snapper	114%	78%	78%	<i>not allocated</i>		84%	<i>not allocated</i>	
Hogfish	64%	59%	59%	<i>not allocated</i>		59%	<i>not allocated</i>	

## CHAPTER 3. AFFECTED ENVIRONMENT

### 3.1 Description of the Fishery

The Gulf of Mexico (Gulf) reef fish resources fishery management unit includes 31 species: 11 snappers, 11 groupers, 4 jacks, 3 tilefishes, 1 triggerfish, and 1 wrasse. Commercial and recreational fishing for these species occur within the area of the fishery's essential fish habitat, which extends westward from state and federal waters off the Florida Keys to those off Texas (Figure 3.1.1).



**Figure 3.1.1.** Area of essential fish habitat of Gulf reef fish.

#### Gulf Commercial Reef Fish Permit Holders

A Gulf commercial reef fish permit is required on-board for a person to be eligible for an exemption from the bag limits, to fish under a quota, or to sell reef fish in or from the Exclusive Economic Zone (EEZ). As of July 9, 2012, there were 812 valid Gulf commercial reef fish permits. The following analysis is based on the 812 valid permits in July 2012.

Approximately 99% of the permit holders have addresses in one of the Gulf States (Table 3.1.1). Almost 80% of the permits are issued to entities based in Florida; these may be in the name of an individual or business entity. Each permit is associated with a specific fishing vessel.

**Table 3.1.1.** Valid Gulf commercial reef fish permits as of July 9, 2012, by permit holder’s state of residence.

State	Permits	% Total
Alabama	42	5.17%
Florida	647	79.68%
Louisiana	41	5.05%
Mississippi	10	1.23%
Texas	61	7.51%
Total	801	98.65%
<b>Non-Gulf States</b>		
Georgia	5	0.62%
Illinois	2	0.25%
Maryland	1	0.12%
New York	1	0.12%
South Carolina	1	0.12%
Wyoming	1	0.12%
Total Non-Gulf	11	1.35%
<b>Grand Total</b>		
	812	100.00%

Source: Southeast Regional Office (SERO) list of current permit holders.

Net tonnage is a measure of a vessel’s weight, and vessels of five net tons or more used in fishing activities in the Gulf Exclusive Economic Zone (EEZ) must be documented. Most vessels larger than 25 feet in length will weigh five net tons or more. Of the 812 valid permits, 478 of them apply to documented vessels and the remaining 334 do not. Approximately 81% of the documented vessels and 78% of non-documented vessels are owned by Florida entities (Table 3.1.2).

**Table 3.1.2.** Gulf commercial reef fish vessels by permit holder’s state of residence and documentation status.

State of Permit Holder	Permitted Gulf Commercial Reef Fish Vessels				
	Documented	Non-Documented	Total	% Documented	% Non-Documented
Alabama	25	17	42	5.23%	5.09%
Florida	387	260	647	80.96%	77.84%
Louisiana	19	22	41	3.97%	6.59%
Mississippi	4	6	10	0.84%	1.80%
Texas	35	26	61	7.32%	7.78%
All Gulf	470	331	801	98.33%	99.10%
All Non-Gulf	8	3	11	1.67%	0.90%
Total	478	334	812	100.00%	100.00%

Source: SERO list of current permit holders and National Marine Fisheries Service (NMFS)/United States Coast Guard (USCG) vessel data base.

Six of the eight documented vessels owned by permit holders who reside outside the Gulf coastal states have hailing ports in a Gulf state. Five have a hailing port in Florida and the other in Louisiana. The remaining two of the eight vessels have hailing ports in New York and South Carolina, respectively. However, a vessel does not necessarily land its catch at its hailing port. Commercial landings of one of the vessels have occurred on Florida’s east coast and those of the other have occurred on Florida’s east and west coasts. These landings, especially those of the vessel with reported east coast landings, do not necessarily include reef fish.

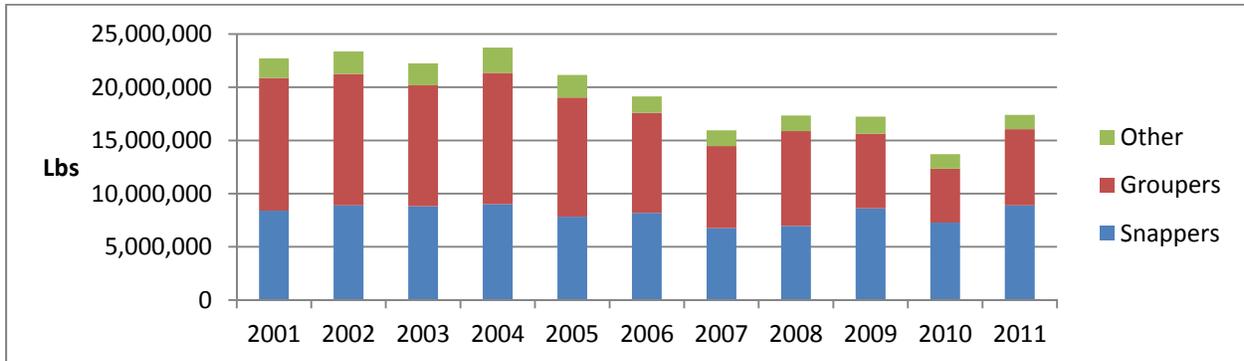
The 478 documented vessels range in size from five to 82 net tons. Florida’s documented vessels combine for approximately 76% of total net tonnage of all documented vessels with a valid Gulf reef fish permit (Table 3.1.3). As stated above, the documented vessels in New York and South Carolina land their catches in Florida. If their net tonnage is added to Florida’s total net tonnage, Florida’s share of total net tonnage increases to approximately 77%.

**Table 3.1.3.** Total net tonnage of 478 documented vessels with valid Gulf reef fish permit by state of hailing port.

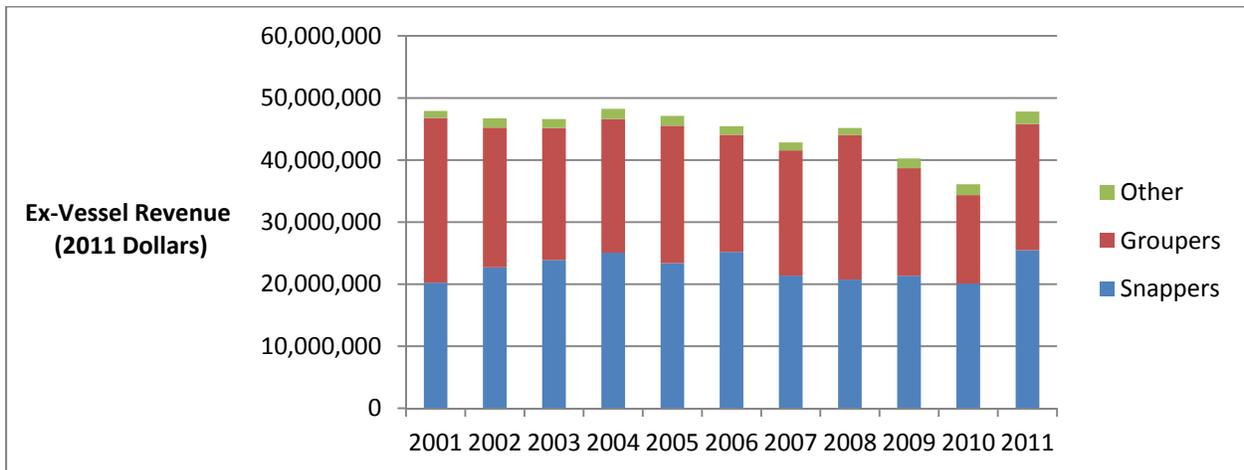
State of Hailing Port	Total Net Tonnage	Percent
Alabama	747	7.0%
Florida	8,143	76.3%
Louisiana	664	6.2%
Mississippi	118	1.1%
Texas	903	8.5%
Total	10,575	100.0%

Source: SERO list of current permit holders and NMFS/USCG vessel data base.

From 2001 to 2011, commercial landings of reef fish represented from approximately 1-2% of all Gulf coast commercial landings by weight and from approximately 5-7% of landings by dollar value. Annual commercial landings of reef fish varied from approximately 13.7 million to 23.3 million pounds (mp) whole weight and from approximately \$36.1 million to \$48.2 million (2011 dollars) during this time (NMFS, Accumulated Landings System). Landings exhibit generally declining trends by weight and value, although there was an increase by weight and by dollar value in 2011 from the previous year (Figures 3.1.2 and 3.1.3). As shown in the two figures, landings of snapper and grouper species typically account for a large majority of all reef fish landings.

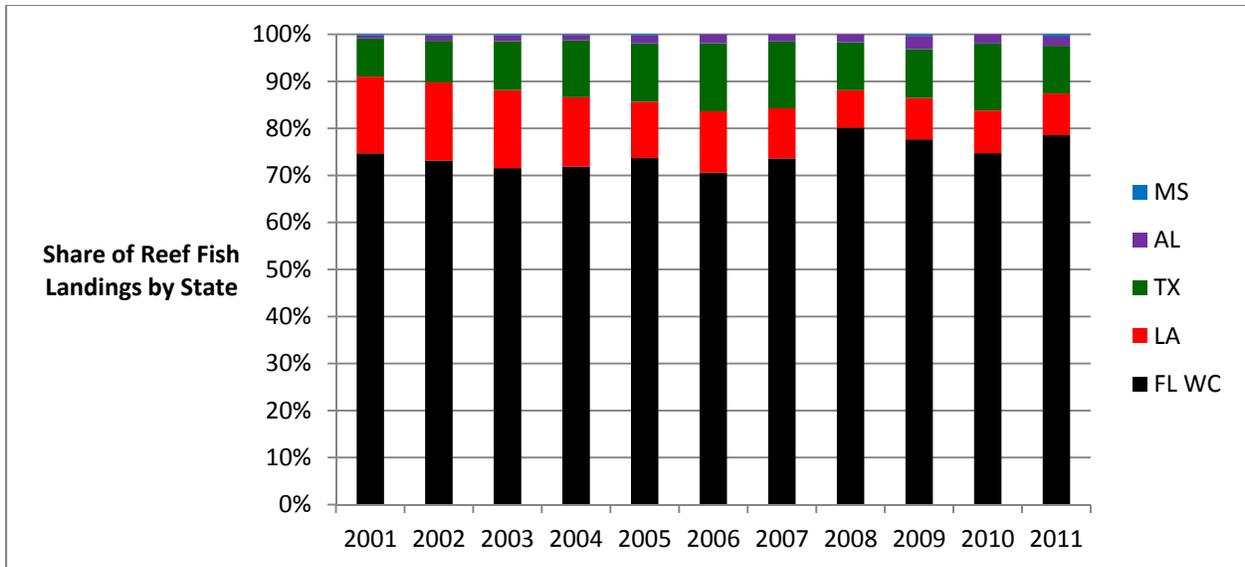


**Figure 3.1.2.** Annual commercial landings (lbs ww) of Gulf reef fish by species complex, 2001–2011. Source: NMFS Accumulated Landings System (ALS).



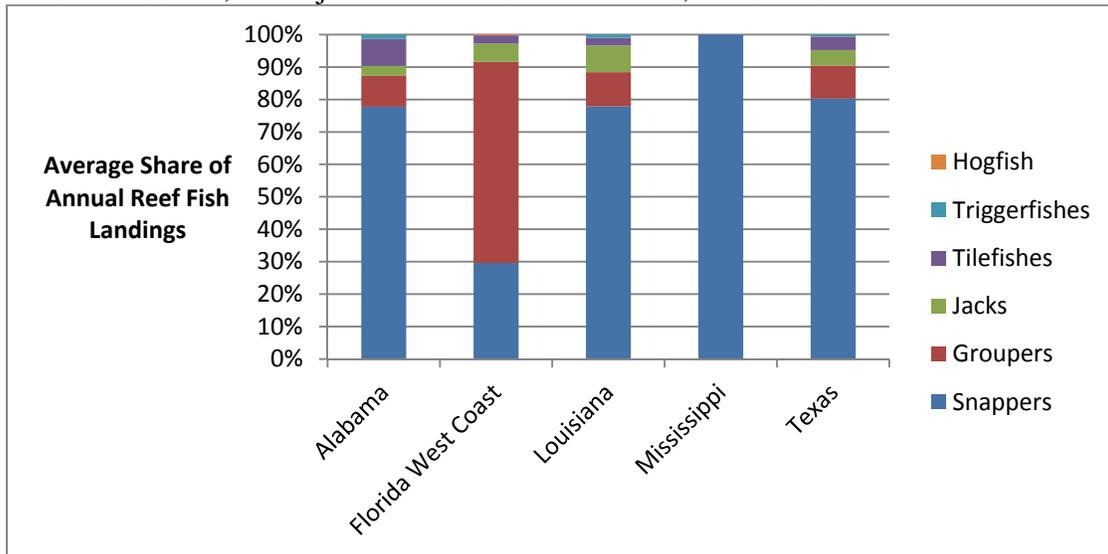
**Figure 3.1.3.** Annual commercial landings (\$) of Gulf reef fish by species complex, 2001–2011. Source: NMFS Accumulated Landings System (ALS).

Florida’s west coast historically has a large majority of annual reef fish landings (Figure 3.1.4). Its landings represent on average approximately 74% of all landings by weight in the fishery from 2001 through 2011.



**Figure 3.1.4.** Percent of annual commercial landings (lbs ww) of Gulf reef fish by state, 2001-2011. Source: NMFS ALS.

By weight, the snappers group ranks first in commercial landings in four of the five Gulf States, while; grouper commercial landings ranks first on Florida’s west coast (Figure 3.1.5). Tilefishes rank third in Alabama, while jacks rank third in Louisiana, Texas and Florida’s west coast.



**Figure 3.1.5.** Average percent of annual reef fish landings in Gulf states by species, 2001-2011. Source: NMFS ALS.

The snappers group is composed of the Mid-water snapper complex (wenchman, silk, blackfin, and queen snapper) and the individual species of gray, lane, and cubera snapper. Red, vermilion, and yellowtail snapper tend to represent the top three landed snapper species and combined represent, on average, approximately 92% of all annual landings of snapper (Table 3.1.4).

**Table 3.1.4.** Percent of annual commercial snapper landings (lbs), 2001-2011 by complex/species. Source: NMFS ALS.

Year	Mid-Water	Gray	Lane	Cubera	Red	Vermilion	Yellowtail
2001	2.01%	3.90%	0.72%	0.02%	55.29%	20.11%	15.78%
2002	1.86%	4.37%	0.72%	0.02%	54.00%	22.19%	14.79%
2003	0.94%	3.79%	0.67%	0.02%	50.26%	26.99%	14.81%
2004	0.71%	3.89%	0.63%	0.03%	51.93%	24.00%	15.35%
2005	1.05%	4.02%	0.55%	0.01%	52.49%	23.87%	15.49%
2006	0.69%	3.29%	0.64%	0.01%	56.58%	21.53%	14.08%
2007	0.88%	3.05%	0.46%	0.02%	44.35%	35.26%	13.04%
2008	2.01%	3.11%	0.41%	0.01%	34.02%	40.34%	18.08%
2009	1.06%	3.24%	0.43%	0.02%	29.03%	44.04%	21.06%
2010	0.85%	3.03%	0.26%	0.02%	44.81%	29.01%	20.66%
2011	1.79%	2.45%	0.17%	0.02%	40.12%	35.53%	18.41%

Red snapper is the most frequently landed species of the group in four of the five Gulf States (Table 3.1.4). On Florida's West Coast, yellowtail and vermilion snapper commercial landings rank higher. Combined landings of lane snapper and cubera snapper account for less than three fourths of a percent of annual snapper commercial landings in any of the states.

**Table 3.1.5.** Average percent of annual snapper commercial landings, 2001-2011. Source: NMFS ALS.

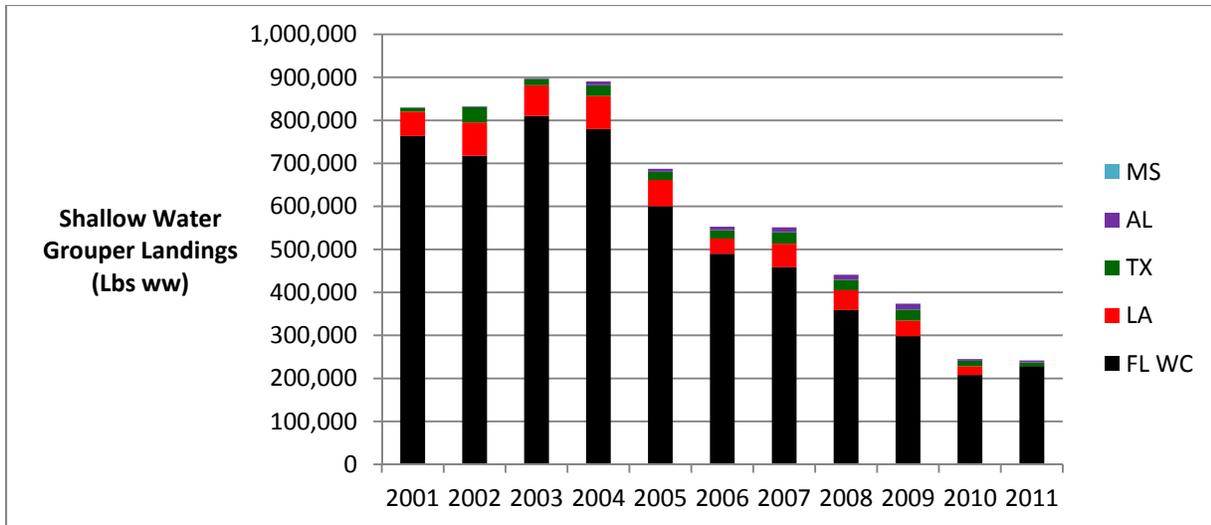
State	Average Percent of Annual Snapper Landings by Individual Species or Complex						
	Red	Vermilion	Yellowtail	Mid-Water	Gray	Lane	Cubera
Alabama	52.46%	46.95%	0.00%	0.00%	0.32%	0.27%	0.00%
Florida, West Coast	22.19%	30.70%	33.01%	2.24%	6.38%	0.62%	0.03%
Louisiana	68.33%	28.74%	0.00%	0.47%	1.84%	0.60%	0.10%
Mississippi*	86.17%	0.00%	0.00%	0.00%	13.83%	0.00%	0.00%
Texas	76.28%	23.38%	0.00%	0.15%	0.02%	0.17%	0.00%

\*Mississippi did not have reported snapper landings from 2006 through 2008, so the average is derived from the other years.

