

Framework Action to set the 2013 Gag Recreational Fishing Season & Bag Limit & Modify the February-March Shallow-Water Grouper Closed Season

(including environmental assessment, regulatory impact review, and regulatory flexibility act analysis)



Final Reef Fish Framework Action to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico

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Environmental Assessment Cover Sheet

Name of Action

Framework Action to set the 2013 Gag Recreational Fishing Season and Bag Limit and Modify the February-March Shallow-Water Grouper Closed Season

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Abstract

Gulf of Mexico gag is overfished and the stock is currently in a rebuilding plan. The rebuilding plan is scheduled to increase the recreational annual catch target from 1.031 to 1.287 million pounds in 2013. The current recreational gag season is July 1 to October 31 and was designed to limit the harvest to the 2012 recreational annual catch target of 1.031 million pounds while providing the longest possible recreational season. One purpose of this framework action is to establish a 2013 gag recreational fishing season consistent with the 1.287 million pound annual catch target. Moving the open season starting date or splitting the season so it is open at a time when there is greater fishing effort would reduce the number of days available to fish. Maintaining a single season starting date at July 1 would allow more days fishing, but at a time when there is less recreational demand to fish for gag. To allow additional days in the open season, the framework action also considers setting a 1-fish bag limit for gag rather than 2-fish.

The current recreational shallow-water grouper closed season of February 1 through March 31 was developed partly to protect gag spawning aggregations. However, because a separate recreational gag season has been developed as part of the gag rebuilding plan and other shallow-water grouper stocks are considered healthy, the utility of the shallow-water grouper closure has been questioned. In addition, much of the dominant gag spawning grounds are now protected by time-area closures. Therefore, a second purpose of this framework action is to evaluate the shallow-water grouper recreational closure to see if it should be modified or eliminated.

ABBREVIATIONS USED IN THIS DOCUMENT

ABC	Acceptable biological catch
ACL	Annual catch limit
ACT	Annual catch target
AM	Accountability measure
AP	Advisory panel
APA	Administrative Procedure Act
B	Biomass (B_{MAX} = biomass at maximum yield per recruit)
CFR	Code of Federal Regulations
CPI	Consumer price index
CZMA	Coastal Zone Management Act
DQA	Data Quality Act
EA	Environmental assessment
EEZ	Exclusive economic zone (federal waters)
EFH	Essential fish habitat
EIS	Environmental impact statement
EJ	Environmental Justice
E.O.	Executive order
ESA	Endangered Species Act
F	Fishing mortality rate
FMP	Fishery management plan
FWC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic information system
GMFMC	Gulf of Mexico Fishery Management Council
gw	Gutted weight
HAPC	Habitat area of particular concern
IFQ	Individual fishing quota
LOF	List of fisheries (categorized for marine mammal interactions)
M	Natural mortality rate
MFMT	Maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
MPA	Marine protected area
MRFSS	Marine Recreational Fisheries Statistics Survey
MRIP	Marine Recreational Information Program
MSST	Minimum stock size threshold
MSY	Maximum sustainable yield
NAICS	North American Industry Classification System
NMFS	NOAA's National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	Overfishing limit
OY	O Spawning potential ratio optimum yield
PAH	Polyaromatic hydrocarbons
PRA	Paperwork Reduction Act
RFA	Regulatory Flexibility Act
RFAA	Regulatory Flexibility Act analysis

RIR	Regulatory impact review
SEDAR	Southeast Data, Assessment, and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office of NMFS
SPR	Spawning potential ratio
SSB	Spawning stock biomass
SSC	Scientific and Statistical Committee
SWG	Shallow-water grouper
VOC	Volatile organic compounds

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CHAPTER 1. INTRODUCTION

1.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires the National Marine Fisheries Service (NMFS) and regional fishery management councils to end overfishing, rebuild overfished stocks, and achieve, on a continuing basis, the optimum yield from federally managed fish stocks. These mandates are intended to ensure fishery resources are managed for the greatest overall benefit to the nation, particularly with respect to providing food production and recreational opportunities, and protecting marine ecosystems. To further this goal, the Magnuson-Stevens Act requires fishery managers to specify through rebuilding plans their strategy for rebuilding overfished stocks to a sustainable level within a certain period, and to minimize bycatch and bycatch mortality to the extent practicable.

Gulf of Mexico Fishery Management Council

- Responsible for conservation and management of fish stocks.
- Consists of 11 voting members who are appointed by the Secretary of Commerce, 1 voting member representing each of the five Gulf states, and the Regional Administrator for the National Marine Fisheries Service Southeast Region.
- Responsible for developing fishery management plans and recommending regulations to the National Marine Fisheries Service for implementation.

National Marine Fisheries Service

- Responsible for preventing overfishing while achieving optimum yield.
- Approves, disapproves, or partially approves Council recommendations.
- Implements regulations.

Recreational Gag Fishing Season

The gag stock was first assessed in 1997 when a stock assessment concluded that gag, although not overfished, may be undergoing overfishing (Schirripa and Legault 1997, GMFMC 1998a). In 2006 and 2007, the Southeast Data, Assessment, and Review (SEDAR) 10 (2006) assessment and a subsequent 2007 reanalysis with corrected dead discard estimates (NMFS 2007) concluded that the gag stock was undergoing overfishing. In response to the SEDAR 10 findings, Amendment 30B (GMFMC 2008a) created management measures (implemented in 2009) that reduced the gag recreational bag limit, increased the length of the winter recreational season closure, and expanded the closure from gag, red, and black grouper to all shallow-water grouper.

A 2009 update stock assessment of the Gulf of Mexico gag stock (SEDAR 10 Update 2009) indicated the gag stock had diminished. A large part of the decline was attributed to an episodic mortality event in 2005 (most likely associated with red tide) that resulted in an additional 18% of the gag stock being killed in addition to the normal natural and fishing mortalities¹. The 2008 spawning stock biomass was estimated to be 47% of its minimum stock size threshold and the mean fishing mortality rate during 2005-2007 was estimated to be nearly 2.5 times higher than the maximum fishing mortality threshold. Based on these results, the NMFS Regional Administrator notified the Council on August 11, 2009 of his determination that the gag stock was both overfished and undergoing overfishing. In response, the Council initiated Amendment 32 to address this status and develop a stock rebuilding plan in accordance with the Magnuson-Stevens Act National Standard Guidelines. Until long-term management measures from Amendment 32 could be put in place, the Council requested interim measures for 2011. This included a gag closure for the recreational sector except for a two-month fishing season from September 16 through November 15. Management measures from Amendment 32, including a July 1 through October 31 gag fishing season, became effective in March 2012. The gag rebuilding plan established in Amendment 32 allows harvests to increase as the stock recovers (Table 1.1.1).

Table 1.1.1. Gag acceptable biological catch (ABC), unadjusted sector allocations of annual catch limit (ACL), and annual catch target (ACT) for 2012-2015. All values are in million pounds gutted weight and are based on the January 2011 SSC re-evaluation of gag acceptable biological catch.

Year	ABC	Unadjusted Sector ACL		Unadjusted Sector ACT	
		Commercial (39%)	Recreational (61%)	Commercial (39%)	Recreational (61%)
2011	1.58	0.616	0.964	0.499	0.781
2012	2.02	0.788	1.232	0.659	1.031
2013	2.45	0.956	1.495	0.823	1.287
2014	2.82	1.100	1.720	0.971	1.519
2015+	3.12	1.217	1.903	1.092	1.708

Source: Adapted from Reef Fish Amendment 32's Table 1.4.1.1

¹ B. Linton, Southeast Fisheries Science Center, pers. comm..

Annual Catch Limits

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

Annual Catch Targets

A harvest level set lower than the Annual Catch Limit to create a buffer so that overharvest does not occur.

Accountability Measures

Measures taken to prevent harvest from exceeding the Annual Catch Limit and if exceeded can mitigate or correct the overage.

As the Council developed gag management measures through the interim rule and Amendment 32, the public expressed preferences for different seasons. In public testimony², some fishermen in the northern Gulf of Mexico stated that they would prefer the gag season to be open when red snapper season is open, because the two species are frequently found together. This would mean a June or July opening. Other testimony from fishermen in southwest Florida expressed a preference for a winter gag season (November), in order to take advantage of their tourist season. Additional discussion between fishermen and Council staff indicated that some prefer a March or April opening to take advantage of the spring break tourist season.

Given the divergence of public opinion about when the gag season should occur, and a desire to provide the longest possible season consistent with the gag rebuilding plan, the Council settled on a 2012 gag recreational season of July 1 through October 31. However, many fishermen objected to having the season at this time of the year. Larger gag tend to be further offshore, an area where many recreational fishermen do not fish. In addition, this puts the season during a time when summer thunderstorms occur and can put fishermen in danger. As a result, the Florida Fish and Wildlife Conservation Commission (FWC) received requests for an alternative season in state waters. These requests were strong enough that the FWC implemented two area-based seasons for 2012. These were an April 1 through June 30 season for state waters off Florida's Big Bend (Taylor, Jefferson, Wakulla, and Franklin Counties) and a July 1 through October 31 season for state waters off the rest of the Florida Gulf coast counties (consistent with the federal season).

At the April 2012 Council meeting, the Council representative for FWC requested that a split season for gag be considered in 2013. In addition to the testimony discussed above, the FWC representative indicated that FWC had heard the following regional preferences for gag fishing seasons³:

² Council minutes, February 2011

³ J. McCawley, Florida Fish and Wildlife Conservation Commission, pers. comm.

- June or July through October from the Florida Panhandle region to allow fishing for gag during the red snapper season and include the Destin Rodeo (occurs in October).
- March through May from the Florida Big Bend and central Florida regions to allow for fishing when gag are closer inshore and include the spring break tourist season.
- November through January from mostly the southwest Florida region to allow fishing during the winter tourist season.

February 1 through March 31 Shallow-Water Grouper Closed Season

The February 1 through March 31 shallow-water grouper closed season was initially developed as a commercial closed season to protect gag spawning aggregations. It was implemented through a 1999 framework action that closed the commercial harvest of gag, black grouper, and red grouper from February 15 to March 15 of each year beginning in 2001 (GMFMC 1999a).

Although the closed season primarily benefited gag, which spawn from December through mid-May with a peak in February through March (Koenig et al. 1996), it also provided some protection to other grouper species that spawn during all or part of that period (Table 2.1.3). Black grouper have a peak spawning season from February to April (SEDAR 19 2010) and red grouper have a peak spawning period from March to May (Fitzhugh et al. 2006). Scamp also have a peak spawning season from March to mid-May (Craig et al. 2012). This closed season was discontinued in Amendment 30B (GMFMC 2008a) for the commercial sector for several reasons. One was a tradeoff between being able to fish year-round with a four-month area closure of the Edges, which is an important gag spawning region. Another reason was in anticipation of the implementation of the individual fishing quota (IFQ) program for groupers and tilefishes beginning in 2010. If this action was not taken in Amendment 30B, it would likely have been taken in Amendment 29 (GMFMC 2008b), the amendment that established the IFQ program.

Species in the Recreational Shallow-Water Grouper Complex

- Black Grouper
- Red Grouper
- Gag
- Yellowfin grouper
- Scamp
- Yellowmouth grouper

A framework action established a February 15 through March 15 seasonal closure on gag, black grouper and red grouper for the recreational sector (GMFMC 2006a). The Council developed this management measure in conjunction with other management measures to reduce recreational harvest of red grouper, which had exceeded its target catch limit in 2003 and 2004, by 33%. The Council lengthened the recreational season closure to February 1 through March 31 and applied it to all shallow-water grouper while increasing the red grouper bag limit from one to two fish via Amendment 30B (GMFMC 2008a). NMFS implemented this action in May 2009 as part of a suite of actions to reduce overfishing of gag while allowing a greater harvest of red grouper.

At its April 2012 meeting, the Council responded to public input that questioned the utility of the current February 1 through March 31 recreational shallow-water closure. As mentioned above,

the closed season was a part of a suite of recreational measures designed to achieve target harvest levels for both red grouper and gag. Part of the rationale for selecting the February 1 through March 31 closed season was to protect spawning of shallow-water grouper species, and in particular gag. However, with the Edges, Steamboat Lumps, and Madison-Swanson area closures, gag spawning and spawning aggregations already receive some protection. In addition, gag are also closed during an extended season closure that includes February and March as part of a suite of management measures designed to prevent overfishing and rebuild the overfished gag stock. Furthermore, the dominant gag spawning areas are well offshore in depths of approximately 40 fathoms, beyond the range of many recreational fishermen. Therefore, the current February 1 through March 31 recreational shallow-water closure does little to manage gag. Red and black grouper are not considered overfished or undergoing overfishing, and along with the other shallow-water grouper species, are managed with annual catch limits and accountability measures to prevent overfishing from occurring. Therefore, the benefit of the current shallow-water grouper closure may be minimal.

1.2 Purpose and Need

Purpose for Action

The purpose of this amendment is to establish a 2013 gag recreational fishing season and to evaluate the continued need for the shallow-water grouper closure.

Need for Action

The need for the proposed actions is to prevent overfishing and to achieve the optimum yield from the stocks of the shallow-water grouper complex.

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 fishery management plan (FMP). More information on the Reef Fish FMP can be obtained from the Council at http://www.gulfcouncil.org/fishery_management_plans/index.php.

Grouper in the fishery management unit:

Management measures from the Reef Fish FMP [with its associated environmental impact statement (EIS)] were implemented in November 1984 (GMFMC 1981). The original list of species included in the management unit consisted of snappers, groupers, and sea basses. A secondary list of species that did not include any grouper species was designated for purposes of data collection, but their harvest was not regulated. Species have been added and removed through **Amendments 1** and **15** [with their associated environmental assessment (EA), regulatory impact review (RIR), and regulatory flexibility analysis (RFA)], but these changes did not affect the grouper species. The secondary list of species identified in the original FMP was merged into the management unit through **Amendment 16B** (with its associated EA, RIR, and RFA) and became effective in November 1999 (GMFMC 1999c). The **Generic Annual Catch Limits/Accountability Measures Amendment for the Gulf of Mexico Fishery Management Council's Red Drum, Reef Fish, Shrimp, Coral and Coral Reefs Fishery Management Plans (Generic ACL/AM Amendment)** (with its associated EIS, RIR, and RFA) gave jurisdiction to managing Nassau grouper to the South Atlantic Fishery Management Council and removed red hind, rock hind, and misty grouper from the management unit due to low landings. Measures from this amendment were implemented in January 2012. There are currently 11 grouper stocks in the management unit. For purposes of recreational management, shallow-water grouper consist of gag, red grouper, black grouper, scamp, yellowfin grouper, and yellowmouth grouper (the latter four are collectively referred to as other shallow-water grouper). Deep-water grouper consist of Warsaw grouper, snowy grouper, speckled hind, and yellowedge grouper. One grouper, goliath grouper, is a protected species.

Stock status:

Amendment 1 (with its associated EA, RIR, and RFA) became effective in 1990 (GMFMC 1989). The primary objective of this amendment was the stabilization of long-term population levels of all reef fish species by establishing a spawning age survival rate to achieve at least 20% spawning stock biomass per recruit (SSBR), relative to the SSBR that would occur with no fishing. The objective of managing for 20% SSBR was revised to a 20% spawning potential ratio (SPR) in **Amendment 3** (with its associated EA, RIR, and RFA), with measures implemented in July 1991 (GMFMC 1991). Measures in the **Generic Sustainable Fisheries Act Amendment** (with its associated EA, RIR, and RFA), were partially approved and implemented in November 1999 (GMFMC 1999b). This amendment set the maximum fishing mortality threshold (MFMT) for most grouper species at $F_{30\% \text{ SPR}}$. The exceptions were goliath grouper and Nassau grouper where the MFMT was set at $F_{50\% \text{ SPR}}$. Measures for the maximum sustainable yield (MSY), minimum stock size threshold (MSST), and optimum yield (OY) were disapproved because they were based on spawning potential ratio (SPR) proxies rather than biomass based estimates. These parameters are currently set on a stock by stock basis when stock assessments are produced that indicate the stock is in need of management measures. The Council is currently developing a plan amendment to establish default levels for these parameters for all of the remaining reef fish stocks.

Red grouper were declared overfished and undergoing overfishing in October 2000. **Secretarial Amendment 1** (with its associated EA, RIR, and RFA) (GMFMC 2004a) implemented a red grouper rebuilding plan and set red grouper status determination criteria. The amendment revised the MFMT value from $F_{30\% \text{ SPR}}$ to F_{MSY} and set the values for MSY, OY and MSST at the following levels: the yield at F_{MSY} , the yield at $75\% * F_{\text{MSY}}$, and 80% of the stock biomass (B) capable of producing MSY. In 2007, the stock was determined to be recovered. Annual catch limits (ACLs) were implemented for red grouper in **Amendment 30B** (with its associated EIS, RIR, and RFA) in May 2009 (GMFMC 2008a). The overfishing limit (OFL) was defined in **Amendment 32** (with its associated EIS, RIR, and RFA) (GMFMC 2011b) with management measures being implemented in March 2012.

Gag were determined to be undergoing overfishing in October 2006. Management measures from **Amendment 30B** (GMFMC 2008a), implemented May 2009, were developed to end overfishing. This amendment also established a gag MSY proxy, OY proxy, and MSST at the following levels: the yield at F_{MAX} , the yield at $75\% * F_{\text{MAX}}$, and $(1 - M) * B_{\text{MAX}}$ where M is the natural mortality rate and MAX refers to the maximum yield per recruit. Measures from **Amendment 30B** implemented sector specific ACLs and ACTs for gag. As a result of an update assessment of gag in 2009, the Council was notified that overfishing was still occurring and that the gag stock was overfished. In response, the Council developed a rebuilding plan in **Amendment 32** (with its associated EIS, RIR, and RFA) with management measures being implemented in March 2012. **Amendment 32** also defined the gag OFL.

For the other shallow-water grouper species, the **Generic ACL/AM Amendment** (GMFMC 2011a) established sector specific other shallow-water grouper ACLs. This amendment also established an ABC control rule and ACL/ACT control rule. Measures from this amendment were implemented in January 2012.

Accountability measures:

The 2006 reauthorization of the Magnuson-Stevens Act required the Council and NMFS develop accountability measures to prevent ACLs from being exceeded, and if exceeded, correct or mitigate any overages. **Amendment 30B** (GMFMC 2008a) established accountability measures for red grouper and gag. These accountability measures would limit future increases in ACTs and reduce the length of the shallow-water grouper fishing season in the following year if the recreational ACLs were exceeded. In addition, the commercial sector would be closed to shallow-water grouper fishing if the gag, red grouper, or shallow-water grouper quotas are reached within the fishing year. Actions from **Amendment 32** (with its associated EIS, RIR, and RFA) (GMFMC 2011b), implemented on March 12, 2012, revised the gag and red grouper accountability measures. For the commercial sector, the accountability measures became the individual fishing quota program put in place through **Amendment 29** (with its associated EIS, RIR, and RFA) (GMFMC 2008b) in January 2010. For the recreational sector, gag and red grouper accountability measures added an overage adjustment if the stock is under a rebuilding plan and an in-season closure authority if gag or red grouper recreational landings are projected to exceed the recreational ACL within the fishing year. **Amendment 38** (with its associated draft EIS, RIR, and RFA) (GMFMC 2012a) was recently submitted to NMFS by the Council and is currently under review by NMFS. This amendment proposes to modify post-season recreational accountability measures for shallow-water grouper species.

Allocation:

Amendment 1 (GMFMC 1989) provided a procedure for specifying the total allowable catch (TAC). In this procedure, it specified allocations between the commercial and recreational sectors should be based on historical landing percentages from the base time period of 1979 through 1987. The Council established temporary allocations for gag and red grouper in **Amendment 30B** (GMFMC 2008a) based on 1986-2005 landings. The recreational:commercial allocations were 61:39 for gag and 24:76 for red grouper. An allocation was developed for black grouper in the **Generic ACL/AM Amendment** (GMFMC 2011a). The allocation was based on the years 2004-2008 with the recreational:commercial allocation set at 27:73.

Bag limits:

Amendment 1 (GMFMC 1989) established a five-grouper aggregate bag limit. Additional restrictions were put in place through **Amendment 16B** (with its associated EA, RIR, and RFA) (GMFMC 1999c) which set a daily bag limit of one speckled hind and one warsaw grouper per vessel. **Amendment 18A** (with its associated EA, RIR, and RFA) (GMFMC 2005a) was implemented September 2006 with a prohibition of vessels from retaining reef fish caught under recreational bag/possession limits when commercial quantities of reef fish are aboard. In response to overfishing of red grouper, **Secretarial Amendment 1** (with its associated EIS, RIR, and RFA) (GMFMC 2004a) established a 2-fish red grouper bag limit within the aggregate grouper bag limit in 2004. Both the red grouper and grouper aggregate bag limit were decreased through a 2005 interim rule (with its associated EA and RFA) to one red grouper and three grouper, respectively. The aggregate bag limit was increased back to its original five-fish possession limit through a 2006 framework action (with its associated EA, RIR, and RFA),

however, the red grouper bag limit remained at one fish. In response to gag overfishing, a 2006 interim rule (with its associated EA and RFA) was developed that implemented a 2-fish gag limit within the 5-grouper aggregate bag limit. This measure was followed by **Amendment 30B** (GMFMC 2008a) that established a 4-fish grouper aggregate bag limit of which no more than two fish could be gag and no more than two fish could be red grouper. A 2011 framework action (with its associated EA, RIR, and RFA) (GMFMC 2011c) increased the red grouper bag limit to four fish and **Amendment 32** (GMFMC 2011b) developed an accountability measure such that if the red grouper ACL is exceeded, the red grouper bag limit would decrease to three fish the first time, and then to two fish if the ACL was exceeded again.

Season closures:

A 1999 framework action (with its associated EA, RIR, and RFA) established a February 15 to March 15 season closure for the commercial harvest of gag, black, and red grouper (GMFMC 1999a). Although implemented primarily to protect gag spawning aggregations, this closure was applied to red and black grouper to effectively keep fishermen from targeting shallow-water grouper species during the closure. The recreational sector was included in the closure through a 2006 framework action (with its associated EA, RIR, and RFA). To address gag overfishing, the recreational closed season was extended for gag from February 1 to March 31 in a 2009 interim rule (with its associated EA and RIR). **Amendment 30B** applied this extended closed season to all shallow-water grouper species beginning in the 2010 fishing season. In response to a change in status for gag (overfished and undergoing overfishing), the 2011 recreational gag fishing season was limited to September 16–November 15 via a December 2010 interim rule (with its associated EA and RIR) (NMFS 2010). A July 1–October 31 gag recreational fishing season was put in place through **Amendment 32** (GMFMC 2011b) as part of a gag rebuilding plan.

Area Closures:

Two areas, Madison-Swanson and Steamboat Lumps were closed to all fishing through a 1999 framework action (with its associated EA, RIR, and RFA) (GMFMC 1999a) that was implemented in 2000 to protect gag spawning aggregations. The marine reserves were initially set to last for 4 years to test the effects of these closures on protecting gag. This limit was extended through **Amendment 21** (with its associated EA, RIR, and RFA) (GMFMC 2003) through 2010 to allow more time to study the effect of the reserves. The areas were made into permanent closures through **Amendment 30B** (GMFMC 2008a) which was effective in 2009. **Amendment 30B** also established the Edges, a larger area along the 40-fathom break that is closed to all fishing January 1 through April 30, to provide additional protection to gag spawning areas.

Amendment 19 (with its associated EIS, RIR, and RFA), also known as the Generic Amendment Addressing the Establishment of the Tortugas Marine Reserves (GMFMC 2001), became effective in 2002. It established two marine reserves off the Dry Tortugas where fishing for any species and anchoring by fishing vessels is prohibited.

Amendment 1 (GMFMC 1989) 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. This boundary was revised for longlines through **Amendment 31** (with its associated EIS, RIR, and RFA) (GMFMC 2009) on May 26, 2010. The action prohibits the use of bottom longline gear shoreward of a line approximating the 35-fathom contour from June through August.

Framework:

The Council created a framework procedure for the specification of the TAC in **Amendment 1** (GMFMC 1989). Measures implemented through **Amendment 3** (with its associated EA, RIR, and RFA) (GMFMC 1991), implemented in July 1991, provided additional flexibility to the annual framework procedure allowing the target date for rebuilding an overfished stock to be changed. Implemented in 2006, **Amendment 18A** (with its associated EA, RIR, and RFA) (GMFMC 2005a) modified the framework to conform to changes in how stock assessments were conducted. A more open framework was developed to standardize framework procedures for implementing management changes through the **Generic ACL/AM Amendment** (GMFMC 2011a). The Council recently submitted **Amendment 38** (GMFMC 2012a) to NMFS, which would add modifying accountability measures to actions allowed under the framework procedure. This amendment is currently under review by NMFS.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1 - 2013 Recreational Gag Season and Bag Limit

Alternative 1: No action. The recreational gag season will remain July 1 through October 31 (123 days unless shortened due to a projection that the annual catch limit (ACL) will be reached sooner) and the bag limit will remain at two fish.

Preferred Alternative 2: Retain a single season that will remain open until the date that the annual catch target (ACT) is projected to be reached. The opening date for the season will be:

Option 2a: March 1 (beginning of Spring break season). The bag limit will be:

Suboption 2a(i): two fish (estimated season length 72-88 days);

Suboption 2a(ii): one fish (estimated season length 81-98 days).

Option 2b: June 1 (beginning of red snapper season). The bag limit will be:

Suboption 2b(i): two fish (estimated season length 86-137 days);

Suboption 2b(ii): one fish (estimated season length 95-149 days).

Preferred Option 2c: July 1 (same as status quo, but allow season to extend beyond October 31). The bag limit will be:

Preferred Suboption 2c(i): two fish (estimated season length 133-155 days);

Suboption 2c(ii): one fish (estimated season length 141-168 days).

Alternative 3: Establish two sub-seasons. The dates of each sub-season will be:

Option 3a: March 1 through March 31 and June 1 until the remainder of the ACT is projected to be caught. The bag limit will be:

Suboption 3a(i): two fish (estimated number of days open is 67-96 days);

Suboption 3a(ii): one fish (estimated number of days open is 80-112 days).

Option 3b: June 1 through June 30 and November 1 until the remainder of the ACT is projected to be caught. The bag limit will be:

Suboption 3b(i): two fish (estimated number of days open is 61-89 days);

Suboption 3b(ii): one fish (estimated number of days open is 73-103 days).

