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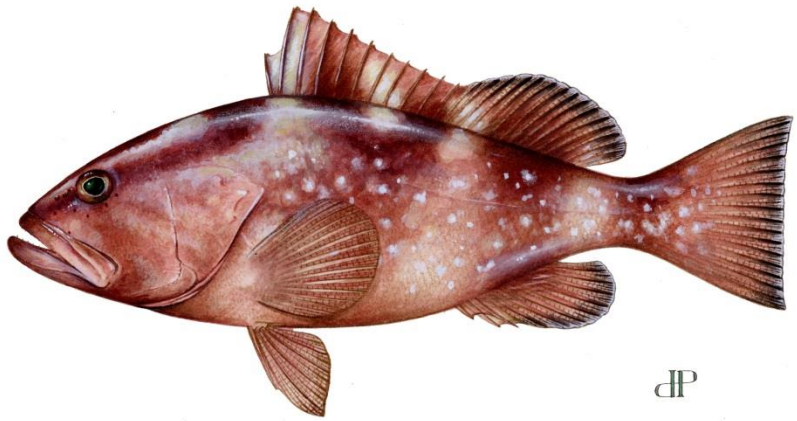
Red Grouper Recreational Management Measures



Final 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

December 2014

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ENVIRONMENTAL ASSESSMENT COVER SHEET

Name of Action

Framework Action to Modify the Red Grouper Recreational Management Measures of the Reef Fish Management Plan for the Reef Fish Resources of the Gulf of Mexico including Draft Environmental Assessment

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Type of Action

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ABBREVIATIONS USED IN THIS DOCUMENT

ABC	Acceptable biological catch
ACL	Annual catch limit
ACT	Annual catch target
AM	Accountability measure
CFR	Code of Federal Regulations
COI	Certificate of inspection
Council	Gulf of Mexico Fishery Management Council
DPS	Distinct population segment
EEZ	Exclusive economic zone
EFH	Essential fish habitat
EIS	Environmental impact statement
EJ	Environmental justice
E.O.	Executive Order
ESA	Endangered Species Act
FMP	Fishery Management Plan
GMFMC	Gulf of Mexico Fishery Management Council
Gulf	Gulf of Mexico
gw	gutted weight
HAPC	Habitat area of particular concern
IFQ	Individual fishing quota
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MFMT	Maximum fishing mortality threshold
mp	million pounds
MRIP	Marine Recreational Information Program
MRSS	Marine Recreational Fisheries Survey and Statistics
MSST	Minimum stock size threshold
MSY	Maximum sustainable yield
NAICS	North American Industry Classification System
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NODC	National Oceanographic Data Center
OBS1314	Model based on observed landings in 2013 and 2014
OFL	Overfishing limit
OY	Optimum yield
Reef Fish FMP	Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico
RFA	Regulatory Flexibility Act
RFAA	Regulatory Flexibility Act analysis
RIR	Regulatory impact review
SARIMA	Seasonal Auto-Regressive Integrated Moving Average
SEDAR	Southeast Data Assessment and Review
SEFSC	Southeast Fisheries Science Center
SERO	NMFS Southeast Regional Office

SPR	Spawning potential ratio
SRHS	Southeast region headboat survey
TAC	Total allowable catch
TL	Total length
USFWS	United States Fish and Wildlife Service
VMS	vessel monitoring system

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CHAPTER 1. INTRODUCTION

1.1 Background

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 for recommending actions to National Marine Fisheries Service for implementation

National Marine Fisheries Service

- Responsible for conservation and management of fish stocks
- Responsible for compliance with federal, state, and local laws
- Approves, disapproves, or partially approves Council recommendations
- Implements regulations

In April 2014, the National Marine Fisheries Service (NMFS) announced that the red grouper recreational annual catch limit (ACL) was exceeded in 2013. In accordance with accountability measures (AMs) adopted in Amendment 32 to the Fishery Management Plan (FMP) for the Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP) (GMFMC 2011b), this triggered a reduction in the bag limit in 2014 from 4 fish to 3 fish, and a recreational closure on October 4, 2014, to ensure that landings did not exceed the recreational annual catch target (ACT). In response to the in-season recreational closure, the Gulf of Mexico Fishery Management Council (Council), at their June 2014 meeting, directed staff to begin development of an action to potentially reduce the recreational bag limit, and adjust the accountability measures (AMs) in an effort to extend the red grouper recreational season.

Prior to the implementation of Amendment 32 to the Reef Fish FMP (GMFMC 2011b), the red grouper recreational allocation had not been met in recent years (Table 1.1). The recreational red grouper allocation of the total allowable catch (TAC) was initially set at 1.25 million pounds (mp) gutted weight (gw) in 2004 (GMFMC 2004b), was increased to 1.82 mp gw in 2009 (GMFMC 2008b), and was then reduced to 1.36 mp gw in 2011 (GMFMC 2010). In 2012, Amendment 32 replaced the red grouper and gag TACs with ACLs and ACTs, with management measures intended to achieve the ACT. The red grouper recreational ACL and ACT were set for 2012 and beyond at 1.9 mp gw and 1.73 mp gw, respectively. The red grouper bag limit was increased to 4 fish per person, which is the maximum possible under the 4 fish aggregate grouper bag limit, to allow the recreational sector to more fully harvest its allocation and achieve optimum yield (GMFMC 2011). However, if at the end of any season, it is determined that the

recreational sector has exceeded its red grouper ACL, then the bag limit would be reduced to 3 fish in the following season. If, at the end of the next subsequent season, it was determined that the recreational sector has exceeded its red grouper ACL again, the red grouper bag limit would be reduced to 2 fish, which was the bag limit in place prior to the increase to 4 fish. The bag limit would not be reduced beyond 2 fish.

Table 1.1. Red grouper recreational ACLs and catches, 2010-2013.

Year	ACL	Catch	% of ACL
2010	1,850,000	635,680	34%
2011	1,510,000	643,745	43%
2012	1,900,000	1,752,930	92%
2013	1,900,000	2,377,111	125%

Source: NMFS Southeast Regional Office ACL website. All values are in gutted weight.

Previously, the AMs included in-season closures, post-season adjustments to the length of the recreational fishing season, and overage adjustments for overfished grouper stocks which were not species specific and applied to all shallow-water grouper, i.e., gag, red grouper, black grouper, scamp, yellowfin grouper, and yellowmouth grouper (GMFMC 2008b). This provision aimed to reduce the bycatch of red grouper while fishing for other shallow-water grouper species that remained open for recreational fishing. Amendment 38 to the Reef Fish FMP (GMFMC 2013) modified the post-season recreational AMs for shallow-water grouper species. This action modified the specific post-season AM that reduces the length of the recreational season for all shallow-water grouper in the year following a year in which the ACL for red grouper is exceeded by applying it only to the species whose ACL was exceeded.

1.2 Purpose and Need

The purpose of this action is to modify the red grouper recreational management measures in the Gulf of Mexico to improve recreational fishing opportunities by extending the number of days in the fishing season and to achieve optimum yield in accordance with the Reef Fish FMP.

The underlying need for this action, which is driven by the Magnuson-Stevens Fishery Conservation and Management Act, is to prevent overfishing while achieving, on a continuing basis, the optimum yield from federally managed fish stocks, to take into account the importance of fishery resources to fishing communities and provide for sustained participation of such communities, and to rebuild stocks that have been determined to be overfished.

1.3 History of Management

The following summary describes management actions that affect the reef fish fishery in the Gulf of Mexico. The summary focuses on the management of grouper stocks in general, and in particular, the recreational management of grouper species in the Reef Fish FMP. More information on the Reef Fish FMP can be obtained from the Council at http://www.gulfcouncil.org/fishery_management_plans/index.php.

Amendments to the Reef Fish FMP

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 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 shallow-water grouper quota and a 1.8 mp deep-water grouper quota. Shallow-water grouper 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 deep-water grouper quota once the shallow-water grouper quota was filled. Deep-water grouper were defined as misty grouper, snowy grouper, yellowedge grouper, warsaw grouper, and scamp once the shallow-water grouper 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, 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 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.

Generic Sustainable Fisheries Act Amendment, partially approved and implemented in November 1999, set the maximum fishing mortality threshold (MFMT) for most reef fish stocks at a fishing mortality rate corresponding to 30% spawning potential ratio ($F_{30\% SPR}$). Estimates of maximum sustainable yield, minimum stock size threshold (MSST), and optimum yield were disapproved because they were based on spawning potential ratios (SPR) proxies rather than biomass based estimates.

Secretarial Amendment 1 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 shallow-water grouper from 9.35 to 8.8 mp gw and reduced the commercial quota for deep-water grouper from 1.35 to 1.02 mp gw. The recreational bag limit for red grouper was reduced to two fish per person per day. Rulemaking from this amendment was effective July 15, 2004 [69 FR 33315]. In this amendment, bottom longlines were considered for movement out to 50 fathoms which had also been considered under Amendment 18.

Amendment 18A was implemented on September 8, 2006, except for vessel monitoring system (VMS) requirements which were implemented May 6, 2007. Amendment 18A:
- Prohibited vessels from retaining reef fish caught under recreational bag/possession limits when commercial quantities of Gulf reef fish are aboard;
- Adjusted the maximum crew size on charter vessels that also have a commercial reef fish permit and a United States Coast Guard 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;
- Prohibited the use of reef fish for bait except for sand perch or dwarf sand perch;

- Required devices and protocols for the safe release in incidentally caught endangered sea turtle species and smalltooth sawfish;
- Updated the TAC procedure to incorporate the Southeast Data Assessment and Review (SEDAR) assessment methodology;
- Changed the permit application process to an annual procedure and simplifies income qualification documentation requirements; and
- Required 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 Amendment 2, was implemented on August 19, 2002. This amendment established two marine reserves off the Dry Tortugas where fishing for any species and anchoring by fishing vessels is prohibited.

Amendment 21, implemented in July 2003, continued the Steamboat Lumps and Madison-Swanson reserves for an additional six years, until June 2010. In combination with the initial four-year period (June 2000-June 2004), this allowed a total of ten years in which to evaluate the effects of these reserves and to provide protection to a portion of the gag spawning aggregations.

Amendment 27was implemented on February 28, 2008, except for reef fish bycatch reduction measures that became effective on June 1, 2008. This amendment addressed 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, implemented January 1, 2010, established an individual fishing quota (IFQ) system for the commercial grouper and tilefish fisheries.

Amendment 30B, implemented May 2009, proposed 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 shallow-water grouper to achieve optimum yield, and improve the effectiveness of federal management measures. The amendment (1) defined the gag minimum stock size threshold and optimum yield; (2) set interim allocations of gag and red grouper between recreational and commercial fisheries; (3) made adjustments to the gag and red grouper TACs to reflect the current status of these stocks; (4) established ACLs and AMs for the commercial and recreational red grouper fisheries, commercial and recreational gag fisheries, and commercial aggregate shallow-water grouper fishery; (5) adjusted recreational grouper bag limits and seasons; (6) adjusted commercial grouper quotas; (7) reduced the red grouper commercial minimum size limit; (8) replaced the one month commercial grouper closed season with a four-month seasonal area closure at the Edges, a 390 square nautical mile area in the dominant gag spawning grounds; (9) eliminated the end date for the Madison-Swanson and Steamboat Lumps marine reserves; and (10) required that vessels with a federal charter vessel/headboat permit for Gulf reef fish must comply with the more restrictive of state or federal reef fish regulations when fishing in state waters.

Amendment 31, implemented May 26, 2010, established 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) prohibited the use of bottom longline gear shoreward of a line approximating the 35-fathom contour from June through August; (2) reduced 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) restricted 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.

Generic ACL/AM Amendment (GMFMC 2011a), established in-season and post-season AMs for all stocks that did not already have such measures defined. This includes the "other shallow-water grouper species" complex. The AM states that if an ACL is exceeded, in subsequent years an in-season AM will be implemented that would close shallow-water grouper fishing (for all shallow-water grouper species combined) when the ACL is reached or projected to be reached.

Amendment 32, implemented March 12, 2012:

- Set the commercial and recreational gag ACLs for 2012 through 2015 and beyond.
- Set the constant catch red grouper commercial ACL at 6.03 mp and the red grouper recreational ACL at 1.90 mp.
- Set the commercial and recreational gag ACTs for 2012 through 2015 and beyond.
- Implemented gag commercial quotas for 2012 through 2015 and beyond that included a 14% reduction from the ACT to account for additional dead discards of gag resulting from the reduced harvest.
- Modified grouper individual fishing quota (IFQ) multi-use allocations.
- Reduced the commercial minimum size limit of gag from 24 to 22 inches TL to reduce discards.
- Set the gag recreational season from July 1 through October 31 (the bag limit remained two gag in the four grouper aggregate bag limit).
- Simplified the commercial shallow-water grouper AMs by using the IFQ program to reduce redundancy.
- Added an overage adjustment and in-season measures to the gag and red grouper recreational AMs to avoid exceeding the ACL.
- Added an AM for the red grouper bag limit that would reduce the four red grouper bag limit in the future to three red grouper, and then to two red grouper, if the red grouper recreational ACL is exceeded.

Amendment 38, implemented March 1, 2013, revised the post-season recreational accountability measure that reduces the length of the recreational season for all shallow-water grouper in the year following a year in which the ACL for gag or red grouper is exceeded. The modified accountability measure reduces the recreational season of only the species for which the ACL was exceeded. Additionally, the reef fish framework procedure was modified to

include the addition of accountability measures to the list of items that can be changed through the standard framework procedure. This allows for faster implementation of measures designed to maintain harvest at or below the ACL. General language was added to the framework to accommodate future changes in naming of the Council's advisory committees and panels.

Regulatory Amendments, Emergency and Interim Rules

A July 1991 regulatory amendment, implemented November 12, 1991, provided a one-time increase in the 1991 quota for shallow-water grouper from 9.2 mp to 9.9 mp to provide the commercial fishery an opportunity to harvest 0.7 mp that was not harvested in 1990 [56 FR 58188]. This was a one-time increase with the quota scheduled to return to 9.2 mp unless a subsequent action was taken.

A November 1991 regulatory amendment, implemented June 22, 1992, raised the 1992 commercial quota for shallow-water grouper to 9.8 mp after a red grouper stock assessment indicated that the red grouper SPR was substantially above the Council's minimum target of 20%.

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.

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 lbs. gw. If on or before August 1 the fishery was estimated to have landed more than 50% of either the shallow-water grouper or the red grouper quota, then a 7,500-lb gw trip limit would take effect; and if on or before October 1 the fishery was estimated to have landed more than 75% of either the shallow-water grouper or the red grouper quota, then a 5,500-lb gw trip limit would take 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 red grouper recreational 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 sector, 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 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-lb gw aggregate deep-water grouper and shallow-water grouper trip limit for the commercial grouper sector, replacing the 10,000/7,500/5,500-lb gw step-down trip limit that had been implemented by emergency rule for 2005.

A March 2006 regulatory amendment (GMFMC 2005a), implemented July 15, 2006, established a red grouper recreational 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 to reduce overfishing of gag pending implementation of permanent rules under Amendment 30B [71 FR 66878]. Measures in the temporary rule:

- Established a two-fish gag recreational bag limit (recreational grouper aggregate bag limit remained at five fish);
- 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);
- Established a 1.32 mp gw commercial quota for gag; and
- Required operators of vessels with a federal charter vessel/headboat permit for Gulf reef fish 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.

An emergency rule was implemented May 18, 2009 through October 28, 2009, prohibiting the use of bottom longline gear to harvest reef fish east of 85°30′ W longitude in the portion of the exclusive economic zone (EEZ) shoreward of the coordinates established to approximate a line following the 50–fathom (91.4–m) contour as long as the 2009 deep-water grouper and tilefish quotas are unfilled. After the quotas have been filled, the use of bottom longline gear to harvest reef fish in water of all depths east of 85°30′ W longitude were prohibited [74 FR 20229].

A rule under the Endangered Species Act was implemented October 16, 2009, that prohibited bottom longlining for Gulf reef fish east of 85°30'W longitude (near Cape San Blas, Florida) shoreward of a line approximating the 35-fathom depth contour, and restricted the number of hooks on board to 1,000 hooks per vessel with no more than 750 hooks being fished or rigged for fishing at any given time. The rule replaced the 50-fathom boundary emergency rule to relieve social and economic hardship on longline fishermen who were prevented from fishing for shallow-water grouper by the emergency rule, and to keep fishing restrictions in place while proposed Amendment 31 was reviewed. [74 FR 53889].

In response to an uncontrolled oil spill resulting from the explosion on April 20, 2010, and subsequent sinking of the Deepwater Horizon MC252 oil rig approximately 36 nautical miles (41 statute miles) off the Louisiana coast, NMFS issued an emergency rule to temporarily close a portion of the Gulf EEZ to all fishing [75 FR 24822]. The initial closed area extended from approximately the mouth of the Mississippi River to south of Pensacola, Florida and covered an area of 6,817 square statute miles. The coordinates of the closed area were subsequently modified periodically in response to changes in the size and location of the area affected by the spill. At its largest size on June 1, 2010, the closed area covered 88,522 square statute miles, or approximately 37 percent of the Gulf EEZ. The size of the closed area was subsequently reduced in stages, and on April 19, 2011, all remaining waters that had been closed were reopened. This closure was implemented for public safety.

On November 10, 2010, NMFS reopened most of the closed area to fishing except for a 1,041 square mile area immediately surrounding the wellhead where the spill occurred.

An August 2010 regulatory amendment, implemented January 1, 2011, reduced the total allowable catch for red grouper from 7.57 mp gw to 5.68 mp gw, based on the optimum yield projection from a March 2010 re-run of the projections from the 2009 red grouper update assessment. Although the stock was found to be neither overfished nor undergoing overfishing, the update assessment found that spawning stock biomass levels had decreased since 2005, apparently due to an episodic mortality event in 2005 which appeared to be related to an extensive red tide that year. Based on the 76%:34% commercial and recreational allocation of red grouper, the commercial quota was reduced from 5.75 to 4.32 mp gw, and the recreational allocation was reduced from 1.82 to 1.36 mp gw. No changes were made to the recreational fishing regulations as the recreational landings were already below the adjusted allocation in recent years.

On August 11, 2009, the Council was notified by NMFS that the Gulf gag stock was both overfished and undergoing overfishing based on the results of the 2009 update stock assessment. Several measures were enacted to reduce gag overfishing including suspending the use of red grouper multi-use IFQ allocation so it could not be used to harvest gag. Because these measures could not be implemented quickly through the plan amendment procedure, an interim rule was published on December 1, 2010 [75 FR 74654], to implement these rules until long-term rules could be developed in Amendment 32. A second interim rule to adjust some of the gag measures while continuing the suspension of red grouper multi-use IFQ allocation was effective from June 1, 2011 through November 27, 2011 [76 FR 31874], and was subsequently extended through June 12, 2012 [76 FR 69136].

An August 2011 regulatory amendment increased the 2011 red grouper TAC to 6.88 mp gw with subsequent increases each year from 2012 to 2015. These catch limits were subsequently replaced by a constant catch ACL and ACT under Amendment 32, which was being developed concurrently. The amendment also increased the red grouper bag limit to 4 fish per person. However, this increase did not include the provision later added under Amendment 32 that if there is a recreational overage, the bag limit would be reduced to 3 red grouper within the 4-grouper aggregate bag limit in the subsequent season. A subsequent overage would result in the bag limit being further reduced to 2 red grouper within the 4-grouper aggregate bag limit.

A December 2012 framework action established the 2013 gag recreational fishing season to open on July 1 and remain open until the recreational annual catch target is projected to be taken. The framework action also eliminated the February 1 through March 31 recreational shallow-water grouper closed season shoreward of 20 fathoms (except for gag). However, the closed season remains in effect beyond 20 fathoms to protect spawning aggregations of gag and other species that spawn offshore during that time.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1. Red Grouper Bag Limits

Alternative 1. No action. The red grouper bag limit is 4 fish per person per day.

Alternative 2. Reduce the red grouper bag limit to 3 fish per person per day.

Preferred Alternative 3. Reduce the red grouper bag limit to 2 fish per person per day.

Alternative 4. Reduce the red grouper bag limit to 1 fish per person per day.

Discussion:
All alternatives for the red grouper bag limit are within the current 4-fish aggregate grouper bag limit. Historically, the bag limit for red grouper ranged from one to five fish and the aggregate grouper bag limit ranged from three to five fish (Table 2.1.1). Bag limits greater than 4 fish are not under consideration in this framework action. Such increases would require either increasing the aggregate grouper bag limit or removing red grouper from the aggregate limit, both of which are beyond the scope of this framework action. In addition, larger bag limits would likely result in fewer fishing days and would be inconsistent with the objective of this framework action to lengthen the season.

Table 2.1.2. Bag limit history for red grouper recreational harvest in the Gulf of Mexico.

Effective Date	Document	Red grouper bag limit	Aggregate bag limit
February 21, 1990	Amendment 1	5	5
August 9, 2005	NMFS temporary rule	1	3
October 25, 2005	Court ruling	1	5
July 15, 2006	March 2006 regulatory amendment	1	5 (0 for captain and crew of for-hire vessels
May 18, 2009	Amendment 30B	2	4
November 2, 2011	August 2011 regulatory amendment	4	4
March 12, 2012	Amendment 32	Added condition that red grouper bag limit would be reduced by 1 if ACL is exceeded	4
May 5, 2014	In-season adjustment	3	4
January 1, 2015	Expiration of 2014 in-season adjustment	4	4

Alternative 1 retains the red grouper bag limit at 4 fish unless reduced due to the recreational annual catch limit (ACL) being exceeded. The 2014 reduction in the red grouper bag limit to 3

fish due to the recreational ACL being exceeded in 2013 was implemented as a temporary rule that expires after December 31, 2014. Therefore, the bag limit will revert to 4 fish on January 1, 2015 unless this framework action is implemented with a different bag limit before that date or NMFS determines that the ACL was again exceeded in 2014, resulting in a reduction to 2 fish for 2015.

Alternative 2, Preferred Alternative 3, and Alternative 4 set the base bag limit for red grouper at 3, 2, or 1 fish respectively. Depending on which alternatives are selected in Action 2, the bag limit under **Alternative 1, Alternative 2, or Preferred Alternative 3** could be reduced in a subsequent year if the recreational ACL is exceeded. Under **Alternative 4**, the bag limit is already at 1 fish, so any further reduction is not possible.

The red grouper recreational season is normally closed when the recreational ACL is projected to be reached. However, if the ACL is exceeded in a given year, then in the following year the recreational season is closed when the annual catch target (ACT) is projected to be reached.

Table 2.3.1 in the discussion of Action 3 contains estimates of season length to reach the ACT under various combinations of bag limit and closed season. Table 2.3.2 contains estimates of season length to reach the ACL under various combinations of bag limit and closed season

2.2 Action 2. Bag Limit Reductions

Alternative 1. No action. If, at the end of any season, it is determined that the recreational sector has exceeded its red grouper ACL, the National Marine Fisheries Service (NMFS) will file a notification with the Office of the Federal Register to reduce the bag limit by one fish. The minimum red grouper bag limit is 2 fish.

Alternative 2. Retain the bag limit reduction accountability measure (AM), except that the minimum red grouper bag limit is 1 fish.

Alternative 3. Any bag limit reduction triggered by the ACL being exceeded will be

Option a. Temporary. The bag limit will return to 1 fish above the temporary bag limit (to a maximum of the permanent bag limit) each of the following years, unless subject to a subsequent reduction due to the ACL being again exceeded.

Option b. Permanent, until changed in a rulemaking or subsequent reduction due to exceeding the ACL.