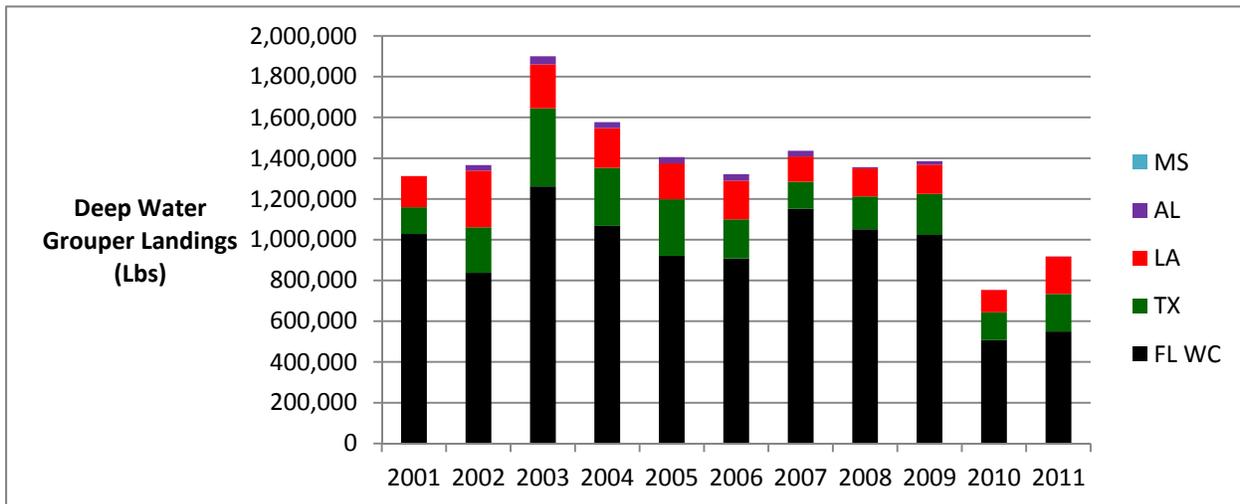
Annual commercial landings of the shallow-water and deep-water grouper complexes represent a substantial portion of all grouper landings in the fishery; however, red and gag grouper landings are the top two landed species by weight (Table 3.1.6). Combined gag and red grouper landings represent, on average, approximately 80% of annual grouper landings, while the shallow-water and deep-water complexes combine to account for the remaining 20%. **Table 3.1.6.** Percent of annual grouper commercial landings, 2001-2011. Source: NMFS ALS.

Year	Percent of Annual Grouper Landings				
	Shallow Water	Deep Water	Gag	Red	Total
2001	6.65%	10.52%	26.47%	56.36%	100.00%
2002	6.74%	11.06%	25.63%	56.56%	100.00%
2003	7.91%	16.73%	23.90%	51.46%	100.00%
2004	7.21%	12.77%	24.96%	55.06%	100.00%
2005	6.13%	12.54%	24.27%	57.06%	100.00%
2006	5.88%	14.05%	15.50%	64.57%	100.00%
2007	7.15%	18.63%	17.76%	56.46%	100.00%
2008	4.95%	15.21%	16.78%	63.06%	100.00%
2009	5.34%	19.81%	12.12%	62.73%	100.00%
2010	4.83%	14.86%	11.52%	68.80%	100.00%
2011	3.37%	12.82%	5.15%	78.66%	100.00%

Annual commercial landings of shallow-water and deep-water grouper complexes vary considerably across the Gulf states. While on Florida's west coast annual landings of shallow water and deep water grouper account for a large majority of landings of both complexes from 2001-2011, there were no landings of either complex in Mississippi during that time (Figures 3.1.6 and 3.1.7). From approximately 80% to 95% of the shallow water grouper and from approximately 61% to 80% of deep water grouper landings occurred on the Florida west coast. Louisiana ranks second in shallow-water grouper landings with an average of approximately 8%, followed by Texas with approximately 4% and Alabama with 1%. Texas, however, ranks second in deep-water grouper landings with an average of approximately 16% of landings, followed in turn by Louisiana with approximately 13% and Alabama with approximately 1%.

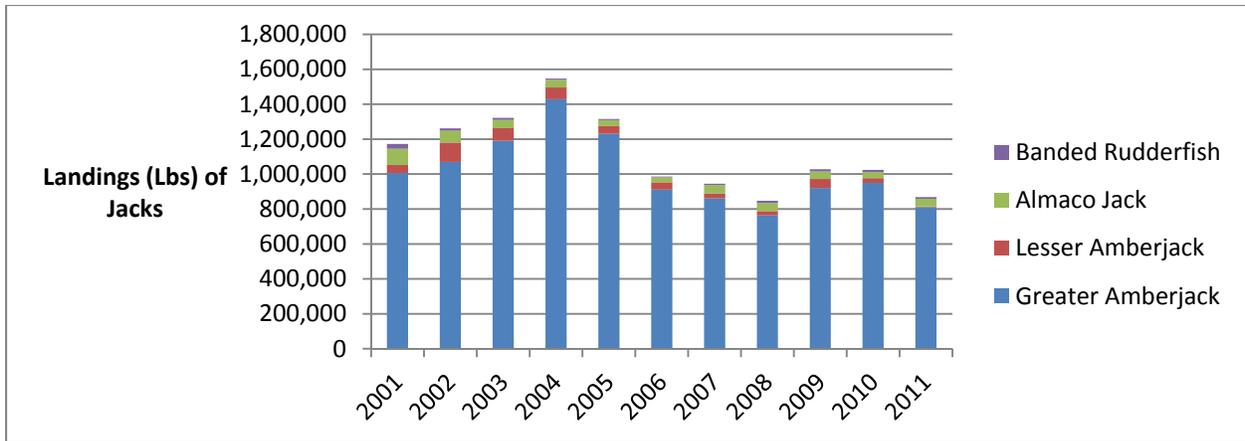


**Figure 3.1.6.** Annual commercial landings of shallow water grouper complex by state, 2001-2011. Source: NMFS ALS.



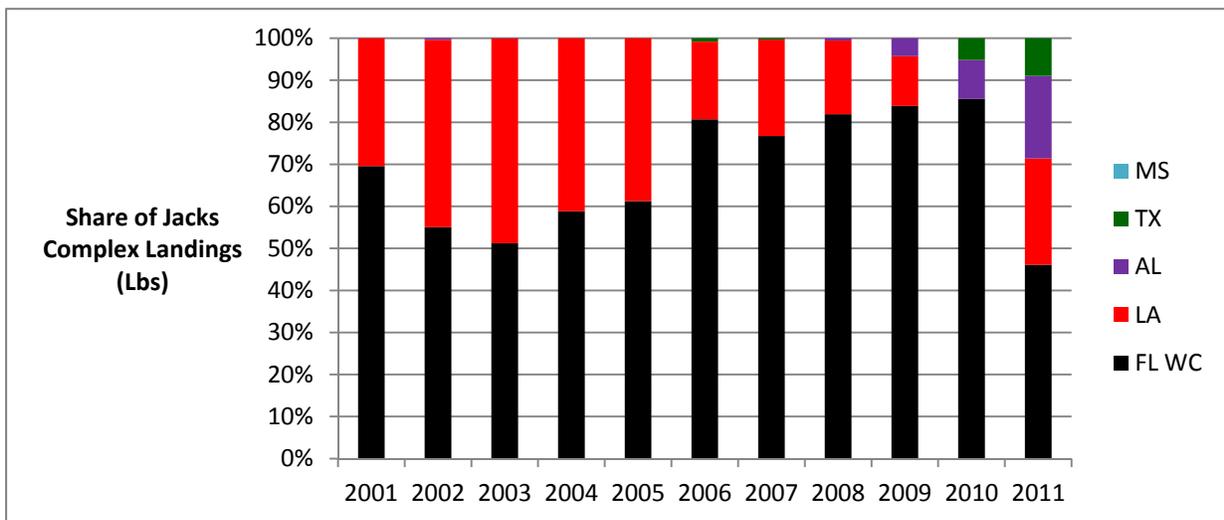
**Figure 3.1.7.** Annual deep water grouper commercial landings by state, 2001-2011. Source: NMFS ALS.

By weight greater amberjack is the most frequent commercially landed jack in the Gulf States. From 2001-2011, annual landings of greater amberjack represented from approximately 85% to 93% of jacks landings that ranged from approximately 0.85 million to 1.55 million pounds ww and represented from approximately 5% to 8% of all annual reef fish landings (Figure 3.1.8). Annual landings of the jacks complex (lesser amberjack, almaco jack and banded rudderfish) represent, on average, approximately 9% of all jack landings.



**Figure 3.1.8.** Annual commercial landings of jacks by species, 2001-2011. Source: NMFS ALS.

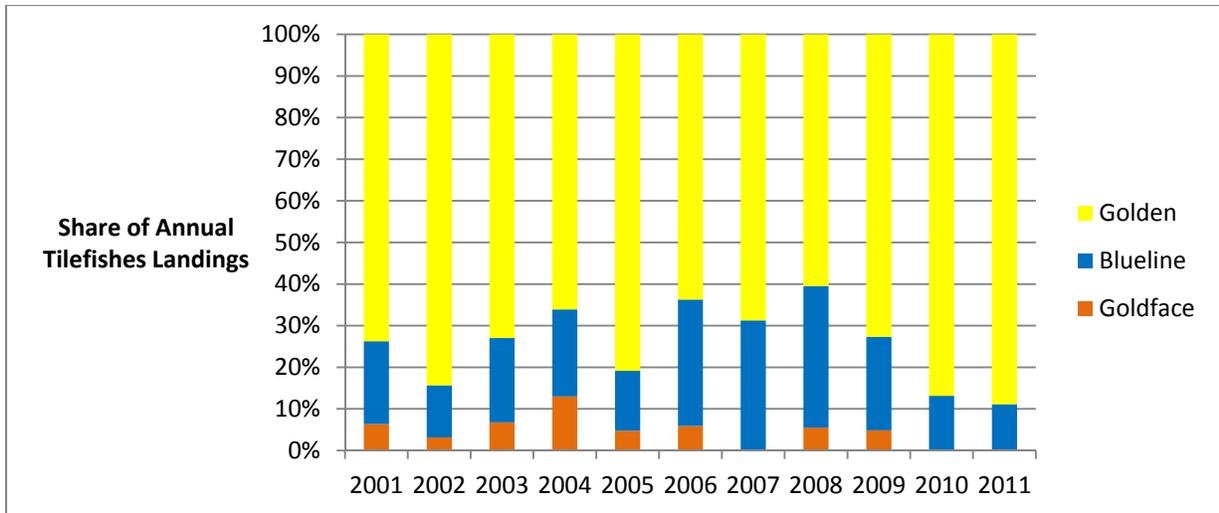
Commercial landings of the jacks complex varies considerably across the Gulf States. While there were no reported landings of the complex in Mississippi from 2001 through 2011, Florida’s west coast accounted for an average of approximately 68% of the jacks complex’s annual landings during that time (Figure 3.1.9).



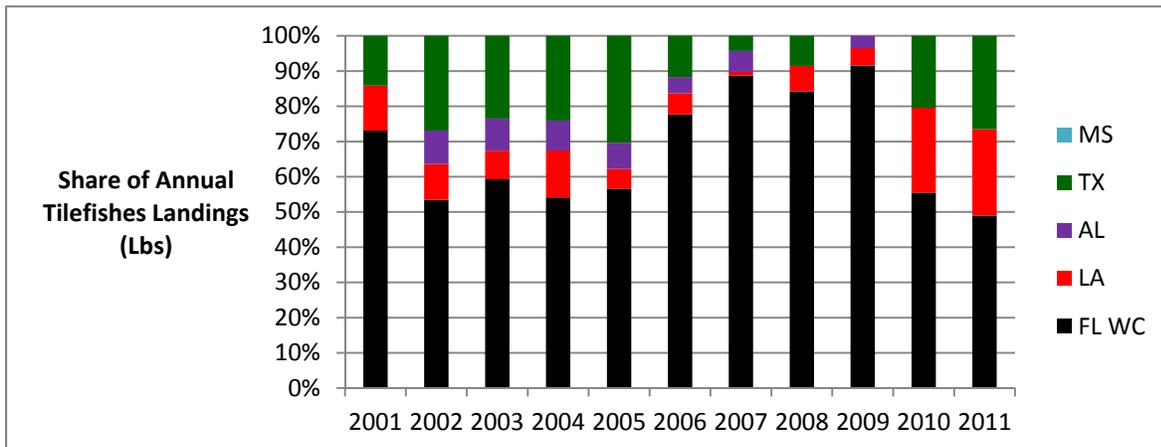
**Figure 3.1.9.** Percent of annual commercial landings of jacks complex by state, 2001 – 2011. Source: NMFS ALS.

### Tilefishes

Golden tilefish is the most landed species within the tilefishes complex. On average, its commercial landings represent approximately three-fourths of the tilefish complexes commercial landings (Figure 3.1.20). Tilefishes landings vary considerably across the Gulf States, with Florida’s west coast leading with an annual average of approximately 68% of annual tilefishes commercial landings (Figure 3.1.21). Texas ranks second with an average of approximately 17% of the landings.



**Figure 3.1.10.** Percent of annual tilefish commercial landings by species, 2001-2011. Source: NMFS ALS.



**Figure 3.1.11.** Percent of annual tilefishes complex commercial landings by state, 2001-2011. Source: NMFS ALS.

### Gulf Charter/Headboat Permit and Historical Captain Endorsement Holders and Other Recreational Fishers

Recreational fishing in federal waters occurs on for-hire vessels and those owned or rented by private anglers. Those who operate vessels for-hire and harvest Gulf reef fish in the EEZ are required to have a limited access permit: either a Gulf Reef Fish Charter Vessel/Headboat Permit or Historical Gulf Captain Charter/Headboat Endorsement/Permit for Reef Fish. As of September 11, 2012, there were 1,241 holders of a Gulf Reef Fish Charter Vessel/Headboat Permit. Approximately 97% of these permits were held by residents of a Gulf state (Table 3.1.8). Also as of that date 31 individuals held a Historical Captain Endorsement.

**Table 3.1.7.** Number and percent of vessels with Gulf Reef Fish and Gulf Reef Fish Charter/Headboat Permits by state of hailing port.

State	Charter/Headboat Permit	Charter/Headboat Permits	Captain Permit	Captain Permit
Alabama	132	10.64%	3	9.68%
Florida	719	57.94%	17	54.84%
Louisian	102	8.22%	5	16.13%
Mississip	49	3.95%	2	6.45%
Texas	204	16.44%	4	12.90%
Total	1,206	97.18%	31	100.00%
Non-Gulf	35	2.82%	0	0.00%
Grand total	1,241	100.00%	31	100.00%

Approximately 12% (150) of the 1,241 Charter Vessel/Headboat Permit holders also have a Gulf reef fish permit that allows their vessels to be used to harvest commercial quantities when not operating as for-hire vessels (Table 3.1.8). These 150 dually permitted vessels also represent approximately 18.5% of the aforementioned 812 vessels with a Gulf reef fish permit. Almost three quarters (74%) of these dual-permitted vessels are owned by Florida residents and 93 (62%) are documented vessels. Total net tonnage of the documented vessels is almost 2,500. The average net tonnage of these dual-permitted documented vessels is 16.5, as opposed to 22.3, which is the average net tonnage of all documented vessels with a Gulf reef fish permit.

**Table 3.1.8.** Vessels with Gulf Reef Fish and Gulf Reef Fish Charter Vessel/Headboat Permits by state of hailing port.

State of Hailing Port	Vessels	Documented	Non-Documented	Total Net Tonnage Documented Vessels
Alabama	14	11	3	437
Florida	111	68	43	1,700
Louisiana	6	3	3	110
Mississippi	1	1	0	7
Texas	18	10	8	220
Total	150	93	57	2,474

Source: SERO list of current permit holders and NMFS/USCG vessel data base.

Some of the charter vessel/headboat permit holders also have a Gulf reef fish permit that allows their vessels to be used to harvest commercial quantities when not operating as for-hire vessels. Of the aforementioned 812 vessels with a Gulf reef fish permit, 150 or approximately 18.5% also have a Gulf reef fish charter vessel/headboat permit (Table 3.1.6). Almost three quarters (74%) of these dual-permitted vessels are owned by Florida residents

and 93 (62%) are documented vessels. Total net tonnage of the documented vessels is almost 2,500. The average net tonnage of these dual-permitted documented vessels is 16.5, as opposed to 22.3, which is the average net tonnage of all documented vessels with a Gulf reef fish permit.

Two of the 31 vessels with Historical Gulf Captain Charter/Headboat Endorsements for Reef Fish also have Gulf reef fish permits. Both of these vessels have a hailing port in Florida, are documented, and when combined have a total net tonnage of 21.

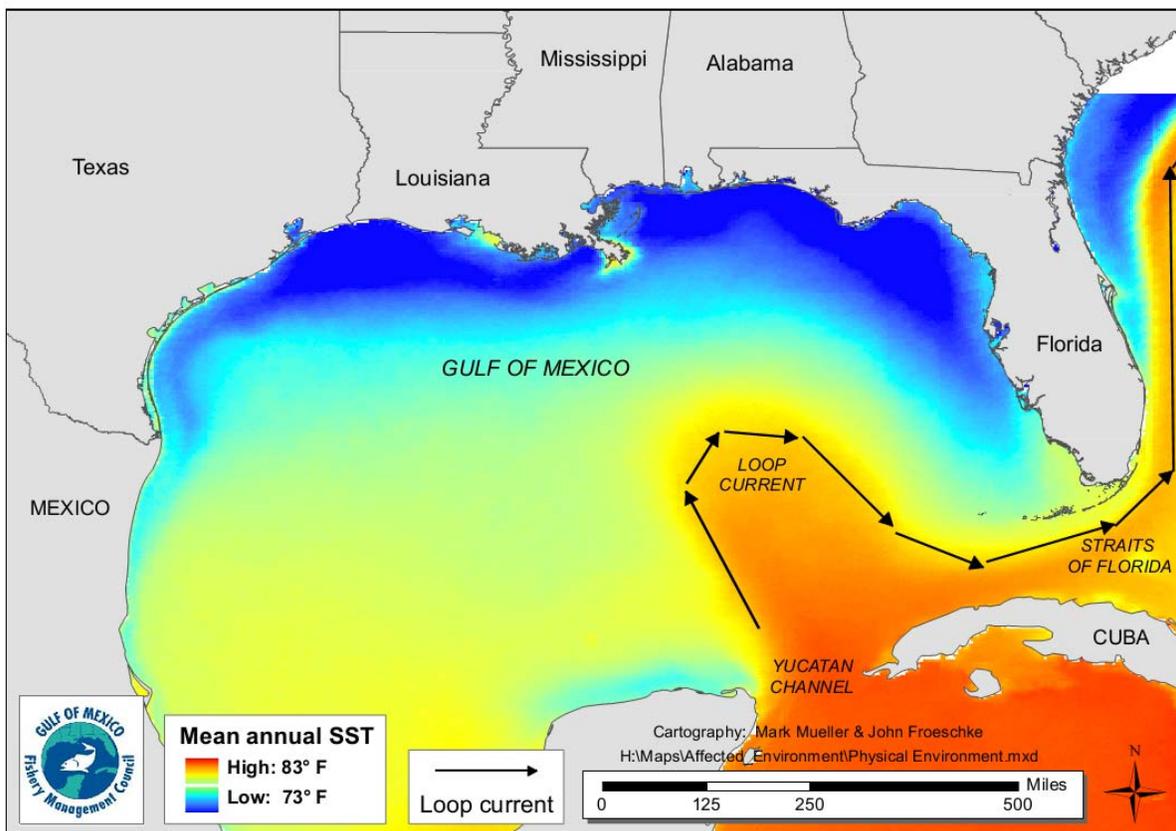
A Charter Vessel/Headboat Permit for Gulf reef fish that does not have a historical captain endorsement is fully transferable, with or without sale of the permitted vessel, except that no transfer is allowed to a vessel with a greater authorized passenger capacity than that of the vessel to which the moratorium permit was originally issued, as specified on the face of the permit being transferred. A Charter Vessel/Headboat Permit for Gulf reef fish that has a Historical Captain Endorsement may only be transferred to a vessel operated by the historical captain, cannot be transferred to a vessel with a greater authorized passenger capacity than that of the vessel to which the moratorium permit was originally issued, as specified on the face of the permit being transferred, and is not otherwise transferable.

