

10/12/2005

**Final**

**Regulatory Amendment to the**

**Reef Fish Fishery Management Plan**

**To Set Commercial**

**Management Measures for Grouper**

**Starting in 2006**

**(including EA, RIR, IRFA)**



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## Acronyms/Abbreviations used in this document

ABC	Allowable Biological Catch
ALS	Accumulated Landings System
B <sub>MSY</sub>	Biomass at MSY
CFQ	Council on Environmental Quality
Council	Gulf of Mexico Fishery Management Council
CPUE	Catch per Unit Effort
CZMA	Coastal Zone Management Act
DWG	Deep-Water Grouper
ESA	Endangered Species Act
EA	Environmental Assessment
FMP	Fishery Management Plan
FONSI	Finding of No Significant Impact
FR	Federal Register
FWC	Florida Fish and Wildlife Conservation Commission
GMFMC	Gulf of Mexico Fishery Management Council
GOM	Gulf of Mexico
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistics Survey
MP GW	Million Pounds Guttled Weight
M-SFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
NMFS	NOAA's National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OY	Optimum Yield
RFSAP	Reef Fish Stock Assessment Panel
Secretary	Secretary of Commerce
SEDAR	Southeast Data, Assessment, and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office, NOAA
SSB	Spawning Stock Biomass
SWG	Shallow-Water Grouper
TAC	Total Allowable Catch

## Executive Summary

The Council initiated this regulatory amendment in fall 2004 to adjust the Total Allowable Catch (TAC) and management measures necessary to maintain the rebuilding schedules specified in Secretarial Amendment 1. However, because of landings overages in the recreational fishery, the Council decided to maintain the existing TAC of 6.56 mp GW until a new stock assessment is completed.

Secretarial Amendment 1 to the Reef Fish Fishery Management Plan was implemented by NOAA's National Marine Fisheries Service (NMFS) on July 15, 2004, and established a rebuilding plan, a 5.31 MP GW commercial quota, and a 1.25 MP GW recreational target catch level for red grouper. Secretarial Amendment 1 also reduced the quotas for DWG and SWG. The commercial DWG and SWG fisheries were closed on July 15, 2004, and November 15, 2004, respectively. In November 2004, the Gulf of Mexico Fisheries Management Council, at the request of industry, asked NMFS to develop an emergency rule establishing trip limits for the commercial grouper fishery in 2005. Trip limits were implemented by NMFS through emergency rule in March 2005, and will expire in February 2006. These trip limits were implemented to prolong the SWG and DWG fishing seasons in 2005 and reduce the adverse effects associated with derby fishing. However, the emergency trip limits were not restrictive enough to extend the fishing season and reduce the effects of a derby fishery, and resulted in earlier closures to the DWG and SWG fisheries in 2005 (June 23, 2005, and October 10, 2005, respectively). The purpose of this regulatory amendment is to establish more permanent trip limits for the commercial grouper fishery. New trip limits are needed if the Council intends to reduce the adverse socioeconomic effects of derby fishing in the commercial fishery and prolong the commercial grouper fishing season.

Management alternatives considered by the Council to address derby fishing are described in Section 3. The following provides a brief summary of the various alternatives considered by the Council, included the Council's preferred alternative.

### Commercial Red Grouper Trip Limits

The purpose of the commercial alternatives is to prevent derby fishing and prolong the fishing season. Derby fishing causes the season to close earlier than anticipated and potentially reduces the value of the landings while the season is open. Alternatives considered include:

- Alternative 1: No action
- Alternative 2: Stepped 10,000 / 7,500 / 5,500 pound trip limit
- Alternative 3: Stepped 7,500 / 5,000 pound trip limit
- Alternative 4: Stepped 7,500 / 3,500 pound trip limit
- Alternative 5: 4,000 pound initial trip limit with adjustments by NMFS between July 1 and October 1 each year to extend the season until the end of December
- Alternative 6: 6,000 pound trip limit (**Preferred**)

**Alternatives 1–3** are identical to alternatives considered in the emergency rule implemented by NMFS in March 2005, and **Alternative 2** specifies the trip limits implemented by that rule (NMFS 2005a). The Council chose **Alternative 6** as the preferred. Under **Preferred**

**Alternative 6**, the SWG fishery is projected to remain open 16 to 21 days longer than if no trip limits were in effect. The DWG fishery is projected to extend as few as six days or to remain open all year. **Preferred Alternative 6** is not expected to effect either the physical or biological environments because it will not greatly change the methods or gears used for harvest, only the amount of grouper landed per trip. Quotas restrict the total amount of grouper landed annually, therefore preventing impacts to these fisheries. Trip limits are not expected to affect bycatch and by extending the season later in the year, there is less opportunity for effort to shift to other fisheries. However, even if some effort shifting occurs, regulations are in place for most fisheries to restrict the amount of landings and fishing effort.

**Preferred Alternative 6** is expected to decrease net revenues by \$721,000-\$1,015,000 over status quo or about 2.7-3.8 percent. The longline sector is expected to lose net revenue and the vertical line sector is expected to gain net revenue when compared to **Alternative 1 (status quo)**. As with all the trip limit alternatives, the Florida west coast absorbs nearly all of the loss, while Texas through Northwest Florida experiences slight gains in net revenue.



The potential environmental consequences of each alternative within each action are illustrated in the following table. For a full discussion of the environmental consequences see Section 7. A plus (+) indicates an overall positive benefit, a minus (-) an overall negative impact and “na” represents no identified impact or not applicable.

Summary of Environmental Consequences

	Trip Limit	Preferred	Physical	Biological	Economic	Social	Administrative	Mitigation	Cumulative	Unavoidable	Irreversible	Irretrievable
Alt. 1	Status Quo		na	-	-	-	na	na	-	na	na	na
Alt. 2	10,000/7,500/5,500		na	+	+	+	-	na	+	-	na	na
Alt. 3	7,500/5,000		na	+	+	+	-	na	+	-	na	na
Alt. 4	7,500/3,500		na	+	+	+	-	na	+	-	na	na
Alt. 5	4,000/adjusted by NMFS		na	+	+	+	-	na	+	-	na	na
Alt. 6	6,000	X	na	+	+	+	-	na	+	-	na	na

## Environmental Assessment (EA) Cover Sheet

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### Name of Action

Regulatory Amendment to the Reef Fish Fishery Management Plan to Set Commercial Management Measures for Grouper Starting in 2006.

### Type of Action

Administrative  
 Draft

Legislative  
 Final

### Summary

The Council initiated this regulatory amendment in fall 2004 to adjust the Total Allowable Catch (TAC) and management measures necessary to maintain the rebuilding schedules specified in Secretarial Amendment 1. However, because of landings overages in the recreational fishery, the Council decided to maintain the existing TAC of 6.56 mp GW until a new stock assessment is completed.

Secretarial Amendment 1 to the Reef Fish Fishery Management Plan was implemented by NOAA's National Marine Fisheries Service (NMFS) on July 15, 2004, and established a rebuilding plan, a 5.31 MP GW commercial quota, and a 1.25 MP GW recreational target catch level for red grouper. Secretarial Amendment 1 also reduced the quotas for DWG and SWG. The commercial DWG and SWG fisheries were closed on July 15, 2004, and November 15, 2004, respectively. In November 2004, the Gulf of Mexico Fisheries Management Council, at the request of industry, asked NMFS to develop an emergency rule establishing trip limits for the commercial grouper fishery in 2005. Trip limits were implemented by NMFS through emergency rule in March 2005, and will expire in February 2006. These trip limits were implemented to prolong the SWG and DWG fishing seasons in 2005 and reduce the adverse effects associated with derby fishing. However, the emergency trip limits were not restrictive enough to extend the fishing season and reduce the effects of a derby fishery, and resulted in earlier closures to the DWG and SWG fisheries in 2005 (June 23, 2005, and October 10, 2005, respectively). The purpose of this regulatory amendment is to establish more permanent trip limits for the commercial grouper fishery. New trip limits are needed if the Council intends to reduce the adverse socioeconomic effects of derby fishing in the commercial fishery and prolong the commercial grouper fishing season.

## **Fishery Impact Statement / Social Impact Analysis (FIS/SIA)**

Regulations impose restrictions on fishery participants, which can result in adverse effects on fishermen and fishing communities. This FIS/SIA evaluates the effects of changes to commercial grouper trip limits. These restrictions are intended to reduce the derby pressure in the commercial grouper fishery.

Status quo management of the commercial red grouper fishery would maintain existing regulations and likely lead to worsening of the derby conditions that have developed in recent years in the fishery. Status quo management of the commercial grouper fishery is expected to result in increasingly shorter seasons, market gluts, reduced prices, lost markets, and general deteriorating economic conditions in the fishery. As such, the status quo would likely require more restrictive management in the future, inducing foregone benefits and greater adverse socioeconomic impacts than would accrue to management attention at this time.

All commercial trip limit alternatives, except the status quo (Alternative 1), are projected to prolong the fishing season, but would result in reductions in net revenues relative to the status quo. However, the losses in net revenue are expected to be less than those that would occur in the long-term if derby conditions were allowed to continue and worsen. In general, projected losses in net revenue are greatest for lower trip limits. Economic and social impacts are expected to be greatest for the longline sector and vessels operating off west central Florida.

Among the six commercial trip limit alternatives, Alternative 1 would maintain status quo regulations and no trip limit would be in effect after February 26, 2006. Alternatives 2 (10,000/7,500/5,500 lb trip limit) and 3 (7,500/5,000 lb trip limit) are expected to result in the smallest increase in trips, smallest losses in net revenue, and extend the fishing season for the shortest periods of time when compared to the other alternatives. However, initial starting limits for each of these alternatives appear insufficient to counter derby conditions, as evidenced by 2005 fishery performance. Alternatives 4 (7,500/3,500 lb trip limit) and 5 (4,000 lb initial limit/trip limit adjusted by NMFS between July 1 and October 1) would result in more trips and greater short-term losses in net revenue, than Alternatives 2 and 3 and Preferred Alternative 6. Alternative 5 would extend the fishing season until the end of the year, but has the greatest negative economic impacts of any of the alternatives. Preferred Alternative 6 would establish a 6,000-pound trip limit. This alternative is projected to result in slightly more trips than Alternatives 2 and 3 and slightly fewer trips than Alternatives 4 and 5. Losses in net revenue for Preferred Alternative 6 are estimated to range from \$721,000 to \$1,015,000 and are intermediate to losses resulting from other alternatives. Overall, Preferred Alternative 6 appears to be the most effective compromise in terms of limiting net revenue loss and allowing the longest season.

A more detailed analysis of the impacts on fishery participants and their communities is found in Sections 4, 5, and 7 herein.

# 1 INTRODUCTION

## 1.1 Background

Secretarial Amendment 1 to the Reef Fish FMP, implemented July 15, 2004, established a ten-year rebuilding plan for red grouper that began in 2003 (NMFS 2004a). The red grouper rebuilding plan is a stepwise plan with adjustments to total allowable catch (TAC) scheduled at three-year intervals. The schedule is based on the 2002 red grouper stock assessment using a spawner-recruit curve steepness coefficient of 0.7 and an assumed release mortality rate of 33 percent for the commercial fishery and 10 percent for the recreational fishery (SEFSC 2002). The following red grouper TACs were projected by the 2002 stock assessment to achieve the biomass at maximum sustainable yield ( $B_{MSY}$ ) by 2012:

2003 - 2005	6.56 mp gutted weight
2006 - 2008	7.23 mp gutted weight
2009 - 2011	7.33 mp gutted weight
2012+	7.39 mp gutted weight (optimum yield for a fully recovered stock)

The Framework procedure for specification of TAC in Amendment 1 to the Reef Fish FMP states that commercial and recreational allocations of TAC will be based on historical percentages landed by each user group during the base period of 1979-1987. However, commercially landed grouper were not identified by species until 1986, so a red grouper allocation could not be defined by this criteria. Secretarial Amendment 1 to the Reef Fish FMP (Section 6.4.1, Table 6.3) adopted the ratio of 81 percent commercial and 19 percent recreational based on 1999-2001 historical red grouper landings. Based on this ratio, the 6.56 MP GW yearly TAC for 2003-2005 was divided into a commercial quota of 5.31 MP GW and a recreational target catch level of 1.25 MP GW managed by bag and size limits.

On July 15, 2004, the same day Secretarial Amendment 1 was implemented, the DWG fishery was closed. The SWG fishery closed later in the year on November 15, 2004, after the red grouper quota was met. At the July 12-15, 2004 meeting, the Council heard public testimony that the DWG quota closure would accelerate the landings of SWG and close that fishery in November or early December. Commercial industry representatives requested the Council establish trip limits to keep the SWG fishery open at least into December 2004. The request was too late to implement any changes to the 2004 fishery, but the Council did agree to consider implementing trip limits for the 2005 fishing year.

At the November 7-10, 2004, meeting, the Council received a request for an emergency rule to establish combined trip limits for DWG and SWG for the 2005 fishing year. Trip limits were proposed jointly by the Southern Offshore Fishermen's Association and Gulf Fishermen's Association to extend the commercial SWG and DWG fishing season at least into December. Their proposal was to set a trip limit of 10,000 pounds for all grouper combined at the beginning of the fishing year (January 1); reduce the trip limit to 7,500 pounds when 50 percent of the SWG or red grouper quota was reached, and reduce the trip limit to 5,500 pounds when 75 percent of either the SWG or red grouper quota was reached. In a November 17, 2004, letter to

the Regional Administrator, the Council requested NMFS implement either by interim or emergency rule a trip limit as proposed by industry for the 2005 commercial grouper fishing year. The emergency rule became effective on March 3, 2005. Fifty percent of the SWG quota was reached on June 9 and trip limits were reduced to 7,500 pounds, the DWG quota was met on June 23 and that fishery was closed, trip limits were reduced to 5,500 pounds on August 4, and the SWG fishery closed on October 10, one month earlier than in 2004.

## **1.2 History of Management**

The following summary describes only those management actions that affected grouper harvest. For a complete history of management of the entire reef fish fishery, please go to the Council's website: <http://www.gulfcouncil.org/>

The Reef Fish FMP, including an EIS, was implemented in November 1984. The FMP's regulations, which were designed to rebuild declining reef fish stocks, included prohibitions on the use of fish traps, roller trawls, and powerhead-equipped spear guns within an inshore stressed area and directed NMFS to develop data reporting requirements in the reef fish fishery.

### Amendments

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

- Set a 20-inch total length minimum size limit on red, Nassau, yellowfin, black, and gag grouper;

- Set a 50-inch total length minimum size limit on jewfish (goliath grouper);

- Set a five-grouper recreational daily bag limit;

- Set an 11.0 MP commercial quota for grouper, with the commercial quota divided into a 9.2 MP shallow-water grouper quota and a 1.8 MP deep-water grouper quota. Shallow-water grouper were defined as black grouper, gag, red grouper, Nassau grouper, yellowfin grouper, yellowmouth grouper, rock hind, red hind, speckled hind, and scamp (until the SWG quota was filled). Deep-water grouper were defined as misty grouper, snowy grouper, yellowedge grouper, warsaw grouper, and scamp once the SWG quota was filled. Jewfish (goliath grouper) was not included in the quotas;

- Allowed a two-day possession limit for charter vessels and headboats on trips that extend beyond 24 hours, provided the vessel has two licensed operators aboard as required by the U.S. Coast Guard, and each passenger can provide a receipt to verify the length of the trip. All other fishermen fishing under a bag limit were limited to a single day possession limit;

- Established a framework procedure for specification of total allowable catch (TAC) to allow for annual management changes;

- Established a longline and buoy gear boundary at approximately the 50-fathom depth contour west of Cape San Blas, Florida, and the 20-fathom depth contour east of Cape San Blas, inshore of which the directed harvest of reef fish with longlines and buoy gear was

prohibited, and the retention of reef fish captured incidentally in other longline operations (e.g., sharks) was limited to the recreational daily bag limit. Subsequent changes to the longline/buoy boundary could be made through the framework procedure for specification of TAC;

Limited trawl vessels (other than vessels operating in the unsorted groundfish fishery) to the recreational size and daily bag limits of reef fish;

Established fish trap permits, allowing up to a maximum of 100 fish traps per permit holder;

Prohibited the use of entangling nets for directed harvest of reef fish. Retention of reef fish caught in entangling nets for other fisheries was limited to the recreational daily bag limit;

Established the fishing year to be January 1 through December 31;

Extended the stressed area to the entire Gulf coast; and

Established a commercial reef fish vessel permit.

**Amendment 3** (EA/RIR/IRFA), implemented in July 1991, provided additional flexibility in the annual framework procedure for specifying TAC by allowing the target date for rebuilding an overfished stock to be changed. It revised the FMP's primary objective from the 20 percent SSB target with a 20 percent spawning potential ratio (SPR). The amendment also transferred speckled hind from the SWG quota category to the DWG quota category.

**Amendment 4** (EA/RIR/IRFA), implemented in May 1992, established a moratorium on the issuance of new reef fish permits for a maximum period of three years. Amendment 4 also changed the time of the year that TAC is specified from April to August and included additional species in the reef fish management unit.

**Amendment 5** (SEIS/RIR/IEFA), implemented in February 1994, established restrictions on the use of fish traps, created a special management zone (SMZ) with gear restrictions off the Alabama coast, created a framework procedure for establishing future SMZs, required that all finfish except for oceanic migratory species be landed with head and fins attached, and closed the region of Riley's Hump (near Dry Tortugas, Florida) to all fishing during May and June to protect mutton snapper spawning aggregations.

**Amendment 9** (EA/RIR/IRFA), implemented in July 1994, provided for collection of red snapper landings and eligibility data from commercial fishermen for the years 1990 through 1992. This amendment also extended the reef fish permit moratorium and red snapper endorsement system through December 31, 1995, in order to continue the existing interim management regime until longer term measures could be implemented.

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

**Amendment 18** (SEIS/RIR/IRFA) was approved by the Council at the October 2005 Council meeting for submission to the Secretary. If implemented, this amendment would: 1) maximum crew size on charter vessels while commercially fishing, 2) use of reef fish for bait, 3) vessel

monitoring systems for commercial vessels, 4) simultaneous commercial and recreational harvest on a vessel, 5) changes to TAC framework procedure, and 6) sea turtle/smalltooth sawtooth sawfish bycatch mortality measures.

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

**Amendment 20** (EA/RIR/IRFA), implemented July 2003, established a three-year moratorium on the issuance of charter and headboat vessel permits in the recreational for-hire reef fish and coastal migratory pelagic fisheries in the Gulf of Mexico EEZ.

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

**Amendment 22** (SEIS/RIR/IRFA), implemented July 5, 2005, specified bycatch reporting methodologies for the reef fish fishery.

**Amendment 24** (EA/RIR/IRFA), implemented on August 17, 2005, replaced the commercial reef fish permit moratorium that was set to expire on December 31, 2005 with a permanent limited access system.

**Amendment 25** (SEIS/RIR/IRFA) was approved by the Council at their August 2005 meeting for submission to the Secretary. If implemented, the amendment would replace the reef fish for-hire permit moratorium that expires in June 2006 with a permanent limited access system.

### Regulatory Amendments

A July 1991 regulatory amendment, implemented November 12, 1991, provided a one-time increase in the 1991 quota for SWG from 9.2 MP to 9.9 MP to provide the commercial fishery an opportunity to harvest 0.7 MP that went unharvested in 1990.

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

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

species under the Council's jurisdiction.

### Control Date Notices

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

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

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

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



## **2 PURPOSE AND NEED**

The purpose of this regulatory amendment is to set commercial management measures for the Gulf of Mexico grouper fishery to reduce the adverse socioeconomic effects of derby fishing. The Council initiated this regulatory amendment in fall, 2004 to adjust TAC and management measures necessary to maintain the rebuilding schedules specified in Secretarial Amendment 1. However, because of landings overages in the recreational fishery, the Council decided to maintain the existing TAC of 6.56 mp GW until a new stock assessment is completed in late 2006.

Temporary trip limits for the commercial fishery were implemented by NMFS in March 2005. These trip limits were requested by the commercial fishing industry, established through emergency rule, and will be effective until February 26, 2006. Trip limits were expected to prolong the commercial grouper fishing year and reduce the adverse socio-economic effects of derby fishing, while still allowing all vessels, including high-capacity vessels, an opportunity to participate in the fishery. However, commercial landings for 2005 were above those for 2004; the DWG fishery closed June 23 and the SWG fishery closed on October 10, one month earlier than in 2004. Lower trip limits are needed if the Council intends to moderate the rate of commercial landings, reduce the adverse socioeconomic effects of a derby fishery, and allow the commercial fishery to remain open later in the year.

### 3 MANAGEMENT ALTERNATIVES FOR COMMERCIAL GROUPEY TRIP LIMITS

Background: The purpose of the various commercial alternatives is to prevent derby fishing and prolong the fishing season. Derby fishing causes the season to close earlier than anticipated and reduces the value of the landings while the season is open due to depressed prices. To examine the effects of various initial trip limits, logbook data from 2002 through 2004 were summarized by day for trip limits from 3,000 to 10,000 pounds (Table 3.1). In 2002 and 2003, the only constraints to landings were size limits and the February 15 through March 15 closure. In 2004, landings were constrained additionally by quota closures for DWG on July 15 and SWG on November 15. For each trip limit in Table 3.1, estimates of when 50 percent (mid-point) and 100 percent (closure) of the quota would have been reached are provided. If the DWG fishery closed before the SWG fishery, it was assumed that additional effort would be shifted to the SWG fishery until it closed. In all cases, the red grouper quota was met before the SWG quota, so the proportion of quota attained by the other fisheries is presented. For example, in 2002, if a 5,500-pound trip limit had been in place, the red grouper quota would have been met on December 19 and 99 percent of the SWG quota would have been landed. In 2003, the DWG quota would have been met on August 19; however, neither the red grouper or SWG quota would have been reached by the end of the year. In 2004, the DWG quota would have been reached on September 10, and 98 percent of the red grouper quota would have been landed by the end of the year.

Table 3.1. Summary of estimated dates when 50 percent (Mid-pt) and 100 percent (Closure) of the quota would have been reached during 2002-2004 for various commercial trip limits in the red grouper, DWG, and SWG fisheries. If a fishery did not reach its quota by the time the red grouper or SWG quota was reached, the percentage of the quota landed is shown.													
Trip Limit		10,000			6,000			5,500			5,000		
Year		RG	SWG	DWG	RG	SWG	DWG	RG	SWG	DWG	RG	SWG	DWG
2002	Mid-Pt	6/24	6/16		7/1	6/26		7/3	6/30		7/7	7/2	
	Closure	11/24	95%	12/6	12/15	96%	98%	12/19	99%	97%	12/31	96%	95%
2003	Mid-Pt	7/25	7/20		8/5	7/30		8/8	8/3		8/15	8/8	
	Closure	12/30	97%	8/3	94%	91%	8/13	92%	89%	8/19	89%	87%	8/25
2004	Mid-Pt	7/1	6/28		7/8	7/6		7/12	7/8		7/26	7/26	
	Closure	11/18	97%	6/23	12/19	96%	8/25	98%	94%	9/10	95%	92%	9/30
Trip Limit		4,500			4,000			3,500			3,000		
Year		RG	SWG	DWG	RG	SWG	DWG	RG	SWG	DWG	RG	SWG	DWG
2002	Mid-Pt	7/13	7/7		7/21	7/14		7/27	7/22		8/6	8/1	
	Closure	97%	94%	93%	93%	91%	90%	88%	87%	87%	83%	82%	83%
2003	Mid-Pt	8/23	8/16		8/27	8/24		9/11	9/1		9/22	9/16	
	Closure	86%	84%	8/31	82%	81%	9/13	77%	76%	9/22	71%	71%	10/14
2004	Mid-Pt	8/1	8/3		8/12	8/18		8/22	8/23		8/27	8/29	
	Closure	91%	88%	11/6	86%	84%	12/13	82%	80%	85%	77%	77%	71%

Logbook data for the first five months of the 2005 commercial fishing season are available to examine the effects of trip limits imposed in March 2005. The months of January and February were before trip limits were implemented, whereas, landings for March through May were after

trip limits became effective (Table 3.2). Trips declined during the first five months of 2005 by approximately 17 percent over the average for 2003-2004, while landings remained the same.