Option 3c: January 1 through January 31 and June 1 until the ACT is projected to be caught. The bag limit will be:

Suboption 3c(i): two fish (estimated number of days open is 60-86 days);

Suboption 3c(ii): one fish (estimated number of days open is 77-108 days).

Alternative 4: Establish three sub-seasons. The dates of each sub-season will be:

Option 4a: March 1 through March 31, June 1 through June 21, and November 1 until the remainder of the ACT is projected to be caught. The bag limit will be:

Suboption 4a(i): two fish (estimated number of days open is 68-89 days);

Suboption 4a(ii): one fish (estimated number of days open is 79-104 days).

Option 4b: April 1 through -April 30, July 1 through July 31, and a projected winter season ending December 31 that allows the remainder of the ACT to be caught. The bag limit will be:

Suboption 4b(i): two fish (estimated number of days open is 88-108 days);

Suboption 4b(ii): one fish (estimated number of days open is 103-130 days).

Discussion:

Increases in the recreational gag ACL and ACT for 2013 were established in Amendment 32 as part of the gag rebuilding plan, and are as shown in Table 2.1.1:

Table 2.1.1. Recreational Gag ACL and ACT for 2012 and 2013

Gag	2012	2013	Increase (pounds)	Increase (percent)
ACL	1.232 mp gw	1.495 mp gw	+0.263 mp gw	+21%
ACT	1.031 mp gw	1.287 mp gw	+0.256 mp gw	+25%

The recreational ACL (1.495 mp in 2013) is the maximum catch level allowed for the recreational sector. To reduce the likelihood of exceeding the ACL, management measures are based on the recreational ACT, which will be 1.287 mp in 2013. Exceeding the ACT does not automatically result in the recreational season being closed. However, the season would close early if the ACL is reached or projected to be reached.

For each of the alternative seasons in this action, the number of days that the season would remain open has been estimated based on high and low discard estimates from decision tools developed by the NMFS Southeast Regional Office (SERO). The estimated number of open days for each sub-season for each of the alternatives is summarized in Table 2.1.2. However, the final determination of season length would be made by SERO based on the available harvest estimates. For **Alternative 3** and **Alternative 4**, which split the recreational season into sub-seasons, the initial sub-seasons would be a fixed length, and the length of the final sub-season would be calculated by SERO.

In 2012, the recreational gag season was established as July 1 through October 31 to provide the longest season possible with a 2-fish bag limit for gag under the 2012 ACL and ACT. However, fishermen have expressed interest in being able to fish for gag during other times of the year, such as during the winter or spring break tourist seasons, or during the red snapper recreational season. As a result, several alternatives have been developed to either move the start of the recreational gag season to a different time, or to split the season into two or three sub-seasons. Moving the season to times when there is greater demand for gag fishing would reduce the number of days available to fish. Therefore, each alternative includes a suboption to set the gag bag limit at either 2-fish (status quo) or 1-fish to provide additional fishing days.

Table 2.1.2. Comparison of days open for 2013 recreational gag fishing seasons and bag limit alternatives. There are three types of season options: continuous, 2 sub-seasons, and 3 sub-seasons, with suboptions for 2 or 1 gag bag limits. With the 2 and 3 sub-season alternatives, the first 1 and 2 sub-seasons respectively are of fixed length. The length of the final sub-season, and the single season under Alternative 2, would be determined by NMFS prior to its opening. The projected range of days for each season and bag limit option in the matrix is based on high and low discard estimates from decision tools developed by the NMFS Southeast Regional Office (SERO).

Seasons								
Preferred Alt. 2 - Continuous			Alt. 3 - 2-sub-seasons			Alt. 4 - 3 sub-seasons		
<u>Opt 2a</u> Mar 1	<u>Opt 2b</u> Jun 1	<u>Pref.</u> <u>Opt 2c</u> Jul 1	<u>Opt 3a</u> Mar 1- 31 & Jun 1	<u>Opt 3b</u> Jun 1- 30 & Nov 1	<u>Opt 3c</u> Jan 1- 31 & Jun 1	<u>Opt 4a</u> Mar 1-31, Jun 1-21, & Nov 1 until ACT is reached	<u>Opt 4b</u> Apr 1-30, Jul 1-31, & season that ends Dec 31	
Bag Limits for Gag	Days Open Each Sub-season and Total							
Preferred Suboption i: two fish	72-88	86-137	133-155	(1) 31	(1) 30	(1) 31	(1) 31	(1) 30
				(2) 36-58	(2) 31-59	(2) 29-55	(2) 21	(2) 31
				(67-89 total)	(61-89 total)	(60-86 total)	(68-89 total)	(88-108 total)
Suboption ii: one fish	81-98	95-149	141-168	(1) 31	(1) 30	(1) 31	(1) 31	(1) 30
				(2) 49-81	(2) 43-73	(2) 46-77	(2) 21	(2) 31
				(80-112 total)	(73-103 total)	(77-108 total)	(79-104 total)	(103-130 total)

Alternative 1 retains the July 1 through October 31 recreational gag fishing season that was established in Amendment 32 along with the 2-fish bag limit for gag (within the 4-fish aggregate grouper bag limit). This provides a 123 day fishing season that was intended to allow the greatest number of fishing days in 2012 without exceeding the 2012 ACL. Because the ACT and ACL are scheduled to increase in 2013, this season may be too short to allow the recreational allocation to be harvested. However, other factors that may affect the length of the season include:

- Under rebuilding, abundance of gag should be higher, leading to higher catch per unit of effort.
- Average weight of a gag may be higher, leading to more pounds caught per angler trip.
- The ratio of undersized to legal sized gag may have changed, leading to a change in the number (and mortality) of released undersized fish.

Decision tool spreadsheets have been developed by SERO to estimate the number of days that the recreational season would be open for each of the options based on previous trends in catches. A range of possible season lengths was developed by using assumptions of high and low discard rates, and catch rates based on either a 2-fish or 1-fish bag limit. However, the final decision on when to close a season would be made by SERO prior to or during the season.

Preferred Alternative 2 retains the single season approach, but moves the start of the recreational season to what may be a more desirable time of the year. **Option 2a** moves the start of the season to March 1 to coincide with the beginning of spring break, and is expected to provide a season length of 72 to 88 days under **Suboption 2a(i)** – 2-fish bag limit, or 81-98 days under **Suboption 2a(ii)** – 1-fish bag limit (Table 2.1.2). However, this also occurs during the peak gag spawning season and during the beginning of the red grouper spawning season (see Table 2.1.3).

Table 2.1.3. Spawning seasons for shallow-water grouper

Species	Peak Season	Total Season
Gag	February - March	December - May
Red grouper	March - May	February – mid-July
Black grouper	February - April	November - May
Scamp	March – mid-May	February - July
Yellowmouth grouper	April - May	January - December
Yellowfin grouper	unknown	March - August

Source: gag: Hood and Schlieder 1992; red grouper: Fitzhugh et al. 2006; black grouper: SEDAR 19 2010; scamp: Craig et al. 2012; yellowmouth grouper: Bullock and Murphy 1994; yellowfin grouper: Cummings 2007.

Option 2b moves the start of the gag season to June 1 to coincide with the start of the recreational red snapper season, and is expected to provide a season length of 86 to 137 days under **Suboption 2b(i)** – 2-fish bag limit, or 95-149 days under **Suboption 2b(ii)** – 1-fish bag limit (Table 2.1.2). This allows fishermen an opportunity to fish for multiple trophy species while both seasons are open, but would likely result in a closed season during the winter tourist

season. Given recent trends in the red snapper season, the gag season is likely to remain open well after the red snapper season has closed.

Preferred Option 2c retains the current start date of July 1, but allows the closing date to extend beyond October 31. With an increase in the ACL and ACT scheduled for 2013, this option is expected to provide a season length of 133 to 155 days under **Preferred Suboption 2c(i)** – 2-fish bag limit, or 141-168 days under **Suboption 2c(ii)** – 1-fish bag limit (Table 2.1.2). This option provides the greatest number of fishing days, but most of the days are during a period when there is relatively low demand for gag fishing. Fishermen have expressed concerns that, during this time, gag are less available in areas commonly fished by recreational fishermen, and summer thunderstorms raise safety concerns.

Alternative 3 splits the gag season into two sub-seasons. The starting dates for each option are based on public comments provided to the Council and to the Florida Fish and Wildlife Conservation Commission (FWC). The first sub-season is fixed to one month in length. For the second sub-season, the opening date is set, but the season length would be determined by SERO based on estimates of how many days are needed to catch the remainder of the recreational ACT. For **Options 3b and 3c**, the start of the last sub-season is set so it occurs at least 60 days after the end of the Marine Recreational Information Program (MRIP) wave in which the previous sub-season occurs. This allows time for reporting and analysis of preliminary catch data from the previous sub-season. For **Option 3a**, the first sub-season ends in the middle of MRIP Wave 2 (March through April). Landings data from MRIP would not be available until approximately two weeks after the June 1 start of the second sub-season. Because all of the options are intended to provide an open season during periods of highest demand, this alternative would likely result in fewer fishing days than **Preferred Alternative 2**.

Option 3a sets two sub-seasons, with starting dates of March 1 and June 1. These starting dates correspond to the start of spring break and the start of the red snapper season. The first sub-season would last one month, March 1 through 31. The second sub-season would begin on June 1 and last for however many days are estimated by SERO to catch the remainder of the fish allowed by the recreational ACT. Under **Suboption 3a(i)** – 2-fish bag limit, the second sub-season is estimated to last 36-58 days. Under **Suboption 3a(ii)** – 1-fish bag limit, the second sub-season is estimated to last 49-81 days (Table 2.1.2).

In order to adopt **Option 3a**, in Action 2, the February through March fixed closed season on shallow-water grouper, or at least the March portion of the closed season, would need to be rescinded or modified.

At their August 2012 meeting, the Reef Fish advisory panel (AP) recommended a version of **Option 3a** be adopted, with sub-seasons of March 1 through April 15 and June 1 through July 15 (96 days) and the status quo 2-fish bag limit. The March 1 through April 15 sub-season was selected based on a perception by AP members who attended a recent FWC meeting that the FWC was adamant about having an open season during the March/April/May period. The June 1 through July 15 sub-season was selected to provide overlap with the red snapper recreational season. The AP did not discuss reducing the bag limit. The season analysis decision tools have been revised since the AP meeting. Therefore, the specific ending dates are no longer applicable.

Option 3b also sets two sub-seasons, with starting dates of June 1 and November 1. These starting dates correspond to the start of the red snapper season and the winter tourist season. The first sub-season would be one month, June 1 through 30. The second sub-season would begin on November 1 and last for however many days are estimated by SERO to catch the remainder of the fish allowed by the recreational ACT. Under **Suboption 3b(i)** – 2-fish bag limit, the second sub-season is estimated to last 31-59 days. Under **Suboption 3b(ii)** – 1-fish bag limit, the second sub-season is estimated to last 43-73 days (Table 2.1.2).

A concern with the November 1 start date is the possibility that, if catch rates are lower than expected and there is unused allocation after December 31, there would be no opportunity to reopen the season. A possible solution would be to set the closing date at December 31, and have SERO calculate the starting date needed for the recreational sector to harvest its remaining allocation, as described in **Alternative 4, Option 4b**. This would have a similar concern if the calculated season was too short, but it would allow the season to be open during the last week of the year, which is a highly desirable time to allow winter time fishing.

Option 3c sets two sub-seasons with starting dates of January 1 and June 1. These starting dates correspond to the winter tourist season and the start of the red snapper season like **Option 3b**. The first sub-season would be one month, January 1 through 31. The second sub-season would begin on June 1 and last for however many days are estimated by SERO to catch the remainder of the fish allowed by the recreational ACT. Under **Suboption 3c(i)** – 2-fish bag limit, the second sub-season is estimated to last 29-55 days. Under **Suboption 3c(ii)** – 1-fish bag limit, the second sub-season is estimated to last 46-77 days (Table 2.1.2). Note: This framework action cannot be implemented in time to provide a January 1 opening in 2013, but it is included to reflect a recommendation made by the Reef Fish AP in April 2011 to have a split season that included a January opening.

Alternative 4 splits the gag season into three sub-seasons. The first two sub-seasons are for fixed time periods. For the final sub-season, the season length would be determined by SERO based on estimates of how many days are needed to catch the remainder of the recreational ACT. For all options, the final sub-season occurs more than 60 days after the end of the wave for the preceding sub-season, allowing SERO time to receive and analyze the catches from the earlier sub-seasons when determining the length of sub-season 3. As with **Alternative 3**, all of the options are intended to provide an open season during periods of highest demand. Therefore, this alternative would likely result in fewer fishing days than **Preferred Alternative 2**, and is comparable to **Alternative 3**.

Option 4a sets three sub-seasons. The first two sub-seasons are March 1 through 31 and June 1 through 21, which correspond to spring break and the start of red snapper season. The third sub-season begins on November 1 to provide fishing during the winter tourist season, and would last for however many days are estimated by SERO to be needed to catch the remainder of the recreational ACT. Under **Suboption 4a (i)** – 2-fish bag limit, the third sub-season is estimated to last 16-37 days. Under **Suboption 4a(ii)** – 1-fish bag limit, the third sub-season is estimated to last 27-52 days (Table 2.1.2).

As with **Alternative 3, Option 3b**, a concern with the November 1 start date is the possibility that, if catch rates are lower than expected and there is unused allocation after December 31, there would be no opportunity to reopen the season. A possible solution would be to set the closing date at December 31, and have SERO calculate the starting date needed for the recreational sector to harvest its remaining allocation, as described in **Alternative 4, Option 4b**. This would have a similar concern if the calculated season was too short, but it would allow the season to be open during the last week of the year, which is a highly desirable time to allow winter time fishing.

Option 4b also sets three sub-seasons. The first two sub-seasons are April 1 through 30 and July 1 through 31, which correspond to late spring break and the start of the red snapper season. For the third sub-season, which corresponds to a winter tourist season, rather than set a starting date and have SERO calculate the ending date, an ending date of December 31 is set and SERO would calculate the starting date needed to provide enough days for the recreational sector to harvest its ACT. This guarantees that the season would be open during the holiday period between Christmas and New Years. There is still a possibility of unused allocation if SERO calculates too few days needed, but the number of days would not be limited by the end of the calendar year. Under **Suboption 4b(i)** – 2-fish bag limit, the third sub-season is estimated to last 27-47 days. Under **Suboption 4b(ii)** – 1-fish bag limit, the third sub-season is estimated to last 42-69 days (Table 2.1.2).

2.2 Action 2 - Modify the February-March Recreational Shallow-water Grouper Closure

Alternative 1: No action. Retain the February 1 through March 31 recreational closed season on shallow-water grouper.

Alternative 2: Modify the closed season as follows:

Option 2a: Shorten the season to February 15 through March 15 (return to the original closed season, during peak gag spawning)

Option 2b: Shift the closed season to be March through April in order to include spawning seasons for more species.

Alternative 3: Eliminate the February 1 through March 31 recreational closed season on shallow-water grouper. This does not preclude including these months in a closed season for an individual stock.

Preferred Alternative 4: Eliminate the February 1 through March 31 recreational closed season on shallow-water grouper in federal waters shoreward of the 20 fathom boundary. Seaward of the boundary, the closed season remains in effect.

Discussion:

The history of the shallow-water grouper closure is summarized in the Introduction. It was originally implemented as a one month (February 15 through March 15) commercial fishing closure to protect spawning aggregations of gag during the peak gag spawning season, as well as to provide lesser protection for red grouper and other stocks that spawn during this period. The closure was later extended to include the recreational sector, and expanded to two months. With implementation of the commercial grouper IFQ program and establishment of the Edges area closure in Amendment 30B, the closed season was repealed from the commercial sector in 2010.

Alternative 1 retains the February 1 through March 31 recreational closed season on shallow-water grouper. The closure applies not just to gag, but to all six shallow-water grouper species. Part of the rationale for creating the closed season was to protect gag spawning aggregations. However, the primary spawning grounds for gag are in depths near 40 fathoms between Panama City and Tampa Bay. This is beyond where most recreational fishermen fish. As discussed in Section 1.1, the gag spawning season closure was originally implemented as a commercial fishing regulation in 1999, and was extended to the recreational sector in 2006. In addition, much of the offshore spawning grounds bracketing the 40 fathom contour are protected during the gag spawning season by the Madison-Swanson, Edges, and Steamboat Lumps marine reserves. The protection provided by the marine reserves was part of the reason for repealing the commercial closed season in 2010. Other reasons included the implementation of the commercial IFQ system for grouper, and a tradeoff between being able to fish year-round with a four-month area closure of the Edges, which is an important gag spawning region. Another reason for closing the season to all recreational shallow-water grouper harvest rather than just gag was to prevent incidental bycatch of gag by fishermen targeting other grouper. Anecdotal

information suggests that when all shallow-water grouper are closed to harvest, fishermen target other species including mangrove snapper, greater amberjack, and cobia. These species are often caught by recreational fishermen in areas of high gag abundance⁴. Hierarchical cluster analysis of recreational landings show that gag catches are associated most closely with red grouper, but also other groupers as well as other non-grouper reef fish, particularly gray (mangrove) snapper (Figures 2.1 – 2.2, Farmer et al. 2010). Thus, a closure for all shallow-water grouper may be effective in reducing bycatch of gag in areas where red grouper are caught, but bycatch of gag is likely to continue in areas where other reef fish are caught.

Although gag spawn over a broad range of depths, the primary spawning grounds occur at approximately the 40 fathom contour (Koenig et al. 1996). This is in deeper water than many recreational vessels fish, and much of this area is off limits to bottom fishing due to the Madison-Swanson, Steamboat Lumps, and the Edges area closures. Gag have also been reported to form pre-spawning aggregations in shallower water. This closed season protects those inshore fish as well as the offshore spawners.

Alternative 2 retains the closed season, but modifies the dates or length of the season to cover spawning of other shallow-water grouper species. **Option 2a** shortens the season to February 15 through March 15, which was the original commercial closed season designed to protect peak gag spawning. There are three concerns with a closed season this short. First, due to effort shifting around the closed season it is too short to be effective. Second, the specific timing of the peak gag spawning is dependent upon environmental factors and can change from year to year. A two month or longer closed season is more likely to include the peak spawning than a one month closure. Third, recreational harvest of red grouper would increase as a result of having an additional month to fish. Recreational red grouper harvest has not exceeded its current ACL in recent years, but Amendment 32 increased the red grouper bag limit from two to four fish to allow an increased harvest. Adding another open month could result in the ACL being exceeded by providing recreational fishermen more opportunity to harvest red grouper. If the ACL is exceeded, the red grouper bag limit would be reduced to 3 fish in the following year, and the recreational season may be shortened for either red grouper or all shallow-water grouper (depending upon actions taken in Amendment 38). **Option 2b** keeps the length of the closed season at two months, but shifts it to March through April in order to provide protection for both gag and red grouper. This is similar to **Option 2a**, but with the shorter time covering the peak gag spawning season, the caveat for **Option 2a** applies here as well. The timing of peak spawning changes from year to year due to environmental factors. In trying to capture the peak spawning of two species with a short closed season, there is an increased possibility of missing one or both peak spawning periods.

Alternative 3 eliminates the fixed closed season. Recreational fishing for gag may be closed for part or all of this time period depending upon the alternative selected for Action 1, but fishing would be open for red grouper, black grouper, scamp, yellowmouth grouper, and yellowfin grouper. Red grouper harvest is projected to increase by approximately 7 to 9% if the current fixed closed season is eliminated⁵. This increase by itself is unlikely to result in the recreational

⁴ T. Marvel, Recreational Charter Captain, pers. comm., May 23, 2012

⁵ E-mail from Andrew Strelcheck to Steven Atran dated August 7, 2012.

ACL being exceeded. However, the red grouper bag limit was increased from two to four fish in late 2011. The combined effect of a bag limit increase plus elimination of the February-March closed season would likely result in a recreational harvest greater than that projected from the elimination of the closed season alone.

As discussed above, there is concern that allowing harvest of other shallow-water grouper while the gag season is closed could result in increased bycatch and bycatch mortality of gag by fishermen targeting other groupers. Anecdotal information suggests that, when all shallow-water grouper are closed to harvest, fishermen would target other species including mangrove snapper, greater amberjack, and cobia, which are often found in areas of high gag abundance. A hierarchical cluster analysis of species associations in recreational landings conducted by NMFS (Farmer et al. 2010) shows that gag caught in the recreational headboat sector are associated primarily with red grouper, banded rudderfish, and sand perch along with goliath grouper, snowy grouper and hogfish (Figure 2.1). In the private recreational sector, gag catches are associated with red grouper, sand perch, goliath grouper, along with gray (mangrove) snapper and black grouper (Figure 2.2). In all cases, gag catches are associated with red grouper, but are also caught in association with other groupers as well as non-grouper reef fish.

Principle Components Clustering of Gulf Headboat Encounters Partitioned by Trip Duration and Area

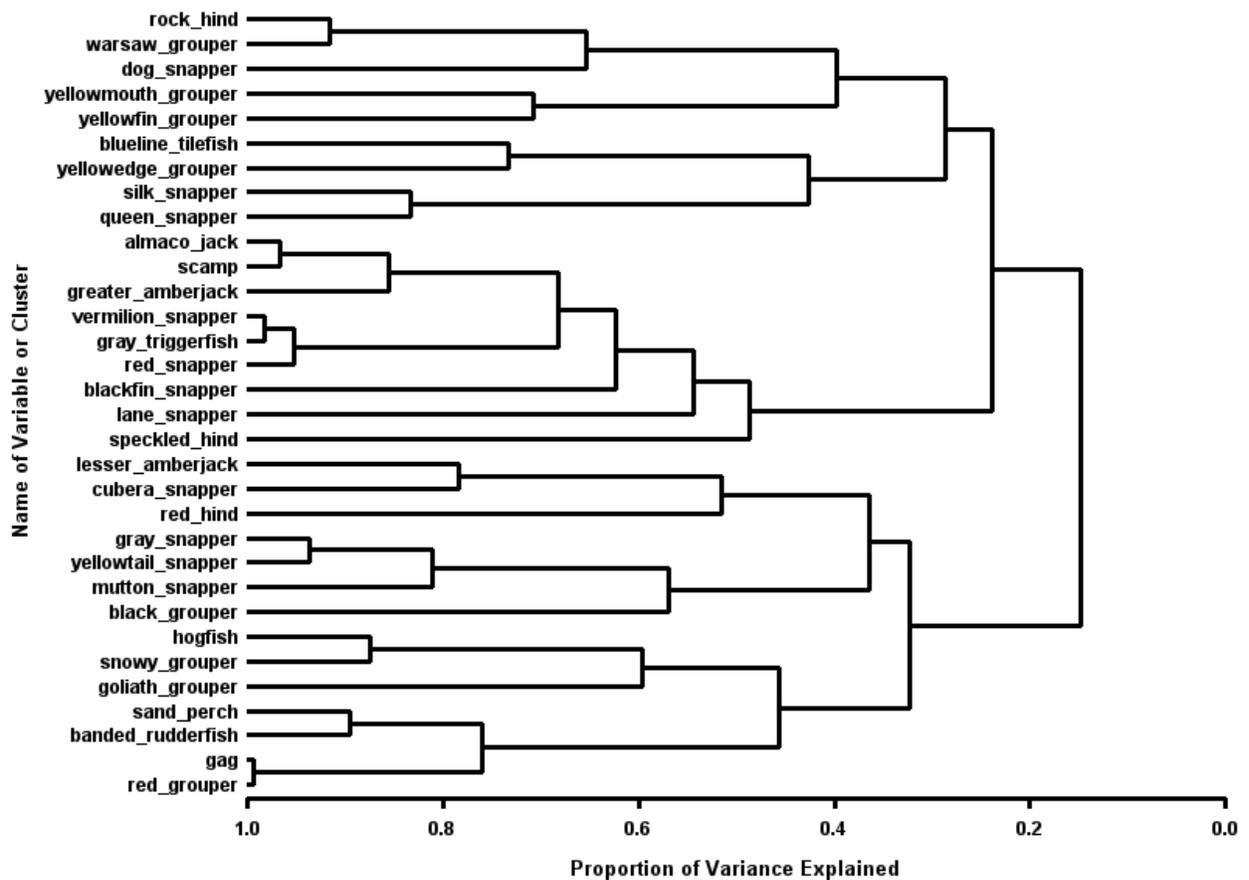


Figure 2.2.1. Dimension reduction cluster of Gulf reef fish recreational headboat landings (N) aggregated by year, month, area, and trip duration (Linkage Method: VARCLUS, Height Measure: Proportion of Variance Explained, Transformation: Root-Root). Source: Figure 9 in Farmer et al. (2010).