When the above dual-permitted vessels are operating under their Gulf reef fish permit (as commercial vessels), their harvests count as commercial landings and can exceed the recreational daily bag limit. When operating as for-hire vessels, reef fish are taken under the bag limit and cannot be sold. Hence, their landings are recreational.

The share of recreational landings of vermilion snapper in the Gulf states area by for-hire vessels has shown a generally increasing trend from 2001 through 2011. A partial explanation for this increasing trend is that for-hire vessels, on average, can land more vermilion snapper per trip than private vessels because they typically have more anglers on board and do land more vermilion snapper after the recreational season for red snapper closes. The red snapper recreational season was open three months in 2009, four months in 2010, and less than two months in 2011. In 2012, the season opened on June 1 and ended July 17. This includes a six-day extension to account for bad weather during the 2012 season.

## 3.2 Description of the Physical Environment

The Gulf has a total area of approximately 600,000 square miles (1.5 million km<sup>2</sup>), 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 (Figure 3.2.1). Oceanographic conditions are affected by the Loop Current, discharge of freshwater into the northern Gulf, and a semi-permanent, anti-cyclonic gyre in the western Gulf. The Gulf includes both temperate and tropical waters (McEachran and Fechhelm 2005). Mean annual sea surface temperatures ranged from 73 through 83° F (23-28° C) including bays and bayous (Figure 3.2.1) between 1982 and 2009, according to satellite-derived measurements (NODC 2012: <http://accession.nodc.noaa.gov/0072888>). In general, mean sea surface temperature increases from north to south with large seasonal variations in shallow waters.



**Figure 3.2.1.** Mean annual sea surface temperature derived from the Advanced Very High Resolution Radiometer Pathfinder Version 5 sea surface temperature data set (<http://pathfinder.nodc.noaa.gov>).

The physical environment for Gulf reef fish is detailed in the Environmental Impact Statement for the Generic Essential Fish Habitat (EFH) Amendment (GMFMC 2004a) and the Generic ACL/AM Amendment (GMFMC 2011) which are hereby incorporated by reference.

## **Habitat Areas of Particular Concern (HAPC)**

Generic Amendment 3 (GMFMC 2005) for addressing EFH, HAPC, and adverse effects of fishing in the following fishery management plans of the Gulf Reef Fish Resources, Red Drum, and Coastal Migratory Pelagics is hereby incorporated by reference.

### **Environmental Sites of Special Interest Relevant to Reef Fish, Red Drum, Coastal Migratory Pelagics, Spiny Lobster, Red Drum, and Coral and Coral Reefs (Figure 3.2.2)**

Longline/Buoy Gear Area Closure – Permanent closure to use of these gears for reef fish harvest inshore of 20 fathoms (36.6 meters) off the Florida shelf and inshore of 50 fathoms (91.4 meters) for the remainder of the Gulf, and encompasses 72,300 square nautical miles (nm<sup>2</sup>) or 133,344 km<sup>2</sup> (GMFMC 1989). Bottom longline gear is prohibited inshore of 35 fathoms (54.3 meters) during the months of June through August in the eastern Gulf (GMFMC 2009), but is not depicted in Figure 3.2.2.

Madison-Swanson and Steamboat Lumps Marine Reserves - No-take marine reserves (total area is 219 nm<sup>2</sup> or 405 km<sup>2</sup>) sited based on gag spawning aggregation areas where all fishing is prohibited except surface trolling from May through October (GMFMC 1999; 2003).

The Edges Marine Reserve – All fishing is prohibited in this area (390 nm<sup>2</sup> or 1,338 km<sup>2</sup>) from January through April and possession of any fish species is prohibited, except for such possession aboard a vessel in transit with fishing gear stowed as specified. The provisions of this do not apply to highly migratory species (GMFMC 2008).

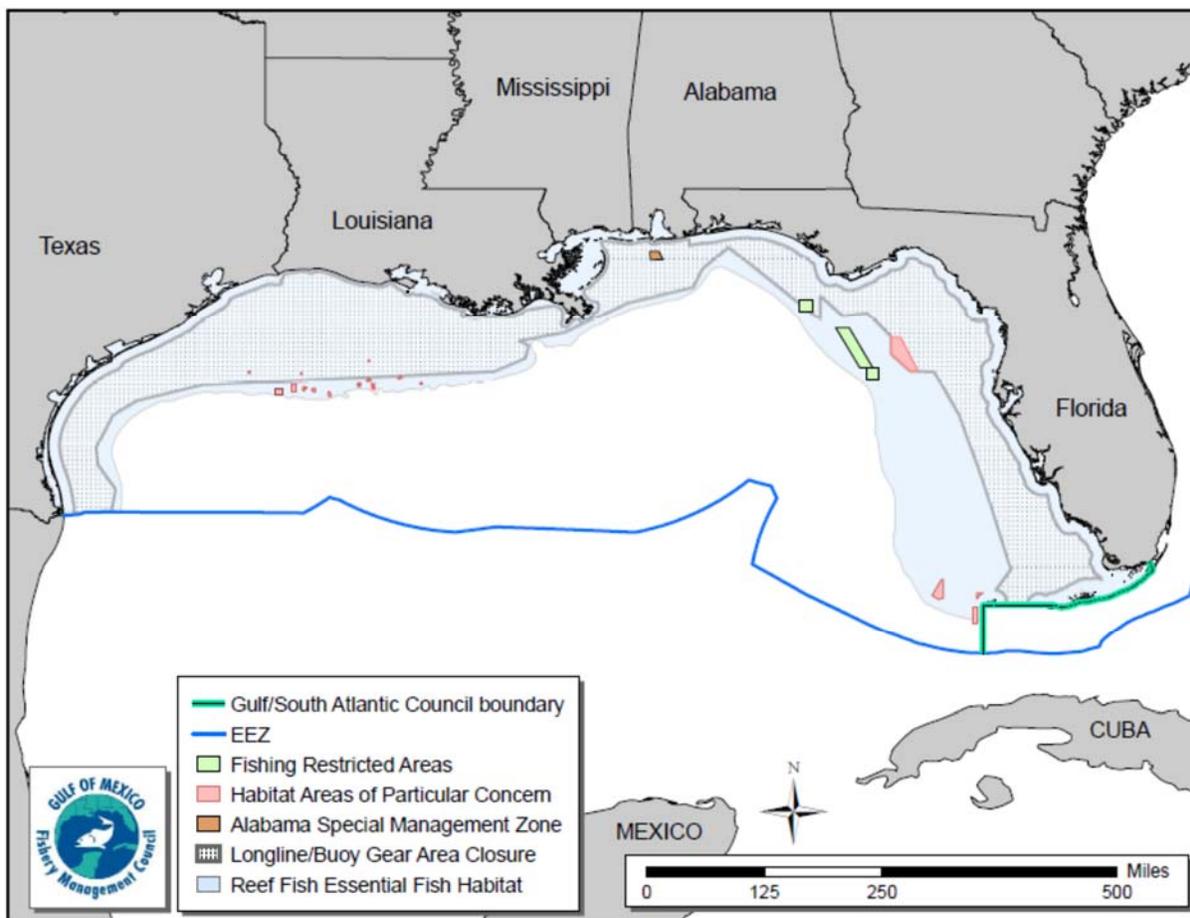
Tortugas North and South Marine Reserves – No-take marine reserves (185 nm<sup>2</sup>) cooperatively implemented by the state of Florida, National Ocean Service, the Gulf of Mexico Fishery Management Council (Council), and the National Park Service in Generic Amendment 2 Establishing the Tortugas Marine Reserves (GMFMC 2001).

Reef and bank areas designated as Habitat Areas of Particular Concern (HAPCs) in the northwestern Gulf include – 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 – pristine coral areas protected by preventing the use of some fishing gear that interacts with the bottom and prohibited use of anchors (totaling 263.2 nm<sup>2</sup> or 487.4 km<sup>2</sup>). Subsequently, three of these areas were established as marine sanctuaries (i.e., East and West Flower Garden Banks and Stetson Bank). 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 significant coral resources on Stetson Bank (GMFMC 2005). A weak link in the tickler chain of bottom trawls on all habitats throughout the EEZ is required. A weak link is defined as a length or section of the tickler chain that has a breaking strength less than the chain itself and is easily seen as such when visually inspected. An education program for the protection of coral reefs when using various fishing gears in coral reef areas for recreational and commercial fishermen was also developed.

Florida Middle Grounds HAPC - Pristine soft coral area (348 nm<sup>2</sup> or 644.5 km<sup>2</sup>) that is protected by prohibiting the following gear types: bottom longlines, trawls, dredges, pots and traps (GMFMC and SAFMC 1982).

Pulley Ridge HAPC - A portion of the HAPC (2,300 nm<sup>2</sup> or 4,259 km<sup>2</sup>) 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 (GMFMC 2005).

Alabama Special Management Zone – For vessels 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, fishing is limited to hook-and-line gear with no more than three hooks. Nonconforming gear is restricted to recreational bag limits, or for reef fish without a bag limit, to 5% by weight of all fish aboard (GMFMC 1993).



**Figure 3.2.2.** Map of most fishery management closed areas in the Gulf.

### 3.2.1 Deepwater Horizon

The Deepwater Horizon MC252 oil spill in 2010 affected at least one-third of the Gulf of Mexico 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 was dispersed on the surface, and because of the heavy use of dispersants (both at the surface and at the wellhead), oil was also documented as being suspended within the water column, some even deeper than the location of the broken well head. Floating and suspended oil washed onto shore in several areas of the Gulf of Mexico as were 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.

Surface or submerged oil during the Deepwater Horizon MC252 event could have restricted the normal processes of atmospheric oxygen mixing into and replenishing oxygen concentrations in the water column, thus affecting the long-standing hypoxic zone located west of the Mississippi River on the Louisiana continental shelf. In addition, microbes in the water that break down oil and dispersant also consume oxygen, which could lead to further oxygen depletion. Zooplankton that feed on algae could also be negatively impacted, thus allowing more of the hypoxia-fueling algae to grow.

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

The EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish. “Substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities. This definition resulted from the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), which set forth a new mandate for the National Oceanic and Atmospheric Agency’s (NOAA) National Marine Fisheries Service (NMFS), regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat. The EFH provisions of the Magnuson-Stevens Act support one of the nation’s overall marine resource management goals - maintaining sustainable fisheries. Essential to achieving this goal is the maintenance of suitable marine fishery habitat quality and quantity.

According to the Magnuson-Stevens Act, EFH must be designated in a fishery management plan (FMP) for the fishery as a whole<sup>1</sup>. The Essential Fish Habitat Final Rule<sup>2</sup> clarifies that every FMP must describe and identify EFH for each life stage of each managed species. The Magnuson-Stevens Act also directs NMFS and the Councils to identify actions to encourage the conservation and enhancement of EFH and identify measures to minimize to the extent practicable the adverse effects of fishing on EFH.

In the Gulf of Mexico, EFH was created through an amendment prepared in 1998 for FMPs for species managed by the Gulf of Mexico Fishery Management Council (Gulf Council) (GMFMC 1998). In 2004, the NMFS completed an updated analysis and in 2005 a second EFH-FMP amendment was approved (GMFMC 2005). The analysis examined alternatives for EFH based on linkages between habitats and the individual species and life stages of the managed fishery stocks. This information was then aggregated into a single EFH designation for each of the

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<sup>1</sup> 16 U.S.C. §1853(a)(7)

<sup>2</sup> 50 C.R.F. Part 600

seven fishery management plans for the Gulf of Mexico. A single map for each FMP is used to describe and identify EFH for each fishery. Although EFH designations appear to be very expansive, encompassing most of the coastal waters and Exclusive Economic Zone, it is important to realize that the maps of all currently identified EFH in U.S. waters comprise the aggregate of separate EFH designations for many managed species, each with two to four distinct life stages as well as seasonal differences in habitat requirements. For example, EFH for some managed fish stocks is designated only for bottom habitats or surface waters. Careful and deliberate consideration by NMFS and the Gulf Council was taken in designating the spatial extent of EFH. The effort to identify and delineate EFH was a rigorous process that involved advice and input by numerous state and federal agencies and the public at large. Relative species density was mapped for a limited number of federally managed species and life stages in the NOAA Atlas<sup>3</sup> (NOAA 1985) but the Atlas does not provide density information for most species and life stages in the fishery management units of the Gulf of Mexico. By combining the density data available in the NOAA Atlas with density information derived from an analysis of functional relationships between fish and their habitats, the maximum amount of information available at the time regarding the relative density and distribution of managed species was used to distinguish EFH from all habitats potentially occupied by species and their life stages.

Although a comprehensive description of the affected biological environment in the Gulf of Mexico for the species included in this framework action exists as described above, the affected biological environment may have been modified in April 2010, when the Deepwater Horizon MC252 deep-sea drilling rig exploded and sank off the coast of Louisiana. As a result of the oil spill, approximately one-third of the Gulf of Mexico was closed to fishing and impacted important spawning areas during the spawning season for many species. Short and long term oil and dispersant effects on the environment and marine life are currently unknown; however, the oil and dispersant are likely to have had an immediate negative impacts on the eggs and larvae of numerous fish species. These effects may result in a reduction in the 2010 year-class but the full impact would not become apparent until fish spawned after the oil spill become large enough to enter the fishery in the next two to four years. Additional damage to fish stocks in the form of chronic effects caused by continuing oil and dispersants in the environment may not be fully documented for years; however, there are no current data available that the oil spill has affected current stock biomass levels.

### **3.3.1 Reef Fish**

#### **General Information on Reef Fish Species**

Gulf of Mexico reef fish distributions were developed through a collaboration among NOS, NMFS, and the Gulf Council (SEA 1998). Distributions were determined by combining data from various databases including Southeast Area Monitoring and Assessment Program (SEAMAP), state trawl surveys, and the Estuarine Living Marine Resources (ELMR) Program. SEAMAP and state trawl surveys provided fishery-independent data. The ELMR Program characterized relative abundance of specific species ranked as highly abundant, abundant,

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<sup>3</sup> The maps prepared for the NOAA Atlas can currently be found at the National Center for Coastal Monitorina and Assessment – Gulf of Mexico Essential Fish Habitat website: <http://ccma.nos.noaa.gov/products/biogeography/gom-efh/>.

common, rare, not found, and no data for various Gulf estuaries. Abundance was represented by life stage (adult, spawning, egg, larvae, and juvenile), month and five seasonal salinity zones (0-0.5, 0.5-5, 5-15, 15-25, and >25 parts per thousand (ppt)).

The 22 species in the Reef Fish FMP included in this framework action occur extensively throughout the Gulf of Mexico, some inhabiting pelagic and benthic habitats during their life stages. The eggs and larvae of most of the reef fish species are planktonic without parental protection. Following yolk sac absorption, larvae feed on phytoplankton and zooplankton.

As juveniles and adults, many reef fishes are demersal, often associated with bottom topographies on the continental shelf (<100 m) in areas that incorporate high relief, such as ledges, limestone outcroppings, caves, coral reefs, artificial reefs, rocky hard-bottom substrates, and sloping soft-bottom areas. Other species occur over sand and soft-bottom substrates. Juvenile red snapper are often found on mud bottoms in the northern Gulf, particularly off Texas through Alabama (GMFMC 1998) and more recently off soft-bottom substrate off southwest Florida. Juvenile snapper species occur in inshore seagrass beds, mangrove estuaries, lagoons, and larger bay systems (GMFMC 1981). Grouper juveniles have also been documented in inshore habitats such as coral reefs, jetties, seagrass beds, mangrove estuaries, lagoons, and larger bay systems (GMFMC 1981). Additional information on hard bottom substrate and coral is in the FMP for Corals and Coral Reefs (GMFMC and SAFMC 1982 and Final Report Gulf Council 5-Year Review of the Final Generic Amendment Number 3. 2010).

### **3.3.2 Status of Reef Fish Stocks**

Species in this amendment include 22 of the 31 reef fish species of which four species have had stock assessments completed.

The assessed species are:

- black grouper (SEDAR 19 2010)
- hogfish (Ault et al. 2003; SEDAR 6 2004b)
- tilefish (golden) (SEDAR 22 2011a)
- yellowedge grouper (Cass-Calay and Bahnick 2002; SEDAR 22 2011b)

Of these four species that have had stock assessments conducted, the second quarter report of the 2012 Status of U.S. Fisheries (NMFS 2013) did not classify any of these species as overfished or undergoing overfishing. The results of many stock assessments and stock assessment reviews are available to the public and are located on the Gulf Council ([www.gulfcouncil.org](http://www.gulfcouncil.org)) and Southeast Data Assessment and Review (SEDAR) ([www.sefsc.noaa.gov/sedar](http://www.sefsc.noaa.gov/sedar)) websites.

### **3.3.3 Protected Species**

There are 28 different species of marine mammals that may occur in the Gulf of Mexico. All 28 species are protected under the Marine Mammal Protection Act (MMPA) and six are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback and North Atlantic right whales). Other species protected under the ESA occurring in the Gulf of Mexico 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 coral and staghorn coral). Information on the distribution, biology, and abundance of these protected species in the Gulf of Mexico is included in final Environmental Impact Statement (EIS) to the Gulf Council's Generic EFH Amendment (GMFMC 2004a) and the February 2005, October 2009, and September 2011 ESA biological opinions on the reef fish fishery (NMFS 2005; NMFS 2009; NMFS 2011a). Marine Mammal Stock Assessment Reports and additional information are also available on the NMFS Office of Protected Species website: <http://www.nmfs.noaa.gov/pr/species/>.

The MMPA 2013 List of Fisheries (78 FR 53336; August 29, 2013) considers vertical line gear and longline gear as Category III gears. These gears are the dominant gear used in the Gulf of Mexico reef fish fishery - vertical line (90%) and longline (5.4%) gear. This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from any fishery is less than or equal to 1% of 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. Dolphins are the only species documented as interacting with these fisheries. Bottlenose dolphins prey upon on the bait, catch, and/or released discards of fish from the reef fish fishery. They are also a common predator around reef fish vessels, feeding on the discards.