Handline	Landings per Trip	2003-04 Average Trips			2005 Trips			Percent Change
		Jan/Feb	Mar-May	Total	Jan/Feb	Mar-May	Total	
	<500	976	1976	2951	786	1326	2112	-0.28
	500-<1000	183	307	490	205	276	481	-0.02
	1000-<1500	77	134	211	111	128	239	0.14
	1500-<2000	35	68	103	51	77	128	0.25
	>2000	26	79	105	84	58	142	0.35
	Total Trips	1296	2563	3859	1237	1865	3102	-0.20
	Landings (lbs GW)	481,886	1,020,584	1,502,470	739,437	846,160	1,585,597	0.06
	Avg. catch/trip	372	398	389	598	454	511	0.31
Longline	Landings per Trip	2003-04 Average Trips			2005 Trips			Percent Change
		Jan/Feb	Mar-May	Total	Jan/Feb	Mar-May	Total	
	< 2000	135	174	309	119	135	254	-0.18
	2000-<4000	67	142	209	69	100	169	-0.19
	4000-<5500	41	70	111	37	63	100	-0.10
	5500-<7500	43	60	103	44	61	105	0.02
	>7500	35	36	71	43	50	93	0.32
	Total Trips	320	481	801	312	409	721	-0.10
	Landings (lbs GW)	1,137,476	1,667,358	2,804,834	1,193,414	1,522,784	2,716,198	-0.03
	Avg. catch/trip	3560	3466	3504	3825	3723	3767	0.08
Trap	Landings per Trip	2003-04 Average Trips			2005 Trips			Percent Change
		Jan/Feb	Mar-May	Total	Jan/Feb	Mar-May	Total	
	<500	16	103	119	6	121	127	0.07
	500-<1000	4	5	9	2	6	8	-0.11
	1000-<1500	2	3	5	0	2	2	-0.60
	1500-<2000	3	1	4	1	2	3	-0.14
	>2000	6	0	6	7	1	8	0.33
	Total Trips	30	112	142	16	132	148	0.04
	Landings (lbs GW)	39,252	121,589	160,841	37,302	146,261	183,563	0.14
	Avg. catch/trip	1308	1086	1133	2331	1108	1240	0.10

However, landings reported by the Southeast Fishery Science Center's (SEFSC) Quota Monitoring Program are about 10 percent higher than logbook reported landings, so some logbooks for this time period, particularly March through May, have likely not been submitted yet. Still, it is apparent that larger per-trip catches are being made in 2005 than the average for 2003-2004. The number of handline trips landing more than 1,000 pounds increased by 18 percent in 2005 and the number of longline trips landing more than 7,500 pounds increased 32 percent in 2005 over the averages for 2003-2004. Whether this increase in catch per trip is a result of derby fishing or increased availability is unclear at this time; however, it does appear

that, at least for the handline fishery, landings per trip under 2,000 pounds can contribute significantly to increased annual landings.

**Alternatives 1-3** in this section match those in the emergency rule and **Alternative 2** specifies the trip limits implemented by that rule (NMFS, 2005d). The MSFCMA requires the Council to address the emergency on a permanent basis through development of an FMP or amendment (MSFCMA 304(c)(3)(B)). These trip limits were developed based on hard quotas of 5.31 MP GW for red grouper, 8.8 MP GW for SWG and 1.02 MP GW for DWG.

**Alternative 1: Status quo. Do not limit the amount of grouper landed per trip after February 26, 2006, when the emergency rule expires.**

**Alternative 2: At the beginning of the fishing year (January 1) all vessels will be limited to a 10,000-pound gutted weight trip limit for both deep-water and shallow-water grouper combined. If 50 percent of either the shallow-water grouper or the red grouper quota is met on or before August 1, the trip limit is reduced to 7,500-pounds gutted weight. If 75 percent of either the shallow-water grouper or red grouper quota is met on or before October 1, the trip limit is reduced to 5,500-pounds gutted weight. Trip limits only apply to those grouper whose quota has not been met.**

**Alternative 3: At the beginning of the fishing year (January 1) all vessels will be limited to a 7,500-pound gutted weight trip limit for both deep-water and shallow-water grouper combined. If 50 percent of either the shallow-water grouper or the red grouper quota is met on or before August 1, the trip limit is reduced to 5,000-pounds gutted weight. Trip limits only apply to those grouper whose quota has not been met.**

**Alternative 4: At the beginning of the fishing year (January 1) all vessels will be limited to a 7,500-pound gutted weight trip limit for both deep-water and shallow-water grouper combined. If 50 percent of either the shallow-water grouper or the red grouper quota is met on or before August 1, the trip limit is reduced to 3,500-pounds gutted weight. Trip limits only apply to those grouper whose quota has not been met.**

**Alternative 5: Establish an aggregate deep-water grouper and shallow-water grouper commercial trip (possession) limit. At the beginning of the fishing year (January 1) all vessels will be limited to a 4,000 pound gutted weight trip limit for both deep-water and shallow-water grouper combined. Each year, NMFS is authorized to adjust the trip limit twice between July 1 and October 1 such that the red grouper or SWG quota is estimated to be caught on December 31. The new trip limit(s) only apply to those grouper whose quota has not been met.**

**Preferred Alternative 6: Establish an aggregate deep-water grouper and shallow-water grouper commercial trip (possession) limit of 6,000 pounds gutted weight for both deep-water and shallow-water grouper combined. The trip limit only applies to those grouper whose quota has not been met.**

## Discussion - Economic Impacts:

**Alternative 1** (status quo) would allow commercial trip limits implemented through emergency rule by NMFS to expire. Commercial fishermen would be allowed to land an unlimited quantity of grouper per trip, except gag, red, and black grouper are excluded during the February 15-March 15 closed season. Only a vessel's capacity, the length of time a vessel could remain at sea, and how successful a vessel is at capturing grouper each trip would dictate how much grouper could be landed per trip. This alternative would allow vessels of all capacities to participate in the fishery during the entire fishing season until the quotas are met and the DWG and SWG fisheries are closed. In 2004, the DWG fishery was closed on July 15 and the SWG fishery was closed on November 15 due to the TAC on red grouper being met. In 2005, the quotas for DWG and SWG were met on June 23 and October 10, respectively. It is expected that as the red grouper stock is rebuilt, this trend of shorter seasons will continue. This alternative would not prevent or reduce the adverse socio-economic effects as a derby fishery develops and intensifies with the increase in stock abundance.

**Alternative 1** provides the economic basis for comparison to the other alternatives. The economic analyses presented below for **Alternative 1** and for the other alternatives are summarized for trip limit scenario two which allows extra trips and is described in the Environmental Consequences, Section 7.3.1 and associated Tables 7.3.1 through 7.3.5. For a full discussion of the methods and economic impacts of the commercial trip limit alternatives, please refer to Section 7.3.1. Quotas implemented by Secretarial Amendment 1 are expected to reduce net revenues by about \$1.632 million (from a historical average of \$28.7 million before the quota to \$27.0 million) or about a six percent decrease in net revenues. These economic impacts do not include the potential effects of derby fishing or effort shifting around closed seasons on dockside value, or the effect on shore facilities, such as reduced employment or lost sales, if the season closes.

Sixty-eight percent of the reduction in revenue is borne by the bottom longline sector and 29 percent is borne by the vertical line sector. By area, west-central Florida experiences the majority of the reduction, 56 percent, followed by 18 percent for northwest Florida. Under quota management, 922 vessels are projected to land Gulf grouper, 1 percent fewer than the 929 vessels under historical logbook-reported harvest conditions. A 4 percent reduction in trips is projected (from 10,516 trips to 10,143 trips).

Had SWG and DWG quotas been in effect starting in 2000, the SWG fishery would have closed as early as November 11, 2002, or not at all in 2003; whereas, in 2004, the SWG fishery was closed November 15. If quotas had been in effect for the DWG fishery starting in 2000, the fishery would have closed as early as June 7, 2004, to as late as November 29, 2002. This year, with trip limits specified in **Alternative 2** starting in March, landings rates were higher than they were in 2004, resulting in earlier DWG and SWG fishery closures in 2005. The 2004 closures appear to have further stimulated derby fishing despite the implementation of trip limits.

**Alternative 2** was proposed by industry and establishes a combined trip limit for SWG and DWG. At the start of the fishing year, a 10,000-pound GW trip limit would take effect. This trip

limit is intended to deter a derby fishery from developing early in the year, while allowing large capacity vessels to participate in the fishery. The trip limit would be reduced to 7,500 pounds GW later in the fishing season once 50 percent of either the SWG or red grouper quota is met. Once 75 percent of the quota is met, the trip limit would be reduced to 5,500 pounds GW. These latter trip limit reductions were intended to slow the rate of landings, thereby prolonging the fishing season. However, under these trip limits in 2005, the season closed a month earlier than in 2004. At least the first two steps, 10,000 and 7,500 pounds GW do not appear to have slowed the fishery.

**Alternative 2** is expected to produce a loss in net revenue of \$344,000 relative to the status quo (\$2.0 million - \$1.6 million) or about a 1.3 percent decrease. The longline sector is projected to lose \$348,000 in net revenues over **Alternative 1**; whereas, the vertical line sector is projected to increase net revenues by about \$24,000. By area, Florida's west-central coast experiences nearly all of the additional loss in net revenues, while Texas, eastern Louisiana-Mississippi-Alabama, and northwest Florida are projected to experience small gains in net revenues relative to the status quo. A total of 916 vessels are projected to participate in the fishery under this scenario, or 2 more vessels than the status quo, though the number of marginally profitable vessels under the status quo may be reduced further if derby conditions continue.

**Alternative 2** is projected to result in 10,232 vessel trips, or 1 percent more than the status quo (10,143 trips). The largest gear sector gain occurs in the vertical line fleet, 48 trips, though no sector gains more than 2 percent. By area, the majority of the gains occur in west-central Florida (52 trips) and northwest Florida (27 trips). **Alternative 2** is projected to extend the SWG season 7 to 13 days longer than status quo; whereas, the DWG fishery is projected to be extended 0 to 16 days longer. However, even with these trip limits, the 2005 season closed sooner than the 2004 season.

**Alternative 3** would establish a trip limit of 7,500-pounds GW at the start of the fishing season. This lower trip limit would initially affect a larger number of vessels and trips than the 10,000-pound GW trip limit proposed in **Alternative 2**. Once 50 percent of the quota is met, the trip limit would be reduced to 5,000 pounds GW. **Alternative 3** is expected to result in \$674,000 in net revenue losses over status quo or about 2.5 percent. The longline fleet is expected to lose \$708,000 in net revenues; whereas, the vertical line fishery is expected to gain about \$87,000 in net revenues. As with all the trip limit alternatives, the Florida west coast absorbs nearly all of the loss, while Texas through northwest Florida experience slight gains in net revenue.

**Alternative 3** is projected to result in 10,310 vessel trips, or 2 percent more than the status quo, and 77 more trips than **Alternative 2**. Compared with the status quo, the largest gain occurs in the vertical line fleet, 910 trips, though the bottom longline sector experiences the largest proportionate increase (4 percent). By area, the majority of the gain in trips occurs in northwest Florida (54 trips) and west-central Florida (96 trips). These gains are larger than those under **Alternative 2**.

Under **Alternative 3**, the SWG fishery is projected to remain open 16 to 20 days longer than **Alternative 1**. The DWG fishery is projected to extend as few as three days or to remain open

all year. These dates represent a 6 to 9 day gain for the SWG fishery relative to **Alternative 2** and would be expected to produce some unquantifiable indirect benefits associated with extending the fishing year by a week.

At the August meeting, the Council accepted a request by industry representatives to recommend an alternative trip limit proposal different from those above. The industry as a whole could not come to agreement for a single proposal so two were recommended. Southern Offshore Fisherman's Association (SOFA) recommended an alternative similar to **Alternative 3**. SOFA recommended an initial trip limit of 7,500 pounds. After 75 percent of the quota is reached the trip limit would be reduced to 5,500 pounds. In addition to these trip limits, SOFA recommended a May 15 through June 15 closure for gag, red, and black grouper to shift fishing days to the end of the season. An economic analysis using the same model and assumptions as for **Alternative 3** indicated that the season would remain open 4 - 13 days longer than **Alternative 1** and about the same number of days as **Alternative 2**, assuming that the closure is 100 percent effective. The loss in net revenue from this proposed alternative was estimated at \$1,561,000 relative to status quo; most of that loss would come from the longline sector.

**Alternative 4** is designed to keep the season open from January 1 through December 31, except during the current closed season from February 15 through March 15 for gag, red, and black grouper. The highest recent commercial landings occurred in 2002 and drove the determination of trip limits since the intent is to keep the season open all year, every year. The analysis for **Alternative 4** held days constant and trip limits were adjusted until the 2002 season would not have closed. The analysis assumed no extra trips would be made. The resulting trip limits were an initial 7,500 pound trip limit changing to 3,500 pounds once 50 percent of the quota is met. If fishermen take additional trips to compensate for lower trip limits, then the season would likely close before the end of the year.

The loss in net revenue from **Alternative 4** is \$889,000 greater than status quo or about 3.3 percent. This is \$545,000 greater than for **Alternative 2** and \$215,000 greater than for **Alternative 3**. The longline sector is projected to lose \$914,000 in net revenues while the vertical line sector is expected to gain \$137,000 over status quo. By area, west-central Florida experiences more than twice the loss in net revenue as under the status quo. Texas, eastern Louisiana-Mississippi-Alabama, and northwest Florida are projected to experience gains in net revenues relative to the status quo. A total of 887 vessels are projected to participate in the fishery under this scenario, 35 less than under the status quo, 33 less than under **Alternative 2** and 27 less than under **Alternative 3**.

**Alternative 4** is projected to result in 10,423 vessel trips, or 3 percent more than the status quo, 191 more than **Alternative 2** and 113 more trips than **Alternative 3**. Compared with the status quo, the largest gear sector gain occurs in the longline fleet, 137 trips (9 percent), though the vertical line sector experiences a gain of 126 trips. By area, the majority of the gains occur in northwest Florida (72 trips) and west-central Florida (179 trips). These are much larger than the gains for these areas under **Alternatives 2** or **3**.

**Alternative 5** is also intended to keep the season open as long as possible except during the

current spawning season closure from February 15 through March 15. An initial trip limit of 4,000 pounds is established on January 1. NMFS is authorized to adjust the trip limit twice between July 1 and October 1 of each year such that the red grouper or SWG quota is estimated to be caught on December 31 based on monitoring red grouper and SWG landings. Based on an analysis of 2002 through 2004 reef fish logbook data, it is expected that a 4,000 pound trip limit would not have caught the quota in any of these years (Table 3.1). Therefore, an increase in the trip limit would have been necessary. Using the same information for developing Table 3.1, the necessary increases in trip limits can be approximated. In 2002, if the decision to increase the trip limit had been made on July 1, the red grouper quota would have been caught with a 6,000 pound trip limit; if the decision had been made on August 1, the red grouper quota would have been caught with a 7,500 pound trip limit; and if the decision had been made on September 1, a 10,000 pound trip limit would have been required to catch the red grouper quota. Additionally, in 2002, DWG landings were lower than in more recent years and the DWG fishery would not have closed until early December even under no trip limit. In 2003, the SWG quota would not have been met if the trip limit was removed starting July 1. Assuming that some effort would shift from the DWG fishery once it was closed, a 10,000 pound trip limit starting January 1 would have been required to catch the red grouper quota by the end of the year (Table 3.1). In 2004, the DWG fishery closed on July 15 and the SWG fishery closed on November 15. In 2005, the DWG fishery closed June 23 and the SWG fishery closed October 10. Thus, the characteristics of the landings trends for DWG, SWG, and red grouper are much different from year to year and estimating future monthly yields at various trip limits do not appear to be feasible at this time. Therefore, **Alternative 5** leaves the decisions about when the trip limit should be changed or what it should be changed to up to NMFS and allows NMFS two attempts during the year to adjust the trip limit to meet the stated goals.

No quantitative analyses of the effects of **Alternative 5** can be conducted. Because it has the lowest starting trip limit of any of the alternatives, it will likely have the greatest effect on longline vessels and may decrease net revenues of vertical line vessels as well. Such a low starting trip limit may also cause some longline fishermen to either leave the fishery or down-size their operations to vertical line gear to reduce costs.

**Preferred Alternative 6** establishes a single trip limit of 6,000 pounds for the year. This Alternative was recommended by the Gulf Fisherman's Association as part of the Council's request to the commercial industry at their August meeting. The intent of this alternative is to keep the season open into the middle of December. **Preferred Alternative 6** is expected to decrease net revenues by \$721,000-\$1.015 million over the status quo, or approximately 2.7-3.8 percent. The longline sector is expected to lose \$760,000-\$1.09 million over the status quo, whereas the vertical line sector is expected to gain \$81,000-\$112,000. As with all the trip limit alternatives, the Florida west coast absorbs nearly all of the loss, while Texas through Northwest Florida gain slightly.

**Preferred Alternative 6** is projected to result in 10,317 vessel trips or 2 percent more than the status quo, 85 more than **Alternative 2**, 7 more trips than **Alternative 3**, and 106 fewer trips than **Alternative 4**. Compared with the status quo, the largest gear sector gain occurs in the vertical line fleet, 93 trips (1 percent), while the longline sector experiences a gain of 73 trips (5 percent).



By area, the majority of the gains occur in northwest Florida (55trips) and west central Florida (100 trips). These gains are less than under **Alternative 4** but larger than the gains for these areas under **Alternatives 2** or **3**.

Under **Preferred Alternative 6**, the SWG fishery is projected to remain open 16 to 21 days longer than **Alternative 1**. The DWG fishery is projected to extend as few as six days or to remain open all year. These dates represent a six to nine day gain for the SWG fishery relative to **Alternative 2** and approximately the same number of days as **Alternative 3** and would be expected to produce greater unquantifiable indirect benefits associated with extending the fishing year. The season would be open three to seven days less than **Alternative 4**.

#### Discussion – Biological, Physical and Administrative Impacts:

The biological and physical environments are not expected to be significantly affected by any of the trip limit alternatives because annual landings for all high value species in the reef fish complex are constrained by hard quotas. Effort shifting is unlikely while either the DWG or the SWG fisheries are open. Trip limits are intended to keep the DWG and SWG seasons open longer reducing the time available to target other species. For the same reason, bycatch is not expected to change either in magnitude or composition as long as either fishery is open. In the long-term, as the red grouper stock rebuilds, quotas may be met sooner, allowing more time to target other species, which could also shift bycatch composition and quantity. While seasons are open, **Alternatives 2-6** are not expected to change the fishing gears used to land grouper so the physical environment should remain unaffected.

**Alternative 1** would allow existing trip limits to expire thus reducing the **administrative burden** of both enforcement and monitoring; whereas, **Alternatives 2-6** are expected to produce both positive and negative administrative effects relative to the status quo (**Alternative 1**). These alternatives would continue the administrative burden of enforcing trip limits. However, these alternatives are also expected to slow the rate of landings and improve the accuracy of predicting the end of year closure, thereby reducing the likelihood of quota overages.

## **4 REGULATORY IMPACT REVIEW**

### **4.1 Introduction**

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

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

### **4.2 Problems and Objectives**

The purpose and need, issues, problems, and objectives of the proposed amendment are presented in Section 2.0 and are incorporated herein by reference. In summary, the purpose for this regulatory amendment is to implement management measures for the Gulf of Mexico red grouper fishery to reduce the adverse socioeconomic effects of derby fishing in the commercial sector.

### **4.3 Methodology and Framework for Analysis**

This RIR assesses management measures from the standpoint of determining the resulting changes in costs and benefits to society. To the extent practicable, the net effects should be stated in terms of producer surplus, changes in profits, employment in the direct and support industries, and participation by commercial fishermen. However, this information generally does not exist for the fisheries covered by the proposed action. Therefore, for commercial fishing, the impacts of the proposed action are described in terms of projected changes in landings, the numbers of vessels and trips, trip net revenue (all returns to labor and capital), and quota-based fishery closure dates.

In addition, the public and private costs associated with the process of developing and enforcing regulations on fishing for reef fish in waters of the U.S. Gulf of Mexico are provided in this RIR.

### **4.4 Description of Fisheries**

The commercial fishery for Gulf grouper is described in Section 6.3 and incorporated herein by reference.

## 4.5 Impacts of Commercial Grouper Trip Limits

This proposed amendment considers six alternatives to control commercial landings of SWG and DWG. Additional details on the economic impacts of the proposed management alternatives are included in Section 7.3 and are included herein by reference.

**Alternative 1** (status quo) uses quotas alone, while **Alternatives 2-6** use trip limits in addition to the same quotas. Implementation of these quotas under Secretarial Amendment 1 of the Gulf Reef Fish FMP on July 15, 2004, resulted in an immediate fishery closure for DWG. The fishery for SWG closed on November 15, 2004, based on quota monitoring by NMFS. In 2005, the DWG fishery closed on June 23 and the SWG fishery closed on October 10.

The six alternatives are compared in terms of projected annual landings, numbers of vessels and trips, net revenue, and fishery closure dates, based on results of a simulation model, as explained in Section 7.3. Net revenue represents all returns to labor and capital (net revenue = trip revenue – trip costs; trip costs include fuel, ice, bait and food supplies, but not labor). For the alternatives with trip limits, two scenarios are examined, one which does not allow extra trips to occur and one which does allow extra trips but limits the total number of days fished to not exceed those for the historical logbook-reported trips.

Because the economic impacts of derby fishing cannot be projected with current data or models, a qualitative assessment was conducted to discuss the trade offs between changes in projected net returns, projected end-of-year grouper fishery closure dates, and efficacy in addressing derby fishing.

**Alternative 1** (status quo, quotas only) is projected to result in annual landings of 9.3 mp GW of Gulf SWG and DWG combined. This compares with a historical, logbook-reported annual average of 10.1 mp GW for 2002-2004. The expected net revenue is \$27.029 million, \$1.632 million less than historical fishery performance. The projected reduction in net revenue is borne largely by the longline sector (down \$1.116 million to \$10.668 million) and the vertical line sector (down \$0.478 million to \$14.492 million). Under this alternative, 922 vessels are projected to land Gulf grouper, 1 percent fewer than under historical, logbook-reported harvest conditions, and there would be a 4 percent reduction in trips to 10,143 trips. During 2002-2004, projected fishery closure dates ranged from June 7 to November 29 for DWG and from November 11-13 for SWG, except for 2003 conditions under which no closure is projected.

**Alternative 2** (quotas and trip limits of 10,000, 7,500 and 5,500 pounds GW) is projected to result in landings of 9.1-9.2 mp GW of Gulf SWG and DWG combined, compared with 9.3 mp GW for the status quo (quotas only). Compared with the status quo, this alternative is projected to result in 89-129 more trips, \$344,000-\$440,000 less net revenue, and participation of 6 fewer to 2 more vessels. The greatest losses in net revenue would be for longlines and vessels operating off west central Florida, while some gear sectors and areas would experience higher net revenue; e.g., longline projected net revenue is reduced \$0.3-\$0.5 million from \$10.7 million, and vertical line net revenue is increased \$24,000-\$65,000 from \$14.5 million. During 2002-2004, projected fishery closure dates ranged from June 11 to December 18 for DWG and from

November 24 to December 2 for 2002 conditions for SWG, with no closure projected under 2003-2004 conditions.

The trip limits in this alternative were implemented temporarily in March 2005 under an emergency rule and will expire in February 2006 (NMFS 2005b). Under the quotas established by Secretarial Amendment 1 and the trip limit protocols of the emergency rule (NMFS 2005b), NMFS reduced trip limits to 5,500 pounds GW effective August 4, 2005, based on quota monitoring. This is at least 20 days earlier than projected for 2000-2004 by the simulation model used to prepare this RIR.<sup>1</sup> The 2005 closure date also exceeded expectations. Whether these recent rates of landings can be largely attributed in part to temporarily greater availability of fish (such as from larger year classes) as opposed to fishing behavioral changes, or both, will not be known until the next stock assessment for Gulf grouper is completed in 2006.

**Alternative 3** (quotas and trip limits of 7,500 and 5,000 pounds GW) is projected to result in landings of 9.0 mp GW of Gulf SWG and DWG combined, compared with 9.3 mp GW for the status quo (quotas only). This alternative is projected to result in 167-208 more trips, \$674,000-\$924,000 less net revenue, and participation of 12 fewer to 4 more vessels than the status quo. The greatest losses in net revenue would be for the longline sector and west central Florida, while some gear sectors and areas would experience higher net revenue; e.g., projected longline net revenue is decreased by approximately \$0.7-\$1.0 million from \$10.7 million, and vertical line net revenue is increased by \$87,000-\$120,000 from \$14.5 million. During 2002-2004, projected fishery closure dates ranged from June 14 to August 6 for DWG (none in 2002 for DWG), and from December 1-16 under 2002 conditions for SWG, with no projected closure under 2003-2004 conditions.

**Alternative 4** (quotas and trip limits of 7,500 and 3,500 pounds GW) is projected to result in landings of 8.7-8.9 mp GW of Gulf SWG and DWG combined, compared with 9.3 mp GW for the status quo (quotas only). This alternative is projected to result in 281-303 more trips, \$889,000-\$1,504,000 less net revenue, and participation of 35 fewer to 6 more vessels than the status quo. The longline sector is projected to experience a reduction in net revenue of approximately \$0.9-\$1.5 million from \$10.7 million, while the vertical line sector is projected to experience an increase in net revenue of approximately \$137,000-\$173,000 from \$14.5 million. During 2002-2004, projected fishery closure dates ranged from June 14 to August 7 for DWG (none in 2002 for DWG), and December 9 for 2002 conditions for SWG, with no closure projected under 2003-2004 conditions.