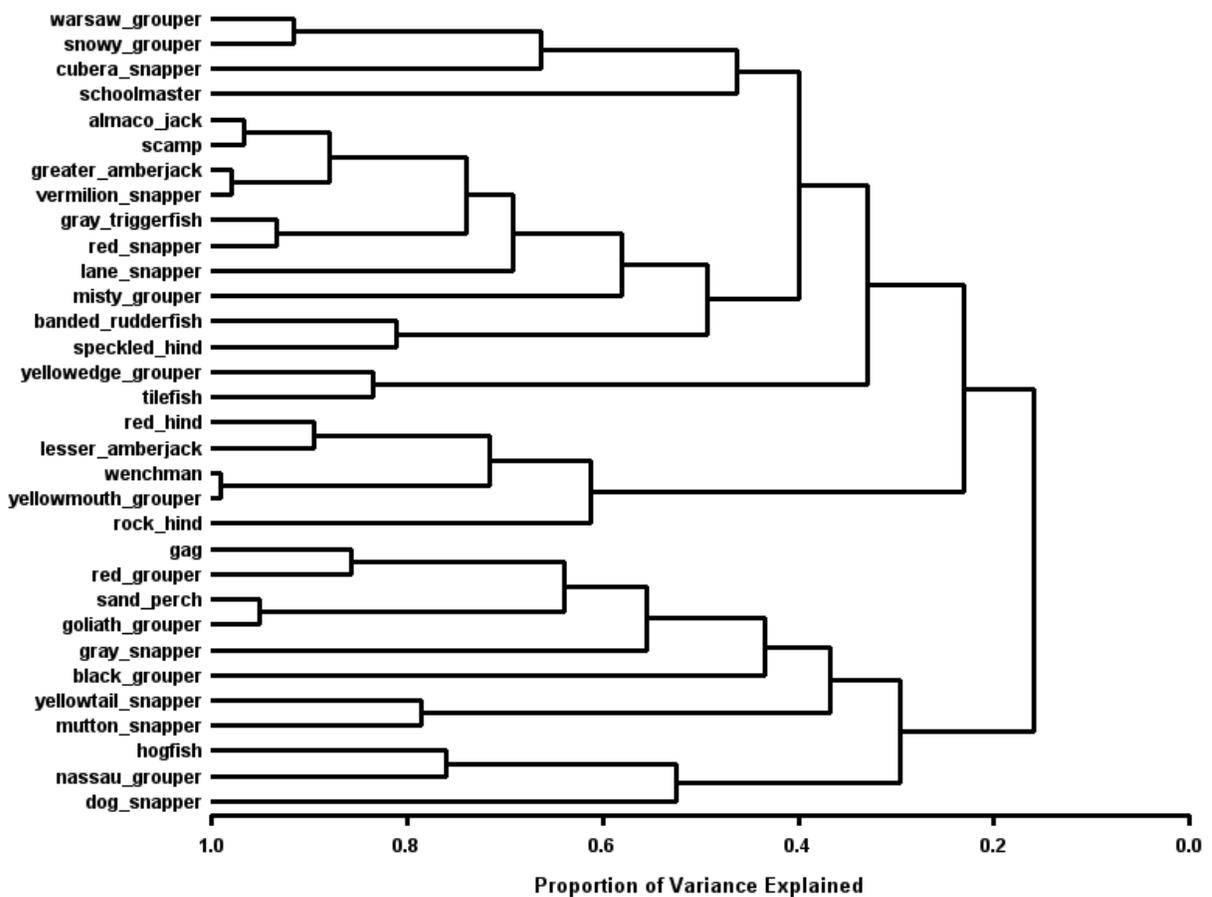


Figure 2.2.2. Dimension reduction cluster of species presence-absence in Gulf reef fish recreational MRFSS-reported landings aggregated by year, wave, mode of fishing, and area fished (Linkage Method: VARCLUS, Height Measure: Proportion of Variance Explained, Transformation: Binary). Source: Figure 11 in Farmer et al. (2010).

Preferred Alternative 4 converts the fixed closed season into a time-area closure by eliminating the fixed closed season in federal waters shoreward of the 20-fathom boundary. Seaward of the boundary, the closed season remains in effect. The coordinates of the boundary would follow the 20 fathom longline boundary from the Florida Keys north and west to Cape San Blas (points 1 to 12 in Figure 2.3). West of Cape San Blas, new 20 fathom boundary coordinates were developed because the longline boundary moves out to 50 fathoms (Figure 2.3, points 13 to 32). Gag spawning depths range from 27 to 66 fathoms, but are concentrated around 44 fathoms (Koenig et al. 1996). Therefore, this alternative would protect the majority of gag spawning aggregations from recreational harvest while allowing harvest of gag in waters shoreward of the 20-fathom boundary during whichever open seasons are selected in Action 1, and allowing recreational harvest of the remaining shallow-water grouper year-round. Data is not available to determine the proportion of recreational grouper harvest that occurs seaward of 20 fathoms. As with other time-area closures, dock-side enforcement of a 20-fathom boundary would not be effective; on-the-water enforcement would be required.

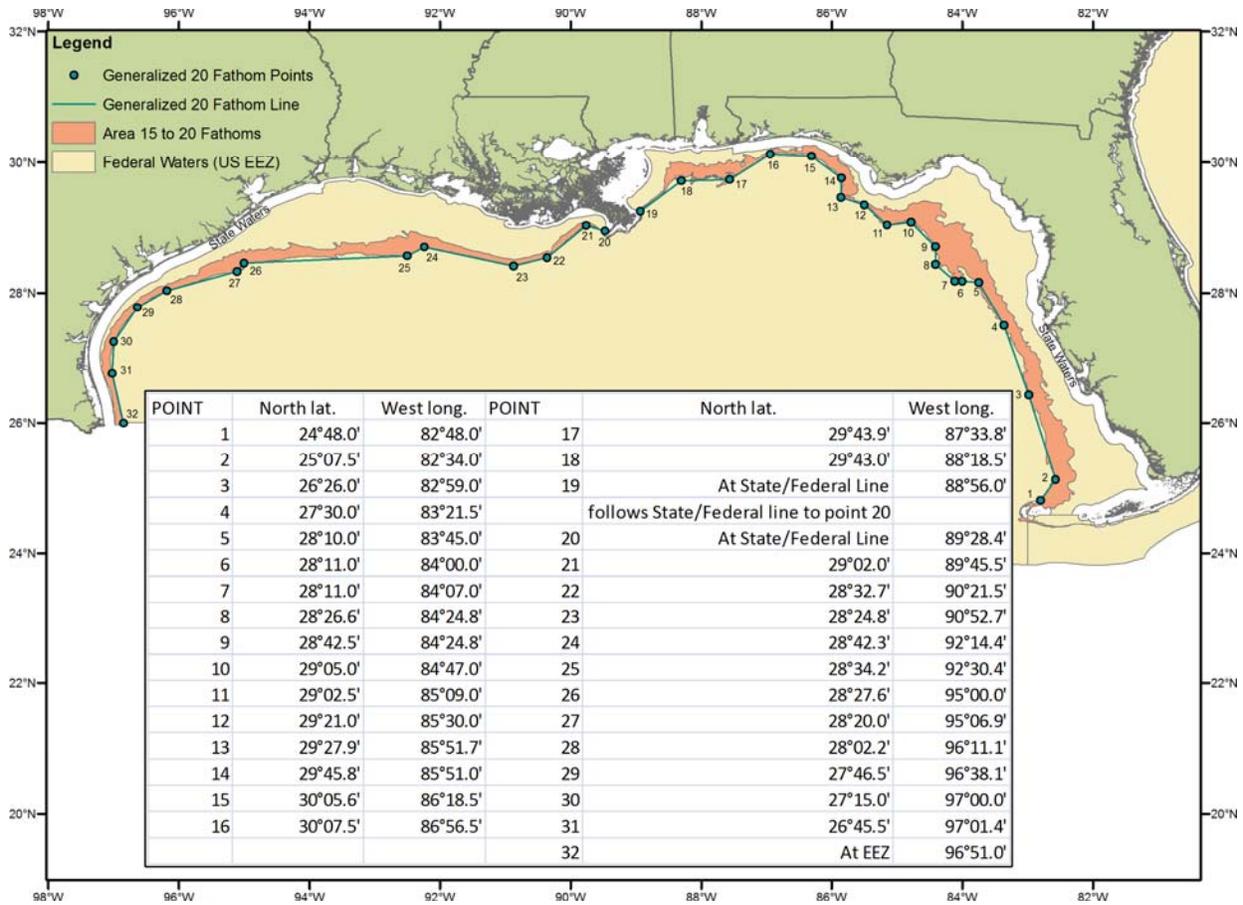


Figure 2.2.3. 20-fathom boundary line for Alternative 4. Points 1 to 12 follow the existing longline and buoy gear 20-fathom boundary. Points 13 to 32 extend the 20-fathom boundary to the rest of the Gulf of Mexico. Across part of Louisiana (between points 19 and 20), the boundary follows the state-federal boundary because the 20-fathom isobath is within state waters.

CHAPTER 3. AFFECTED ENVIRONMENT

The actions considered in this amendment and associated environmental assessment (EA) would affect fishing in the Gulf of Mexico, both in state and federal waters (Figure 3.1). Descriptions of the physical, biological, economic, social, and administrative environments are available in the Reef Fish Amendment 32 (GMFMC 2011b) and associated environmental impact statement (EIS). Information from this EIS is being incorporated herein by reference and the reader is directed to the document to obtain the information which is located at http://www.gulfcouncil.org/fishery_management_plans/index.php. Additional impacts to the affected environment from the Deepwater Horizon MC252 oil spill were described in the September 2010 (NMFS 2010) EA and a 2011 Regulatory Amendment (GMFMC 2011c), and are incorporated here by reference. This section includes new information as well as summaries of information from Amendment 32.

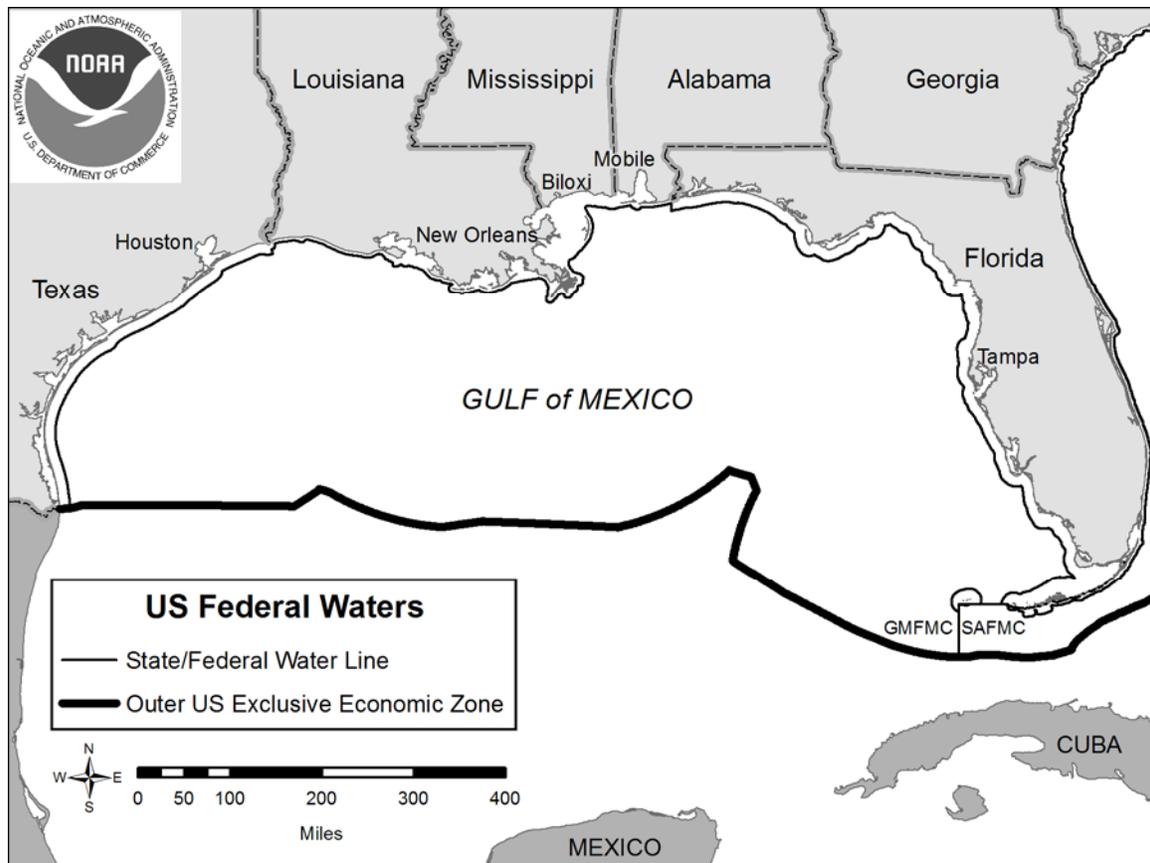


Figure 3.1. Gulf of Mexico federal and state waters.

3.1 Description of the Fishery

The reef fish fishery of the Gulf of Mexico is divided into two broad categories, commercial fishing and recreational fishing. The recreational sector includes charter boats and headboats (collectively referred to as for-hire vessels) as well as private vessels and shore-based fishing. 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 either a state recreational saltwater fishing permit or be registered in the federal National Saltwater Angler Registry system. For-hire vessels 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 individual fishing quota (IFQ) programs, which require that vessels have individual allocations of the quotas for those stocks to harvest and sell the catch, and that the catch can only be sold to federally permitted dealers with Gulf IFQ dealer endorsements. 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 (GMFMC 1989) and is included herein by reference (<http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/RF%20Amend-01%20Final%201989-08-rescan.pdf>).

In 1999, the National Marine Fisheries Service (NMFS) published a list of authorized fisheries and fishing gear used in those fisheries in the Federal Register (FR 64 67511). For the Gulf of Mexico 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).
- Recreational: Spear, powerhead, bandit gear, handline, rod and reel, cast net.

In February 2007 the use of fish traps (including pots) was phased out in the Gulf of Mexico EEZ.

Amendment 26 (GMFMC 2006b) established the red snapper IFQ program effective January 2007 and includes a description of that system, which is included by reference: (<http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Amend26031606FINAL.pdf>).

Amendment 29 (GMFMC 2008b) established the grouper and tilefish IFQ programs effective January 2010 and includes a description of those programs, which is included by reference: (<http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20Reef%20Fish%20Amdt%2029-Dec%2008.pdf>).

Amendment 32 (GMFMC 2011b) established a rebuilding plan for gag, effective March 2012, specified that the accountability measures for gag, red grouper and shallow-water grouper commercial harvest would be the IFQ program, and modified the recreational accountability measures for gag, red grouper and shallow-water grouper by providing in-season closure authority and overage adjustments for gag (or red grouper if it becomes overfished). A description of these accountability measures is included in the amendment, and is incorporated by reference:

(http://www.gulfcouncil.org/docs/amendments/Final%20RF32_EIS_October_21_2011%5B2%5D.pdf)

Species in the reef fish fishery include snappers, groupers, tilefishes, jacks, triggerfish, and hogfish. The list of species in the management unit was established in the original fishery management plan (FMP) (GMFMC 1981) and has been modified on several occasions, most recently in the Generic Annual Catch Limits /Accountability Measures Amendment (Generic ACL/AM Amendment) (GMFMC 2011a). The management unit currently consists of 31 species, as follows.

Common and scientific names of finfishes are from the most recent list of names of fishes published by the American Fisheries Society (Nelson et al. 2004).

Species in the Management Unit

Snappers - Lutjanidae Family

queen snapper	<i>Etelis oculatus</i>
mutton snapper	<i>Lutjanus analis</i>
blackfin snapper	<i>Lutjanus buccanella</i>
red snapper	<i>Lutjanus campechanus</i>
cupera snapper	<i>Lutjanus cyanopterus</i>
gray (mangrove) snapper	<i>Lutjanus griseus</i>
lane snapper	<i>Lutjanus synagris</i>
silk snapper	<i>Lutjanus vivanus</i>
yellowtail snapper	<i>Ocyurus chrysurus</i>
wenchman	<i>Pristipomoides aquilonaris</i>
vermillion snapper	<i>Rhomboplites aurorubens</i>

Groupers - Serranidae Family

speckled hind	<i>Epinephelus drummondhayi</i>
yellowedge grouper	<i>Epinephelus flavolimbatus*</i>
goliath grouper	<i>Epinephelus itajara</i>
red grouper	<i>Epinephelus morio</i>
warsaw grouper	<i>Epinephelus nigritus*</i>
snowy grouper	<i>Epinephelus niveatus*</i>
black grouper	<i>Mycteroperca bonaci</i>
yellowmouth grouper	<i>Mycteroperca interstitialis</i>
gag	<i>Mycteroperca microlepis</i>
scamp	<i>Mycteroperca phenax</i>
yellowfin grouper	<i>Mycteroperca venenosa</i>

* Some recent publications use the genus name *Hyporthodus* rather than *Epinephelus* for yellowedge, warsaw, and snowy grouper based on a revision recommended by Craig and Hastings (2007). However, it is the Council's policy to use the names listed by the American Fisheries Society in the reference above.

Tilefishes - Malacanthidae (Branchiostegidae) Family

goldface tilefish	<i>Caulolatilus chrysops</i>
blueline tilefish	<i>Caulolatilus microps</i>
tilefish	<i>Lopholatilus chamaeleonticeps</i>

Jacks - Carangidae Family

greater amberjack	<i>Seriola dumerili</i>
lesser amberjack	<i>Seriola fasciata</i>
almaco jack	<i>Seriola rivoliana</i>
banded rudderfish	<i>Seriola zonata</i>

Triggerfishes - Balistidae Family

gray triggerfish	<i>Balistes capriscus</i>
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Wrasses - Labridae Family

hogfish	<i>Lachnolaimus maximus</i>
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3.2 Description of the Physical Environment

The physical environment for reef fish, including red grouper and gag, has been described in detail in the 2004 EIS for the Generic Essential Fish Habitat (EFH) Amendment (Generic EFH Amendment) (GMFMC 2004b). The ecologically critical areas in the Gulf of Mexico, such as the Flower Garden Banks and the Tortugas Marine Reserves are described in detail in Generic Amendment Number 3 (GMFMC 2005b) and are incorporated herein by reference. The primary habitat for gag and red grouper is located in the eastern Gulf of Mexico as described in Reef Fish Amendment 32 (GMFMC 2011b). Both gag and red grouper are associated with hard bottom areas primarily on the eastern Gulf of Mexico 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 habitat areas of particular concerns (HAPCs) such as the individual reef areas and bank HAPCs of the northwestern Gulf of Mexico, the Middle Grounds HAPC, and the Pulley Ridge HAPC. There is one site listed in the National Register of Historic Places in the Gulf of Mexico. 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 of Mexico from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. The impacts of the Deepwater Horizon MC252 oil spill on the physical environment are expected to be significant and may be long-term. However, the oil remained outside most of the west Florida shelf where many shallow-water grouper species are particularly abundant (GMFMC 2004b). Oil was dispersed on the surface. However, 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 and non-floating tar-balls washed ashore in several areas of the Gulf of Mexico. 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.

3.3 Description of the Biological/Ecological Environment

The biological environment of the Gulf of Mexico, including the species addressed in this amendment, is described in detail in the final EIS for the Generic EFH amendment and is incorporated here by reference (GMFMC 2004b). This description includes summaries of their life histories.

A description of red grouper and gag life history, biology, and stock status is summarized and incorporated here by reference from Amendment 32 (GMFMC 2011b). In summary, red grouper, gag, and other shallow-water grouper species have typical reef fish life histories where eggs and larvae are pelagic. Larvae then settle to the bottom. Juvenile red grouper scamp can be found on nearshore reefs. Gag, black, and yellowfin grouper settle in submerged aquatic vegetation, and yellowmouth grouper settle in mangroves. As these species mature, they move out into deeper waters of the Gulf of Mexico.

Status of Reef Fish Stocks

The Reef Fish FMP currently encompasses 31 species (listed in Section 3.1). Eleven other species were removed from the FMP in 2012 through the Generic 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 SEDAR (www.sefsc.noaa.gov/sedar) websites. The assessed species are:

- red snapper (SEDAR 7 2005; SEDAR 7 Update 2009)
- vermilion snapper (Porch and Cass-Calay 2001; SEDAR 9 2006c; 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 2006a; SEDAR 9 Update 2011b)
- greater amberjack (Turner et al. 2000; SEDAR 9 2006b; SEDAR 9 Update 2010)
- hogfish (Ault et al. 2003; SEDAR 6 2004b)
- red grouper (NMFS 2002; SEDAR 12 2007; SEDAR 12 Update 2009)
- gag (Turner et al. 2001; SEDAR 10 2006; SEDAR 10 Update 2009)
- black grouper (SEDAR 19 2010)
- yellowedge grouper (Cass-Calay and Bahnick 2002; SEDAR 22 2011a)
- tilefish (golden) (SEDAR 22 2011b)
- goliath grouper (Porch et al. 2003; SEDAR 6 2004a; SEDAR 23 2011)

Although red and black grouper are not considered to be undergoing overfishing or determined to be overfished, gag have been determined to be overfished and undergoing overfishing. The status of the other shallow-water grouper species is unknown. A summary of these findings for gag and red grouper can be found in Amendment 32 (GMFMC 2011b) and a summary of these findings for black grouper can be found in the Generic ACL/AM Amendment (GMFMC 2011a).

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/statusoffisheries/SOSmain.htm>). The most recent update at the time of this writing is the Gulf of Mexico first quarter report of the 2012 Status of U.S. Fisheries. It classifies gag, red grouper, and the other 11 reef fish species as follows:

Overfished and Experiencing Overfishing:

- gag
- greater amberjack
- gray triggerfish

Overfished but not Experiencing Overfishing:

- red snapper

Not Overfished or Experiencing Overfishing:

- yellowtail snapper
- yellowedge grouper
- vermilion snapper
- black grouper
- red grouper
- mutton snapper
- tilefish (golden)

Unknown:

- hogfish – may be experiencing growth overfishing
- goliath grouper – not experiencing overfishing, but benchmarks do not reflect appropriate stock dynamics to determine overfished status
- Stock assessments have not been conducted for the other reef fish species so their classification is unknown

Protected Species

There are 37 species protected by federal law that may occur in the Gulf of Mexico and are under the purview of NMFS. Twenty-eight of these species are marine mammals protected under the Marine Mammal Protection Act (MMPA) and six are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). In addition to those six marine mammals, five species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); two species of fish (smalltooth sawfish and Gulf sturgeon); and two Acropora coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]) are also protected under the ESA and occur within Gulf waters. Information on the distribution, biology, and abundance of these protected species in the Gulf of Mexico is included in the final EIS to the Council's Generic Essential Fish Habitat (EFH) Amendment (GMFMC 2004b) and the February 2005, October 2009, and September 2011 ESA biological opinions on the reef fish fishery (NMFS 2005; NMFS 2009; NMFS 2011a). Marine Mammal Stock

Assessment Reports and additional information are also available on the NMFS Office of Protected Species website: <http://www.nmfs.noaa.gov/pr/species/>.

The MMPA 2012 List of Fisheries (76 FR 73912) considers vertical line gear and longline gear as Category III gears. These gears are the dominant gear used in the Gulf of Mexico reef fish fishery - vertical line (90%) and longline (5.4%) gear. This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from any fishery is less than or equal to 1% of the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. Dolphins are the only species documented as interacting with these fisheries. Bottlenose dolphins prey upon on the bait, catch, and/or released discards of fish from the reef fish fishery. They are also a common predator around reef fish vessels, feeding on the discards.

All five species of sea turtles are adversely affected by the Gulf of Mexico reef fish fishery. Incidental captures are relatively infrequent, but occur in all commercial and recreational hook-and-line and longline components of the reef fish fishery. Captured sea turtles can be released alive or can be found dead upon retrieval of the gear as a result of forced submergence. Sea turtles released alive may later succumb to injuries sustained at the time of capture or from exacerbated trauma from fishing hooks or lines that were ingested, entangled, or otherwise still attached when they were released. Sea turtle release gear and handling protocols are required in the commercial and for-hire reef fish fisheries to minimize post-release mortality.

Of the two protected species of fish present in the Gulf of Mexico, only smalltooth sawfish are affected by the Gulf reef fish fishery, though to a much lesser extent than sea turtles. Smalltooth sawfish primarily occur in the Gulf off peninsular Florida. Incidental captures in the commercial and recreational hook-and-line components of the reef fish fishery are rare events, with only eight smalltooth sawfish estimated to be incidentally caught annually, and none are expected to result in mortality (NMFS 2005). Fishermen in this fishery are required to follow smalltooth sawfish safe handling guidelines. The long, toothed rostrum of the smalltooth sawfish causes this species to be particularly vulnerable to entanglement in fishing gear.

Deepwater Horizon MC252 Oil Spill

The Deepwater Horizon MC252 oil spill in 2010 affected at least one-third of the Gulf of Mexico EEZ and state waters from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. Crude oil is a complex mixture of thousands of chemical compounds. As reported by the National Oceanic and Atmospheric Administration (NOAA) Office of Response and Restoration (NOAA 2010), the oil from the Deepwater Horizon MC252 spill is relatively high in alkanes, which can readily be used by microorganisms as a food source. As a result, the oil from this spill is likely to biodegrade more readily than crude oil in general. The Deepwater Horizon MC252 oil is also relatively much lower in polyaromatic hydrocarbons (PAHs). PAHs are highly toxic chemicals that tend to persist in the environment for long periods of time, especially if the spilled oil penetrates into the substrate on beaches or shorelines. Like all crude oils, MC252 oil contains volatile organic compounds (VOCs) such as benzene,

toluene, and xylene. Some VOCs are acutely toxic but because they evaporate readily, they are generally a concern only when oil is fresh.

In addition to the crude oil, chemical dispersants, primarily COREXIT 9500A and some COREXIT 9527, were applied both at the surface and directly at the wellhead on the seafloor (National Commission, 2010). No large-scale applications of dispersants in deep water had been conducted until the Deepwater Horizon MC252 oil spill. Thus, no data exists on the environmental fate of dispersants in deep water. The affected areas are outside west Florida shelf where shallow-water grouper are primarily found. Therefore the effects of the oil spill on gag, red grouper and other shallow-water grouper populations and their EFH would likely be minimal.

For protected species, a consultation pursuant to ESA Section 7(a)(2) was reinitiated as a result of the spill. On September 30, 2011, the Protected Resources Division released a biological opinion, which after analyzing the best available data, the current status of the species, environmental baseline (including the impacts of the recent Deepwater Horizon MC252 oil release event in the northern Gulf of Mexico), the effects of the proposed action, and the cumulative effects, concluded that the continued operation of the Gulf of Mexico reef fish fishery is 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 2011a).

3.4 Description of the Economic Environment

3.4.1 Commercial Sector

A description of the economic environment for the commercial sector of the grouper component of the reef fish fishery is contained in the 2010 Red Grouper Regulatory Amendment (GMFMC 2010) and the environmental assessment for the 2011 gag interim rule (NMFS 2010). These descriptions are incorporated herein by reference. Because the proposed actions in the current amendment would only apply to the recreational sector, no updates to the descriptions of the commercial sector are provided in this document.

3.4.2 Recreational Sector

A description of the economic environment for the recreational sector of the grouper component of the reef fish fishery is contained in the 2010 Red Grouper Regulatory Amendment (GMFMC 2010) and the environmental assessment for the 2011 gag interim rule (NMFS 2010). These descriptions are incorporated herein by reference. Select updated statistics are provided in the following sections.

3.4.2.1 Angler Effort

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

1. Target effort - The estimated 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 estimated number of individual angler trips, regardless of duration and target intent, on which the individual species or a species in the species group was caught. The fish did not have to be kept.
3. Total recreational effort - The estimated total number of individual angler trips taken, regardless of target intent or catch success for any species or species group.

Other measures of effort are possible, such as the number of harvest trips (the number of individual angler trips that harvest 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 target effort for gag and shallow-water grouper species in the Gulf of Mexico for the period 2006-2010 are provided in Tables 3.4.2.1.1 and 3.4.2.1.2. Data for 2011 are not included because the recreational gag fishing season was open for only the equivalent of two months in 2011 (September 16 through November 15).