Preferred Alternative 4. Eliminate the bag limit reduction AM in 50 CFR 622.41(e)(2)(ii).

Discussion:
The current red grouper recreational ACL is 1.90 mp, and the recreational ACT is 1.73 mp. Management measures, including bag limits and season closures, are implemented to achieve the ACT, but AMs such as the bag limit reduction provision considered in this Action are not triggered unless the ACL is exceeded.

Alternative 1 retains the provision that reduces the bag limit in the following year if the ACL is exceeded. The provision to reduce the bag limit to 3 fish was activated in 2014, but as a temporary measure. The bag limit will revert to 4 fish, the permanent bag limit, on January 1, 2015. If NMFS determines that the ACL was exceeded again in 2014 despite the reduction to 3 fish, the 2015 bag limit will be reduced to 2 fish. If the ACL is not exceeded in the following year, the bag limit will remain at 4 fish or whichever bag limit is adopted in Action 1. Subsequent instances of ACL being exceeded will result in a reduction by 1 fish, except that the bag limit may not be reduced to less than 2 fish. Consequently, if the permanent bag limit is set to 1 or 2 fish in Action 1, then this alternative would have no effect.

Alternative 2 would extend the possible bag limit reductions to 1 fish. If the permanent bag limit is set to one fish in Action 1, then this alternative would have no effect. The bag limit would remain at 1 fish regardless of whether the ACL is exceeded.

Alternative 3 can be selected in combination with **Alternative 1** or **Alternative 2**. If this alternative is not selected, then a bag limit reduction implemented under **Alternative 1** or **Alternative 2** will continue to be temporary. It will revert back to the permanent bag limit on January 1 of the following year unless NMFS determines that the previous year's ACL was exceeded a second successive time, in which case the bag limit will be reduced again (unless it is already at the minimum allowed). This determination will typically be made after the final wave of Marine Recreational Information Program (MRIP) catch estimates becomes available, usually in mid-February. If Alternative 3 is selected, then it will either alter the nature of the temporary reduction (**Option a**) or make the reduction permanent by eliminating automatic increases (**Option b**).

Option a allows the bag limit to increase the following year provided the ACL is not exceeded a second time, but only by one fish at a time. In contrast, under the status quo, the bag limit reverts immediately back to the permanent bag limit. For example, if the permanent bag limit is four fish, but the temporary bag limit has been reduced to two fish due to multiple years of exceeding the ACL, the bag limit on January 1 will increase to four fish under the status quo, but will only increase to three fish under **Option a**. If catches continue to stay below the ACL for that year, then in the following year, the bag limit will increase from three to four fish. These increases are dependent on the previous year's ACL not being exceeded.

Option b makes any bag limit reductions implemented under this accountability measure permanent. There can still be a subsequent further reduction if the ACL is again exceeded, and the Gulf of Mexico Fishery Management Council (Council) can choose to increase the bag limit under a framework action, but there is no automatic increase. This avoids a possible oscillation of decreasing and increasing bag limits under the status quo or **Option a**, and improves the conservation benefits of this action by maintaining the bag limit at a level that has a greater likelihood of keeping catches within the ACL.

Preferred Alternative 4 rescinds the bag limit reduction accountability measure. Due to the 45-day delay in MRIP catch estimates becoming available following the end of a wave of data, recreational catch estimates for a given year are generally not available until mid-February of the following year. Any bag limit reductions triggered by the ACL having been exceeded in the

prior year would therefore be delayed, reducing the effectiveness of this accountability measure. In addition, the current implementation of bag limit reductions as a temporary measure results in frequent bag limit changes, which can create confusion. If this accountability measure is rescinded, the bag limit selected in Action 1 will remain in place unless subsequently changed by the Council. The primary means of keeping the recreational sector from exceeding its ACL is a closure notification by NMFS when the recreational ACL is projected to be reached. If the ACL is exceeded, then in the following year the season closure is when the recreational ACT is projected to be reached. The lower ACT catch level relative to the ACL is intended to reduce the likelihood of the ACL being exceeded again. In addition, the bag limit reduction is intended to slow the harvest rate and further reduce the likelihood of the ACL being exceeded.

2.3 Action 3. Closed seasons

Preferred Alternative 1. No action. Red grouper recreational harvest will remain closed February 1 through March 31 in waters beyond the 20-fathom depth contour.

Alternative 2. Red grouper recreational harvest will remain closed February 1 through March 31, but will be removed from the shallow-water grouper 20-fathom exclusion so that the closed season applies in all federal waters.

Alternative 3. Red grouper fixed closed season February 1 through April 30
Option a. Beyond 20 fathoms
Option b. In all federal waters

Alternative 4. Red grouper fixed closed season March 1 through April 30
Option a. Beyond 20 fathoms
Option b. In all federal waters

Alternative 5. Red grouper fixed closed season July 1 through July 31
Option a. Beyond 20 fathoms
Option b. In all federal waters

Alternative 6. No red grouper fixed closed season in any depth waters.

For regulation purposes, the 20-fathom depth contour is a series of point-to-point lines that approximate the 20-fathom depth contour. The specific coordinates for these lines are in 50 CFR 627.34(d).

Discussion:
Under **Alternatives 2-5**, red grouper will be removed from the current shallow-water grouper closed season and given a separate closed season. Options are included in each of these alternatives to either apply the closed season only in waters beyond the 20-fathom depth contour (as is currently done for shallow-water grouper) or apply the closed season in all federal waters regardless of depth.

If the ACL is exceeded in a given year, then the recreational sector will be closed to fishing in the following year when the ACT is projected to be met. If the ACL is not exceeded, then the closure will apply when the ACL is projected to be met. The estimated ACT and ACL closure dates and number of fishing days for each combination of fixed closed season and bag limit are provided in Tables 2.3.1 and 2.3.2. Three different method of estimating closure dates were used, resulting in a range of possible results. Those methods are briefly described at the end of this discussion.

In 2014, the recreational red grouper season was closed on October 4, which was the date that the ACT was projected to be reached. The purpose of this action is to revise the red grouper closed season to provide a greater number of fishing days and to allow the recreational season to extend further into the year. Red grouper catches do not occur evenly throughout the year. Catches are lowest during Wave 1 (January-February) and highest during Wave 4 (July-August) (Table 2.3.1). Thus, both the length and the time of year for the fixed closed season affect its impact on season length. In addition, the closed season needs to be considered in combination with the bag limit in order to evaluate its effect on season length (Table 2.3.1 and 2.3.2).

Table 2.3.1. Estimated season lengths to reach ACT from combinations of closed seasons and bag limits. For relative comparison of alternatives. Actual season lengths will be re-estimated at the time of implementation (source: NMFS Southeast Regional Office).

Alt.	Closed Season	Closure eff. < 20 fathoms	Closure eff. >20 fathoms		Bag Limit			
					4	3	2	1
1	Feb-Mar	No	Yes	% ACT harvested Date ACT reached Days	100% 27-Aug – 24-Sep 179-237	99%-100% 30-Aug – 7-Oct 182-251	100% 15-Oct – 17-Dec 228-291	77%-83% No Closure 306
2	Feb-Mar	Yes	Yes	% ACT harvested Date ACT reached Days	100% 9-Oct – 20-Nov 222-264	100% 27-Oct – 5-Dec 240-279	96%-100% 3-Dec –None 277-306	65%-74% No Closure 306
3a	Feb-Apr	No	Yes	% ACT harvested Date ACT reached Days	100% 9-Aug –4-Nov 161-218	100% 22-Sep – 19-Nov 175-233	100% 9-Nov – 30-Dec 223-274	69%-79% No Closure 276
3b	Feb-Apr	Yes	Yes	% ACT harvested Date ACT reached Days	100% 8-Nov – 8-Dec 222-252	100% 22-Nov –25-Dec 236-269	91%-100% 28-Dec - None 272-276	61%-68% No Closure 276
4a	Mar-Apr	No	Yes	% ACT harvested Date ACT reached Days	100% 27-Aug –21-Oct 177-232	100% 31-Aug – 5-Nov 181-247	100% 17-Oct – 14 Dec 228-286	72%-83% No Closure 304
4b	Mar-Apr	Yes	Yes	% ACT harvested Date ACT reached Days	100% 21-Oct – 25-Nov 232-267	100% 7-Nov – 10-Dec 249-282	95%-100% 11-Dec - None 283-304	65%-72% No Closure 304
5a	July	No	Yes	% ACT harvested Date ACT reached Days	79%-100% 1-Aug – 24-Oct 212-265	78%-100% 1-Aug – 8-Nov 212-280	100% 18-Oct – 17-Dec 259-319	71%-83% No Closure 334
5b	July	Yes	Yes	% ACT harvested Date ACT reached Days	100% 16-Nov – 12-Dec 288-314	100% 27-Nov – 26-Dec 299-328	91%-100% 28-Dec – None 330-334	63%-70% No Closure 334
6	None	n/a	n/a	% ACT harvested Date ACT reached Days	100% 26-Aug –18-Oct 237-290	99%-100% 29-Aug –1-Nov 240-304	100% 12-Oct – 10-Dec 284-343	73%-84% No Closure 365

Preferred Alternative 1 along with a with a 2-fish bag limit (highlighted in yellow) is the preferred combination of bag limit and closed season from Actions 1 and 3 of this framework action. This provides the greatest number of fishing days without changing the closed fishing season or adopting a 1-fish bag limit. Fishermen have been strongly opposed to a 1-fish bag limit even if it allows a year-round season. Leaving the existing closed season in place avoids confusion from having different closed seasons for different grouper species.

It should be noted that projected season lengths in Tables 2.3.1 and 2.3.2 are approximate and subject to change. Currently, recreational landing estimates are being calibrated to address changes and improvements to the MRIP dockside intercept survey that began in 2013. The MRIP calibrations were not complete by the time the Council submitted this amendment for Secretarial review, and, therefore, are not included in this document. The results of the calibration could potentially change the outcome of the projected closure dates and the number of days the fishing season is open. Calibrated estimates are expected to increase historical red grouper landings; therefore, actual closure dates may occur sooner than those presented in the tables after the recalibrated estimates are incorporated into the landings time series. The relative differences in season lengths between alternatives are anticipated to remain relatively stable. NMFS will update these projections with calibrated landings data prior to determining when the recreational red grouper ACL will be met in 2015.

Under all of the alternatives, a 1-fish bag limit is projected to result in no ACT or ACL season closure. However, under a 1-fish bag limit, less than 100% of the recreational ACT or ACL is projected to be caught. Depending on which closed season alternative is selected, between 61% and 84% of the ACT, or between 58% and 76% of the ACL, is projected to be taken. Several other bag limit/closed season alternatives also project the possibility of avoiding an ACT or ACL closure. However, the tradeoff to avoiding a closure is that less than 100% of the recreational allocation may be harvested.

Table 2.3.2. Estimated season lengths to reach the ACL from combinations of closed seasons and bag limits, provided for the relative comparison of alternatives. Actual season lengths will be re-estimated at the time of implementation. The highlighted cell is the combination of Action 1, Preferred Alternative 3 and Action 3, Preferred Alternative 1.

Alt.	Closed Season	Closure eff. < 20 fathoms	Closure eff. >20 fathoms		Bag Limit			
					4	3	2	1
1	Feb-Mar	No	Yes	% ACL harvested Date ACL reached Days	100% 24-Sep – 25-Nov 207-269	100% 11-Nov – 11-Dec 222-285	95%-100% 23-Nov – None 267-306	65%-76% No Closure 306
2	Feb-Mar	Yes	Yes	% ACL harvested Date ACL reached Days	100% 12-Nov – 22-Dec 256-296	98%-100% 26-Nov – None 270-306	87%-99% No Closure 306	60%-67% No Closure 306
3a	Feb-Apr	No	Yes	% ACL harvested Date ACL reached Days	100% 17-Oct –6-Dec 200-250	100% 4-Nov – 22-Dec 218-266	91%-100% 11-Dec – None 255-276	62%-72% No Closure 276
3b	Feb-Apr	Yes	Yes	% ACL harvested Date ACL reached Days	97%-100% 6-Dec – None 250-276	93%-100% 21-Dec – None 265-276	83%-92% No Closure 276	56%-62% No Closure 276
4a	Mar-Apr	No	Yes	% ACL harvested Date ACL reached Days	100% 26-Sep –23-Nov 202-265	100% 12-Oct – 8-Dec 222-280	95%-100% 24-Nov – None 266-304	65%-76% No Closure 304
4b	Mar-Apr	Yes	Yes	% ACL harvested Date ACL reached Days	100% 21-Nov – 27-Dec 263-299	97%-100% 5-Dec – None 277-304	86%-97% No Closure 304	59%-66% No Closure 304
5a	July	No	Yes	% ACL harvested Date ACL reached Days	100% 27-Sep – 26-Nov 238-298	100% 14-Oct – 11-Dec 255-313	94%-100% 25-Nov – None 297-334	65%-76% No Closure 334
5b	July	Yes	Yes	% ACL harvested Date ACL reached Days	96%-100% 13-Nov – None 315-334	93%-100% 25-Dec – None 327-334	83%-92% No Closure 334	58%-64% No Closure 334
6	None	n/a	n/a	% ACL harvested Date ACL reached Days	100% 11-Oct –19-Nov 277-322	100% 18-Oct –5-Dec 287-338	96%-100% 21-Nov – None 324-365	66%-76% No Closure 365

Source: NMFS Southeast Regional Office.

The current February through March fixed closed season for shallow-water grouper was implemented January 2009 under Amendment 30B (GMFMC 2008b). A 2012 framework action modified the closed season to apply only in waters beyond the 20-fathom depth contour. This framework action was not implemented until mid-2013, so 2014 was the first year that this modified closed season was in effect.

Preferred Alternative 1 and **Alternatives 2** through **4b** presented in this section focus on having a fixed closed season during the red grouper and/or gag spawning season. Red grouper spawning in the Gulf of Mexico occurs from late February to early July, with peak spawning occurring March through May (Collins et al. 2002, Fitzhugh et al. 2006). However, red grouper do not form large spawning aggregations, and therefore the benefits of a spawning season closure are not as great as they would be for a species that forms large spawning aggregations, making it easier to target. Table 2.3.3 shows the percent of the annual catch that occurred in each month red grouper during years when the recreational season was open year-round. The largest catches occur in July and August. Based on this analysis, an additional alternative was added for a one month closed season during July.

Table 2.3.3. Estimated percent red grouper harvested per month if red grouper season were open year round, based on landings from 2012-2013. Three methods were used (see below) to estimate what the catches would have been during currently closed seasons. The range of results is shown.

Month	Percent Red Grouper Landings
Jan	3% - 4%
Feb	3% - 4%
Mar	5% - 6%
Apr	5% - 6%
May	9% - 13%
Jun	9% - 13%
Jul	14% - 19%
Aug	14% - 19%
Sep	5% - 7%
Oct	5% - 7%
Nov	8%
Dec	8%

Preferred Alternative 1 retains the fixed February-March closed season beyond the 20-fathom depth contour. This closed season is timed for the peak gag spawning season, but it also includes part of the peak red grouper spawning season. Projected ACL season closures would occur as soon as September, with the possibility of no ACL closure occurring in combination with a 2-fish bag limit. Under bag limits of 4, 3, or 2 fish, 95% to 100% of the recreational ACL is projected to be harvested. Under a 1-fish bag limit, there would be no ACL season closure, but just 65% to 76% of the recreational allocation is projected to be taken.

Alternative 2 retains the fixed February-March closed season, but re-establishes the closed season for red grouper in all federal waters including those shoreward of the 20-fathom depth contour. Since most recreational fishing occurs in shallower waters, this will increase the impact of the closed season on recreational harvest and season length. Projected ACL season closures could occur as soon as November, but there is the possibility of no ACL closure occurring in combination with a 3-fish bag limit. There is no projected ACL closure under a 2-fish or 1-fish bag limit, but just 60% to 99% of the recreational allocation is projected to be taken.

Alternative 3 removes red grouper from the aggregate shallow-water grouper closed season and establishes a separate fixed closed season February 1 through April 30, which encompasses the peak spawning season for gag and most of the peak spawning season for red grouper. **Option a** implements the season offshore in waters beyond the 20-fathom depth contour, while **Option b** implements the season in all federal waters. Under **Option a**, projected ACL season closures would occur as soon as October, with the possibility of no ACL closure occurring in combination with a 2-fish bag limit. There is no projected ACL closure under a 1-fish bag limit, but just 62% to 72% of the recreational allocation is projected to be taken. Under **Option b**, projected ACL

season closures could occur as soon as early December, but there is the possibility of no ACL closure occurring in combination with a 4-fish or 3-fish bag limit. There is no projected ACL closure under a 2-fish or 1-fish bag limit, but just 56% to 92% of the recreational allocation is projected to be taken.

Alternative 4 removes red grouper from the aggregate shallow-water grouper closed season and establishes a separate fixed closed season March 1 through April 30, which encompasses parts of the peak spawning seasons for both red grouper and gag. **Options a** and **b** are the same as for Alternative 3 with respect to the 20-fathom depth contour. Under **Option a**, projected ACL season closures could occur as soon as September, but there is the possibility of no ACL closure occurring in combination with a 2-fish bag limit. There is no projected ACL closure under a 1-fish bag limit, but just 65% to 76% of the recreational allocation is projected to be taken. Under **Option b**, projected ACL season closures could occur as soon as November, but there is the possibility of no ACL closure occurring in combination with a 3-fish bag limit. There is no projected ACL closure under a 2-fish or 1-fish bag limit, but just 59% to 97% of the recreational allocation is projected to be taken.

Alternative 5 removes red grouper from the aggregate shallow-water grouper closed season and establishes a separate fixed one-month closed season during the peak period for red grouper catches in July. MRIP catches are reported in two month waves, and it is not possible to differentiate between catch rates for those two months. Therefore, each month within a wave is assumed to have the same catch rate for purposes of this analysis. **Options a** and **b** are the same as for Alternative 3 with respect to the 20-fathom depth contour. Under **Option a**, projected ACL season closures could occur as soon as September, but there is the possibility of no ACL closure occurring in combination with a 2-fish bag limit. There is no projected ACL closure under a 1-fish bag limit, but just 65% to 76% of the recreational allocation is projected to be taken. Under **Option b**, projected ACL season closures could occur as soon as November, but there is the possibility of no ACL closure occurring in combination with a 4-fish or 3-fish bag limit. There is no projected ACL closure under a 2-fish or 1-fish bag limit, but just 58% to 92% of the recreational allocation is projected to be taken.

Alternative 6 removes red grouper from the aggregate shallow-water grouper closed season and eliminates the closed season for red grouper, although the February-March closed season would remain in effect for other shallow-water groupers. Projected ACL season closures would occur as soon as October, with the possibility of no ACL closure occurring in combination with a 2-fish bag limit. There is no projected ACL closure under a 1-fish bag limit, but just 66% to 76% of the recreational allocation is projected to be taken.

The above estimates of season lengths are based on Table 3.3.2. If an ACT closure is in effect as a result of the recreational harvest having exceeded ACL in the previous year, then the shorter seasons estimated in Table 3.3.1 would apply.

Alternatives in Table 2.3.2 that give the greatest number of fishing days for each bag limit are:

4 fish: **Alternative 5b** (July closed season in all waters) projects an ACL closure as soon as mid-November with the possibility of no ACL closure, with 315-334 fishing days.

3 fish: **Alternative 6** (no fixed closed season) projects an ACL closure between mid-October and early December, with 287-338 fishing days.

2 fish: **Alternative 6** (no fixed closed season) projects an ACL closure in mid-November with the possibility of no ACL closure, with 324-365 fishing days.

1 fish: **Alternative 6** (no closed season) projects no ACL closure, with 365 fishing days. However, only 66% to 76% of the recreational ACL is projected to be caught.

For all combinations of bag limits and fixed closed seasons, the projected number of fishing days to reach the ACL ranges from 200 to 365 days. The combination of **Action 1, Preferred Alternative 3** (2 fish bag limit) and **Action 3, Preferred Alternative 1** (status quo closed season) is projected to allow 267 to 306 fishing days, placing it in the middle of the potential range of days.

Methodology Used to Estimate Season Lengths

Red grouper fishing season lengths were projected under various combinations of Alternatives in Actions 1 and 3 (Tables 2.3.1, 2.3.2 and 2.3.3). Due to uncertainty about future recreational red grouper catch rates, three catch rate scenarios were modeled. The first scenario used a Seasonal Auto-Regressive Integrated Moving Average (SARIMA) model to evaluate inter-annual and seasonal trends in catch rates using input data from 1997-2014. Separate model fits were generated for Private/Charter data (R-square = 0.75) and Headboat data (R-square = 0.88), and the predicted catch rates were combined for the 2015 season. Both models predicted an inter-annual increase in catch rates, with peak catches in Waves 3-4 (Figure 2.3.1 and 2.3.2). The second catch rate scenario ("OBS1314" scenario) used available data for 2014 (i.e., MRIP Waves 1-3, Headboat Waves 1-2) and 2013 data as a proxy for missing 2014 data, and simply assumed that 2015 catch rates would be similar to those observed in 2013-14. The third catch rate scenario ("BACKFILL" scenario) evaluated assumed catch rates in Waves 1-2 would be proportional to the mean ratio of Wave 1:Waves 3-6 and Wave 2:Waves 3-6 catch rates from 1997-2006 (i.e., prior to the February-March closures (Figure 2.3.3).

As both the SARIMA and OBS1314 catch rate scenarios incorporated 2014 data during the period where red grouper was open inside 20-fathoms during Waves 1-2, predicted catch rates for Wave 1-2 were downscaled for Alternatives 3b, 4b, and 5b. The ratio used for downscaling was the ratio between observed Wave 1 and 2 landings in 2013 (when no 20-fathom opening was in effect) and 2014 (when the 20-fathom opening was in effect). The combined ratio of Waves 1-2 2013 versus Waves 1-2 2014 was used to predict the impacts of a 20-fathom opening in any waves other than 1-2. The 20-fathom opening was projected to result in catch rates that were between 76.9-99.9% of the fully open catch rates, depending on the Wave. Predicted catch rates, by wave, with and without the 20-fathom opening, are shown in Figure 2.3.4.