**Alternative 5** (quotas and trip limits of 4,000 and 1,000 pounds GW) is projected to result in landings of 7.2-8.7 mp of Gulf SWG and DWG combined, compared with 9.3 mp GW for the status quo (quotas only). For purposes of modeling the impacts of this alternative, a 1,000 pound

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<sup>1</sup> Simulation-model projected trigger dates for the third stage 5,500-pound GW trip limit for **Alternative 2** are as follows by year for 2000-2004, first for the no-extra-trips scenario and second for the extra-trips scenario: 17Sep00 and 15Sep00, 3Sep01 and 3Sep01, 30Aug02 and 24Aug02, none for 2003, and 2Sep04 and 31Aug04. Projected closure dates for 2000-2004 are shown in Table 7.3.5.

trip limit was implemented once 50 percent of the quota was met. Because Alternative 5 provides NMFS flexibility to change the initial 4,000 pound trip limit between July 1 and October 1 each year, the adjusted trip limit could be higher or lower than 1,000 pounds depending on annual catch rates and fish availability. The 1,000 pound trip limit was chosen because it ensured the fishery remained open every year during the 2000-2004 time period. If the adjusted trip limit is higher than 1,000 pounds, then the following impacts would be less than estimated. This alternative is projected to result in 330-1,611 more trips, \$2,139,000-\$4,631,000 less net revenue, and participation of 133 fewer to 7 more vessels than the status quo. The longline sector is projected to experience a reduction in net revenue of approximately \$1.9-\$3.9 million from \$10.7 million, while the vertical line sector is projected to lose approximately \$15,000-\$313,000 from \$14.5 million. During 2002-2004, projected fishery closure dates ranged from June 29 to September 14 for DWG (none in 2002 for DWG), with no closures projected for SWG.

**Preferred Alternative 6** (quotas and trip limits of 6,000 pounds GW) is projected to result in landings of 8.9-9.0 mp of Gulf SWG and DWG combined, compared with 9.3 mp GW for the status quo (quotas only). This alternative is projected to result in 174-210 more trips, \$721,000-\$1,015,000 less net revenue, and participation of 4 more to 9 fewer vessels than the status quo. The greatest losses in net revenue would be for longlines and west central Florida. The longline sector is projected to experience a reduction in net revenue of approximately \$0.8-\$1.1 million from \$10.7 million, while the vertical line sector is projected to experience an increase in net revenue of approximately \$81,000-\$112,000 from \$14.5 million. During 2002-2004, projected fishery closure dates ranged from June 16 (2004 conditions) to December 30 (2002 conditions) for DWG, and from December 2-16 (2002 conditions) for SWG (no closure for 2003-2004 conditions).

**Alternatives 2-6** would reduce the pace of landings, potentially reducing the magnitude of the derby effects and mitigating the adverse economic impacts expected to accrue under the status quo regulations (**Alternative 1**, quotas only). Although these impacts cannot be quantified or forecast, they are expected to be substantial. A direct effect of these alternatives would be the benefits of reducing the impacts of a derby fishery, thereby mitigating the reductions in net revenue relative to the status quo. Since the trip limits are lower, **Alternatives 3-6** could be more effective in reducing the effects of derby fishing than **Alternative 2**. Additionally, reducing the length of the closed season, which the trip limits are expected to accomplish, lessens the likelihood of lost markets. Thus, an indirect impact of **Alternatives 2-6** is the benefit of improved market stability compared with the status quo. While lifestyle and/or seasonal plans may not require fishing late in the year, extending the fishing year will produce additional unquantifiable indirect benefits if November and/or December trips are essential to a successful year.

**Summary:** **Alternative 1** (status quo, quotas only) is projected to result in annual landings of 9.3 mp GW of Gulf SWG and DWG combined, 10,143 trips for these fish, participation by 922 vessels and net revenue of \$27.029 million. Having both quotas and trip limits, **Alternatives 2-6** are projected to reduce annual landings, increase the number of trips, reduce annual net revenue (from \$0.3-\$4.6 million), change the number of vessels, and extend the season for SWG.

Changes in net revenue would fall differentially among gear categories and fishing areas, with reductions falling mostly on vessels in the longline gear sector and/or on vessels catching Gulf grouper in waters off west central Florida. The projected changes in the number of vessels range between 133 fewer to 7 more vessels. **Alternatives 2-6** would reduce the pace of landings, thereby potentially reducing the magnitude of the derby effects, thus mitigating the adverse economic impacts of derby fishing expected to accrue to the status quo (**Alternative 1**, quotas only). Although the direct impacts of derby fishing cannot be quantified or forecast with current data or models, they are expected to be substantial. An indirect impact of **Alternatives 2-6** would be the benefit of improved market stability compared with the status quo (**Alternative 1**, quotas only).

#### 4.6 Public and Private Costs of Regulations

The preparation, implementation, enforcement, and monitoring of this or any Federal action involves the expenditure of public and private resources which can be expressed as costs associated with the regulations. Costs associated with this amendment include:

Council costs of document preparation, meetings, public hearings, and information dissemination .....	\$100,000
NOAA Fisheries administrative costs of document preparation, meetings and review .....	\$100,000
Annual law enforcement costs .....	\$0
<b>TOTAL</b> .....	<b>\$200,000</b>

Regardless of the alternative selected, the commercial fishery will continue to operate. Law enforcement currently monitors regulatory compliance in this fishery under routine operations and does not allocate specific budgetary outlays to this fishery, nor would the proposed action require modification or increases in current enforcement practices. Thus, no law enforcement costs are attributable to the proposed action.

#### 4.7 Summary of Economic Impacts

The proposed action is projected to result in a reduction of \$721,000-\$1.015 million in net revenue in the commercial grouper fishery relative to the status quo. However, these losses are expected to be exceeded and offset by the benefits associated with avoidance of the development of derby conditions in the fishery that would induce races to land, market gluts, depressed prices, extended closures, and lost markets.

#### 4.8 Determination of Significant Regulatory Action

Pursuant to Executive Order (E.O.) 12866, a regulation is considered a "significant regulatory

action" if it: (1) has an annual effect on the economy of \$100 million or more or adversely affects in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) creates a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alters the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raises novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866.

The proposed action is expected to reduce short-term net revenues in the commercial fishery by less than \$1.1 million. Further, these reductions are expected to be less than the economic harm that would accrue if derby conditions develop in the fishery. Thus, this action is expected to result in an unquantifiable long-term net gain to the fishery.

The proposed action will clearly not meet the \$100 million threshold, nor are there expected to be any significant adverse effects on prices, employment or competition. Additionally, this action is not expected to adversely affect the environment, public health or safety, or state, local, or tribal governments or communities, nor interfere or create inconsistency with any action of another agency, including state fishing agencies. No effects on the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof have been identified. This action represents normal management options or practices and, therefore, does not raise novel legal or policy issues.

Since the proposed regulatory action will not meet any of the conditions listed above, it is determined that the proposed rule, if implemented, would not constitute a significant regulatory action under E.O. 12866.

## 5 REGULATORY FLEXIBILITY ACT ANALYSIS

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

With certain exceptions, the RFA requires agencies to conduct a regulatory flexibility analysis for each proposed rule. The regulatory flexibility analysis is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. In addition to analyses conducted for the RIR, the regulatory flexibility analysis provides: (1) a statement 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 practical, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; and (6) a description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities.

In addition to the information provided in this section, additional information on the expected economic impacts of the proposed action are included in Sections 4 and 7 and is included herein by reference.

Statement of need for, objectives of, and legal basis for the rule: The purpose and need, issues, problems, and objectives of the proposed rule are presented in Section 2 and are incorporated herein by reference. In summary, the purpose for this regulatory amendment is to reduce the adverse socioeconomic effects of derby fishing in the commercial sector. The Magnuson-Stevens Fishery Conservation and Management Act provides the statutory basis for the proposed rule.

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.

Description and estimate of the number of small entities to which the proposed rule will apply: An estimated 1,129 vessels were permitted to engage in commercial fishing for Gulf reef fish



(which include grouper) in early 2004, down from 1,718 vessels in 1993 (GMFMC 2004d). Although a permit moratorium has limited access in this fishery since 1992, transfer of permits is not restricted. Those seeking to enter the fishery can purchase a permit from those seeking to exit the fishery, provided they meet income and other requirements. However, total participation in terms of both the number of permits and the number of vessels landing Gulf reef fish has consistently declined since 1993.

An estimated 1,157 vessels had permits to fish commercially for Gulf reef fish from 2002-2004, and 1,021 vessels had historical, logbook-reported landings of Gulf reef fish. This total includes 928 vessels with landings of Gulf grouper, for which the median estimated gross revenue for all reported landings of fish was approximately \$20,000 per vessel per year, and the maximum revenue ranged from \$478,000-\$543,000. For the longline fleet (162 vessels per year, on average), the median annual gross revenue ranged from \$96,000-\$102,000 (84-90 percent from grouper). The handline fleet (765 vessels per year, on average) had median annual gross revenue of under \$17,000 (44-48 percent from grouper). Some vessels use both gears so the numbers of vessels cannot be added across gear types.

For the 928 vessels with reported landings of Gulf grouper, historical fishery performance resulted in estimated annual average gross revenue of \$46 million for all logbook-reported fish in 2002-2004. This includes gross revenue of \$39 million for all fish on trips with grouper landings (\$25 million from red grouper). The net revenue for these trips was approximately \$29 million (annual averages per vessel for 928 vessels are \$41,000 for gross revenue, and \$31,000 for net revenue). Net revenue for the commercial fishing sector (computed as trip revenue – trip costs) includes returns to all labor and capital (see Section 7.3).

Simulation results for fishery performance under status quo conditions (**Action 1, Alternative 1**) produce estimates which are slightly lower than historical fishery performance: gross revenue of approximately \$37 million for all fish on trips with grouper landings and \$27 million for net revenue (annual averages per vessel for 922 vessels are \$40,000 for gross revenue, and \$29,000 for net revenue). Projected net revenue is approximately \$10.7 million for the longline fleet (average, \$66,000 per vessel per year for 161 vessels), and \$14.5 million for the vertical line fleet (average, \$19,000 per vessel per year for 748 vessels).

Between 1997-2000, there were on average 123 reef fish dealers actively buying and selling grouper. Of these, 101 dealers (82 percent) sold more than \$30,000 per year worth of domestic grouper on a regular basis. These dealers may hold multiple types of permits. Since the extent of business operation for these dealers is unknown, it is not possible to determine what percentage of their business comes from grouper. Average employment information per reef fish dealer is not known, but total employment in 1997 for reef fish processors in the Southeast was estimated at approximately 700 individuals, both part and full time. It is assumed that all processors must be dealers, yet a dealer need not be a processor. Therefore, total dealer employment is expected to be less than 700 individuals.

Description of the projected reporting, record-keeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the

requirement and the type of professional skills necessary for the preparation of the report or records: The proposed rule would not change current reporting, record-keeping and other compliance requirements under the FMP. These requirements include qualification criteria for commercial permits, landing reports for vessels with commercial permits, and participation in additional data collection programs if selected by NMFS. All of the information elements required for these processes are standard elements essential to the successful operation of a fishing business and should, therefore, already be collected and maintained as standard operating practice by the business. The requirements do not require professional skills, and, therefore, are deemed not to be onerous.

Substantial Number of Small Entities Criterion: The Small Business Administration defines a small business in the commercial fishery sector as a firm that is independently owned and operated, is not dominant in its field of operation, and has annual receipts up to \$3.5 million per year. For the support industries, the appropriate thresholds are a firm with fewer than 500 employees in the case of fish processors, or fewer than 100 employees in the case of fish dealers.

Given the profiles presented above, it is determined that all commercial fishing entities and dealers that will be affected by the proposed action are small business entities. Since all said entities would be potentially affected, it is determined that the proposed action will affect a substantial number of small entities.

Significant Economic Impact Criterion: The outcome of "significant economic impact" can be ascertained by examining two issues: disproportionality and profitability.

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

All the commercial fishing, or dealer entities affected by the proposed rule are considered small entities so the issue of disproportionality does not arise in the present case.

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

The proposed rule is projected to reduce net revenues by \$760,000 to \$1.09 million for the bottom longline sector. Compared with projected annual net revenue of \$10.7 million for this sector under the status quo (\$66,000 per vessel per year for 161 vessels), the projected net revenue reduction equates to approximately \$4,700-\$6,700, or approximately 7-10 percent, per vessel per year, on average.

For the vertical line sector, the proposed rule is projected to increase net revenues by \$81,000-\$112,000 per year. Compared with projected annual net revenue of \$14.5 million for this sector under the status quo (\$19,000 per vessel per year for 748 vessels), the projected increase in net revenue equates to approximately \$100-\$150 per vessel, or less than a 1 percent increase.

The proposed commercial trip limits are expected to reduce the adverse, but unquantifiable,

economic effects of derby fishing that are expected to develop under the status quo. The impacts of the proposed rule fall primarily on the bottom longline sector. Although the direct impacts of derby fishing cannot be quantified using current data and models, they are expected to be substantial and are expected to mitigate losses in net revenue to the fishery associated with the implementation of trip limits.

Description of Significant Alternatives: Five alternatives, including the status quo, were considered relative to the proposed commercial action. The status quo alternative would eliminate the short-term adverse impacts of the proposed action, but would not address the potential development of a derby fishery and would not, therefore, achieve the Council's objectives.

A second alternative to the proposed action would establish a step-down trip limit consisting of trip limits of 10,000, 7,500 and 5,500 pounds GW based on target dates and accumulated landing totals. This alternative, while resulting in lower short-term reductions in net revenues relative to the proposed action, does not appear to sufficiently constrain commercial landings, as evidenced by 2005 fishery performance and, hence, is not sufficient to lessen derby conditions and reduce the length of the quota closure.

The third alternative to the proposed action would start the commercial trip limit at 7,500 pounds with a single step-down to 5,000 pounds. This alternative would potentially reduce the short-term reduction in net revenues relative to the proposed action. However, based on preliminary 2005 fishery performance, the initial starting limit appears to be insufficient to counter derby pressure.

The fourth alternative would also start with an initial trip limit of 7,500 pounds with a step-down to 3,500 pounds. The short-term adverse impacts of this alternative, however, exceed those of the proposed action.

The fifth alternative to the proposed commercial action would begin the fishery with a 4,000-pound trip limit and, conceivably, allow the trip limit to either be increased, decreased, or remain the same depending upon fishery performance. Although this scenario cannot be fully analyzed due to the absence of a clear specification of the step up/down decision rule, the initial limit is so low that it is expected to generate excessive negative impacts, particularly on the bottom longline sector.

## **6 AFFECTED ENVIRONMENT**

Section 1502.15 of the CEQ regulations states “environmental impact statements shall succinctly describe the area(s) to be affected or created by the alternatives under consideration.” A brief description of the affected environment is included herein. More detailed descriptions of the affected environment can be found in the Final EIS to the Generic EFH Amendment (GMFMC 2004a) and Secretarial Amendment 1 to the Reef Fish FMP (NMFS 2004a), and are incorporated herein by reference. Tables cited in this section can be found in Section 12..

### **6.1 Physical Environment**

The grouper fishery occurs throughout the Gulf of Mexico, but is primarily concentrated on the West Florida Shelf. Most commercial landings of red grouper and other SWG occur off of Florida over hard-bottom habitat. In the western GOM, DWG are harvested over rocky ridges or flat bottom, near banks or ‘lumps’ (Cass-Calay and Bahnick 2002). Deep-water grouper also occur near the shelf-edge over sand, mud and shell bottom (Cass-Calay and Bahnick 2002).

The GOM is bounded by Cuba, Mexico, and the United States, and has a total area of 564,000 km<sup>2</sup>. Continental shelves occupy about 35 percent of the total GOM. The west Florida shelf provides a large area of hard bottom habitat. It is comprised of low relief hard bottoms that are relict reefs or erosional structures. Some high relief can be found along the shelf edge in waters 130 to 300 m deep. Hard bottom provides extensive areas where reef biota such as corals can become established. These hard bottom areas have become important reef fish fishing areas (e.g. Florida Middle Grounds, Tortugas).

Off the Alabama/Mississippi shelf and shelf break, irregular-shaped aggregates of calcareous organic forms called pinnacles are found. These pinnacles average about 9 m in height and are found in waters about 80 to 130 m deep. In addition to the pinnacles, low-relief hard bottom areas can be found in waters less than 40 m adjacent to Florida and Alabama.

The Louisiana/Texas shelf is dominated by muddy or sandy terrigenous sediments, but banks and reefs do occur on the shelf. Mid-shelf banks made of bare, bedded Tertiary limestones, sandstones, claystones, and siltstones are found from water depths of 80 m or less and have relief of 4 to 50 m (Rezak et al. 1985). Relict reefs made of carbonate are found from water depths of 14 to 40 m and have a relief of 1 to 22 m. The Flower Garden Banks National Marine Sanctuary is located about 150 km directly south of the Texas/Louisiana border. This coral reef is perched atop two salt domes rising above the sea floor and ranges from 15 to 40 m deep.

### **6.2 Biological Environment**

Shallow-water and deep-water grouper comprise a multispecies fishery in the Gulf of Mexico. The Reef Fish FMP includes 42 species of reef fish comprising six families: Balistidae (triggerfishes), Carangidae (jacks), Labridae (wrasses), Lutjanidae (snappers), Malacanthidae (tilefishes), and Serranidae (grouper). Seventeen grouper species are included in the Reef Fish FMP, of which 13 are managed, two are prohibited from harvest (Nassau and goliath grouper),

and two species are not in the management unit (sand perch and dwarf sand perch). Shallow-water grouper in the management unit include: red grouper, black grouper, gag, yellowfin grouper, scamp, yellowmouth grouper, rock hind, and red hind. Deep-water grouper in the management unit include: yellowedge grouper, warsaw grouper, snowy grouper, speckled hind, and misty grouper. Red grouper, gag, and black grouper are the most commonly landed SWG species in the commercial fishery. Approximately 98 percent of DWG landings are by commercial fishermen. Yellowedge grouper is the most commonly landed DWG species.

### **6.2.1 Biology and Life History**

Secretarial Amendment 1 (NMFS 2004a) and Amendment 24 to the Reef Fish FMP provide (GMFMC 2004d) detailed descriptions of the biology and life history of reef fish, and are incorporated herein by reference.

#### **6.2.1.1 Red Grouper**

In the GOM, red grouper are commonly caught from Panama City, Florida, to the Florida Keys along the inner to mid-continental shelf in depths ranging from 2 to over 120 m (Moe 1969). Based on reported commercial landings, the SEFSC's Headboat Survey, and MRFSS, red grouper are infrequently caught in the western Gulf. The species inhabits flat rock perforated with solution holes, caverns and crevices of limestone reef, and hard bottom areas (Moe 1969; Bullock and Smith 1991). Juveniles live in shallow-water nearshore reefs until reaching approximately 16 inches (40 cm), when they become sexually mature and move offshore (Moe 1969). Red grouper reach a maximum length and weight of 43 inches (110 cm TL) and 50.7 lbs. (23 kg) (Robins et al. 1986). Maximum age is 28 years and females are 50 percent mature by 5 years of age and 15-20 inches TL (40-50 cm TL) (Moe 1969; Collins et al. 2002). Red grouper are protogynous hermaphrodites, transitioning from females to males at older ages, and form harems for spawning (Dormeier and Colin 1997). Age and size at sexual transition is approximately 13 years and 31-35 inches TL (80-90 cm TL) (Collins et al. 2002). Peak spawning occurs from March through May (Collins et al. 2002). Over the last 25-30 years, there has been little change in the sex ratio of red grouper, likely because they do not aggregate (Coleman et al. 1996).

#### **6.2.1.2 Gag**

Gag are primarily caught on the west coast of Florida from Tampa Bay to the northern extent of the state (Goodyear and Schirripa 1994). Newly settled juveniles are estuarine dependent, occurring in shallow seagrass beds during late spring and summer (Koenig and Coleman 1998; Strelcheck et al. 2003). At the onset of the first winter, juvenile gag migrate offshore, although some juvenile gag may remain in inshore waters during winter (Heinisch and Fable 1999). As gag mature, they move to deeper, offshore waters to spawn. Gag are protogynous hermaphrodites, transitioning from females to males at older ages. Age and size at sexual transition is approximately 11 years and 41 inches TL (105 cm TL). Maximum age is 26 years (Harris and Collins 2000) and females are 70 percent mature by 4 years of age and 25.6 inches TL (65 cm TL) (Hood and Schlieder 1992). They form spawning aggregations at depths ranging

from 160-400 feet (Coleman et al. 1996). Peak spawning occurs from February through March (Hood and Schlieder 1992). Often immature female gag are found with spawning aggregations (Coleman et al. 1996). Gag reach a maximum length and weight of 47 inches (121m TL) and 80 lbs. (23 kg) (Harris and Collins 2000; IGFA 2003).

### **6.2.1.3 Other Shallow-water Grouper**

Other SWG that occupy similar depth distributions and geographic ranges as red grouper and gag include black grouper, scamp, red hind, rock hind, yellowfin grouper, Nassau grouper, goliath grouper, and yellowmouth grouper. These species account for a small percentage of the overall commercial SWG landings. Black grouper and scamp are the most commonly landed SWG after gag and red grouper. Yellowfin grouper, yellowmouth grouper, rock hind, and red hind are infrequently landed. The harvest of goliath and Nassau grouper is prohibited in the Gulf of Mexico.

Maximum lengths of these SWG range from 35 inches TL (89 cm, scamp) to 98 inches TL (250 cm, goliath grouper), with most reaching a maximum length of slightly greater than 39 inches (1 m) (Matheson et al. 1986; Heemstra and Randall 1993). Rock hind, Nassau grouper, and speckled hind have shorter life spans than most grouper, with maximum ages ranging from 12 to 17 years (Matheson and Huntsman 1984; Claro et al. 1990; Potts and Manooch 1995). Maximum weights for these SWG range from 13.6 lbs (yellowmouth grouper) to 680 lbs (goliath grouper) (Bullock and Murphy 1994; IGFA 2003). Black grouper are the largest SWG species allowed for harvest, with a maximum recorded length and weight of 89 inches TL (151 cm) and 180 lbs (82 kg) (Crabtree and Bullock 1998).

Most of the SWG mature between 3 and 5 years, although Nassau and goliath grouper are known to mature as late as 7-8 years of age (Bullock et al. 1992; Sadovy and Colin 1995). Many, but not all SWG are protogynous hermaphrodites and transition from females to males as they grow larger. Goliath grouper are not protogynous hermaphrodites, and the reproductive strategy for Nassau grouper is unknown. Shallow-water grouper spawn throughout the year, with peak spawning for most SWG occurring in winter and spring (December through May). Black grouper, scamp, yellowfin grouper, goliath grouper, red hind and Nassau grouper are known to form spawning aggregations (Luckhurst et al. 1992; Coleman et al. 1996; Dormeier and Colin 1997; Sadovy and Eklund 1999; Eklund et al. 2000). The formation of spawning aggregations is suspected for rock hind (Luckhurst et al. 1992).

### **6.2.1.4 Deep-water Grouper**

Deep-water grouper include yellowedge grouper, misty grouper, speckled hind, warsaw grouper, and snowy grouper. These grouper occur farther offshore than SWG, but can be occasionally caught while targeting SWG. Commercial fishermen account for 98-99 percent of the annual harvest of DWG. Yellowedge grouper is the most abundant and longest-lived grouper, reaching a maximum age of 85 years (Cass-Calay and Bahnick 2002). Warsaw grouper are the largest of the DWG species, reaching a maximum length and weight of 92 inches TL (233 cm TL) and 419 lbs (190 kg) (Manooch and Mason 1987). Yellowedge grouper and snowy grouper are

protogynous hermaphrodites (Bullock et al. 1996; Wyanski et al. 2000). The reproductive strategy for speckled hind, warsaw grouper, and misty grouper is unknown. All DWG, except misty grouper are suspected to form spawning aggregations. Deep-water grouper appear to spawn primarily during the summer and fall.

#### **6.2.1.5 Snappers and Jacks**

Snappers, jacks, wrasses, and triggerfishes are harvested or incidentally captured by commercial grouper fishermen. Most of these reef fish species are managed with size limits, trip limits, closed seasons, and quotas. Several species have rebuilding plans (red snapper, greater amberjack, vermilion snapper). The following is a brief description of the life history of non-grouper reef fish species that would potentially be affected by the proposed actions.

Gray snapper, also known as mangrove snapper, occur in the Gulf of Mexico from south Florida to Louisiana. Gray snapper spawn during summer and fall (Domeier et al. 1996). Juveniles are associated with inshore seagrass beds and mangroves (Chester and Thayer 1990; Allman and Grimes 2002). Gray snapper mature by approximately age 1 to 2 and 7-8 inches in length (Manooch and Matheson 1984). Maximum length and weight of gray snapper are 35 inches TL (89 cm) and 17 pounds (7.7 kg) (Allen 1985; IGFA 2003). Maximum age of gray snapper is estimated to be 24 years (Burton 2001).

Red snapper are found from North Carolina to the Florida Keys, and into the GOM to the Yucatan off Mexico (Robins et al. 1986). Adults are found over coral reefs, rock outcroppings, and gravel bottoms, and are associated with oil rigs and other artificial structures (GMFMC 2004a). Most landings occur from Texas to the panhandle of Florida. Eggs and larvae are pelagic while juveniles are found associated with bottom features (e.g., low relief shell) or over barren bottom. Spawning occurs during the summer and fall. Adult females mature as early as 2 years and most are mature by 4 years (Schirripa and Legault 1999). Red snapper have been aged up to 53 years, but most caught by the directed fishery are 2- to 4-years old (Wilson and Nieland 2001). Tagging studies have shown that red snapper can migrate large distances, especially after the occurrence of hurricanes (Watterson et al. 1998; Patterson et al. 2001).