All five species of sea turtles are adversely affected by the Gulf of Mexico reef fish fishery. Incidental captures are relatively infrequent, but occur in all commercial and recreational hook-and-line components of the reef fishery. Loggerhead sea turtles are by far the most frequently incidentally caught sea turtles. 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 fishing hooks or lines that were ingested, entangling, or otherwise still attached when they were released. Sea turtle release gear and handling protocols are required in the commercial and for-hire reef fish fisheries to minimize post-release mortality.

Smalltooth sawfish also interact with the Gulf of Mexico reef fish fishery, but to a much lesser extent. Smalltooth sawfish primarily occur in the Gulf of Mexico off peninsular Florida. Incidental captures in the commercial and recreational hook-and-line components of the reef fish fishery are rare events, with only eight smalltooth sawfish estimated to be incidentally caught every three years, and none are expected to result in mortality (NMFS 2011). Fishermen in this fishery are required to follow smalltooth sawfish safe handling guidelines. The long, toothed rostrum of the smalltooth sawfish causes this species to be particularly vulnerable to entanglement in fishing gear.

### **3.4 Description of the Economic Environment**

See Description of the Fishery.

### **3.5 Description of the Social Environment**

This framework action proposes a recalibration of existing data and is not expected to impact fishing behavior or practices. The OFLs, ABCs, ACLs, and optionally, ACTs for the 22 species

to be revised by this action were established in the Generic ACL/AM Amendment (GMFMC 2011), which also includes a description of the social environment for the commercial and recreational sectors. The document is incorporated here by reference and the information on fishing communities is summarized below.

The top 10 commercial fishing communities are identified based on total value and pounds of landings for the shallow-water grouper, deep-water grouper, and tilefish species groupings. All species included in these groupings are managed by the commercial individual fishing quota programs; additionally, these three groupings represent the majority of the landings value for the 22 species affected by this action. For shallow-water grouper, all top 10 communities are in Florida, concentrated in Pinellas County and the Panhandle. Florida communities represent 7 of the top 10 communities landing deep-water grouper and 6 of the top 10 communities landing tilefish. Madeira Beach and Panama City, FL, each rank in the top three communities for all three species groupings (Table 3.5.1). Additional information pertaining to the commercial harvest of deep-water grouper, shallow-water grouper, and tilefish is included in the 2011 Gulf of Mexico Grouper-Tilefish Individual Fishing Quota Annual Report (SERO 2012a).

**Table 3.5.1.** Top ten commercial fishing communities based on landings and value in 2008 for shallow-water grouper, deep-water grouper, and tilefish.

Shallow-water grouper	Deep-water grouper	Tilefish
Madeira Beach, FL	Madeira Beach, FL	Panama City, FL
Panama City, FL	Panama City, FL	Apalachicola, FL
Cortez, FL	Port Isabel, TX	Madeira Beach, FL
Apalachicola, FL	Key West, FL	Key West, FL
Saint Petersburg, FL	Apalachicola, FL	Port Isabel, TX
Tarpon Springs, FL	Golden Meadow, FL	Golden Meadow, TX
Key West, FL	Ruskin, FL	Port Bolivar, TX
Redington Shores, FL	Cortez, FL	Destin, FL
Clearwater, FL	Port Bolivar, TX	Bon Secour, AL
Destin, FL	Grand Isle, LA	Ruskin, FL

Source: Generic ACL/AM Amendment, Figures 3.4.1.1, 3.4.1.2, and 3.4.1.5 (GMFMC 2011).

Recreational landings of reef fish by community are not available. The Generic ACL/AM Amendment provides the number of federal Gulf charter/headboat reef fish permits as a proxy for identifying areas of importance for recreational fishing of reef fish. According to the referenced description, charter/headboat permits are most densely concentrated in the Florida Panhandle and Alabama. This is expected as there are large fleets of for-hire vessels in Destin, Florida and Orange Beach, Alabama.

### 3.5.1 Environmental Justice Considerations

Executive Order 12898 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This executive order is generally referred to as environmental justice (EJ).

To evaluate EJ considerations for the proposed actions, information on poverty and minority rates is examined at the county level. Information on the race and income status for groups at the different participation levels (vessel owners, crew, dealers, employees, etc.) is not available. Because the proposed actions would be expected to affect fishermen and associated industries in several communities along the Gulf coast and not just those profiled, it is possible that other counties have poverty or minority rates that exceed the EJ thresholds.

In order to identify the potential for EJ concern, the rates of minority populations (non-white, including Hispanic) and the percentage of the population that was below the poverty line were examined. Because this proposed action could be expected to affect fishermen and associated businesses in numerous communities along the Gulf of Mexico coast, census data (available at the county level only) have been assessed to examine whether any coastal counties have poverty or minority rates that exceed the EJ thresholds. The threshold for comparison that was used was 1.2 times the state average for minority population rate and percentage of the population below the poverty line. If the value for the county was greater than or equal to 1.2 times the state average, then the county was considered an area of potential EJ concern (EPA 1999). Census data for the year 2010 was used. Estimates of the state minority and poverty rates, associated thresholds, and county rates are provided in Table 3.5.2; note that only counties that exceed the minority threshold and/or the poverty threshold are included in the table.

While some counties and communities expected to be affected by this proposed amendment may have minority or economic profiles that exceed the EJ thresholds and, therefore, may constitute areas of concern, significant EJ issues are not expected to arise as a result of this proposed amendment. No adverse human health or environmental effects are expected to accrue to this proposed amendment, nor are these measures expected to result in increased risk of exposure of affected individuals to adverse health hazards. The proposed management measures would apply to all participants in the affected area, regardless of minority status or income level, and information is not available to suggest that minorities or lower income persons are, on average, more dependent on the affected species than non-minority or higher income persons.

**Table 3.5.2.** Environmental Justice thresholds (2010 U.S. Census data) for counties in the Gulf of Mexico region. Only coastal counties (west coast for Florida) with minority and/or poverty rates that exceed the state threshold are listed.

State	County/Parish	Minority Rate	Minority Threshold*	Poverty Rate	Poverty Threshold*
<b>Florida</b>		<b>47.4</b>	<b>56.88</b>	<b>13.18</b>	<b>15.81</b>
	Dixie	8.7	38.7	19.6	-3.79
	Franklin	19.2	28.2	23.8	-7.99
	Gulf	27	20.4	17.5	-1.69
	Jefferson	38.5	8.9	20.4	-4.59
	Levy	17.9	29.5	19.1	-3.29
	Taylor	26.2	21.2	22.9	-7.09
<b>Alabama</b>		<b>31.5</b>	<b>37.8</b>	<b>16.79</b>	<b>20.15</b>
	Mobile	39.5	-1.7	19.1	1.05
<b>Mississippi</b>		<b>41.9</b>	<b>50.28</b>	<b>15.82</b>	<b>18.98</b>
<b>Louisiana</b>		<b>39.1</b>	<b>46.92</b>	<b>15.07</b>	<b>18.08</b>
	Orleans	70.8	-25	23.4	-1.29
<b>Texas</b>		<b>39.1</b>	<b>46.92</b>	<b>15.07</b>	<b>18.08</b>
	Cameron	87.4	-24.7	35.7	-15.57
	Harris	63.5	-0.8	16.7	3.43
	Kenedy	71.7	-9	52.4	-32.27
	Kleberg	75	-12.3	26.1	-5.97
	Matagorda	51.9	10.8	21.9	-1.77
	Nueces	65.5	-2.8	19.7	0.43
	Willacy	89	-26.3	46.9	-26.77

\*The county minority and poverty thresholds are calculated by comparing the county minority rate and poverty estimate to 1.2 times the state minority and poverty rates. A negative value for a county indicates that the threshold has been exceeded. No counties in Mississippi exceed the state minority or poverty thresholds.

Finally, the general participatory process used in the development of fishery management measures (e.g., open Council meetings and electronic public comment periods) is expected to provide sufficient opportunity for meaningful involvement by potentially affected individuals to participate in the development process of this amendment and have their concerns factored into the decision process. Public input from individuals who participate in the fishery has been considered and incorporated into management decisions throughout development of the amendment.

## 3.6 Description of the Administrative Environment

### 3.6.1 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. The EEZ is defined as an area extending 200 nautical miles from the seaward boundary of each of the coastal states. The Magnuson-Stevens Act also claims 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 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 Gulf Council is responsible for fishery resources in federal waters of the Gulf of Mexico. These waters extend to 200 nautical miles (370 kilometers (km)) offshore from the nine nautical mile (16.7 km) seaward boundary of the states of Florida and Texas, and the three nautical mile (5.5 km) seaward boundary of the states of Alabama, Mississippi, and Louisiana. The length of the Gulf of Mexico coastline is approximately 1,631 miles (2,625 km). Florida has the longest coastline of 770 miles (1,239 km) along its Gulf coast, followed by Louisiana (397 miles or 639 km), Texas (361 miles or 581 km), Alabama (53 miles or 85 km), and Mississippi (44 miles or 71 km).

The Gulf Council consists of seventeen voting members: 11 of whom are appointed by the Secretary; the National Marine Fisheries Service Regional Administrator, and 1 representative from each of the 5 Gulf states marine resource agencies. The public is also involved in the fishery management process through participation on advisory panels and through publically open Gulf Council meetings, with some exceptions for discussing internal administrative matters. The regulatory process is also 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.

Regulations contained within FMPs are enforced through actions of the NMFS’s Office of Law Enforcement, the U.S. Coast Guard, and various state authorities. To better coordinate enforcement activities, federal and state enforcement agencies have developed cooperative agreements to enforce the Magnuson-Stevens Act. These activities are being coordinated by the Gulf Council’s Law Enforcement Advisory Panel and the Gulf States Marine Fisheries Commission’s Law Enforcement Committee.

### **3.6.2 State Fishery Management**

The purpose of state representation at the Gulf 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 of Texas, Louisiana, Mississippi, Alabama, and Florida have the authority to manage their respective state fisheries. Each of the five Gulf of Mexico states exercises legislative and regulatory authority over their states' natural resources through discrete administrative units. Although each agency is the primary administrative body with respect to the state's natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources. A more detailed description of each state's primary regulatory agency for marine resources is provided in Amendment 22 (GMFMC 2004b).

## CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

### 4.1 Action 1 – Revise the overfishing limits (OFLs), acceptable biological catches (ABCs), annual catch limits (ACLs), and annual catch targets (ACTs) for select species managed under the Gulf of Mexico (Gulf) Reef Fish Resources Fishery Management Plan (FMP).

#### 4.1.1 Direct and Indirect Effects on the Physical Environment

This framework action is an administrative process that would modify 22 reef fish species overfishing limits (OFLs), acceptable biological catches (ABCs), annual catch limits (ACLs), and annual catch targets (ACTs) that are in the Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico (Reef Fish FMP). This action is not expected to directly affect the physical environment, but is expected to have an indirect effect on the physical environment. The physical environment associated with the 21 species whose ACLs are increasing, and one species whose ACL is decreasing would be expected to be negatively affected from the overall increase in effort associated with fishing activities. These effects are potential effects based upon the fishing industry increasing fishing efforts and its interactions with the physical environment. Simply increasing or decreasing ACLs is not anticipated to have direct effects on the physical environment associated with reef fish in the Gulf of Mexico.

**Alternative 1 (no action)** would be expected to potentially provide less indirect negative effects to the physical environment compared to **Alternative 2**. **Alternative 2** will update OFLs, ABCs, ACLs, and ACTs with information from MRIP. The increases in OFLs, ABCs, ACLs, and ACTs has the potential to increase fishing effort and thus increasing the amount of fishing activity interactions and effects to the physical environment. **Preferred Alternative 3** will revise the OFLs, ABCs, and ACLs, but does not establish ACTs, or sector ACTs for stocks listed in Table 2.1.1. **Preferred Alternative 3** is expected to have the same potential to increase fishing effort as **Alternative 2**. This expected increase in fishing activity interactions would potentially result in negative effects to the physical environment.

#### 4.1.2 Direct and Indirect Effects on the Biological/Ecological Environment

Modifying the reef fish species' ACLs that are in the Reef Fish FMP is an administrative process, and is not expected to directly affect the biological environment, but is expected to have indirect effects on the biological environment. **Alternative 1 (no action)** would not modify the existing OFLs, ABCs, ACLs, or ACTs. This is inconsistent with the National Standard guidelines, and would not use the best available science in determining OFLs, ABCs, ACLs, and ACTs. **Alternative 1 (no action)** would result in the same biological effects that are currently resulting from management. **Alternative 2** sets the annual catch limit (or the annual catch target when the limit is set equal to acceptable biological catch) based on a buffer determined by the ACL/ACT control rule. This tailors the buffer on a stock by stock basis to provide the optimum benefits to the biological environment and the fishing industry. **Preferred Alternative 3** sets the

ACLs but would not set any ACTs. The difference between **Alternative 2** and **3** would be expected to result in a greater potential to exceed the ACL resulting from management not implementing any accountability measures until the ACLs have been met. **Alternative 1 (no action)** would be expected to have less effects to the biological environment than **Alternative 2 and 3**. The potential increase in fishing effort and harvest in **Alternative 2 and 3** would be expected to have effects to the biological environment.

In 2012, four of the 22 species in this framework action reached and exceeded their ACLs. The species were the Jacks Complex (almaco jack, banded rudderfish, lesser amberjack) and hogfish. Since the fishing industry has not harvested or exceeded the majority of the reef fish species ACLs it is not expected that increasing the ACLs for 21 of the 22 reef fish species would not be expected to increase effects on the biological environment.

### 4.1.3 Direct and Indirect Effects on the Economic Environment

**Alternative 1** is the status quo alternative. Consequently, **Alternative 1** would not change the ACLs and would have no economic impact beyond the baseline. That baseline, however, is based on the use of less current recreational landings data (Marine Recreational Fisheries Survey and Statistics (MRFSS)) to determine the ACLs, which could result in lower net economic benefits in both the short- and long-run.

**Alternative 2** and **Preferred Alternative 3** would use improved recreational landings data (Marine Recreational Information Program (MRIP)) to revise the ACLs, and both are expected to produce increases in the ACLs for 21 of the 22 species (Table 4.1.1). These higher ACLs would allow for higher landings from as low as 1% to as much as 78%, which could substantially increase associated ex-vessel revenues from commercial harvest of those species, which, in turn, could substantially increase economic benefits to commercial fishermen, wholesale dealers, and retailers of reef fish resources and their families and communities.

**Table 4.1.1.** Percent Change in ACL Caused by Alternative 2 and Preferred Alternative 3.

Complex/Species	Change of ACL (Lbs)		
	2014	2015	2016+
	<b>Increasing</b>		
<b>Shallow Water Grouper</b>	1.00%	1.00%	1.00%
<b>Deep Water Grouper</b>	17.00%	18.00%	20.00%
<b>Tilefishes</b>	12.00%	12.00%	12.00%
<b>Jacks</b>	As much as 37%	As much as 37%	As much as 37%
<b>Mid-Water Snapper</b>	As much as 10%	As much as 10%	As much as 10%
<b>Lane Snapper</b>	As much as 16%	As much as 16%	As much as 16%
<b>Cubera Snapper</b>	As much as 78%	As much as 78%	As much as 78%
<b>Hogfish</b>	As much as 59%	As much as 59%	As much as 59%
	<b>Decreasing</b>		
<b>Gray Snapper</b>	As much as 7%	As much as 7%	As much as 7%

Actual increases, however, may not be as large as the above potential increases. Landings of some complexes did not meet or exceed their ACLs in 2012; however, landings of the jacks complex (almaco jack, banded rudderfish, lesser amberjack) and hogfish exceeded their ACLs that year. Consequently, the increases in the ACLs for jacks and hogfish are more likely to yield increases in landings and associated economic benefits of those complexes/species. Nonetheless, the potential net increases of commercial landings could be as much as 337,935 lbs in 2014 and over 347,000 lbs in 2015, 2016 and beyond, assuming all increases in landings of the non-allocated complexes/species are in the commercial sector (Table 4.1.2).

**Table 4.1.2.** Maximum changes in commercial landings caused by Alternative 2 and Preferred Alternative 3.

Complex/Species	Change of ACL (Lbs)		
	2014	2015	2016+
	<b>Commercial ACL</b>		
<b>Shallow Water Grouper</b>	6,000	6,000	6,000
<b>Deep Water Grouper</b>	197,000	207,000	208,000
<b>Tilefishes</b>	75,000	75,000	75,000
<i>Sub-total</i>	<i>278,000</i>	<i>288,000</i>	<i>289,000</i>
	<b>Total ACL</b>		
<b>Jacks</b>	39,000	39,000	39,000
<b>Mid-Water Snapper</b>	17,000	17,000	17,000
<b>Lane Snapper</b>	49,000	49,000	49,000
<b>Cubera Snapper</b>	3,935	3,935	3,935
<b>Hogfish</b>	123,000	123,000	123,000
<b>Gray Snapper</b>	-172,000	-172,000	-172,000
<i>Sub-total</i>	<i>59,935</i>	<i>59,935</i>	<i>59,935</i>
<b>Total</b>	<b>337,935</b>	<b>347,935</b>	<b>348,935</b>

The above increases in commercial landings are not without potential increases in costs. Increases in fishing effort for all but gray snapper could increase trip-level costs, such as the length of a trip, fuel and bait expenses, and personal risk, unless fishermen equally reduce trip costs from harvesting alternative species.

The recreational ACLs for shallow-water grouper, deep-water grouper, and tilefishes are not defined. Consequently, the increase in the total ACL is used to estimate potential increases in recreational landings for those three complexes. Similarly, the total ACL is used to estimate the maximum increases in recreational landings, assuming there are no increases in commercial landings. The maximum increase in recreational landings would be approximately 367,000 lbs in 2014, approximately 368,000 lbs in 2015, and over 371,000 lbs in 2016 and thereafter (Table 4.1.3). These increases would likely be divided by anglers aboard for-hire vessels and private/rented vessels and would generate increased net economic benefits to charter fishing operations and anglers.

**Table 4.1.3.** Maximum increases in recreational landings caused by Alternative 2 and Preferred Alternative 3.

Complex/Species	Change of Total ACL (Lbs)		
	2014	2015	2016+
Shallow-Water Grouper	47,000	47,000	47,000
Deep-Water Grouper	204,000	205,000	209,000
Tilefishes	75,000	75,000	75,000
Jacks	39,000	39,000	39,000
Mid-Water Snapper	17,000	17,000	17,000
Lane Snapper	30,000	30,000	30,000
Cubera Snapper	3,935	3,935	3,935
Hogfish	123,000	123,000	123,000
Gray Snapper	-172,000	-172,000	-172,000
<b>Total</b>	<b>366,935</b>	<b>367,935</b>	<b>371,935</b>

**Alternative 2** would revise the current commercial ACTs for shallow-water grouper, deep-water grouper and tilefishes, while **Preferred Alternative 3** would not specify the ACTs. Comparisons of the changes in the commercial ACLs and ACTs for these complexes are presented in Table 4.1.4. The ACT serves as a buffer to improve the likelihood that landings do not exceed the ACL, although landings of these complexes did not exceed their ACLs in 2012.