Table 3.4.2.1.1. Recreational target effort (individual angler trips), all modes, 2006-2010, by species or species group.¹

Target Species	2006	2007	2008	2009	2010	Average
Gag	458,813	552,812	641,576	483,867	468,724	521,159
SWG²	478,165	575,430	668,465	536,423	522,945	556,286
Total Trips, All Species	23,862,889	24,267,431	24,108,842	22,296,834	20,766,690	23,060,538

¹Totals are not additive because an individual trip may target multiple species. These results do not include Texas or headboat effort.

²SWG = All shallow-water grouper species including gag.

Source: NMFS Southeast Regional Office using MRFSS data.

Table 3.4.2.1.2. Average annual recreational target effort (individual angler trips), all modes, by wave, 2006-2010, by species or species group.¹

Target Species	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
Gag	72,195	59,689	101,202	83,376	60,098	144,598
SWG²	74,241	62,893	112,882	91,299	65,917	149,054
Total Trips, All Species	2,768,203	3,583,499	5,308,553	4,711,008	3,421,223	3,268,052

¹Totals are not additive because an individual trip may target multiple species. These results do not include Texas or headboat effort.

²SWG = All shallow-water grouper species including gag.

Source: NMFS Southeast Regional Office using MRFSS data.

Target intent is not collected in the NMFS Headboat Survey and estimation of target effort in the headboat sector is not possible with available data. Table 3.4.2.1.3 contains estimates of the number of headboat angler days (normalized 12-hour days) for all Gulf states for 2006-2010.

Table 3.4.2.1.3. Headboat angler days.

Year	Florida/Alabama	Louisiana/Mississippi	Texas	Total
2006	124,049	5,005	70,789	199,843
2007	136,880	2,522	63,764	203,166
2008	130,176	2,945	41,188	174,309
2009	142,438	3,268	50,737	196,443
2010	111,018	715	47,154	158,887
Average	128,912	2,891	54,726	186,530

Source: NMFS Headboat Survey.

3.4.2.2 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 charterboat 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 charter/headboat vessel permit has been required for reef fish since 1996 and the sector currently operates under a limited access system. On July 12, 2012, there were 1,363 valid (non-expired) or renewable Gulf of Mexico reef fish charter/headboat vessel 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 permit does not distinguish between headboats and charterboats, based on the number of vessels on the NMFS Headboat Survey active survey list on January 24, 2012, an estimated 69 headboats operate in the Gulf of Mexico.

Information on Gulf of Mexico charterboat and headboat operating characteristics, including average fees and net operating revenues, are included in Savolainen et al. (2012) and is incorporated herein by reference.

There are no specific permitting requirements for recreational anglers to fish for or harvest the species covered by this amendment. 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 with available data to identify how many individual anglers would be expected to be affected by this amendment.

3.4.2.3 Business Activity

Estimates of the business activity (economic impacts) associated with recreational angling for species in the shallow-water grouper complex 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, and described and utilized in NMFS (2011b). Estimates of these coefficients for target or catch behavior for individual species are not available. Estimates of the average expenditures by recreational anglers are also provided in NMFS (2011b) and are incorporated herein by reference.

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). Job and output (sales) impacts are equivalent metrics across both the commercial and recreational sectors. Income impacts (commercial sector) and value-added impacts (recreational sector) are not equivalent, though similarity in the magnitude of multipliers generated and used for the two metrics may result in roughly equivalent values. Similar to income impacts, value-added impacts should not be added to output (sales) impacts because this would result in double counting.

Estimates of the average target effort (2005-2009) and associated business activity (2010 dollars) are provided in Tables 3.4.2.3.1 and 3.4.2.3.2. The estimates of the business activity provided in these tables apply only at the state level. National-level estimates are not available. Addition of the state-level estimates to produce either a regional or national total would underestimate the actual amount of business activity because summing the state estimates would not capture business activity that leaks outside the individual states. A state estimate only reflects activities that occur within that state and not related activity that occurs in another state. For example, if a good is produced in Alabama but sold in Florida, the measure of business activity in Florida associated with the sale of the product in Florida does not include the production process that occurred in Alabama. Assessment of business activity at the national (or regional) level would capture activity in both states and include all activity except that which leaks outside the nation.

Table 3.4.2.3.1. Summary of recreational shallow-water grouper target trips (2006-2010 average) and associated business activity (2010 dollars). Output and value added impacts are not additive.

	Alabama	Florida	Louisiana	Mississippi	Texas
Shore Mode					
Target Trips	0	61,792	0	0	*
Output Impact	\$0	\$4,241,131	\$0	\$0	*
Value Added Impact	\$0	\$2,463,958	\$0	\$0	*
Jobs	0	44	0	0	*
Private/Rental Mode					
Target Trips	2,923	470,239	359	369	*
Output Impact	\$172,239	\$21,622,478	\$29,650	\$10,658	*
Value Added Impact	\$94,297	\$12,857	\$14,583	\$5,108	*
Jobs	2	213	0	0	*
Charter Mode					
Target Trips	415	20,189	0	0	*
Output Impact	\$218,833	\$6,420,541	\$0	\$0	*
Value Added Impact	\$120,460	\$3,806,720	\$0	\$0	*
Jobs	3	65	0	0	*
All Modes					
Target Trips	3,338	552,220	359	369	*
Output Impact	\$391,072	\$32,284,150	\$29,650	\$10,658	*
Value Added Impact	\$214,757	\$19,128,215	\$14,583	\$5,108	*
Jobs	5	322	0	0	*

All shallow-water grouper species are included.

* Because target information for Texas is unavailable, associated business activity cannot be calculated.

Source: effort data from the MRFSS, economic impact results calculated by the NMFS Southeast Regional Office using the model developed for NMFS (2011b).

Table 3.4.2.3.2. Summary of recreational gag target trips (2006-2010 average) and associated business activity (2010 dollars). Output and value added impacts are not additive.

	Alabama	Florida	Louisiana	Mississippi	Texas
Shore Mode					
Target Trips	0	61,792	0	0	*
Output Impact	\$0	\$4,241,131	\$0	\$0	*
Value Added Impact	\$0	\$2,463,958	\$0	\$0	*
Jobs	0	44	0	0	*
Private/Rental Mode					
Target Trips	2,612	439,337	359	369	*
Output Impact	\$153,913	\$20,201,546	\$29,650	\$10,658	*
Value Added Impact	\$84,264	\$12,012,597	\$14,583	\$5,108	*
Jobs	2	199	0	0	*
Charter Mode					
Target Trips	312	16,377	0	0	*
Output Impact	\$164,520	\$5,208,242	\$0	\$0	*
Value Added Impact	\$90,563	\$3,087,951	\$0	\$0	*
Jobs	2	53	0	0	*
All Modes					
Target Trips	2,924	517,506	359	369	*
Output Impact	\$318,433	\$29,650,919	\$29,650	\$10,658	*
Value Added Impact	\$174,827	\$17,564,506	\$14,583	\$5,108	*
Jobs	4	296	0	0	*

*Because target information for Texas is unavailable, associated business activity cannot be calculated.

Source: effort data from the MRFSS, economic impact results calculated by the NMFS Southeast Regional Office using the model developed for NMFS (2011b).

Estimates of the economic activity (impacts) associated with headboat effort are not available. The headboat sector in the southeast is not covered by the MRFSS, so estimation of the appropriate business activity coefficients for the headboat sector was not conducted in the development of NMFS (2011b). While appropriate business activity coefficients are available for the charterboat sector, potential differences in certain factors in the two sectors, such as the for-hire fee, tourist versus local participation rates, and expenditure patterns, may result in significant differences in the business activity associated with the headboat sector relative to the charterboat sector.

3.5 Description of the Social Environment

This amendment affects recreational fishing of the six shallow-water grouper species. This group consists of gag, red grouper, and the four grouper species that make up the “other shallow-water grouper” complex (scamp, black, yellowfin, and yellowmouth grouper). From a socio-cultural perspective, gag is the most important of the six species, as evidenced by the current recreational:commercial allocation (61:39), and because gag is the declared target species for many recreational bottom-fishing trips. The combined recreational landings of the four other shallow-water grouper species account for a small percentage (1-5%) of the combined recreational landings for the six species currently grouped as the shallow-water grouper complex (Figure 3.5.1).

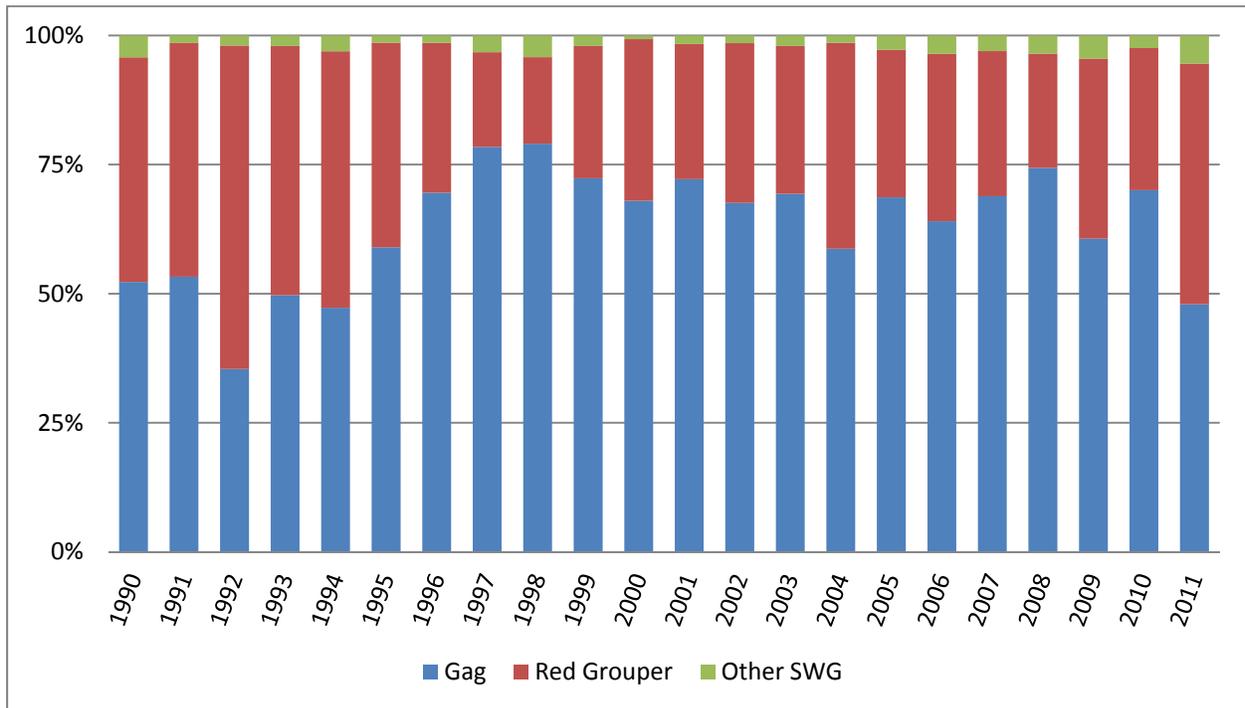


Figure 3.5.1. Proportion of gag, red grouper, and the other shallow-water grouper species out of the total recreational landings (weight) for the six shallow-water grouper species. Source: SEFSC ACL Recreational dataset (April 30, 2012). Note: 53% of the black grouper combined landings (Gulf and South Atlantic) have been allocated to the Gulf of Mexico using the jurisdictional allocation established through the Generic ACL/AM Amendment (GMFMC 2011a) (<http://sero.nmfs.noaa.gov/sf/pdfs/Comp%20ACL%20Am%20101411%20FINAL.pdf>). Black grouper landings were derived via MRFSS post-stratification; Monroe County landings were removed.

Fishing Communities

Recently passed regulatory actions include a description of the communities identified as being strongly associated with gag and red grouper fishing and are included here by reference.

Gag: Temporary Rule, November 2010 (NMFS 2010). Section 2.4 can be found at: http://sero.nmfs.noaa.gov/sf/pdfs/Gag_EA_111510.pdf

Red grouper: Regulatory Amendment to the Reef Fish Fishery Management Plan, September 2010 (GMFMC 2010). Section 2.4 can be found at: <http://www.gulfcouncil.org/docs/amendments/2010%20Red%20Grouper%20Regulatory%20Amendment%209-17-10%20final%20with%20signed%20FONSI.pdf>

The referenced descriptions focus on available geographic and demographic data to identify communities having a strong relationship with grouper fishing. A strong relationship is defined as having significant landings and revenue for gag and 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 Florida.

Because recreational landings data are not available at the community level, commercial landings data were used as a proxy to identify communities of importance to grouper fishing. The analysis for recreational communities addresses fishing importance more broadly, for groupers, other reef fish, and species managed under other fishery management plans. Although these analyses were conducted in 2010, it is not likely that there have been substantial changes to communities in terms of fishing importance since that time.

Table 3.5.1 summarizes the analysis from the referenced documents, outlining those communities (both commercial and recreational) identified as having the strongest, strong, or somewhat strong relationship to grouper fishing. For both gag and red grouper, five communities within Pinellas County (Clearwater, Madeira Beach, Redington Shores, St. Petersburg, and Tarpon Springs) each ranked in one of these categories, suggesting the strongest relationship with grouper fishing of any county in the Gulf of Mexico region. It is highly likely that, other factors being equal, these communities would be the most affected, in absolute terms, by management actions. The magnitude of these effects will vary according to the exact nature of those actions and are addressed in sections 4.1.4 and 4.2.4.

Table 3.5.1. Communities most likely to be affected by changes to grouper management.

	Gag	Red Grouper
Strongest	Apalachicola	Panama City, Madeira Beach, and Apalachicola
Strong	Steinhatchee, Panacea, Panama City, Clearwater, and Saint Petersburg	Saint Petersburg, Clearwater, Tarpon Springs, and Redington Shores
Somewhat Strong	Destin, Ft. Myers Beach, Tarpon Springs, and Madeira Beach	Steinhatchee, Crystal River, Tampa, and Panacea

3.5.1 Environmental Justice Considerations

Executive Order 12898 requires that 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. The main focus of Executive Order 12898 is to consider “the 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...” This executive order is generally referred to as environmental justice (EJ).

The implementation of the proposed actions of this amendment would not discriminate against any group based on their race, ethnicity, or national origin because the proposed actions would be applied to all recreational anglers fishing for shallow-water grouper species. Thus, the actions of this amendment are not expected to result in adverse or disproportionate environmental or public health impacts to EJ populations. Nevertheless, it is not possible to determine the social impacts on populations with EJ concerns (e.g., minorities and the poor) from implementing these management restrictions, because data are not available concerning the use or reliance on the shallow-water grouper stocks by EJ populations. Information on the race and income status for groups at the different participation levels (charter for-hire captains and crew, and persons employed in recreational fishing and associated support industries, etc.) is not available. Legal size groupers are caught primarily offshore requiring a fishing vessel for harvest. Thus, populations in poverty are not likely to be impacted by the proposed measures. The use of or reliance on shallow-water grouper species by ethnic or racial minorities, or by Native American tribes is unknown. There is no known subsistence fishing for gag. Although no EJ issues have been identified or are expected to arise, the absence of potential EJ concerns cannot be assumed.

Reef Fish Amendment 35 includes an EJ analysis of Gulf coastal counties and is incorporated here by reference (GMFMC 2012b). The analysis used 2010 Census Bureau data to identify counties in which populations of EJ concern may reside (minorities or those in poverty). As described in the Description of the Social Environment above, communities with the strongest relationship to grouper fishing are located in Florida. No west Florida coastal counties exceed the EJ threshold with regard to minorities; however Dixie (3.8%), Franklin (8%), Gulf (1.7%), Jefferson (4.6%), Levy (3.3%), and Taylor (7.1%) exceed the EJ threshold for poverty by the percentage noted. Among the communities identified in Table 3.5.1, Apalachicola and Steinhatchee are located within counties identified for potential EJ concerns (Franklin and Taylor counties, respectively). These counties, along with Jefferson, made up three of the four counties included in an alternative state water season by the Florida Fish and Wildlife Conservation Commission (FWC) (section 1.1), in response to ample public comment. Recreational anglers and those employed by associated industries in these counties may be expected to be impacted by the actions of this amendment. The magnitude of effects will vary according to the selected alternative and are addressed in sections 4.1.4 and 4.2.4.

3.6 Description of the Administrative Environment

3.6.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the EEZ, an area extending 200 nautical miles from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the EEZ.

Responsibility for federal fishery management decision-making is divided between the Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for promulgating regulations to implement proposed plans and amendments after ensuring management measures are consistent with the Magnuson-Stevens Act and with other applicable laws summarized in Section 10. In most cases, the Secretary has delegated this authority to NMFS.

The Council is responsible for fishery resources in federal waters of the Gulf of Mexico. These waters extend to 200 nautical miles offshore from the nine-mile seaward boundary of Florida and Texas, and the three-mile seaward boundary of Alabama, Mississippi, and Louisiana. The length of the Gulf of Mexico 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 the Regional Administrator of the NMFS Southeast Region. The public is also involved in the fishery management process through participation on advisory panels and through Council meetings that, with few exceptions for discussing personnel matters, are open to the public. The regulatory process is also in accordance with the Administrative Procedures Act, in the form of “notice and comment” rulemaking, which provides extensive opportunity for public scrutiny and comment, and requires consideration of and response to those comments.

The management process is conducted through the development and periodic amendment of FMPs. The Council currently has six FMPs: reef fish, shrimp, corals and coral reefs, red drum, spiny lobster, and coastal migratory pelagic species. The spiny lobster and coastal migratory pelagic species FMPs are managed jointly with the South Atlantic Fishery Management Council. Within the Reef Fish FMP, certain regulatory actions, referred to as framework actions, can be implemented through a framework process that was initially described in the Generic ACL/AM Amendment (GMFMC 2011a), and is proposed to be modified in Amendment 38 (GMFMC 2012a). The framework procedure reduces the administrative requirements to implementing regulatory changes while still providing for public input and a full review relative to applicable laws.

Regulations contained within FMPs are enforced through actions of the NOAA’s Office for Law Enforcement, the United States Coast Guard, and various state authorities. To better coordinate enforcement activities, federal and state enforcement agencies have developed cooperative agreements to enforce the Magnuson-Stevens Act. The Council’s Law Enforcement Advisory Panel and the Gulf States Marine Fisheries Commission’s Law Enforcement Committee have developed a five-year “Gulf of Mexico Cooperative Law Enforcement Strategic Plan - 2006-2011.”

3.6.2 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 states’ 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 2004c).

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

4.1 Action 1: 2013 Recreational Gag Season and Bag Limit

4.1.1 Direct and Indirect Effects on the Physical Environment

The primary effects of recreational grouper fishing on the physical environment 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. However, Barnette (2001) indicated the effects of these gears on the physical environment is much less than other gear types.

The degree 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 reef building coral 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). Juvenile gag are found in seagrass beds and oyster shell reefs, whereas adult gag primarily occur over mid-to-high relief natural reef habitat. Red grouper are also associated with hard bottom habitat, but tend to prefer lower relief habitat than gag. Adult black grouper are found over wrecks and rocky coral reefs. Scamp are associated with ledges and high relief hard bottoms. For yellowfin and yellowmouth grouper, information on habitat association is sparse, although juvenile yellowfin grouper have been documented in inshore seagrass beds, mangrove estuaries, lagoons, and larger bay systems (GMFMC 1998b)

The alternatives in this action affect the amount of time and time of year that recreational fishermen can fish for gag in federal waters of the Gulf of Mexico, plus the bag limit for gag.

Alternative 1 retains the existing 123-day recreational gag season and 2-fish gag bag limit. Since the number of fishing days and bag limit would not change from 2012, impacts from possible interaction between fishing gear and the bottom habitat as discussed above are not changed.

Preferred Alternative 2 retains the single recreational gag season, but changes the starting date, and consequently the number of fishing days, in the recreational gag season. In addition, each starting date option includes suboptions to retain the gag bag limit at 2 fish (status quo) or reduce the bag limit to 1 fish in order to extend the season. Season lengths were estimated using assumptions of high discard levels and low discard levels, resulting in a range of days. The actual season length would be determined by the National Marine Fisheries Service (NMFS). Each of these option and suboption combinations results in a different season length range. Longer seasons imply a greater potential for gear interaction and negative impacts from the types of disturbances discussed above. There is overlap in the range of season lengths, but a clear progression exists in season length from **Option 2a** (shortest) to **Option 2b** (intermediate), and to **Preferred Option 2c** (longest). These options differ only by their season starting dates

(March 1, June 1, and July 1 respectively). When the bag limit suboption is considered (**Preferred Suboption i** for 2 fish, suboption ii for 1 fish), the sequence of shortest to longest season, and thus least to greatest interaction with the physical environment, rank as **Suboption 2a(i)**, **Suboption 2a(ii)**, **Suboption 2b(i)**, **Suboption 2b(ii)**, **Preferred Suboption 2c(i)**, and **Suboption 2c(ii)**. Relative to **Alternative 1**, **Option 2a** results in a shorter season regardless of which suboption is selected, and is therefore expected to result in a less adverse effect on the physical environment. **Option 2b** results in a range of season lengths that straddles the 123 days of **Alternative 1** regardless of the suboption selected, resulting in approximately the same impact as **Alternative 1**. **Preferred Option 2c** results in a longer season regardless of which suboption is selected, and therefore a greater negative impact may be expected on the physical environment.

Alternative 3 splits the recreational gag season into two sub-seasons. The first sub-season is for a fixed time period. The second sub-season has a fixed starting date but an estimated range of days based on assumptions of high and low discard levels. The actual season length would be determined by SERO. The potential impact on the physical environment is based on the total number of fishing days for the two sub-seasons combined. Within each option, **suboption ii** (1-fish bag limit) results in more fishing days, and thus greater physical impacts, than **suboption i** (2-fish bag limit). **Option 3a** provides the greatest number of fishing days, while **Option 3b** and **Option 3c** provide nearly the same range of days and therefore similar impacts. However there is a large overlap in the range of estimated days open for all options and suboptions. When the bag limit suboption is considered (i for 2 fish, ii for 1 fish), the sequence of shortest to longest seasons, and thus least to greatest interaction with the physical environment, is **Suboption 3c(i)**, **Suboption 3b(i)**, **Suboption 3a(i)**, **Suboption 3b(ii)**, **Suboption 3c(ii)**, **Suboption 3a(ii)**. All options and suboptions for **Alternative 3** result in shorter seasons than **Alternative 1**, and therefore would have less negative impacts on the physical environment. The overall range of days open for **Alternative 3** (60 to 112) is fewer days than the range for **Alternative 2** (72 to 168), but there is considerable overlap. Depending upon the option and suboption selected, **Alternative 3** could have a greater, equal, or lesser impact on the physical environment than **Preferred Alternative 2**.

Alternative 4 splits the recreational gag season into three sub-seasons. The first two sub-seasons have a fixed time period. The final sub-season is of variable length depending upon assumptions of high and low discard levels. The actual season length would be determined by SERO. The potential impact on the physical environment is based on the total number of fishing days for the three sub-seasons combined. Within each option, **suboption ii** (1-fish bag limit) results in more fishing days, and thus greater physical impacts, than **suboption i** (2-fish bag limit). **Option 4a** provides a shorter range of fishing days than **Option 4b**, and thus less impact on the physical environment. When the bag limit suboption is considered (i for 2 fish, ii for 1 fish), the sequence of shortest to longest seasons, and thus least to greatest interaction with the physical environment, are **Suboption 4a(i)**, **Suboption 4a(ii)**, **Suboption 4b(i)**, and **Suboption 4b(ii)**. All options and suboptions for **Alternative 3** result in shorter seasons than **Alternative 1**, except for **Suboption 4b(ii)** which straddles the 123 days in **Alternative 1**. Therefore, relative to **Alternative 1**, **Suboption 4b(ii)** would have similar impacts and the remaining suboptions would have less negative impacts on the physical environment. The overall range of days open for **Alternative 4** (70 to 130) is more days than **Alternative 3** (60 –

112), but fewer days than the range for **Preferred Alternative 2** (72 to 168). However, there is considerable overlap. Depending upon the option and suboption selected, **Alternative 4** could have a greater, equal or lesser impact on the physical environment than either **Preferred Alternative 2** or **Alternative 3**.

4.1.2 Direct and Indirect Effects on the Biological/Ecological Environment

Alternative 1 retains the existing 123 day recreational gag season and 2-fish gag bag limit. The gag recreational annual catch target (ACT) in 2013 would increase from 1.031 m p to 1.287 mp (unless the 2012 harvest exceeds the 2012 annual catch limit (ACL), resulting in an overage adjustment). Without a change in the fishing season or bag limit, this alternative is expected to result in the recreational sector under harvesting the gag recreational ACT. The unharvested gag biomass would contribute to the spawning stock, resulting in a faster recovery of the stock than if the ACT were harvested in its entirety.

Preferred Alternative 2, **Alternative 3** and **Alternative 4** are all intended to result in recreational harvests at or near the ACT. Although these alternatives will allow an increase in harvest relative to **Alternative 1**, they will still have positive biological effects on the gag stock by keeping harvest within the levels needed to rebuild the stock. Under **Suboption ii** (1-fish bag limit), there may be a greater incentive to highgrade than under **Preferred Suboption i** (2-fish bag limit), resulting in a greater rate of discards. Also, fishermen targeting gag may have an incidental bycatch of other species. Hierarchical cluster analysis of recreational landings show that gag catches are associated most closely with red grouper, but also other groupers as well as other reef fish, particularly gray (mangrove) snapper (Figures 2.1 and 2.2, Farmer et al. 2010). Thus, a closure for all shallow-water grouper may be effective in reducing bycatch of gag in areas where red grouper are caught, but bycatch of gag is likely to continue in areas where other reef fish are caught. Among the species caught in association with gag to a lesser extent, gray triggerfish are currently classified as overfished. Incidental bycatch by fishermen targeting gag could indirectly have a negative impact on their rebuilding plans. Gray triggerfish does not currently have a fixed closed season, but its recreational harvest is closed when the recreational ACL is reached. For 2013, the Council has recommended a fixed recreational closed season of June through July.

For **Preferred Alternative 2**, under **Option 2a**, the gag season is projected to end before the greater amberjack and proposed gray triggerfish closed seasons of June through July (**Suboption 2a(i)**) or only a few days after the opening of both species' seasons (**Suboption 2a(ii)**).

Consequently, incidental bycatch of these species while targeting gag is unlikely to be an issue. Under **Option 2b** and **Preferred Option 2c** (and both bag limit suboptions) the gag open season will extend well into the greater amberjack and proposed gray triggerfish closed seasons and could result in an incidental bycatch of those species.