Vermilion snapper are caught throughout the GOM, and most landings occur in Florida (Schirripa 1998). They are usually found near hard bottom areas off the west-central Florida coast, the Florida Middle Grounds, and the Texas Flower Gardens (Smith et al. 1975; Smith 1976; Nelson 1988). Initial growth of vermilion snapper is rapid, reaching an average of about 8.3 inches (210 mm TL) by age 1 (Zastrow 1984; Nelson 1988; Hood and Johnson 1999; Allman et al. 2001). Maximum age is estimated to be 21 years (Allman et al. 2001). Most fish caught in the fishery are between 4- and 6-years old (Hood and Johnson 1999; Allman et al. 2001). Most females are sexually mature by 8 inches TL (200 mm) (Hood and Johnson 1999). Spawning occurs from the late spring to early fall (Nelson 1988; Hood and Johnson 1999).

Greater amberjack are caught primarily along the west coast of Florida westward to the Mississippi River. Greater amberjack are moderately long-lived, reaching a maximum age of 15 years in the Gulf (Thompson et al. 1999). Females mature at approximately 2 to 3 years of age

and 34 inches TL (Manooch 1984). Females grow larger and older than males (Burch 1979; Thompson et al. 1999). Maximum reported length and weight for greater amberjack is 78 inches FL (197 cm) and 156 pounds (70.6 kg) (Thompson et al. 1999; IGFA 2003).

#### **6.2.1.6 Coastal Migratory Pelagics**

The FMP for Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic includes seven species: king mackerel, Spanish mackerel, cobia, cero, bluefish, little tunny, and dolphin. King and Spanish mackerel are commonly harvested by commercial fishermen. Mackerels are migratory, generally moving from wintering areas of south Florida and Mexico to more northern latitudes in spring and summer. King mackerel mature at approximately age 2 to 3 and have longevities of 24 to 26 years for females and 23 years for males (Brooks and Ortiz 2004). Spanish mackerel generally mature at age 1 to 2 and have a maximum age of approximately 11 years (Powell 1975). Both spawn during the summer (Powell 1975; McEachran and Finucane 1979). A detailed description of their biology and life history can be found in Amendment 15 to FMP for Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic (GMFMC 2004e).

#### **6.2.1.7 Sharks**

Sharks are harvested or incidentally captured primarily by commercial fishermen. In 2004, sharks represented 6.1 percent of landings by longline vessels that reported at least one pound of SWG or DWG. NMFS regulates 72 species of sharks in the South Atlantic, Gulf of Mexico, and Caribbean. Sharks are considered apex predators, have a low reproductive output, and usually congregate in specific areas to mate (NMFS 2004c). Seventy-two species of sharks are included in the FMP for Atlantic Tunas, Swordfish and Sharks (NMFS 2004d). A detailed description of the biology, life history, and status of sharks can be found in Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks, or at: <http://www.nmfs.noaa.gov/sfa/hms/hmsdocuments.html#fmps>.

#### **6.2.1.8 Protected Species**

There are 28 cetacean and one sirenian species that have confirmed occurrences in the Gulf (Wursig et al. 2000). All of these species are protected under the MMPA. Additionally, six of these species (blue, fin, humpback, right, sei, and sperm whales) are listed as endangered species under the ESA. All five species of sea turtles found in the Gulf (Kemp's ridley, loggerhead, green, leatherback, and hawksbill) are protected under the ESA. The endangered smalltooth sawfish is the only marine fish species listed under the ESA that is known to occur in federal Gulf waters.

Sperm whales are the most abundant large cetacean in the Gulf and are found throughout the Gulf year-round, but in waters greater than 200 m (Schmidley 1981, Hansen et al. 1996, Davis et al. 2002, Mullin and Fulling 2003), beyond where the commercial grouper fishery occurs. Other endangered whales (blue, fin, humpback, right whale, and sei whales) are either uncommon or



rare in the Gulf. Individuals observed have likely been inexperienced juveniles straying from the normal range of these stocks or occasional transients (Mullin et al. 1994, Würsig et al. 2000).

Smalltooth sawfish occur from the central Florida Panhandle to northern Georgia. The species is only found with any regularity in Gulf of Mexico state waters from Naples, Florida to Florida Bay, with reduced numbers occurring in areas outside this center of abundance (Simpfendorfer 2003). Small (young) animals are restricted to very shallow waters, thus do not overlap with the grouper fishery. Large animals roam over a much larger depth range, with records of fish being captured in over 230 ft (70 m) of water depth (Simpfendorfer 2001).

Loggerhead sea turtles are the most abundant species of sea turtle occurring in U.S. waters. Nearshore waters of the GOM are believed to provide important developmental habitat for juvenile loggerheads. Green sea turtles are herbivores and prefer marine seagrasses and algae in shallow bays, lagoons and reefs (Rebel 1974). Green sea turtles nest on the Atlantic coast of Florida, although occasionally nesting has been documented in Southwest Florida. Hawksbills feed on a wide variety of sponges and the largest hawksbill nesting population occurs off of Yucutan, Mexico (NMFS 2005b). Kemp's ridley sea turtles nest in aggregations along the Mexican coast and are in the early stages of recovery after decades of declines in population abundance (NMFS 1998). The leatherback sea turtle is distributed throughout the world, including the GOM. They are predominately pelagic and feed on jellyfish. Additional information about the life history and biology of sea turtles can be found in NMFS 2005.

### **6.2.2 Status of Fish Stocks**

Many reef fish stock assessments and reviews can be found online at the Council's website ([www.gulfcouncil.org](http://www.gulfcouncil.org)) or on the SEFSC's website ([www.sefsc.noaa.gov](http://www.sefsc.noaa.gov)). Additionally, more complete descriptions of the status of some reef fish species are provided in the Final EIS to the Generic EFH Amendment (GMFMC 2004a) and Amendment 22 to the Reef Fish FMP (GMFMC 2004b).

Stock assessments have been completed for ten GOM reef fish species, four of which are grouper (red grouper, gag, goliath grouper, and yellowedge grouper). Red grouper is currently undergoing overfishing, but not overfished (SEFSC 2002; NMFS 2004a). Gag was recently reclassified from not overfished but approaching an overfished condition to neither overfished or undergoing overfishing (NMFS 2004c). Goliath grouper is overfished and the status of yellowedge grouper is unknown (NMFS 2004c). While no assessment has been conducted on Nassau grouper, landings progressively declined from 1979 to 1992 (GMFMC 1996). Amendment 14 to the Reef Fish FMP of the Gulf of Mexico prohibited the harvest of Nassau grouper and the stock is considered overfished (GMFMC 1996). The status of other grouper species that have not been assessed is unknown.

Four grouper species have been listed by NMFS as candidate species for endangered or threatened species status. Goliath grouper and Nassau grouper were listed in 1991, and warsaw grouper and speckled hind were listed in 1997. These species were listed as candidate species based on evidence that the biological status of these species had declined and that the species

faced a high degree of threat. The Council currently prohibits the harvest of Nassau and goliath grouper.

Stock assessments for six other reef fish species (vermilion snapper, red snapper, yellowtail snapper, greater amberjack, gray triggerfish, and hogfish) have been completed. Red snapper and vermilion snapper are overfished and undergoing overfishing. Revised rebuilding plans for red snapper and vermilion snapper were recently implemented (GMFMC 2004b; GMFMC 2004c). Greater amberjack is considered overfished. A rebuilding plan for greater amberjack was implemented in Secretarial Amendment 2 to the Reef Fish FMP (NMFS 2004b). An assessment of yellowtail snapper indicated the stock was not overfished or undergoing overfishing. Stock assessments were not able to resolve the status of the gray triggerfish and hogfish stocks; therefore, the status of these stocks is unknown. The status of other reef fish stocks that have not been assessed is unknown.

Stock assessments for Spanish and king mackerel have been conducted. King mackerel are not considered overfished or undergoing overfishing (SEDAR 5 Gulf of Mexico King Mackerel Advisory Report). Spanish mackerel are also not considered to be overfished or undergoing overfishing (MSAP 2003). The status of other coastal migratory pelagic (CMP) species is either unknown or considered preliminary (Prager 2000; Williams 2001; Brooks 2002; Heinemann 2002; Turner and Brooks 2002).

### **6.2.3 Interactions with Protected Resources**

The MMPA requires commercial fisheries to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals in each fishery. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities. The GOM reef fish fishery is listed in Category III, as there have been no documented interactions between this fishery and marine mammals (69 FR 231).

Whales are not known to be adversely affected by the reef fish fishery because they are extremely unlikely to overlap geographically. Recreational anglers infrequently take sea turtles. Loggerhead, leatherback, Kemp's ridley and green sea turtles are known to bite baited hooks, and loggerheads and Kemp's ridleys frequently ingest these hooks (NMFS 2005b). During 2001-2003, it was estimated that recreational anglers spent 35.7 million hook-hours fishing for reef fish, during which an estimated 111 hard-shell sea turtles were caught; 40 of which died (NMFS 2005b).

The decline in smalltooth sawfish abundance is attributed to bycatch in various commercial fisheries, compounded by habitat degradation. Juveniles primarily occur in shallow water and do not overlap with the grouper fishery. Larger sawfish occur at depths up to 230 feet and may be vulnerable to capture when bottom fishing for reef fish, but there is no supporting data. During 2001-03, it was estimated that eight smalltooth sawfish were caught and released by the commercial and recreational reef fish fishery (NMFS 2005b).

A recently completed biological opinion (NMFS 2005b) conducted for the Gulf reef fish fishery evaluated the effects of reef fish fishing activities in the Gulf EEZ and found that mortalities of endangered and threatened species are uncommon from hook-and-line gear used in the reef fish fishery and were not likely to jeopardize the continued existence of threatened or endangered species. Assessments of the level of take were not then considered a high priority. However, the opinion did identify two reasonable and prudent measures. These were:

- 1) NMFS must ensure that any caught sea turtle or smalltooth sawfish is handled in such a way as to minimize stress to the animal and increase its survival rate.
- 2) NMFS must ensure that monitoring and reporting of any sea turtles or smalltooth sawfish encountered: a) detects any adverse effects resulting from the GOM reef fish fishery; b) assesses the actual level of incidental take in comparison with the anticipated incidental take documented in that opinion; c) detects when the level of anticipated take is exceeded; and d) collects improved data from individual encounters.

Amendment 18A to the Reef Fish FMP is currently under development by the Gulf Council and will examine alternatives to minimize any stress to endangered species incidentally caught in the fishery.

### **6.3 Economic Environment**

The grouper fishery in the GOM is comprised of the DWG fishery, in which yellowedge grouper is the dominant species, and the SWG fishery, in which red grouper and gag are the dominant species. Participants in the commercial grouper fishery utilize different types of gear: bottom longline, vertical line gear (handline and bandit gear), fish traps, and powerheads for spearfishing. The fishery also includes various classes of recreational fishermen: private anglers as well as charter, head and party-boat operators and their customers. From 1986-1999, commercial landings accounted for approximately 77 percent of total red grouper landings while recreational harvest accounted for approximately 55 percent of total gag landings (NMFS 2004a). During 1996-99, commercial landings of red grouper increased to 87 percent of the total red grouper landings and recreational landings of gag grouper increased to 61 percent of the total gag landings. The grouper fishery occurs along the northeastern Gulf coast and primarily along the west coast of Florida. The vast majority of the human activity related to the grouper fishery occurs in Florida.

#### **6.3.1 Vessels**

The following information is derived from Waters (2001), which contains summary information on the grouper fishery in the Gulf of Mexico. Through 2000, there were approximately 1,200 active reef fish permits, with an unknown number in the process of renewal at any given time. Among the gear sectors, bottom longline and buoy vessels historically caught an average of 3.7 mp GW of grouper annually (mostly red grouper) valued dockside at \$7.1 million. Annually, an average of 165 bottom longline vessels took an average of 1,410 total trips per year from 1993-2000. On average, 894 vessels used vertical line gear each year from 1993-2000. Vertical

line grouper landings, consisting mostly of gag, averaged about 2.6 mp GW valued dockside at \$5.4 million per year. These vessels took 7,600 trips per year, on average. From 1993-1999, an average of 60 vessels per year used powerheads to harvest grouper, averaging 3,000 pounds of grouper per year for a value of \$6,000. No grouper were reported landed with powerheads in 2000. As of May 1998, there were 86 fish trap endorsements issued by NMFS. By 2000, this number was reduced to approximately 65 fish trap permits and the fishery will be phased out entirely in 2007. Between 1997-2000, vessels fishing with traps caught an average of 800,000 pounds valued at over \$1.4 million.

Waters (2002) provided participation rates by gear and state and reported that of the vessels with commercial reef fish permits, 782 vessels in Florida and 207 in other Gulf states indicated they landed reef fish using vertical lines in 2000. For the longline sector, 155 vessels in Florida and 33 vessels in the other Gulf states reported landing reef fish using this gear in 2000. An additional 55 vessels, all located in Florida, reported landing reef fish using fish traps. Further examination of reef fish vessels showed that a total of 546 vessels participated in the SWG fishery on a regular basis. Of these vessels, 138 used longlines, 353 used vertical lines, and 55 used fish traps. Longlines accounted for 59 percent of commercial red grouper landings, while vertical lines accounted for 24 percent, and fish traps accounted for 16 percent. The corresponding percentages for gag were 25 percent by longlines, 73 percent by vertical lines, and 2 percent by fish traps. Other gear types accounted for a minuscule portion of the commercial landings of these species.

Waters (1996) reported results from a survey of the GOM commercial reef fish fishery that divided the vessels into high volume and low volume production depending on whether or not they landed enough pounds to be in the top 75 percent of all vessels with a particular gear type in the fishery. The survey included vessels that reported using multiple gear types. "Fishermen that primarily used fish traps for reef fishes tended to cite the use of fish traps, stone crab traps, rods and reels and gill nets, among others. Respondents with vertical hooks and lines in the eastern Gulf used bandit reels, electric reels and rods and reels. Respondents that primarily used bottom longlines for reef fishes also tended to cite experience with vertical hook and line gear" (Waters 1996). The survey asked vessel owners to report on their two most important kinds of trips for reef fish, even if a non-reef fish alternative contributed more to the annual revenues of the boat. Comparisons were drawn between high volume and low volume boats within each category and between those in the northern Gulf and the eastern Gulf.

In the northern Gulf, landings varied by gear, with vessels using vertical lines catching primarily snapper (red and vermilion) and vessels using bottom longlines catching primarily yellowedge grouper (Waters 1996). Vessels in the eastern Gulf used bottom longlines, vertical lines, and fish traps and primarily caught grouper. The vessels with vertical lines in the northern Gulf were longer, on average (50 feet), than those in the eastern Gulf (38 feet). Longline vessels averaged approximately 42-44 feet in length and vessels using fish traps averaged approximately 38 feet. The average horsepower across all gear types was approximately 280 hp, with longline vessels having the lowest average horsepower and fish trap vessels having the highest average horsepower. Fuel capacity for all of the sampled vessels ranged from 32 gallons to 6,000 gallons, and averaged 689 gallons (Waters 1996).

Survey respondents reported having lived an average of 25 years in their current county or parish of residence; the overall average age of respondents was about 47 years with the mode at the 40-49 age group; 141 (72 percent) graduated from high school or had more than 12 years of formal education (Waters 1996). The respondents had an average of 19 years experience fishing, with 13.6 years of that experience in the positions they held at the time of the survey. Only 5 of the 196 respondents reported seasonal employment in other jobs. Household size ranged from 1-9 persons with an average of 3 persons. Household incomes ranged from less than \$10,000 to more than \$150,000 with approximately 50 percent of the respondents citing household incomes of \$30,000 or less. Respondents averaged approximately 44 percent of household income from commercial fishing for reef fishes, 21 percent from other types of commercial fishing and 35 percent from all other sources including incomes earned in non-fishing jobs held by other household members, pensions, investments and other sources. Typically, respondents from high volume vessels earned between 69-75 percent of household income from commercial fishing for reef fish and respondents from low volume vessels earned 25-39 percent of household income from commercial fishing for reef fish (excepting the 61 percent for low-volume bottom longline vessels) (Waters 1996).

Waters (1996) also reported annual gross receipts per vessel in the reef fish fishery, as summarized by the following information:

High-volume vessels using vertical lines:	
Northern Gulf:	\$110,070
Eastern Gulf:	\$ 67,979
Low-volume vessels using vertical lines:	
Northern Gulf:	\$ 24,095
Eastern Gulf:	\$ 24,588
High-volume vessels using bottom longlines:	
Both areas:	\$116,989
Low-volume vessels using bottom longlines:	
Both areas:	\$ 87,635
High-volume vessels using fish traps:	\$ 93,426
Low-volume vessels using fish traps:	\$ 86,039

When combined with cost information, these figures translate into the following average net incomes (defined as gross receipts less routine trip costs; the numbers in parenthesis represent the percent to gross receipts) (Waters 1996):

High-volume vessels using vertical lines:		
Northern Gulf:	\$28,466	(26%)
Eastern Gulf:	\$23,822	(35%)
Low-volume vessels using vertical lines:		
Northern Gulf:	\$ 6,801	(28%)
Eastern Gulf:	\$ 4,479	(18%)
High-volume vessels using bottom longlines:		

Both areas:	\$25,452	(22%)
Low-volume vessels using bottom longlines:		
Both areas:	\$14,978	(17%)
High-volume vessels using fish traps:	\$19,409	(21%)
Low-volume vessels using fish traps:	\$21,025	(24%)

Dokken et al. (1998) assessed several ports along the Texas coastline for economic development potential and employment generation. They estimated that over 250,000 persons were employed in all commercial fishery-related occupations (commercial fishing, processing, wholesaling and retailing) in the Gulf region.

Lucas (2001) estimated the economic impact on Madeira Beach, Florida of the one and two-month closure of the grouper fishery; a one-month closure occurred in 2001, and a two-month closure was a potential alternative. About 135 vessels offloaded in Madeira Beach on a regular basis, landing about \$6.7 million in grouper per year. There were an estimated 87 bottom longline vessels and 48 bandit/vertical line vessels off-loading in Madeira Beach, representing approximately 60-70 percent of the reef fish bottom longline fleet and 6 percent of the vertical line fleet. Four reef fish dealers, and about 401 fishermen (crew and captains) and 40 office workers were employed in fishery related activity in this area. Lucas (2001) reported that about 70 percent of all grouper landed in Madeira Beach are consumed within about 40 miles of the area while 30 percent was sent to other parts of Florida, out of state, and to Canada.

### **6.3.2 Performance Profile of Commercial Vessels Incorporated in Impact Assessment**

In support of the analysis of the expected impacts of the proposed action, logbook and permit files were examined for vessels with logbook reported landings of Gulf SWG and DWG from 2002-2004 (NMFS, unpublished data, 2005). The results of this examination are provided in Tables 6.3.1 through 6.3.10 and are discussed in the following sub-sections.

#### **6.3.2.1 All Vessels**

In terms of 2002-2004 annual averages for logbook-reported data, 928 vessels landed 10.1 mp GW of Gulf SWG and DWG per year, and the grouper had an estimated real ex-vessel value of \$25 million in 2001 dollars (Table 6.3.1). Grouper accounted for about half of all Gulf reef fish landed by all vessels with logbook reported reef fish landings, which totaled 19 mp GW, and involved most of the 1,021 vessels in the reef fish fishery (Table 6.3.7). Median landings of grouper were roughly 2,300 to 2,500 pounds per vessel per year; e.g., half of the 961 vessels in 2002 had landings of 2,480 pounds or less per vessel per year, while the other half had landings of more than 2,480 pounds (Table 6.3.1). Grouper accounted for 71 percent to 74 percent of the annual gross revenue per vessel for all reported landings, roughly \$20,000 to \$21,000. The median vessels were 37 feet long, had 2-person crews (including the captain), had 275 to 300 horsepower engines, and spent 39 to 42 days at sea.

The vessels operating in the grouper fishery exhibited considerable variability. Twenty-five

percent of the vessels had annual gross income for all fish landed of \$4,900 to \$5,400 or less, while the maximum gross was within the range of approximately \$480,000 to \$545,000. For the most part, crews ranged from 2 to 4 persons; engines, 200 to 640 horsepower; vessels, 31 to 52 feet long; and the vessels spent 13 to 142 days at sea per year (25<sup>th</sup> and 90<sup>th</sup> percentiles).

Median trip landings were 235 to 283 pounds of Gulf SWG and DWG combined during 2002-2004, and the estimated dollar value of all fish landed on the trips was \$1,866 to \$2,133 (Table 6.3.2). Ninety percent of the roughly 10,500 grouper trips in a year had landings of 2,564 to 3,019 pounds or less of grouper per trip in 2002-2004, while the top 1 percent of trips had landings of more than 8,165 to 8,687 pounds (annual 90<sup>th</sup> and 99<sup>th</sup> percentiles for trips, Table 6.3.2).

### **6.3.2.2 Longline Vessels**

During 2002-2004, an average of 162 longline vessels landed 5.6 mp GW of Gulf SWG and DWG per year, with an estimated real ex-vessel value of \$13.7 million in 2001 dollars (Table 6.3.3). This accounts for 85 percent of the landings of Gulf reef fish by longline vessels, 6.6 mp GW (Table 6.3.8). The vessels in this fleet were 43 to 45 feet long, had 3-person crews (including the captain), 233 to 250 horsepower engines, spent 112 to 116 days at sea, and had annual landings of grouper in the range of 25,000 to 31,000 pounds (respective annual medians, Table 6.3.3). Grouper accounted for 84 to 90 percent of the vessels' annual gross revenue for all fish landed, or \$96,000 to \$102,000.

Median trip landings were 2,360 to 2,985 pounds of Gulf SWG and DWG during 2002-2004, and grouper accounted for 95 percent to 97 percent of the estimated dollar value of all fish landed, \$6,764 to \$7,723 (Table 6.3.4). Ten percent of the trips had landings of more than 6,749 to 7,273 pounds, and 1 percent of the trips had landings of 11,858 to 13,462 pounds (respective annual 90<sup>th</sup> and 99<sup>th</sup> percentiles for trips, Table 6.3.4).

### **6.3.2.3 Vertical Line Vessels**

An average of 765 vertical line vessels landed 3.6 mp GW of SWG and DWG per year in 2002-2004, with an estimated real ex-vessel value of \$9.1 million in 2001 dollars (Table 6.3.5). This accounted for roughly a third of the landings of Gulf reef fish by vertical line vessels, 11.2 mp GW, and 89 percent of the landings of the 864 vertical line vessels (Table 6.3.9). The vertical line vessels landing grouper were 35 to 36 feet long, had 280 to 300 horsepower engines, had 2 person crews, spent 30 to 35 days away from port for all fish landed, landed 1,223 to 1,440 pounds of grouper per year, and grouper accounted for 44 percent to 48 percent of their annual gross revenue for all fish landed, roughly \$15,000 to \$16,000 (respective annual medians for vessels, Table 6.3.5).

Vertical line vessels made approximately 7,400 to 8,500 trips per year with landings of grouper during 2002-2004. While median trip landings were 156 to 197 pounds, the top 10 percent of trips had landings of more than 988 to 1,299 pounds and the top 1 percent of trips had landings of more than 2,348 to 3,432 pounds (respective annual medians for trips, and 90<sup>th</sup> and 99<sup>th</sup>

percentiles, Table 6.3.6).

#### **6.3.2.4 Landings by Area and Gear**

The landings of all fish from trips with one pound or more of Gulf SWG and DWG averaged approximately \$38.6 million in annual real ex-vessel value (2001 dollars) in 2000-2004 (Table 6.3.10). Nearly half of this value came from fish caught in waters off the west central coast of Florida. Next in order were areas off northwest Florida (22.0 percent) and western Louisiana (14.5 percent), followed by smaller amounts for other areas. For longline gear, nearly three-fourths of landings value was derived from fish caught in waters off the west central coast of Florida, \$11.2 million out of \$15.5 million. Areas off northwest Florida accounted for \$2.0 (12.8 percent), followed by smaller amounts for other areas. For vertical line gear, landings were more evenly divided among three regions: waters off west central Florida accounted for 27.8 percent, northwest Florida, 29.1 percent, and western Louisiana, 22.3 percent (Table 6.3.10).

It is not unreasonable to infer that the economic impact of Gulf grouper trip limits would fall differentially, and fall to a large degree on longline fishermen who land fish caught in waters off the northwest and west central Florida coast. As indicated above, Gulf SWG and DWG accounted for more of the 2002-2004 average annual landings of Gulf reef by longline vessels (85 percent, or 5.6 out of 6.6 mp GW) than vertical line vessels (32 percent, or 3.6 out of 11.2 mp GW) (Tables 6.3.3, 6.3.5 and 6.3.8-6.3.9). Also, grouper accounted for a greater portion of the average annual gross revenue for longline vessels (74 percent, or \$13.7 million out of \$18.4 million) than for vertical line vessels (29 percent, or \$9.1 million out of \$31.4 million) (Tables 6.3.3 and 6.3.5). When evaluated from the slightly longer time perspective, 2000-2004 (Table 6.3.10), annual gross revenue of \$15.5 million (6.9 mp GW) for all fish landed on longline trips in the Gulf was less than the \$21.2 million (9.5 mp GW) for trips using vertical lines, but relatively more of the longline landings were fish caught in waters off northwest and west central Florida, 84.9 percent compared with 56.9 percent, respectively. Nearly 90 percent of the Gulf SWG and DWG commercial landings are caught in waters off northwest and west central Florida (dollar value percentages only, Table 6.3.10). Median trip landings of grouper were 2,360 to 2,985 pounds for longlines and 156 to 197 pounds vertical lines (Tables 6.3.4 and 6.3.6, 2002-2004 median trip landings of grouper by gear for the Gulf as a whole, for trips with one pound or more of Gulf SWG and DWG).