**Table 4.1.4.** Comparison of changes in commercial ACLs and ACTs for three complexes.

Complex/Species	Change in Commercial ACT					
	Alternative 1			Alternative 2		
	2014	2015	2016+	2014	2015	2016+
Shallow Water Grouper	0	0	0	6,000	5,000	5,000
Deep Water Grouper	0	0	0	189,000	199,000	199,000
Tilefishes	0	0	0	72,000	72,000	72,000
Complex/Species	Change in Commercial ACL					
	Alternative 1			Alternative 2		
	2014	2015	2016+	2014	2015	2016+
Shallow Water Grouper	0	0	0	6,000	6,000	6,000
Deep Water Grouper	0	0	0	197,000	207,000	208,000
Tilefishes	0	0	0	75,000	75,000	75,000

#### 4.1.4 Direct and Indirect Effects on the Social Environment

The social effects of potential changes in the ACLs for the 22 species (**Alternative 2** and **Preferred Alternative 3**) are expected to occur in the short and long term. Overall, adjustments in ACLs based on improved information would be beneficial to the species and would likely produce long-term benefits to the fishermen, coastal communities, and fishing businesses by contributing to sustainable harvest of these fish in the present and future. Negative social impacts could extend from expected economic impacts on the fishermen and communities where there are lower quotas relative to recent catch history, and associated accountability measures. The negative effects of accountability measures (AMs), such as early closures and paybacks (which in turn increase the likelihood of an earlier closure in the following year), are usually short term; they may at times induce other indirect effects through changes in fishing behavior or business operations that could have long term social effects. Some of those effects may involve switching to other species or discontinuing fishing altogether.

Incorporation of the best available data into the OFL, ABC, ACL, and ACT calculations (**Alternative 2**) is expected to more accurately estimate recreational and commercial landings and better reflect actual fishing behavior than not updating catch limits under **Alternative 1 (no action)** because MRFSS landing estimates will no longer be calculated. Future recreational landings would be estimated using MRIP. **Alternative 2** would result in future MRIP estimates being compared to ACLs determined using previous MRIP estimates. Although the proposed updated ACLs are considered to be based on the best available information, the proposed changes may not prevent AMs from being triggered but the proposed changes under **Alternative 2** would still be expected to improve management of the reef fish fishery and possibly minimize negative social impacts on AMs more than under **Alternative 1 (no action)**. Some social impacts associated with changes in ACLs for specific species may be linked to the expected economic impacts on the commercial and recreational sectors (see Section 4.1.3), and some impacts may not occur immediately but could be expected in the future. This is particularly significant for the recreational sector because ACLs may constrain growth in recreational effort, which is tied to the increasing pattern of coastal population growth, and national population growth in general. Therefore, even if recent recreational catch of a particular species does not meet or even come close to the adjusted recreational ACLs under **Alternative 2**, there may still be future impacts on private recreational anglers because there will be a limited number of fish available to a continually increasing number of people.

**Preferred Alternative 3** would also incorporate the best available data into the OFL, ABC, and ACL calculations through the use of MRIP to estimate recreational landings. However, **Preferred Alternative 3** would not establish ACTs or sector ACTs for the 22 included species. The ACT has no impact on management for these stocks because the ACT represents a catch target and does not require management action if exceeded so long as the ACL is not exceeded. Although the ACT establishes a set buffer, if the fishery comes close to exceeding the ACL, the fishery will be closed in a similar manner regardless of whether an ACT has been set or not. Therefore, the impacts under **Preferred Alternative 3** are expected to be the same as under **Alternative 2**.

## Species complexes

Shallow-water grouper: The 7% (47,000 lbs) total ACL increase under **Alternative 2** and **Preferred Alternative 3** is expected to be beneficial for shallow-water grouper fishermen. The 1% increase in the commercial ACL under **Alternative 2** and **Preferred Alternative 3** is expected to positively affect commercial fishermen. Although less than 60% of the commercial quota has been landed in recent years (2010 through 2012), it is likely that these IFQ fishermen would individually benefit from an increase in quota and resulting small increase in allocation. The communities with the highest levels of commercial landings for the deep-water grouper complex and increased likelihood of positive impacts include Florida communities such as Madeira Beach, Panama City, Cortez, Apalachicola, and St. Petersburg (Table 3.5.1). In 2012, approximately 86%, 134,840 lbs of the default recreational catch (amount of total ACL minus the commercial ACL) was landed. Because recent landings are close to the allowable level of catch, it is likely that the recreational sector could also benefit in the short term and long term from the proposed default recreational catch increase of 41,000 lbs under **Alternative 2** and **3**. If effort increases this could be beneficial in minimizing constraint on recreational effort.

Deep-water grouper: The 17% total ACL increase for years 2014 and 2015 and 19% increase for years 2016 and on under **Alternative 2** and **Preferred Alternative 3** is expected to benefit commercial deep-water grouper fishermen and associated businesses and communities. Deep-water grouper IFQ fishermen would likely benefit from the proposed quota increase under **Alternative 2** and **Preferred Alternative 3** of 17% (197,000 lbs) for 2014, 18% (207,000) for 2015, and 20% (208,000) for 2016 and beyond. Although a maximum of less than 86% of the commercial quota has been landed in recent years (2010 through 2012), these individual IFQ fisherman could be positively impacted because their quota and resulting allocation would be increased. The communities with the highest levels of commercial landings for the deep-water grouper complex and increased likelihood of positive impacts include communities such as Madeira Beach and Panama City, Florida (Table 3.5.1).

The recreational default allowable catch for deep-water grouper would increase in future years under **Alternative 2** and **Preferred Alternative 3** which includes a proposed increase of 7,000 lbs in 2014 (total default recreational catch amount is 51,000 for 2014), decrease of 2,000 lbs in 2015 (total default recreational catch amount is 40,000 for 2014), and an increase of 1,000 lbs in 2016 and beyond (total default recreational catch amount is 40,000 for 2016 and beyond). Although the proposed default recreational catch levels under **Alternative 2** and **Preferred Alternative 3** include an increase for the majority of the years when compared to **Alternative 1 (no action)**, the proposed level of catch is lower than recent recreational catch levels. In 2012, the recreational sector caught 58,801 lbs. Recreational deep-water grouper fishermen would benefit to a greater degree overall from **Alternative 2** when compared with **Alternative 1 (no action)**; however the recreational catch could continue to be constrained under **Alternative 2** and **Preferred Alternative 3** and could continue to experience overages in catch.

Tilefish: The 12% (75,000 lbs) total ACL increase under **Alternative 2** and **Preferred Alternative 3** is expected to benefit commercial tilefish fishermen and associated businesses and communities. The 12% ACL increase for tilefish only applies to the commercial portion of the fishery under **Alternative 2** and **3** (the proposed recreational default allowable catch amount

remains the same (2,000 lbs) under **Alternative 2** and **Preferred Alternative 3** as it does under **Alternative 1 (no action)**). Although the commercial harvest has varied in the last several years from approximately 77% of the commercial quota to approximately 88% of the commercial quota (2010 through 2012), it is expected that the sizable increase in the commercial ACL under **Alternative 2** and **Preferred Alternative 3** would positively affect IFQ fishermen (through an increase in quota and allocation) and associated businesses and communities. The communities with the highest levels of commercial landings for the tilefish complex and increased likelihood of positive impacts include such communities as Panama City, Apalachicola, and Madeira Beach, Florida (Table 3.5.1). Although the recreational default allowable catch would remain the same under **Alternative 2** and **Preferred Alternative 3** as it would under **Alternative 1 (no action)**, recent recreational landings in 2012 were substantially higher (7,896 lbs). Thus, it is likely that the recreational tilefish catch would continue to be constrained under **Alternative 2** and is it likely that overages in catch could continue to be experienced.

Jacks: The 13% (39,000 lbs) total ACL increase under **Alternative 2** and **Preferred Alternative 3** is expected to be beneficial for jacks fishermen and associated businesses and communities. In 2012, this complex exceeded their ACL by approximately 28% (86,133 lbs), more than double the proposed increase under **Alternative 2** and **Preferred Alternative 3**. Because of this recent overage, any increase such as the proposed increase under **Alternative 2** and **3** is expected to be beneficial for the commercial and recreational sectors in the short term and long term. However, it is likely that catch would continue to be constrained and overages in catch would continue to be experienced under **Alternative 2** and **3**.

Mid-water snapper: The 10% (17,000 lbs) total ACL increase under **Alternative 2** and **Preferred Alternative 3** would likely be beneficial for mid-water snapper complex fishermen. However, mid-water snapper fishermen are not expected to benefit to a great degree from the increase in the short term, unless fishing practices vary extensively from recent practices (such as if there were a large increase in fishing effort). In 2012, approximately 58.6% of the ACL was landed. Preliminary landings for 2013 show that approximately 24.6% of the total ACL for mid-water snapper has been landed (as of September 17, 2013 for the commercial sector and as of February 28, 2013 for the recreational sector).

#### Individual species

Gray snapper: The decrease of 7% (172,000 lbs) in the total ACL under **Alternative 2** and **Preferred Alternative 3** would likely negatively impact gray snapper fishermen in the long term. However, this decrease would only be expected to minimally impact gray snapper fishermen in the short term unless there is a drastic change from recent fishing practices including an increase in catch. In 2012, less than 60% of the ACL for gray snapper was landed. Preliminary landings for 2013 show that approximately 6.9% of the total ACL has been landed thus far (as of September 17, 2013, for the commercial sector and as of February 28, 2013, for the recreational sector). Because the majority of the ACL for gray snapper is caught by the recreational sector (approximately 91.4% was caught by the recreational sector in 2012), it is expected that recreational fishermen and associated businesses would be the most severely impacted by the decreased ACL proposed under **Alternative 2** and **Preferred Alternative 3**. The decrease could constrain future growth.

Lane snapper: The 16% (49,000 lbs) total ACL increase under **Alternative 2** and **Preferred Alternative 3** would likely be beneficial for lane snapper fishermen. However, only approximately 58.3% (175,581 lbs) of the ACL for lane snapper was caught in 2012. In addition, preliminary landings for 2013 show that only approximately 6% of the total ACL has been landed thus far (as of September 17, 2013, for the commercial sector and as of February 28, 2013, for the recreational sector). In 2012, approximately 85% of the lane snapper ACL was landed by the recreational sector; therefore, it is expected that the recreational sector would benefit the most from the proposed increase in ACL under **Alternative 2** and **Preferred Alternative 3**. However, in the long term, if the recreational or commercial sector increases effort, the proposed increase in the ACL could be beneficial in minimizing constraint on effort.

Cubera snapper: The 78% (3,935 lbs) total ACL increase under **Alternative 2** and **Preferred Alternative 3** would likely be beneficial for cubera snapper fishermen in the long term in that it would allow for growth in effort if fishermen desired to catch more cubera. However, less than 30% (1,496 lbs) of the ACL for cubera was caught in 2012. In addition, preliminary landings for 2013 show that only approximately 7.8% of the total ACL has been landed thus far (as of September 17, 2013, for the commercial sector and as of February 28, 2013, for the recreational sector). Therefore, it is expected that the social effects of an increase in the cubera snapper ACL under **Alternative 2** and **Preferred Alternative 3** would be very minimal in the short term. In the long term, if the recreational or commercial sector increases effort, the proposed increase in the ACL could be beneficial in minimizing constraint on effort.

Hogfish: The 59% (123,000 lbs) total ACL increase under **Alternative 2** and **Preferred Alternative 3** is expected to be beneficial for hogfish fishermen. In 2012, the ACL was exceeded by approximately 42.6% (88,534 lbs). Because of this recent overage, the proposed increase under **Alternative 2** and **Preferred Alternative 3** is expected to be beneficial for the commercial and recreational sectors in the short term and long term. The majority of the hogfish ACL is harvested by the recreational sector (approximately 84% in 2012; therefore, it is expected that recreational hogfish fishermen would be especially impacted by these positive social effects.

The historical and current landings referred to above can be found at the following weblinks.. ([http://sero.nmfs.noaa.gov/sustainable\\_fisheries/acl\\_monitoring/stock\\_gulf/historical/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/stock_gulf/historical/index.html)) [http://sero.nmfs.noaa.gov/sustainable\\_fisheries/acl\\_monitoring/commercial\\_gulf/reef\\_fish\\_historical/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/commercial_gulf/reef_fish_historical/index.html), and [http://sero.nmfs.noaa.gov/sustainable\\_fisheries/acl\\_monitoring/stock\\_gulf/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/stock_gulf/index.html)).

#### **4.1.5 Direct and Indirect Effects on the Administrative Environment**

**Alternative 1 (no action)**, would have no immediate direct or indirect effects on the administrative environment; however, by not modifying ACLs, the administrative environment may be negatively affected if harvest exceeds the ACL and overfishing occurs. This could increase the burden on Council staff and National Marine Fisheries Service (NMFS) to develop amendments in the future to address overfishing and constrain harvest. **Alternative 2** and **Preferred Alternative 3** are not expected to have direct and indirect effects on the administrative environment.

## 4.2 Cumulative Effects Analysis

As directed by the National Environmental Policy Act (NEPA), federal agencies are mandated to assess not only the indirect and direct impacts, but cumulative impacts of actions as well. The NEPA defines a cumulative impact as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). Cumulative effects can either be additive or synergistic. A synergistic effect occurs when the combined effects are greater than the sum of the individual effects.

This Chapter uses an approach for assessing cumulative effects based upon guidance offered by the CEQ publication “Considering Cumulative Effects” (1997). The report outlines 11 items for consideration in drafting a CEA for a proposed action.

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.
2. Establish the geographic scope of the analysis.
3. Establish the timeframe for the analysis.
4. Identify the other actions affecting the resources, ecosystems, and human communities of concern.
5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.
6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.
7. Define a baseline condition for the resources, ecosystems, and human communities.
8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.
9. Determine the magnitude and significance of cumulative effects.
10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.
11. Monitor the cumulative effects of the selected alternative and adapt management.

Cumulative effects on the biophysical environment, socio-economic environment, and administrative environments are analyzed below.

### **1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.**

The CEQ cumulative effects guidance states this step is accomplished through three activities as follows:

- I. The direct and indirect effects of the proposed actions (Chapter 4.1-4.5);

- II. Which resources, ecosystems, and human communities are affected (Chapter 3 and 4); and
- III. Which effects are important from a cumulative effects perspective (information revealed in this CEA) Valued ecosystem components (VECs) is “any part of the environment that is considered important by the proponent, public, scientists and government involved in the assessment process. Importance may be determined on the basis of cultural values or scientific concern” (CEAA 1999). The important VECs for this analysis are as follows:
  - 1. Managed Resource
  - 2. Habitat
  - 3. Protected Resources
  - 4. Human Communities

## **2. Establish the geographic scope of the analysis.**

The immediate areas affected by this action and analyzed in this CEA are the state and federal waters of the Gulf of Mexico. These waters include the state waters of Texas, Louisiana, Mississippi, Alabama, and Florida as well as the federal waters extending to 200 miles beyond the three-mile or nine-mile state water boundaries. The states sometimes set different regulations than the federal regulations for their own territorial waters. Other affected VECs, including non-target species, habitat, and protected species, are also within this geographic scope. The human community includes the fishing communities which coincide with the managed species geographic range, as well as the areas where processing, importing, and shipping of related products takes place.

## **3. Establish the timeframe for the analysis**

The temporal scope of impacts of past and present actions for managed resources, non-target species, habitat, and human communities is primarily focused on actions that have occurred after FMP implementation (1981) and before 2011. There are selected individual stock assessments completed for some species managed in the FMP on an annual basis with emphasis on stocks that have a larger economic value or have shown a fluctuation in recent harvest numbers. In addition, there are update assessments conducted on previously assessed species on a regular basis.

A future action to be addressed is to review species that are harvested in numbers greater than the 15,000 pound species removal threshold that was developed by the Council. The Council will be reviewing landings data to determine if any species warrants incorporation into an existing FMP.

## **4. Identify the other actions affecting the resources, ecosystems, and human communities of concern.**

- a. Fishery related actions affecting the Reef Fish Resources, Coral and Coral Reefs, Red Drum, and Shrimp Fishery Management Plans are summarized below.**

### History of Management

The following summary describes management actions that affect the reef fish fishery in the Gulf of Mexico. In addition to the listed federal actions the five Gulf states may also set fishery regulations that affect the current stocks.

### *Original Reef Fish Fishery Management Plan (1984)*

The **Reef Fish Fishery Management Plan** was implemented in November 1984. The regulations, designed to rebuild declining reef fish stocks, included: (1) prohibitions on the use of fish traps, roller trawls, and powerhead-equipped spear guns within an inshore stressed area; (2) a minimum size limit of 13 inches total length (TL) for red snapper with the exceptions that for-hire boats were exempted until 1987 and each angler could keep 5 undersize fish; and, (3) data reporting requirements. The FMP estimated a combined maximum sustainable yield (MSY) for all snapper and grouper in aggregate of 51 million pounds (mp), and set the optimum yield (OY) equal to 45 mp, which represented the approximate catch level at the time.

**Amendment 1** implemented in 1990, set objectives to stabilize long-term population levels of all reef fish species by establishing a survival rate of biomass into the stock of spawning age fish to achieve at least 20% spawning stock biomass per recruit (SSBR) by January 1, 2000. Among the grouper management measures implemented were:

- Set a 20-inch total length (TL) minimum size limit on red grouper, Nassau grouper, yellowfin grouper, black grouper, and gag;
- Set a 50-inch TL minimum size limit on goliath grouper (jewfish);
- Set a five-grouper recreational daily bag limit;
- Set an 11.0 mp commercial quota for grouper, with the commercial quota divided into a 9.2 mp SWG quota and a 1.8 mp DWG quota. SWG were defined as black grouper, gag, red grouper, Nassau grouper, yellowfin grouper, yellowmouth grouper, rock hind, red hind, speckled hind, and scamp. Scamp would be applied to the DWG quota once the SWG quota was filled. DWG were defined as misty grouper, snowy grouper, yellowedge grouper, warsaw grouper, and scamp once the SWG quota was filled. Goliath grouper were not included in the quotas;
- Allowed a two-day possession limit for charter vessels and headboats on trips that extend beyond 24 hours, provided the vessel has two licensed operators aboard as required by the U.S. Coast Guard (USCS), and each passenger can provide a receipt to verify the length of the trip. All other fishermen fishing under a bag limit were limited to a single day possession limit;
- Established a framework procedure for specification of total allowable catch (TAC) to allow for annual management changes;
- Established a longline and buoy gear boundary at approximately the 50-fathom depth contour west of Cape San Blas, Florida, and the 20-fathom depth contour east of Cape San Blas, inshore of which the directed harvest of reef fish with longlines and buoy gear was prohibited, and the retention of reef fish captured incidentally in other longline operations (e.g., sharks) was limited to the recreational daily bag limit. Subsequent changes to the longline/buoy boundary could be made through the framework procedure for specification of TAC;
- Limited trawl vessels (other than vessels operating in the unsorted groundfish fishery) to the recreational size and daily bag limits of reef fish;
- Established fish trap permits, allowing up to a maximum of 100 fish traps per permit holder;

- Prohibited the use of entangling nets for directed harvest of reef fish. Retention of reef fish caught in entangling nets for other fisheries was limited to the recreational daily bag limit;
- Established the fishing year to be January 1 through December 31;
- Extended the stressed area to the entire Gulf coast; and
- Established a commercial reef fish vessel permit.