For **Alternative 3**, under all three options and both bag limit suboptions, the recreational gag season would be open in June and July when greater amberjack and, potentially, gray triggerfish would be closed.

For **Alternative 4**, under **Option 4a** and both suboptions, the recreational gag season would be open for 15 days (June 1-15). Under **Option 4b**, the gag season would be open for the entire month of July while greater amberjack and, potentially, gray triggerfish would be closed. Again, this could result in an incidental bycatch of greater amberjack and, potentially, gray triggerfish during the closed seasons for those species.

4.1.3 Direct and Indirect Effects on the Economic Environment

The expected economic effects of the alternative recreational gag season and bag limits considered in this proposed amendment were measured by changes in consumer surplus to anglers and producer surplus to for-hire operators. A detailed discussion of the general use of consumer and producer surpluses in the measurement of economic effects expected to result from changes in fishery management measures is provided in Reef Fish Amendment 32 (GMFMC 2011b) and is incorporated herein by reference. The estimated changes in consumer surplus were computed based on an average consumer surplus per angler trip. The consumer surplus associated with taking a fishing trip, versus not fishing (not taking a trip) under a 2-fish gag bag limit and a 1-fish gag bag limit is estimated to be \$224 and \$155 (in 2003\$), respectively (David Carter, NMFS SEFSC, personal communication, September 13, 2012). Expressed in 2010\$⁶, these values are \$267 and \$185, respectively. These estimates of consumer surplus represent the average amount of economic value that would be lost during a day closed to grouper fishing if the angler chooses not to fish. The lost consumer surplus would be much less if the angler, instead, chooses to fish for another species. The estimated changes in producer surplus were calculated based on an average producer surplus of \$145.63 (in \$2010) per target charter angler trip (David Carter, NMFS SEFSC, personal communication, February 16, 2012). This analysis does not include estimates of the expected change in consumer surplus or producer surplus accruing to headboat anglers or vessels because species target information is not collected in the Headboat Survey.

Table 4.1.3.1 provides season length estimates by assumed discard level and bag limits for each management alternative. Table 4.1.3.2 contains estimates of the expected changes (relative to **Alternative 1**) in recreational gag season length, charter and private angler target trips, consumer and producer surplus, and economic value for each alternative considered in this proposed amendment. Baseline gag target charter and private recreational effort levels were determined using 2006-2011 average target effort by mode. For each alternative, the estimated recreational gag season length was estimated using a decision model provided by SERO. The alternatives considered in this proposed amendment would establish either a continuous season or a split season (in 2 or 3 segments).

Certain outcomes of this analysis should be noted. As stated in the previous paragraph, this analysis is based on 2006-2011 gag target effort that occurred in response to the allowable

⁶ 2003\$ were adjusted using the Bureau of Labor Statistics consumer price index (CPI) for urban consumers in the Southern region. Accessed September 13, 2012, the CPI index is available at: http://data.bls.gov/timeseries/CUUR0300SA0?data_tool=XGtable

recreational harvest during that period. First, the estimates of economic effects are based on the resultant fishing opportunities (target trips) and not fish harvested, which is assumed constant across all alternatives. As a result, although the number of fish harvested may be unchanged, the expected economic effects for the alternatives to **Alternative 1** may be an increase or decrease in economic value.

Table 4.1.3.1. Alternative season lengths, assumed discard levels and bag limits. Assumptions relative to discard levels are discussed in Appendix D.

Option	Assumed Discard Level	Season Length (Days)	Bag Limit
Alternative 1	n/a	123	2 fish
2a(i)	Low	88	2 fish
	High	78	2 fish
2a(ii)	Low	98	1 fish
	High	81	1 fish
2b(i)	Low	137	2 fish
	High	86	2 fish
2b(ii)	Low	149	1 fish
	High	95	1 fish
Preferred 2c(i)	Low	155	2 fish
	High	133	2 fish
2c(ii)	Low	168	1 fish
	High	141	1 fish
3a(i)	Low	96	2 fish
	High	67	2 fish
3a(ii)	Low	112	1 fish
	High	80	1 fish
3b(i)	Low	89	2 fish
	High	61	2 fish
3b(ii)	Low	103	1 fish
	High	73	1 fish
3c(i)	Low	86	2 fish
	High	60	2 fish
3c(ii)	Low	108	1 fish
	High	77	1 fish
4a(i)	Low	89	2 fish
	High	68	2 fish
4a(ii)	Low	104	1 fish
	High	79	1 fish
4b(i)	Low	108	2 fish
	High	88	2 fish
4b(ii)	Low	130	1 fish
	High	103	1 fish

Table 4.1.3.2. Changes in season length, target effort, producer and consumer surpluses, and economic value relative to **Alternative 1**; dollar values are expressed in 2010\$.

Option	Season Length (Days)	Charter For-Hire			Private Recreational		Economic Value (\$ million)
		Angler Trips	Consumer Surplus (\$ million)	Producer Surplus (\$ million)	Angler Trips	Consumer Surplus (\$ million)	
2a(i)	-35	4,314	\$1.15	\$0.63	-43,215	-\$11.54	-\$9.76
2-fish limit	-51	3,338	\$0.89	\$0.49	-68,783	-\$18.37	-\$16.99
2a(ii)	-25	4,924	\$0.91	\$0.72	-27,235	-\$5.04	-\$3.41
1-fish limit	-42	3,887	\$0.72	\$0.57	-54,401	-\$10.06	-\$8.78
2b(i)	14	1,686	\$0.45	\$0.25	32,324	\$8.63	\$9.33
2-fish limit	-37	1,179	\$0.31	\$0.17	-19,558	-\$5.22	-\$4.74
2b(ii)	26	1,794	\$0.33	\$0.26	44,036	\$8.15	\$8.74
1-fish limit	-28	1,308	\$0.24	\$0.19	-8,668	-\$1.60	-\$1.17
Pref. 2c(i)	32	2,464	\$0.66	\$0.36	73,376	\$19.59	\$20.61
2-fish limit	10	770	\$0.21	\$0.11	22,930	\$6.12	\$6.44
2c(ii)	45	3,465	\$0.64	\$0.50	103,185	\$19.09	\$20.23
1-fish limit	18	1,463	\$0.27	\$0.21	43,567	\$8.06	\$8.54
3a(i)	-27	3,787	\$1.01	\$0.55	-25,516	-\$6.81	-\$5.25
2-fish limit	-56	2,499	\$0.67	\$0.36	-57,729	-\$15.41	-\$14.38
3a(ii)	-11	4,059	\$0.75	\$0.59	-4,284	-\$0.79	\$0.55
1-fish limit	-43	2,720	\$0.50	\$0.40	-40,478	-\$7.49	-\$6.59
3b(i)	-34	3,870	\$1.03	\$0.56	26,927	\$7.19	\$8.79
2-fish limit	-62	2,691	\$0.72	\$0.39	-20,494	-\$5.47	-\$4.36
3b(ii)	-20	4,948	\$0.92	\$0.72	59,029	\$10.92	\$12.56
1-fish limit	-50	3,538	\$0.65	\$0.52	4,729	\$0.87	\$2.04
3c(i)	-37	4,322	\$1.15	\$0.63	-8,366	-\$2.23	-\$0.45
2-fish limit	-63	3,330	\$0.89	\$0.48	-34,629	-\$9.25	-\$7.87
3c(ii)	-15	5,246	\$0.97	\$0.76	19,150	\$3.54	\$5.28
1-fish limit	-46	4,331	\$0.80	\$0.63	-4,820	-\$0.89	\$0.54
4a(i)	-34	2,237	\$0.60	\$0.33	-26,182	-\$6.99	-\$6.07
2-fish limit	-55	1,467	\$0.39	\$0.21	-57,197	-\$15.27	-\$14.67
4a(ii)	-19	2,611	\$0.48	\$0.38	3,012	\$0.56	\$1.42
1-fish limit	-44	1,739	\$0.32	\$0.25	-35,965	-\$6.65	-\$6.08
4b(i)	-15	4,720	\$1.26	\$0.69	36,661	\$9.79	\$11.74
2-fish limit	-35	3,103	\$0.83	\$0.45	-11,492	-\$3.07	-\$1.79
4b(ii)	7	5,793	\$1.07	\$0.84	74,278	\$13.74	\$15.66
1-fish limit	-20	4,258	\$0.79	\$0.62	22,903	\$4.24	\$5.64

Second, the recreational gag ACT is scheduled to be increased by 25% in 2013 and the projected season lengths for the proposed alternatives, other than **Alternative 1**, include this increase. The increased ACT would be available for harvest even for **Alternative 1**; however, the fixed season that would occur under **Alternative 1** would only allow increased effort within the period and

not as a result of an extended season. As a result, it is logical to expect that the increased ACT would result in increased fishing opportunities, and associated increase in economic benefits. However, as demonstrated by the results presented in Table 4.1.3.2, neither gag target effort nor harvest rates (harvest per trip) have been historically uniformly distributed across all months. Thus, although the ACT is constant across all alternatives, the different rates of effort and harvest result in seasons of different length. For example, a 10% change in season length could result in 30% change in effort or economic effects.

Third, and more importantly with respect to this analysis, because this analysis simply tabulates “allowable effort” for the projected season without direct consideration of actual harvest (recalling that consideration of the harvest rate is embedded in the season length), certain “fixed” seasons may increase the possibility of harvests exceeding expectations resulting in either truncated seasons later in the year, if harvests projections are available to accommodate appropriate adjustment, or adjustments in the following year. Thus, the results of the analysis constitute single-year estimates (2013) that may overestimate actual single-year effects (because of the assumption of fixed seasons) and may not account for the effects of any adjustment in subsequent years (to account for overages).

Alternative 2 would establish continuous recreational gag seasons with 1 or 2-fish bag limits and various starting dates. **Preferred Option 2c(i)** would, as occurs under the status quo (**Alternative 1**), start the season July 1 and maintain a 2-fish bag limit. However, **Preferred Option 2c(i)** is expected to result in a longer recreational gag season than the status quo because the season length under **Alternative 1**, as previously discussed, does not account for the 25% increase in the recreational gag ACT scheduled for the 2013 season. A recreational gag season ranging from 133 days to 155 days would be expected to result from **Preferred Option 2c(i)**. Relative to **Alternative 1**, **Preferred Option 2c(i)** would be expected to result in an increase in economic value ranging from \$6.44 million to \$20.61 million (2010 dollars). The results for these alternatives provide a clear demonstration of the effects of non-uniform distribution of effort over the year, as previously discussed. The difference between the lower and upper season-length estimates for these alternatives is 22 fishing days or approximately 36%, whereas the difference between the expected private recreational target effort is 220%.

Option 2c(ii) would also maintain the same starting date as **Alternative 1** but would implement a 1-fish bag limit, resulting in a gag season length estimated to last between 141 days and 168 days. Relative to **Alternative 1**, the changes in economic value that would be expected to result from **Option 2c(ii)** are estimated to be between \$8.54 million to \$20.23 million (2010 dollars). **Options 2a(i)** and **2a(ii)** would set recreational seasons starting March 1 and establish a 2-fish and 1-fish bag limit, respectively. For **Options 2a(i)** and **2a(ii)**, the lower and upper bound season-length estimates range from 72 days to 88 days and from 81 days to 98 days, respectively. Relative to **Alternative 1**, the lower and upper changes in economic values expected to result from **Options 2a(i)** and **2a(ii)** are estimated to be between -\$16.99 million and -\$9.76 million and between -\$8.78 million and -\$3.41 million (2010 dollars), respectively. **Options 2b(i)** and **2b(ii)** would set recreational seasons starting June 1 and establish a 2-fish and 1-fish bag limit, respectively. For **Options 2b(i)** and **2b(ii)**, the lower and upper bound season length estimates range from 86 days to 137 days and from 95 days to 149 days, respectively. Relative to **Alternative 1**, the lower and upper changes in economic values expected to result from **Options**

2b(i) and **2b(ii)** are estimated to be between -\$4.74 million and \$9.33 million and between -\$1.17 million and -\$8.74 million (2010 dollars), respectively.

Alternative 3 would set split recreational gag seasons that would include 2 sub-seasons. For each option under **Alternative 3**, season lengths included in Table 4.3.1.2 represent the sum of two sub-seasons. **Options 3a(i)** and **3a(ii)** would set a first recreational sub-season starting March 1 and ending March 31 and a second sub-season beginning June 1 and ending when the remainder of the recreational gag ACT would be expected to be met. **Options 3a(i)** and **3a(ii)** would also establish a 2-fish and 1-fish bag limit, respectively. For **Options 3a(i)** and **3a(ii)**, the lower and upper bound season length estimates range from 67 days to 96 days and from 80 days to 112 days, respectively. Relative to **Alternative 1**, the lower and upper changes in economic values expected to result from **Options 3a(i)** and **3a(ii)** are estimated between -\$14.38 million and -\$5.25 million and between -\$6.59 million and \$0.55 million (2010 dollars), respectively.

Options 3b(i) and **3b(ii)** would set a first recreational sub-season starting June 1 and ending June 30 and a second sub-season beginning November 1 and ending when the remainder of the recreational gag ACT would be expected to be met. **Options 3b(i)** and **3b(ii)** would also set a 2-fish and 1-fish bag limit, respectively. For **Options 3b(i)** and **3b(ii)**, the lower and upper bound season length estimates range from 61 days to 89 days and from 73 days to 103 days, respectively. Relative to **Alternative 1**, the lower and upper changes in economic values expected to result from **Options 3a(i)** and **3a(ii)** are estimated between -\$4.36 million and \$8.79 million and between \$2.04 million and \$12.56 million (2010 dollars), respectively. **Options 3c(i)** and **3c(ii)** would set a first recreational sub-season starting January 1 and ending January 31 and a second sub-season beginning June 1 and ending when the remainder of the recreational gag ACT would be expected to be met. **Options 3c(i)** and **3c(ii)** would also set a 2-fish and 1-fish bag limit, respectively. For **Options 3c(i)** and **3c(ii)**, the lower and upper bound season length estimates range from 60 days to 86 days and from 77 days to 108 days, respectively. Relative to **Alternative 1**, the lower and upper changes in economic values expected to result from **Options 3c(i)** and **3c(ii)** are estimated between -\$7.87 million and -\$0.45 million and between \$0.54 million and \$5.28 million (2010 dollars), respectively.

Alternative 4 would set split recreational gag seasons that would include 3 sub-seasons. For each option under **Alternative 4**, season lengths included in Table 4.3.1.2 represent the sum of three sub-seasons. **Options 4a(i)** and **4a(ii)** would set a first recreational sub-season starting March 1 and ending March 31, a second sub-season beginning June 1 and ending June 21, and a third sub-season starting November 1 and ending when the remainder of the recreational gag ACT would be expected to be met. **Options 4a(i)** and **4a(ii)** would also establish a 2-fish and 1-fish bag limit, respectively. For **Options 4a(i)** and **4a(ii)**, the lower and upper bound season length estimates range from 68 days to 89 days and from 79 days to 104 days, respectively. Relative to **Alternative 1**, the lower and upper changes in economic values expected to result from **Options 4a(i)** and **4a(ii)** are estimated to be between -\$14.67 million and -\$6.07 million and between -\$6.08 million and \$1.42 million (2010 dollars), respectively. **Options 4b(i)** and **4b(ii)** would set a first recreational sub-season starting April 1 and ending April 30, a second sub-season beginning July 1 and ending July 31, and a third sub-season ending December 31 that allows the remainder of the recreational gag ACT to be caught. **Options 4b(i)** and **4b(ii)** would also establish a 2-fish and 1-fish bag limit, respectively. For **Options 4b(i)** and **4b(ii)**, the lower

and upper bound season length estimates range from 88 days to 108 days and from 103 days to 130 days, respectively. Relative to **Alternative 1**, the lower and upper changes in economic values expected to result from **Options 4b(i)** and **4b(ii)** are estimated to be between -\$1.79 million and \$11.74 million and between \$5.64 million and \$15.66 million (2010 dollars), respectively.

The estimated changes in consumer and producer surpluses provided in this section are sufficient for an ordinal ranking of the economic effects expected to result from the management alternatives. In addition to the discussion above, these results also likely represent maximum economic effects on the recreational sector because they do not account for possible substitution between target species. It is plausible to assume that, to offset a decrease in gag target effort, anglers would replace some of the gag target trips that would have been lost with trips targeting other species, thus reducing the magnitude of potential economic effects.

4.1.4 Direct and Indirect Effects on the Social Environment

Alternatives specify the number of seasons or subseasons; options specify the potential dates of the seasons or subseasons; and suboptions specify a one or two-fish bag limit. The combinations of these alternatives, options, and suboptions entail trade-offs among recreational anglers, who may prefer different alternatives and options depending on their region and fishing activity (e.g., more or less frequent fishing trips). Recreational anglers are not a homogenous group in their fishing preferences, nor are the regions homogenous in terms of when gag are accessible and weather conditions suitable for fishing. Thus, it is not possible to specify impacts for the recreational sector as a whole. Rather, impacts will vary among anglers depending on the duration and timing of the selected season, as well as the bag limit, and how the selected management measures differ from local preferences and conditions.

Taking the broadest perspective that ignores regional preferences, the longest season (greatest number of fishing days) will generally correspond with the least impacts, while shorter seasons may be expected to result in greater impacts. According to the predicted season lengths, then, and based on the median number of days while maintaining the 2-fish bag limit (**Suboptions (i)**), Table 4.1.4.1 lists the alternatives and options in order of the expected impacts, from least (most fishing days) to greatest impacts (fewest fishing days). **Preferred Alternative 2c(i)** would provide for the longest season while **Alternative 3c(i)** is expected to result in the shortest season. The number of fishing days is an estimate only, and may change depending on fishing effort and behavior.

Table 4.1.4.1. Ranked alternatives and options from longest expected season to shortest expected season based on median number of days maintaining 2-fish bag limit.

Alternative and Option	Expected season range of days	Median number of days
2c	133-155	144
1 (no action)	123	123
2b	86-137	111.5
4b	88-108	98
3a	67-96	81.5
2a	72-88	80
4a	68-89	78.5
3b	61-89	75
3c	60-86	73

While greater impacts may be expected from a shorter season, anglers may prefer an alternative for a shorter season provided the timing of the season coincides with more opportune fishing conditions. The alternatives and options for seasons and opening dates are designed based on regional preferences for open seasons among anglers. As stated in section 3.5, most grouper are landed in Florida. Based on regional preferences reflecting comments received by the Florida Fish and Wildlife Conservation Commission (FWC) (section 1.1), some alternatives are preferred for some regions and other combinations elsewhere. While these preferences reflect comments received and summarized by the FWC, they do not necessarily reflect the preferences of all anglers within each region. For example, it is likely that charter for-hire, headboat, and private vessel anglers differ in their season and bag limit preferences. Table 4.1.4.2 identifies the alternative and option(s) that most closely approximates the preferred gag open season for each region.

Table 4.1.4.2. Regional preferences for gag season presented to FWC.

Region	Preferred Season	Reason	Best matching alternatives
Florida Panhandle	June/July-October	Gag & red snapper open concurrently; open during October tournament	Option 2b , but possible ACT is met before October.
Big Bend, central west Florida	March-May	Gag closer inshore; coincides with spring break	Option 2a , but possible ACT is met before end of May
Southwest Florida	Nov-Jan	Winter tourist season	Option 3c (Jan only) Option 4b , but possible ACT is met before end of year.

The number of seasons or subseasons may create confusion for anglers in terms of opening and closing dates. A single season (**Preferred Alternative 2**) would be expected to result in fewer impacts than two subseasons (**Alternative 3**). Establishing three subseasons (**Alternative 4**) of approximately one month each may lead to the most confusion for anglers. Multiple short seasons may also contribute to increased, concentrated effort during openings, similar to the red

snapper season and spiny lobster mini-season. However, any impacts from multiple subseasons may be mitigated by providing the most opportune months for fishing trips.

For each alternative and option, the **Preferred Suboptions i** retain a 2-fish bag limit while **Suboptions ii** reduce the bag limit to 1-fish per person per day. A reduction in bag limit to 1-fish provides for a longer fishing season. Retaining the 2-fish bag limit allows more fish to be caught on a single trip. Based on public testimony, recreational anglers fishing from private vessels generally prefer to retain the larger bag limit for gag. Owing to the expense of fishing trips, many anglers may not be able to take trips as frequently as desired and prefer the larger bag limit despite a shorter season. Other anglers may prefer a longer season and smaller bag limit, and adjust their fishing practices accordingly, such as by targeting other species that are open at the same time. Some charter for-hire and headboat operators have expressed a preference to reduce the bag limit for a longer fishing season, enabling them to offer gag fishing trips over a longer time period.

4.1.5 Direct and Indirect Effects on the Administrative Environment

Alternative 1 (no action) would maintain the current July 1 through October 31 gag recreational season. Because of its length, this season allows for some continuity in the timing of the open season, potentially benefitting both enforcement and voluntary compliance. Thus, effects on the administrative environment are expected to be minimal. However, because this closed season is based on the sector harvesting the 2012 recreational ACT of 1.031 mp, rather than the 2013 recreational ACT of 1.287 mp, this could result in an under harvest of gag. In order for SERO to re-open the recreational gag season to allow harvest of the remaining portion of the ACT, there needs to be some type of temporary rulemaking that would add to the administrative burden for managing gag, thus adversely affecting the administrative environment.

Preferred Alternative 2 is similar to **Alternative 1** in that it manages recreational gag fishing through a single season. However, the projected season length would be based on the 2013 recreational ACT of 1.287 mp. As a result, the chance of any underharvest of the ACT would be less than **Alternative 1**. This reduces the likelihood of needing to reopen the recreational gag season to catch any remaining ACT relieving the administrative environment of the need to implement a temporary rule. The effects of **Options 2a, 2b, and Preferred Option 2c** on the administrative environment are similar. Each will require managers to inform the public of the gag season's opening and closing. In addition, enforcement will need to monitor the harvest of grouper and ensure anglers are complying with the different seasons.

Alternative 3 would split the recreational season into two sub-seasons. This would require additional administrative efforts to inform the public about the split season and to enforce the open and closed seasons compared to **Alternatives 1 and 2**. In each of the sub-options, the first sub-season has a fixed starting and ending date, and therefore would be relatively simple from an administrative and law enforcement aspect. The final sub-season has a fixed starting date, but the ending date would need to be determined by SERO based on prior years' harvest patterns and any available information on harvest during the first sub-season. This would create an additional administrative burden, but such an exercise would need to be conducted under both **Alternative**

2 and **Alternative 3**, so overall the effect on the administrative environment would be about the same.

Alternative 4 would split the recreational season into three sub-seasons. As with **Alternative 3**, this would require additional administrative efforts to inform the public about the split season and to enforce the open and closed seasons compared to **Alternatives 1** and **2**. In each of the sub-options, the first and second sub-seasons have fixed starting and ending dates, and therefore would be relatively simple from an administrative aspect. For **Option 4a**, the final sub-season has a fixed starting date, but the ending date would need to be determined by SERO based on prior years harvest patterns and any available information on harvest during the first two sub-seasons. For **Option 4b**, the final sub-season has a fixed ending date, but the starting date would need to be determined by SERO based on prior years harvest patterns and any available information on harvest during the first two sub-seasons. Determination of the number of days for the final sub-season would create an additional administrative burden, but such an exercise would need to be conducted under both **Alternative 2** and **Alternative 3**, so overall the effect on the administrative environment would be about the same.

Under all of the alternatives and options, except **Alternative 1**, there are suboptions to set the gag bag limit a two fish (**Preferred suboption i**), or one fish (**suboption ii**) within the four fish grouper aggregate bag limit. In either case, the suboption creates a bag limit that needs to be enforced, but because the 2-fish bag limit already exists, this would not change the enforcement or administrative requirements. However, a smaller bag limit may encourage fishermen to highgrade, i.e., release an initial capture in order to retain a subsequent larger capture. This activity could increase the number of dead discards.

4.2 Action 2: Modify the February-March Recreational Shallow-water Grouper Closure

4.2.1 Direct and Indirect Effects on the Physical Environment

As discussed in Section 4.1.1, the primary effects of recreational grouper fishing on the physical environment result from bottom habitat being damaged or disturbed by fishing gear interactions with the sea floor. In the northeast Gulf of Mexico, much of the bottom habitat in the offshore waters straddling the 40 fathom depth contour is protected from gear interactions by three area restrictions, Madison-Swanson, the Edges, and Steamboat Lumps. Within these areas, bottom fishing is prohibited either year-round (Madison-Swanson and Steamboat Lumps) or all fishing is prohibited during January through April (the Edges). The alternatives in this section affect the amount of time that recreational fishermen can fish for shallow-water grouper in the remaining federal waters of the Gulf of Mexico during February, March and April.

Alternative 1 continues to prohibit recreational shallow-water grouper fishing during February through March, and therefore continues to provide protection to the bottom habitat during this time. Fishermen may still fish for other reef fish during this time, resulting in continuing interactions with the bottom habitat. However, this would occur at a lesser frequency than if the shallow-water grouper recreational season was open.

Alternative 2 has two options. **Option 2a** shortens the closed season to half its current length. This would increase bottom habitat interactions, although not as much as with a complete opening (**Alternative 3**). **Option 2b** retains the current season length but moves the season to March through April. This is a time when there is usually more recreational grouper harvest than during February through March (GMFMC 2008a). Consequently, closing recreational shallow-water grouper fishing during this period would provide greater benefits to protecting bottom habitat than **Alternative 1**.

Alternative 3 eliminates the February through March shallow-water grouper closed season in its entirety. Recreational fishing for gag may be closed for part or all of this time period depending upon the alternative selected for Action 1, but fishing would be open for red grouper, black grouper, scamp, yellowmouth grouper, and yellowfin grouper. Of these five species, red grouper is the dominant target species. Red grouper inhabits flat rock perforated with solution holes, caverns and crevices of limestone reef, and hard bottom areas (Moe 1969; Bullock and Smith 1991). These would be the types of bottom habitat most likely to be affected by fishing gear interactions.

Preferred Alternative 4 eliminates the February through March shallow-water grouper closed season shoreward of 20 fathoms, but leaves it in place seaward of 20 fathoms. The impacts would be similar to **Alternative 3**, but with increased recreational fishing effort shoreward of 20 fathoms during the offshore closed season.