#### **6.3.3 Dealers**

Approximately 227 dealers possess permits to buy and sell reef fish species (NMFS 2004a). Based on address data, most of these were located in Florida (146), with 29 in Louisiana, 18 in Texas, 14 in Alabama, 5 in Mississippi and 15 out of the Gulf States region. More than half of all reef fish dealers are buy and sell grouper. Between 1997-2000, there were, on average per year, 123 reef fish dealers actively bought and sold grouper. Of these, 101 (82 percent) sold more than \$30,000 per year worth of domestic grouper on a regular basis. These dealers may hold multiple types of permits. Since the extent of business operation for these dealers is unknown, it is not possible to determine what percentage of their business comes from grouper fishing activity.



Average employment information per reef fish dealer is not known. Although dealers and processors are not synonymous entities, Keithly and Martin (1997) reported total employment for reef fish processors in the Southeast at approximately 700 individuals, both part and full time. It is assumed that all processors must be dealers, yet a dealer need not be a processor. Further, processing is a much more labor-intensive activity so the average number of employees per processor is expected to be greater than the average per dealer.

Grouper sales are concentrated in Florida. In 2000, more than 8 million pounds of grouper valued dockside at over \$18 million were landed on the Florida west coast. The top ten counties ranked by dockside value of grouper sales in 2000 are all in Florida: Pinellas (\$8.06 million), Bay (\$2.24 million), Franklin (\$1.25 million), Citrus (\$1.09 million), Lee (\$1.05 million), Collier (\$0.93 million), Manatee (\$0.78 million), Monroe (\$0.66 million), Levy (\$0.43 million), and Okaloosa (\$0.32 million). The top five counties account for over \$12 million in landings while the top 10 counties account for over \$16 million in landings of grouper.

The profit profile for dealers or processors is not known.

## **6.4 Social Environment**

A "fishing community" is defined in the MSFCMA, as amended in 1996, as "a community which is substantially dependent on or substantially engaged in the harvesting or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community" (MSFCMA section 3(16)). In addition, the National Standard guidelines (May 1, 1998; 63FR24211) define a fishing community as a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries-dependent service and industries (for example, boatyards, ice suppliers, tackle shops).

### **6.4.1 Measures of Fishing Dependence**

Social and cultural research suggests that assessments of regulatory impacts on fishing-dependent communities consider not only geographic definitions of communities and economic characteristics therein, but also the level of vulnerability or resilience, of fishing communities and operations (McCay 2000). That is, questions of fishing dependence and "sustained participation" in fisheries must consider how able participants in a given fishery can move among fishery sectors, and how able they are to move out of the fishery altogether into alternative employment opportunities. Studies must take into account not only the economic characteristics but also the demographic and social characteristics of the areas where fishing activity occurs and strategies for assessing and ranking these characteristics and variables must be developed and analyzed. Some factors that have been previously used to assess a community's dependence on fishing include:

- 1) Economics, including percent employment in fishery-related industries, and unemployment levels, and income;

- 2) Fisheries characteristics, including landings by species by various sectors;
- 3) Fishing-related businesses, for example numbers of marinas, rentals, snorkel and dive shops, boat dockage and repair facilities, tackle and bait shops, fish houses, and lodgings related to recreational fisheries industry;
- 4) Fishing-related activities, such as seafood festivals;
- 5) Presence of organizations, such as commercial fishing associations
- 6) Numbers of dealers/ processors
- 7) Isolation or integration of the fishery into alternative economic sectors (Do the fishers represent a political-economic enclave or are they integrated into the community?);
- 8) Percent of population in fishery or fishery-related industry;
- 9) Percentage of income derived from fishing;
- 10) Time commitment (number of months per year, and number of years of experience, etc.);
- 11) Flexibility index (number of species able to fish, gears/vessels, etc.);
- 12) Number of different kinds of vessels;
- 13) Relationship to the seafood marketing/processing sector;
- 14) Vessel sizes and sizes of crew by port/ dockage site;
- 15) Diversity of species targeted, gear, type and size and vessel by port/ dockage site;

Although these factors do not represent a comprehensive list of all factors that could be considered when defining a fishing community, they provide a snapshot of factors that represent or can be used to assess a community's dependence on fishing. There is very little qualitative information on fishermen, fishing-dependent businesses, or communities that depend on the GOM reef fish fishery. Social science research is currently being conducted by NMFS in communities in the Gulf of Mexico. Until this research is completed, and in-depth community profiles are developed for some sample communities, it is not possible to fully understand the possible impacts of any change in federal fishing regulations in the reef fish fishery.

#### **6.4.2 Grouper Fishing Communities**

Current data describing GOM reef fish fishing communities is limited to information from fishery permits and reported landings (see Section 4). Additional research is needed to assess the overall dependence on fishing of each of the communities described below.

Within the reef fish fishery, there are numerous cities throughout the GOM where grouper fishermen are concentrated. Fishermen operating bottom longline vessels are primarily clustered in Florida (Cortez, Madeira Beach, Miami, St. Petersburg, and Tampa). Fishermen operating vertical line vessels are clustered across a wider geographic range: Apalachicola, Carrabelle, Cedar Key, Clearwater, Crystal River, Destin, Ft. Myers, Indian Rocks, Madeira Beach, Marathon, New Orleans, Panacea, Panama City, Pensacola, Nokomis, St. Petersburg, Steinhatchee, Tampa, Tarpon Springs, and Yankeetown in Florida; Orange Beach, AL; Pascagoula, MS; and Houston, TX. Fish trappers are also clustered off Florida in Destin, Homosassa, Naples, Steinhatchee, and Tarpon Springs. Cities with more than three reef fish permitted dealers include: Cameron, LA; Galveston, TX; and Destin, Ft. Myers Beach, Key West, Madeira Beach, Marathon, Panama City, Pensacola, St. Petersburg, Tampa, and Tarpon Springs, FL.

The top 20 cities in terms of grouper sales together accounted for over \$18 million of grouper sales in 2000. These sales accounted for over 85 percent of all grouper sales in the Gulf for 2000 and represent a minimum of \$200,000 per area. The ranking of the cities in order of sales changed relatively little over the period, 1997-2000. The cities in order of sales ranking are Madeira Beach, Panama City, Apalachicola, St. Petersburg, Tarpon Springs, Crystal River, Ft. Myers Beach, Key West, Tampa, Naples, Clearwater, Steinhatchee, Miami, Cortez, Destin, Homosassa, Panacea, Everglades, Golden Meadow, Stock Island.

In general, many areas with substantial involvement in fishing have small populations, many with less than 7,000 persons, for example Apalachicola, Carrabelle, Cedar Key, Cortez, Homosassa, Ft. Myers Beach, Everglades City, Madeira Beach, and Stock Island. Several of these areas have an unusually high rate of people with less than a high school education, some as high as 50 percent. With exceptions (Carrabelle, 13.6 percent and Cedar Key, 12.2 percent), many of the areas have relatively low percentages, 2-3 percent, counted as employed in agriculture, forestry and fishing. In areas such as these, with lower population bases, less educated workforces, and fewer opportunities in similar professions, losing fishing opportunities will impact the area relatively more than in areas with a more diverse working conditions.

Profiles of the communities relevant to management of the grouper fishery do not currently exist. Additional information on these communities can therefore not be provided at this time.

### **6.4.3 Regulatory Impacts on Fishing Communities**

Fishing communities can be impacted in a variety of ways by regulations. Wilson et al. (1998) outlined three categories of impacts on fishing communities: 1) Those that “affect the volume of money that is going through the community;” 2) those that “affect the flexibility of the fishing operations;” and 3) those that “impose direct costs on fishing operations.”

The trip limits proposed herein will ultimately impose direct costs on fishing operations and losses in net revenue for some fishing communities or areas. The direct and indirect effects of these proposed regulations are described in detail in Sections 4 and 5.

## **6.5 Administrative Environment**

### **6.5.1 Federal Fishery Management**

Federal fishery management is conducted under the authority of the MSFCMA (16 U.S.C. 1801 et seq.). The MSFCMA claims sovereign rights and exclusive fishery management authority over most fishery resources within the EEZ and authority over US anadromous species and continental shelf resources that occur beyond the EEZ.

Responsibility for federal fishery management decision-making in the GOM is divided between the Secretary and the GMFMC. The GMFMC is responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction.

Currently the Council has FMPs for coastal migratory pelagics, reef fish, coral and coral reefs, spiny lobster, stone crabs, red drum, and shrimp. The Secretary is responsible for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the MSFCMA, and with other applicable laws. In most cases, the Secretary has delegated this authority to NMFS.

A variety of commercial fishing regulations have been implemented for GOM fisheries, including: quotas, limited entry programs, trip limits, closed seasons and areas, and size limits. These measures have been established to reduce fishing mortality and protect spawning fish.

The SEFSC conducts a variety of research and monitoring activities to support management of fishery resources in the Gulf of Mexico and South Atlantic. Some of the activities conducted by the SEFSC include: biological and socio-economic research, collection of landings and fishing effort data, monitoring quotas, and conducting stock assessments.

Federal fishing regulations are enforced through actions of the NOAA's Office of Law Enforcement, the United States Coast Guard (USCG), and various state authorities. To better coordinate enforcement activities, federal and state enforcement agencies have developed cooperative agreements to enforce the MSFCMA.

### **6.5.2 State Fishery Management**

State representatives participate on the Council in order to ensure 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 including enforcement of fishing regulations. Each of the five Gulf states exercises legislative and regulatory authority over their natural resources and cooperate with numerous state and federal regulatory agencies when managing marine resources. Additional information about each state's marine fisheries management agency can be found at:

Alabama Department of Conservation and Natural Resources – [www.dcnr.state.al.us](http://www.dcnr.state.al.us)

Florida Fish and Wildlife Conservation Commission – [www.myfwc.com/marine](http://www.myfwc.com/marine)

Louisiana Department of Wildlife and Fisheries – [www.wlf.state.la.us](http://www.wlf.state.la.us)

Mississippi Department of Marine Resources - [www.dmr.state.ms.us](http://www.dmr.state.ms.us)

Texas Parks and Wildlife Department - [www.tpwd.state.tx.us](http://www.tpwd.state.tx.us)

## 7 ENVIRONMENTAL CONSEQUENCES

This section provides the scientific and analytical basis for comparing the alternatives described in Section 3.0. The potential direct, indirect, and cumulative effects on the physical, biological, socioeconomic, and administrative environments for each management alternative are described below. This section also describes: 1) any unavoidable adverse effects resulting from the proposed action, 2) the relationship between short-term uses of man's environment and long-term productivity, and 3) any irreversible or irretrievable commitments of resources resulting from implementation of the proposed action.

The Council on Environmental Quality (CEQ) regulations (40 CFR 1508.8) define direct effects as those "which are caused by the action and occur at the same time and place." Indirect effects are defined as those "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." Cumulative effects are defined as "impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions."

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

**Alternative 1 (no action)** would allow commercial fishermen to land an unlimited quantity of grouper per trip after February 26, 2006 (expiration date of emergency rule, NMFS 2005a), but would maintain the cap on total allowable commercial catch of red grouper, SWG, and DWG at 5.31 mp GW, 8.8 mp GW, and 1.02 mp GW, respectively. The primary effects of the grouper fishery on the physical environment generally result from fishing gear interactions with the sea floor. Fishing gear can damage or disturb bottom structures and occasionally incidentally harvest such habitat. The degree to which the grouper fishery directly or indirectly affects bottom habitat is unknown, but depends largely on the vulnerability of the affected habitat to disturbance, and on the rate that the habitat can recover from disturbance (Barnette 2001). Corals are more vulnerable to adverse impacts from fishing gear and slower to recover from such impacts than sand and mud bottom habitat (Barnette 2001).

Currently, several management regulations directly or indirectly protect EFH in the GOM and prevent or minimize the impacts of reef fish fishing gears:

1. Longlines and buoy gear are prohibited within approximately the 50-fathom contour west of Cape San Blas, Florida, and within the 20-fathom contour east of Cape San Blas (Part 622.34(c) 50 CFR).
2. Fish traps and longlines are prohibited within the Florida Middle Grounds Habitat Area of Particular Concern (Part 622.34(b) 50 CFR).
3. Fish traps, powerheads, and roller trawls are prohibited within the Reef Fish Stressed Area (Part 622.34(g) 50 CFR).
4. Bottom fishing with all gears is prohibited within the Madison-Swanson, Steamboat Lumps, and Tortugas Marine Reserves (Part 622.34(d) and (k) 50 CFR).

The primary gears used to harvest grouper are bottom longlines, vertical lines (bandit rigs and hook-and-line), and traps. Longlines accounted for 54.1 percent of the SWG and DWG commercial landings during 2001-2003, while vertical lines and traps accounted for 36.5 percent and 8.5 percent of the total commercial landings during this time period, respectively (Waters 2005). Other gears, such as spearguns, accounted for less than 1 percent of the total commercial landings during 2001-2003 (Waters 2005).

Longline gear is deployed over sand, mud, and hard bottom habitats using weights to keep the gear on the bottom. This gear can abrade, snag and dislodge smaller rocks, corals, and sessile invertebrates when retrieved (Bohnsack in Hamilton, 2000; Barnette 2001). The damage that this gear causes is dependent on the substrate it is deployed on, as well as currents and the amount of line swept across the bottom by hooked fish (Barnette 2001). Vertical-line gear is less likely to damage bottom habitat than longlines, but can snag and entangle bottom structures and cause tear-offs or abrasions (Barnette, 2001). If lost or improperly disposed, vertical lines may damage habitat by entangling marine life, such as corals (Hamilton 2000; Barnette 2001). Gears set on live substrate, such as fish traps, can also cause damage to corals, gorgonians, sponges, and submerged aquatic vegetation and divers can cause damage to habitat if they come in contact with the bottom while spearfishing.

The trip limits specified in **Alternatives 2-6** may directly affect habitat interactions by increasing or decreasing the fishing effort used to catch the annual quota, or by changing the composition of the fleet. The trip limits proposed in **Alternatives 2-6** could increase fishing effort (in terms of trips) by increasing the number of fishing trips taken during the fishing year. The trip limit schedule proposed by **Alternative 5** is expected to increase the number of fishing trips to a greater degree than proposed by all of the other alternatives. However, any increases in effort associated with increases in fishing trips would be offset by a decrease in the duration (days at sea) of trips, which would have caught more than the maximum trip limit specified by each of the alternatives.

If a specified trip limit is not restrictive enough to limit most vessel's overall catches, then alternatives may actually result in fewer fishing trips, therefore negating any benefits of prolonging the fishing season. Preliminary landings data indicates fishermen in 2005 have made fewer trips, which have resulted in increased catch rates. The reduction in trips is either due to increases in time spent fishing or in the availability of grouper. Regardless, the preliminary data suggests most vessels are not limited currently by the emergency trip limits (trip limits implemented through emergency rule are the same as the trip limits proposed in **Alternative 2**) (NMFS 2005a).

**Alternatives 2-6** could indirectly benefit the physical environment if the trip limits they propose serve to shift effort from longline vessels to vertical line vessels. Longline vessels are typically larger and have greater storage capacities, allowing longline vessels to take longer trips and land more fish per trip. Trip limits could make it less economically viable for some high capacity longline vessels to participate in the fishery, particularly as trip limits are reduced later in the year. If the trip limits proposed by **Alternatives 2-6** preclude these vessels from participating in the grouper fishery, then some fishing effort could shift from longline vessels to vertical line

vessels. Vertical lines are less likely to damage bottom habitat than longlines (see discussion above). The trip limits proposed by **Alternative 5** (4,000 lbs) and **Preferred Alternative 6** (6,000 lbs) are the most restrictive trip limits being considered and, therefore, are more likely to limit the participation of longline gear in the grouper fishery.

**Alternatives 2-6** are not expected to change fishing effort in the trap fishery, because most trips land less than the trip limits proposed for each of the alternatives. Because no significant changes in effort are expected, the effects on the physical environment for each of the alternatives are expected to be similar to status quo. Additionally, the use of fish traps will be prohibited after February 7, 2007, so the physical environment will be slightly less affected after that time.

In summary, **Alternatives 2-6** are not expected to have significant impacts on the physical environment, because they will not significantly change the gears or methods used for harvesting grouper. Potential unquantifiable benefits to the physical environment could occur if trip limits make it less economically viable for some longline vessels to participate in the fishery, therefore shifting effort to vertical line vessels, which have less damaging effects on bottom habitat.

## **7.2 Direct and Indirect Effects on the Biological Environment**

**Alternative 1 (status quo)** would allow commercial fishermen to land an unlimited quantity of grouper per trip after February 26, 2006 (expiration date of emergency rule, NMFS 2005a), but would cap the total allowable commercial catch of red grouper, SWG, and DWG at 5.31 mp GW, 8.8 mp GW, and 1.02 mp GW, respectively. Total allowable catch quotas are designed to directly benefit the biological and ecological environment by protecting grouper stocks from the adverse effects of overfishing. However, failing to institute trip limits to moderate the rate at which annual catch quotas are harvested can result in a “derby-style” fishery, which is characterized by a race among fishery participants to land the maximum amount of fish possible before the annual catch quotas are achieved and the fishery is closed.

Derby fishing generally shortens the fishing season, which can directly and adversely affect the biological and ecological environment if participants in the derby fishery increase pressure on other fish stocks after the derby fishery has been closed. In addition to increasing fishing mortality on other species, such an effort shift could increase bycatch if fishermen continue to fish in the same areas inhabited by the species targeted in the derby fishery. However, most commercially important fisheries in the GOM are managed by quotas and limited entry programs, which are expected to minimize or prevent effort shifting after a fishery closure. The trip limits proposed in **Alternatives 2-6** would not eliminate the biological protections afforded by existing quotas, but would simply cap the amount of fish that can be landed per trip to distribute landings and fishing mortality over a longer period of time. Based on fishing effort levels during 2000-2004, the trip limits proposed in **Alternatives 2, 3, and 6** would not prevent fishermen from meeting the annual quotas in a given year. **Alternative 4** is intended to increase the likelihood that the SWG fishing season remains open year round and therefore, may result in the quota possibly not being met in some years. **Alternative 5** is the most restrictive trip limit being considered and also would result in the quota possibly not being met in some years. If the

quota is not met, biological benefits to the stock will result, because more grouper would survive.

Trip limits also could directly affect the biological and ecological environment by altering the magnitude and/or composition of bycatch in the fishery, or by promoting effort shifting to other non-grouper fish species after trip limits have been achieved. Based on 2004 logbook data, grouper accounted for 60 percent of the landings for trips with at least one pound of DWG or SWG landings (Waters 2005). Other species commonly harvested or incidentally caught on trips harvesting grouper include shallow-water and mid-shelf snappers (25.5 percent), jacks (3.7 percent), grunts and porgies (2.7 percent), and sharks (2.5 percent) (Waters 2005). The type of species harvested depends largely on gear type. Vertical line fishermen primarily harvest grouper, snappers and jacks, while longline vessels primarily harvest grouper, sharks, and tilefishes. Most landings by fish trap vessels are grouper or grunts and porgies.

If fishermen continue fishing for reef fish found in the same habitat as grouper after reaching their trip limit, there could be an increase in grouper release mortality from regulatory discards. However, if fishermen stop fishing once reaching their trip limit for grouper, then regulatory discards and fishing mortality on other species could be reduced. Additionally, regulatory discards and fishing effort directed toward other species could increase or decrease depending on whether commercial grouper fishermen continue to fish for other reef fishes once quotas are met.

As stated above, a shift in effort is not expected because 70 percent of the total annual landings, which consist of the most valuable reef fish species (red snapper, SWG, and DWG), is governed by hard quotas that prohibit harvest when quotas are met. Several other species are also governed by commercial quotas (sharks, tilefish, mackerels) and/or have limited entry programs (red snapper, sharks, mackerels) that cap the number of vessels that can participate in the fishery. Other species not governed by hard quotas, such as vermilion snapper, are under rebuilding plans intended to limit landings.

**Alternative 2** is expected to affect only a small number of trips. The alternative proposes an initial trip limit of 10,000 lbs GW, followed by reduced trip limits of 7,500 lbs GW and 5,500 lbs GW. During 2001-2003, 151 trips (0.5 percent) landed greater than 10,000 pounds of grouper, 472 trips (1.4 percent) landed greater than 7,500 pounds of grouper, and 1,142 trips (3.5 percent) landed greater than 5,500 pounds of grouper (Waters 2005). Less than 5 percent (69 out of 1452) of all fish trap trips and less than 1 percent (61 out of 24,779) of all vertical line trips landed greater than 5,500 pounds of grouper during 2001-03 (Waters 2005). In contrast, greater than 19 percent (1011 out of 5213) of all longline trips landed greater than 5,500 pounds of grouper during this time period. (Waters 2005)

**Alternative 2** is estimated to prolong the SWG fishing year by 7-21 days and the DWG fishing year by 0-22 days. **Alternative 2** is not likely to extend the SWG fishing season until the end of the year. Despite emergency rule trip limits implemented earlier this year (NMFS 2005a), the DWG fishery closed June 23, 2005 and the SWG fishery closed October 10, 2005. A SWG closure at the end of the year would directly affect other fisheries if grouper fishermen target other species once the quota is met. Losses in income after the quota closure may result in additional fishing effort on other species. The lower trip limits (5,500 lbs GW or 7,500 lbs GW)



toward the middle to end of the fishing season could also affect some longline and fish trap vessels with high capacities, making it more difficult to conduct profitable trips. If this occurs, fishing effort could shift to other fisheries. However, as discussed above, additional fishing effort is not expected to have a significant adverse effect on other fisheries because of existing fishing restrictions (e.g., quotas, limited access programs, etc.).

**Alternative 3** is expected to affect a slightly larger number of trips compared to **Alternative 2**. **Alternative 3** proposes an initial trip limit of 7,500 lbs GW, followed by a reduced trip limit of 5,000 lbs GW. This alternative is estimated to result in 208 more trips than status quo. Longliners would be impacted the most by the lower trip limit and could shift effort from grouper to other fisheries, such as sharks, once the 7,500 pound trip limit is reduced to 5,000 pounds. However, this additional fishing effort is not expected to have a significant adverse effect on other fisheries because of existing regulations.

It is estimated that **Alternative 3** would extend the SWG fishing season an additional 16-33 days. The DWG fishery is projected to extend as few as three days or to remain open all year. **Alternative 3** would extend the fishing season longer than **Alternatives 2** or **1**. Extending the season longer would reduce the potential for grouper fishermen to target other reef fish species, which could result in increased grouper discards when the fishery is closed. However, effort shifting is unlikely to affect other species because of existing regulations, which regulate the amount of landings and fishing effort. Additionally, the fishery would be closed for a shorter period of time than if no trip limits were in place, and therefore would have positive biological benefits when compared to status quo.

**Alternative 4** is designed to keep the season open from January 1 through December 31 except during the current closed season from February 15 through March 15 for gag, red grouper and black grouper. Under **Alternative 4**, the SWG fishery is projected to remain open all year if no additional trips are taken to make up for lower trip limits. **Alternative 4** proposes an initial trip limit of 7,500 lbs GW, followed by a reduced trip limit of 3,500 lbs GW. This alternative is projected to result in 303 more trips than the status quo, 174 more trips than **Alternative 2** and 95 more trips than **Alternative 3**, assuming fishermen do not increase the duration of trips and catch rates are similar to historical levels (2000-2004). Extending the season until the end of the year would avoid effort shifting to other species once the quota is met (as would potentially occur under **Alternatives 1- 3** and **Preferred Alternative 6**). However, lower trip limits (3,500 lbs GW) may deter some vessels from targeting grouper when the fishery is open, resulting in increased effort directed toward other species. However, as mentioned previously, effort shifting is unlikely to affect other species because of existing regulations, which regulate the amount of landings and fishing effort.

**Alternative 5** is designed to start the fishing season with a small, more restrictive trip limit of 4,000 pounds. NMFS could adjust this trip limit between July 1 and October 1 each year to increase the likelihood that the fishery would remain open until the end of the fishing year. This alternative is the most restrictive of all the alternatives and would result in the greatest amount of additional trips when compared to status quo. Extending the season until the end of the year would avoid effort shifting to other species once the quota is met (as would potentially occur

under **Alternatives 1- 3** and **Preferred Alternative 6**). However, lower trip limits (3,500 lbs GW) may deter some vessels from targeting grouper when the fishery is open, resulting in increased effort directed toward other species. However, as mentioned previously, effort shifting is unlikely to affect other species because of existing regulations, which regulate the amount of landings and fishing effort.

**Preferred Alternative 6** would establish a 6,000 pound trip limit for the commercial grouper fishery. This trip limit is less than the trip limits proposed for most of the alternatives, except **Alternative 5**. This alternative is estimated to result in more trips than **Alternatives 1-3** and less trips than **Alternatives 4-5**. This alternative would not ensure that the fishery remains open until the end of the year, but based on historical landings data it is estimated the fishery would close in early to mid-December. With the exception of **Alternatives 3** and **5**, this alternative would result in the latest closure of any of the alternatives. The benefits of extending the season to later in the year are discussed above and incorporated by reference.

Overall, **Alternatives 2-6** are not expected to significantly impact the biological environment. Quotas are used to regulate commercial grouper landings in the Gulf of Mexico. When quotas are met, the fishery is closed to prevent exceeding allowable catch levels. The trip limits proposed in **Alternatives 2-6** would not affect the quotas or the status of grouper, because they only change the amount vessels can land per trip.