**Amendment 2** implemented in 1990, prohibited the harvest of goliath grouper to provide complete protection for this species in federal waters in response to indications that the population abundance throughout its range was greatly depressed. This amendment was initially implemented by emergency rule.

**Amendment 16B** implemented in November 1999 set a recreational daily bag limit of one speckled hind and one warsaw grouper per vessel, with the prohibition on the sale of these species when caught under the bag limit.

**Amendment 18A** was implemented on September 8, 2006, except for VMS requirements which were implemented May 6, 2007. Amendment 18A addresses the following: (1) prohibits vessels from retaining reef fish caught under recreational bag/possession limits when commercial quantities of Gulf reef fish are aboard, (2) adjusts the maximum crew size on charter vessels that also have a commercial reef fish permit and a USCG certificate of inspection (COI) to allow the minimum crew size specified by the COI when the vessel is fishing commercially for more than 12 hours, (3) prohibits the use of reef fish for bait except for sand perch or dwarf sand perch, (4) requires devices and protocols for the safe release in incidentally caught endangered sea turtles and smalltooth sawfish, (5) updates the TAC procedure to incorporate the Southeast Data, Assessment and Review (SEDAR) assessment methodology, (6) changes the permit application process to an annual procedure and simplifies income qualification documentation requirements, and (7) requires electronic VMS aboard vessels with federal reef fish permits, including vessels with both commercial and charter vessel permits.

**Amendment 19** also known as the Generic Amendment Addressing the Establishment of the Tortugas Marine Reserves, or Generic Essential Fish Habitat (EFH) Amendment 2, was implemented on August 19, 2002. This amendment establishes two marine reserves off the Dry Tortugas where fishing for any species and anchoring by fishing vessels is prohibited.

**Amendment 27**, implemented February 28, 2008, except for reef fish bycatch reduction measures that became effective on June 1, 2008. This amendment addressed overfishing and stock rebuilding for red snapper. It also required the use of non-stainless steel circle hooks when using natural baits to fish for Gulf reef fish effective June 1, 2008, and required the use of venting tools and dehooking devices when participating in the commercial or recreational reef fish fisheries effective June 1, 2008.

**Amendment 29**, submitted to NMFS in February 2009, proposes to rationalize effort and reduce overcapacity in the commercial grouper and tilefish fisheries in order to achieve and maintain OY in these multi-species fisheries. Bycatch in the tilefish and grouper fisheries should be reduced, and a flexible and effective integrated management approach for tilefish and the

grouper complex and tilefish should follow. Reef Fish Amendment 29 evaluates several management alternatives, including an Individual Fishing Quota (IFQ) program, the preferred alternative that could be capable of achieving objectives specified above. A referendum by commercial reef fish fishermen eligible to vote was in favor an IFQ. At the January 2009 meeting, the Council deemed Amendment 29 and the proposed rule to be necessary and appropriate and to be forwarded to the Secretary of Commerce for approval and implementation.

**Amendment 30A**, implemented in August 2008, was developed to stop overfishing of gray triggerfish and greater amberjack. The amendment established ACLs and accountability measures (AMs) for greater amberjack and gray triggerfish. For greater amberjack, it modified the rebuilding plan, increased the recreational minimum size limit, set a zero bag limit for captain and crew of for-hire vessels, and set commercial and recreational quotas. For gray triggerfish, it increased the commercial and recreational minimum size limit and set a commercial quota.

**Amendment 30B**, submitted in August 2008, proposes to end overfishing of gag, revise red grouper management measures as a result of changes in the stock condition, establish ACLs and AMs for gag and red grouper, manage SWG to achieve OY, and improve the effectiveness of federal management measures. The amendment (1) defines the gag MSST and OY; (2) set interim allocations of gag and red grouper between recreational and commercial fisheries; (3) makes adjustments to the gag and red grouper TACs to reflect the current status of these stocks; (4) establishes ACLs and AMs for the commercial and recreational red grouper fisheries, commercial and recreational gag fisheries, and commercial aggregate SWG fishery; (5) adjusts recreational grouper bag limits and seasons; (6) adjusts commercial grouper quotas; (7) reduces the red grouper commercial minimum size limit; (8) replaces the one month commercial grouper closed season with a six month seasonal area closure at the Edges, a 390 square nautical mile area in the dominant gag spawning grounds; (9) eliminates the end date for the Madison-Swanson and Steamboat Lumps marine reserves; and (10) requires that vessels with federal commercial or charter reef fish permits comply with the more restrictive of state or federal reef fish regulations when fishing in state waters.

**Amendment 31**, implemented May 26, 2010, establishes additional restrictions on the use of bottom longline gear in the eastern Gulf of Mexico in order to reduce bycatch of endangered sea turtles, particularly loggerhead sea turtles. The amendment (1) prohibits the use of bottom longline gear shoreward of a line approximating the 35-fathom contour from June through August; (2) reduces the number of longline vessels operating in the fishery through an endorsement provided only to vessel permits with a demonstrated history of landings, on average, of at least 40,000 pounds of reef fish annually with fish traps or longline gear during 1999-2007; and (3) restricts the total number of hooks that may be possessed onboard each reef fish bottom longline vessel to 1,000, only 750 of which may be rigged for fishing. The boundary line was initially moved from 20 to 50 fathoms by emergency rule effective May 18, 2009. That rule was replaced on October 16, 2009 by a rule under the Endangered Species Act moving the boundary to 35 fathoms and implementing the maximum hook provisions.

## Regulatory Amendments, Emergency and Interim Rules

An August 1999 regulatory amendment, implemented June 19, 2000, increased the commercial size limit for gag and black grouper from 20 to 24 inches TL, increased the recreational size limit for gag from 20 to 22 inches TL, prohibited commercial sale of gag, black, and red grouper each year from February 15 to March 15 (during the peak of gag spawning season), and established two marine reserves (Steamboat Lumps and Madison-Swanson) that are closed year-round to fishing for all species under the Council's jurisdiction [65 FR 31827].

An emergency rule, published February 15, 2005, established a series of trip limits for the commercial grouper fishery in order to extend the commercial fishing season. The trip limit was initially set at 10,000 pounds gutted-weight (GW). If on or before August 1 the fishery is estimated to have landed more than 50% of either the SWG or the red grouper quota, then a 7,500 pound GW trip limit takes effect; and if on or before October 1 the fishery is estimated to have landed more than 75% of either the SWG or the red grouper quota, then a 5,500 pound GW trip limit takes effect [70 FR 8037].

An interim rule, published July 25, 2005, proposed for the period August 9, 2005 through January 23, 2006, a temporary reduction in the recreational red grouper bag limit from two to one fish per person per day, in the aggregate grouper bag limit from five to three grouper per day, and a closure of the recreational fishery, from November - December 2005, for all grouper species [70 FR 42510]. These measures were proposed in response to an overharvest of the recreational allocation of red grouper under the Secretarial Amendment 1 red grouper rebuilding plan. The closed season was applied to all grouper in order to prevent effort shifting from red grouper to other grouper species and an increased bycatch mortality of incidentally caught red grouper. However, the rule was challenged by organizations representing recreational fishing interests. On October 31, 2005, a U.S. District Court judge ruled that an interim rule to end overfishing can only be applied to the species that is undergoing overfishing. Consequently, the reduction in the aggregate grouper bag limit and the application of the closed season to all grouper were overturned. The reduction in the red grouper bag limit to one per person and the November-December 2005 recreational closed season on red grouper only were allowed to proceed. The approved measures were subsequently extended through July 22, 2006 by a temporary rule extension published January 19, 2006 [71 FR 3018].

An October 2005 regulatory amendment, implemented January 1, 2006, established a 6,000 pound GW aggregate DWG and SWG trip limit for the commercial grouper fishery, replacing the 10,000/7,500/5,500 step-down trip limit that had been implemented by emergency rule for 2005 [70 FR 77057].

A March 2006 regulatory amendment, implemented July 15, 2006, established a recreational red grouper bag limit of one fish per person per day as part of the five grouper per person aggregate bag limit, and prohibited for-hire vessel captains and crews from retaining bag limits of any grouper while under charter [71 FR 34534]. An additional provision established a recreational closed season for red grouper, gag and black grouper from February 15 to March 15 each year (matching a previously established commercial closed season) beginning with the 2007 season.

An interim rule was implemented on January 1, 2009, at the request of the Council because rulemaking from Amendment 30B will likely be implemented later in 2009. Measures in the temporary rule: (1) established a two-fish gag recreational bag limit (recreational grouper aggregate bag limit remained at five fish); (2) adjusted the recreational closed season for gag to February 1 through March 31 (the recreational closed season for red and black groupers remained February 15 to March 15); (3) established a 1.32 mp commercial quota for gag; and (4) required operators of federally permitted Gulf commercial and for-hire reef fish vessels to comply with the more restrictive of federal or state reef fish regulations when fishing in state waters for red snapper, greater amberjack, gray triggerfish, and gag [71 FR 66878].

### Secretarial Amendments

**Secretarial Amendment 1**, implemented July 15, 2004, established a rebuilding plan, a 5.31 mp GW commercial quota, and a 1.25 mp GW recreational target catch level for red grouper. The amendment also reduced the commercial quota for SWG from 9.35 to 8.8 mp GW and reduced the commercial quota for DWG from 1.35 to 1.02 mp GW. The recreational bag limit for red grouper was reduced to two fish per person per day. In this amendment bottom longlines were considered for movement out to 50 fathoms which had also been considered under Reef Fish Amendment 18 [54 FR 214].

**Secretarial Amendment 2**, implemented in July, 2003 for greater amberjack, specified MSY as the yield associated with  $F_{30\% SPR}$  (proxy for  $F_{MSY}$ ) when the stock is at equilibrium, OY as the yield associated with an  $F_{40\% SPR}$  when the stock is at equilibrium, maximum fishing mortality threshold (MFMT) equal to  $F_{30\% SPR}$ , and MSST equal to  $(1-M)*B_{MSY}$  or 75% of  $B_{MSY}$ . It also set a rebuilding plan limiting the harvest to 2.9 mp for 2003-2005, 5.2 mp for 2006-2008, 7.0 mp for 2009-2011, and 7.9 mp for 2012. This was expected to rebuild the stock in seven years. Regulations implemented in 1997 and 1998 (Amendments 12 and 15) were deemed sufficient to comply with the rebuilding plan so no new regulations were implemented [68 FR 39898].

### Control Date Notices

Control date notices are used to inform fishermen that a license limitation system or other method of limiting access to a particular fishery or fishing method is under consideration. If a program to limit access is established, anyone not participating in the fishery or using the fishing method by the published control date may be ineligible for initial access to participate in the fishery or to use that fishing method. However, a person who does not receive an initial eligibility may be able to enter the fishery or fishing method after the limited access system is established by transfer of the eligibility from a current participant, provided the limited access system allows such transfer. Publication of a control date does not obligate the Council to use that date as an initial eligibility criteria. A different date could be used, and additional qualification criteria could be established. The announcement of a control date is primarily intended to discourage entry into the fishery or use of a particular gear based on economic speculation during the Council's deliberation on the issues. The following summarizes control dates that have been established for the Reef Fish FMP. A reference to the full *Federal Register* notice is included with each summary.

**November 1, 1989** - Anyone entering the commercial reef fish fishery in the Gulf and South Atlantic after November 1, 1989, may not be assured of future access to the reef fish resource if a management regime is developed and implemented that limits the number of participants in the fishery [54 FR 46755].

**November 18, 1998** - The Council is considering whether there is a need to impose additional management measures limiting entry into the recreational-for-hire (i.e., charter vessel and headboat) fisheries for reef fish and coastal migratory pelagic fish in the Exclusive Economic Zone (EEZ) of the Gulf and, if there is a need, what management measures should be imposed. Possible measures include the establishment of a limited entry program to control participation or effort in the recreational-for-hire fisheries for reef fish and coastal migratory pelagic [63 FR 64031] (In Amendment 20 to the Reef Fish FMP, a qualifying date of March 29, 2001, was adopted).

**July 12, 2000** - The Council is considering whether there is a need to limit participation by gear type in the commercial reef fish fisheries in the EEZ of the Gulf and, if there is a need, what management measures should be imposed to accomplish this. Possible measures include modifications to the existing limited entry program to control fishery participation, or effort, based on gear type, such as a requirement for a gear endorsement on the commercial reef fish vessel permit for the appropriate gear. Gear types which may be included are longlines, buoy gear, handlines, rod-and-reel, bandit gear, spear fishing gear, and powerheads used with spears [65 FR 42978].

**October 15, 2004** – the Council is considering the establishment of an IFQ program to control participation or effort in the commercial grouper fisheries of the Gulf. If an IFQ program is established, the Council is considering October 15, 2004, as a possible control date regarding the eligibility of catch histories in the commercial grouper fishery [69 FR 67106].

**December 31, 2008** – the Council voted to establish a control date for all Gulf commercial reef fish vessel permits. The control date will allow the Council to evaluate fishery participation and address any level of overcapacity. The establishment of this control date does not commit the Council or NMFS to any particular management regime or criteria for entry into this fishery. Fishermen would not be guaranteed future participation in the fishery regardless of their entry date or intensity of participation in the fishery before or after the control date under consideration. Comments are requested by close of business April 17, 2009 [74 FR 11517].

## **5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.**

This step should identify the trends, existing conditions, and the ability to withstand stresses of the environmental components. According to the CEQ guidance describing stress factors, two types of information are needed: the socioeconomic driving variables identifying the types, distribution, and intensity of key social and economic activities within the region; and the indicators of stress on specific resources, ecosystems, and communities.

In terms of biophysical environment, the resources/ecosystems identified in earlier steps of the CEA are the fish populations directly or indirectly affected by the regulations. This step should identify the trends, existing conditions, and the ability to withstand stresses of the environmental components.

A comprehensive description of the affected biological environment in the Gulf of Mexico for the species included in this amendment exists as the final Environmental Impact Statement (EIS) for the Generic Essential Fish Habitat (EFH) amendment, the EFH 5-Year Review and is integrated by reference (GMFMC 2004a and <http://gulfcouncil.org/Beta/GMFMCWeb/downloads/EFH%205-Year%20Review%20Final%2010-10.pdf>). However, the affected biological environment may have been modified in April 2010, when the Deepwater Horizon MC252 deep-sea drilling rig exploded and sank off the coast of Louisiana. As a result of the oil spill, approximately one-third of the Gulf of Mexico was closed to fishing and impacted important spawning areas during the spawning season for many species. This included the surface waters of the north central Gulf, an area where red snapper spawn in late spring and summer. Short- and long-term oil and dispersant effects on the environment and marine life are currently unknown; however, the oil and dispersant are likely to have had immediate negative impacts on the eggs and larvae of numerous fish species. These effects may result in a reduction in the 2010 year-class, but the full impact would not become apparent until fish spawned after the oil spill become large enough to enter the fishery in the next two to four years. Additional damage to fish stocks in the form of chronic effects caused by continuing oil and dispersants in the environment may not be fully documented for years; however, there are no current data available that the oil spill has affected current stock biomass levels.

The change in harvest resulting from the actions in this Amendment is not expected to have an additive effect on the previously stressed biological and physical environments of the Gulf of Mexico. The ACLs and ACTs developed in the action establish scientific and management buffers to prevent overfishing in species that previously did not have any type of recreational harvest quotas and some species that were lacking commercial harvest quotas. These buffers are set to prevent the stocks from being over harvested while also attempting to maximize Optimum Yield (OY).

The key economic variables and trends pertinent to this Amendment are described in the Affected Economic Environment (Chapter 3.3). The key social variables and indicators, including vulnerability index, of various coastal communities are described in the Affected Social Environment.

In general, the actions in the Generic ACL Amendment (GMFMC 2011) to establish ACLs and AMs for species in FMPs that are not experiencing overfishing. Actions in the Generic ACL Amendment was expected to have different effects upon different sectors and upon different areas. At any rate, the actions contained in this action are expected to prevent overfishing from occurring and support the achievement of OY in the respective fisheries over time, which should result in social and economic gains.

Changes in fishing behavior, such as, targeting other species or discontinuing to fish are two possible outcomes. With these changes in fishing behavior the impacts upon some fishing

communities that rely upon that economic activity may also see changes in social and economic behavior. It is anticipated that any negative social and economic effects would be short term as these actions are to prevent overfishing and create a stable stock status, yet, short term events can have long term effects, especially if fishing infrastructure is affected. If fishing infrastructure is no longer utilized for fishing, the present use can quickly be converted to non-water related activities that would make it difficult or impossible to revert back to a fishing related business. Changes in fishing behavior, like switching to other species can quickly place additional fishing pressure on a stock which may then trigger AMs for that stock also forcing a premature closure. These impacts are possible as it is unknown how these regulations will coincide with environmental and other effects which may compound or mitigate the impacts.

The cumulative social and economic effects of past, present, and future amendments may be described as limiting fishing opportunities in the short-term. However, these amendments are expected to improve prospects for sustained participation in the respective fisheries over time which could have beneficial impacts for fishers, support industries, and fishing communities. It remains to be seen whether any short term negative social and economic impacts will be offset or mitigated through the long term benefits of management to stop overfishing.

## **6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.**

This section examines whether resources, ecosystems, and human communities are approaching conditions where additional stresses could have an important cumulative effect beyond any current plan, regulatory, or sustainability threshold (CEQ 1997). Sustainability thresholds, which are levels of impact beyond which the resources cannot be sustained in a stable state, can be identified for some resources. Other thresholds are established through numerical standards, qualitative standards, or management goals. The CEA should address whether thresholds could be exceeded because of the contribution of the proposed action to other cumulative activities affecting resources.

### Reef Fish Fisheries

Social and economic characteristics of recreational anglers are collected periodically as an add-on survey to the MRIP. Data used to monitor recreational reef fish effort in the fishery primarily comes from MRIP and includes the number of trips and number of catch trips. Declines in effort may be a signal of stress within the fishery. These trends are described in Chapter 3.4. The level and pattern of change in recreational effort has remained about flat from 1993 through 1996, fluctuated between 1997 and 1999, and then increased relatively fast because 2000. Private and charter fishing modes accounted for most of target trips, with the charter mode the most common mode for red grouper and private the most common for gag. For both species, Florida accounts for most landings; however, landings in Alabama have been increasing in recent years.