4.2.2 Direct and Indirect Effects on the Biological/Ecological Environment

The gag stock is overfished and is under a rebuilding plan. Regardless of which alternative is adopted in this action, the alternatives in Action 1 are intended to keep recreational gag harvest below the ACL, allowing the rebuilding plan to proceed. However, certain alternatives in Action 2 conflict with some of the alternatives in Action 1 and therefore cannot be adopted concurrently. For example, in **Action 1, Alternative 2, Option 2a** would open the month of March to recreational gag harvest, which conflicts with **Action 2, Alternative 1** and **Alternative 2** (both options), which leave all or part of March closed to shallow-water grouper harvest. Alternatives in Action 1 and Action 2 that conflict cannot be adopted concurrently.

Alternative 1 continues to prohibit recreational shallow-water grouper fishing during February through March. This is the peak spawning season for gag, plus part of the peak spawning season for red grouper, black grouper, and scamp (Table 2.1.3). **Alternative 1** may provide positive benefits to the gag stock by reducing fishing effort, but a more comprehensive system of open and closed seasons to control gag fishing effort is implemented in Action 1. **Alternative 1** may interfere with the adoption of certain Action 1 alternatives by having conflicting open and closed seasons.

Alternative 2 has two options. **Option 2a** shortens the closed season to half its current length. To the extent that the closed season reduces recreational gag harvest, this would reduce its effectiveness by half. Furthermore, although February-March has been identified as the peak gag spawning period, peak spawning is dependent upon environmental factors and does not occur at exactly the same time each year. Reducing the length of the closed season increases the

possibility of missing peak spawning. Furthermore, effort shifting around the closed season becomes more likely, reducing the effectiveness of the closed season even more. **Option 2b** keeps the closed season length at 2 months, but changes the dates from February-March to March-April in order to capture more of the spawning season of other groupers, including red grouper, black grouper and scamp (Table 2.1.3). However, none of these other grouper species are considered overfished and in need of additional protection, whereas gag is overfished. Therefore **Option 2b**, as well as **Option 2a**, provide less protection to the spawning gag (and other groupers that spawn during February and March, see Table 2.1.3) than **Alternative 1**. Furthermore as with the previous alternative, **Options 2a and 2b** may interfere with the adoption of certain Action 1 alternatives by having conflicting open and closed seasons.

Alternative 3 eliminates the February through March shallow-water grouper closed season in its entirety. Recreational fishing for gag may be closed for part or all of this time period depending upon the alternative selected for Action 1, but fishing would be open for red grouper, black grouper, scamp, yellowmouth grouper, and yellowfin grouper. Of these five species, red grouper is the dominant target species. Red grouper and black grouper had had recent stock assessments indicating that neither stock is overfished or experiencing overfishing. The remaining shallow-water grouper have not been assessed and their status is unknown. Under Action 1, closed seasons would apply only to gag. As discussed under **Alternative 1**, the rationale for applying a closed season to all shallow-water grouper is to prevent incidental catch of gag while targeting other grouper. However, as discussed above, incidental catch of gag may occur while targeting other species even if all shallow-water grouper are closed. Aside from the bycatch concerns, gag would continue to be protected with closed seasons under Action 1. The remaining shallow-water grouper species would no longer be subject to a closed season (unless triggered by their ACL being reached), but because those stocks are not classified as overfished, removal of the closed season would not affect any rebuilding plans and should not have a significant negative impact on those stocks.

Preferred Alternative 4 eliminates the February through March shallow-water grouper closed season shoreward of 20 fathoms, but leaves it in place seaward of 20 fathoms. Shoreward of 20 fathoms, **Preferred Alternative 4** would have impacts similar to **Alternative 3**. Seaward of 20 fathoms, it would have impacts similar to **Alternative 1** (status quo). The dominant spawning grounds for gag occur near the 40 fathom depth contour. Other grouper species such as red grouper and scamp also spawn primarily in waters deeper than 20 fathoms. Much of this area is already protected by the Madison-Swanson, Edges and Steamboat Lumps area closures. This alternative would continue protection for spawning aggregations in the remaining areas seaward of 20 fathoms. Shoreward of 20 fathoms, fishing effort on shallow-water grouper may increase during the offshore February through March closed season. Offshore, as discussed above, incidental catches of shallow-water grouper may occur from fishermen targeting other non-grouper species.

4.2.3 Direct and Indirect Effects on the Economic Environment

The status quo alternative (**Alternative 1**) would maintain the February 1 through March 31 recreational closure on shallow-water grouper. Because **Alternative 1** would not make any change in the current closure, this alternative would not be expected to affect the harvest or other

customary uses of gag. However, it is important to note that the selection of **Alternatives 1, 2, or 4** would limit the season configurations that could be implemented in **Action 1**. For example, the status quo recreational closure on shallow-water grouper (**Alternative 1**) is not compatible with the implementation of **Action 1-Alternative 3**. **Action 1, Options 3a(i) and 3a(ii)** would set a first recreational sub-season of March 1 through March 31 and a second sub-season beginning June 1 and ending when the remainder of the recreational gag ACT is expected to be met. Thus, although **Alternative 1** would not be expected to result in any direct economic effects on shallow-water grouper harvesters or associated businesses, indirect effects could accrue due to limitations on the options that could be implemented through **Action 1**.

Alternative 2 considers modifications to the recreational closure on shallow water grouper that would shorten the closure to February 15 through March 15 (**Option 2(a)**) or shift the closed season to March through April (**Option 2(b)**). Although limited in magnitude, **Option 2(a)** is expected to result in increased protection to the gag stock during spawning. In the long term, **Option 2(a)** would thus be expected to result in small economic benefits stemming for this added protection to the stock. Relative to **Option 2(a), Option 2(b)**, which would be expected to result in greater protection to the gag and other shallow water grouper stocks during spawning, would be expected to result in greater indirect economic benefits in the long term.

Alternative 3 would eliminate the February 1 through March 31 recreational closed season on shallow-water grouper. Therefore, economic benefits due to additional protection to the gag stock during spawning would not be expected to result from **Alternative 3**. However, the elimination of the recreational closure would be expected to increase the flexibility in setting the recreational gag season, possibly resulting in economic benefits due to the availability of fishing opportunities during periods of increased demand, e.g., Spring break holidays in March.

Preferred Alternative 4 would be expected to increase the flexibility in setting recreational gag seasons, possibly resulting in additional economic benefits because it would eliminate the existing recreational closed season on shallow-water grouper in federal waters shoreward of the 20 fathom boundary. Relative to **Alternative 3**, these potential economic benefits would be expected to be smaller because **Alternative 3** would eliminate the closure throughout the EEZ. However, **Preferred Alternative 4** would also be expected to result in economic benefits stemming from the increased protection that it would afford to gag spawning aggregations seaward of the 20 fathom boundary.

4.2.4 Direct and Indirect Effects on the Social Environment

Although impacts are not usually expected from maintaining the status quo (no action **Alternative 1**), the recreational closed season for shallow-water grouper entails social impacts by prohibiting the harvest of grouper species which have not reached their quota during a desirable fishing season (March). These social impacts may not be mitigated by biological benefits to spawning gag because gag spawning grounds continue to be protected by established closed areas (the Edges and Madison-Swanson). Furthermore, the closed season was initially developed for the commercial sector, and then repealed upon implementation of the grouper-tilefish IFQ program. Removing the fixed closed season for the recreational sector remedies a

regulatory disparity between the sectors. Unless based on factors such as differences in targeted fish size or fishing areas, regulations that are inconsistent among sectors may contribute to further inter-sector conflict.

The status quo closed season (**Alternative 1**) and the modifications proposed under **Alternative 2** are inconsistent with Options 2a, 3a, and 4a of Action 1, each of which propose an open gag season during March. However, none of these Action 1 options are selected as preferred. Modifying the closed season to March through April (**Option 2b**) would result in the greatest impacts to anglers in the Big Bend region of Florida, who have expressed their preference for a March through May open season. Shortening the season to mid-February through mid-March (**Option 2a**) would still impact Big Bend anglers, but for a shorter period of time than **Option 2b**. These options would be expected to result in fewer impacts for anglers in the Florida panhandle and southwest Florida, as they do not coincide with the stated season preferences in those areas.

Eliminating the shallow-water grouper closed season completely (**Alternative 3**) would result in the greatest social benefits among the alternatives by allowing shallow-water grouper species without a species specific closed season to be landed year-round. Individual species could be placed under a species-specific closure if necessary for biological reasons, yet unless those reasons are identified and implemented through regulatory action, recreational anglers will not be affected by a closed season with undetermined biological benefits. The benefits of removing the closure may be limited in the short-term, however, as the bulk of recreational shallow-water grouper landings consist of gag (Figure 3.5.1) which would remain closed during February and March under Preferred Alternative 2c(i) of Action 1.

Because data are not available to determine the quantity of recreational grouper harvest occurring seaward of 20 fathoms during February and March, it is not possible to determine the extent of impacts on anglers from a partial removal of the shallow-water grouper closure (**Preferred Alternative 4**). However, the benefits of a partial removal (**Preferred Alternative 4**) will be less than a complete removal of the recreational closed season (**Alternative 3**). Eliminating the closure shoreward of 20 fathoms (**Preferred Alternative 4**) would also be difficult to enforce and possibly confusing for compliance.

4.2.5 Direct and Indirect Effects on the Administrative Environment

Alternative 1 (no action) would maintain the current February through March shallow-water grouper recreational season closure. This action requires management agencies to remind the public of the closures as well as enforce this measure to ensure the sector complies with the closure. The effects to the administrative environment from **Alternative 2, Options 2a and 2b** would be similar to **Alternative 1** because they both would maintain closures that would need to be enforced. **Alternative 3** would eliminate the closure and so would be beneficial to the administrative environment. Enforcement effort could be redirected to monitoring other management measures in the reef fish fishery. **Preferred Alternative 4** also eliminates the closure, but this elimination is restricted to an area from shore out to a line approximating the 20-fathom contour. Because this alternative would allow fishing for shallow-water grouper in some

waters, but not in others, dockside enforcement would be difficult. Most recreational and for-hire vessels do not have vessel monitoring systems onboard (see Section 2.2), so more costly on-the-water enforcement would be required to monitor this closure for compliance. It is difficult to assess whether **Preferred Alternative 4** would adversely affect the administrative environment as much as **Alternatives 1** and **2**. Relatively few recreational fishing vessels fish in waters deeper than 20 fathoms and would allow enforcement agencies to target those vessels.

4.3 Cumulative Effects

Cumulative effects to the human environment through this action would be minor. The cumulative effects from setting gag ACLs and ACTs have been analyzed in the environmental impact statement (EIS) for Amendment 32 (GMFMC 2011b), and cumulative effects to the reef fish fishery have been analyzed in previous EISs for other reef fish amendments (GMFMC 2008a, 2008b, 2008c, 2009, and 2011a), and are incorporated here by reference. The effects of setting the gag recreational season length in this framework action are most closely aligned with the effects from establishing a gag rebuilding plan in Amendment 32 and a 2010 interim rule. The effects of revising or eliminating the recreational shallow-water grouper closure in this framework action are most closely aligned with the effects from establishing shallow-water grouper management measures in Amendments 30B and 32. Although it is questionable whether recreational fishing on gag spawning aggregations occurs at a level that would cause significant impacts due to the distance from shore, any adverse effects from modifying the shallow-water grouper closure would be mitigated for by annual catch limits and accountability measures designed to prevent overfishing and implemented through these amendments. The analyses in Amendments 30B and 32 found the effects on the biophysical and socioeconomic environments are positive because they would ultimately restore/maintain the stocks at levels that allow the maximum benefits in yield and commercial 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. These negative impacts can be minimized by selecting measures that would provide the least disruption to the fishery while maintaining harvest levels consistent with ACTs and ACLs. For the recreational sector, this would mean using combinations of bag limits, size limits, and closed seasons to minimize disruptions.

Global climate change can affect marine ecosystems through ocean warming by increased thermal stratification, reduced upwelling, sea level rise, and through increases in wave height and frequency, loss of sea ice, and increased risk of diseases in marine biota. Decreases in surface ocean pH due to absorption of anthropogenic carbon dioxide emissions may impact a wide range of organisms and ecosystems (Solomon et al. 2007). These influences could affect biological factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. At this time, the level of impacts cannot be quantified, nor is the time frame known in which these impacts would occur. The Environmental Protection Agency's climate change webpage (<http://www.epa.gov/climatechange/>) provides basic background information on these and other measured or anticipated effects. A compilation of scientific information on climate change can be found in the United Nations Intergovernmental Panel on Climate Change's Fourth Assessment Report (Solomon et al. 2007) and incorporated here by reference. Global climate changes could have significant effects on Gulf of Mexico fisheries; however, the extent of these effects is not known at this time. Possible impacts are outlined in Amendment 31 (GMFMC 2009), the Generic ACL amendment (GMFMC 2011a), and Amendment 32 (GMFMC 2011b). In addition, oil from the Deepwater Horizon MC252 incident that occurred in April 2010 may affect gray triggerfish populations. However, the effects of this oil on gray triggerfish 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 interrupt critical life history stages, the effects could reduce these species' population sizes.

Monitoring

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 of Mexico is collected through Marine Recreational Fisheries Statistics Survey, NMFS Head Boat Survey, and the Texas Marine Recreational Fishing Survey. Marine Recreational Fisheries Statistics Survey has been replaced by Marine Recreational Information Program, a program designed to improve the monitoring of recreational fishing. Commercial data is collected through trip ticket programs, port samplers, and logbook programs. Currently, an update SEDAR assessment of Gulf of Mexico gag is scheduled for 2013. In response to the Deepwater Horizon MC252 incident, increased frequency of surveys of the recreational sector's catch and effort, along with additional fishery independent information regarding the status of the stock are being conducted. This will allow future determinations regarding the impacts of the Deepwater Horizon MC252 incident on various fishery stocks, including red snapper. At this time it not possible to make such determinations.

CHAPTER 5. REGULATORY IMPACT REVIEW

5.1 Introduction

NOAA's 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 proposed regulations are a "significant regulatory action" under the criteria provided in Executive Order (E.O.) 12866 and provides information that may be used in conducting an analysis of impacts on small business entities pursuant to the Regulatory Flexibility Act. This RIR analyzes the expected effects that this action would be expected to have on the reef fish fishery of the Gulf of Mexico. Additional details on the expected economic effects of the various alternatives in this action are included in Chapter 4.

5.2 Problems and Objectives

The purpose and need, issues, problems, and objectives of this amendment are presented in Chapter 1.

5.3 Description of the Fishery

A description of the Gulf reef fish fishery, with particular reference to gag, is provided in Section 3.4.

5.4 Effects of Management Measures

Detailed analyses of the expected economic impacts of alternatives considered in Actions 1 and 2 of this proposed regulatory amendment are contained in Chapters 4.1.3 and 4.2.3, respectively. The following discussion provides a summary of the expected economic impacts that would be expected to result from the preferred alternatives selected by the Council.

5.4.1 Action 1: 2013 Recreational Gag Season and Bag Limit

Preferred Option 2c(i) would, as occurs under the status quo (**Alternative 1**), start the season July 1 and maintain a 2-fish bag limit. However, **Preferred Option 2c(i)** is expected to result in a longer recreational gag season than the status quo because the season length under the status quo alternative does not account for the 25% increase in the recreational gag ACT scheduled for the 2013 season. A recreational gag season ranging from 133 days to 155 days would be

expected to result from **Preferred Option 2c(i)**. Relative to **Alternative 1, Preferred Option 2c(i)** would be expected to result in an increase in economic value ranging from \$6.44 million to \$20.61 million (2010 dollars). The results for these alternatives illustrate the effects of the non-uniform distribution of effort over the year. The difference between the lower and upper season-length estimates for **Preferred Option 2c(i)** is 22 fishing days or approximately 36%, whereas the difference between the expected private recreational target effort is 220%.

5.4.2 Action 2: Modify the February-March Recreational Shallow-water Grouper Closure

Preferred Alternative 4 would be expected to increase the flexibility in setting recreational gag seasons, possibly resulting in additional economic benefits because it would eliminate the existing recreational closed season on shallow-water grouper in federal waters shoreward of the 20 fathom boundary. **Preferred Alternative 4** would also be expected to result in economic benefits stemming from the increased protection that it would afford to gag spawning aggregations seaward of the 20 fathom boundary.

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 regulatory amendment include:

Council costs of document preparation, meetings, public hearings, and information dissemination.....	\$30,000
NOAA Fisheries administrative costs of document preparation, meetings and review	\$20,000
TOTAL	\$50,000

The Council and federal costs of document preparation are based on staff time, travel, printing, and any other relevant items where funds were expended directly for this specific action. There are no permit requirements proposed in this regulatory action or anticipated additional enforcement costs involved in monitoring any closures. In addition, under a fixed budget, any additional enforcement activity due to the adoption of this regulatory amendment would likely mean a redirection of resources to enforce the new measures rather than an expenditure of new funds.

5.6 Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a “significant regulatory action” if it is expected to result in: (1) An annual effect of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan

programs or the rights or obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order. Based on the information provided above, this regulatory action would not meet the first criterion. Therefore, this regulatory action is 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 Act Analysis (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 FMP or amendment (including framework management measures and other regulatory actions) and to ensure the agency considers alternatives that minimize the expected impacts while meeting the goals and objectives of the FMP and applicable statutes.

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 rule

The problems and objective of this proposed action are provided in Chapter 1. In summary, the objective of this proposed rule is to establish a 2013 gag recreational fishing season and reduce the geographic extent of the shallow-water grouper spawning closure to prevent overfishing and achieve optimum yield from the stocks in the shallow-water grouper complex. 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 action, if adopted, would be expected to directly affect 1,363 vessels that possess a valid or renewable reef fish for-hire permit. A renewable permit is an expired permit that may not be actively fished, but is renewable for up to one year after expiration. The for-hire fleet is comprised of charterboats, which charge a fee on a vessel basis, and headboats, which charge a fee on an individual angler (head) basis. Although the reef fish for-hire permit does not distinguish between charterboats and headboats, an estimated 69 headboats operate in the Gulf of Mexico (Gulf). As a result, an estimated 1,294 charterboats and 69 headboats in the Gulf would be expected to be directly affected by this proposed action. The average charterboat is estimated to earn approximately \$77,000 (2010 dollars) in annual revenue, and the average headboat is estimated to earn approximately \$234,000 (2010 dollars).

No other small entities that would be expected to be directly affected by this proposed action have been identified.

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 \$7.0 million (NAICS code 713990, recreational industries). Based on the average revenue estimates provided above, all for-hire vessels expected to be directly affected by this proposed action are determined for the purpose of this analysis to be small business entities.

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

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 rule

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

As previously discussed, this proposed rule, if implemented, would be expected to directly affect 1,363 vessels that have a valid or renewable reef fish for-hire permit. These vessels represent the entire fleet of federally permitted for-hire vessels in the Gulf of Mexico. As a result, this proposed action is determined to meet the substantial number criterion.

Significant economic impacts

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

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

All entities expected to be directly affected by the measures in this proposed action are determined for the purpose of this analysis to be small business entities, so the issue of disproportionality does not arise in the present case.

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

A discussion of the expected economic effects of the different actions and alternatives in this proposed amendment is provided in Chapter 4. This proposed action would change the open season for the recreational harvest of gag and the geographic range of the shallow-water grouper spawning closure. The proposed gag recreational open season would be expected to increase the number of charterboat individual angler gag target trips Gulf-wide by 770-2,464 trips. The producer surplus (PS), which is used as a proxy for vessel profit, of a charterboat angler trip is estimated to be \$146.63 (2010 dollars). The expected increase in the number of gag target trips would be expected to increase the PS to all affected vessels combined by approximately \$112,000-\$359,000 (770-2,464 trips times \$146.63 per trip; 2010 dollars). Over the period 2007-2011, the Gulf charterboat fleet averaged approximately 765,200 angler trips per year, of which an average of approximately 14,600, or approximately two percent, targeted gag. These trips generated approximately \$111 million in PS per year. The estimated increase in PS expected to result from the proposed gag recreational open season would, therefore, be expected to increase the total PS received by Gulf charterboats by less than one percent (approximately 0.1-0.3 percent). Allocated across all Gulf charterboats (1,294 vessels), the estimated change in PS would result in an increase of approximately \$77-\$277 (2010 dollars) per vessel. Although some vessels would be expected to be more actively engaged in the harvest of gag than other vessels, these results indicate that the proposed gag recreational season would be expected to have a minor positive economic impact on the profit of charterboats.

Comparable information for headboats is not available because target data for headboat trips is not collected. However, gag harvest accounts for less than four percent of the total pounds harvested of all species by Gulf headboats, whereas gag accounts for approximately 13 percent of total pounds harvested by charterboat anglers despite the low amount of target effort. The higher proportion of gag harvest relative to total harvest for charterboats compared to headboats, despite the low rate of target effort by charterboat anglers, suggests gag target effort by headboat anglers, similar to that of charterboat anglers, comprises a small portion of headboat effort. As a result, the proposed gag recreational season would be expected to result in a small change in the number of headboat angler trips taken and, as a result, have a minor economic impact on the profit of headboats.

The proposed change in the geographic range of the shallow-water grouper spawning closure would be expected to result in a minor positive economic impact to for-hire small businesses. A spawning season closure applicable to the recreational sector for gag, black grouper, and red grouper of some duration has been in effect since 2006 and was expanded to include all shallow-water grouper species in 2010. As a result, examination of data prior to 2006 is required to provide insights into the possible economic effects of the proposed change of the geographic range of the shallow-water grouper spawning closure. During 2004-2005, approximately 6,300 trips are estimated to have been taken each year during February-March by charterboat anglers targeting shallow-water grouper species. Among the shallow-water grouper species, gag is the most commonly targeted species. Of the approximately 6,300 shallow-water grouper target trips taken each year, approximately 4,700 of these trips, or approximately 74 percent, targeted gag. As a result, of the approximately 6,300 shallow-water grouper target trips that occurred each year during February-March, only approximately 1,600 trips targeted shallow-water grouper species other than gag. During these two years, 2004-2005, approximately 765,300 charterboat angler trips were taken each year. Thus, the number of trips that targeted a shallow-water grouper species other than gag during February-March represented approximately 0.2 percent of all charterboat angler trips taken over the entire year.

The proposed change in the geographic range of the shallow-water grouper spawning closure would eliminate the spawning closure in federal waters shoreward of the 20-fathom boundary. Estimates of recreational target effort by water depth are not available and the estimates of angler effort provided above, which encompass effort throughout the Gulf, cannot be disaggregated to match the geographic parameters of the proposed action. As a result, because some shallow-water grouper target effort may occur seaward of the 20-fathom boundary, estimates of the expected economic effects of the proposed change in the geographic range of the shallow-water grouper spawning closure based on the angler target information discussed above would be expected to be an upper bound. Based on the information provided above, because the recreational harvest of gag would continue to be prohibited, the proposed change in the geographic range of the shallow-water grouper spawning closure would be expected to result in an increase of approximately 1,600 charterboat angler trips, or approximately 0.2 percent of normal charterboat angler trips taken over the year. These trips would be expected to result in an increase in the PS to the Gulf charterboat fleet by approximately \$235,000 (2010 dollars), or approximately 0.2 percent of total PS received by Gulf charterboats. Allocated across all Gulf charterboats, the estimated change in PS would result in an increase of approximately \$182 (2010 dollars) per vessel. Similar to the discussion on the expected effects of the proposed open

season, although some vessels would be expected to be more actively engaged in the harvest of shallow-water grouper species other than gag than other vessels, these results indicate that the proposed change in the geographic range of the shallow-water grouper spawning closure would be expected to have a minor positive economic impact on the profit of charterboats.

Similar to the discussion of the expected effects of the proposed recreational gag open season, estimates of the expected effects of the proposed change in the geographic range of the shallow-water grouper spawning season on headboat vessels cannot be calculated with available data. However, because the proposed change would only affect the harvest of shallow-water grouper species other than gag, which is the most commonly targeted shallow-water grouper species, and the increased harvest opportunity would only apply to a small portion of the year, the proposed change in the geographic range of the shallow-water grouper spawning season would be expected to result in only a small increase in the number of headboat angler trips taken and, as a result, have a minor economic impact on the profit of headboats.

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 adopted, would not be expected to have a significant economic effect on a substantial number of small entities. As a result, the issue of significant alternatives is not relevant.

CHAPTER 7. LIST OF PREPARERS

PREPARERS

Name	Expertise	Responsibility	Agency
Steven Atran	Fishery biologist	Co-Team Lead – Amendment development, introduction, biological analysis	GMFMC
Peter Hood	Fishery biologist	Co-Team Lead – Amendment development, introduction, biological analysis, cumulative effects analysis	SERO
Assane Diagne	Economist	Economic analyses, regulatory impact review	GMFMC
Stephen Holiman	Economist	Regulatory Flexibility Act analysis	SERO
Andy Strelcheck	Fishery biologist	Scientific analyses	SERO
Ava Lasseter	Anthropologist	Social analyses	GMFMC
Amanda Frick	GIS Coordinator	Mapping, Geographic Information Systems	SERO

GMFMC = Gulf of Mexico Fishery Management Council, SERO = Southeast Regional Office of NMFS

REVIEWERS (Preparers also serve as reviewers)

Name	Expertise	Responsibility	Agency
Adam Brame	Biologist	Protected resources review	SERO
David Dale	Essential fish habitat specialist	Essential fish habitat review	SERO/HC
Anne Marie Eich	Regulations writer	Regulatory review	SERO
Jakob Tetzlaff	Fishery biologist	Biological review	SEFSC
David Carter	Economist	Economic review	SEFSC
Noah Silverman	Natural resource management specialist	NEPA review	SERO
Mara Levy	Attorney	Legal review	NOAA/GC

HC=Habitat Conservation, GC = General Counsel, SERO = Southeast Regional Office, NEPA = National Environmental Policy Act, SEFSC = Southeast Fisheries Science Center

CHAPTER 8. LIST OF AGENCIES, ORGANIZATIONS AND PERSONS CONSULTED

National Marine Fisheries Service

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

NOAA General Counsel

Environmental Protection Agency

United States Coast Guard

United States Fish and Wildlife Services

Texas Parks and Wildlife Department

Alabama Department of Conservation and Natural Resources/Marine Resources Division

Louisiana Department of Wildlife and Fisheries

Mississippi Department of Marine Resources

Florida Fish and Wildlife Conservation Commission

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APPENDIX A. ALTERNATIVES CONSIDERED BUT REJECTED

Action 2 - Modify (lengthen) the February-March Recreational Shallow-water Grouper Closure

Alternative 2: Modify the closed season as follows:

Option 2a: Lengthen the season to February 1 through April 30 (increased coverage for red grouper and other grouper spawning seasons)

The Council reviewed the option to lengthen the fixed shallow-water grouper recreational closed season at its June 2012 meeting. Council members felt that the scope of alternatives should include options to shorten or eliminate the fixed closed season, but did not feel that there was any support to lengthen the season. Therefore, the Council voted to move this option to the Considered but Rejected section.