### **7.3 Direct and Indirect Effects on the Economic Environment**

Waters (unpublished, 2005) developed a simulation model to compare the effects of **Alternatives 1-6** on landings, fishing effort and net operating revenue<sup>2</sup>. The simulation analysis evaluated four scenarios. The first scenario depicted commercial fishing activity by vessels with recorded landings of grouper species in 2002-2004 as reported in the NMFS logbook. The second scenario took the 2004 fishing year quotas and simulated quota management for the 2002-2004 fishing years, incrementally by year, to identify how fishing performance might have differed had the current quotas been in effect in those years. The results from this scenario effectively constitute the status quo scenario (**Alternative 1**) for the proposed rule since they represent the average expected outcome for the 2006 and future seasons. The third scenario imposed the trip limits specified in **Alternatives 2-6** with no allowance for extra trips to be taken, i.e., only the original, logbook-reported trips could occur, with their performance truncated by the new trip limits. While a trip could occur, it would not occur under scenario 3 if trip revenue did not cover trip costs. Participants could not take extra trips. The fourth scenario allowed extra trips to be taken in response to the trip limits but limited total days fishing to the sum for the original, logbook-reported trips. For example, a 5-day trip that was truncated due to the trip limit could be split into two trips, one 3-day trip and one 2-day trip, but not two 3-day trips. Further, landings on the second trip were limited to the harvest truncated from the original

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<sup>2</sup> The estimated closure dates may differ slightly from those reported by Poffenberger and McCarthy (draft, December 16, 2004). Waters (unpublished, 2005) notes that his user-written SAS program is used to sort logbook data by year, month, day landed and trip schedule number. Landings of groupers are accumulated through the year and the quota is recorded as filled on the date when accumulated landings first exceed the quota. The analysis by Poffenberger and McCarthy (draft, December 16, 2004) records the date before the quotas are exceeded because landings would exceed the quota if the season were open for 1 more day.

trip. Whether the second trip actually occurred, however, was determined by whether revenues on the second trip were sufficient to cover trip costs. Also, the initial trip truncated by trip limits would not occur under the fourth scenario if trip revenue did not cover trip costs.

It is noted that some fishermen may take shorter and more frequent trips under scenario 4 (extra trips allowed) than under scenario 3 (no extra trips allowed) such that grouper quota closures may occur earlier in the year (estimated quota-based closure dates by year for 2000-2004, Table 7.3.5). To the extent that earlier closure dates occur under scenario 4 than scenario 3, some late season trips do not occur; for example, grouper could not be landed, causing trip revenue to fall below trip cost. Based on averages for 2002-2004, fewer trips are projected to occur for the fishery as a whole under scenario 4 (extra trips allowed) than scenario 3 (no extra trips allowed) (with the exception of **Alternative 5**; Tables 7.3.3-7.3.4). The projected number of trips increased under scenario 3 and scenario 4, respectively, as trip limits were reduced. Furthermore, large proportions of the projected increases in number of trips are likely to occur at the end of the season as it is extended, though the outcome may vary among years.

Also, it should be noted that the 2006 simulation projections assume that the status quo (**Alternative 1**) would apply to the entire 2006 fishing season. In fact, both quotas and trip limits will be in place through early March 2006, and quotas alone would be in place for the remainder of the year under **Alternative 1**. Thus, the projections do not precisely match actual 2006 fishing conditions under **Alternatives 1** and **3-6**. Match-up would occur, however, beginning in 2007.

Finally, it should be noted that since the simulation used actual recorded trips, projected performance and closure results for the 2004 fishing year and average 2002-2004 seasons are influenced by the November 15 closure in 2004. The closure resulted in no grouper trips occurring beyond this date for the rest of the year. Since the simulation allows trips to occur or not depending on whether quota is left, the absence of trips in the logbook database for this period limits total simulated harvest for 2004 to the amount achieved prior to actual closure as reduced by the trip limits (note that although scenario 4 allows extra trips to occur in response to the trip limits, these extra trips occur instantaneously and neither replace other trips in the database nor get relegated to the end of the season). Thus, while the trip limits may have resulted in available quota as of November 15 in 2004, no trips existed in the database to allow this quota to be harvested for this part of the fishing year, hence limiting the overall performance and all performance indicators in the fishery projection. A specific effect of this simulation limitation is that unless closure is projected prior or up to November 15, 2004, no closure for this year would result since no trips were available to precipitate closure after this date. The overall effect on this limitation on the average projected results for the simulations is unknown but, given the varying conditions across the three years examined, the effects are not expected to substantially affect the results or rankings of the different alternatives.

The following discussion summarizes the findings based on the Waters (unpublished, 2005) simulation model regarding the management alternatives and further frequent reference will not be made.

The historical landings records establish the foundation of the assessment as they define the records upon which analysts conduct their work. For historical, logbook-reported commercial landings of Gulf SWG and DWG, the Waters (unpublished, 2005) estimate of annual average landings for 2002-2004 is 10.107 mp GW (Table 6.3.1). By gear type, bottom longlines averaged 5.614 mp GW and vertical lines averaged 3.561 mp GW. These averages may differ slightly from the averages presented in Tables 6.3.3 and 6.3.5, respectively, and from averages from other sources, due to differences in data assumptions and tabulation routines. The differences should not be sufficiently great, however, to compromise the analysis. Additionally, the trap fishery, which will be phased out in 2007, averaged 0.863 mp GW, while “other gear” averaged 0.070 mp GW.

The assessment estimated “net returns” (net revenue) from fishing to simulate the economic impact of the proposed management alternatives. Trip costs were estimated based on 1993 survey data, updated to 2001-2003 price levels, and calculated for each logbook trip based on gear type and area using a regression model<sup>3</sup>. The net revenue was estimated at the trip level and obtained by subtracting the trip cost from the trip gross revenue, where the trip cost is defined to include fuel, ice, bait and food supplies. Labor costs are excluded. Thus, net revenue for a trip refers to returns to all labor and capital. Summary results of the simulation assessment are presented in Tables 7.3.1-7.3.5. Tables 7.3.1-7.3.4 contain estimates of the changes in net revenue and vessel trips, by gear type. Table 7.3.5 contains the simulated closure dates for the SWG and DWG fisheries for the 2000-2004 seasons under the alternative management scenarios.

### 7.3.1 Alternative 1 (status quo)

Under **Alternative 1** (status quo), average fishery performance is expected to result in annual average landings of 9.285 mp GW of Gulf SWG and DWG combined. This compares to an average of 10.107 mp GW historical logbook reported landings for 2002-2004. The estimated change in net revenue as a result of quota management is a reduction of \$1.632 million (Table 7.3.1) from the \$28.662 million for historical fishery performance to \$27.029 million. The projected loss in net revenue is borne largely by the longline sector (down \$1.1 million to \$10.7 million) and the vertical line sector (down \$0.5 million to \$14.5 million). By fishing area, west-

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<sup>3</sup> Trip costs were calculated for each logbook trip based on gear type, bottom longlines, fish traps, vertical lines in the northern Gulf [NMFS area 9 and greater], and vertical lines in the eastern Gulf, total landings per trip, days absent from port, and crew size. The basic cost data and the relation between trip costs and the characteristics of each trip were estimated with data from the 1993 survey of commercial reef fish boats. Average trip costs were updated to average 2001-2003 price levels according to the Bureau of Labor Statistics Producer Price Index (PPI) for #2 diesel fuel. Then, the updated costs were regressed on survey data for total pounds landed per trip, days absent from port, and crew size. The trip cost relationship was linear in each variable. Two other relationships (one with quadratic terms, and the other with logarithmic transformations) exhibited better statistical fits to the data, but the predictions of costs in relation to estimated revenues for individual logbook trips yielded some troublesome results that did not arise with the linear cost model. For example, the logarithmic model predicted trip costs that exceeded trip revenues for nearly 90% of the logbook trips. The quadratic model tended to predict very low trip costs for trips with exceptionally large landings, which is the subset of trips most likely to be affected by proposed trip limits and for which the most credible predictions are required. The linear cost model occasionally yielded trip costs less than zero, or trip costs that exceeded trip revenues, but these events occurred for trips with very small landings that would not be affected by proposed regulation. If predicted trip costs were less than zero, then costs were re-set as equal to zero. If predicted trip costs were greater than trip revenues, then costs were re-set as equal to revenues.

central Florida experiences most of the loss (\$910,000) followed by northwest Florida (\$297,000) (Table 7.3.2). Under quota management, 922 vessels are projected to harvest Gulf grouper, 1 percent fewer than the 929 vessels under historical logbook-reported harvest conditions. A 4 percent reduction in trips is projected (from 10,516 trips to 10,143 trips) (Table 7.3.3).

The earliest projected closure for the SWG fishery is November 11, with no projected closure if conditions mirror those of 2003 (Table 7.3.5). The simulation resulted in a projected November 13, 2004 closure for the SWG fishery, while quota monitoring by NOAA Fisheries resulted in the fishery being closed on November 15, 2004. For the DWG fishery, the projected closure ranges from June 7 to November 29 (simulation projected closure, June 7, 2004; actual closure, July 15, 2004, the date Secretarial Amendment 1 became effective)<sup>4</sup>. Thus, regardless of fishery conditions, the DWG fishery is expected to close.

These conditions would largely have been expected to continue during the 2005 fishing year under status quo management (quotas only) with the exception that the 2004 closures were expected to stimulate a derby fishery. This expectation led to implementation of commercial trip limits in addition to quotas under an emergency rule in March 2005 (NMFS 2005b). Derby fishing, and resultant impacts, cannot be forecast with current data or models. However, the experience of the Gulf of Mexico commercial red snapper fishery may provide clear signals that a derby can develop rapidly and decisively. The first closure in the red snapper fishery occurred in August 1991. A full-scale race for fish ensued when the fishery re-opened in February 1992. The result was significantly shorter seasons, market gluts, and depressed market prices, demonstrating that such can occur almost immediately and without investment in additional fishing power such as bigger boats, newer fishing gear, and better electronics.

A derby and associated adverse economic impacts would, therefore, be an expected direct impact of the status quo, accelerating the fishery closures. This would be expected to increase the potential of lost markets for commercial landings, thereby increasing the indirect adverse economic impacts. During closures, both retail and restaurant markets must continue to meet consumer demand through the substitution of either foreign product or different species. The more successful a retailer is in making this substitution, the lower the incentive to return to local purchases of grouper when the season reopens. This may result in either markets disappearing or remaining available only at reduced ex-vessel prices. While consumers would continue to receive the product they desire (or have demonstrated they are willing to accept; the average consumer may be largely neutral to the situation, particularly if they demonstrate an acceptance of alternative product; also, reduced ex-vessel prices, as would result from market glut, do not necessarily translate directly to reduced consumer prices), the commercial fishery would suffer economic harm. This would be expected to reduce not only revenues, but also trips and the number of vessels able to profitably operate.

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<sup>4</sup> According to summaries of historical logbook data (as of March 17, 2005), the DWG fishery at 1.27 mp GW appears to have exceeded its quota (1.02 mp GW), because fishery closure did not occur until July 15, 2004, the date the quotas for Gulf grouper were implemented. Landings in 2004 were 5.35 mp GW for red grouper (quota, 5.31 mp GW), and 8.51 mp GW for SWG (quota, 8.80 mp GW). Quota monitoring by NOAA Fisheries involves the use of data from dealers.

In summary, the status quo would be expected to produce a derby, reducing the overall economic value of the fishery. Any future increases in the commercial quota would be expected to reduce, but not eliminate, the likelihood of quota closures. Absent an increase in quota, the unquantifiable losses for the 2006 and future seasons could be substantial if **Alternative 1** alone were in place.

### 7.3.2 Alternative 2

As previously described, each trip limit alternative is modeled under two scenarios, one which does not allow vessels to take additional trips to recover landings truncated by the trip limits, and one which allows additional trips to occur but limits the total days fished to historical conditions. Under the first scenario, simulated annual average landings (2002-2004) for **Alternative 2** were 9.141 mp GW, or slightly less than the 9.285 mp GW for the status quo. This produced a loss in net revenue of \$2.072 million relative to historic fishery performance, or \$440,000 (1.6 percent) less net revenue relative to the status quo (\$27.029 million) (Table 7.3.1). The longline sector is projected to produce 54 percent of the landings compared with 55 percent under simple quota management, and to incur a reduction of \$495,000 (4.6 percent) in net revenue compared with the status quo (\$10.688 million). The vertical line sector is projected to produce 36 percent of the landings, as under quota management, and to incur a gain in net revenue of \$65,000 (0.4 percent) relative to the status quo (\$14.498 million). By fishing area, west central Florida experiences \$494,000 (3.9 percent) less in net revenue than under the status quo (Table 7.3.2). Texas, eastern Louisiana-Mississippi-Alabama, and northwest Florida are projected to experience gains in net revenues relative to the status quo. A total of 924 vessels are projected to participate in the fishery under this scenario, or 2 more vessels than the status quo (though the number of vessels under the status quo may reduce further due to derby conditions) (Table 7.3.3).

An examination of trip impacts for the first scenario shows that **Alternative 2** is projected to result in 10,272 vessel trips, or 1 percent more than the status quo (10,143 trips; Table 7.3.3; note that since vessels may not increase the number of trips they take in response to the limits, the additional trips result from extending the season relative to the status quo). The largest gear sector gain occurs in the vertical line fleet, 87 trips, though no sector gains more than 2 percent. By area, the majority of the gains occur in west central Florida (64 trips) and northwest Florida (50 trips).

Under the second scenario, fishermen are allowed to take shorter and more frequent trips, but total days fished on these trips cannot exceed the reported days fished on the original logbook records. Under this scenario, simulated annual average landings (2002-2004) for **Alternative 2** were 9.167 mp GW. This represents a loss in net revenue of \$1.976 million relative to historical fishery performance. The projected net revenue is \$344,000 (1.3 percent) less than for the status quo and \$96,000 more than for the first scenario (Table 7.3.1). The status quo net revenue is \$27.029 million. Both the vertical line sector (\$24,000) and the “other” gear sector (\$1,000) are projected to experience gains in net revenues under this scenario compared with the status quo, while the longline sector is projected to incur losses of \$348,000 (3.3 percent) in net revenue. By fishing area, west central Florida experiences a 2.6 percent less net revenue than the \$12.760

million for the status quo scenario (Table 7.3.2). Texas, eastern Louisiana-Mississippi-Alabama and northwest Florida are projected to experience gains in net revenues relative to the status quo. A total of 916 vessels are projected to participate in the fishery under this scenario, or 6 fewer vessels than for the status quo (Table 7.3.3).

An examination of trip impacts for the second scenario shows that **Alternative 2** is projected to result in 10,232 vessel trips, or 1 percent more than the status quo (10,143 trips; Table 7.3.3). The largest gear sector gain occurs in the vertical line fleet, 48 trips, though the bottom longline sector is projected to receive a greater gain proportionally, or 2 percent. By area, the majority of the gains occur in west central Florida (52 trips) and northwest Florida (27 trips; Table 7.3.4).

To summarize the results presented thus far, **Alternative 2** is projected to result in 90-129 more trips than the status quo, \$344,000-\$440,000 less net revenue, and accommodate the participation of 6 fewer to 2 more vessels. All gear sectors gain trips, which are distributed unevenly across all areas except “other” (no change). Both the vertical line and “other” gear sectors are projected to have decreased losses in net revenue compared with the status quo, while the other two gear sectors, notably the longline sector, are projected to experience increased losses. Some areas are projected to have increases in net revenues, while west central Florida is projected to experience 2.6-3.9 percent less net revenue.

**Alternative 2** would also reduce the pace of harvest, thereby potentially reducing the magnitude of the derby effects, thus mitigating the adverse economic impacts expected to accrue to the status quo. Although these impacts cannot be quantified or forecast, they are expected to be substantial. Although unquantifiable, it is assumed that the benefits of avoiding a derby fishery exceed the reductions in net revenues described above.

While not strictly an economic indicator, under **Alternative 2** the SWG fishery is projected to close as early as November 24 (second scenario) or December 2 (first scenario), and the DWG fishery is projected to close as early as June 11 (either scenario) (data for 2002-2004, Table 7.3.5). Compared to the earliest closure dates under the status quo (**Alternative 1**), **Alternative 2** would be expected to extend the seasons for both fisheries. While lifestyle and/or seasonal plans may not require fishing late in the year, to the extent that late November into December trips are essential to a successful year, including supporting increased seasonal expenditures, extending the fishing year will have additional unquantifiable indirect benefits.

A direct effect, therefore, of **Alternative 2** would be the benefits of avoiding a derby fishery or reducing its impacts, thereby negating or mitigating the lost net revenues discussed above. Additionally, reducing the length of the closed seasons, which the trip limits are expected to accomplish, lessens the likelihood of lost markets, as discussed above. Thus, an indirect impact of this alternative is the benefits of improved market stability for commercial vessels.

### 7.3.3 Alternative 3

Under the first scenario (no additional trips for individual vessels), simulated average annual landings (2002-2004) for **Alternative 3** were 8.955 mp GW, or slightly less than the 9.285 mp

GW for the status quo and the 9.141 mp GW for **Alternative 2**. This produced a loss in net revenue of \$2.557 million relative to historical fishery performance. Net revenue is projected to be \$924,000 (3.4 percent) less relative than under the status quo (\$27,029 million) and \$485,000 less than for **Alternative 2** (Table 7.3.1). The longline sector is projected to produce 53 percent of the landings compared with 55 percent under simple quota management, and \$985,000 (9.2 percent) less net revenue (Table 7.3.1, net revenue changes only). The vertical line sector is projected to produce 38 percent of the landings and 36 percent under quota management, and is projected to experience \$120,000 (0.8 percent) more net revenue than under the status quo (**Alternative 1**) and \$55,000 more than for **Alternative 2** (Table 7.3.1). By fishing area, west central Florida is projected to experience \$956,000 (7.5 percent) less net revenue than under the status quo (Table 7.3.2). Texas, eastern Louisiana-Mississippi-Alabama, and northwest Florida are projected to experience gains in net revenues relative to the status quo. A total of 926 vessels are projected to participate in the fishery under this scenario, 4 more than under the status quo, for which derby conditions may reduce the number of operating vessels, or 2 more than under **Alternative 2** (Table 7.3.3).

An examination of trip impacts for the first scenario shows **Alternative 3** is projected to result in 10,350 vessel trips, or 2 percent more than the status quo, and 78 more trips than **Alternative 2** (Table 7.3.3; as described above, the additional trips result from extending the season). Compared with the status quo, the largest gear sector gain occurs in the vertical line fleet, 140 trips, though the bottom longline sector experiences the largest proportionate increase (4 percent). By area, the majority of the gains occur in northwest Florida (81 trips) and west central Florida (102 trips). These are larger than the gains in these areas under **Alternative 2**.

Under the second scenario, simulated annual average landings (2002-2004) for **Alternative 3** were 9.042 mp GW. This scenario produced a loss in net revenue of \$2.307 million relative to historic fishery performance. Projected net revenue is \$674,000 (2.5 percent) less than for the status quo (\$27.029 million), \$250,000 more than for the first scenario, and \$331,000 less than for **Alternative 2**. Both the vertical line sector (\$87,000) and the other gear sector (\$2,000) are projected to experience more net revenues under this scenario relative to the status quo and **Alternative 2**. The longline sector is projected to experience \$708,000 (6.6 percent) less net revenue than under **Alternative 1** and less net revenue than under **Alternative 2**. By fishing area, west central Florida experiences \$672,000 (5.3 percent) less net revenue than under the status quo (Table 7.3.2). This projected reduction is double the reduction for this fishing area for **Alternative 2**. Texas, eastern Louisiana-Mississippi-Alabama and northwest Florida are projected to experience gains in net revenues relative to the status quo and relative to **Alternative 2**. A total of 910 vessels are projected to participate in the fishery under this scenario, or 12 fewer vessels than the status quo (**Alternative 1**) and 6 fewer than **Alternative 2** (Table 7.3.3).

An examination of trip impacts for the second scenario shows that **Alternative 3** is projected to result in 10,310 vessel trips, or 2 percent more than the status quo (**Alternative 1**) and 78 more trips than **Alternative 2** (Table 7.3.3). The largest gear sector gain relative to the status quo occurs in the vertical line fleet, 91 trips, though the bottom longline sector is projected to receive a greater gain proportionally, 4 percent. By area, the majority of the gains occur in northwest



Florida (54 trips; Table 7.3.4) and west central Florida (96 trips).

To summarize the results presented thus far, **Alternative 3** is projected to result in 167-208 more trips than the status quo, \$674,000-\$924,000 less net revenue, and accommodate the participation of 12 fewer to 4 more vessels. All gear sectors gain trips, which are distributed unevenly across all areas. Both the vertical line and “other” gear sectors have the potential to gain net revenue relative to the status quo, while the other gear sectors, notably bottom longlines, are projected to experience losses. Some fishing areas are projected to have greater net revenue, while west central Florida is projected to experience losses.

Relative to **Alternative 2**, **Alternative 3** is projected to result in increased reductions in net revenue of \$331,000-\$485,000, accommodate 6 fewer to 2 more vessels, and produce 78 more trips. The vertical line sector is expected to gain \$55,000-\$63,000 in net revenues. The bottom longline sector, however, is expected to lose \$359,000-\$491,000 in net revenue. Similar to **Alternative 2**, this alternative would reduce the derby effects expected to occur under the status quo. Since the trip limits are lower, **Alternative 3** could be more effective in reducing the effects of derby fishing.

Under **Alternative 3**, the SWG fishery is projected to close as early as December 1 (second scenario) or December 16 (first scenario), while the DWG fishery is projected to close either not at all (if 2002 fishing conditions prevail) or from June 14 (second scenario) to August 6 (data for 2002-2004, Table 7.3.5). Compared to the earliest dates for the status quo, November 11 and June 7 for the two fisheries, respectively, **Alternative 3** would be expected to extend the seasons for both fisheries. The extensions would be expected to produce greater unquantifiable indirect benefits associated with extending the fishing year than **Alternative 2**.

Similar to **Alternative 2**, a direct effect of **Alternative 3** would be the benefit of avoiding a derby fishery, or reducing its impacts, thereby negating the lost net revenues discussed above. Additionally, reducing the length of a closed season, which the trip limits are expected to accomplish, lessens the likelihood of lost markets, as discussed above. Thus, an indirect impact of this alternative is the benefit of improved market stability for the commercial vessels.

A variant of **Alternative 3** proposed by the Southern Offshore Fisherman’s Association would impose an additional fixed closure from May 15 through June 15, and adjust the step-down to 5,500 pounds. The net effects of this alternative cannot be determined at this time. However, some inferences can be drawn from existing analyses. Under current management conditions and many of the alternatives proposed, the commercial SWG fishery is projected to close in December or sooner. Establishing a fixed closure earlier in the year rather than have the fishery subjected to quota closure later in the year is an acknowledgement that, since the quota would be harvested under either scenario, fishing opportunities for other species are greater during the proposed earlier closure period relative to later in the year. Hence, participants would still receive their relatively constant (evaluated fishery-wide) SWG revenues and be able to devote their efforts on other species during the earlier fixed closure, when prices for grouper are typically lower. Later in the year, these opportunities to target other species may not exist. This condition may not be true for all vessels in the fishery due geographic location, vessel

characteristics (size or gear), or permit status and cannot be quantitatively evaluated. Conceptually, however, the arrangement has merit and would be expected to result in improved economic outcomes relative to **Alternative 3**. It should be noted, however, that establishing fixed closures earlier in the year does not guarantee no quota closures would occur later the year.

The higher step-down trip limit proposed by industry, would be expected to have competing impacts. The higher limit would increase revenues for those vessels/trips for which the 5,500-pound limit is constraining, making these trips more profitable. However, this would be expected to result in the quota being harvested sooner than under a 5,000-pound limit, potentially resulting in quota closure earlier than would occur under 5,000 pounds. The likelihood and net impact of these competing outcomes has not been determined.

#### **7.3.4 Alternative 4**

Under the first scenario (no additional trips for individual vessels), simulated average annual landings (2002-2004) for **Alternative 4** were 8.698 mp, which is less than the 9.285 mp GW for the status quo, the 9.141 mp GW for **Alternative 2**, and the 8.955 mp GW for **Alternative 3**. This produced a loss in net revenue of \$3.137 million relative to historical fishery performance (Table 7.3.1). The projected net revenue is \$1.504 million less than for the status quo (status quo net revenue is \$27.029 million), \$1.064 million less than for **Alternative 2** and \$580,000 less than for **Alternative 3**. The longline sector is projected to produce 51 percent of the landings compared with 55 percent under simple quota management, and \$1.53 million (14.3 percent) less net revenue (Table 7.3.1, net revenue changes only). The vertical line sector is projected to produce 39 percent of the landings compared to 36 percent under quota management, and is projected to experience \$173,000 (1.2 percent) more net revenue than under the status quo, and more than under **Alternatives 2** and **3** (Table 7.3.1). By fishing area, west central Florida experiences \$1.477 million (11.6 percent) less net revenue than under the status quo (Table 7.3.2). Texas, eastern Louisiana-Mississippi-Alabama, and northwest Florida are projected to experience more net revenues (0.1 percent to 0.9 percent more) relative to the status quo. A total of 928 vessels are projected to participate in the fishery under this scenario, 6 more than under the status quo (though derby conditions may reduce the number of operating vessels), 4 more than under **Alternative 2** and 2 more than under **Alternative 3** (Table 7.3.3).