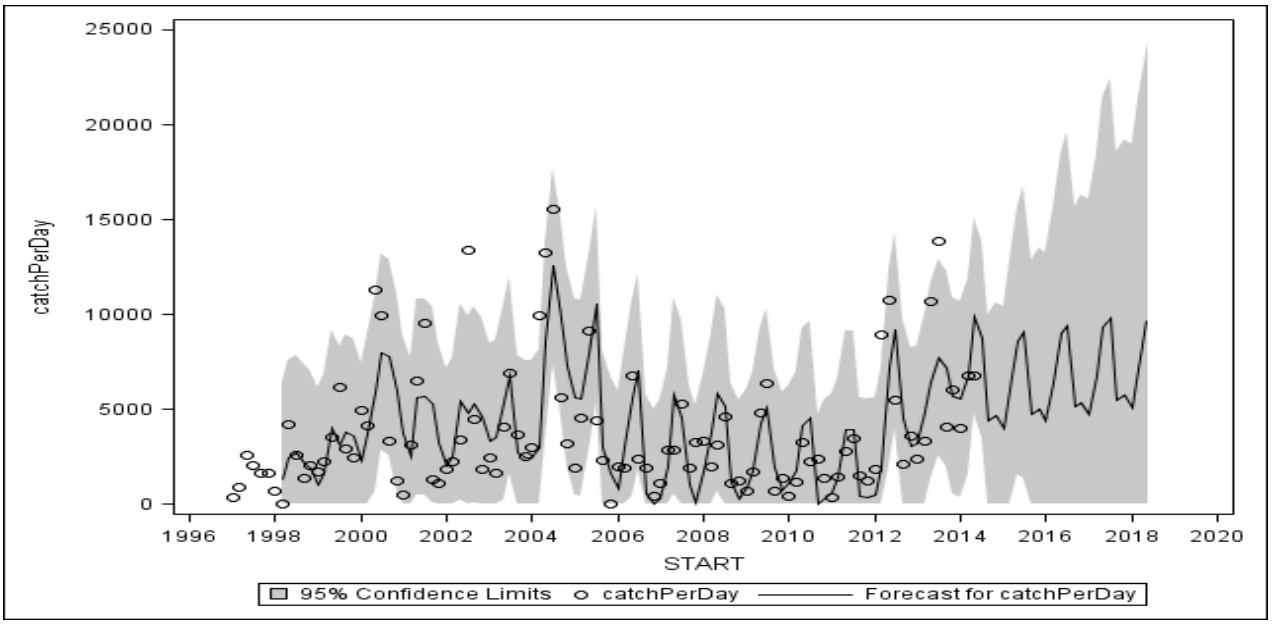

Figure 2.3.1. SARIMA model fits to observed red grouper catch-per-day within waves for private/charter (R^2 = 75%) recreational fishing in the Gulf of Mexico. Shading denotes 95% confidence bands. Model fits were SARIMA (0,1,1)x(0,1,1)s models.

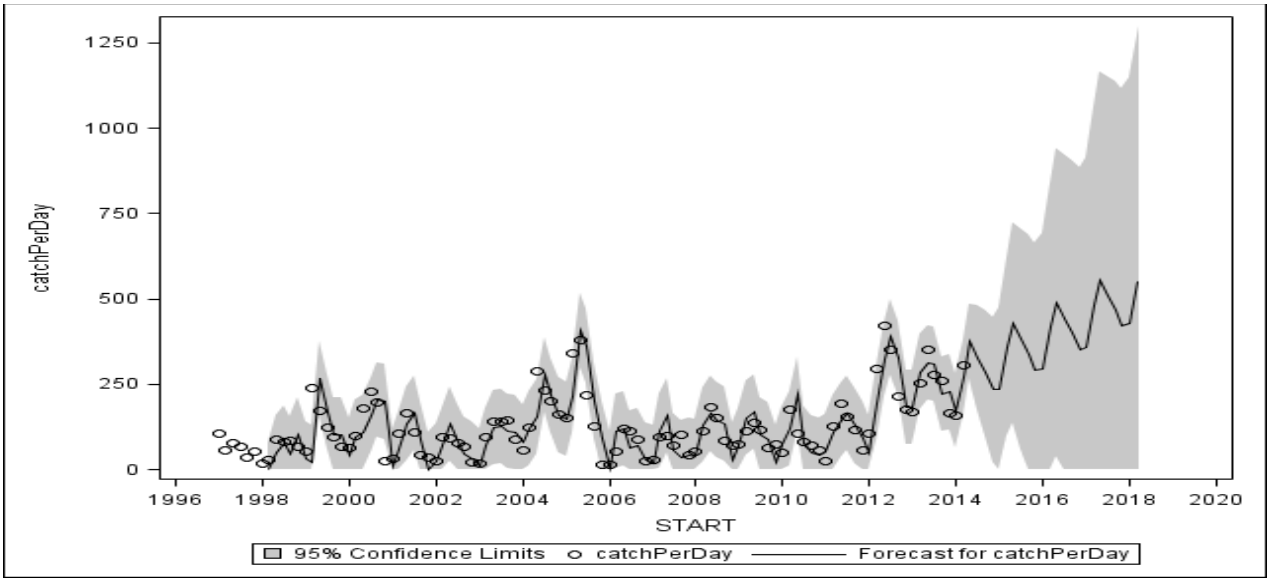

Figure 2.3.2. SARIMA model fits to observed red grouper catch-per-day within waves for headboat (bottom; R^2 = 88%) recreational fishing in the Gulf of Mexico. Shading denotes 95% confidence bands. Model fits were SARIMA (0,1,1)x(0,1,1)s models.

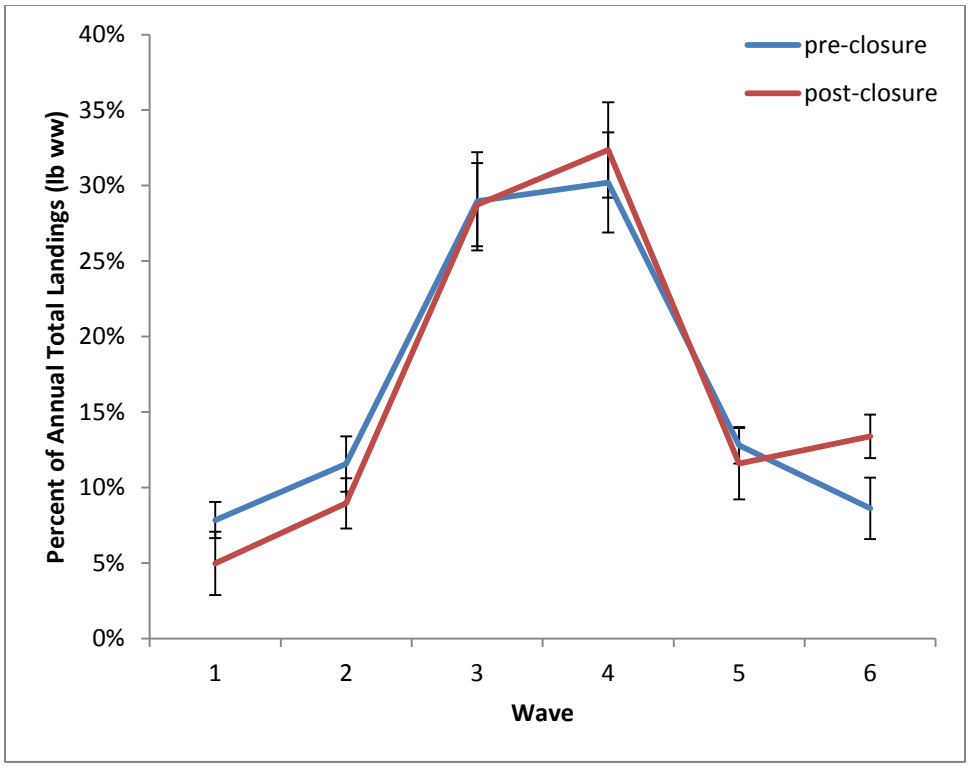

Figure 2.3.3. Red grouper 'backfill' method mean seasonal distribution of annual landings totals pre- and post-Feb/Mar closure.

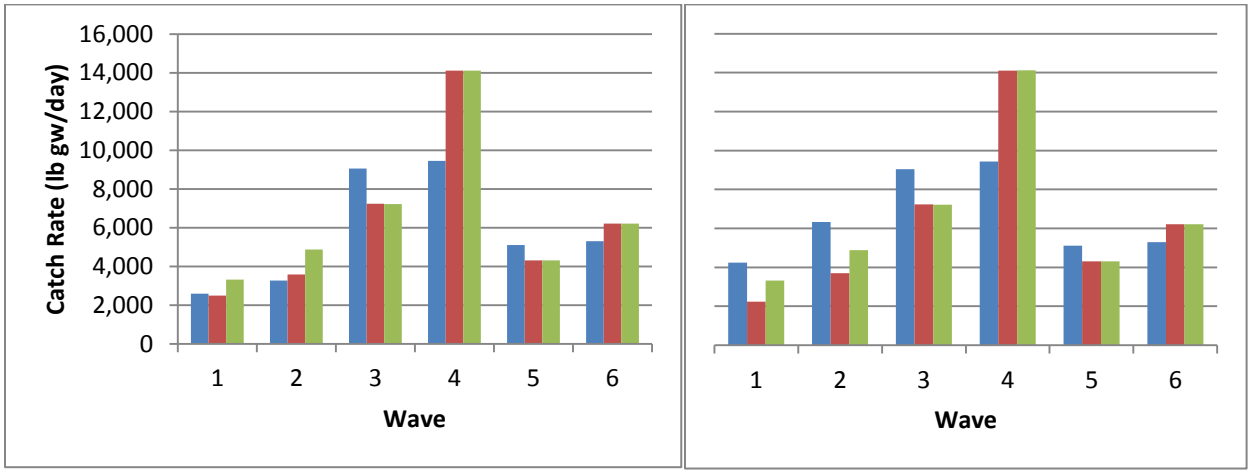

Figure 2.3.4. Red grouper predicted recreational daily catch rates with (left) and without (right) a 20-fathom opening, by wave, for the SARIMA (blue), OBS1314 (red), and BACKFILL (green) scenarios.

CHAPTER 3. AFFECTED ENVIRONMENT

3.1 Description of the Physical Environment

The Gulf of Mexico (Gulf) has a total area of approximately 600,000 square miles (1.5 million km^2), including state waters (Gore 1992). It is a semi-enclosed, oceanic basin connected to the Atlantic Ocean by the Straits of Florida and to the Caribbean Sea by the Yucatan Channel (Figure 3.1.1). 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). Gulf water temperatures range from 54º F to 84º F (12º C to 29º C) depending on time of year and depth of water. Mean annual sea surface temperatures ranged from 73 º F through 83º F (23-28º C) including bays and bayous (Figure 3.1.1) 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.

The physical environment for reef fish, including red grouper and other shallow water grouper species, has been described in detail in the 2004 Environmental Impact Statement (EIS) for the Generic Essential Fish Habitat (EFH) Amendment (GMFMC 2004a). The ecologically critical areas in the Gulf of Mexico, such as the Flower Gardens and the Tortugas Marine Sanctuaries are described in detail in Generic EFH Amendment Number 3 (GMFMC 2005a) and are incorporated by reference. The primary habitat for grouper is located in the eastern Gulf of Mexico as described in Amendment 32 (GMFMC 2011b). In summary, red grouper are associated with hard bottom areas primarily on the eastern Gulf shelf, although juvenile gag are associated with seagrass beds.

Amendment 32 (GMFMC 2011b) also describes environmental sites of special interest relevant to the reef fish fishery including gear restricted areas, area closures, and habitat areas of particular concern (HAPCs). Gear restricted areas include the Longline/Buoy Gear Area Closure and Stressed Areas for Reef Fish; closed areas such as Madison/Swanson and Steamboat Lumps Marine Reserves, The Edges seasonal area closure, and the Tortugas North and South Marine Reserves; and HAPCs such as the individual reef areas and bank HAPCs of the northwestern Gulf, the Middle Grounds HAPC, and the Pulley Ridge HAPC. There is one site listed in the National Register of Historic Places in the Gulf. This is the wreck of the *U.S.S. Hatteras*, located in federal waters off Texas.

The Deepwater Horizon MC252 oil spill in 2010 affected at least one-third of the Gulf area from western Louisiana east to the Florida Panhandle 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. However, the oil remained outside most of the west Florida Shelf where red grouper and gag are particularly abundant. 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 as did 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. For more information on physical impacts of the Deepwater Horizon MC252 oil spill, see http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm.

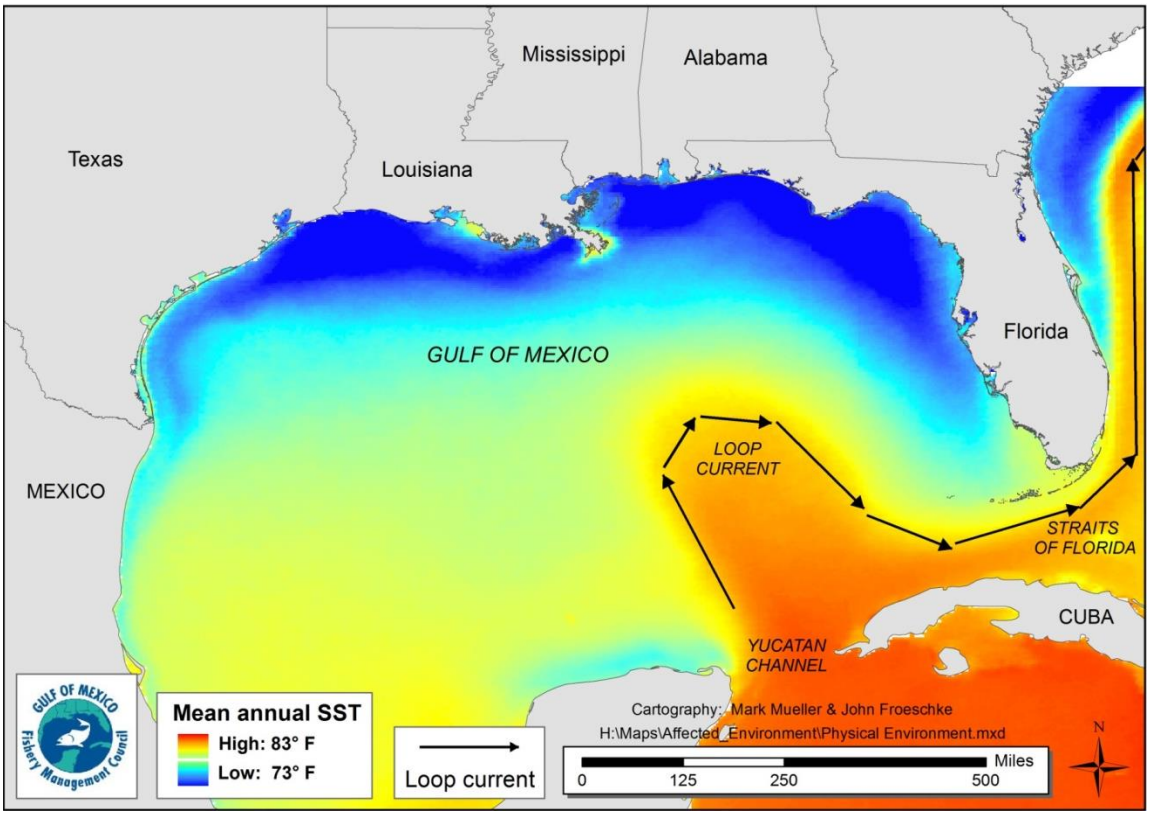

Figure 3.1.1. Physical environment of the Gulf including major feature names and mean annual sea surface temperature as derived from the Advanced Very High Resolution Radiometer Pathfinder Version 5 sea surface temperature data set (http://accession.nodc.noaa.gov/0072888)

3.2 Description of the Biological/Ecological Environment

The biological and ecological environment of the Gulf, including the species addressed in this regulatory amendment, is described in detail in the final EIS for the Generic Essential Fish Habitat amendment and is incorporated here by reference (GMFMC 2004a). Summaries of this information can be found in GMFMC (2010a) and Amendment 30B (GMFMC 2008b). Information for this section has been presented in GMFMC (2010a) except for updated material resulting from the 2011 rerun of the red grouper assessment with revised estimates of historical discards (Walter 2011). Therefore, information on grouper life history, reef fish, protected resources, and possible effects of the Deepwater Horizon MC252 oil spill are being incorporated herein by reference and information relevant to the proposed actions are further summarized below. This regulatory amendment GMFMC (2010a) can also be viewed at

http://www.gulfcouncil.org/docs/amendments/2010 Red Grouper Regulatory Amendment 9-17-10 final with signed FONSI.pdf. Information on red grouper life history and the status of the stock are summarized and updated.

In 2005, a red tide event on the west-Florida shelf may have impacted red grouper populations. It has only been in the last 10 years that mortalities of higher vertebrates have been indisputably demonstrated to be due to acute red tide blooms and their brevetoxins (Landsberg et al. 2009). The extent of this event and possible effects of fish community structure has been described in Gannon et al. (2009). In 2014 another red tide event with associated mortality of red and gag grouper has been documented (http://www.myfwc.com/redtidestatus). The extent and severity of the grouper mortality associated with this event is still under evaluation.

Red Grouper Life History and Biology

See Amendment 32 (GMFMC 2011b). This amendment can also be viewed at http://www.gulfcouncil.org/docs/amendments/Final%20RF32_EIS_October_21_2011[2].pdf

Status of the Red Grouper Stock and Scientific and Statistical Committee Recommendations

A summary of the red grouper benchmark stock assessment (SEDAR 12 2007) and 2009 update stock assessment (SEDAR 2009) can be found in GMFMC (2010a) and is incorporated here by reference. These assessments showed that red grouper were neither overfished nor undergoing overfishing. The 2009 update stock assessment did suggest the stock has declined since 2005, much of which was attributed to an episodic mortality event in 2005 (most likely associated with red tide). The update assessment was rerun in late 2010 to incorporate new information on red grouper harvest. Specifically, the assessment used revised estimates of historical discards in the commercial sector based on newly available observer estimates from the years 2006-2008 and updated projections taking into account the reduction in the commercial size limit from 20 inches to 18 inches total length (Walter 2011). Given these changes, the assessment rerun resulted in a slightly improved estimate of the stock status for the last year of the assessment (2008) and indicated the total allowable catch in the near term could be substantially increased. After reviewing the rerun of the assessment update, the Scientific and Statistical Committee recommended that the overfishing limit (OFL) for red grouper be set at 8.10 million pounds (mp) (the equilibrium yield at the fishing mortality rate associated harvesting the equilibrium maximum sustainable yield) and the acceptable biological catch (ABC) be set at 7.93 mp (the equilibrium yield at the fishing mortality rate associated harvesting the equilibrium optimum sustainable yield).

A new benchmark assessment for red grouper using the Stock Synthesis model (SEDAR 42) is currently in progress and is scheduled for completion in August 2015. Red grouper mortality associated with the ongoing (as of the publication of this document) red tide event in summer-fall 2014 will need to be considered in the 2015 benchmark assessment.

Description of the Fishery

The reef fish fishery of the Gulf is divided into two broad categories, recreational fishing and commercial fishing. Recreational fishing includes fishing from charter vessels and headboats (collectively referred to as for-hire vessels) as well as from private vessels and from shore. No federal permit is needed for private vessels to fish for reef fish in the exclusive economic zone (EEZ), but persons fishing onboard private vessels do need a state recreational saltwater fishing license to land their catch. For-hire vessels fishing for reef fish and other federally managed species are required to have a federal reef fish charter/headboat permit, and as a condition of the permit, must agree to abide by federal fishing regulations whether in federal or state waters. Reef fish caught under recreational bag limits are not allowed to be sold. Commercial fishing requires a commercial reef fish vessel permit to exceed the bag limit and sell reef fish. In addition, commercial harvest of red snapper, shallow-water grouper, deep-water grouper, and tilefish is managed under an individual fishing quota (IFQ) system, which requires that vessels have individual allocations of the quotas for those stocks to harvest and sell the catch. Both charter/headboat and commercial reef fish permits are under a moratorium, but the permits are transferable. IFQ shares and allocations are also transferable.

A detailed description of the fishing gears and methods used in the reef fish fishery is provided in Amendment 1 to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP) (GMFMC 1989) (http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/RF%20Amend-01%20Final%201989-08-rescan.pdf). The gears described included handline and bandit fishing, fish traps, longlines, buoy fishing, and shrimp bycatch of red snapper. Spearfishing is also used as a method of taking grouper by both the commercial and recreational sectors, but to a lesser extent than hook and line methods. In 1999, the National Marine Fisheries Service (NMFS) published a list of authorized fisheries and fishing gear used in those fisheries (64 FR 67511). For the Gulf reef fish fishery, the following gears were listed as authorized:

Commercial: Longline, handline, bandit gear, rod and reel, buoy gear, pot, trap, spear, powerhead, cast net, trawl (reef fish caught in a trawl are limited to recreational bag limits and cannot be sold). In February 2007 the use of fish traps (including pots) was phased out in the Gulf EEZ.

Recreational: Spear, powerhead, bandit gear, handline, rod and reel, cast net.

General Information on Reef Fish Species

See GMFMC (2010a). This regulatory amendment can also be viewed at http://sero.nmfs.noaa.gov/sf/pdfs/2010_Red_Grouper_Regulatory_Amendment_91710_final.pdf.

Status of Reef Fish Stocks

The Reef Fish FMP currently encompasses 31 species (Table 3.2.1). Eleven other species were removed from the Reef Fish FMP in 2012 through the Generic Annual Catch Limit/Accountability Measures (ACL/AM) Amendment (GMFMC 2011a). Stock assessments

and stock assessment reviews have been conducted for 13 species and can be found on the Council (www.gulfcouncil.org) and Southeast Data, Assessment and Review (SEDAR) (www.sefsc.noaa.gov/sedar) websites. The assessed species are:

- Red Snapper (SEDAR 7 2005; SEDAR 7 Update 2009; SEDAR 31 2013)
- Vermilion Snapper (Porch and Cass-Calay 2001; SEDAR 9 2006a; SEDAR 9 Update 2011a)
- Yellowtail Snapper (Muller et al. 2003; SEDAR 3 2003; O'Hop et al. 2012)
- Mutton Snapper (SEDAR 15A 2008)
- Gray Triggerfish (Valle et al. 2001; SEDAR 9 2006b; SEDAR 9 Update 2011b)
- Greater Amberjack (Turner et al. 2000; SEDAR 9 2006c; SEDAR 9 Update 2010; SEDAR 33 2014a,b,c)
- Hogfish (Ault et al. 2003; SEDAR 6 2004a; Cooper et al. 2014)
- Red Grouper (NMFS 2002; SEDAR 12 2007; SEDAR 12 Update 2009)
- Gag (Turner et al. 2001; SEDAR 10 2006; SEDAR 10 Update 2009; SEDAR 33 2014d)
- Black Grouper (SEDAR 19 2010)
- Yellowedge Grouper (Cass-Calay and Bahnick 2002; SEDAR 22 2011a)
- Tilefish (Golden) (SEDAR 22 2011b)
- Atlantic Goliath Grouper (Porch et al. 2003; SEDAR 6 2004b; SEDAR 23 2011)

The NMFS Office of Sustainable Fisheries updates its Status of U.S. Fisheries Report to Congress on a quarterly basis utilizing the most current stock assessment information. The most recent update can be found at: http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/). The status of both assessed and unassessed stocks as of the writing of this report is shown in Table 3.2.1.

Definition of Overfishing

In January 2012, the Generic ACL/AM Amendment (GMFMC 2011a) became effective. Under this amendment, in years when there is a stock assessment, overfishing is defined as the current fishing mortality rate reported in the assessment exceeding the maximum fishing mortality threshold. In years when there is no stock assessment, overfishing is defined as the catch exceeding the OFL. Because the overfishing threshold is now re-evaluated each year instead of only in years when there is a stock assessment, this status for red grouper and other reef fish could change on a year-to-year basis.

Table 3.2.1. Species of the Reef Fish FMP grouped by family.