APPENDIX B. 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 fishery management in federal waters of the exclusive economic zone. However, fishery 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 Procedures Act

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (APA) (5 U.S.C. Subchapter II), which establishes a “notice and comment” procedure to enable public participation in the rulemaking process. Under the APA, 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 APA 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, 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 (DQA) (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 DQA 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 of 1973 (ESA), 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 a fishery action 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 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.

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 2011a).

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 fisheries, and studies of pinniped-fishery interactions.

Under section 118 of the MMPA, NMFS must publish, at least annually, a List of Fisheries (LOF) that places all U.S. commercial fisheries into one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in each fishery. The categorization of a fishery in the LOF determines whether participants in that fishery may be required to comply with certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan requirements. The conclusions of the most recent List of Fisheries for gear used by the reef fish fishery can be found in Section 3.3.

Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (PRA) (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 PRA requires NMFS to obtain approval from the Office of Management and Budget before requesting most types of fishery information from the public. Action 2 adds reporting and monitoring requirements to the list of post-season accountability measures that can be implemented or changed under the framework procedure and may have PRA consequences.

Executive Orders

E.O. 12630: Takings

The Executive Order 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

Executive Order 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 fishery 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 a) 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; b) creates a serious inconsistency or otherwise interferes with an action taken or planned by another agency; c) materially alters the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or d) 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 Executive Order 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. The Executive Order is described in more detail relative to fisheries actions in Section 3.4.

E.O. 12962: Recreational Fisheries

This Executive Order 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 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 Council 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 Order requires NMFS and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

E.O. 13132: Federalism

The Executive Order on Federalism requires agencies in formulating and implementing policies, to be guided by the fundamental Federalism principles. The Order 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 Order 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 have been identified relative to the action proposed in this amendment. Therefore, consultation with state officials under Executive Order 12612 is not necessary.

E.O. 13158: Marine Protected Areas

This Executive Order 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 (MPAs), habitat areas of particular concern (HAPCs), and gear-restricted areas in the eastern and northwestern Gulf of Mexico.

Essential Fish Habitat

The amended Magnuson-Stevens Act included a new habitat conservation provision known as essential fish habitat (EFH) that requires each existing and any new FMPs to describe and identify EFH for each federally managed species, minimize to the extent practicable impacts from fishing activities on EFH that are more than minimal and not temporary in nature, and identify other actions to encourage the conservation and enhancement of that EFH. To address these requirements the Council has, under separate action, approved an EIS (GMFMC 2004) to address the new EFH requirements contained within the Magnuson-Stevens Act. Section 305(b)(2) requires federal agencies to obtain a consultation for any action that may adversely affect EFH. An EFH consultation will be conducted for this action.

APPENDIX C. SUMMARIES OF PUBLIC COMMENTS RECEIVED

Public Hearing Summaries

Naples, Florida
October 15, 2012

Council/Staff:

John Sanchez
Dr. Carrie Simmons

16 Members of the Public in Attendance

Paul Giordano – CCA Florida, recreational angler

Mr. Giordano provided a written statement in addition to his verbal testimony. He stated that his organization was in favor of reallocating gag between the commercial and recreational sectors. The economic analysis shows the greatest benefit comes from the recreational sector having a greater proportion of the allocation.

Action 1 – Mr. Giordano stated he wanted the longest fishing season possible, but was not in favor of reducing the bag limit below 2 gag per angler per trip. He stated that his organization felt it did not significantly increase the length of the fishing season by reducing the bag limit to 1 gag per angler per trip. Mr. Giordano stated although the split season proposals do not provide as long of fishing season as the single season option, his organization recognizes it may provide the greatest benefit to most Floridians and tourists. Specifically, he was in favor of a split season with equal fishing days between the winter and the fall that incorporated maximizing the number of allowable fishing days.

Action 2 – Mr. Giordano felt fishing should be closed to both the commercial and recreational sectors during the spawning season and the offshore spawning aggregations needed to be protected.

Mr. Giordano requested the new release devices and techniques be considered immediately by the Council and if effective they should be allowed to be used by anglers.

Tom Marvel – Captain Marvel Charters

Action 1 – Captain Marvel stated he was in favor of reducing the bag limit to 1 gag per angler per day to extend the fishing season. He was in favor of any of the alternatives that would lengthen the fishing season, even it was only for 20-25 days. He was also in favor of a split season for gag, specifically a season that opened in the month of November and went through the winter into February and March. Specifically, of the proposed alternatives he favored Alternative 3, Option 3b, Suboption 3b(ii) which is estimated to have 73-103 fishing days.

Action 2 – For the February-March recreational shallow-water grouper closure he would like to see total elimination of the fixed closed season. He believes it is not protecting the other shallow-water grouper species during spawning and therefore is not accomplishing what it was

intended to do. Therefore, he favored Alternative 3: Eliminate the February 1 through March 31 recreational closed season for shallow-water grouper. He targets gray snapper, cobia, and greater amberjack which are often found in areas of high gag abundance so they are being discarded during the shallow-water closed season anyway and he does not feel allowing other grouper species such as red grouper to be kept would increase gag discards.

Captain Clarence Fleck – Captain Marvel Charters

Action 1 – Captain Fleck stated he was in favor of the two alternatives Captain Marvel had just referenced for the split gag season and 1 gag per angler bag limit (Alternative 3, Option 3b, Suboption 3b(ii) which is estimated to have 73-103 fishing days). He stated he wanted the longest possible fishing season.

Action 2 – Captain Fleck also stated he was also in favor of Action 2, Alternative 3: Eliminate the February 1 through March 31 recreational closed season for shallow-water grouper. He stated while fishing for other reef fish, gag are being caught, and are currently being discarded. Therefore, lifting the fixed closed season would not increase the number of discarded gag.

Captain Gene Luciano – Charter Lady Brett, Inc.

Action 1 – Captain Luciano stated he has been a charterboat captain for 42 years and he was in favor of the longest possible fishing season for gag. In fact, a longer fishing season was more important to his business than maintaining the 2 gag per angler per trip bag limit. He stated that an opening in November for gag would be ideal and he would like to be able to fish for them through the month of March into the spring break season. The current summer fishing season for gag is not helpful for this area.

Action 2 – Captain Luciano stated he was in favor of Action 2, Alternative 3: Eliminate the February 1 through March 31 recreational closed season for shallow-water grouper, because red grouper were very important to his area and business during that time of the year.

Captain Mike Lucas – Cuda Charterboat

Action 1 – He is in favor of gag opening in the winter and going into the spring overlapping with their tourist season as much as possible. He would also be willing to reduce the bag limit to 1 gag per angler if it means a longer fishing season.

Action 2 – Captain Lucas stated he is a charterboat captain with a 6-pack license and he targets groupers, snappers, king fish, and amberjack. He stated the height of their season is December 1 through April 30. It is a 5 month season; therefore, closing shallow-water grouper during the height of their fishing season has made it very difficult for their business. Captain Lucas is in favor of Action 2, Alternative 3: Eliminate the February 1 through March 31 recreational closed season for shallow-water grouper. If Alternative 3 in Action 2 was not possible he would be in favor of Alternative 4: Eliminate the February 1 through March 31 recreational closed season on shallow-water grouper in federal waters shoreward of the 20 fathom boundary.

Members of the Public who did not speak:

Justin Lamb – student at Florida Gulf Coast University
Jonathan Webb – student at Florida Gulf Coast University
Ed Foley – student at Florida Gulf Coast University
Six other students from Florida Gulf Coast University, no cards submitted.
Two anglers – no cards submitted. Stated they would submit comments online.

**St. Petersburg, Florida
October 16, 2012**

Staff:

Steven Atran
Carrie Simmons

45 Members of the Public in Attendance, 20 spoke

Bob Gill – Seafood dealer and former Council member

Action 1 – Mr. Gill recommended that Alternative 4 (3 sub-seasons) be moved to considered but rejected. He felt it is unduly complex, which will result in a lack of compliance. He stated that Florida FWC seems to have changed its position from supporting the longest season to supporting Alternative 3 (2 sub-seasons) which results in the shortest season. Because of this inconsistency, the Council does not know if Florida FWC will be consistent with whatever decision the Council makes. He suggested that a split season will accommodate the Big Bend region only and the rest of the state will suffer. Mr. Gill supported a 1-fish bag limit. His rationale was that because of high fishing effort, low male-to-female ratio, and strong site fidelity, he felt that the 1-fish bag limit would help get to a non-overfished, non-overfishing status.

Action 2 – He recommended that Alternative 4 (20-fathom boundary) be moved to considered but rejected. He felt it is unenforceable and doesn't make sense. Given the overfished status of the stock, he suggested Alternative 2 with either option, although he had a slight preference for Alternative 2a (one month closed season).

Steven Creasey – Recreational spearfisherman

Action 1 – Mr. Creasey opposed a 1-fish bag limit. He stated that if a 1-fish bag limit is adopted, he probably won't go fishing, and he felt that a lot of other fishermen would do the same. He supported a weekends recreational season. When diving, he is seeing more grouper than he has seen in his life, which suggests that the data is flawed.

Teresa Hattaway- Jim's Dive Shop

Ms. Hattaway expressed disappointment that no Council members were present.
Ms. Hattaway said that what she and her customers are seeing underwater does not agree with what NMFS says.

Tom Mahoney – T.A. Mahoney Company (marine hardware store)

Mr. Mahoney stated that the fishermen are not offshore chasing the fish. In support of this statement, he related the following from his store records of grouper related fishing sales:

- 10 years ago he sold approximately \$1.2 million dollars of grouper related hardware; he currently is doing less than \$100,000 in grouper related business right now
- 10 years ago he sold over 100 Penn 4/0 fishing reels per year; he only sold 5 Penn 4/0 reels last year,
- He used to sell \$40,000 frozen bait per year; now it's about \$3,000.

As a result of the declining sales, Mr. Mahoney has had to let a lot of workers go. As an additional indicator of declining offshore effort, he noted that at boat ramps there used to be lots of double and triple axle trailers; now there are mostly single axle trailers used for bay boats. Boat dealers who he spoke to recently said that they used to sell 22' to 26' boats and keep 2 or 3 in stock. Now they keep no boats of that size in stock. Mr. Mahoney's store used to repair a lot of offshore boats; now 95% of his repair business is on bay boats, flats boats and bass boats.

Mr. Mahoney added that divers who he deals with are reporting seeing more gag than they have seen in years. He stated that managers are saying we have to cut back on fishing because there are less fish, but that is based on flawed science. He also stated that FWC had conducted a mortality study of undersized fish in 90 feet or less of water and had a 1% - 2% mortality rate. He claimed that NMFS is using a 30% to 40% mortality rate.

Because of the cost and regulations, he will not go fishing by himself, but it is hard to get 3 or 4 people together for a weekend trip. In a short season, this means only 1 or 2 trips in a season. Fishermen will understand and support restrictions if the fishing is bad, but you will make them enemies if the fishing is good.

Ken Feeken – Recreational fisherman

Mr. Feeken spoke about the venting rule. He did not feel it was healthy for the fish to have to vent a fish in less than 100 feet of water. He described a deep release device using a weighted hook that returns a fish to depth, and suggested that would be a good alternative to venting in some cases. (Council staff informed him that the Council has already decided to change to venting tool to require its use only when necessary, and that change was working its way through the administrative process.)

Captain Buddy Bradham – Retired from Florida Fish and Wildlife Comm.

Captain Bradham stated that he was a former charterboat captain and commercial fisherman in South Carolina who in 1997 got involved in fisheries science with NOAA, and then in 2000 he moved to Florida and went to work for FWC until May of this year. He talked about the survey methods using fish traps and underwater cameras, based on NOAA guidelines. Captain Bradham noted that transects used for setting the equipment cannot stay on the reefs over the distance that they are set. Some of the sampling traps and cameras will set on sand where they will not catch gag. Also, traps will catch very few gag, they are used to catch red grouper. He stated that these methods are wrong, but they continue to be used to back up the telephone surveys. The methods have to change, but NOAA is dragging its feet. Captain Bradham added that the data will always be two years behind because of the time to process it. He stated that

NOAA needs to listen to the fishermen. Until there is better data, NOAA should not be telling the fishermen what to do.

Vance Tice – Fishing Rights Alliance, Coastal Conservation Association, and Online Fisherman

Mr. Tice stated that fishermen are aggravated with the data and how it's collected. He discussed a red grouper spike in the landings data in 2004 that he felt was erroneous, but continued to be used by management. He stated that NMFS was mandated by Congress to develop a new system and to not use MRFSS which is fatally flawed. Mr. Tice stated that he wanted it on record that he was sick of Roy Crabtree being condescending to the average angler. He stated that FWRI had done a mortality study that showed that the mortality rates used by NMFS were way off, and it was crippling the fishing industry.

Mr. Tice noted that fishing effort was down but, two years ago, the data showed a 118% increase in fishing effort in January and half of February. At that time he called seven major fishing shops, and all were off on sales by 20% to 30%. He noted that Magnuson-Stevens requires that the Council look at the economic impact. Part of that economic impact is that when fishing decreases, the state raises users fees and taxes, and it hurts all Floridians. Mr. Tice suggested that one way to improve the effort data could be by observing activity at boat ramps and gas sales at marinas. When he goes out on the water, he used to see 30 to 50 other boats, now he sees 3 or 4. He stated that he is seeing more fish than ever, but NMFS says there are fewer fish. He added that he is mad at the Gulf Council and at NOAA for spending money on sector separation instead of a new data system.

As an example of bad data, Mr. Tice related that in 2008 or 2009, FRA hired a biologist to look at red snapper mortality. The biologist tweaked the mortality estimate and presented it to the assessment scientists. The assessment scientists said he was probably right, but because of Magnuson-Stevens, if they change one assessment they would have to change them all, and they didn't have time to be right. Mr. Tice stated that this shows why fishermen don't trust the scientists. As another example, Mr. Tice noted that during the red tide event in 2005, scientists put underwater cameras where the gag used to be. He stated that the reason they didn't see any fish is because the gag moved, and that they would return once the live bottom regenerated. He felt that the cameras should have put where the fish were, not where they weren't. He also felt that rebuilding red snapper stocks have also likely pushed gag off their structure.

FRA suggests raising the size limit to 24" to 26", which would allow a 6-month season.

Rich Davis – Recreational spearfisherman

Mr. Davis expressed disappointment that there were no Gulf Council members present. He stated that has been spearfishing once a week for 20 years, and is seeing more grouper than ever. When diving in 20 to 80 feet, he usually gets his 2-fish bag limit of gag on the first dive. During the closed season, he noted that the grouper don't move when they see a diver and seem to get a false sense of security. When the season opens, they just sit there or come up to divers. Opening and closing seasons therefore doesn't seem to be in the best interest of the grouper. He felt that the fishing laws are getting more and more complex, and FWC has zero tolerance for violations.

Action 1- Regarding bag limits, his family needs 2 fish to feed his family. He occasionally works on weekends and is opposed to a weekend only fishery.

Stephen Furman – Coastal Conservation Association-Florida

CCA supports reallocation of gag because the economic value is greater for the recreational sector. Mr. Furman stated that, due to gas process and regulations, he fishes inshore more than offshore. Gag are his primary targeted fish. He noted that there are more people fishing inshore, yet the fishing is better than offshore.

Action 1 – The longest season possible, but split season also has advantages. CCA does not have a consensus, but his personal preference is for a split season.

Mike Kalupa – Recreational fisherman

Mr. Kalupa agreed with Tom Mahoney’s comments. He stated that boat ramps are half full. With the cost of gas and the regulations, people are not going fishing anymore. He no longer makes offshore trips. This has a huge impact on raising taxes for everybody to compensate for lost taxes and fees from fishing activities and sales. He has no problem catching grouper, so it doesn’t make sense to say there are no grouper.

Action 1 – He did not understand why cutting the bag limit in half would only reduce catches by 15%, and felt the government was skewing the numbers.

Brad Gorst – Gulfstream Charters

Captain Gorst felt, contrary to other testimony, that the data used is the best available. He noted that the iSnapper program is producing results within 5% to 10% of MRFSS.

Action 1 – Captain Gorst stated that he wants the longest season possible, and supports Action 1, Alternative 2c (July 1 opening) with a 1-gag bag limit. Split seasons are motivated by the Big Bend area. In this area Fall-Winter is the prime time. He would accept a 60 day season in order to see the season open in November-December or December-January, but didn’t see that as an option. He warned that the state could still go non-compliant.

John Kaytis – Recreational fisherman

Mr. Kaytis does not agree with any of the proposals. He does not agree with any recreational closed seasons. He stated that gas prices have decimated the offshore fishery. He used to fish at least one a week, now he fishes once every 6 to 8 weeks due to the economy and high gas prices. When he does go out, he no longer sees other boats. He also noted that bad weather limits fishing. As a result, effort is way down.

Action 1 – Mr. Kaytis is also opposed to any reduction in bag limit.

Jeff Warner – Florida Sportsman magazine

Mr. Warner agreed with the comments from John Kaytis and Vance Tice. He felt that the data is bad. He used to fish almost every weekend, but last year only had two trips offshore. Mr. Kaytis stated that managers have to start doing something for the people. He recommended managing on a regional basis that provides economic benefits for each region, and considers what other

stocks may be open including shallow-water species. He also recommended looking at slot size limits. He is opposed to all of the alternatives until the data is corrected.

Jim White – Recreational fisherman

Mr. White been fishing since the 1960s and diving since 1976. Over the years he has downsized his boat from 28’ to 17’ due to the increasing cost of gas. He has made 4 or 5 trips this season, and limited out on gag every time in an hour. He also sees plenty of fish when diving, but the boats are not out there like they used to be.

Action 1 – Mr. White felt that a 2-gag bag limit is fine. He did not want to see it lowered further because businesses have already been decimated. The best time for him to fish is November-December. While a weekend recreational season is not an option, it would give fishermen a chance to fish year round and would reduce catches by the amount taken in weekdays, and would help keep business open.

Scott Schlather – Recreational fisherman

Mr. Schlather questioned why tonight’s public hearing was not on the website. He was also irritated that the hearing was being held in the Sirata Hotel when FWRI has a hall that is more centrally located. Regarding data collection, Mr. Schlather is a hunter and gets queries from FWC as to how many ducks and bucks he killed, but he is never asked how many grouper he killed. He suggested creating an online reporting system.

Action 1 – Mr. Schlather is opposed to reducing less than a 2-fish bag limit. If the bag limit is reduced to 1 fish, he will become a poacher.

R.W. Keys – Recreational fisherman

Mr. Keys complained that, when he tries to tell the Council anything, it’s dismissed as anecdotal. To illustrate the reduction in effort, he suggested driving around to the 30-40 boat consignment shops in Pinellas County. They are full of boats that people are trying to sell because they don’t fish anymore.

Action 1 – Mr. Keys does not agree with any reduced seasons. He stated that there should be a two month closure during spawning, and a 2-gag bag limit the rest of the year.

Mark Hubbard – Hubbard’s Marina and For-Hire Fisherman

Captain Hubbard is opposed to sector separation. He agreed with others that gas prices are keeping anglers off the water. He stated that money given to NOAA by Congress for new science was instead being used to develop catch shares. He stated that we need the new science. He also felt that there was not enough consideration given to economic impacts. Instead of a full study, there are only about 15 pages of economic analysis in the amendments and is not factored into managing the fishery.

Captain Hubbard stated that he can remember when gag had a 10-fish limit, then it went to 5, and then to 2. Each time the bag limit is reduced, you lose part of the fishing fleet.

Action 1 – He supported Alternative 2c (July 1 opening) with a 2-fish bag limit for as long as the season will allow. He noted that not everyone catches 2 grouper, but this provides the perception of being able to catch 2, which will keep people in the fishery. Captain Hubbard added that if this alternative is not acceptable, then his second choice is Alternative 4b (April, July and back-calculate from December 31) in order to provide a winter, spring, and overlap with red snapper fisher. However, this split season is confusing to fishermen and enforcement, so his preference is to keep the current start date and single season, and extend it as long as possible.

Action 2 – He supported Alternative 4 (20 fathom). He stated that most recreational fishermen don't fish beyond 20 fathoms, and those that do are advanced anglers who know the seasons.

John Shipman – Recreational fisherman

Mr. Shipman stated that he used to average about 160 hours per year on his boat, but now he averages 75-80 hours per year. As a result, he buys less bait and fishing equipment. When red snapper season started, he went out 80 miles, and could get through the gag to get to the red snapper. The gag he caught were the biggest he had caught in his life. On another recent trip, he threw back gag that were just barely legal in order to wait for a bigger fish. He added that he no longer fishes the wrecks because the goliath grouper go nuts and attack the catch. He felt that there should be a season and stamp for goliath grouper.

Action 1 – Mr. Shipman stated that, because he catches gag when fishing for red snapper, making gag and red snapper seasons concurrent would help him. Also, he would like to see a weekend or holiday pass, and would be willing to pay extra for it.

John Longley – Recreational fisherman

Mr. Longley felt that there were too many options presented, and they had only minor differences. He suggested that there should be fewer options with bigger differentiation and better explanation so a real decision can be made. He asked that the Council pay attention to the qualitative information being presented and not just the votes on specific alternatives.

Action 1 – Mr. Longley supported Alternative 2c (July 1 start), but felt that it's so close to the other alternatives that it doesn't mean much. On the bag limit, he supported the 2-fish bag limit, stating that the approximately 10% of fishermen who catch more than one gag ought to have the opportunity to keep them.

Action 2 – Mr. Longley supported Alternative 4 (20 fathoms). He agreed with Captain Hubbard that fisherman who go out that far know what they are doing.

Mr. Longley observed that the consensus in the room appeared to be that mother nature, gas prices, and wives limit fishing. He felt that this provides enough controls on days that he can't fish.

Dave Naumann – Charterboat Guaranteed to Fish

Captain Naumann expressed surprise and disappointment that there was no Council member present. He noted that he drove up from Sarasota for the hearing. At every public hearing he has been to in the past, there has been a representative from the organization holding the hearing. He stated that there are other animals that can be kept count of, but you can't govern what you can't count. Captain Naumann added that his fishing has been hurt by gas prices and insurance costs,

and everything about fishing has gone “off the hook”. He agreed that bad weather has cost him too many days when he can’t go fishing.

Members of the Public who did not speak:

Mark Barth	Kristie Gilford	John W. Smith
Joseph Chumley	Ken Jones	Richard Steinmetz
Jan Darrah	Morgan Kien	William Trippett
Patrick M. Darrah	Bob Kirby	Capt. Les Weiss
Jack Ferrera	Marcelo Sempe	David Yates

**Destin, Florida
October 15, 2012**

Council/Staff:

Martha Bademan
Emily Muehlstein

George Eller – Checkmate Charters and AAA Marine

Action 1 – George supports alternative 2, option 2c(ii) (One fish bag limit, single season open July 1 until the ACT is met). He says it is very important that the season is open in October, if there was only 1 month for gag fishing that’s it.

Action 2 – He supports alternative 3; elimination of the shallow-water grouper closed season.

Jim Green – Party boat American Spirit

Action 1 – Jim supports alternative 2, option 2c (ii) (One fish bag limit, single season open July 1 until the ACT is met). October is the most important month for fishing but a spring break season might be nice as well. Jim suggests the Council keep the spring break season in mind for regional management

Action 2 – Jim would like the Council to do away with the closure; alternative 3.

Mike Eller – Charter Captain, Lady ‘em

Action 1 – Mike supports alternative 2, option 2c (i) (2 fish bag limit, single season open July 1 until the ACT is met). He reiterates that October is a hugely important gag month.

Action 2 – Eliminate the closure with alternative 3.

Bob Zales – Charter Captain

Action 1 – Captain Zales supports Alternative 2, option 2c(i) (Two fish bag limit, single season open July 1 until the ACT is met).

Action 2 – He supports alternative 3, eliminate the shallow-water grouper closure.

Trip Aukeman – CCA

Trip supports the talk of regional management, and would like to would like to reintroduce re-allocation based on social and economic value of our fisheries.

Action 1 – He suggests the Council stays with 2 fish bag because the increase in days isn't good enough when you reduce the bag limit to one. Trip would like to see the longest season possible with a 2 fish bag limit because the most days is economically most viable.

Action 2 – Bring the spawning season closure back for the commercial fishery and keep the current closure for the recreational closure.

Gary Jarvis – Charter Captain

Action 1 – Alternative 2, option 2c because a single season provides stability and his business model is already use to it. The single season helps take in to account higher catch rates and size limit changes which makes management easier. This is especially good because there is a payback provision. Gary wants the closing date to extend beyond October 31st and this option would allow for that and benefit the eastern Gulf as their season cranks up. Gary also prefers a 2 fish bag limit because the trade off in the number of days isn't good enough.

Action 2 – Alternative 3, do away with the shallow-water grouper closure to benefit the South and Central Gulf fisherman.

Benji Kelley – Charter Miss. Kelley

Action 1 – He supports alternative 2, option 2c(i). A 2 fish per person bag limit works.

Action 2 – He would like Council to do away with the closed season.

Scott Robson – Charterboat Phoenix

Action 1 – Would like to keep the 2 fish bag limit and use a single season to open July 1 until the ACT is met (alternative 2, option 2c(i)).

Action 2 – Scott supports alternative 3, eliminate the shallow-water grouper closure.

BJ Burkett – Charter Hook 'em Up

Action 1 – Supports Alternative 2, option 2c(i) – The number of days to gained by reducing the bag to 1 fish per person is not worth it.

Action 2 – Eliminate the closure (alternative 3) so that there is something to catch in southern Florida.

**Gulf Shores, Alabama
October 16, 2012**

Council/Staff:

Kevin Anson
Emily Muehlstein

Ben Fairey – Charterboat Necessity

Action 1 – Alternative 2 option c(ii). A single season open on July 1, with a 1 fish bag limit. 1 fish bag limit makes sense to him on a multi-passenger boat because it provides for more fishing days.

Action 2 – If you modify the closed season and its going to effect the number of gag days then he suggests that the Council leave it alone.

Captain Fairey also supports the development of the regional management document.

Alan Keahl – Recreational fisherman

Action 1 – The longest season possible is the best option, and a 1 fish bag limit would be fine.

Action 2 – Keep the spawning closure in effect.