Summary characteristics of the for-hire fleet were analyzed as part of the analyses for the development of the current limited access system (GMFMC 2005c). These analyses indicated for-hire operations were generally profitable. Costs associated with these businesses include bookkeeping services, advertising and promotion, fuel and oil, bait expenses, docking fees,

food/drink for customers and crew, ice expenses, insurance expenses, maintenance expenses, permits and licenses, and wage/salary expense. Most vessels carry per trip about half of the maximum passenger capacity. Therefore, substantial excess capacity exists in the sector. As with the commercial fishery, increases in fishing costs, increases in harvesting efficiency, more restrictive regulations (particularly for the grouper fishery), and changes in the stock status of certain species may affect effort in this sector.

### Climate Change

Global climate changes could have significant effects on Gulf of Mexico fisheries. However, the extent of these effects is not known at this time. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (IPCC 2007).

Actions from this amendment could increase the carbon footprint from fishing if some fishermen increase their number and duration of trips due to the increase in ACLs. It is unclear how climate change would affect species in the Gulf of Mexico. Climate change can affect factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Climate change may significantly impact species in the future, but the level of impacts cannot be quantified at this time, nor is the timeframe known in which these impacts will occur. Actions in this document are expected to reduce or cap harvest of species managed by the Council.

On April 20, 2010, an explosion occurred on the Deepwater Horizon MC252 oil rig, resulting in the release of an estimated 4.9 million barrels of oil into the Gulf. In addition, 1.84 million gallons of Corexit 9500A dispersant were applied as part of the effort to constrain the spill. The cumulative effects from the oil spill and response may not be known for several years.

The impacts of the oil spill on the physical environment are expected to be significant and may be long-term. Oil is dispersed on the surface, and because of the heavy use of dispersants, oil is also documented as being suspended within the water column, some even deeper than the location of the broken well head. Floating and suspended oil washed onto shore in several areas of the Gulf as well as non-floating tar balls. Whereas suspended and floating oil degrades over time, tar balls are more persistent in the environment and can be transported hundreds of miles. Oil on the surface of the water could restrict the normal process of atmospheric oxygen mixing into and replenishing oxygen concentrations in the water column. In addition, microbes in the water that break down oil and dispersant also consume oxygen; this could lead to further oxygen depletion. Zooplankton that feed on algae could also be negatively impacted, thus allowing more of the hypoxia-fueling algae to grow.

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, could lead to impacts on the ability of larvae and post-larvae to survive, even if they never encounter oil. In addition, effects of oil exposure may create sub-lethal effects on the eggs, larva, and early life stages. The stressors could potentially be additive, and each stressor may increase the susceptibility to the harmful effects of the other. If eggs and larvae are affected, impacts on harvestable-size fish and shrimp will begin to be seen when the 2010 year class becomes large enough to enter the fishery. The impacts would be felt as reduced fishing success and reduced spawning potential, and would need to be taken into consideration in the next stock assessments.

Indirect and inter-related effects on the biological and ecological environment of the fish stocks in concert with the Deepwater Horizon MC252 oil spill are not well understood. Changes in the population size structure could result from shifting fishing effort to specific geographic segments of stocks populations, combined with any anthropogenically-induced natural mortality that may occur from the impacts of the oil spill. The impacts on the food web from phytoplankton, to zooplankton, to mollusks, to top predators may be significant in the future.

#### **7. Define a baseline condition for the resources, ecosystems, and human communities.**

The purpose of defining a baseline condition for the resource and ecosystems in the area of the proposed action is to establish a point of reference for evaluating the extent and significance of expected cumulative effects. SEDAR assessments show trends in biomass, fishing mortality, fish weight, and fish length going back to the earliest periods of data collection. SEDAR has conducted benchmark assessments on four of the 22 species in this action. None of the species in this action are currently undergoing overfishing or being overfished. For a detailed discussion on the baseline effects to the human communities the reader is referred to Chapter 4.1.4.

#### **8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.**

Cause-and-effect relationships are presented in Table 4.2.1.

**Table 4.2.1.** The cause and effect relationships of fishing and regulatory actions for reef fish within the time period of the CEA.

Time periods	Cause	Observed and/or expected effects
1986 -1989	Growth and recruitment overfishing	Declines in mean size and weight
1990	Minimum size limit of 20-inch; 5 aggregate grouper bag limit; 9.2 MP shallow-water grouper quota	Slight increase in commercial landings; decline in recreational landings
1999	22-inch recreational minimum size limit; 24-inch commercial minimum size limit; and 1 month commercial seasonal closure	Slight increase in both commercial and recreational landings
2005	Commercial trip limit and decrease in recreational aggregate bag limit	Slight decrease in commercial landings as quota filled and shallow-water grouper fishery closed; significant declines in recreational landings; overfishing occurring
2009	Gag overfishing and stock declared overfished	End overfishing; reduce harvest; provide harvest limits to achieve sustainability; IFQ to further control commercial fishery to prevent overages
2011	Overfishing continues; reduce quota and establish recreational fishing season	Reduce overfishing, prelude to a rebuilding plan

**9. Determine the magnitude and significance of cumulative effects.**

Managed Resources: The objectives of this action and associated environmental assessment: modify annual catch limits by using MRIP data for those species that are considered data poor stocks by the Gulf Council’s Scientific and Statistical Committee (SSC).

The past and present effects of different actions on managed resources is described in detail in the cumulative effects analysis of Amendment 30B (GMFMC 2008b) and is incorporated here by reference. In the past, the lack of management of reef fish has allowed many stocks to undergo both growth and recruitment overfishing. This has allowed some stocks to decline as indicated in numerous stock assessments. Present management measures work to limit the harvest to sustainable levels; however, these measures may have redirect fishing effort towards other reef fish species. Reasonably foreseeable future actions are expected to benefit managed species as described in steps 3 and 4 of this cumulative effects analysis. These measures are intended to prevent overfishing and allow for sustainable fisheries. Non-fishing activities are likely to adversely affect reef fish stocks. These include loss of larvae by LNG facilities and damage to habitat through the Deepwater Horizon MC252 oil spill. To mitigate the effects of

the LNG facilities, closed- rather than open-loop systems are being called for. Efforts to remove oil from areas affected by the Deepwater Horizon MC252 oil spill.

### **Sea Turtles and Smalltooth Sawfish**

The past and present impacts of these fisheries have been discussed in the Environmental Baseline section of the NMFS 2009a, b, Biological Opinion and is incorporated by reference. NMFS is not aware of any proposed or anticipated changes in these fisheries that would substantially change the impacts each fishery has on the sea turtles and smalltooth sawfish covered by the NMFS 2009a, b, Biological Opinion.

In addition to fisheries, NMFS is not aware of any proposed or anticipated changes in other human-related actions (e.g., poaching, habitat degradation) or natural conditions (e.g., over-abundance of land or sea predators, changes in oceanic conditions, etc.) that would substantially change the impacts that each threat has on the sea turtles and smalltooth sawfish covered by the 2009 Biological Opinion. Therefore, NMFS expects that the levels of take of sea turtles and smalltooth sawfish described for each of the fisheries and non-fisheries will continue at similar levels into the foreseeable future.

**Human Communities:** Adverse or beneficial effects of actions to vessel owners, captains, crew, and associated shoreside businesses are tied to the ability of individuals to earn income and pursue traditional and culturally significant livelihoods. In commercial fisheries, income benefits are usually derived in terms of shares awarded after fishing expenses are accounted for. The greater the difference between expenses and payment for caught fish, the more revenue is generated by the fishing vessel. For the for-hire sector, revenues are generated by the number of trips sold for charter businesses, and by the number of paying passengers for headboat businesses.

Fishing communities include the infrastructure, which refers to fishing-related businesses and includes marinas, rentals, snorkel and dive shops, boat dockage and repair facilities, tackle and bait shops, fish houses, and lodgings related to recreational fisheries industry. This infrastructure is tied to the commercial and recreational fisheries and can be affected by adverse and beneficial economic conditions in those fisheries. Therefore, the effects of past and present actions on communities should reflect the future responses by fisheries in these management actions.

Non-management stressors can have large effects on fishing communities. Although the Deepwater Horizon MC252 oil spill did not directly impact all of the Gulf of Mexico communities, fishermen and dealers may have experienced hardship from reduced consumer confidence in seafood from the region. Because of the continuing rise in the cost of fishing, including increases in the cost of fuel and insurance, many fishermen are having a more difficult time making a living fishing. Accountability measures could result in shorter seasons for the recreational and/or commercial sectors. This may also impact the businesses that are dependent on the commercial and recreational fishery in that they will have fewer days to sell charter services, ice, fuel, tackle, hotel rooms, and other services to people participating in the fishery.

## **10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.**

The cumulative effects of the action in this framework action on the biological/ecological, physical and social and economic environments are positive because they will ultimately maintain the stocks at a level that will protect the resource and allow the maximum benefits in yield and fishing opportunities to be achieved. However, short-term negative impacts on the social and economic environment may occur to the fishery if accountability measure is triggered. The chance of triggering these measures is minimized by the size limits, season closures, and effort control programs that are already in use. If significant effects are identified after this document is completed, an additional amendment could be developed under the framework procedure to achieve the goals in the purpose and need if they are not achieved through this amendment, or as new information becomes available.

## **11. Monitor the cumulative effects of the selected alternatives and modify management as necessary.**

The effects of the proposed action is, and will continue to be, monitored through stock assessments and stock assessment updates, life history studies, economic and social analyses, harvest monitoring, and other scientific observations

NMFS has developed programs to monitor recreational and commercial landings to determine if landings are approaching, meeting, or exceeding specified ACLs. Currently, commercial landings are monitored through state trip tickets, which may take up to six months to be complete and available. If in-season accountability measures is chosen by the Councils, a more timely system would be needed. Recreational landings are estimated through MRIP. The monitoring of all of these ACLs will be borne by NMFS. Monitoring and tracking the level of take of protected species by the reef fish is required via the terms and conditions specified in the incidental take statement provided in NMFS (2011). NMFS must ensure that measures to monitor and report listed species interactions: 1) detect any adverse effects resulting from the fisheries; 2) assess the actual level of incidental take in comparison with the anticipated incidental take; and 3) detect when the level of anticipated take is exceeded.

## **12. Unavoidable Adverse Effects**

There are no unavoidable adverse effects on the socioeconomic environment expected as a result of the implementation of this framework action.

## **13. Relationship between Short-term Uses and Long-term Productivity**

The relationship between short-term uses and long-term productivity will be affected by the Generic ACL Amendment (GMFMC 2011). The action would modify ACLs for 22 federally managed species as required by the Reauthorized Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The ACLs are set at levels that prevent overfishing, and the AMs are management controls established to ensure that ACLs are not exceeded, or they may correct for overages if ACLs are exceeded during a fishing season.

Mitigation, monitoring and enforcement measures are described in detail in the cumulative effects analysis of Amendment 30B (GMFMC 2008b) and is incorporated here by reference. The process of modifying ACLs are expected to have a positive short-term effect on the social and economic environment, and is not expected to affect the administrative environment.

#### **14. Mitigation, Monitoring, and Enforcement Measures**

To ensure overfishing of species does not exceed OY, periodic reviews of stock status are needed. These reviews are designed to incorporate new information and to address unanticipated developments in the respective fisheries and would be used to make appropriate adjustments in the reef fish regulations should harvest not achieve OY objectives. The details for how assessments are developed, reviewed, and applied are described in Amendment 30B, as are the rule-making options the Council and NMFS have for taking corrective actions (GMFMC 2008b). Current reef fish regulations are labor intensive for law enforcement officials. NMFS law enforcement officials work cooperatively with other federal and state agencies to keep illegal activity to a minimum. Violators are penalized, and for reef fish commercial and reef fish for-hire operators, permits required to operate in their respective fisheries can be sanctioned. Management measures include a number of area-specific regulations where fishing is restricted or prohibited in order to protect habitat or spawning aggregations of fish, or to reduce fishing pressure in areas that are heavily fished. Vessel monitoring systems allow NMFS enforcement personnel to monitor compliance with these area-specific regulations, and track and prosecute violations.

#### **15. Irreversible and Irrecoverable Commitments of Resources**

There are no irreversible or irretrievable commitments of agency resources proposed herein. There may be some loss of immediate income (irrecoverable in the context of an individual not being able to benefit from compounded value over time) to some sectors from the restricted fishing seasons caused by quota closures. In essence, the harvest closures that may result from the implementation of ACLs would have an impact on those that traditionally continue utilizing the resources throughout the entire year.

#### **16. Any Other Disclosures**

CEQ guidance on environmental consequences (40 CFR §1502.16) indicates the following elements should be considered for the scientific and analytic basis for comparisons of alternatives. These are:

- a) Direct effects and their significance.
- b) Indirect effects and their significance.
- c) Possible conflicts between the proposed action and the objectives of federal, regional, state, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned.
- d) The environmental effects of alternatives including the proposed action.
- e) Energy requirements and conservation potential of various alternatives and mitigation measures.

- f) Natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures.
- g) Urban quality, historic and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures.
- h) Means to mitigate adverse environmental impacts.

Items a, b, d, e, f, and h are addressed in Chapters 2, 3, 4, and 5.1-5.7. Items a, b, and d are directly discussed in Chapters 2 and 5. Item e is discussed in economic analyses. Alternatives that encourage fewer fishing trips would result in energy conservation. Item f is discussed throughout the document as fish stocks are a natural and depletable resource. A goal of this amendment is to make these stocks sustainable resources for the nation. Mitigations measures are discussed in Chapter 5.12. Item h is discussed in Chapters 3 and 5.

The other elements are not applicable to the actions taken in this document. Because this amendment concerns the management of fish stocks, it is not in conflict with the objectives of federal, regional, state, or local land use plans, policies, and controls (Item c). Urban quality, historic and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures (Item g) is not a factor in this amendment. The actions taken in this amendment will affect a marine stock and its fishery, and should not affect land-based, urban environments.

With regard to the Endangered Species Act, the most recent biological opinion for the Reef Fish Fishery Management Plan, completed on September 30, 2011, concluded authorization of the Gulf of Mexico reef fish fishery managed under this management plan is not likely to jeopardize the continued existence of sea turtles (loggerhead, Kemp's ridley, green, hawksbill, and leatherback) or smalltooth sawfish. An incidental take statement was issued specifying the amount of anticipated take, along with reasonable and prudent measures and associated terms and conditions deemed necessary and appropriate to minimize the impact of these takes. Other listed species and designated critical habitat in the Gulf of Mexico were determined not likely to be adversely affected.

With regard to the Marine Mammal Protection Act, fishing activities under the Reef Fish (FMP) should have no adverse impact on marine mammals. The proposed actions are not expected to substantially change the way the fishery is currently prosecuted (e.g., types of methods, gear used, etc.). The reef fish fishery was classified in the 2013 List of Fisheries (78 FR 53335; August 29, 2013) as a Category III fishery because it is prosecuted primarily with longline and hook-and-line gear. This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from any fishery is less than or equal to one percent of 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.

# CHAPTER 5. REGULATORY IMPACT REVIEW

## 5.1 Introduction

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: (1) It provides a comprehensive review of the level and incidence of impacts associated with a regulatory action; (2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives which could be used to solve the problem; and (3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

The RIR also serves as the basis for determining whether any proposed regulations are a "significant regulatory action" under certain criteria provided in Executive Order 12866 (E.O. 12866) and whether the approved regulations will have a "significant economic impact on a substantial number of small business entities" in compliance with the Regulatory Flexibility Act of 1980.

## 5.2 Problems and Objectives

The purpose and need, issues, problems, and objectives of this action are presented in Chapter 1, Sections 1.1 through 1.3, and are incorporated herein by reference.

## 5.3 Methodology and Framework for Analysis

This RIR assesses management measures from the standpoint of determining the resulting changes in costs and benefits to society. To the extent practicable, the net effects of the proposed measures for an existing fishery should be stated in terms of producer and consumer surplus, changes in profits, and employment in the direct and support industries. Where figures are available, they are incorporated into the analysis of the economic impacts of the different actions and alternatives.

## 5.4 Description of the Fishery

A description of the fishery for Gulf Reef Fish Resources is contained in Chapter 3 and is incorporated herein by reference.

## 5.5 Effects on Management Measures

**Preferred Alternative 3** would use improved recreational landings data (Marine Recreational Information Program (MRIP)) to revise the annual catch limits (ACLs), and both are expected to produce increases in the ACLs for eight stocks representing 21 of the 22 species in the fishery, while decreasing the ACL for one (Table 4.1.1). The higher ACLs would allow for higher

commercial and recreational landings (lbs ww) of each stock from as low as 1% to as much as 78%, which could increase combined annual landings of those stocks by approximately 0.56 million lbs ww (Table 5.1). The lower ACL for gray snapper could decrease annual landings of the stock by as much as 172,000 lbs from 2014 through 2016. Net increases in annual landings of reef fish resources could be as large as approximately 0.38 to 0.39 million lbs ww.

**Table 5.1.** Maximum change in annual landings (lbs ww), 2014 – 2016.

Stock	Maximum Change in Landings (lbs ww)		
	2014	2015	2016
<b>Shallow-water Grouper</b>	47,000	47,000	47,000
<b>Deep-water Grouper</b>	204,000	205,000	209,000
<b>Tilefishes</b>	75,000	75,000	75,000
<b>Jacks</b>	39,000	39,000	39,000
<b>Mid-water Snapper</b>	17,000	17,000	17,000
<b>Lane Snapper</b>	49,000	49,000	49,000
<b>Cubera Snapper</b>	3,935	3,935	3,935
<b>Hogfish</b>	123,000	123,000	123,000
<b>Total Increasing</b>	557,935	558,935	562,935
<b>Gray Snapper</b>	-172,000	-172,000	-172,000
<b>Net Change</b>	385,935	386,935	390,935

Three of the stocks (shallow-water grouper, deep-water grouper, and tilefishes) have a commercial ACL and **Preferred Alternative 3** would establish maximum increases in commercial landings no greater than the change in the commercial ACLs for those stocks (Table 5.2). Although the recreational ACLs for the three stocks are not defined, it is assumed in Table 5.2 that the maximum change in annual recreational landings is equal to the difference between the maximum change in combined sector annual landings and the maximum change in annual commercial landings. However, the maximum change in annual recreational landings for these three stocks could be equal to the change in the maximum for combined sector landings when there are no changes in commercial landings. The remaining six stocks are not allocated and, therefore, the maximum change is split between the two sectors, with the possibilities of one sector having all to none of the change in annual landings of a stock.