Common Name	Scientific Name	Stock Status
Family Balistidae – Triggerfishes		
Gray Triggerfish	*Balistes capriscus*	Overfished, no overfishing
Family Carangidae – Jacks		
Greater Amberjack	*Seriola dumerili*	Overfished and overfishing
Lesser Amberjack	*Seriola fasciata*	Unknown
Almaco Jack	*Seriola rivoliana*	Unknown
Banded Rudderfish	*Seriola zonata*	Unknown
Family Labridae - Wrasses		
Hogfish	*Lachnolaimus maximus*	Unknown
Family Malacanthidae - Tilefishes		
Tilefish (Golden)	*Lopholatilus chamaeleonticeps*	Not overfished, no overfishing
Blueline Tilefish	*Caulolatilus microps*	Unknown
Goldface Tilefish	*Caulolatilus chrysops*	Unknown
Family Serranidae - Groupers		
Gag	*Mycteroperca microlepis*	Overfished, no overfishing
Red Grouper	*Epinephelus morio*	Not overfished, no overfishing
Scamp	*Mycteroperca phenax*	Unknown
Black Grouper	*Mycteroperca bonaci*	Not overfished, no overfishing
Yellowedge Grouper	**Hyporthodus flavolimbatus*	Not overfished, no overfishing
Snowy Grouper	**Hyporthodus niveatus*	Unknown
Speckled Hind	*Epinephelus drummondhayi*	Unknown
Yellowmouth Grouper	*Mycteroperca interstitialis*	Unknown
Yellowfin Grouper	*Mycteroperca venenosa*	Unknown
Warsaw Grouper	**Hyporthodus nigritus*	Unknown
**Atlantic Goliath Grouper	*Epinephelus itajara*	Unknown
Family Lutjanidae - Snappers		
Queen Snapper	*Etelis oculatus*	Unknown
Mutton Snapper	*Lutjanus analis*	Not overfished, no overfishing
Blackfin Snapper	*Lutjanus buccanella*	Unknown
Red Snapper	*Lutjanus campechanus*	Overfished, no overfishing
Cubera Snapper	*Lutjanus cyanopterus*	Unknown
Gray Snapper	*Lutjanus griseus*	Unknown
Lane Snapper	*Lutjanus synagris*	Unknown
Silk Snapper	*Lutjanus vivanus*	Unknown
Yellowtail Snapper	*Ocyurus chrysurus*	Not overfished, no overfishing
Vermilion Snapper	*Rhomboplites aurorubens*	Not overfished, no overfishing
Wenchman	*Pristipomoides aquilonaris*	Unknown

Notes: * In 2013 the genus for yellowedge grouper, snowy grouper, and warsaw grouper was changed by the American Fisheries Society from *Epinephelus* to *Hyporthodus* (Page et al. 2013).
**Atlantic goliath grouper is a protected grouper and benchmarks do not reflect appropriate stock dynamics. In 2013 the common name was changed from goliath grouper to Atlantic goliath grouper by the American Fisheries Society to differentiate from the Pacific goliath grouper, a newly named species (Page et al. 2013).

Protected Species

See GMFMC (2010a) for information on protected resources. This regulatory amendment can also be viewed at http://sero.nmfs.noaa.gov/sf/pdfs/2010_Red_Grouper_Regulatory_Amendment_91710_final.pdf.

On September 30, 2011, the Protected Resources Division released a biological opinion, which concluded that the continued operation of the Gulf reef fish fishery is not likely to jeopardize the continued existence of sea turtles (loggerhead, Kemp's ridley, green, hawksbill, and leatherback) or smalltooth sawfish (NMFS 2011b). An incidental take statement was issued specifying the amount and extent 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. The Gulf of Mexico Fishery Management Council (Council) addressed measures to reduce take in the reef fish fishery's longline component in Amendment 31 (GMFMC 2009). The opinion also concluded that the reef fish fishery is not likely to adversely affect the two listed *Acropora* species or endangered whales.

On July 10, 2014, NMFS issued a final rule (79 FR 39856) to designate critical habitat for the Northwest Atlantic Ocean Distinct Population Segment (DPS) of the loggerhead sea turtle (*Caretta caretta*) within the Atlantic Ocean and the Gulf pursuant to the Endangered Species Act of 1973, as amended (ESA). Specific areas for designation include 38 occupied marine areas within the range of the Northwest Atlantic Ocean DPS. These areas contain one or a combination of habitat types: Nearshore reproductive habitat, winter area, breeding areas, constricted migratory corridors, and/or *Sargassum* habitat. In memos dated September 16, 2014, NMFS determined that activities associated with the reef fish FMP will not adversely affect any of the aforementioned critical habitat units. The U.S. Fish and Wildlife Service (USFWS) issued a final rule for loggerhead critical habitat for terrestrial areas (nesting beaches) in a separate document (79 FR 39756). No marine areas meeting the definition of critical habitat were identified within the jurisdiction of the United States for the North Pacific Ocean DPS, and therefore NMFS did not designate critical habitat for that DPS.

On September 10, 2014, the NMFS published a final rule (79 FR 53852) listing 20 new coral species under the ESA. Five of those new species occur in the Caribbean (*Mycetophyllia ferox, Dendrogyra cylindrus, Orbicella annularis, O. faveolata, and O. franksi*); all were listed as threatened. The two previously listed *Acropora* coral species (*Acropora palmata* and *A. cervicornis*) remain protected as threatened. In memos dated September 16, 2014, and October 7, 2014, NMFS determined that activities associated with the reef fish FMP will not adversely affect any of the newly listed coral species. In the October 7, 2014, memo NMFS also determined that although the September 10, 2014, Final Listing Rule provided some new information on the threats facing *Acropora*, none of the information suggested that the previous determinations were no longer valid.

Invasive Species

Lionfish (*Pterois miles* and *P. volitans*), an invasive species from the Indo-Pacific, have been found in the Gulf (Schofield 2010). These species, first reported off North Carolina in 2002,

have been expanding their range from the South Atlantic into the Gulf and Caribbean. Scientists have expressed concern about these species and their effects on hard bottom fish and crustacean communities, either through predation or competition for resources. Albins and Hixon (2008) have found that lionfish can adversely affect recruitment by native fishes to patch reefs in the Bahamas.

The Asian tiger shrimp, *Penaeus monodon*, is an invasive penaeid shrimp species native to the Indo-West Pacific, and is widely aquacultured. The following synopsis is based on Fuller et al. (2014). Tiger shrimp were first reported in 1988 off South Carolina, Georgia, and northeastern Florida following an accidental release from an aquaculture farm in South Carolina. However, they were not seen again in U.S. water until September 2006, when a single adult male was captured in Mississippi Sound near Dauphin Island, Alabama. Additional specimens were subsequently caught off Texas, Louisiana, Mississippi and Florida, and along the Atlantic coast from North Carolina to Florida. Initially, only a few isolated catches were reported, but in 2011, catches increased 20-fold. This increase could be due to greater efforts to document their occurrence, but the presence of both adults and juveniles suggests that a spawning population may have established itself in either the South Atlantic, Gulf, or both. Tiger shrimp can grow up to 12 inches in length, and may compete with or prey upon native shrimps, crabs, and bivalves. Tiger shrimp may also be a carrier for diseases such as white spot syndrome virus.

3.3 Description of the Economic Environment

3.3.1 Commercial Sector

Information on the commercial sector of the grouper component of the Gulf reef fish fishery is contained in GMFMC (2010) and NMFS (2014) is incorporated herein by reference. Because this amendment would only change management of the recreational sector, updates of the information on the commercial sector are not provided.

3.3.2 Recreational Sector

3.3.2.1 Angler Effort

Recreational effort derived from the Marine Recreational Fisheries Statistics Survey/Marine Recreational Information Program (MRFSS/MRIP) database can be characterized in terms of the number of trips as follows:

1. Target effort – The number of individual angler trips, regardless of duration, where the intercepted angler indicated that the species or a species in the species group was targeted as either the first or second primary target for the trip. The species did not have to be caught.
2. Catch effort – The number of individual angler trips, regardless of duration and target intent, where the individual species or a species in the species group was caught. The fish did not have to be kept.

3. Total recreational trips – The total estimated number of recreational trips in the Gulf, regardless of target intent or catch success.

Other measures of effort are possible, such as the number of catch trips (the number of individual angler trips that catch a particular species regardless of target intent), and directed trips (the number of individual angler trips that either targeted or caught a particular species), among other measures. Estimates of the number of red grouper target trips for the shore, charter, and private/rental boat modes in the Gulf for 2011-2013 are provided in Table 3.3.2.1.1. Estimates of red grouper target effort for additional years, and other measures of directed effort, are available at http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/queries/index. As seen in Table 3.3.2.1.1, red grouper recreational target effort is only reported in Florida. It is noted that the ongoing MRFSS/MRIP calibration exercise will not generate revised estimates of angler effort. As a result, because the calibration is generally expected to result in increased harvest estimates of certain offshore species (as a result of increased intercepts of trips with these species), it is possible that the incidence of target and other measures of directed effort has also been under sampled. Thus, the results in Table 3.3.2.1.1 may understate actual effort.

Table 3.3.2.1.1. Red grouper recreational target trips, by mode, 2011-2013*.

	Alabama	West Florida	Louisiana	Mississippi	Total
	Shore Mode				
2011	0	3,387	0	0	3,387
2012	0	263	0	0	263
2013	0	5,723	0	0	5,723
Average	0	3,124	0	0	3,124
	Charter Mode				
2011	0	27,704	0	0	27,704
2012	0	50,669	0	0	50,669
2013	0	52,264	0	0	52,264
Average	0	43,546	0	0	43,546
	Private/Rental Mode				
2011	0	131,471	0	0	131,471
2012	0	207,099	0	0	207,099
2013	0	344,622	0	0	344,622
Average	0	227,731	0	0	227,731
	All Modes				
2011	0	162,562	0	0	162,562
2012	0	258,031	0	0	258,031
2013	0	402,609	0	0	402,609
Average	0	274,401	0	0	274,401

* Texas information unavailable. Source: NMFS Southeast Regional Office (SERO) using MRIP data. Note: these estimates may vary from those derived from other sources or estimation methodologies.

Headboat data do not support the estimation of target effort because target intent is not collected. Table 3.3.2.1.2 contains estimates of the number of headboat angler days for all Gulf States for 2011-2013. Estimates from previous years are available in GMFMC (2013) and are incorporated herein by reference.

Table 3.3.2.1.2. Headboat angler days.

Year	West Florida/Alabama	Louisiana/Mississippi	Texas	Total
2011	157,025	3,657	47,284	207,966
2012	161,975	3,680	51,776	217,431
2013	174,800	3,406	55,749	233,955
Average	164,600	3,581	51,603	219,784

Source: Southeast Region Headboat Survey.

3.3.2.2 Permits

The for-hire sector is comprised of charter vessels and headboats (party boats). Although charter vessels tend to be smaller, on average, than headboats, the key distinction between the two types of operations is how the fee is determined. On a charter vessel trip, the fee charged is for the entire vessel, regardless of how many passengers are carried, whereas the fee charged for a headboat trip is paid per individual angler.

A federal for-hire vessel permit has been required for reef fish since 1996 and the sector currently operates under a limited access system. On September 18, 2014, there were 1,328 valid (non-expired) or renewable Gulf Charter/Headboat Reef Fish permits (for-hire permits). A renewable permit is an expired permit that may not be actively fished, but is renewable for up to one year after expiration. Although the for-hire permit application collects information on the primary method of operation, the permit itself does not identify the permitted vessel as either a headboat or a charter vessel and vessels may operate in both capacities. However, only federally permitted headboats are required to submit harvest and effort information to the NMFS Southeast Region Headboat Survey (SRHS). Participation in the SRHS is based on determination by the Southeast Fishery Science Center (SEFSC) that the vessel primarily operates as a headboat. Sixty-seven vessels were registered in the SRHS as of April 8, 2014 (K. Brennen, NMFS SEFSC, pers. comm.).

However, not all federally permitted for-hire vessels would be expected to be affected by this proposed action because red grouper are primarily harvested in Florida, with minimal red grouper catch (total harvest and release) recorded in Alabama. In 2013, fewer than 2,400 red grouper (individual fish) were recorded in Alabama compared to approximately 3.167 million fish in Florida, and no red grouper in the other Gulf states (Fisheries Statistics Division, NMFS, pers. comm.; Texas harvest is not included in these statistics). The number of federal for-hire permits for Gulf reef fish by state for 2009-2013 are provided in Table 3.3.2.2.1. Comparable data for 2014 is not available. For 2009-2013, approximately 60% of the permits were in Florida and approximately 11% were in Alabama. Assuming these ratios persisted in 2014, among the

1,328 valid or renewable for-hire permits on September 18, 2014, 146 permits are estimated to be in Alabama and 796 permits are estimated to be in Florida. These permits include 9 headboats in Alabama and 36 headboats in Florida.

Table 3.3.2.2.1. Number of federal for-hire permits for Gulf reef fish (including historical captain permits), by state and year.

State	2009	2010	2011	2012	2013
AL	150	147	148	155	159
FL	900	865	832	814	804
LA	111	110	123	123	122
MS	52	52	50	48	47
TX	241	237	226	221	221
Other	19	21	17	17	14
Total	1,473	1,432	1,396	1,378	1,367

Source: NMFS Southeast Regional Office permit office, SERO Access database. Includes valid and renewable permits.

Information on Gulf charter vessel and headboat operating characteristics is included in Savolainen et al. (2012) and is incorporated herein by reference.

There are no specific federal permitting requirements for recreational anglers to fish for or harvest reef fish, including red grouper. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions. As a result, it is not possible to identify with available data how many individual anglers would be expected to be affected by this proposed amendment.

3.3.2.3 Economic Value

Economic value can be measured in the form of consumer surplus per fishing trip for anglers (the amount of money that an angler would be willing to pay for a fishing trip in excess of the cost of the trip) and producer surplus per passenger trip for for-hire vessels (the amount of money that a vessel owner earns in excess of the cost of providing the trip). The estimated value of the consumer surplus for a trip on which the angler is allowed to harvest a second grouper is approximately $102 (Carter and Liese 2012; values updated to 2013 dollars), and decreases thereafter (approximately $68 for a third grouper, $50 for a fourth grouper, and $39 for a fifth grouper). Values by specific grouper species are not available.

Estimates of the producer surplus per for-hire passenger trip are not available. Instead, net operating revenues, which are the return used to pay all labor wages, returns to capital, and owner profits, are used as the proxy for producer surplus. The estimated net operating revenue (2013 dollars) is $160.13 per target charter angler trip and $53.01 per target headboat angler trip

regardless of species targeted or catch success (C. Liese, NMFS SEFSC, pers. comm.). Estimates of net operating revenue per red grouper or aggregated grouper trip are not available.

3.3.2.4 Business Activity

The desire for recreational fishing generates economic activity as consumers spend their income on various goods and services needed for recreational fishing. This spurs economic activity in the region where recreational fishing occurs. It should be clearly noted that, in the absence of the opportunity to fish, the income would presumably be spent on other goods and services and these expenditures would similarly generate economic activity in the region where the expenditure occurs. As such, the analysis below represents a distributional analysis only.

Estimates of the business activity (economic impacts) associated with recreational angling for red grouper were derived using average impact coefficients for recreational angling for all species, as derived from an add-on survey to the MRFSS to collect economic expenditure information, as described and utilized in NMFS (2011a). Estimates of the average expenditures by recreational anglers are also provided in NMFS (2011a) and are incorporated herein by reference.

Recreational fishing generates business activity (economic impacts). Business activity for the recreational sector is characterized in the form of full-time equivalent jobs, output (sales) impacts (gross business sales), and value-added impacts (difference between the value of goods and the cost of materials or supplies). Estimates of the average red grouper target effort (2011-2013) and associated business activity (2013 dollars) are provided in Table 3.3.2.4.1. As discussed above, the estimates of target effort may be different than actual effort as a result of changes in the MRIP sampling methodology and the ongoing MRFSS/MRIP calibration exercise. Because the calibration, if applied to effort, may result in higher estimates of target effort, the estimates of business activity provided in Table 3.3.2.4.1 may understate actual business activity associated with target activity for red grouper.

The estimates provided in Table 3.3.2.4.1 only apply at the state level. These numbers are not additive across the region. Addition of state-level estimates to produce a regional (or national total) could either under- or over-estimate the actual amount of total business activity because of the complex relationship between different jurisdictions and the expenditure/impact multipliers. Neither regional nor national estimates are available at this time.

Estimates of the business activity associated with headboat effort are not available. Headboat vessels are not covered in the MRFSS/MRIP so, in addition to the absence of estimates of target effort, estimation of the appropriate business activity coefficients for headboat effort has not been conducted.

Table 3.3.2.4.1. Summary of red grouper target trips (2011-2013 average) and associated business activity (thousand 2013 dollars). Output and value added impacts are not additive.

	Alabama	West Florida	Louisiana	Mississippi	Texas
	Shore Mode				
Target Trips	0	3,124	0	0	*
Output Impact	$0	$149,735	$0	$0	*
Value Added Impact	$0	$83,451	$0	$0	*
Jobs	0	1	0	0	*
	Private/Rental Mode				
Target Trips	0	227,731	0	0	*
Output Impact	$0	$12,314,864	$0	$0	*
Value Added Impact	$0	$6,973,350	$0	$0	*
Jobs	0	107	0	0	*
	Charter Mode				
Target Trips	0	43,546	0	0	*
Output Impact	$0	$31,933,483	$0	$0	*
Value Added Impact	$0	$21,349,248	$0	$0	*
Jobs	0	281	0	0	*
	All Modes				
Target Trips	0	274,401	0	0	*
Output Impact	$0	$44,398,083	$0	$0	*
Value Added Impact	$0	$28,406,049	$0	$0	*
Jobs	0	389	0	0	*

*Because target information is unavailable, associated business activity cannot be calculated.
Source: effort data from the MRFSS/MRIP, economic impact results calculated by NMFS SERO using the model developed for NMFS (2011a).

3.4 Description of the Social Environment

This framework action modifies management of the recreational sector's harvest of red grouper and does not propose changes to commercial management of red grouper. Thus, this description and the analysis provided in Chapter 4 focus on the recreational sector, only.

The 2010 Regulatory Amendment to set the 2011 total allowable catch for red grouper (GMFMC 2010) contains a description of the social environment and is incorporated here by reference.[1]

[1] http://www.gulfcouncil.org/docs/amendments/2010%20Red%20Grouper%20Regulatory%20Amendment%209-17-10%20final%20with%20signed%20FONSI.pdf

The description focuses on available geographic and demographic data to identify communities with a strong relationship to red grouper fishing. A strong relationship is defined by having significant landings and revenue for red grouper. Thus, positive or negative impacts from regulatory change are expected to occur in places with greater grouper landings. These communities are located primarily in the state of Florida, where most red grouper is landed. Although landings in any given community vary year by year, the same communities identified as the most engaged in red grouper fishing in 2010 are not likely to change, and are assumed to continue being the most engaged in 2014.

To summarize the referenced document, communities were examined according to available red grouper landings and permit data, for the commercial and recreational sectors. Landings data are available at the community level for the commercial sector, but not available for the recreational sector. Thus, commercial landings are used as a proxy for identifying recreational communities with a strong relationship to red grouper fishing. At the county level, Pinellas clearly has the strongest relationship to red grouper fishing of any county in the Gulf region. At the community level, the individual communities of Panama City, Madeira Beach, and Apalachicola have the strongest relationship with red grouper fishing, though St. Petersburg, Clearwater, Tarpon Springs, and Redington Shores also have relatively strong ties. Steinhatchee, Crystal River, Tampa, and Panacea also have somewhat strong relationships with red grouper fishing.

It is highly likely that, other factors being equal, these communities would be the most affected, in absolute terms, by management actions directed toward red grouper. The magnitude of these effects will vary according to the exact nature of those actions, particularly with respect to their relative effects on participants in the recreational sector, and will be evaluated in Chapter 4.

3.4.1 Environmental Justice Considerations

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. This executive order is generally referred to as environmental justice (EJ).

The proposed modifications to the recreational harvest of red grouper are intended to allow as much of the red grouper quota to be caught over the longest season possible, while not reaching the ACL and triggering AMs. When AMs are triggered, there is a reduction in fishing opportunities during the season following a quota overage. Thus, the actions proposed in this document are expected to allow the greatest amount of red grouper to be landed without exceeding the quota. Under the preferred alternatives, the only management change that would directly affect fishing behavior is the reduction of the bag limit from four to two fish (Action 1, Preferred Alternative 3). This change is expected to affect a small number of anglers, as the vast majority of trips do not land more than two red grouper per angler per day. Thus, this action is expected to result in broad positive effects for the social environment and not result in negative impacts to any EJ population.

Although no EJ issues have been identified or are expected to arise, information on the race and income status for groups at the different participation levels (for-hire captains and crew, and employees of associated support industries, etc.) is not available. There is no known subsistence consumption of red grouper which would be affected by the bag limit reduction to two fish, nor are there any claims to customary subsistence consumption of red grouper by any indigenous or tribal group in the Gulf.

3.5 Description of the Administrative Environment

3.5.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.). Responsibility for federal fishery management is shared by 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 summarized in Appendix A. In most cases, the Secretary has delegated this authority to NMFS.

The Council is responsible for fishery resources in federal waters of the Gulf. These waters extend to 200 nautical miles offshore from the nine-mile seaward boundary of the states of Florida and Texas, and the three-mile seaward boundary of the states of Alabama, Mississippi, and Louisiana. The length of the Gulf coastline is approximately 1,631 miles. Florida has the longest coastline of 770 miles along its Gulf coast, followed by Louisiana (397 miles), Texas (361 miles), Alabama (53 miles), and Mississippi (44 miles).

The Council consists of seventeen voting members: 11 public members appointed by the Secretary; one each from the fishery agencies of Texas, Louisiana, Mississippi, Alabama, and Florida; and one from NMFS. The public is involved in the fishery management process through participation on advisory panels, public hearings, and through Council meetings. The regulatory process is in accordance with the Administrative Procedures Act, in the form of "notice and comment" rulemaking, which provides extensive opportunity for public scrutiny and comment, and requires consideration of and response to those comments.

Regulations contained within FMPs are enforced through actions of the National Oceanic and Atmospheric Administration's Office of Law Enforcement, the United States Coast Guard, and various state authorities.

3.5.2 State Fishery Management

The purpose of state representation at the Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters. The state governments of Texas, Louisiana, Mississippi, Alabama, and Florida have the authority to manage their respective state fisheries. Each of the five Gulf States exercises legislative and regulatory authority over their respective state's natural resources through discrete administrative units. Although each agency is the primary administrative body with respect to the states' natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources. 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: Red Grouper Bag Limits

4.1.1 Direct and Indirect Effects on the Physical Environment

A brief summary of red grouper use of the physical environment is provided in Section 3.1. A more detailed description is included in the Generic Essential Fishery Habitat (EFH) Amendment (GMFMC 2004a) and the 2010 red grouper regulatory amendment (GMFMC 2010a) which are incorporated by reference. The effects of fishing gears used in the fishery on the physical environment are also briefly described in Section 3.2 and, in more detail, in GMFMC (2010a).

The primary effects of recreational grouper fishing on the physical environment generally result from fishing gear interactions with the sea floor. Most grouper are caught with hook-and-line fishing gear, although some spearfishing does occur. Fishing gear can damage or disturb bottom structures, and occasionally incidentally harvest such habitat.

The degree to which a habitat is affected by fishing gear depends largely on the vulnerability of the affected habitat to disturbance, and on the rate that the habitat can recover from disturbance (Barnette 2001). For example, the complex structure and vertical growth pattern of coral reef species makes reef habitat more vulnerable to adverse impacts from fishing gear and slower to recover from such impacts than sand and mud bottom habitat (Barnette 2001). Red grouper are also associated with hard bottom habitat, but tend to prefer lower relief habitat than gag.