An examination of trip impacts for the first scenario shows that **Alternative 4** is projected to result in 10,446 vessel trips, or 3 percent more than the status quo, 174 more trips than **Alternative 2**, and 96 more trips than **Alternative 3** (Table 7.3.3; as described above, the additional trips result from extending the season). Compared with the status quo, the largest gear sector gain occurs in the vertical line fleet, 215 trips, though the bottom longline sector experiences a larger proportionate increase (5 percent). By area, the majority of the gains occur in northwest Florida (121 trips) and west central Florida (152 trips) (Table 7.3.4). These are larger than the gains for these areas under **Alternatives 2-3**.

Under the second scenario (additional trips allowed for individual vessels) for **Alternative 4**, simulated annual average landings (2002-2004) were 8.961 mp GW. This scenario produced a loss in net revenue of \$2.521 million relative to historic fishery performance. Relative to the

status quo (net revenue of \$27.029 million), net revenue would be \$889,000 (3.3 percent) less (Table 7.3.1). The projected reduction is greater than for **Alternatives 2 and 3**. The longline sector is projected to experience \$914,000 (8.6 percent) less net revenue, though both the vertical line sector and the other gear sector are projected to experience more net revenue (0.9 percent to 1.2 percent more). By fishing area, west central Florida is projected to experience \$901,000 (7.1 percent) less net revenue (Table 7.3.2). Texas, eastern Louisiana-Mississippi-Alabama and northwest Florida are projected to experience gains in net revenues relative to **Alternative 1**, and mostly relative to **Alternatives 2-3**. A total of 887 vessels are projected to participate in the fishery, or 35 fewer than **Alternative 1**, 29 fewer than **Alternative 2**, and 23 fewer than **Alternative 3** (Table 7.3.3).

An examination of trip impacts for the second scenario shows that **Alternative 4** is projected to result in 10,423 vessel trips, more than for **Alternatives 1-3** (Table 7.3.3). Comparing **Alternative 4** with the status quo, the largest gear sector gain occurs in the bottom longline fleet, 137 trips, or 9 percent, while the vertical line sector is projected to receive a gain of 126 trips, or 2 percent. By area, the majority of the gains occur in northwest Florida (72 trips) and west central Florida (179 trips) (Table 7.3.4).

To summarize the results presented thus far, **Alternative 4** is projected to result in 281-303 more trips than the status quo, \$889,000-\$1,504,000 less net revenue, and accommodate the participation of 35 fewer to 6 more vessels. Most gear sectors gain trips, which are distributed unevenly across all areas except “other” (no change). Both the vertical line and “other” gear sectors have the potential to gain net revenues relative to the status quo, while the other gear sectors, notably bottom longline, are projected to lose net revenue. Some areas are projected to gain net revenue, while west central Florida is projected to experience a reduction in net revenue.

**Alternative 4** is projected to result in less net revenue than **Alternatives 2 and 3** (\$214,000-\$1,065,000 less), accommodate 29 fewer to 2 more vessels, and produce 96-191 more trips. The vertical line sector is expected to gain \$50,000-\$113,000 in net revenues. Projected losses for the bottom longline sector are \$207,000-\$1,035,000.

Similar to **Alternatives 2 and 3**, this alternative would reduce the derby effects expected to occur under the status quo. Since the trip limits are lower, **Alternative 4** could be more effective in reducing the effects of derby fishing.

The SWG fishery is projected not to close (first scenario) or to close December 9 (second scenario), while the DWG fishery is projected to close either not at all (if 2002 fishing conditions prevail) or from June 14 to August 7 (data for 2002-2004, Table 7.3.5). Compared to the earliest dates for the status quo, November 11 and June 7 for the two fisheries, respectively, **Alternative 4** would be expected to extend the seasons for both fisheries. The extensions would be expected to produce greater unquantifiable indirect benefits associated with extending the fishing year.

Similar to **Alternatives 2 and 3**, a direct effect of **Alternative 4** would be the benefits of avoiding a derby fishery, or reducing its impacts, thereby negating or mitigating the lost net revenues discussed above. Additionally, reducing the length of a closed season, which the trip

limits are expected to accomplish, lessens the likelihood of lost markets, as discussed above. Thus, an indirect impact of this alternative is the benefits of improved market stability for the commercial vessels.

### 7.3.5 Alternative 5

In an effort to identify what step-down limits would support a full-year commercial grouper fishery (minus the fixed February 15 through March 15 spawning closure for red grouper, gag, and black grouper), an analysis was conducted for a 4,000-pound/1,000-pound step-down commercial trip limit (August 1, 50 percent trigger). Although this scenario does not perfectly match the specifications of **Alternative 5**, the simulation results provide insights to the potential impacts of the alternative, which could not be fully evaluated for the current action. A discussion of the results of the 4,000-pound/1,000-pound simulation follows. This will be followed by a discussion of the implications of these results on the expected impacts of **Alternative 5**.

Under the first scenario (no additional trips for individual vessels), simulated average annual landings (2002-2004) for **Alternative 5** were 7,196 mp, GW, which is less than the 9.285 mp GW for the status quo (**Alternative 1**), and the 8.698 mp GW for **Alternative 4**. This produced a reduction in net revenue of \$6.264 million compared to historical fishery performance (Table 7.3.1). Projected net revenue is \$4.631 million (17.1 percent) less than for the status quo (\$27.029 million), and less than for **Alternatives 2-4**. The longline sector is projected to produce 47 percent of the landings compared with 55 percent under simple quota management, and to experience \$3.9 million (36.6 percent) less net revenue (Table 7.3.1, net revenue changes only). The vertical line sector is projected to produce 44 percent of the landings, 8 percent more than under quota management; and is projected to experience \$313,000 (2.2 percent) less net revenue. No gear sector is projected to experience a gain in net revenue relative to the status quo (Table 7.3.1). By fishing area, west central Florida experiences a loss in net revenue of \$4.0 million (31.1 percent) relative to the status quo (Table 7.3.2). The eastern Louisiana-Mississippi-Alabama area is projected to experience a gain in net revenue (\$6,000 or 0.6 percent). A total of 929 vessels are projected to participate in the fishery under this scenario, 7 more than under the status quo (for which derby conditions may reduce the number of operating vessels), and 1 more than under **Alternative 4** (Table 7.3.3).

An examination of trip impacts for the first scenario shows that **Alternative 5** is projected to result in 10,473 vessel trips, or 3 percent more than the status quo, and more than **Alternatives 2-4** (Table 7.3.3; as described above, the additional trips result from extending the season for the most part, but some occur earlier in 2000, and 2003-2004). Compared with the status quo, the largest gear sector gain occurs in the vertical line fleet, 224 trips, though the bottom longline sector experiences a larger proportionate increase (6 percent). By area, the majority of the gains occur in northwest Florida (127 trips) and west central Florida (159 trips) (Table 7.3.4). The trip gains for these two areas are larger than those for **Alternatives 2-4**.

Under the second scenario (additional trips allowed for individual vessels), simulated annual average landings (2002-2004) for **Alternative 5** were 8.706 mp GW. This scenario produced a

loss in net revenue of \$3.771 million relative to historic fishery performance. Relative to the status quo (**Alternative 1** net revenue is \$27.029 million), there would be a loss of \$2.139 million or 7.9 percent (Table 7.3.1). The projected loss in net revenue for **Alternative 5** is greater than for **Alternatives 2-4**. Only the “other gear” sector is projected to experience a gain in net revenue (\$1,000 or 0.3 percent) relative to the status quo. The longline sector is projected to incur greater losses in net revenue than under **Alternatives 2-4**. By fishing area, west central Florida experiences \$1.9 million or 14.7 percent less net revenue, more than for **Alternatives 2-4** (Table 7.3.2). Among areas, only eastern Louisiana-Mississippi-Alabama is projected to experience a gain in net revenue (\$4,000 or 0.4 percent) relative to the status quo. A total of 789 vessels are projected to participate in the fishery under this scenario, or 133 fewer vessels than the status quo (**Alternative 1**), and fewer than under **Alternatives 2-4** (Table 7.3.3).

An examination of trip impacts for the second scenario shows **Alternative 5** is projected to result in 11,753 vessel trips, or 16 percent more than the status quo, and more than under **Alternatives 2-4** (Table 7.3.3). Comparing **Alternative 5** with the status quo, the largest gear sector gain in trips occurs in the bottom longline fleet, 1,062 trips, or 68 percent, while the vertical line sector is projected to receive a gain of 374 trips, or 5 percent. By area, the majority of the gains occur in northwest Florida (251 trips) and west central Florida (1,223 trips) (Table 7.3.4).

To summarize the results presented thus far, **Alternative 5** is projected to result in 330-1,611 more trips than the status quo (**Alternative 1**), \$2.139 million to \$4.631 million less net revenue, and accommodate the participation of 133 fewer to 7 more vessels. All gear sectors gain trips, which are distributed unevenly across all areas except “other” (no change). All gear sectors, excepting “other gear,” have the potential to lose net revenue relative to the status quo. All areas are projected to lose net revenues, excepting eastern Louisiana, Mississippi and Alabama, and “other.”

**Alternative 5** is projected to result in \$1.250 million to \$4.192 million greater reductions in net revenue than **Alternatives 2-4**, accommodate 1 more to 127 fewer vessels, and produce 27-1,521 more trips. All gear sectors are projected to incur greater losses in net revenue, excepting “other gear” relative to **Alternative 2**.

Similar to **Alternatives 2-4**, this alternative would reduce the derby effects expected to occur under the status quo (**Alternative 1**). Since the trip limits are lower, **Alternative 5** could be more effective in reducing the effects of derby fishing. However, the limits may be more restrictive than is necessary, thereby resulting in a greater net loss to the fishery.

The SWG fishery is projected not to close under **Alternative 5** while the DWG fishery is projected to close either not at all (if 2002 fishing conditions prevail) or from June 29 to September 14 (data for 2002-2004, Table 7.3.5). Compared to the earliest dates for the status quo (**Alternative 1**), November 11 and June 7 for the two fisheries, respectively, **Alternative 5** would be expected to extend the seasons for both fisheries. These extensions would be expected to produce greater unquantifiable indirect benefits associated with extending the fishing year.

Similar to **Alternatives 2-4**, a direct effect of **Alternative 5** would be the benefits of avoiding a

derby fishery, or reducing its impacts, thereby negating or mitigating the lost net revenues discussed above. Additionally, reducing the length of a closed season, which the trip limits are expected to accomplish, lessens the likelihood of lost markets, as discussed above. Thus, an indirect impact of this alternative is the benefits of improved market stability for the commercial vessels. The limits prescribed by this alternative, however, may be unnecessarily severe to achieve avoidance of a derby.

In summary, the severity of the trip limits required to achieve an expected full-year fishery (excluding the February 15 – March 15 spawning closure) is driven by uncertainty whether future fishing conditions will be most like those of 2002, 2003, or 2004, with 2002 being the most constraining, and what behavioral changes might occur within the fleet. As seen in the results described above, although a the fishery remains open through December, the severity of the reduction, as driven by 2002 conditions, results in, on average, approximately an 8 percent (extra trips scenario) to 17 percent (no extra trips scenario) reduction in net revenues relative to simple quota management. This results from the sector not being allowed to harvest the quotas in 2003 and 2004 due to the severe step-down required to extend the 2002 fishing season.

**Alternative 5** differs from the alternative discussed above by the trigger date (August 1 in the analysis versus July 1-October 1), harvest threshold (50 percent versus no threshold), and **Alternative 5** conceptually would allow the trip limits to increase, in addition to either remaining unchanged or decreasing. The full extent of these differences could not be evaluated. Analysis of two additional scenarios was conducted, however, to discern insights into the possible effects of **Alternative 5** over those discussed above. One scenario specified a 4,000-pound trip limit through the whole year, while the second scenario simulated a 4,000-pound/1,000-pound step-down, similar to the discussion above, but incorporated an October 1 evaluation date and a 75 percent threshold.

Under the 4,000-pound trip limit scenario, under the no extra trips assumption, average performance over the 2002-2004 fishing seasons would have resulted in an increased reduction in net operating revenues of \$2.611 million relative to status quo quota management, or approximately 10 percent of total net revenues (\$27.029 million), compared to the \$4.631 million (17 percent) estimates (Table 7.3.1) discussed above under an August 1 trigger date. No closure of the SWG fishery would be expected (except the spawning closure). Under the extra trips assumption, the respective estimates are an increased reduction in net operating revenues of \$3.014 million (5 percent) compared to \$3.771 million (8 percent) as discussed above. Thus, as expected, maintaining the limit through the year would be expected to reduce the losses relative to status quo, yet reductions in net revenue would still occur since all of the quota would not be harvested every year. With these limits, the SWG fishery would be projected to close December 21 under 2002 harvest conditions.

Under the 4,000-pound/1,000-pound step-down trip limit scenario, under the no extra trips assumption, average performance over the 2002-2004 fishing seasons would have resulted in an increased reduction in net operating revenues identical to that of the fixed 4,000-pound simulation relative to status quo quota management, or \$2.611 million (10 percent of total net revenues, \$27.029 million), compared to the \$4.631 million (17 percent) estimates (Table 7.3.1) discussed above under an August 1, 50 percent assessment. No closure of the SWG fishery

would be expected (except the spawning closure). Under the extra trips assumption, the respective estimates are an increased reduction in net operating revenues of \$3.249 million (6 percent) compared to \$3.771 million (8 percent) as discussed above. Thus, as expected, allowing a higher threshold (75 percent) and later evaluation point (October) would be expected to reduce the losses relative to status quo, but still exceed those under a 4,000-pound fixed limit. Reductions in net revenue would still occur relative to simple quota management since all of the quota would not be harvested every year. With these limits, the SWG fishery would be projected to close December 22 under 2002 harvest conditions. The actual step-down would occur on September 22 under 2002 conditions, with no step-down under 2003 or 2004 conditions. Comparable step-down dates under the 50 percent August 1 scenario range from July 15 (2002 conditions) to July 27 (2004 conditions) under the no extra trips scenario, and July 2 (2002 conditions) to July 11 (2004 conditions) under the extra trips scenario. No step down would be required under either scenario under 2003 conditions.

The net conclusion of these results is that if trip limits remain fixed or can only be reduced, then average performance will be less than under simple quota management since the entire quota may not be harvested every year. Allowing the trip limit to increase if minimum harvest thresholds are not met would reduce, but not necessarily eliminate, these losses. Unfortunately, identifying the appropriate increase or rule for adjustment under alternative conditions has not occurred and, thus, the net effects cannot be determined.

### 7.3.6 Preferred Alternative 6

Under the first scenario (no additional trips for individual vessels), simulated average annual landings (2002-2004) for **Preferred Alternative 6** were 8.927 mp GW, which is less than the 9.285 mp GW for the status quo (**Alternative 1**), less than for **Alternatives 2-3** and more than for **Alternative 4**. This scenario produced a loss in net revenue of \$2.648 million relative to historical fishery performance (Table 7.3.1). The projected net revenue is \$1.015 million less than for the status quo (status quo net revenue is \$27.029 million), \$0.575 million less than for **Alternative 2**, \$91,000 less than for **Alternative 3**, \$0.489 million more than for **Alternative 4**, and \$3.616 million more than for **Alternative 5**. The longline sector is projected to produce 52 percent of the landings compared with 55 percent under simple quota management, and \$1.090 million (10.2 percent) less net revenue (Table 7.3.1, net revenue changes only). The vertical line sector is projected to produce 38 percent of the landings and 36 percent under quota management; it is projected to experience \$112,000 (0.8 percent) more net revenue than under the status quo, more than under **Alternatives 2** and **5**, but less than under **Alternatives 3 and 4** (Table 7.3.1). By fishing area, west central Florida experiences \$1.048 million (8.2 percent) less net revenue than under the status quo (Table 7.3.2). Eastern Louisiana-Mississippi-Alabama, and northwest Florida are projected to experience more net revenues (0.5 percent and 1.2 percent more) relative to the status quo. A total of 926 vessels are projected to participate in the fishery under this scenario, 4 more than under the status quo (though derby conditions may reduce the number of operating vessels), 2 more than under **Alternative 2**, the same as **Alternative 3**, 2 fewer than **Alternative 4**, and 3 fewer than under **Alternative 5** (Table 7.3.3).

An examination of trip impacts for the first scenario shows that **Preferred Alternative 6** is

projected to result in 10,353 vessel trips, or 2 percent more than the status quo, 81 and 3 more than **Alternatives 2 and 3**, respectively, but 93 and 120 less than **Alternatives 4 and 5**, respectively (Table 7.3.3; as described above, the additional trips result from extending the season). Compared with the status quo, the largest gear sector gain occurs in the vertical line fleet, 140 trips, though the bottom longline sector experiences a larger proportionate increase (4 percent). By fishing area, the majority of the gains occur in west central Florida (120 trips) and northwest Florida (80 trips) (Table 7.3.4). These are mostly larger gains for these areas than under **Alternatives 2-3**, and smaller gains for these areas than under **Alternatives 4-5**.

Under the second scenario (additional trips allowed for individual vessels) for **Preferred Alternative 6**, simulated annual average landings (2002-2004) were 9.030 mp GW. This scenario produced a loss in net revenue of \$2.353 million relative to historic fishery performance. Relative to the status quo (net revenue of \$27.029 million), net revenue would be \$721,000 (2.7 percent) less (Table 7.3.1). The projected reduction in net revenue is greater than for **Alternatives 2 and 3**, but less than for **Alternatives 4-5**. The longline sector is projected to experience \$760,000 (7.1 percent) less net revenue than under the status quo, though both the vertical line sector and the “other” gear sector are projected to experience more net revenue (0.6 percent and 0.9 percent more, respectively). By fishing area, west central Florida is projected to experience \$722,000 (5.7 percent) less net revenue (Table 7.3.2). A total of 913 vessels are projected to participate in the fishery, or 9 fewer than **Alternative 1**, 3 fewer than **Alternative 2**, but 3, 26 and 124 more than **Alternatives 3, 4 and 5**, respectively (Table 7.3.3).

An examination of trip impacts for the second scenario shows that **Preferred Alternative 6** is projected to result in 10,317 vessel trips, more than for **Alternatives 1-3**, but less than for **Alternatives 4-5** (Table 7.3.3). Comparing **Preferred Alternative 6** with the status quo, the largest gear sector gain occurs in the vertical line fleet, 93 trips (1 percent), while the bottom longline sector is projected to gain 73 trips (5 percent). By area, the majority of the gains occur in west central Florida (100 trips) and northwest Florida (55 trips) (Table 7.3.4).

To summarize the results presented thus far, **Preferred Alternative 6** is projected to result in 174-210 more trips than the status quo, \$721,000-\$1,015,000 less net revenue, and accommodate the participation of 9 fewer to 4 more vessels. Most gear sectors gain trips, which are distributed unevenly across all areas except “other” (no change). Both the vertical line and “other” gear sectors have the potential to gain net revenues relative to the status quo, while the other gear sectors, notably bottom longlines, are projected to lose net revenue. Some areas are projected to gain net revenue, while west central Florida is projected to lose net revenue.

**Preferred Alternative 6** is projected to result in less net revenue than **Alternatives 2-3** (\$46,000-\$576,000 less), accommodate 3 fewer to 2 more vessels, and produce 3-85 more trips. It is projected to result in more net revenue than **Alternatives 4-5** (\$168,000-\$3,600,000 more), accommodate 3 fewer to 124 more vessels, and produce 106-1,436 fewer trips.

Similar to **Alternatives 2-5**, this alternative would reduce the derby effects expected to occur under the status quo. Since the trip limits are lower, **Preferred Alternative 6** could be more effective in reducing the effects of derby fishing. However, the limits may be more restrictive



than is necessary, thereby resulting in a greater net loss to the fishery.

The SWG fishery is projected to close December 2-16, while the DWG fishery is projected to close either not at all (if 2002 fishing conditions prevail) or from June 16 to August 14 (data for 2002-2004, Table 7.3.5). Compared to the earliest dates for the status quo, November 11 and June 7 for the two fisheries, respectively, **Preferred Alternative 6** would be expected to extend the seasons for both fisheries. The extensions would be expected to produce greater unquantifiable indirect benefits associated with extending the fishing year.

Similar to **Alternatives 2-5**, a direct effect of **Preferred Alternative 6** would be the benefits of avoiding a derby fishery, or reducing its impacts, thereby negating or mitigating the lost net revenues discussed above. Additionally, reducing the length of a closed season, which the trip limits are expected to accomplish, lessens the likelihood of lost markets, as discussed above. Thus, an indirect impact of this alternative is the benefits of improved market stability for the commercial vessels.

As discussed in Section 7.3, all simulations utilized average 2001-2003 price levels. Recent increases in fuel costs and associated spillover effects on other inputs were not included. To examine the impacts of current fuel price increases, simulation modeling of **Alternative 1** (status quo) and the **Preferred Alternative 6** was repeated using updated costs. The results of these simulations are included in Appendix A. The results indicate that the increased prices have little effect on changes in net revenues (impacts changing from \$721,000-\$1.015 million to \$737,000-\$1.015 million; Supplemental Table 7.3.1), trips (10,317-10,353 trips to 10,171-10,235 trips; Supplemental Table 7.3.3), numbers of participating vessels (913-922 vessels to 910-924 vessels; Supplemental Table 7.3.3), and projected closure dates (closure dates delayed one day; Supplemental Table 7.3.5) relative to the status quo. The most significant effect of the higher prices is the substantial decline in status quo projections, representing an approximately 43 percent decline in net revenues (from \$27.029 million to \$15.264 million; Supplemental Table 7.3.1). The additional effects of the proposed management measures are largely neutral once the higher cost effects on the status quo projections are accounted for.

## **7.4 Direct and Indirect Effects on the Social Environment**

### **7.4.1 Alternative 1 (status quo)**

The derby fishery that is expected to develop under the status quo (**Alternative 1**) is expected to induce significantly shorter seasons, market gluts, and depressed market prices. This would be expected to increase the potential of lost markets for commercial landings and reduce revenues. During closures, markets, both retail and restaurant must continue to meet consumer demand either through the substitution of foreign product or different domestic species. The more successful a retailer is in effecting this substitution, the lower the incentive to return to local purchases of grouper when the season reopens. This may result in either markets disappearing or remaining available only at reduced ex-vessel prices. While the consumer would continue to receive the product they desire (or have demonstrated they are willing to accept; the average consumer may be largely neutral to the situation, particularly if they demonstrate an acceptance

of alternative product; also, reduced ex-vessel prices, as would result from market glut, do not necessarily translate directly to reduced consumer prices), the commercial fishery would suffer economic harm, with resultant adverse social impacts on the areas identified above. The economic losses experienced by the fishery participants would be expected to have spillover effects on associated direct industries, such as gear and supply shops, as well as other businesses that the participants utilize, such as grocers, clothiers, entertainment facilities, etc. Increased economic hardship would be expected to have additional impacts on family and social structures.

The ability to adapt to the diminished economic environment created by the derby is influenced by the diversity of the fishing operation and availability of alternative targets. Fisheries are heavily regulated and the flexibility to shift from one to another is increasingly limited. Further, often the communities in which the fishermen are based lack sufficient diversity or the skills of the fishermen limit the opportunities to acquire substitute employment. This increases the severity of the adverse social impacts that would be expected to ensue as a result of the derby.

#### **7.4.2 Alternative 2**

This alternative is expected to reduce the intensity or severity of the derby that is expected to develop under the status quo (**Alternative 1**), thus eliminating the adverse social impacts described above. Further, the proposed trip limits are expected to lengthen the open seasons, thereby reducing the likelihood of lost market outlets for commercial landings and the resultant adverse impacts.

Although the trip limits alter the economic profitability of individual trips, resulting in fishery-wide reductions in net revenue, and potentially result in the participation of fewer vessels, these effects are assumed less than the benefits associated with avoiding the derby. These benefits would include, but not be limited to more steady employment patterns, income and expenditure flow, lifestyle patterns, community interactions, etc. Thus, although there may be some variance in individual vessel performance resulting in localized adverse impacts, overall this alternative is expected to produce net economic benefits, with subsequent benefits to the participants, families, fishing communities, and associated industries.

It should be noted, however, as described in the discussion of economic impacts, that the effects are not distributed evenly across all geographic areas or gear sectors. An effect of the trip limits is to re-allocate landings among the areas and gear sectors, with the vertical line and “other” gear sectors projected to gain revenues, while certain gear sectors, notably bottom longline, are projected to experience increased losses. With respect to area fished or landed, some areas are projected to gain net revenues, while west central Florida is projected to experience increased losses of 20-25 percent. Thus, despite the expectation that losses will be countered by the benefits associated with avoidance of derby conditions, not every participant and geographic area is necessarily expected to escape all adverse economic or social effects.

A direct effect, therefore, of **Alternative 2** would be the social benefits of avoiding a derby fishery, or reducing its impacts, thereby negating the lost net revenues discussed above and the ripple effects through businesses, associated industries, families, and other social institutions in

the respective communities.

The overall projected reductions in net revenues are less for **Alternative 2** than the **Preferred Alternative 6**. However, based on performance of the 2005 fishery, **Alternative 2** apparently is not sufficient to counter the development of derby conditions and accelerated closures. Thus, the adverse social impacts of **Alternative 2** associated with these phenomena are expected to exceed those of the **Preferred Alternative 6**.