**Table 5.2.** Maximum change in annual landings (lbs ww) by sector, 2014 – 2016.

Stock	Maximum Change in Landings (lbs ww)					
	2014		2015		2016	
	Comm	Rec	Comm	Rec	Comm	Rec
Shallow-water Grouper	6,000	47,000	6,000	47,000	6,000	47,000
Deep-water Grouper	197,000	7,000	205,000	0	208,000	1,000
Tilefishes	75,000	0	75,000	0	75,000	0
Jacks	39,000		39,000		39,000	
Mid-water Snapper	17,000		17,000		17,000	
Lane Snapper	49,000		49,000		49,000	
Cubera Snapper	3,935		3,935		3,935	
Hogfish	123,000		123,000		123,000	
Gray Snapper	-172,000		-172,000		-172,000	

Actual changes are likely to be less. For example, from 2010 through 2012, the annual commercial landings of shallow-water grouper, deep-water grouper and tilefishes were less than the commercial ACL. Consequently, an increase in the commercial ACLs for these stocks may have no impact on their annual landings. Moreover, in 2012, annual combined landings of eight of the nine stocks were less than the current ACLs for those stocks; only hogfish landings exceeded the ACL (Table 5.3). If 2012 landings are representative of future annual landings, the increase in the hogfish ACL would increase annual landings by at least 88,534 lbs ww. Also, the reduction of the ACL for gray snapper by 172,000 lbs ww would not decrease annual landings because annual landings have been approximately 0.99 million lbs ww less than the ACL.

**Table 5.3.** Comparison of current (MRFSS) ACLs and 2012 annual landings.

Stock	Lbs ww	
	2012 Landings	2014 - 2016 ACL
Shallow-water Grouper	432,942	707,000 - 710,000
Deep-water Grouper	1,024,901	1,105,000 - 1,200,000
Tilefishes	459,017	608,000
Jacks	398,133	312,000
Mid-water Snapper	97,240	166,000
Lane Snapper	175,581	301,000
Cubera Snapper	1,496	5,065
Hogfish	296,534	208,000
Gray Snapper	1,427,035	2,420,000

## 5.6 Public and Private Costs of Regulations

The preparation, implementation, enforcement, and monitoring of this or any Federal action involves the expenditure of public and private resources, which can be expressed as costs associated with the regulations. Costs associated with this action include, but are not limited to Council costs of documentation preparation, meeting, and other costs; NMFS administration costs of document preparation, meetings and review, and annual law enforcement costs. A preliminary estimate is up to \$100,000 before annual law enforcement costs, if any.

## 5.7 Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a “significant regulatory action” if it is expected to result in: (1) an annual effect of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this executive order.

This rule is not expected to have an adverse effect of \$100 million or more, create a serious inconsistency or otherwise interfere with an action taken by another agency, materially alter the budgetary impact of programs or rights or obligations of recipients, or raise novel legal or policy issues.

# CHAPTER 6. REGULATORY FLEXIBILITY ACT ANALYSIS

## 6.1 Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to establish a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and applicable statutes, to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure that such proposals are given serious consideration. The RFA does not contain any decision criteria; instead, the purpose of the RFA is to inform the agency, as well as the public, of the expected economic impacts of the alternatives contained in the fishery management plan (FMP) or amendment (including framework management measures and other regulatory actions) and to ensure that the agency considers alternatives that minimize the expected impacts while meeting the goals and objectives of the FMP and applicable statutes.

With certain exceptions, the RFA requires agencies to conduct a regulatory flexibility analysis for each proposed rule. The regulatory flexibility analysis is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. In addition to analyses conducted for the RIR, the initial regulatory flexibility analysis (IRFA) provides: (1) a description of the reasons why action by the agency is being considered; (2) a succinct statement of the objectives of, and legal basis for the proposed rule; (3) an identification, to the extent practicable, of all relevant federal rules which may duplicate, overlap, or conflict with the proposed rule; (4) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; (5) a description of the projected reporting, record-keeping, and other compliance requirements of the final rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; and (6) a description of significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities.

## 6.2 Statement of the need for, objective of, and legal basis for the proposed rule.

The purpose and need, issues, problems, and objectives of the proposed action are presented in Section 1.2 and are incorporated herein by reference.

## 6.3 Identification of federal rules which may duplicate, overlap or conflict with the proposed rule.

No federal rules have been identified that duplicate, overlap or conflict with the proposed rule.

## 6.4 Description and estimate of the number of small entities to which the proposed action would apply

This proposed rule directly applies to commercial fishing operations that harvest reef fish in federal waters of the Gulf of Mexico. As of September 19, 2013, there were 818 valid Gulf of Mexico Reef Fish Permits, and as of January 13, 2014, there were 789 valid permits. The larger and earlier figure of 818 valid permits is presumed to represent up to 818 commercial fishing businesses that could be affected by the action.

Commercial fishermen who harvest reef fish operate in the Finfish Fishing Industry (NAICS 114111). According to SBA Size Standards, a business in the Finfish Fishing Industry is a small business if its annual receipts are less than \$19 million. It is presumed here that a substantial number of the 818 businesses are small.

## 6.5 Description of the projected reporting, record-keeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for the preparation of the report or records

The proposed action would not impose additional reporting or record-keeping requirements on small entities. **Preferred Alternative 3** would revise the annual catch limits (ACLs) for five complexes and four individual species of reef fish.

## 6.6 Significance of economic impacts on a substantial number of small entities

**Preferred Alternative 3** would increase the ACLs for the following eight stocks: shallow-water grouper, deep-water grouper, tilefishes, jacks complex, mid-water snapper, lane snapper, cubera snapper, and hogfish. As such, these increases would allow for increased commercial landings and ex-vessel revenues of these stocks, which would be beneficial economic impacts on small businesses. Three of the stocks (shallow-water grouper, deep-water grouper and tilefishes) have commercial allocations. The potential percent increases of annual commercial landings for the three allocated stocks range from 1% to 20%. Five of the non-allocated stocks could have potential increases of annual commercial landings from 10% to 78%. **Preferred Alternative 3** would decrease the ACL for one stock: gray snapper. Annual commercial landings of gray snapper could fall by as much as 7%.

Potential net increases in annual commercial landings to small businesses could be as high as approximately 0.40 million lbs ww, assuming all increases in landings of the non-allocated stocks are in the commercial sector (Table 6.1). These maximum increases represent potential economic benefits to small businesses that harvest these complexes/species.

**Table 6.1.** Changes in ACL and potential landings by complex/species.

Complex/Species	Change of ACL (Lbs ww)		
	2014	2015	2016+
	<b>Commercial ACL</b>		
<b>Shallow Water Grouper</b>	6,000	6,000	6,000
<b>Deep Water Grouper</b>	197,000	207,000	208,000
<b>Tilefishes</b>	75,000	75,000	75,000
<i>Sub-total</i>	<i>278,000</i>	<i>288,000</i>	<i>289,000</i>
	<b>Non-allocated ACL</b>		
<b>Jacks</b>	39,000	39,000	39,000
<b>Mid-Water Snapper</b>	17,000	17,000	17,000
<b>Lane Snapper</b>	30,000	30,000	30,000
<b>Cubera Snapper</b>	3,935	3,935	3,935
<b>Hogfish</b>	123,000	123,000	123,000
<b>Gray Snapper</b>	-172,000	-172,000	-172,000
<i>Sub-total</i>	<i>117,935</i>	<i>117,935</i>	<i>117,935</i>
<b>Total</b>	<b>395,935</b>	<b>392,935</b>	<b>396,935</b>

Actual changes in landings, however, are likely to be less. For example, the above maxima for non-allocated stocks assume the recreational sector experiences no change in annual landings. Moreover, annual landings of some stocks, such as shallow-water grouper, deep-water grouper, and tilefishes were below the current commercial ACL from 2010 through 2012. The actual increase in annual landings of these three stocks due to **Preferred Alternative 3** may be closer to zero. Furthermore, if 2012 landings are representative of baseline landings of the above nine stocks, only the change in the hogfish ACL would result in changed annual landings: landings would increase by 88,534 lbs ww. Section 5.5 of the RIR provides more detail on more likely impacts and is incorporated here by reference.

## 6.7 Description of the significant alternatives to the proposed action and discussion of how the alternatives attempt to minimize economic impacts on small entities

**Alternative 1** would not use improved data and would not allow for net increases in ex-landings and associated ex-vessel revenues from the above mentioned reef fish resources. **Alternative 2** would have the same economic impact on small businesses as the preferred alternative; however, unlike **Preferred Alternative 3**, it would also establish annual catch targets (ACTs).

## CHAPTER 7. BYCATCH PRACTICABILITY ANALYSIS

### Background/Overview

The Gulf of Mexico Fishery Management Council is required by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) in §303(a)(11) to establish a standardized bycatch reporting methodology for federal fisheries and to identify and implement conservation and management measures that, to the extent practicable and in the following order, A) minimize bycatch and B) minimize the mortality of bycatch that cannot be avoided. The Magnuson-Stevens Act defines bycatch as “fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch-and-release fishery management program” (Magnuson-Stevens Act §3(2)). Economic discards are fish that are discarded because they are undesirable to the harvester. This category of discards generally includes certain species, sizes, and/or sexes with low or no market value. Regulatory discards are fish that are required by regulation to be discarded, but also include fish that may be retained but not sold.

Guidance provided at 50 CFR 600.350(d)(3) identifies ten factors to consider in determining whether a management measure minimizes bycatch or bycatch mortality to the extent practicable. These are:

1. Population effects for the bycatch species.
2. Ecological effects due to changes in the bycatch of that species (effects on other species in the ecosystem).
3. Changes in the bycatch of other species of fish and the resulting population and ecosystem effects.
4. Effects on marine mammals and birds.
5. Changes in fishing, processing, disposal, and marketing costs.
6. Changes in fishing practices and behavior of fishermen.
7. Changes in research, administration, and enforcement costs and management effectiveness.
8. Changes in the economic, social, or cultural value of fishing activities and non-consumptive uses of fishery resources.
9. Changes in the distribution of benefits and costs.
10. Social effects.

The Regional Fishery Management Councils are encouraged to adhere to the precautionary approach outlined in Article 6.5 of the Food and Agriculture Organization of the United Nations Code of Conduct for Responsible Fisheries when uncertain about these factors.

## Background

Bycatch practicability was first addressed in the Comprehensive Sustainable Fisheries Act Amendment/Final Environmental Impact Statement, which was approved by the agency on September 13, 2005, the final rule published in the *Federal Register* on October 28, 2005, and became effective November 28, 2005 (70 FR 62073). The Comprehensive SFA Amendment contained a bycatch practicability analysis and evaluated the biological, ecological, social, economic, and administrative impacts associated with a wide range of alternatives including those required for achieving the bycatch mandates of the Magnuson-Stevens Fishery Conservation and Management Act. In summary, 4 alternatives including a “No Action” alternative were presented and impacts were described regarding bycatch reporting and are included herein by reference.

Also, measures were included in the Generic Annual Catch Limits/Accountability Measures Amendment (Generic ACL/AM Amendment, GMFMC 2011) to minimizing bycatch and bycatch mortality to the extent practicable. The analysis of the practicability of these measures is provided in Chapter 4 of that amendment and is herein included by reference (GMFMC 2011).

Reef Fish: Vertical line (bandit rigs, manual hand lines), Longline and Buoy gear, spearfishing.

Shrimp: Trawls

Red Drum: Gill nets, Trammel nets, Haul seines, manual handlines

Coral and Coral Reefs: Placed Structure

## Recreational Sector

For the recreational fishery, estimates of the number of recreational discards are available from MRIP and the NMFS headboat survey. The MRIP system classifies recreational catch into three categories:

- Type A - Fishes that were caught, landed whole, and available for identification and enumeration by the interviewers.
- Type B - Fishes that were caught but were either not kept or not available for identification:
  - Type B1 - Fishes that were caught and filleted, released dead, given away, or disposed of in some way other than Types A or B2.
  - Type B2 - Fishes that were caught and released alive.

For species in the Reef Fish FMP, the average annual number of recreational reported discards from 1986 to 2009 was greatest for gray snapper (2,855,970), lane snapper (278,160), and mutton snapper (36,541), as described in Table 7.1.

**Table 7.1.** (1986-2009) recreational landings and discards in number of fish, as reported to MRFSS.

Common Name	LANDINGS		DISCARDS		DISCARDS/LANDINGS RATIO	
	For-hire	Private	For-hire	Private	For-hire	Private
almaco jack	5,964	18,600	835	1,196	14%	6%
banded rudderfish	11,584	3,569	449	13,209	4%	370%
black grouper	3,456	93,662	4,102	29,118	119%	31%
blueline tilefish	341	1,969	3	79	1%	4%
cubera snapper	268	15,947	13	1,470	5%	9%
golden tilefish	0	0	17	0	0%	0%
goldface tilefish	0	0	0	0	0%	0%
gray snapper	85,069	963,583	75,467	2,855,970	89%	296%
hogfish	1,335	173,145	200	7,647	15%	4%
lane snapper	34,283	180,623	14,858	278,160	43%	154%
lesser amberjack	844	7,960	65	1,002	8%	13%
mutton snapper	7,436	114,845	2,725	36,541	37%	32%
scamp	10,476	19,231	4,039	17,573	39%	91%
silk snapper	2,515	4,110	15	647	1%	16%
snowy grouper	634	2,823	90	265	14%	9%
speckled hind	290	1,951	157	3,477	54%	178%
warsaw grouper	890	50,274	54	453	6%	1%
wenchman	12	52	0	0	0%	0%
yellowedge grouper	204	2,985	23	692	11%	23%
yellowfin grouper	140	1,296	80	2,562	57%	198%
yellowmouth grouper	281	3,686	47	228	17%	6%

### **Sea Turtles**

The anticipated triennial takes in reef fish fisheries authorized via the September 30, 2011 Biological Opinion are presented in Table 7.2

The Council and NMFS took action in Amendment 18A to the Reef Fish FMP (effective September 8, 2006) to comply with the RPM that any sea turtle or smalltooth sawfish taken in the reef fish fishery is handled in such a way as to minimize stress to the animal and increase its survival rate. Regulations were implemented requiring sea turtle release gear be onboard reef fish-permitted vessels when fishing to facilitate the safe release of any incidentally caught sea turtles or smalltooth sawfish. In addition, vessels with commercial and for-hire reef fish vessel permits are required to possess specific documents providing instructions on the safe release of incidentally caught sea turtles or smalltooth sawfish. RPMs also required better data collection from the fishery on incidental takes of sea turtles.

One way effort has been made to reduce the chance of sea turtle interactions through Amendment 31 is the prohibition of longline gear in certain areas, depths, or months, or some combination of the three. The more abundant sea turtles are in a given area and the higher the fishing effort in that area, the greater the probability a sea turtle will be incidentally caught by the gear. For example, most observed sea turtle takes occurred on fishing trips west of the Tampa Bay area, all but one turtle take was on a set at 50 fathoms or less, and 76% of sea turtles takes occurred from June through August (NMFS-SEFSC 2009). Most of the longline fishing effort is conducted in these places and at these times. The ESA rule prohibited bottom longline fishing in the eastern Gulf for reef fish in waters shoreward of a line approximating the 35- fathom contour with a restriction of 1,000 hooks per vessel with no more than 750 hooks rigged at any given time.

**Table 7.2.** Anticipated Triennial Takes in the September 30, 2011 Biological Opinion

Species	Commercial Bottom Longline Takes (Mortalities)	Commercial Vertical Line Takes (Mortalities)	Recreational Vertical Line Takes (Mortalities)	Vessel Strike Takes- All Lethal	Entire Fishery Takes (Mortalities)
Loggerhead	644 (397) <sup>A</sup> 623 (3848) <sup>B</sup>	76 (23)	254 (75)	90(90)	1065 (585) <sup>A</sup> 1044 (572) <sup>B</sup>
Kemp's ridley	3 (3)	23 (7)	74 (22)	9 (9)	10839)
Green	3 (3)	14 (4)	45 (14)	54 (54)	116 (75)
Leatherback	3 (3)	1 (1)	1 (1)	6 (6)	11 (11)
Hawksbill	3 (3)	1 (1)	1 (1)	3 (3)	8 (8)
Smalltooth sawfish	2 (0)	2 (0)	4 (0)	0 (0)	8 (0)

<sup>A</sup>=anticipated in 2010-2012; <sup>B</sup>=anticipated for all subsequent 3-year periods running totals (ie. 2011-2013, 2012-2014, etc).

### **Other Bycatch**

Other species incidentally encountered by the reef fish fishery include mammals and sea birds. The Gulf commercial reef fish fishery is listed as a Category III fishery in NMFS' 2013 List of Fisheries (78 FR 53336; August 29, 2013). This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from any fishery is less than or equal to one percent of 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.

Three primary orders of seabirds in the Gulf are Procellariiformes (petrels, albatrosses, and shearwaters), Pelecaniformes (pelicans, gannets and boobies, cormorants, tropic birds, and frigate birds), and Charadriiformes (phalaropes, gulls, terns, noddies, and skimmers) (Clapp et al.

1982; Harrison 1983). Several other species of seabirds also occur in the Gulf, and are listed as threatened or endangered by the U.S. Fish and Wildlife Service, including: piping plover, least tern, roseate tern, bald eagle, and brown pelican (the brown pelican is endangered in Mississippi and Louisiana and delisted in Florida and Alabama). Human disturbance of nesting colonies and mortalities from birds being caught on fishhooks and subsequently entangled in monofilament line are primary factors affecting sea birds. Oil or chemical spills, erosion, plant succession, hurricanes, storms, heavy tick infestations, and unpredictable food availability are other threats. No evidence exists that the directed reef fish fishery adversely affects seabirds.

## CHAPTER 8. LIST OF PREPARERS

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Denise	Johnson	NMFS/SF	Economist
Ava	Lasseter	GMFMC	Anthropologist
Mara	Levy	NOAA/GC	Attorney Advisor
Vivian	Matter	NMFS/SEFSC	Fishery Biologist
Christina	Package	NMFS/SF	Anthropologist
Noah	Silverman	NMFS	Natural Resource Management Specialist

NMFS = National Marine Fisheries Service  
 SAFMC = South Atlantic Fishery Management Council  
 GMFMC = Gulf of Mexico Fishery Management Council  
 SEFSC = Southeast Fisheries Science Center  
 SF = Sustainable Fisheries Division  
 HC = Habitat Conservation Division  
 GC = General Counsel,  
 Eco=Economics

## **CHAPTER 9. LIST OF AGENCIES, ORGANIZATIONS AND PERSONS CONSULTED**

National Marine Fisheries Service

- Southeast Fisheries Science Center
- Southeast Regional Office
- Office for Law Enforcement

NOAA General Counsel

Environmental Protection Agency

United States Coast Guard

United States Fish and Wildlife Services

Texas Parks and Wildlife Department

Alabama Department of Conservation and Natural Resources/Marine Resources Division

Louisiana Department of Wildlife and Fisheries

Mississippi Department of Marine Resources

Florida Fish and Wildlife Conservation Commission

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# **APPENDIX A. ALTERNATIVES CONSIDERED BUT REJECTED**

## **APPENDIX B. OTHER APPLICABLE LAW**

# APPENDIX C. SUMMARIES OF PUBLIC COMMENTS RECEIVED

List the locations of the scoping hearings and public hearings, then list the summaries and written comments

## APPENDIX D. DECISION TOOLS