The alternatives for this action consider a range of bag limits from 1 fish to 4 fish for red grouper per person within the 4-fish aggregate bag limit. Under the current accountability measures (AMs), the bag limit could be automatically reduced in a subsequent season if the annual catch limit (ACL) is exceeded. However, **Preferred Alternative 4 in Action 2** proposes to repeal this AM, meaning that the bag limit selected in this action would remain in place unless changed in a future framework action or plan amendment. A separate AM that requires the fishing season to be closed when the annual catch target (ACT) is projected to be reached in a subsequent season if the ACL is exceeded is unaffected by this action and would remain in place. The effects of a bag limit change on the physical environment would correlate with the amount of fishing effort for red grouper. **Alternative 1**, a 4-fish bag limit, is the least restrictive alternative with respect to bag limits, but the most restrictive with respect to number of fishing days. Under the Action 3 preferred alternative to retain the status quo closed season of February 1 through March 30, this bag limit is projected to result in 179 to 237 fishing days to reach the ACT, or 207 to 269 fishing days to reach the ACL (Tables 2.3.1 and 2.3.2). If the bag limit is 3 fish, **Alternative 2** (182 to 251 fishing days to reach the ACT, 222 to 285 fishing days to reach the ACL) is likely to have a slightly higher impact than the lesser bag limits of 2 fish under **Preferred Alternative 3** (228 to 291 fishing days to reach the ACT, 267 to 306 fishing days to reach the ACL), and 1 fish under **Alternative 4** (306 fishing days with catches below both the ACT and ACL)**.** As the amount of fishing days increase, the direct and indirect effects on the physical environment could increase as related to the fishing effort. The main gear type for recreational harvest of red grouper, vertical line gear, minimally impacts the bottom habitat. However, these effects would not likely

exceed those of status quo and may have less impact on the physical environment than status quo. In addition, red grouper are commonly caught as a bycatch while fishermen target other reef fish species.

4.1.2 Direct and Indirect Effects on the Biological/Ecological Environment

The red grouper stock is neither overfished nor undergoing overfishing. A 2009 update assessment (SEDAR 12 Update 2009) determined that the red grouper spawning stock biomass was above the level needed to support maximum sustainable yield (MSY). Consequently, the red grouper stock is not overfished. Amendment 32 (GMFMC 2011) set the annual catch limit (ACL) at the acceptable biological catch (ABC), and the annual catch target (ACT) at the optimum yield (OY) level. Exceeding the ACT will not harm the resource provided that the ACL is not also exceeded. A benchmark assessment for red grouper is currently underway and is scheduled for completion in October 2015.

The recreational red grouper season is closed when the National Marine Fisheries Service (NMFS) projects that the ACL will be reached. However, if the ACL is exceeded in a given year, the following year the recreational red grouper season is closed when the ACT is projected to be reached. The bag limit alternatives in this action, combined with the closed season alternatives in Action 3, would determine the length of the recreational red grouper season.

Alternative 1, a 4-fish bag limit, is the least restrictive alternative with respect to bag limits, but the most restrictive with respect to number of fishing days. Under the Action 3 preferred alternative to retain the status quo closed season of February 1 through March 30, this bag limit is projected to result in 179 to 237 fishing days to reach the annual catch target (ACT), or 207 to 269 fishing days to reach the ACL (Tables 2.3.1 and 2.3.2). Fewer fishing days results from higher daily catches during the open season, which may result in a greater likelihood of overharvesting the ACL. During the closed season, stocks that could be subject to increased effort including gag (if the gag season is open) or other reef fish species such as other groupers or snappers. However, it is also possible that if both red grouper and gag are closed to recreational fishing, overall effort could decrease due to lack of availability of desired species. These are the two most heavily targeted grouper species and account for over 90% of the grouper recreationally harvested.

Alternative 2, a 3-fish bag limit, is projected to result in 182 to 251 fishing days to reach the ACT, and 222 to 285 fishing days to reach the ACL under the Action 3 preferred status quo closed season (Tables 2.3.1 and 2.3.2). Depending upon the time of year and fishing mode (private/charter vessel vs. headboat), this bag limit will result in between 88% and 100% of the red grouper catch that would occur with a 4-fish bag limit (Table 4.1.2.1). A shorter closed season means fewer days when effort shifting to alternative species may occur.

Preferred Alternative 3, a 2-fish bag limit, is projected to result in 228 to 291 fishing days to reach the ACT, and 267 to306 fishing days to reach the ACL under the Action 3 preferred status quo closed season (Tables 2.3.1 and 2.3.2). It is possible that catches will remain below the ACL even with only the fixed closed season and without an ACL closure. Depending upon the time of

year and fishing mode (private/charter vessel vs. headboat), this bag limit will result in between 72% and 100% of the red grouper catch that would occur with a 4-fish bag limit (Table 4.1.2.1). **Alternative 4**, a 1-fish bag limit, is the most restrictive alternative with respect to bag limits. It is projected to result in 306 fishing days with catches remaining below both the ACT and the ACL. Depending upon the fixed closed season, between 58% and 76% of the ACL will be taken (Table 3.3.2). This will provide the greatest protection for the red grouper stock. However, since the stock is not overfished, a rebuilding plan is not necessary to increase stock biomass to maintain a healthy stock.

Because many anglers do not catch their bag limit of red grouper, reductions in catch are not directly proportional to reductions in the bag limit, e.g., cutting the bag limit in half does not result in catches also being reduced by half. Table 4.1.2.1 shows the estimated percent of red grouper that would be caught relative to a 4-fish bag limit under various reduced bag limits. Depending upon the time of year and fishing mode (private/charter vessel vs. headboat), the greatest reduction under a 1-fish bag limit is between 47% and 96% of the red grouper catch that would occur under a 4-fish bag limit. The range of reductions within each wave for a given bag limit is shown in Table 4.1.2.1.

Table 4.1.2.1. Percent of red grouper caught under reduced bag limits that would have been caught under a 4-fish bag limit. Source: NMFS Southeast Regional Office (SERO)

	Percent of Catch Relative to a 4-Fish Bag Limit	
Bag Limit	**Private and Charter Vessels**	**Headboats**
4	100%	100%
3	88% - 100%	97% - 100%
2	72% - 100%	92% - 98%
1	47% - 78%	84% - 96%

Overall, bag limits need to be considered in combination with fixed closed seasons for their impact on total number of fishing days (Tables 2.3.1 and 2.3.2). Shorter closed seasons result in an increase in the likelihood of red grouper being taken as bycatch when fishing for gag or other species, resulting in increases in red grouper discards and discard mortality. The greatest benefit to the red grouper stock is achieved with a bag limit/fixed closed season scenario that results in the greatest number of fishing days without exceeding the ACL.

4.1.3 Direct and Indirect Effects on the Economic Environment

Daily red grouper possession limits considered in this action range from 4 fish (**Alternative 1** – no action) to 1 fish (**Alternative 4**). The expected economic effects of this proposed action cannot be quantified with available data. As a result, the following is a qualitative discussion of these expected effects. **Alternative 1** would maintain a red grouper bag limit of 4 fish per person per day. Therefore, **Alternative 1** would not be expected to result in economic effects because **Alternative 1** would not affect red grouper recreational harvests or other customary uses of red grouper by the recreational sector. Reductions in the red grouper bag limit would be expected to result in changes in economic value due to several factors.

First, if the reduction in the bag limit is constraining enough, it could prevent the recreational sector from harvesting the entirety of its ACT, thereby resulting in lost fishing opportunities and associated decreases in economic benefits. Based on estimates provided in Table 3.3.1, **Alternatives 2** and **Preferred Alternative 3**, which would establish a 3-fish and 2-fish bag limit, respectively, are not expected to prevent the recreational sector from harvesting the whole red grouper ACT. However, **Alternative 4,** which would set a 1-fish bag limit, is expected to result in decreases in economic value because it would not allow the recreational sector to harvest the entirety of the red grouper ACT. It is estimated that under **Alternative 4**, the recreational sector would at most harvest 83% of its red grouper ACT. Season length estimates based on the ACL and proportions of ACL expected to be harvested are provided in Table 2.3.2. **Preferred Alternative 3** and **Alternatives 1-2** are not expected to prevent recreational anglers from harvesting the totality of the red grouper ACL. However, with a 1-fish bag limit (**Alternative 4)**, it is estimated that recreational anglers would harvest at most 76% of the ACL. Second, a reduction in the bag limit would change a key attribute of fishing trips and would be expected to impact economic value due to a decrease in the quality of the fishing trips. It is expected that reducing the bag limit would decrease recreational angler's consumer surplus per trip. The extent to which a reduction in bag limit would reduce the amount of consumer surplus per trip would be determined by the sensitivity of recreational anglers to changes in the red grouper bag limit. Finally, reductions in the bag limit are expected to lengthen the recreational fishing season, thereby affording additional fishing opportunities to recreational anglers. For example, a reduction of the bag limit from 4 to 3 fish is expected to add between 3 to 14 days to the recreational red grouper fishing season if season length estimates are based on the ACT (Table 4.3.1). Alternatively, the same bag limit reduction would be expected to extend the season by 37 to 60 days if season length estimates are based on the red grouper ACL (Table 5.3.2). In addition, a decrease in the red grouper bag limit would be expected to provide opportunities to some anglers to increase their red grouper catch. For example, a portion of additional red grouper made available following a reduction of the bag limit from 4 to 3 fish would be expected to be harvested by anglers who previously caught 1 or 2 fish per trip. The distribution of angler trips by catch per angler (Table 4.1.3.1) provides additional information on the number of trips that would be expected to be affected by bag limit changes. More than 90% of angler trips taken by anglers fishing from private vessels or charter vessels harvest one or two red grouper per trip. The proportion of trips harvesting at most 2 red grouper per trip is in excess of 98% for headboat trips. Therefore, **Preferred Alternative 3**, which would reduce the red grouper bag limit from 4 to 2 fish, is expected to affect a relatively small number of trips, thereby resulting in limited effects on the economic environment. Based on the percentages of trips estimated to harvest 4 red grouper per trip, a bag limit reduction from 4 to 3 fish (**Alternative 2**) would be expected to result in smaller economic effects compared to **Preferred Alternative 3.**

Table 4.1.3.1. Gulf of Mexico recreational red grouper number of angler-trips with catch-per-angler at different thresholds (2011-2012). Trips that did not keep a red grouper were excluded.

Year	Catch per Angler	Private and Charter		Headboat	
		Number	Percent	Number	Percent
2011	1	209	86.4%	1956	98.0%
	2	27	11.2%	31	1.6%
	3	4	1.7%	4	0.2%
	4	2	0.8%	5	0.3%
Total		242		1,996	
2012	1	235	78.1%	2371	96.3%
	2	38	12.6%	39	1.6%
	3	10	3.3%	16	0.7%
	4	18	6.0%	35	1.4%
Total		301		2,461	

Sources: MRFSS SEFSC Catch-Effort Files, HBS CRNF file (expanded for unreported angler-trips)

Overall, the relative magnitude of the effects discussed above would determine the net economic effects that would be expected to result from the bag limit reductions under consideration. In addition, the preceding discussion assumed that the status quo closure would be in effect. However, Action 3 in this framework action considers changes in the timing and length of the closure. Therefore, a discussion of economic effects expected from Actions 1 and 3 is included in section 4.3.3.

4.1.4 Direct and Indirect Effects on the Social Environment

Generally, social effects are expected to increase relative to how much a bag limit is decreased, as the opportunity to retain additional fish is constrained. Additional effects are not expected from retaining the largest bag limit provided under **Alternative 1 (no action)**. However, to retain the 4-fish bag limit may result in an in-season closure before the end of the year to avoid exceeding the ACL and triggering AMs. The remaining alternatives propose reductions to the red grouper bag limit such that the greater the reduction to the bag limit, the greater the effects as anglers are allowed to keep fewer fish, but the more likely it would be for the season to remain open until the end of the year. Effects would be relative to how much fishing behavior would be affected. Thus, for the proposed alternatives, the greatest negative effects may be expected from reducing the bag limit to 1 red grouper per angler per trip (**Alternative 4**), and lesser, intermediary effects may be expected from adopting a 2-red grouper bag limit (**Preferred Alternative 3**) or 3-red grouper bag limit (**Alternative 2**).

The effects just described apply to a bag limit reduction, alone. However, there is a tradeoff between the length of the fishing season and the size of the bag limit, such that a smaller bag limit may allow for a longer fishing season, and under a larger bag limit, it would be expected that the ACL would be met sooner. This may require a shorter season to constrain harvest to the ACL. Thus, the bag limit alternatives in this action, combined with the closed season alternatives in Action 3, will determine the length of the recreational red grouper season. Given this tradeoff, the effects of this action are intertwined with the proposed range of fishing seasons under Action 3 (Table 2.3.1) such that any negative effects from decreasing the bag limit

(**Alternatives 2**, **4**, and **Preferred Alternative 3**) are expected to be mitigated by enabling the longest fishing season (Action 3).

4.1.5 Direct and Indirect Effects on the Administrative Environment

The red grouper stock is neither overfished nor undergoing overfishing. The current ACL is intended to maintain the stock biomass above the MSY level on a continuing basis, preventing the need for a rebuilding plan. However, larger bag limits are associated with higher average daily catches, which increases the likelihood of the ACL being exceeded and resulting stock declines.

Each of the alternatives is a simple bag limit and they are equally enforceable. There are no differences in administrative impacts beyond the need for public notices to inform the fishing community of any change in the bag limit. If the bag limit in federal waters is different than the bag limit in state waters, then the complication of enforcement may increase.

4.2 Action 2: Bag Limit Reductions

4.2.1 Direct and Indirect Effects on the Physical Environment

The direct and indirect effects on the physical environment for Action 2 would be similar to those discussed in 4.1.1 for the bag limits. Action 2 addresses the accountability measure to adjust the red grouper bag limit if the ACL is exceeded. **Alternative 1**, No Action, would not change the current effects on the physical environment. As correlated with the amount of fishing effort in number of fishing days, any decrease in fishing effort associated with a decrease in the bag limit would have minimal benefits for the physical environment. The maximum 4-fish bag limit would be within the range analyzed for Action 1.

Currently, **Alternative 1**, would only allow a decrease to a 2-fish bag limit; whereas, **Alternative 2**, would have a 1-fish minimum bag limit which could decrease the effects on the physical environment by reducing the fishing effort for targeted red grouper fishing trips; and in turn, the interaction of the vertical gear with the bottom habitat as discussed in 4.1.1. However, these effects are not likely to be significant. **Alternative 3** is mostly administrative to adjust the bag limit if the ACL is exceeded and neither **Option a** (temporary bag limit reduction) nor **Option b** (permanent bag limit reduction) is likely to effect the physical environment.

Preferred Alternative 4, removing the bag limit reduction, would reflect the bag limit selected in Action 1. The bag limit would range from 1-fish to 4-fish and the effects have been discussed in 4.1.1. The indirect and direct effects on the physical environment would likely be minimal based on the slight change in fishing effort and the associated interaction of the vertical gear with the bottom habitat.

4.2.2 Direct and Indirect Effects on the Biological/Ecological Environment

Alternatives in this action affect the red grouper bag limit in years following a year when the recreational red grouper ACL has been exceeded. As such, they affect future catch rates which in turn affect the recreational season length. All red grouper bag limits are part of the overall aggregate bag limit of four groupers.

Alternative 1 retains the current provisions. If the ACL is exceeded, the bag limit will be reduced by one fish in the subsequent year, and may be reduced again if the ACL is exceeded again in the subsequent year, except that the bag limit may not be reduced below 2 fish. The bag limit reduction is implemented as a temporary measure. Reducing the bag limit could reduce catch rates, reducing the likelihood of the ACL being exceeded, and lengthen the recreational season. However, if the sector harvest stays within the ACL, then the bag limit reverts back to its original level, undoing any benefits to constraining catch below the ACL achieved by the reduction. This alternative therefore provides only temporary benefits to the resource, and may result in season closures alternately fluctuating between the ACL and ACT. Furthermore, the preferred bag limit would be set at 2 fish in Action 1, and therefore this alternative will have no impact since the bag limit will already be at the minimum allowed.

Alternative 2 retains the bag limit process in place under **Alternative 1**, except that it allows the minimum bag limit to be reduced to 1 fish. This alternative may provide additional benefits with respect to keeping the red grouper recreational harvest within its ACL through bag limit adjustments, but as with **Alternative 1**, the bag limit reduction is temporary and may result in season closures alternately fluctuating between the ACL and ACT. If the sector harvest stays within the ACL, then the bag limit reverts back to its original level, undoing any benefits to constraining catch below the ACL achieved by the reduction. After the bag limit is back to its original level, it will be at a level that previously resulted in the ACL being exceeded. This alternative therefore provides only temporary benefits to the resource.

Alternative 3 could be selected in combination with **Alternative 1** or **Alternative 2**. It addresses the temporary nature of the bag limit reduction. If **Alternative 1** or **Alternative 2** had been selected but not **Alternative 3** along with one of those alternatives, then a bag limit reduction implemented under **Alternative 1** or **Alternative 2** would continue to be temporary, and it would revert bag to the permanent bag limit on January 1 of the following year unless subject to a further ACL triggered reduction.

Alternative 3, Option a would have allowed a bag limit that had been reduced under **Alternative 1** or **Alternative 2** to increase after a year in which the recreational harvest stayed within its ACL. However, where the status quo would have allowed a full increase to the original bag limit even if the reduction had been more than one fish, **Option a** would only have allowed an increase of one fish per year. For example, if the bag limit had been reduced by two fish from its original level due to two successive years of exceeding the ACL, and was followed by a year when the harvest stays within the ACL, **Option a** would only increase the bag limit by one fish. It would require two successive years of staying within the ACL to restore the bag limit to its original level. **Option a** would have provided greater benefits to conserving the resource than the status quo since it would have slowed the rate at which the bag limit was

increased, but ultimately, as with status quo, it also would have provided only temporary benefits. Furthermore, the bag limit each year could go either up or down annually depending on whether the ACL was exceeded, and whether the bag limit was at its maximum or minimum level. Frequently changing bag limits may be confusing to anglers and more difficult to comply with, reducing their effectiveness.

Alternative 3, Option b would have eliminated automatic bag limit increases. If the bag limit was reduced under **Alternative 1** or **Alternative 2**, it would have stayed at the reduced level unless reduced further due to a subsequent year in which the ACL was exceeded, or unless changed through a regulatory action. **Option b** would have provided the greatest benefits to conserving the resource because it did not provide for increases to levels that previously allowed the ACL to be exceeded.

Preferred Alternative 4 eliminates the provision for automatic bag limit reductions if the ACL is exceeded. This provides no benefits to the resource relative to the previous alternatives. Any bag limit adjustment would need to be made by regulatory action. However, as an in-season adjustment, bag limit changes under the previous alternatives are delayed due to the lag time involved in compiling catch estimates for the previous year, limiting the effectiveness of such reductions. For example, in 2014, the bag limit reduction from 4 to 3 fish did not occur until May 5, and anecdotally, anglers were confused about the actual bag limit. Given the lag time in implementing in-season bag limit changes and the confusion that is generated with anglers, adoption of more conservative bag limits and closed seasons to begin with is likely to provide more benefits to the resource than any of the previous alternatives.

Under all of the alternatives except **Preferred Alternative 4**, a red grouper bag limit reduction could result in increased discards and discard mortality of red grouper if anglers continue fishing for other species after their bag limit of red grouper is reached. However, a reduced bag limit would also contribute to more fishing days for red grouper. A shorter closed season means fewer days when all recreationally harvested red grouper need to be released. The impacts on discards of a smaller bag limit versus a shorter closed season are offsetting, but the relative impacts of each to discard mortality are unknown.

4.2.3 Direct and Indirect Effects on the Economic Environment

The expected economic effects of this proposed action cannot be quantified with available data. As a result, the following is a qualitative discussion of these expected effects. **Alternative 1** (no action) would lower the red grouper bag limit by one fish if the recreational sector has exceeded its ACL at the end of a season, but only if the initial bag limit is at least equal to 3 fish. Under the preferred alternative in Action 1 to set the bag limit at 2 fish, **Alternative 1** would have no impact because it does not reduce the bag limit below 2 fish. **Alternative 1** would not be expected to affect recreational harvests or other customary uses of red grouper and would therefore not be expected to result in effects to the economic environment. **Alternative 2** would retain the AM in **Alternative 1,** but sets the minimum bag limit to one fish. **Alternative 2** offers added flexibility to further decrease the bag limit and could be expected to extend the recreational fishing season. Therefore, **Alternative 2** would be expected to generate economic benefits due to the additional fishing opportunities it may afford recreational anglers. However,

these potential economic benefits would be mitigated by decreases in consumer surplus because consumers generally prefer trips with higher bag limits.
Alternative 3 would either implement AMs considered in **Alternatives 1** and **2** on a temporary (**Option a**) or permanent basis (**Option b**). Although the frequent changes in bag limits that could result from **Alternative 3-Option a** may be confusing for recreational anglers, compared to the status quo, **Alternative 3-Option a** would be expected to result in economic benefits because it allows better conservation of the resource by slowing down the rate at which the red grouper bag limit could be increased. Compared to **Alternative 3-Option a**, **Alternative 3-Option b** would be expected to result in greater conservation benefits and associated positive economic effects, because it would eliminate automatic bag limit increases and prevent future bag limits to be increased to levels that resulted in red grouper overharvests. **Preferred Alternative 4** would eliminate automatic bag limit reductions if the ACL is exceeded. Compared to **Alternative 1, Preferred Alternative 4** would be less confusing to the public. However, **Preferred Alternative 4** may not be expected to result in appreciable economic benefits because bag limit reductions could still be implemented via the usual regulatory process. Nevertheless, if the red grouper bag limit is reduced to 2 fish (Action 1), **Preferred Alternative 4** could still result in more economic benefits than **Alternative 2**. Although there are trade-offs between the benefits of a larger bag versus a longer season (a larger bag results in more benefits per trip, whereas a longer season results in more trips benefiting from harvest), economic benefits under a shorter season with a 2-fish bag limit (**Preferred Alternative 4** in combination with **Preferred Alternative 3 in Action 1**) would be expected to be greater than the benefits under a longer season with a 1-fish bag limit, particularly if a 1-fish limit does not allow anglers to harvest the entirety of their allocation.

4.2.4 Direct and Indirect Effects on the Social Environment

This action would modify (**Alternatives 2** or **3**) or remove (**Preferred Alternative 4**) one of the post-season AMs for red grouper, which was activated for the first time in 2014. Although additional effects are not expected from retaining **Alternative 1 (no action)**, the temporary bag limit reduction may be of limited utility. The reduction was announced in April 2014, just prior to an estimated seasonal increase in red grouper landings (Table 2.3.2). In-season changes to management measures are associated with negative effects, often related to confusion in disseminating information over the change and frustration with the frequency at which fishing regulations are perceived to change. Yet in this case, the majority of anglers are not landing four red grouper on a fishing trip. Thus, in terms of retaining red grouper, actual trip satisfaction following the temporary reduction from 4 to 3 fish directly affected a small proportion of anglers, only. The proportion of anglers affected (i.e., those who catch but must discard a fish due to reaching the bag limit) increases as the bag limit is reduced. This is evident in the minimal to no reduction to the proportion of the ACT harvested when the bag limit is reduced from 4 to 3 fish (Table 2.3.1). Thus, alongside any confusion and frustration, the temporary bag limit reduction may have had no effect on the rate at which the ACT was estimated to be harvested. Although precautionary, retaining **Alternative 1** may not be necessary and would only be associated with negative effects, should they occur in the future.

The same effects described for **Alternative 1** apply to **Alternative 2**, in terms of a temporary reduction from 4 to 3 fish. The effects remain the same between the alternatives should a

reduction from 3 to 2 fish be activated. Should the ACL be exceeded in the year in which a 2-fish temporary bag limit reduction is activated, the effects would be greater under **Alternative 2**, as no further reduction would occur under **Alternative 1**. Thus, no corresponding negative effects would be expected. The effects of a reduction from 2 to 1 fish (which could occur under **Alternative 2**) would be greater than from 4 to 3 fish, as more anglers would be required to discard the one extra fish (Table 2.3.1).