**D'Iberville, Mississippi
October 17, 2012**

Staff:

Emily Muehlstein

No Members of the Public in Attendance.

**Kenner, Louisiana
October 18, 2012**

Staff:

Emily Muehlstein

No Members of the Public in Attendance.

**Galveston, Texas
October 17, 2012**

Council/Staff:

Lance Robinson

Ryan Rindone

No Members of the Public in Attendance

**Corpus Christi, Texas
October 18, 2012**

Council/Staff:

Robin Riechers

Ryan Rindone

12 Members of the Public in Attendance

No testimony was given.

Members of the Public who did not speak: 12

Holly Grand	Texas A&M University
Coral Lozada	Texas A&M University
Ivy McClellan	Texas A&M University
Andrew McArdie	Texas A&M University
Sage Lane	Texas A&M University
Logan Brown	Texas A&M University
Jamie Nevins	Texas A&M University
Matt Streich	Texas A&M University
Martin Donley	Texas A&M University
Ashley Fitzcannon	Texas A&M University
Ariane Frappier	Texas A&M University
Michael Miglini	Charter Fisherman

Summary of Written Comments Received

- ❖ The shallow-water grouper closed season should be eliminated.
- ❖ A one fish per person split gag season should be created that is open for the month of June, and then again in November until the ACT is reached. (Alternative 3 option b(ii))
- ❖ A one fish bag limit of gag should be used to extend the season.
- ❖ The current July opening has been a huge success and should remain the same.
- ❖ Commercial and recreational grouper fishing (shallow-water and deep-water) should be closed during breeding season.
- ❖ If gag is overfished and experiencing overfishing then all fishing should be prohibited until the stock recovers.
- ❖ An increased size limit should be used to increase the number of fishing days available.
- ❖ A single season should open on July 1, and remain open until the ACT is reached (alternative 2, option 2c).
- ❖ Discontinue the staggering of seasons that allow one species to be targeted at time and open all bottom fish at once.
- ❖ Keep the shallow-water grouper closure beyond the 20 fathom boundary (alternative 4).
- ❖ Close grouper November through February to allow them to rebuild.
- ❖ Open gag season in the cooler months.
- ❖ Open gag concurrently with red snapper season so that gag fishing does not cause red snapper discard mortality.
- ❖ Create a snapper and gag aggregate bag limit.
- ❖ Do not decrease the gag bag limit, lowering the gag bag limit will be detrimental to fishing guides and recreational fishermen and the economy.
- ❖ Maintain the shallow-water grouper closure beyond 15 fathoms.
- ❖ Open grouper fishing in southwest Florida from December 15 – January 31.
- ❖ Reduce harvest to one gag in a 3 fish shallow-water grouper aggregate bag limit.
- ❖ Encourage the use of recompression devices.
- ❖ Reconsider the allocation of gags.

** The full text of written public comments received before 10/31/12 can be found at:
http://www.gulfcouncil.org/fishery_management_plans/Public%20Comment/2013-Gag-Season-&-SWG-Closure/Comments.pdf

APPENDIX D. PROJECTION METHODOLOGY

Analysis of Alternative Fishing Seasons and Bag limits for Gulf of Mexico Gag

LAPP/DM Branch
Southeast Regional Office
St. Petersburg, Florida

Background

Gulf of Mexico gag is overfished and the stock is currently in a rebuilding plan. Amendment 32 (GMFMC 2011b) implemented management measures in 2012 to end overfishing that included reducing the commercial quota and recreational Annual Catch Limit (ACL). The recreational gag season was also set from July 1 through October 31 each year. There has been interest in changing when the recreational fishing season is open, primarily from the Florida Fish and Wildlife Conservation Commission and constituents residing in the Big Bend and southwest Florida. The Gulf of Mexico Fishery Management Council (Council) is currently developing a regulatory amendment that considers modifying when the recreational gag season would open and close. The amendment also considers reducing the gag bag limit and eliminating or modifying the shallow-water grouper closed season. Recreational management decision models were developed for the Council, fishermen, and other constituents to evaluate the benefits and tradeoffs of modifying the recreational gag season and bag limit. This report provides an overview of the decision models.

Methods

Baseline removals

As the gag stock rebuilds, yields and dead discards are projected to increase (Figure D.1). To evaluate the length of the recreational gag season, estimates of landings and dead discards must be generated for each month. Historically, this information has been readily available because the recreational gag season was open for most of the fishing year. However, in 2011 the recreational gag season was shortened to two months (September 15 through November 15) by emergency action, and in 2012 the federal gag recreational season was open only four months (July 1 through October 31). To estimate the amount of landings and dead discards that would occur in 2013, alternative methods had to be developed to determine what would be landed and/or discarded dead if the recreational gag season was open during time periods that are currently closed.

Simple linear regressions were developed to estimate annual landings and dead discards separately. Recreational landings were regressed against exploitable spawning stock biomass (SSB) estimates from the gag stock assessment for 2000 through 2010 (SEDAR 10 Update 2009, SEFSC 2010). There was a strong positive linear relationship between landings and exploitable SSB (Figure 2), with 53% of the variability in annual landings explained by exploitable SSB.

Baseline 2013 recreational gag landings (in millions of pounds gutted weight (mp gw)) were estimated using Equation 1:

$$2013 \text{ landings (mp gw)} = 0.2077 \times 2013 \text{ exploitable SSB} \quad (1)$$

Exploitable SSB for 2013 was obtained from the gag stock assessment (SEDAR 10 Update 2009, SEFSC 2010) and was estimated to equal 17.18 mp gw.

Baseline dead discards for 2013 were also estimated using linear regression. The percentage of total dead discards to total kill was regressed against exploitable SSB. There was a strong negative linear relationship between the percentage of dead discards to total kill and exploitable SSB, with 72% of the variability explained by exploitable SSB. Recreational dead discards for 2013 were estimated using Equation 2:

$$2013 \text{ lbs discarded dead} = -0.0147 \times \text{exploitable SSB} + 0.4915 \quad (2)$$

Estimated 2013 landings and dead discards were then converted to monthly landings using the proportion of landings and dead discards by month during 2008-2010 (Figures D.4 and D.5). Because the months of February and March were partially or fully closed during these years, the proportion of landings and dead discards occurring during these months had to be estimated. For February, the proportion of landings and dead discards was set equal to January percentages times the ratio of days in February versus days in January (= 28/31). For March, the proportion of landings and dead discards was set equal to April percentages times the ratio of days in March versus days in April (= 31/30).

Table D.1 summarizes the estimated 2013 recreational gag landings and dead discards if there was no closed season.

Trip Elimination

Reducing gag fishing mortality requires fishery managers to constrain catch and reduce fishing effort targeted at gag. As a result, extended closed seasons have been implemented in recent years for recreational gag. Closed seasons can eliminate trips directly targeting or harvesting gag. In Amendment 32, decision models were developed that explicitly modeled the effects of closed seasons on landings and dead discards. Target trips were defined as any Marine Recreational Fisheries Statistical Survey (MRFSS) intercept identifying gag as the primary or secondary species targeted during a fishing trip. Directed gag trips were defined as any trip that exceeded 1.5 gag caught per angler. The thresholds for defining directed trips were derived from catch per angler frequency plots (Figure D.6).

To evaluate the sensitivity of eliminating trips during seasonal closures, two scenarios were considered for this analysis. Scenario 1 did not eliminate any target or directed trips for gag; therefore, gag landings and discards were assumed to occur at the same rate as if the season remained open. Scenario 2 re-estimated landings and discards after eliminating any trips identified as targeting or directed at gag. For Scenario 2, gag landings and discards were re-estimated using MRFSS estimation procedures. Intercepts were dropped if a trip was identified

as a target trip and/or if a trip exceeded the threshold(s) for directed catch. The MRFSS landings and discards were also post-stratified, consistent with the gag stock assessment, to remove catch from the Florida Keys. Reductions in headboat landings and discards associated with various trip elimination scenarios were assumed to be the same as reductions observed for charter vessels, since headboat logbooks do not identify target trips or include reported discards. No trips were eliminated from Texas as few gag are reported to be harvested off Texas each year.

Table D.1 summarizes estimated monthly landings and dead discards for 2013 if directed and target trips are eliminated. Scenario 2 would result in a 45% reduction in landed catch (that would have to be discarded) if all months are closed that were previously open. Similarly, Scenario 2 would result in a 64% reduction in dead discards if months are closed that were previously open.

Bag Limit

In addition to changing when the gag season is open and closed, the Council was also interested in exploring reductions to the bag limit. The current bag limit for gag is two fish. The MRFSS and Headboat intercept data for 2009 through 2011 were used to estimate monthly reductions in landings associated with a 1 fish bag limit.

The MRFSS system classifies recreational catch into three categories:

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

Type A and B1 catches were used for bag limit analyses. Type A catch represents the total catch of all anglers on a fishing trip. However, some or all of the anglers contributing to the A catch are also interviewed to report type B1 catch, and those may be recorded on an individual basis. If the number of people contributing to the A catch was greater than the number of people interviewed to report B1 catch, Equation 3 was used to account for possible under-reporting of the B1 catch:

$$B1 = B1_{\text{interviewed}} \times (\# \text{ people in fishing party} / \# \text{ people interviewed to report B1 catch}) \quad (3)$$

The total catch per angler was then determined by summing the total Type A and Type B1 catch (AB1) for each trip and then dividing it by the number of anglers in the fishing party. Percent reductions in harvest were estimated for a 1-gag per person bag limit. If AB1 catch per angler was greater than the bag limit being analyzed, the value was reset to the new bag limit (AB1 bag limit), otherwise no changes to the catch were made.

Formulas 4 and 5 were used to estimate reductions in harvest resulting from bag limits:

$$\text{If AB1 catch} \leq \text{bag limit, then harvest} = A + B1 \quad (4)$$

$$\text{If AB1 catch} > \text{bag limit, then harvest} = AB1_{\text{bag limit}} \quad (5)$$

Reductions for headboat bag limits were calculated in a similar manner as described above, except no B1 catch data were available. If the catch per angler was greater than the bag limit being analyzed, the value was reset to the bag limit, as described above. If the catch per angler was less than the bag limit being analyzed, then no change to the catch was made. Percent reductions associated with bag limits were estimated relative to the status quo 2-gag bag limit, by mode of fishing. If a monthly sample size of 30 gag was not achieved, then the samples were pooled with the nearest months until a sample size of 30 was achieved. The impact of bag limits varied by mode: the largest reductions were observed in the private and charter modes while the smallest reductions were observed in the headboat mode. Figure D.7 shows the frequency distribution of MRFSS and headboat landings per angler. Figure D.8 provides the monthly percent reductions for a 1-gag bag limit. More than 94% of anglers landed less than one gag per trip on average. Reductions from bag limits were highest during winter and fall when gag are aggregating or closer to shore.

Decision Tools

Decision tools were developed to analyze the effects of gag closed seasons and bag limits. Percent reductions calculated from changes in management measures were applied to 2013 monthly projected landings and dead discards to determine how much mortality would be reduced by management measures. These results were incorporated into two recreational decision tools: a low discard and a high discard decision model. For both models, if a month (m) was 100% closed, landings were set to zero pounds for all sectors. For both the low and high discard decision models, if a month was partially or fully open, the projected monthly recreational landings (RL) were computed using Formula 6:

$$RL = PRL_m * O_m * \beta_{\text{sector},m} \quad (6)$$

where PRL: projected 2013 recreational landings, O: percent of month open to fishing, and β : percent bag limit reduction.

For the low discard decision model, dead discards were computed using Formula 7:

$$DD = PDD_m * O_m * \zeta_{\text{sector},m} + PDD_m * C_m * \zeta_{\text{sector},m} \quad (7)$$

where PDD: projected 2013 recreational dead discards, O: percent of month open to fishing, C: percent of month closed to fishing, and ζ : percent reduction from eliminating target and directed trips.

For the high discard decision model, dead discards were computed using Formula 8:

$$DD = PDD_m * O_m * \zeta_{\text{sector},m} + PDD_m * C_m * \zeta_{\text{sector},m} + PRL_m * C_m * \zeta_{\text{sector},m} * r \quad (8)$$

where PDD: projected 2013 recreational dead discards, O: percent of month open to fishing, C: percent of month closed to fishing, ζ : percent reduction from eliminating target and directed trips, PRL: projected recreational landings that would previously be landed but now will be discarded due to closures, and r: release mortality rate. The release mortality rate was based on the 2006 through 2009 average recreational release mortality rate and equals 18.9% for all areas combined.

The projected monthly recreational landings and dead discards were calculated based on various management measures imposed. Estimates were totaled for each month and across all months and compared to projected target removals for 2013. Table D.2 summarizes 2013 projected landings, dead discards, and total removals. If estimated removals (RL + DD) exceeded total ACL or Annual Catch Target (ACT) removals, then management measures were modified (closed seasons, bag limits) until estimated total removals fell below the total projected ACL or ACT removals.

Results

A myriad of gag recreational season lengths can be generated using the decision models. In general, season lengths are longer when trips are assumed to be eliminated due to closures and when previously landed catch is not factored into discard estimates (i.e., low discard model). Longer seasons occur during late summer and fall, when landings and dead discards are lower. Shorter seasons occur during winter and fall when landings and dead discards are higher. Imposing a 1-fish bag limit resulted in little change to the season length because most anglers do not land more than one gag per trip. Additional results are summarized in Table 2.1.2 of this document.

Discussion

The reliability of the decision model results are dependent upon the accuracy of their underlying data and input assumptions. This analysis used historical data and projected spawning biomasses to create a baseline for comparing the effects of various management measures, under the assumption that projected 2013 landings will accurately reflect actual 2013 landings. Uncertainty exists in this projection, as economic conditions, weather events, changes in catch-per-unit effort (CPUE), fisher response to management regulations, stock rebuilding, and a variety of other factors may cause departures from this assumption. The bounds of this uncertainty are not captured by the model as currently configured; as such, landing rates may be higher or lower than projected. In addition to the aforementioned sources of uncertainty, the modeled reductions associated with management measures assume that past performance in the fishery is a good predictor of future dynamics. We have attempted to constrain the range of data considered to recent years to reduce the unreliability of this assumption.

The models do not account for effort shifting that may take place during a seasonal closure. Effort shifting may lead to increased removal rates before and after a closure that partially offset the reductions expected from the closure. As a result, model results may overestimate expected reductions. Additionally, the models attempt to account for the elimination of directed and target

fishing trips during closures. Such estimates may over- or underestimate the true reductions associated with fishery closures.

In conclusion, managers will need to weigh the social, economic, and biological benefits and tradeoffs of changing the recreational fishing season. Seasons starting in summer or early fall can be longer than seasons starting in late fall or winter. Reducing the bag limit has little effect on extending the season. Managers will need to determine if it is more desirable to allow harvest during shorter seasons when catch rates are higher or to maximize the length of the season when catch rates are lower.

Table D.1. Estimated 2013 recreational gag landings and dead discards with and without trip elimination by month.

Month	2013 Estimated Landings		2013 Estimated Dead Discards	
	No trips eliminated	Trips eliminated	No trips eliminated	Trips eliminated
Jan	340,001	203,993	132,880	48,301
Feb	321,107	195,951	121,808	44,276
Mar	314,854	170,023	99,174	42,491
Apr	324,559	172,995	95,975	41,120
May	480,367	238,068	115,640	39,359
Jun	462,924	227,991	111,910	38,089
Jul	180,218	94,154	64,253	15,317
Aug	176,660	92,692	64,253	15,317
Sep	123,015	40,828	59,518	12,325
Oct	133,052	44,638	61,502	12,736
Nov	353,470	241,625	96,010	45,547
Dec	358,575	244,925	99,211	47,065
Total	3,568,801	1,967,885	1,122,133	401,941

Table D.2. Projected 2013 recreational gag annual catch limit and annual catch target landings, dead discards, and total removals.

	ACL	ACT
2013 Estimated Landings	1,495,000	1,287,000
2013 Dead Discards	446,528	364,748
Total removals	1,941,528	1,651,748

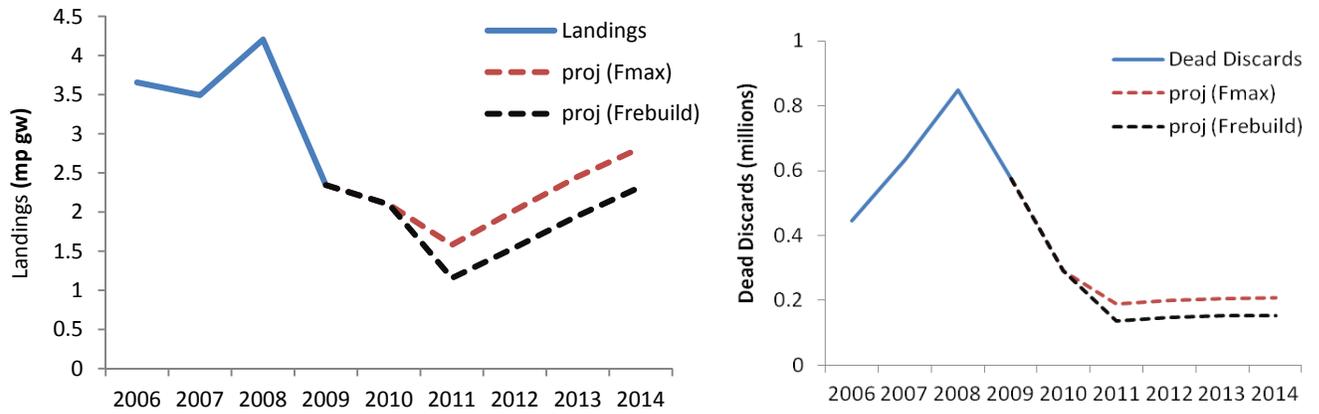


Figure D.1. Projected gag landings and dead discards through 2014.

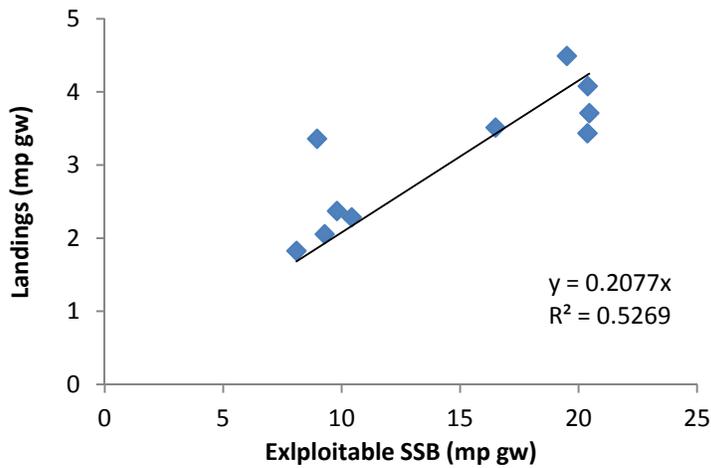


Figure D.2. Linear relationship between gag recreational landings and exploitable spawning stock biomass, 2000 through 2010.

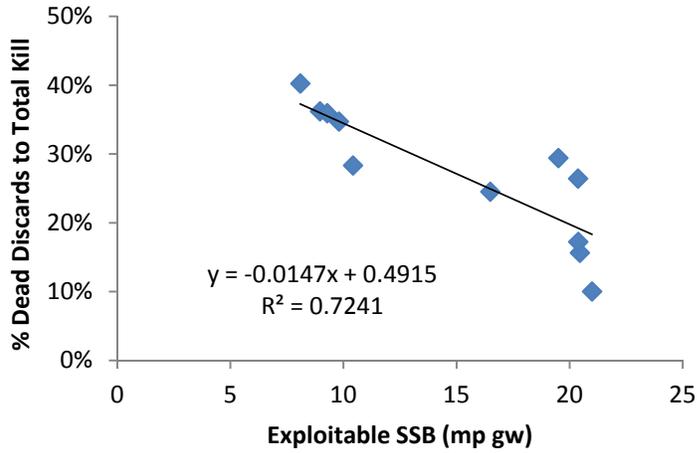


Figure D.3. Linear relationship between the percentage of total dead discards to total kill versus exploitable spawning stock biomass, 2000 through 2010.

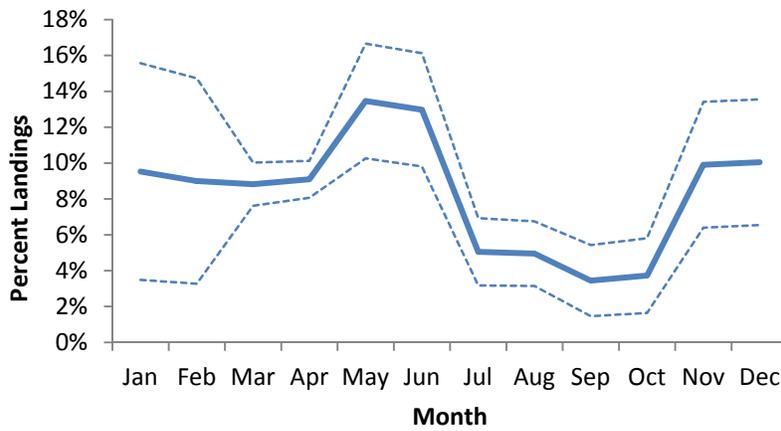


Figure D.4. Percentage of annual landings by month, 2008 through 2010. Dashed lines represent 95% confidence limits.

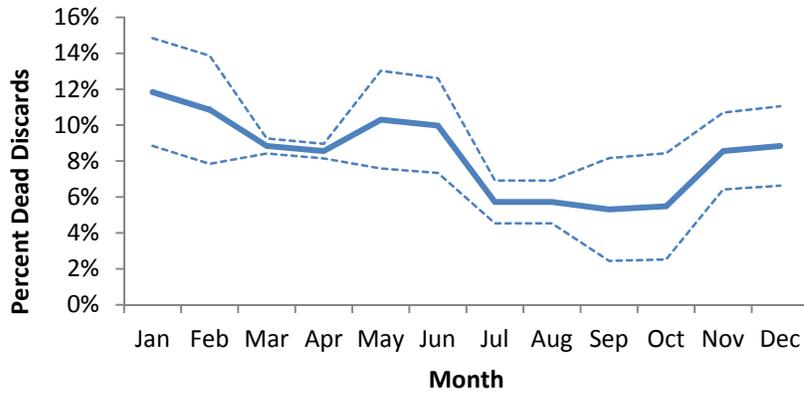


Figure D.5. Percentage of annual dead discards by month, 2008 through 2010. Dashed lines represent 95% confidence limits.

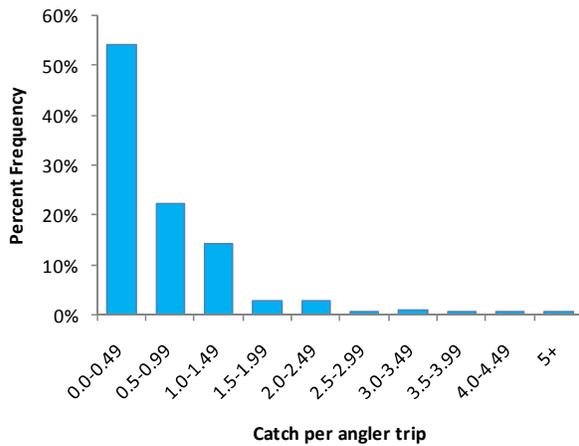


Figure D.6. Frequency plot of gag catch per angler (Source: MRFSS). Trips exceeding 1.5 gag caught per angler were defined as directed trips.

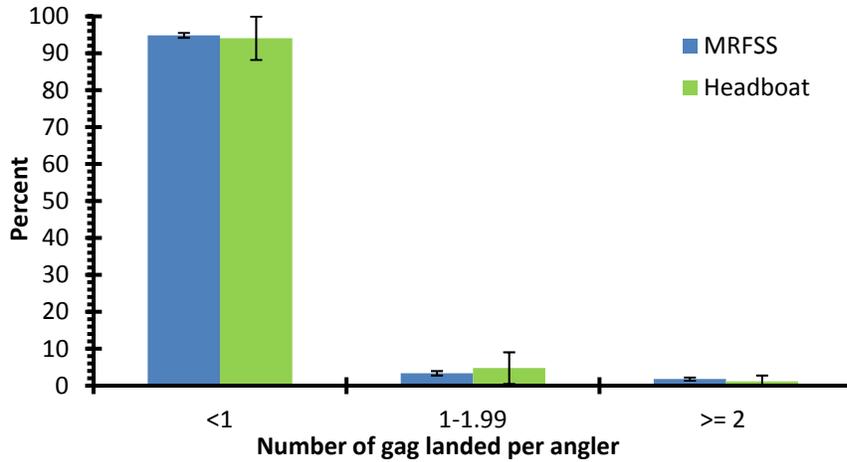


Figure D.7. Percent frequency of the number of gag landing per angler by mode, 2009 through 2011.

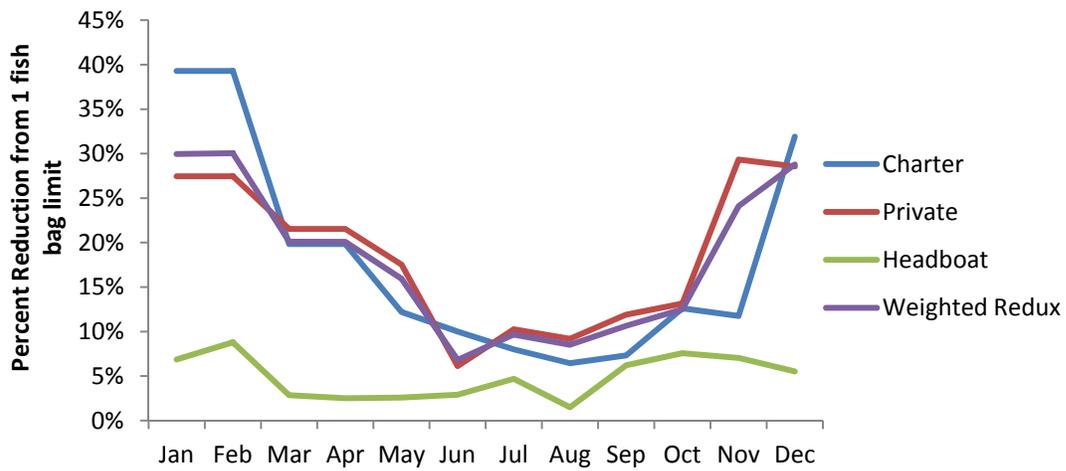


Figure D.8. Percent reduction from a one fish gag bag limit by month and mode, 2009 through 2011.