The pace at which (or whether) the bag limit reduction reverts to the full 4-fish bag limit (**Alternative 3**) would differ in social effects relative to bag limit size. Greater social effects would be expected when the bag limit, through this AM, is kept at 1 or 2 fish, compared with 3 fish. The greatest negative effects would be expected following a bag limit reduction to 1 fish (**Alternative 2** must also be selected as preferred), and **Alternative 3**, **Option b** is selected as preferred. Under this scenario, the greatest number of anglers would be prevented from retaining at least 1 fish. Intermediate effects would be expected from **Alternative 3, Option a**, as the bag limit is increased by 1 fish each year up to 4 fish, as long as the ACL is not exceeded. In regards to the bag limit following an activated reduction, the least negative effects would be expected under **Alternative 1**; the bag limit immediately reverts to the full 4-fish bag limit (provided the ACL is not exceeded that year), even if the bag limit had been reduced to 1 fish.

Removing the bag limit reduction as a post-season AM (**Preferred Alternative 4**) would provide some positive benefits by removing a type of in-season action that may not be necessary and that often generates frustration among anglers who question its usefulness. The preferred alternatives for a 2-fish bag limit (**Preferred Alternative 3 in Action 1**) along with the status quo closed season of February 1 through March 31 in waters beyond the 20 fathom contour (**Preferred Alternative 1 in Action 3**) (Table 2.3.1) were chosen with consideration given to a longer fishing season, to provide the greatest amount of fishing opportunities. Furthermore, both an in-season and post-season AM will remain in place. An in-season closure will occur when the ACL is met. If the ACL is exceeded, the in-season closure will occur when the ACT is met in the following year (a post-season AM). Given that red grouper is not considered overfished nor undergoing overfishing and that both in-season and post-season AMs would remain in place, removing the post-season bag limit reduction (**Preferred Alternative 4**) would be positive overall for the social environment.

4.2.5 Direct and Indirect Effects on the Administrative Environment

The alternatives in this section, except for **Preferred Alternative 4**, require rapid determinations of annual recreational catches at the end of a fishing year, and rapid implementation of bag limit adjustments in the subsequent year if such change is indicated. This creates a challenging administrative environment. The current recreational harvest data collection methods were not designed for real-time monitoring. Consequently, there is a lag time of two or more months before such adjustments can be made. Any bag limit changes need to be accompanied by public notices, and may be accompanied by a request to the states to adopt consistent bag limit changes. The majority of the red grouper are caught off Florida. Enforcement and effectiveness of the bag limit changes are partly dependent on whether and how quickly consistent state regulations are adopted.

The frequency at which bag limit changes occur varies with the alternatives. Under **Alternatives 1 and 2**, and **Alternative 3, Option a** or **Option b**, automatic bag limit changes, both reductions and increases, could occur as frequently as annually over an extended time period. Under **Alternative 3, Option c**, automatic bag limit changes would be more limited since they would only decrease, and would be limited to the minimum bag limit specified in **Alternative 1** or **Alternative 2**.

Under **Preferred Alternative 4**, there would be no automatic bag limit changes. This would provide the simplest and least impacts on the administrative environment since bag limit changes and public notice would only be needed if the bag limit were changed through regulatory action.

4.3 Action 3: Closed Seasons

4.3.1 Direct and Indirect Effects on the Physical Environment

As previously discussed in 4.1.1, the direct and indirect effects on the physical environment would be related to the changes in fishing effort. The combinations of bag limits ranging from 1 fish to 4 fish with the closed seasons and 20-fathom closure options provide many estimates for the number of recreational fishing days for red grouper (Table 2.3.1). When considering the direct and indirect effects of the physical environment, the fishing effort is correlated to the number of fishing days, as well as, the spatial and temporal distribution of the fishing effort.

The alternatives in Action 3 would have combined effects with the bag limit selected in Action 1 and provision selected in Action 2. However, the fishing effort associated with **Alternatives 1-6**, would be restrained by the recreational ACL. Overall, this would likely prevent any significant direct or indirect effects on the physical environment.

The selected alternative could slightly change the temporal and spatial direct and indirect effects on the physical environment. **Alternative 6** would not cause a temporal reduction in fishing effort. **Alternatives 1, 2, 3, and 5**, would decrease the fishing effort for two months. **Alternative 4** would decrease the fishing effort for three months. **Alternative 3** would be the longest temporal closure for four months. The temporal shift of effective fishing effort from the closed seasons could increase the direct and indirect effects on the physical environment during the open season, but these effects are not likely to be significant.

In addition to altering the closed season, the selection of **Option a or b** would adjust the spatial distribution of the direct and indirect effects on the physical environment as pertaining to changes in the fishing effort. In order to protect the spawning aggregations for red grouper and gag, the closed season was applied to water depths greater than 20 fathoms, **Preferred Alternative 1 and Option a.** However, this depth closure could spatially shift fishing effort in the waters less than 20 fathoms. **Option b** would apply the closed season to all federal waters and not likely cause a spatial shift in fishing effort.

4.3.2 Direct and Indirect Effects on the Biological/Ecological Environment

The biological and ecological effects of closed seasons vary based on both the length of the closed season and the time of year it occurs. One often used strategy is to establish closed seasons during spawning season to protect spawning aggregations. Red grouper spawning in the Gulf occurs from late February to early July in depths of 13 to 50 fathoms, with peak spawning occurring March through May (Moe 1969, Collins et al. 2002, Fitzhugh et al. 2006). However, red grouper do not form large spawning aggregations, and therefore the benefits of a spawning season closure are not as great as they would be for a species that forms spawning aggregations, making them easier to target. Furthermore, red grouper are reported to spawn in depths of 13 to 50 fathoms. Therefore the purpose of a closed season for red grouper is not to protect spawning aggregations but to optimize the number of open fishing days. An alternative strategy is to establish closed seasons during the time of year when the daily catch rates are the highest. This may reduce catches and provide the same conservation benefits as a longer season with lower catch rates. For red grouper, the highest catch rates occur in Wave 7 (July and August), possibly because these months coincide with the opening of the recreational gag season (Table 3.3.3).

Each alternative from **Alternative 3** through **Alternative 5** removes red grouper from the aggregate shallow-water grouper fixed closed season and establishes a separate closed season with two options. Alternative 5, would be expected to increase the number of red grouper discards due to the recreational gag season opening on July 1. **Option a**, and **Preferred Alternative 1**, would apply the closed season only in waters beyond the 20-fathom depth contour as is done with the current shallow-water grouper closed season. **Option b**, and **Alternative 2**, would apply the closed season in all federal waters including those shoreward of the 20-fathom depth contour, and would thus be more effective than **Option a** in reducing red grouper catches. For **Alternative 6** the 20-fathom depth contour is moot because this alternative eliminates fixed closed seasons. The 20-fathom depth contour provision only applies to a fixed closed season. If the season is closed because the ACL is projected to be reached, that closure applies in all federal waters. The 20-fathom opening is projected to result in catch rates that are between 76.9% and 99.9% of the fully open catch rates, depending on the wave (personal communication, N. Farmer, NMFS SERO).

All combinations of closed season and bag limits considered in this action are projected to keep the recreational red grouper harvest at or below the ACL. However, longer closed seasons could result in higher levels of red grouper bycatch and discard mortality from anglers targeting other species. In SEDAR 12 (2007), a 10 percent release mortality rate was estimated for the recreational sector. National Standard 9 of the Magnuson Stevens Fishery Conservation and Management Act requires conservation and management measures to minimize bycatch and bycatch mortality to the extent practicable. From this perspective, shorter closed seasons (and longer open seasons) will result in less red grouper discards and therefore provide higher conservation benefits under national Standard 9. Organized from the greatest number of red grouper fishing days (most benefits with respect to bycatch) to the fewest number of fishing days (least benefits with respect to bycatch), the alternatives and options are as follows (Table 4.3.2.1).

Table 4.3.2.1. Ranking of relative number of open days from combinations of fixed closed seasons and bag limits (based on Table 3.3.2).

Alt.	Closed Season	Closure eff. < 20 fathoms	Closure eff. >20 fathoms		Bag Limit			
					4	**3**	**2**	**1**
1	Feb-Mar	No	Yes	Rank by days open	7	7	7	7
2	Feb-Mar	Yes	Yes	Rank by days open	4	4	4	6
3a	Feb-Apr	No	Yes	Rank by days open	9	9	9	9
3b	Feb-Apr	Yes	Yes	Rank by days open	4	5	5	8
4a	Mar-Apr	No	Yes	Rank by days open	8	8	8	5
4b	Mar-Apr	Yes	Yes	Rank by days open	3	2	3	4
5a	July	No	Yes	Rank by days open	6	6	6	3
5b	July	Yes	Yes	Rank by days open	**1**	**1**	**1**	2
6	None	n/a	n/a	Rank by days open	2	3	2	**1**

Each combination of closed season and bag limit generated a range of estimated fishing days except for a one fish bag limit (Table 2.3.1 and 2.3.2). Rankings are based on the greatest to fewest number of fishing days based on the short end of the range. In case of a tie, the greatest number of day on the long end of the range was rated higher. For a 1-fish bag limit, in case of a tie, the alternative that resulted in the smallest percentage of ACT being caught was rated higher.

4.3.3 Direct and Indirect Effects on the Economic Environment

Various combinations of spatial and temporal closures are considered in this action. **Preferred Alternative 1** would continue to prohibit recreational red grouper harvests February 1 through March 31 in waters beyond the 20-fathom depth contour. Therefore, **Preferred Alternative 1** would not be expected to result in effects to the economic environment because it would not affect the harvest and other customary uses of red grouper.

Alternative 2 and **Alternatives 3-5 (Option b)** would apply the closed season to all federal waters. **Alternatives 3-5 (Option a)** would only apply the closed season in waters beyond 20 fathoms. **Alternative 6** does not implement a fixed closed season in any depth of water. Closures in all federal waters would be more effective in reducing or constraining harvests to a given target and could potentially be more beneficial to the stock. Based on estimates provided in Table 2.3.2, closure and bag limit combinations with a bag limit of at least 2 red grouper, including the preferred combination selected by the Council (**Action 1- Preferred Alternative 3** and **Action 3-Preferred Alternative 1**) are expected to allow anglers to harvest the whole red grouper ACL. However, all combinations with a 1-fish bag limit would result in forgone fishing opportunities and associated losses in economic benefits because recreational anglers are not expected to harvest the full ACT or ACL. If a closure different from status quo is implemented, the combination that would potentially yield the longest fishing season would be **Alternative 5-Option b** (2-fish bag limit with a July or August closure of the entire exclusive economic zone).

With the same bag limit, **Alternative 3 – Option b** would be estimated to result in the shortest season length. Although bag limit reductions would generally provide additional fishing opportunities by extending the season, they are also expected to reduce consumer surplus per trip because anglers typically prefer trips with a higher bag limit. Therefore, economic effects that would be expected to result from the bag limit and closure combinations considered would be determined by several factors, including the number of recreational trips affected by the bag limit reduction and the magnitude of the percentage change in fishing trips relative to the percentage change in reductions in consumer surplus.

4.3.4 Direct and Indirect Effects on the Social Environment

Multiple combinations of spatial and temporal closures are considered in this action. Additional effects are not expected from retaining the February through March closed season in waters beyond the 20-fathom depth contour (**Preferred Alternative 1**) because it would not change when and where red grouper may be harvested. **Alternative 2** would extend the existing February-March closure (**Preferred Alternative 1)**, to all federal waters. The February-March fixed closed season for shallow-water grouper, including red grouper, was first implemented in January 2009. The closed season was removed for waters shallower than 20 fathoms through a 2012 framework action (GMFMC 2012), but did not go into effect before the 2013 February-March closed season. Thus, the closure under **Alternative 2** was in effect during the years 2009-2013; 2014 was the first year that the closure under **Preferred Alternative 1** was in effect. Although the closure in waters shallower than 20 fathoms was removed for red grouper (and other shallow water groupers except for gag) after a determination that it was not effective in protecting gag spawning aggregations, indirect negative effects may be expected from reinstating the same closure that was just removed. Although these effects would be minimal and likely relate to negative public perceptions of fisheries management, removing then replacing the same effort control can contribute to confusion and frustration among the fishing public. Nevertheless, the function of the closure has changed, and is being proposed as a way to slow the rate at which red grouper are landed by the recreational sector, avoiding the undesirable impacts of an in-season closure (see **Alternative 6**, below).

Alternatives 3-5 propose different months to close red grouper harvest. **Alternative 3** proposes the longest closure of three months, from February through April, while **Alternative 4** would adopt a closed season of two months, from March through April. Along with **Preferred Alternative 1** and **Alternative 2**, these months coincide with times of lowest estimated effort for harvesting red grouper. Thus, establishing a closed season during these months of less fishing effort would be expected to be less disruptive to fishing activity compared with a closure during the summer (**Alternative 5**). An estimated 14-19% of red grouper is harvested during July (Table 2.3.3), approximating the total proportion of harvest taken during February through April (the proposed closure under **Alternative 3**). Establishing this one-month closure (**Alternative 5)** would be expected to result in the longest fishing season when accompanied by a 2-fish bag limit (Table 1.3.1). However, it would extend the season by prohibiting harvest during a popular summer month for fishing, thus some negative effects would be expected. A July closure would also coincide with the opening month of the fishing season for gag, which is also part of the aggregate grouper bag limit.

The options under **Alternatives 3-5** specify the spatial extent of the season closure for each alternative, such that **Option a** would apply the closure only in waters beyond the 20-fathom depth contour, and **Option b** would apply the closure to all federal waters, regardless of depth. Most red grouper landed by recreational fishermen are caught in waters less than 20 fathoms deep. Thus, social impacts in terms of disruptions to fishing activity would be less under **Option a** than **Option b**, for each of the **Alternatives 3-5**. At the same time, by establishing the closure only in deeper waters where less fishing activity occurs, **Option a** may not be sufficient to reduce landings and avoid an in-season closure before the end of the year. Ultimately, the longest season length is estimated for **Alternative 5b**, which would close the harvest of red grouper during July, and adopt a 2-fish bag limit within the 4-fish aggregate grouper bag limit. However, a July closure is less desirable than a closure earlier in the year, such as under **Alternatives 2-4**, and **Preferred Alternative 1**.

By removing any fixed closed season (**Alternative 6**), NMFS would still close the season when the ACL (or ACT, if the ACL was exceeded the previous year) is projected to be met. In general, recreational fishermen prefer fixed closed seasons to in-season closures, which may occur with little notice and can be disruptive to fishing activities for recreational fishermen and for-hire operations. Among the alternatives, an in-season closure before the end of the year would be most likely under **Alternative 6**, and would be expected to result in the greatest negative effects among the alternatives, should the in-season closure be triggered.

Combined Effects of Actions 1 and 3

The closed season alternatives need to be considered alongside the bag limit alternatives to thoroughly evaluate the social effects, as the goals are to provide the greatest number of fishing days and to allow the recreational season to extend furthest into the year. Provided the selected bag limit and closed season allow the greatest amount of fish to be landed while not exceeding the quota, the effects on the social environment are expected to be minimal. Red grouper, although targeted by anglers, is most often part of a multi-species fishing trip and is not the sole species sought on a trip. Recreational anglers vary in their fishing activity and preferences and will be affected depending on how their fishing practices must be modified to comply with the selected bag limit (2-red grouper per person per day, Preferred Alternative 3, Action 1) and closed season (**Preferred Alternative 1**). Some anglers prefer a longer season and smaller bag limit, and may target multiple other species on the same fishing trip; other anglers may prefer a greater red grouper bag limit for the duration of a shorter season, and target other species on fishing trips or engage in non-fishing activities when the red grouper season is closed. Thus, the combination of the selected timing and spatial extent of the closed season (Action 3) and the selected bag limit (Action 1) will align with the fishing behavior of some anglers, but not with others. It remains unknown how recreational fishing behavior may change in response to a change in the bag limit or closed season.

4.3.5 Direct and Indirect Effects on the Administrative Environment

From an administrative perspective, closed seasons and bag limits are traditional management measures that are fairly easy to enforce, both at sea and at the dock. **Preferred Alternative 1** leaves the existing red grouper closed season in place and therefore incurs no additional

administrative burden. To facilitate enforcement, the actual boundary line for the 20-fathom boundary follows a series of latitude-longitude points that approximate the 20-fathom depth contour. The specific coordinates for this line are in 50 CFR 622.34(d). **Alternatives 2 through 5** may create a slightly greater burden to the administrative environment by creating a red grouper closed season that differs from the closed season for other shallow-water grouper (except gag). This could contribute to public confusion and create enforcement issues. **Alternative 6** creates a slight benefit to the administrative environment by eliminating the closed season for red grouper, in which case the 20-fathom depth contour becomes moot. However, some public confusion could occur as a result of red grouper staying open all year (unless there is an ACL closure) while other shallow-water groupers are subject to a fixed closed season.

The recreational sector is required to be closed to red grouper harvest when the ACL is projected to be reached. All of the alternatives require a projection to be made. However, all of the 1-fish bag limit scenarios and 4 of the 9 2-fish bag limit scenarios (**Alternative 2**, and **Alternatives 3, 4, and 5 with Option b**) project the possibility that the ACL will not be reached, which would eliminate the need to publish and implement an ACL closure.

In terms of ranking the alternatives:
Alternative 6 provides a slight benefit by simplifying the regulations for red grouper.
Preferred Alternative 1 retains the existing impacts of administering and enforcing a fixed closed season outside of 20 fathoms of the alternatives on the administrative environment.
Alternative 2 adds slightly to the administrative burden by applying a different geographic area where the closed season is effective (all federal waters rather than only beyond the 20-fathom boundary). This requires anglers and enforcement officers to be aware of a species-specific area closure rather than the same area closure for all shallow-water grouper.
Alternatives 2, 3, 4 and 5 with **Option a** add slightly to the administrative burden by creating a separate closed season for red grouper, although the geographic area will be the same as for other shallow-water grouper (i.e., beyond 20 fathoms). These alternatives with this **Option a** have the same impact on the administrative environment relative to each other.
Alternatives 2, 3, 4 and 5 with **Option b** add the greatest administrative burden by creating both a separate closed season for red grouper and a different area closure (all federal waters). These alternatives with this **Option b** have the same impact on the administrative environment relative to each other.

4.4 Cumulative Effects

Cumulative effects to the reef fish fishery have been analyzed in Amendments 30A (GMFMC 2008a), 30B (GMFMC 2008b), 31 (GMFMC 2009), and 32 (GMFMC 2011b) and are incorporated here by reference. Additional pertinent past actions are summarized in the history of management in Section 1.3. The effects of adjusting the red grouper bag limits and closed seasons are most closely aligned with the effects from the revisions developed in Amendment 32 (GMFMC 2011b), Amendment 38 (2013) and the red grouper regulatory amendment (GMFMC 2010). Currently, there are no other reasonably foreseeable future actions being considered by the Gulf of Mexico Fishery Management Council (Council) specifically for red grouper. However, the Council is considering further actions applying to the Reef Fish FMP, such as

regional management for red snapper, reallocation of red snapper, and sector separation of the private and for-hire fleets. In addition, gag along with red grouper is targeted by the recreational sector along. The gag stock recently competed rebuilding and increases to the gag ACL could result in effort shifting away from red grouper. These actions could influence the fishing behavior of the recreational sector and possibly have additional cumulative effects. However, the effects are not known at this time and will be analyzed for those future actions. There are no other projects that NMFS is aware of (past, present, or foreseeable future) which, when combined with this proposed action will cause any measurable cumulative effects

The affected area of this proposed action encompasses the state and federal waters in the Gulf along with the Gulf communities dependent on reef fish fishing. The proposed action would modify the recreational bag limits, and AMs for red grouper. This action is not expected to have significant beneficial or adverse cumulative effects on the physical and biological/ecological environments as it would minimally affect fishing practices (see Sections 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.3.1, and 4.3.2). If the recreational harvest is constrained to the ACL, then the effects to these environments would likely be beneficial compared to the no action alternatives because the recreational sector would be constrained to its ACL while optimizing the recreational fishing opportunity for red grouper. The social and economic environments are not expected to have significant beneficial or adverse cumulative effects from these actions (see Sections 4.1.3, 4.1.4, 4.2.3, 4.2.4, 4.3.3, and 4.3.4). Because the reef fish fishery is a multi-species fishery, there are always fish to target throughout the year for the recreational sector such that the proposed actions are not expected to substantially alter the manner in which the fishery is prosecuted.

The analyses completed in this environmental assessment found the effects on the biophysical and socioeconomic environments are positive since they would ultimately restore/maintain the stock at a level that allows the maximum benefits in yield and recreational fishing opportunities to be achieved. However, short-term negative impacts on the fisheries' socioeconomic environment have occurred and are likely to continue due to the need to limit directed harvest and reduce bycatch mortality. **Action 1, Preferred Alternative 3** would reduce the recreational red grouper bag limit from four fish to two fish, but the aggregate grouper bag limit would remain at 4 fish. This could increase red grouper discard mortality if fishermen continue to fish for other grouper species after reaching their red grouper bag limit creating a negative effect to the red grouper stock. This reduction in the daily bag limit would also be expected to create fishing effort shifts and increase harvest among the other shallow-water groupers caught in association with red grouper. However, most fishermen do not catch their 4-grouper bag limit, and therefore this impact is expected to be minor. The expected positive effects through the bag limit reduction would be expected to occur in the economic and social environments as the recreational fishing season is projected to last longer creating more opportunities to catch red grouper. **Action 2, Preferred Alternative 4** would eliminate the bag limit reduction accountability measure previously implemented in the final rule for Amendment 38. This accountability measure has the potential to reduce the bag limit to one fish, which would increase the discard mortality of red grouper. However, **Preferred Alternative 3 in Action 1**, will establish a two fish bag limit. The establishment of a permanent two-fish bag limit eliminates the accountability measure to reduce the bag limit when the ACL is exceeded. The Preferred Alternative selected in Action 3 is to maintain the closed season (February-March) in waters

beyond the 20-fathom depth contour. By maintaining the closure it is expected that there would not be any new negative or positive effects as a result of this action.

Two important events include impacts of the Deepwater Horizon MC252 oil spill and climate change. Impacts from the Deepwater Horizon MC252 oil spill are still being examined and peer-reviewed studies are now only just being published. However, the effects of this oil on red grouper and other reef fish populations are incomplete and unavailable (see 40 CFR § 1502.22) at this time because studies of the effects of the oil spill are still ongoing. If the oil impacts important habitat for these species or interrupts critical life history stages, the effects could reduce these species' population sizes. The oil itself could have adversely affected adult red grouper and other reef fish species. In a recent study, Weisberg et al. (2014) suggested the hydrocarbons associated with Deepwater Horizon MC252 oil spill did transit onto the Florida shelf and may be associated with the occurrences of reef fish with lesions and other deformities. However, Murawski et al. (2014) reported that the incidence of lesions on bottom dwelling fish had declined between 2011 and 2012 in the northern Gulf.

There is a large and growing body of literature on past, present, and future impacts of global climate change induced by human activities. Some of the likely effects commonly mentioned are sea level rise, increased frequency of severe weather events, and change in air and water temperatures. The Environmental Protection Agency's climate change web page provides basic background information on these and other measured or anticipated effects. In addition, the Intergovernmental Panel on Climate Change has numerous reports addressing their assessments of climate change (http://www.ipcc.ch/publications_and_data/publications_and_data.shtml). Global climate changes could affect the Gulf 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 (Kennedy et al. 2002). It is unclear how climate change would affect reef fishes, and likely would affect species differently. Burton (2008) speculated climate change could cause shifts in spawning seasons, changes in migration patterns, and changes to basic life history parameters such as growth rates. 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. Hollowed et al. (2013) provided a review of projected effects of climate change on the marine fisheries and dependent communities. Integrating the potential effects of climate change into the fisheries assessment is currently difficult due to the time scale differences (Hollowed et al. 2013). The fisheries stock assessments rarely accurately project for more than a few years, a time span that would preclude detectable climate change effects. Although climate change may impact Gulf reef fish species in the future, the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts would occur. Conversely, the proposed action is not expected to significantly contribute to climate change through the increase or decrease in the carbon footprint from fishing.

The effects of the proposed action are, and will continue to be, monitored through collection of landings data by NMFS, stock assessments and stock assessment updates, life history studies, economic and social analyses, and other scientific observations. Landings data for the recreational sector in the Gulf are collected through the Marine Recreational Information Program, the Southeast Headboat Survey, and the Texas Marine Recreational Fishing Survey. In addition, the Louisiana Department of Wildlife and Fisheries and the Alabama Department of Conservation and Natural Resources have instituted programs to collect red grouper recreational landings information in their respective states. Commercial data are collected through trip ticket programs, port samplers, and logbook programs, as well as dealer reporting through the individual fishing quota program.

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 proposed or final regulatory action; 2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem; and, 3) 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 the regulations are a "significant regulatory action" under the criteria provided in Executive Order (E.O.) 12866. This RIR analyzes the impacts this action would be expected to have on the red grouper component of the Gulf of Mexico (Gulf) reef fish fishery.

5.2 Problems and Objectives

The problems and objectives addressed by this action are discussed in Section 1.2.

5.3 Description of Fisheries

A description of the red grouper component of the Gulf reef fish fishery is provided in Section 3.3.

5.4 Impacts of Management Measures

5.4.1 Action 1: Red Grouper Bag Limits

A detailed analysis of the economic effects expected to result from this action is provided in Section 4.1.3. Reductions in the red grouper bag limit would be expected to result in changes in economic value due to several factors. If the reduction in bag limit is constraining enough, it could prevent the recreational sector from harvesting the entirety of its annual catch limit (ACL), thereby resulting in lost fishing opportunities and associated decreases in economic benefits. **Preferred Alternative 3** and **Alternatives 1-2** are not expected to prevent recreational anglers from harvesting the totality of the red grouper ACL. However, under **Alternative 4**, recreational anglers would be expected to harvest at most 76% of the ACL.

A reduction in bag limit would also change a key attribute of fishing trips and would be expected to impact economic value due to a decrease in the quality of the fishing trips. In addition,

reductions in the bag limit are expected to lengthen the recreational fishing season, thereby affording additional fishing opportunities to recreational anglers. Based on estimates provided in Table 2.3.2, **Preferred Alternative 3** could extend the recreational fishing season by 37 to 60 days. **Preferred Alternative 3**, which would reduce the red grouper bag limit from 4 to 2 fish, is expected to result in limited effects on the economic environment because more than 90% of angler trips taken by anglers fishing from private vessels or charter vessels and more than 98% of headboat trips harvest 1 or 2 red grouper per trip. Based on the percentages of trips estimated to harvest 4 red grouper per trip, a bag limit reduction from 4 to 3 fish (**Alternative 2**) would be expected to result in smaller economic effects compared to **Preferred Alternative 3.**
The relative magnitude of the effects discussed above, which cannot be quantified with available data, would determine the net economic effects that would be expected to result from the bag limit reductions under consideration.

5.4.2 Action 2: Bag Limit Reductions

A detailed analysis of the economic effects expected to result from this action is provided in Section 4.2.3. **Preferred Alternative 4** would eliminate automatic bag limit reductions if the ACL is exceeded. Compared to **Alternative 1, Preferred Alternative 4** would be less confusing to the public. However, **Preferred Alternative 4** would not be expected to result in appreciable economic benefits because bag limit reductions could still be implemented via the usual regulatory process. **Alternative 1** would not be expected to affect recreational harvests or other customary uses of red grouper and would therefore not be expected to result in effects to the economic environment. **Alternative 2** offers added flexibility to further decrease the bag limit and could be expected to extend the recreational fishing season. Therefore, this would be expected to generate economic benefits due to the additional fishing opportunities it may afford recreational anglers. However, these potential economic benefits would be mitigated by decreases in consumer surplus because consumers generally prefer trips with higher bag limits. **Alternative 3** would implement accountability measures on a temporary (**Option a**) or permanent basis (**Option b**). The frequent changes in bag limits that could result from **Alternative 3-Option a** may be confusing for recreational anglers. Compared to status quo, **Alternative 3-Option a** would be expected to result in economic benefits because it allows better conservation of the resource by slowing down the rate at which the red grouper bag limit could be increased. Compared to **Alternative 3-Option a**, **Alternative 3-Option b** would be expected to result in greater conservation benefits and associated positive economic effects, because it would prevent future bag limits to be increased to levels that resulted in red grouper overharvests. If the red grouper bag limit is reduced to 2 fish (Action 1), **Preferred Alternative 4** could result in more economic benefits than **Alternative 2**. Although there are trade-offs between the benefits of a larger bag limit per trip versus a longer season with a reduced bag limit, economic benefits under a shorter season with a 2-fish bag limit (**Preferred Alternative 4** in combination with **Preferred Alternative 3** in Action 1) would be expected to be greater than the benefits under a longer season with a 1-fish bag limit, particularly if a 1-fish limit does not allow anglers to harvest the entirety of their allocation.

5.4.3 Action 3: Closed seasons

A detailed analysis of the economic effects expected to result from this action is provided in Section 4.3.3. **Preferred Alternative 1** (status quo) would not be expected to result in effects to the economic environment because it would not affect the harvest and other customary uses of red grouper.

Alternative 2 and **Alternatives 3-5 (Option b)** would apply the closed season to all federal waters. **Alternatives 3-5 (Option a)** would only apply the closed season in waters beyond 20 fathoms. **Alternative 6** does not implement a fixed closed season in any depth of water. Closures in all federal waters would be more effective in reducing or constraining harvests to a given target and could potentially be more beneficial to the stock. Closure and bag limit combinations with a bag limit of at least 2 red grouper, including the preferred combination selected by the Gulf of Mexico Fishery Management Council (**Action 1- Preferred Alternative 3** and **Action 3-Preferred Alternative 1**) are expected to allow anglers to harvest the whole red grouper ACL. However, all combinations with a 1-fish bag limit would result in forgone fishing opportunities and associated losses in economic benefits because recreational anglers are not expected to harvest the full ACL. Although bag limit reductions would generally provide additional fishing opportunities by extending the season, they are also expected to reduce consumer surplus per trip because anglers typically prefer trips with a higher bag limit. Economic effects that would be expected to result from the bag limit and closure combinations considered would be determined by several factors, including the number of recreational trips affected by the bag limit reduction and the magnitude of the percentage change in fishing trips relative to the percentage change in reductions in consumer surplus.

5.5 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:

Council costs of document preparation, meetings, public hearings, and information dissemination…….. $20,000

NMFS administrative costs of document preparation, meetings and review ….....$10,000

TOTAL ….....$30,000

The estimate provided above does not include any law enforcement costs. Any enforcement duties associated with this action would be expected to be covered under routine enforcement costs rather than an expenditure of new funds. It is noted that it will be more difficult and, therefore, more costly, to monitor closure periods that vary by state.

5.6 Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a "significant regulatory action" if it is likely to result in 1) an annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; 3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order. Based on the information provided above, this action has been determined to not be economically significant for the purposes of E.O. 12866.

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

The RFA requires agencies to conduct a Regulatory Flexibility Act Analysis (RFAA) for each proposed rule. The RFAA is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. An RFAA is conducted to primarily determine whether the proposed action would have a "significant economic impact on a substantial number of small entities." The RFAA provides: 1) A description of the reasons why action by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for, the proposed rule; 3) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; 4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; 5) an identification, to the extent practicable, of all relevant federal rules, which may duplicate, overlap, or conflict with the proposed rule; 6) a description and estimate of the expected economic impacts on small entities; and 7) an explanation of the criteria used to evaluate whether the rule would impose "significant economic impacts."

6.2 Statement of the need for, objective of, and legal basis for the proposed action

The need for and objective of this proposed action are provided in Chapter 1. In summary, management changes are needed to improve the social and economic benefits derived from the recreational harvest of red grouper in the Gulf of Mexico (Gulf) while preventing overfishing. The purpose of this proposed action is to modify the red grouper recreational management measures in the Gulf to improve recreational fishing opportunities by extending the number of

days in the fishing season. The Magnuson-Stevens Fishery Conservation and Management Act provides the statutory basis for this proposed action.

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

This proposed action would change the red grouper recreational bag limit in the Gulf. Only recreational anglers are allowed a bag or possession limit of red grouper in the Gulf. Captains or crew members on charter vessels, headboats , or commercial vessels, cannot harvest or possess red grouper under the recreational bag limit. Because only recreational anglers are allowed a bag or possession limit, only recreational anglers would be directly affected by the proposed changes to the red grouper recreational bag limit. Recreational anglers, however, are not small entities under the RFA and the economic effects of this proposed action on these anglers is outside the scope of the RFA.

Charter vessels and headboats (for-hire vessels) sell fishing services to recreational anglers. These vessels provide a platform for the opportunity to fish and not a guarantee to catch or harvest any species, though expectations of successful fishing, however defined, likely factor into the decision to purchase these services. Bag limit restrictions only define what can be kept and do not explicitly prevent the continued offer of for-hire fishing services. In response to a reduced bag limit, including a zero-fish limit, catch and release fishing for a target species could continue, as could fishing for other species. Because the proposed change in the red grouper bag limit would not directly alter the service sold by these vessels, this proposed action would not directly apply to or regulate their operations. For-hire vessels would continue to be able to offer their core product, which is an attempt to "put anglers on fish," provide the opportunity for anglers to catch whatever their skills enable them to catch, and keep those fish that they desire to keep and are legal to keep. Any change in demand for these fishing services, and associated economic affects, as a result of changing the bag limit would be a consequence of behavioral change by anglers, secondary to any direct effect on anglers, and, therefore, an indirect effect of the proposed regulatory action. Because the effects on for-hire vessels would be indirect, they fall outside the scope of the RFA.

The National Marine Fisheries Service has not identified any other small entities that might be directly affected by this proposed action.

In summary, no small entities would be expected to be directly affected by this proposed action.

Because the determination that for-hire vessels would only be indirectly affected by this proposed action may be controversial, the following information is provided to characterize these entities. A federal charter vessel/headboat permit (for-hire permit) is required for for-hire vessels to allow recreational anglers to harvest reef fish species, including red grouper, in the Gulf. On September 18, 2014, there were 1,328 valid (non-expired) or renewable Gulf Charter/Headboat Reef Fish permits. A renewable permit is an expired permit that may not be actively fished, but is renewable for up to one year after expiration.

However, only a portion of these entities would be expected to be affected by this proposed action because red grouper are primarily harvested in Florida, with minimal red grouper catch (total harvest and release) recorded in Alabama. In 2013, fewer than 2,400 red grouper (individual fish) were recorded harvested in Alabama compared to approximately 3.167 million fish in Florida, and no red grouper in the other Gulf states. For 2009-2013, approximately 60% of the reef fish for-hire permits were in Florida and approximately 11% were in Alabama. More recent information is not available. Assuming this distribution of permits persisted in 2014, among the 1,328 valid or renewable for-hire permits on September 18, 2014, 146 permits are estimated to be issued to Alabama vessels and 796 permits issued to Florida vessels. These permits include 9 headboats in Alabama and 36 headboats in Florida. The average charter vessel is estimated to receive approximately $83,000 (2013 dollars) in annual revenue and the average headboat is estimated to receive approximately $251,000 (2013 dollars) in annual revenue.

The Small Business Administration has established size criteria for all major industry sectors in the U.S., including fish harvesters. A business involved in the for-hire fishing industry is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of $7.5 million (NAICS code 487210, for-hire businesses) for all its affiliated operations worldwide. All for-hire businesses that might be indirectly affected by this proposed action are believed to be small business entities.

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

This proposed action would not establish any new reporting, record-keeping, or other compliance requirements.

6.5 Identification of all relevant federal rules, which may duplicate, overlap or conflict with the proposed action

No duplicative, overlapping, or conflicting federal rules have been identified.

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

Substantial number criterion

This proposed action would not be expected to directly affect any small entities. As a result, this proposed action, if implemented, would not be expected to affect a substantial number of small entities. However, an estimated 898 charter vessels and 45 headboats, or approximately 71% of the all for-hire vessels permitted to harvest red grouper in the Gulf federal waters, might be indirectly affected by this proposed action. All of the businesses these vessels are believed to be small business entities.

Significant economic impacts

The outcome of "significant economic impact" can be ascertained by examining two factors: disproportionality and profitability.

Disproportionality: Do the regulations place a substantial number of small entities at a significant competitive disadvantage to large entities?

Because no small entities would be expected to be directly affected by this proposed action, the issue of disproportionality does not arise.

Profitability: Do the regulations significantly reduce profits for a substantial number of small entities?

No small entities would be expected to be directly affected by the proposed action. The proposed changes in the red grouper bag limit would only directly affect recreational anglers because these bag limits only apply to anglers and not captains or crew on for-hire or commercial fishing vessels. Although anglers may change their demand for for-hire trips as a result of the proposed bag limit changes, the effects on associated for-hire vessels would be indirect effects, which are outside the scope of the RFA. Recreational anglers are not small entities under the RFA, so any effects on these entities are similarly outside the scope of the RFA.

For any for-hire entities indirectly affected by this proposed action, the proposed reduction in the red grouper bag limit to two fish would be expected to increase the length of the season, providing increased opportunities to book fishing trips by anglers who will fish only if there is the opportunity to harvest of red grouper (i.e., the bag limit is not zero). However, more than 80% of angler trips that harvest (keep) red grouper are estimated to only harvest one red grouper. Additionally, over 70% of angler trips that catch red grouper are estimated to not keep any red grouper. As a result, there is a greater likelihood that fished saved by the proposed reduction in the bag limit are harvested on trips normally expected to harvest one red grouper or no red grouper than on new fishing trips that are taken only because the season may be extended. Thus, few, if any, new trips might result from the proposed reduction in the bag limit. Nevertheless, any increase in demand for for-hire trips would be expected to result in increased revenue and profits to affected for-hire businesses. Each new angler trip on a charter vessel would be expected to provide approximately $160 (2013 dollars) in net operating revenue, a proxy for profit, and the comparable value for a headboat trip is approximately $53. However, quantitative estimates of potential increases in angler demand cannot be generated with available data.

The proposed change in the bag limit reduction accountability measure would also be expected to improve the financial opportunities for for-hire businesses. Removal of the bag limit reduction accountability measure would maintain the red grouper bag limit at two fish when harvest is not subject to seasonal or total harvest limit closure. Although only a small portion of trips actually harvest more than one red grouper, the industry believes that the possibility of harvesting two red grouper generates more effort demand than a lower limit. Thus, even though the higher limit may result in faster harvest of the allowable catch and fewer total days on which harvest is allowed, business opportunities, and associated profits, would be better under the fixed bag limit.

In summary, this proposed action would not be expected to have any adverse economic effect on any small entities.

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

This proposed action, if implemented, would not be expected to have a significant adverse economic impact on a substantial number of small entities. As a result, the issue of significant alternatives is not relevant.

CHAPTER 7. LIST OF AGENCIES AND PERSONS CONSULTED

PREPARERS (Interdisciplinary Planning Team)

Name	Expertise	Responsibility	Agency
Steven Atran	Fishery Biologist	Co-Team Lead – Amendment development, introduction, social analyses	GMFMC
Cynthia Meyer	Biologist	Co-Team Lead – Amendment development, effects analysis, and cumulative effects	SERO
Rich Malinowski	Biologist	Co-Team Lead – Amendment development, effects analysis, and cumulative effects	SERO
Stephen Holliman	Economist	Regulatory Flexibility Act analysis, and Reviewer	SERO
Assane Diagne	Economist	Economic Analysis, Regulatory Impact Review and Reviewer	GMFMC
Ava Lasseter	Anthropologist	Social analyses and Reviewer	GMFMC
Mara Levy	Attorney	Legal compliance and Reviewer	NOAA GC
Anik Clemens	Technical Writer Editor	Regulatory writer	SERO
Noah Silverman	Natural Resource Management Specialist	NEPA compliance	SERO
Nick Farmer	Biologist	Data analysis	SERO
David Dale	Biologist	EFH review	SERO
Jennifer Lee	Protected Resources	Protected species review	SERO
Carrie Simmons	Fishery biologist	Reviewer	GMFMC
John Walter	Biologist	Reviewer	SEFSC
Larry Perruso	Economist	Reviewer	SEFSC

The following have or will be consulted.

National Marine Fisheries Service
- Southeast Fisheries Science Center
- Southeast Regional Office
    - Protected Resources
    - Habitat Conservation
    - Sustainable Fisheries

NOAA General Counsel
U.S. Coast Guard

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APPENDIX A. OTHER APPLICABLE LAW

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.) provides the authority for management of stocks included in fishery management plans in federal waters of the exclusive economic zone. However, management decision-making is also affected by a number of other federal statutes designed to protect the biological and human components of U.S. fisheries, as well as the ecosystems that support those fisheries. Major laws affecting federal fishery management decision-making are summarized below.

Administrative Procedure Act

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the Act, the National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider, and respond to public comment on those rules before they are finalized. The Act also establishes a 30-day waiting period from the time a final rule is published until it takes effect.

Coastal Zone Management Act

Section 307(c)(1) of the federal Coastal Zone Management Act of 1972 (CZMA), as amended, requires federal activities that affect any land or water use or natural resource of a state's coastal zone be conducted in a manner consistent, to the maximum extent practicable, with approved state coastal management programs. The requirements for such a consistency determination are set forth in NOAA regulations at 15 CFR part 930, subpart C. According to these regulations and CZMA Section 307(c)(1), when taking an action that affects any land or water use or natural resource of a state's coastal zone, NMFS is required to provide a consistency determination to the relevant state agency at least 90 days before taking final action.

Upon submission to the Secretary of Commerce, NMFS will determine if this plan amendment is consistent with the Coastal Zone Management programs of the states of Alabama, Florida, Louisiana, Mississippi, and Texas to the maximum extent possible. Their determination will then be submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management programs for these states.

Data Quality Act

The Data Quality Act (Public Law 106-443) effective October 1, 2002, requires the government to set standards for the quality of scientific information and statistics used and disseminated by federal agencies. Information includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical, cartographic, narrative, or audiovisual forms (includes web dissemination, but not hyperlinks to information that others disseminate; does not include clearly stated opinions).

Specifically, the Act directs the Office of Management and Budget to issue government wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies." Such guidelines have been issued, directing all federal agencies to create and disseminate agency-specific standards to: (1) ensure information quality and develop a pre-dissemination review process; (2) establish administrative mechanisms allowing affected persons to seek and obtain correction of information; and (3) report periodically to Office of Management and Budget on the number and nature of complaints received.

Scientific information and data are key components of fishery management plans (FMPs) and amendments and the use of best available information is the second national standard under the Magnuson-Stevens Act. To be consistent with the Act, FMPs and amendments must be based on the best information available. They should also properly reference all supporting materials and data, and be reviewed by technically competent individuals. With respect to original data generated for FMPs and amendments, it is important to ensure that the data are collected according to documented procedures or in a manner that reflects standard practices accepted by the relevant scientific and technical communities. Data will also undergo quality control prior to being used by the agency and a pre-dissemination review.

Endangered Species Act

The Endangered Species Act (ESA) of 1973, as amended, (16 U.S.C. Section 1531 et seq.) requires federal agencies use their authorities to conserve endangered and threatened species. The ESA requires NMFS, when proposing an action for managed stocks that "may affect" critical habitat or endangered or threatened species, to consult with the appropriate administrative agency (itself for most marine species, the U.S. Fish and Wildlife Service (USFWS) for all remaining species) to determine the potential impacts of the proposed action. Consultations are concluded informally when proposed actions may affect but are "not likely to adversely affect" endangered or threatened species or designated critical habitat. Formal consultations, including a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" endangered or threatened species or adversely modify designated critical habitat. If jeopardy or adverse modification is found, the consulting agency is required to suggest reasonable and prudent alternatives. NMFS, as part of the Secretarial review process, will make a determination regarding the potential impacts of the proposed actions.

On September 30, 2011, the Protected Resources Division released a biological opinion which, after analyzing best available data, the current status of the species, environmental baseline (including the impacts of the recent Deepwater Horizon MC 252 oil release event in the northern Gulf of Mexico), effects of the proposed action, and cumulative effects, concluded that the continued operation of the Gulf of Mexico reef fish fishery is also not likely to jeopardize the continued existence of green, hawksbill, Kemp's ridley, leatherback, or loggerhead sea turtles, nor the continued existence of smalltooth sawfish (NMFS 2011b).

On September 10, 2014, NMFS published a final rule listing as threatened 20 coral species under the Endangered Species Act. Four of the newly listed coral species are found in the Gulf of Mexico. NMFS concurs with the effects determination that the continued authorization of the

Gulf of Mexico Reef Fish Fishery Management Plan (Reef Fish FMP) is not likely to adversely affect the newly listed coral species. On September 10, 2014, NMFS published a final rule (79 FR 53852) listing as threatened 20 coral species under the Endangered Species Act. Four of the newly listed coral species are found in the Gulf of Mexico. In memos dated September 16, 2014, and October 7, 2014, NMFS determined that activities associated with the subject FMP will not adversely affect any of the newly listed coral species. In the October 7, 2014, memo NMFS also determined that although the September 10, 2014, Final Listing Rule provided some new information on the threats facing *Acropora*, none of the information suggested that the previous determinations were no longer valid.

Fish and Wildlife Coordination Act

Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-667e) provides the basic authority for the USFWS's involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It also requires federal agencies that construct, license or permit water resource development projects to first consult with the Service (and NMFS in some instances) and State fish and wildlife agency regarding the impacts on fish and wildlife resources and measures to mitigate these impacts.

The fishery management actions in the Gulf of Mexico are not likely to affect wildlife resources pertaining to water resource development as the economic exclusive zone is from the state water boundary extending to 200 nm from shore.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, (Public Law 89-665; 16 U.S.C. 470 *et seq.*) is intended to preserve historical and archaeological sites in the United States of America. Section 106 of the NHPA requires federal agencies to evaluate the impact of all federally funded or permitted projects for sites on listed on, or eligible for listing on, the National Register of Historic Places and aims to minimize damage to such places.

Typically, fishery management actions in the Gulf of Mexico are not likely to affect historic places with exception of the *U.S.S. Hatteras*, located in federal waters off Texas, which is listed in the National Register of Historic Places. Red grouper do not occur off Texas, and therefore the proposed actions are not likely to increase fishing activity above previous years. Thus, no additional impacts to the *U.S.S. Hatteras* would be expected.

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas, and on the importing of marine mammals and marine mammal products into the United States. Under the MMPA, the Secretary of Commerce (authority delegated to NMFS) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea and marine otters, polar bears, manatees, and dugongs.

Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted," and a conservation plan is developed to guide research and management actions to restore the population to healthy levels.

In 1994, Congress amended the MMPA, to govern the taking of marine mammals incidental to commercial fishing operations. This amendment required the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction, development and implementation of take-reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population levels due to interactions with commercial fishing activities, and studies of pinniped-fishing activity interactions.

Under section 118 of the MMPA, NMFS must publish, at least annually, a List of Fisheries that places all U.S. commercial fishing activities into one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in each fishing activity. The categorization of a fishing activity in the List of Fisheries determines whether participants in that fishing activity may be required to comply with certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan requirements.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703) protects migratory birds. The responsibilities of federal agencies to protect migratory birds are set forth in Executive Order 13186. The USFWS is the lead agency for migratory birds. The birds protected under this statute are many of our most common species, as well as birds listed as threatened or endangered. A memorandum of understanding (MOU) between NMFS and the USFWS, as required by Executive Order 13186 (66 FR 3853, January 17, 2001), is to promote the conservation of migratory bird populations. This MOU focuses on avoiding, or where impacts cannot be avoided, minimizing to the extent practicable, adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between NMFS and the USFWS by identifying general responsibilities of both agencies and specific areas of cooperation. Given NMFS' focus on marine resources and ecosystems, this MOU places an emphasis on seabirds, but does not exclude other taxonomic groups of migratory birds.

Typically, fishery management actions in the Gulf of Mexico are not likely to affect migratory birds. The proposed actions are not likely to change the way in which the fishery is prosecuted. Thus, no additional impacts are reasonably expected.

Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.) regulates the collection of public information by federal agencies to ensure the public is not overburdened with information requests, the federal government's information collection procedures are efficient, and federal agencies adhere to appropriate rules governing the confidentiality of such information. The Act requires NMFS to obtain approval from the Office of Management and Budget before requesting

most types of fishing activity information from the public. None of the alternatives in this amendment are expected to create additional paperwork burdens.

Prime Farmlands Protection and Policy Act

The Farmland Protection and Policy Act of 1981 (7 U.S.C. 4201) was enacted to minimize the loss of prime farmland and unique farmlands as a result of Federal actions by converting these lands to nonagricultural uses. It assures that federal programs are compatible with state and local governments, and private programs and policies to protect farmland.

The fishery management actions in the Gulf of Mexico are not likely to affect farmlands as the economic exclusive zone is from the state water boundary extending to 200 nm from shore.

National Wild and Scenic Rivers System

The National Wild and Scenic Rivers System of 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) preserves certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act safeguards the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

The fishery management actions in the Gulf of Mexico are not likely to affect wetland habitats as the economic exclusive zone is from the state water boundary extending to 200 nm from shore.

North American Wetlands Conservation Act

The North American Wetlands Conservation Act of 1989 (Public Law 101-233) established a wetlands habitat program, administered by the USFWS, to protect and manage wetland habitats for migratory birds and other wetland wildlife in the United States, Mexico, and Canada.

The fishery management actions in the Gulf of Mexico are not likely to affect wetland habitats as the economic exclusive zone is from the state water boundary extending to 200 nm from shore.

Executive Orders (E.O.)

E.O. 12630: Takings

The E.O. on Government Actions and Interference with Constitutionally Protected Property Rights that became effective March 18, 1988, requires each federal agency prepare a Takings Implication Assessment for any of its administrative, regulatory, and legislative policies and actions that affect, or may affect, the use of any real or personal property. Clearance of a regulatory action must include a takings statement and, if appropriate, a Takings Implication Assessment. The NOAA Office of General Counsel will determine whether a Taking Implication Assessment is necessary for this amendment.

E.O. 12866: Regulatory Planning and Review

E.O. 12866: Regulatory Planning and Review, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NMFS prepares a Regulatory Impact Review (RIR) for all regulatory actions that either implement a new fishery management plan or significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society of proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Analysis. A regulation is significant if it 1) Has an annual effect on the economy of $100 million or more or adversely affects 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 and communities; 2) creates a serious inconsistency or otherwise interferes with an action taken or planned by another agency; 3) materially alters the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or 4) raises novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

E.O. 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations

This E.O. mandates that each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions.

E.O. 12962: Recreational Fisheries

This E.O. requires federal agencies, in cooperation with states and tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods including, but not limited to, developing joint partnerships; promoting the restoration of recreational fishing areas that are limited by water quality and habitat degradation; fostering sound aquatic conservation and restoration endeavors; and evaluating the effects of federally-funded, permitted, or authorized actions on aquatic systems and recreational fisheries, and documenting those effects. Additionally, it establishes a seven-member National Recreational Fisheries Coordination Council (NRFCC) responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The NRFCC also is responsible for developing, in cooperation with federal agencies, States and Tribes, a Recreational Fishery

Resource Conservation Plan - to include a five-year agenda. Finally, the E.O. requires NMFS and the USFWS to develop a joint agency policy for administering the ESA.

E.O. 13089: Coral Reef Protection

The E.O. on Coral Reef Protection requires federal agencies whose actions may affect U.S. coral reef ecosystems to identify those actions, utilize their programs and authorities to protect and enhance the conditions of such ecosystems, and, to the extent permitted by law, ensure actions that they authorize, fund, or carry out do not degrade the condition of that ecosystem. By definition, a U.S. coral reef ecosystem means those species, habitats, and other national resources associated with coral reefs in all maritime areas and zones subject to the jurisdiction or control of the United States (e.g., federal, state, territorial, or commonwealth waters).

Regulations are already in place to limit or reduce habitat impacts within the Flower Garden Banks National Marine Sanctuary. Additionally, NMFS approved and implemented Generic Amendment 3 for Essential Fish Habitat (GMFMC 2005), which established additional habitat areas of particular concern (HAPCs) and gear restrictions to protect corals throughout the Gulf of Mexico. There are no implications to coral reefs by the actions proposed in this amendment.

E.O. 13132: Federalism

The E.O. on Federalism requires agencies in formulating and implementing policies, to be guided by the fundamental Federalism principles. The E.O. serves to guarantee the division of governmental responsibilities between the national government and the states that was intended by the framers of the Constitution. Federalism is rooted in the belief that issues not national in scope or significance are most appropriately addressed by the level of government closest to the people. This E.O. is relevant to FMPs and amendments given the overlapping authorities of NMFS, the states, and local authorities in managing coastal resources, including fisheries, and the need for a clear definition of responsibilities. It is important to recognize those components of the ecosystem over which fishery managers have no direct control and to develop strategies to address them in conjunction with appropriate state, tribes and local entities (international too).

No Federalism issues were identified relative to the action to modify the management of the recreational harvest of red grouper. Therefore, consultation with state officials under Executive Order 12612 was not necessary. Consequently, consultation with state officials under Executive Order 12612 remains unnecessary.

E.O. 13158: Marine Protected Areas

This E.O. requires federal agencies to consider whether their proposed action(s) will affect any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural or cultural resource within the protected area. There are several marine protected areas, HAPCs, and gear-restricted areas in the eastern and northwestern Gulf of Mexico. The existing areas are entirely within federal waters of the Gulf of Mexico. They do not affect any areas reserved by federal, state, territorial, tribal or local jurisdictions.

APPENDIX B. SUMMARIES OF PUBLIC COMMENTS RECEIVED

Summary of Webinar Public Hearing on Recreational Red Grouper Framework Action October 16, 2014

Sue Sigrist- Recreational Angler from Marco Island, Florida. Sue fishes with a large group of people in the Marco Island area and they are catching their limits of fish quicker than ever – there is no shortage of fish. She would rather have a lower bag limit than a shorter season. Any bag limit below 2 fish would not be economically feasible. She suggests we reduce the bag limit to allow for a year round season.

Summary of Written Comments

- Reduce the bag limit or enact a slot limit during spawning season.
- Closed seasons hurt tourism and increase fishing pressure on other species.
- Maintain a 3-grouper bag limit and a year-round season.

APPENDIX C. BYCATCH PRACTICABILITY ANALYSIS

A bycatch practicability analysis for the grouper fishery was conducted in Amendment 32 (GMFMC 2011b) to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP), which established the current accountability measures for groupers, and is incorporated herein by reference. Amendment 32 can be found at http://www.gulfcouncil.org/docs/amendments/Final%20RF32_EIS_October_21_2011[2].pdf. Consequently, the Gulf of Mexico Fishery Management Council (Council) is considering in this amendment the practicability of taking additional action to adjust those accountability measures for the recreational sector and to revise the framework procedure to provide more flexibility in making future revisions to accountability measures. The following analysis will focus on bycatch by the recreational sector.

Background/Overview

Bycatch is defined as fish harvested in a fishery, but not sold or retained for personal use. This definition includes both economic and regulatory discards, but excludes fish released alive. Economic discards are generally undesirable from a market perspective because of their species, size, sex, and/or other characteristics. Regulatory discards are fish 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 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.

Red Grouper Release Mortality Rates and Bycatch

Red grouper release mortality rates and bycatch are discussed in detail in the bycatch practicability analysis for Amendment 30B (GMFMC 2008b) and Amendment 32 (GMFMC

2011b) and are incorporated by reference here. The estimation of red grouper release mortality rates are described in detail in SEDAR 12 (2007) and the 2009 red grouper assessment update (SEDAR 12 update 2009). In SEDAR 12 (2007), a 10% release mortality rate was estimated for the recreational, commercial handline, and trap sectors and a 45% release mortality rate was estimated for the commercial longline sector.

Observer-based discard information from the headboat sector was applied to both private and charter-vessel landings in the assessment. To estimate the magnitude of discards in the recreational sector, a 10% discard mortality rate was applied to number of red grouper released alive (B2 catch type in the Marine Recreational Information Program) and multiplied by an average weight for released fish[2]. Total estimated recreational dead discards by weight for 2006-2008 (the last three years of the assessment update) are shown Table 1. The total estimated weight of discards ranged from 22 to 49% of removals for this sector between 2006 and 2008 and average 35%. However, as illustrated in Table 7.1, the weight of removals (both as landings and through dead discards) is much higher for the commercial than the recreational sector.

Table 1. Red grouper recreational, commercial, and total landings and dead discards by weight, and as a percentage of the total fish killed for discards, in the Gulf of Mexico from 2006-2008.

Removal type	Year	Recreational (lbs)	Commercial (lbs)	Total (lbs)
Landings	2006	960,890	5,162,527	6,123,417
	2007	1,016,807	3,708,863	4,725,670
	2008	892,998	4,739,295	5,632,293
	Average	956,898	4,536,895	5,493,793
Dead discards	2006	272,627	1,428,385	1,701,012
	2007	385,147	1,293,782	1,678,929
	2008	875,121	963,679	1,838,800
	Average	510,965	1,228,615	1,739,580
Percent dead discards of total fish killed	2006	22%	22%	22%
	2007	27%	26%	26%
	2008	49%	17%	25%
	Average	35%	21%	24%

Other Bycatch

Species incidentally encountered during the directed recreational harvest of red grouper includes sea turtles, sea birds, and other reef fishes, such as snappers and groupers. The 2014 List of Fisheries classifies the reef fish fishery as a Category III fishery (79 FR 14418, March 14, 2014) based upon the primary types of gears used (hook-and-line/longline). This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from these fisheries 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

[2]Personal communication, John Walter, Southeast Fisheries Science Center, Miami, FL

reach or maintain its optimum sustainable population. This action is not expected to alter existing fishing practices (e.g., types of methods, gear used, etc.) in such a way as to alter their interactions with marine mammals.

NMFS conducted a formal Section 7 consultation on endangered species conservation measures in the reef fish fishery, resulting in a September 29, 2011, Biological Opinion (BiOp). The BiOp concluded fishing for reef fish species can adversely affect endangered green, leatherback, hawksbill and Kemp's ridley sea turtles and threatened loggerhead sea turtles and smalltooth sawfish. However, the continued operation of the fishery is not likely to jeopardize the continued existence of sea turtles or smalltooth sawfish. The BiOp also concluded listed marine mammals, elkhorn and staghorn coral, and sturgeon were all not likely to be adversely affected by the reef fish fishery. There is no new information to suggest otherwise.

On July 10, 2014, NMFS published a final rule designating 38 occupied marine areas within the Atlantic Ocean and Gulf of Mexico as critical habitat for the Northwest Atlantic Ocean loggerhead sea turtle Distinct Population Segment. These areas contain one or a combination of nearshore reproductive habitat, winter area, breeding areas, and migratory corridors, or contain *Sargassum* habitat. In the Gulf of Mexico, designated critical habitat contains either nearshore reproductive habitat or *Sargassum* habitat. NMFS concluded in memos dated September 16, 2014, that activities associated with the subject FMP will not adversely affect any of the aforementioned critical habitat units. On September 10, 2014, NMFS published a final rule listing as threatened 20 coral species under the Endangered Species Act. Four of the newly listed coral species are found in the Gulf of Mexico. In memos dated September 16, 2014, and October 7, 2014, NMFS determined that activities associated with the subject FMP will not adversely affect any of the newly listed coral species. In the October 7, 2014, memo NMFS also determined that although the September 10, 2014, Final Listing Rule provided some new information on the threats facing *Acropora*, none of the information suggested that the previous determinations were no longer valid.

Other species of reef fish are also incidentally caught when targeting red grouper. In the eastern Gulf of Mexico, gag, vermilion snapper, greater amberjack, red snapper, scamp, black grouper, and other shallow-water grouper, are caught as bycatch when targeting grouper. Vermilion snapper are not overfished or undergoing overfishing (SEDAR 9 2006a) and bycatch is not expected to jeopardize the status of this stock. The 2014 stock assessment (SEDAR 33 2014) determined that greater amberjack is overfished and experiencing overfishing and the stock did not meet the 10-year rebuilding plan that ended in 2012. Greater amberjack release mortality is estimated to be fairly low, ranging from 10% to 20%. Discards are higher for commercially caught greater amberjack than they are for recreationally caught greater amberjack because of differences in minimum size limits (36 inches FL commercial vs. 30 inches FL recreational). Because greater amberjack are pelagic and grouper are bottom fish, bycatch of greater amberjack is relatively low when fishing for shallow-water grouper and likely not greatly affected by changes in grouper management measures.

In contrast, red snapper have been increasing in abundance in the eastern Gulf of Mexico over the past two decades and fishermen have indicated they are discarding more red snapper. Most commercial grouper fishermen in the eastern Gulf of Mexico were allocated few red snapper individual fishing quota shares, and therefore are unable to retain large quantities of red snapper

when fishing for grouper. Bycatch is a significant source of mortality for red snapper, resulting in the Council approving actions in Joint Reef Fish/Shrimp Amendment 27/14 to reduce directed fishery bycatch. The statuses of other shallow-water grouper species, such as scamp are unknown. Most trips target red, gag, and black grouper, and capture other shallow-water groupers incidentally. Bycatch is not known to be significant for these species, because the remaining shallow-water grouper species (e.g., yellowmouth grouper, yellowfin grouper, and scamp) have no or small minimum size limits (e.g., scamp – 16 inches TL).

Practicability of current management measures in the directed shallow-water grouper fishery relative to their impact on bycatch and bycatch mortality.

Bycatch and bycatch mortality can negatively affect a stock by reducing the number of fish that survive and become susceptible to harvest. Fishery management regulations are intended to constrain effort and control fishing mortality, but in some cases increase bycatch or bycatch mortality. When proposing fishing regulations, managers must balance the competing objectives of maximizing yield, ending overfishing, and reducing bycatch to the extent practicable.

The bycatch practicability analysis in Amendment 32 (GMFMC 2011b) describes current management measures and their relative impact on bycatch and bycatch mortality for shallow-water grouper. The commercial harvest of shallow-water grouper has been managed with trip limits, quotas, gear restrictions, minimum size limits, and a one-month closed season (applies to gag, red grouper, and black grouper only); however, with the implementation of the individual fishing quota program, the trip limits and closed season were removed. The recreational harvest of shallow-water grouper has been managed with size limits, bag limits, and a two-month closed season (applies to all shallow-water grouper). There are also several restricted fishing areas intended to protect reef fish and spawning aggregations.

Alternatives being considered to minimize bycatch

Reductions in dead discards can be accomplished either by reducing the number of red grouper and shallow-water grouper discarded or reducing the release mortality rate of discards. To reduce the number of grouper discards, management measures limit fishing effort, change the selectivity of fishing gears, or change the fishing behavior of fishermen in such a way that reduces the harvest of sublegal and closed season fish. To reduce the discard mortality rate of red grouper and other shallow-water grouper, sources of release mortality must first be identified (i.e., depth, hooking, surface interval) and management measures be imposed to reduce discard mortality rates.

Amendment 38 adjusted the post-season AM that would close recreational harvest of one species of grouper while allowing other species to be harvested could result in incidental harvest of the species that is closed. On the other hand, closing all shallow-water grouper species to recreational harvest could result in incidental harvest of shallow-water grouper from fishermen targeting non-grouper species such as cobia, greater amberjack, or mangrove snapper. The current framework considers modifying the bag limit for red grouper, removing the bag limit reduction, and modifying or removing the closed season. Establishing a closed season specific to

red grouper may not reduce the bycatch as fishermen continue to target other shallow water grouper.

Practicability Analysis

Criterion 1: Population effects for the bycatch species

As described in Amendment 30B (GMFMC 2008b), for the red grouper stock, total dead discards have increased significantly since the implementation of minimum size limits. For red grouper, commercial dead discards, on average, have been greater than recreational discards.

The individual fishing quota system used for commercial harvest of shallow-water grouper would continue to serves as the accountability measure (AM) for the commercial sector. The modifications to the bag limits and closed season would only affect the recreational sector. The AMs for the recreational sector would continue to be an in-season closure if the annual catch limit (ACL) was met or projected to be met, or if the ACL was exceeded in the preceding year, an in-season closure if the annual catch target (ACT) was met or projected to be met. This AM would result in an additional closed season for the remainder of the fishing year.

The proposed actions are not expected to result in measurable changes to current bycatch levels. Based on the SEDAR 9 update assessment, red grouper is at or near its optimum yield biomass levels, and the stock is unlikely to be harmed by existing bycatch.

Criterion 2: Ecological effects due to changes in the bycatch red grouper (effects on other species in the ecosystem)

The relationships among species in marine ecosystems are complex and poorly understood, making the nature and magnitude of ecological effects difficult to predict with any accuracy. The most recent red grouper stock assessment updates (SEDAR 10 update 2009, SEDAR 12 update 2009) indicated an episodic mortality event in 2005 (possibly due to red tide) reduced both the red grouper and gag stocks. The red grouper stock was not reduced sufficiently to be considered overfished, and is currently at or near its optimum yield biomass level. This allowed the Council to increase the ACL and the red grouper bag limit in Amendment 32 and in a 2011 Red Grouper Regulatory Amendment (GMFMC 2011), which should reduce discards. Changes in the bycatch of red grouper and other shallow-water grouper are not expected to directly affect other species in the ecosystem. Although birds, dolphins, and other predators may feed on grouper discards, there is no evidence that any of these species rely on grouper discards for food.

Criterion 3: Changes in the bycatch of other species of fish and invertebrates and the resulting population and ecosystem effects

Population and ecosystem effects resulting from changes in the bycatch of other species of fish and invertebrates are difficult to predict. As discussed in Amendment 30B (GMFMC 2008b), snappers, greater amberjack, gray triggerfish and other reef fishes are commonly caught in association with shallow-water grouper. Some of these species are in rebuilding plans (red

snapper, gray triggerfish, and greater amberjack) with the stocks improving. Regulatory discards contribute to fishing mortality in all of these reef fish fisheries.

Modifying the bag limit for red grouper would still allow recreational fishing for other shallow-water grouper while red grouper is closed and reduce bycatch of shallow-water grouper by fishermen targeting other species.

Criterion 4: Effects on marine mammals and birds

The effects of current management measures on marine mammals and birds are described above. Actions evaluated in this amendment are not expected to significantly affect marine mammals and birds. There is no information to indicate marine mammals and birds rely on grouper for food, and measures in this amendment are not anticipated to alter the existing prosecution of the fishery, and thus interactions with marine mammals or birds.

Criterion 5: Changes in fishing, processing, disposal, and marketing costs

The modification to the bag limits for red grouper would have, if any, slightly positive impacts on charter and headboats, tackle and bait shops, and other commercial activities that support recreational grouper fishing, and provide beneficial impacts to these activities if the season is extended through the year. Because the actions being considered in this amendment only affecting the recreational sector, there would be no impact to the commercial sector.

Criterion 6: Changes in fishing practices and behavior of fishermen

The modification to the bag limits for red grouper may slightly affect fishing practices and behavior of recreational fishermen. As the season closure would apply to all shallow-water grouper, fishermen could target other species such as greater amberjack or cobia. Their success in targeting other species while avoiding the species for which the season is closed depends on the knowledge and skill of the fishermen or the operator and crew of the charter or headboat on which the fisherman is fishing. Modifying the bag limit is not likely to change the fishing practices as it has oscillated over the past few years.

Criterion 7: Changes in research, administration, and enforcement costs and management effectiveness

Proposed management measures are not expected to significantly impact administrative costs. Managers are currently required to monitor recreational red grouper harvests to project when the ACL would be reached. This requirement would continue. Enforcement would continue to be required to enforce recreational bag limits and closed seasons for red grouper. All of these measures would require additional research to determine the magnitude and extent of impacts to bycatch and bycatch mortality.

Criterion 8: Changes in the economic, social, or cultural value of fishing activities and non-consumptive uses of fishery resources

Keeping the current closed season and lowering the bag limit is expected to extend the season later into the fishing year until the recreational ACL is reached. Allowing other shallow-water grouper to be harvested if the red grouper closed season is adjusted in the following year would benefit the economic, social and cultural value of the recreational grouper sector by allowing continued year-round harvest to occur (except for the February-March fixed closed season). To the extent that fishermen can avoid catching gag or red grouper while targeting other species, discards of red grouper could be reduced. To the extent that fishermen can avoid catching red grouper while targeting other species, discards of red grouper could be reduced.

Criterion 9: Changes in the distribution of benefits and costs

No changes in red grouper or shallow-water grouper allocation would occur, resulting in no change to the distribution of benefits and costs associated with bycatch.

Criterion 10: Social effects

Bycatch is considered wasteful because it reduces overall yield obtained from the fishery. Measures that reduce bycatch to the extent practicable will increase efficiency, reduce waste, and benefit stock recovery, thereby resulting in net social benefits. However, measures that prohibit access to stocks that are not overfished can result in economic and social disruption, and can prevent or reduce the likelihood of attaining optimum yield. Managers must balance the competing objectives of maximizing yield, ending overfishing, and reducing bycatch to the extent practicable. The modifications to the recreational bag limit for red grouper would extend the season through the fishing year and provide more opportunities to harvest red grouper. While a reduced bag limit may shift fishing effort to other species, remaining open for more fishing days would benefit the fishermen and reduce disruptions to the recreational sector without changing bycatch levels.

CONCLUSIONS

Analysis of the ten bycatch practicability factors indicates there would be minimal biological impacts associated with modifying the recreational bag limits and closed season for red grouper. The main benefit of this action is improving the recreational opportunity to harvest red grouper while restraining harvest to the recreational ACL.

When determining reductions associated with various management measures, release mortality was factored into the analyses, to adjust the estimated reductions for losses due to dead discards. The increases in discards associated with each of these management measures varies and is contingent on assumptions about how fishermen's behavior and fishing practices would change. In this action, none of the alternatives is expected to increase bycatch relative to the status quo.

Consequently, the actions in this amendment, combined with previous actions, are intended to allow the optimum yield to be taken by the recreational sector, while, to the extent practicable, minimizing bycatch and bycatch mortality.