#### 7.4.3 Alternative 3

The social effects of this alternative are similar to those described for **Alternative 2**. The only difference is that the trip limits specified by this alternative are more restrictive than those of **Alternative 2**, thereby potentially resulting in more trips, depending on the behavioral response of vessels, but greater reductions in net revenue. As with **Alternative 2**, this alternative would be expected to result in reduction of the development of derby conditions and accompanying adverse social impacts, thereby countering or negating the reductions in net revenues. The restrictions may increase the distributional impacts of the limits, however. Thus, while the overall fishery, participants, and associated communities would be expected to benefit, there may be more widespread or severe instances of localized adverse impacts.

The overall projected reductions in net revenues are less for **Alternative 3** than the **Preferred Alternative 6**. However, **Alternative 3** may not be sufficiently restrictive to counter the development of derby conditions and accelerated closures. Thus, the adverse social impacts of **Alternative 3** associated with these phenomena are expected to exceed those of the **Preferred Alternative 6**.

#### 7.4.4 Alternative 4

The social effects of this alternative are similar to those described for **Alternatives 2 and 3**. The only difference is that the trip limits specified by this alternative are more restrictive than those of **Alternatives 2 and 3**, thereby potentially resulting in more trips, depending on the behavioral response of vessels, but greater reductions in net revenue. As with **Alternatives 2 and 3**, this alternative would be expected to result in reduction of the development of derby conditions and accompanying adverse social impacts, thereby countering or negating the reductions in net revenues. The restrictions may be more severe than necessary and increase the distributional impacts of the limits, however. Thus, while overall the fishery, participants, and associated communities would be expected to benefit, there may be more widespread or severe instances of localized adverse impacts.

The overall projected reductions in net revenues are greater for **Alternative 4** than the **Preferred Alternative 6**. Thus, the adverse social impacts of **Alternative 4** are expected to exceed those of the **Preferred Alternative 6**.

#### 7.4.5 Alternative 5

The social effects of this alternative are similar to those described for **Alternatives 2, 3, and 4**. The only difference is that the trip limits specified by this alternative are more restrictive than those of **Alternatives 2, 3, and 4**, thereby potentially resulting in more trips, depending on the behavioral response of vessels, but greater reductions in net revenue. As with **Alternatives 2, 3, and 4**, this alternative would be expected to result in reduction of the development of derby conditions and accompanying adverse social impacts, thereby countering or negating the reductions in net revenues. The restrictions may be more severe than necessary and increase the distributional impacts of the limits, however. Thus, while overall the fishery, participants, and associated communities would be expected to benefit, there may be more widespread or severe instances of localized adverse impacts.

The overall projected reductions in net revenues are greater for **Alternative 5** than the **Preferred Alternative 6**. Thus, the adverse social impacts of **Alternative 5** are expected to exceed those of **Preferred Alternative 6**.

#### **7.4.6 Preferred Alternative 6**

The social effects of **Preferred Alternative 6** are similar to those described for the previous alternatives. Although the trip limit is more restrictive than initial limits for most of the step-down alternatives, this alternative would not impose a step-down and, overall, would allow more grouper to be landed on average per trip and result in intermediate reductions in net revenue. Besides **Alternative 5**, **Preferred Alternative 6** would be expected to result in the greatest reduction of the development of derby conditions and accompanying adverse social impacts, thereby countering or negating the reductions in net revenues.

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

**Alternative 1 (no action)** would allow commercial fishermen to harvest an unlimited quantity of grouper per trip after February 26, 2006 (expiration date of emergency rule, NMFS 2005a), but would cap the total allowable commercial catch of red grouper, SWG, and DWG at 5.31 mp GW, 8.8 mp GW, and 1.02 mp GW, respectively. Monitoring quotas, and noticing and enforcing fishery closures are routine fishery management actions that affect the administrative environment.

**Alternatives 2-6** would institute trip limits for the commercial grouper fishery. The trip limits proposed in **Alternatives 2-6** would not relieve NMFS of its responsibility to monitor quotas and inform law enforcement and fishermen when quotas are met and fisheries are closed. SEFSC staff would continue to monitor grouper quotas. These alternatives are expected to directly increase the burden on the quota monitoring program and law enforcement. As discussed by Poffenberger and McCarthy (2004), predicting the dates when a quota, or a certain percentage of a quota, will be reached is not as accurate as determining the dates after the fact. The length of the fishing season thus depends on how accurate trigger dates are predicted. **Alternatives 2 and 5** represent the greatest administrative burden for the SEFSC's quota monitoring program. **Alternative 2** would require two trigger dates to be predicted, in addition to the end of the season quota closure. **Alternatives 3 and 4** include only one trigger date, and therefore would

require less staff time than **Alternative 2**. **Preferred Alternative 6** does not include a trigger date and would be the simplest alternative for administrators to monitor. In contrast, **Alternative 5** is the most complex trip limit being considered and provides NMFS flexibility to increase or lower the 4,000-pound trip limit twice between July 1 and October 1 each year to ensure the fishery would remain open year round. Because catch rates vary from year to year, **Alternative 5** would likely result in different trip limit adjustments from one year to the next, which would increase confusion among fishermen and result in additional staff time to estimate trip limits.

**Alternatives 2-6** could enable more accurate quota monitoring and minimize the likelihood of quotas being exceeded. Lower trip limits at the end of the fishing season would slow the rate of harvest and allow the SEFSC's quota monitoring program to more accurately predict when the SWG fishery will close. Because **Alternative 4** has the lowest end of season trip limit of any of the alternatives, the accuracy to predict a quota closure for SWG would be greatest for **Alternative 4**, followed by **Alternatives 3, 6, and 2**. It is unknown what the trip limit would be at the end of the season for **Alternative 5**. If the trip limit at the end of the year is higher than the initial 4,000 pound trip limit, then the quota closure would be more difficult to predict. Similarly, if the end of year trip limit is less than the 4,000 pound initial trip limit, then the quota closure would be easier to predict. Increasing accuracy of when the quota closure is will ensure the greatest proportion of the quota is met while preventing or limiting quota overruns.

To be effective, regular contact by enforcement with fishermen is needed to prevent landings from exceeding the trip limits. Consequently, trip limits require on-the-water or dockside enforcement to determine compliance. The higher the trip limit the greater the time needed to determine compliance. **Alternative 2** would result in the greatest administrative burden for enforcement because it proposes the highest trip limits. Additionally, three trip limits would be established by **Alternative 2** and two or three trip limits could be established for **Alternative 5**, so enforcement would have to be regularly informed when trip limits change. Similar to **Alternatives 2 and 5**, **Alternatives 3-4** would increase enforcement time to determine compliance with regulations and enforcement would have to be informed when changes to the trip limit occur. However, only two trip limits would be established under **Alternatives 3 or 4**, and the trip limits are smaller than proposed for **Alternative 2**, making them easier, although still burdensome, to enforce. **Preferred Alternative 6** would have the smallest administrative burden on law enforcement because the trip limit would not change during the fishing season.

Overall, **Alternatives 2-6** are not expected to have significant impacts on the administrative environment. Trip limits are commonly used as a management tool in other fisheries of the Gulf of Mexico (e.g., red snapper, king mackerel). Larger trip limits are expected to have the greatest administrative burden, as well as alternative that propose multiple changes to trip limits throughout the fishing year.

## 7.6 Mitigation Measures

Commercial trip limits will adversely affect net revenues of some commercial grouper fishermen in the GOM (see Section 4). These adverse effects are expected to negate the unquantifiable effects of a derby fishery, which would occur under the status quo (Alternative 1) and result in

lost markets and market gluts. Therefore, no mitigation measures are proposed for this action.

## **7.7 Cumulative Effects**

Section 1508.7 defines cumulative impacts as impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The proposed actions stem from the regulatory actions implemented by Secretarial Amendment 1 (NMFS 2004a), which implemented a rebuilding plan and a commercial quota for red grouper. Secretarial Amendment 1 also reduced the quota for SWG from 9.35 to 8.8 mp (5.9 percent) and reduced the quota for DWG from 1.35 to 1.02 mp (23.0 percent). The purpose of Secretarial Amendment 1 was to eliminate overfishing of red grouper by reducing landings by 9.4 percent.

This amendment would not change the commercial grouper quotas implemented by Secretarial Amendment 1 (NMFS 2004a). Alternatives would only affect the amount and/or rate commercial fishermen can harvest the annual quotas. The cumulative benefits of rebuilding red grouper and capping commercial harvest levels are expected to be positive.

The actions implemented by Secretarial Amendment 1 (NMFS 2004a) did have negative economic effects on the commercial fishery, resulting from reductions to landings. The preferred commercial alternative will result in losses in net revenue in addition to those incurred by Secretarial Amendment 1 and recent increases in fuel prices. Both the vertical line and other gear sectors are projected to gain revenues relative to the status quo, while the bottom longline sector is projected to experience increased losses. There will also be increased losses in net revenue for large capacity vessels if they are affected by the proposed trip limits. However, cumulative social and economic effects are expected to be beneficial because the proposed action would avoid or reduce the effects of a derby fishery. If the trip limits do not avoid a derby fishery, or continue to allow the quota to be met before the end of the year, processors, wholesalers, and other support industries could be negatively affected by market gluts and closures. In 2004, the commercial fishery was closed on November 15<sup>th</sup> just prior to reaching the commercial quota in order to maintain landings at levels below the commercial quota of 5.31 mp GW. In 2005, the commercial SWG fishery closed October 10, one month earlier than last year. A fishery closure could result in support industries seeking substitute products for grouper to meet demand. Long closures at the end the season could also result in lost markets.

The Council and NMFS have recently approved or are developing amendments to the Reef Fish FMP, which when considered with this action could result in additional cumulative biological and economic effects. Amendment 23 to the Reef Fish FMP implemented recreational and commercial management measures to reduce vermilion snapper harvest and rebuild the fishery. Amendment 24 to the Reef Fish FMP established a limited access program for the commercial reef fish fishery. Amendment 17/25 to the Reef Fish FMP proposes to extend the moratorium on for-hire reef fish and CMP for-hire permits. Amendment 26 to the Reef Fish FMP would establish an IFQ program for the commercial red snapper fishery. In addition to these Council amendments, a voluntary buyback program for the commercial grouper fishery has been proposed by industry to reduce latent effort and increase the economic viability of vessels

remaining in the fishery. The Council has also proposed developing a grouper IFQ program. These actions and their corresponding regulations have various objectives, including rebuilding overfished stocks, maintaining caps on effort, reducing effort, and improving economic efficiency. The details of many of these future actions are still highly uncertain and will be analyzed in greater detail when the Council and NMFS considers these actions in the future. In general, these actions in conjunction with the action proposed herein, would likely result in positive benefits to the biological environment by accomplishing the objectives stated above. Economic losses from these actions in the short-term are expected to be less than the cumulative benefits of improving economic conditions and efficiency in the long-term.

### **7.8 Unavoidable Adverse Effects**

Commercial trip limits will have small, and likely negligible effects on the physical environment. Trip limits would result in unavoidable adverse effects on the administrative environment due to additional quota monitoring and enforcement (see Section 7.5). Adverse economic and social effects on the commercial fishery will also result from trip limits, producing net losses in revenue for some fishery sectors and geographic areas. However, these unavoidable adverse effects are expected to outweigh the unavoidable direct and indirect effects associated with a derby fishery (e.g., market gluts, decreases in price, lost markets, etc).

### **7.9 Relationship Between Short-Term Uses and Long-Term Productivity**

The purpose of trip limits is to prolong the commercial fishing year and reduce the adverse socio-economic effects of derby fishing. This action does not change the harvest levels (quotas) or red grouper rebuilding plan established in Secretarial Amendment 1, which are expected to benefit the long-term productivity of DWG and SWG. However, trip limits would affect some fishermen in the short-term who currently harvest more grouper per trip than proposed by the various trip limits.

### **7.10 Irreversible and Irretrievable Commitments of Resources**

Irreversible commitments are defined as commitments that cannot be reversed, except perhaps in the extreme long term, whereas irretrievable commitments are lost for a period of time. There are no irreversible or irretrievable agency commitments. The Council could decide through future actions to change proposed management measures for the commercial grouper fishery. Alternatives 2-4 would result in irretrievable net revenue losses for some sectors of the fishery, but these net losses are expected to negate the unquantifiable benefits of avoiding a derby fishery. Economic losses to the commercial grouper fishery are described in Section 7.3.

### **7.11 Any Other Disclosures**

No additional disclosures are needed or known for this action.

## 8 FINDING OF NO SIGNIFICANT IMPACT

NOAA's Administrative Order 261-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant in making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

*(1) Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?*

The proposed action will not jeopardize the sustainability of red grouper. The preferred trip limit (6,000 pounds) is intended to slow the rate of harvest, thus preventing or reducing the effects associated with a derby fishery. The trip limit will only effect the manner in which trips are conducted and will restrict the maximum amount of fish that can be landed per trip. A quota for red grouper was implemented through Secretarial Amendment 1 to the Reef Fish FMP to cap the amount of red grouper landed annually. Secretarial Amendment 1 also reduced the quotas for shallow-water and deep-water grouper. These quotas allow the annual level of landings to be capped at TAC levels. Once quotas are met, the respective fisheries are closed, therefore limiting the total amount of grouper harvested commercially each year.

*(2) Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?*

The proposed trip limit will not jeopardize the sustainability of non-target species. Red grouper are part of a multispecies fishery that includes other grouper species, snappers, jacks, and other reef fish species. Commercial quotas are used to control the harvest of DWG, SWG, tilefish, and red snapper. When either the red grouper quota or SWG quota is met, the entire SWG commercial fishery is closed. Closing the entire SWG fishery once the red grouper quota is met prevents other grouper, such as gag and black grouper, from being impacted as a result of shifts in effort. DWG are managed with a separate quota. When the DWG quota is met, this fishery is closed. Other species, such as red snapper and sharks are regulated by quotas, which prevent shifts in effort from impacting these fisheries once the SWG and DWG quotas are met.

*(3) Can the proposed actions reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the M-SFCMA and identified in FMPs?*

The impacts to the physical environment of the proposed action is described Section 7.1. The primary effects of the grouper fishery on the physical environment generally result from fishing gear interactions with the seafloor. The preferred trip limit is not expected to substantially impact ocean and coastal habitats or EFH. Currently, several management regulations directly or indirectly protect EFH in the GOM and prevent or minimize the impacts of reef fish fishing



gears. These regulations include various marine reserves, HAPCs, and gear restricted areas (e.g., reef fish stressed area, longline/buoy gear boundary).

The preferred trip limit is not expected to cause substantial damage to EFH or ocean and coastal habitat, because it will not likely change the methods or gears used for harvest. The preferred commercial trip limit (6,000 lbs) could increase the number of commercial trips, but the increase in trips would be offset by reductions in the duration of trips, therefore negating any increases in effort that may impact the physical environment. If the preferred trip limits make it less economically viable for some longline vessels to participate in the fishery than some fishing effort could shift to vertical line vessels. Hook-and-line is considered to have less damaging effects to habitat than longlines and other non-selective gears, such as traps.

*(4) Can the proposed action be reasonably expected to have a substantial adverse impact on public health and safety?*

The proposed action will not adversely affect public health and safety. The proposed commercial trip limits are intended to slow the rate of grouper harvest and prolong the fishing season, thus reducing the incentive for fishermen to fish in bad weather and under derby conditions.

*(5) Can the proposed action reasonably be expected to adversely affect endangered and threatened species, marine mammals, or critical habitat of these species?*

The proposed action is not expected to adversely affect threatened or endangered species, or critical habitat of these species. A biological opinion by NMFS Office of Protected Resources found mortalities of endangered and threatened species were known to occur from gears used in the reef fish fishery, but were not likely to jeopardize the continued existence of threatened or endangered species (NMFS 2005b). The Gulf of Mexico reef fish fishery is listed as a Category III fishery as required by the MMPA, as there have been no documented interactions between this fishery and marine mammals (69 FR 231).

*(6) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?*

The proposed action is not expected to have a substantial impact on biodiversity or ecosystem function. The preferred trip limit alternative would slow the rate grouper are harvested, but would not affect the annual amount of grouper landed by the commercial fishery. Commercial grouper landings would continue to be dictated by quotas and annual changes in availability and catch rates. Because the amount of grouper landed annually is capped by quotas, no changes to ecosystem function or biodiversity are expected to occur.

Reductions in landings and changes in the abundance of red grouper as the stock rebuilds is likely to have ecological effects. Red grouper prey on a variety of fishes, octopuses, and crustaceans, (Bullock and Smith 1991; Heemstra and Randall 1993). Because red grouper are

part of a multispecies fishery that includes other grouper and reef fishes, they likely compete for prey with other predators that have similar diets. Consequently, it is possible that forage species and competitor species could decrease in abundance in response to an increase in red grouper abundance.

However, the relationships among species in marine ecosystems are complex and poorly understood. As a result, the nature and magnitude of ecological effects are difficult to predict with any accuracy. When fully rebuilt, the red grouper spawning stock will be 19 percent larger than the spawning stock size in 2001 ( $SS_{2001}/SS_{MSY} = 0.84$ ), allowing for an additional 0.83 MP GW of red grouper removals annually (TAC = 7.39 MP GW in 2012). This increase in landings and subsequent red grouper spawning stock size is relatively small when compared to the standing stock biomass and landings of species in the entire reef fish complex. Therefore, the ecological effects of rebuilding the red grouper stock and returning landings to levels specified in the rebuilding plan would likely be undetectable when compared to the entire reef fish complex, and therefore would not substantially impact biodiversity or ecosystem function.

*(7) Are significant social and economic impacts interrelated with natural and physical environment effects?*

A description of the economic and social impacts of the proposed action is described in sections 7.3 and 7.4.

Significant social and economic impacts from reductions in the commercial trip limit are not interrelated with natural and physical environment effects. Quotas are used to limit the annual TAC in the grouper fishery, and the preferred trip limit would not alter the amount of grouper landed annually. Rather, the preferred trip limit would only alter the rate grouper are harvested. The preferred trip limit (Alternative 6) is projected to result in \$721,000-\$1,015,000 less net revenue than status quo. However, the preferred trip limit is expected to reduce the pace of harvest, thereby potentially reducing the magnitude of the derby effects and mitigating the adverse economic impacts expected to accrue under the status quo regulations.

Although the impacts of a derby fishery cannot be quantified or forecast, they are expected to be substantial. A direct effect of the preferred trip limit alternative would be the benefit of reducing the impacts of derby fishery, thereby mitigating the reductions in net revenue relative to the status quo. Additionally, reducing the length of the closed season (after the quota is met), which the preferred trip limit is expected to accomplish, lessens the likelihood of lost markets. Thus, an indirect impact of the preferred alternative is the benefit of improved market stability for commercial vessels when compared with the status quo (quotas only).

Pursuant to Executive Order (E.O.) 12866, the preferred commercial alternative will not meet the \$100 million threshold, nor are there expected to be any significant adverse effects on prices, employment or competition. Additionally, measures in this action do not adversely affect the environment, public health or safety, or state, local, or tribal governments or communities, nor do they interfere or create inconsistency with any action of another agency, including state fishing agencies. No effects on the budgetary impact of entitlements, grants, user fees, or loan

programs or the rights and obligations of recipients thereof have been identified. The actions in the proposed action represent normal management options or practices and, therefore, do not raise novel legal or policy issues.

*(8) Are the effects on the quality of the human environment likely to be controversial?*

The preferred commercial trip limit of 6,000 pounds was recommended by the Gulf Fisherman's Association. (GFA) and is lower than the trip limits proposed by the Southern Offshore Fisherman's Association (SOFA). SOFA has recommended an initial 7,500 pound trip limit, which would be reduced to 5,500 pounds once 75 percent of the red grouper or SWG quota is met. The preferred trip limit may be controversial if it is opposed by some members of industry, who believe the trip limit is overly restrictive to prolong the fishing season. Higher trip limits would have less economic impacts on larger vessels, primarily longline vessels, than lower trip limits. If the preferred trip limit makes it less economically viable for some large capacity vessels than the preferred alternative (6,000 pound trip limit) could be controversial.

*(9) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?*

The proposed actions are not expected to impact historic or cultural resources, park land, prime farmlands, wetlands, or wild and scenic rivers because those resources are not in the EEZ. The area affected by the proposed actions includes areas identified as EFH for several managed species. Several HAPCs, marine sanctuaries, and marine reserves are found within the Gulf EEZ, where grouper are caught. In most of these areas, gears used to harvest grouper are prohibited.

An EFH consultation was conducted to determine if the proposed actions adversely affect EFH. The proposed action does not significantly alter the gears used for harvesting grouper or the amount of interactions with habitat.

*(10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?*

There are no highly uncertain, unique, or unknown risks associated with the preferred alternative. Not reducing commercial grouper trip limits could increase the risk that the commercial fishery will meet the quota faster and close for longer periods of time.

*(11) Are the proposed actions related to other actions with individually insignificant, but cumulatively significant impacts?*

Cumulative effects are described in Section 4.7. The preferred commercial alternative would maintain the positive biological benefits realized by Secretarial Amendment 1 to the Reef Fish FMP (NMFS 2004a), which established a rebuilding plan and quota for red grouper and reduced the quotas for SWG and DWG. The preferred commercial alternative will result in additional

losses in net revenue for some sectors of the fishery and are in addition to net losses incurred from the implementation of the red grouper quota, reductions in the SWG and DWG quotas, and recent increases in fuel prices. However, it is expected that the benefits gained from mitigating the effects of a derby fishery exceed the net revenue losses associated with the trips limits such that, overall, there will be a net gain in economic performance of the fishery, with associated gains in the social environment.

The effects of this preferred alternative will continue into the future. A red grouper stock assessment is scheduled for fall 2006. This assessment will allow NMFS and the Council to determine if adequate progress is being made for rebuilding the fishery. Depending on the results of the assessment, changes to management measures may be necessary.

The Council and NMFS have also recently approved or are developing amendments to the Reef Fish FMP, which could result in additional cumulative biological and economic effects. Industry has also proposed a buyback program for the commercial grouper fishery. These amendments and actions and their corresponding regulations have various objectives, including rebuilding overfished stocks, maintaining caps on effort, reducing fishing effort, and improving economic efficiency. These amendments and proposed actions, in conjunction with the preferred alternatives proposed herein, are intended to positively benefit the biological environment. Economic losses of these collective actions in the short-term are expected to be less than the cumulative benefits of rebuilding stocks and improving economic conditions and efficiency in the long-term.

*(12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historic resources?*

The proposed actions will not result in any significant impacts on scientific, cultural, or historical resources. No known sites included in the National Register of Historic Places have been identified in the Gulf EEZ.

*(13) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?*

The proposed actions will not result in the introduction or spread of a non-indigenous species. These alternatives only affect grouper and other reef fish species harvested from the Gulf of Mexico.

*(14) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?*

Temporary trip limits were implemented for the grouper fishery in March 2005. Additionally, trip limits are currently used to limit the commercial harvest of red snapper in the reef fish fishery and for some coastal migratory species. Therefore, trip limits proposed in this regulatory amendment would not set a precedent for future actions and do not represent a decision in

principle about a future consideration.

*(15) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?*

The proposed actions will not threaten or violate federal, state, or local laws or regulations imposed for the protection of the environment. These include the ESA, CZMA, and other applicable laws described in Section 9.0.

*(16) Can the proposed actions reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?*

The proposed actions are not expected to result in cumulative adverse effects that have substantial effects on target or non-target species. The environmental consequences and cumulative impacts of the proposed actions are described in detail in Section 7. Cumulative biological effects are expected to be positive, when considered in conjunction with past, present, and reasonably foreseeable future actions being considered by the Council. The preferred trip limit is expected to result in losses to net revenue for some sectors of the fishery. These economic effects are in addition to recent increases in fuel prices and the economic impacts incurred by the commercial fisheries after implementation of the red grouper rebuilding plan in Secretarial Amendment 1 to the Reef Fish FMP. Overall, these economic impacts are not expected to be significant. The economic benefits of prolonging the fishing season and mitigating the derby fishery are expected to result in a net gain in economic performance.

## **DETERMINATION**

In view of the information presented in this document and the analysis contained in the supporting EA prepared for the GMFMC's Regulatory Amendment to the Reef Fish FMP, it is hereby determined that the proposed action to establish a 6,000 pound commercial trip limit for grouper in the Gulf of Mexico would not significantly affect the quality of the human environment as described above and in the supporting EA. Accordingly, preparation of a SEIS is not necessary for this action

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Assistant Administrator for Fisheries, NOAA

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Date

## **9 OTHER APPLICABLE LAW**

The MSFCMA (16 U.S.C. 1801 et seq.) provides the authority for U.S. fishery management. 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 within which those fisheries are conducted. This environmental assessment is an integrated document that combines analyses necessary for the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act (RFA), and Executive Order 12866: Regulatory Planning and Review.

NEPA requires all federal actions such as the formulation of fishery management plans to be evaluated for potential environmental and human environment impacts, and for these impacts to be assessed and reported to the public. NEPA requires federal agencies to evaluate a range of alternatives. For this amendment, the Council conducted an Environmental Assessment, which is a concise statement that determines whether the proposed amendment will have a significant impact on the environment.

The RFA requires federal agencies to assess the impacts of regulatory actions implemented through notice and comment rulemaking procedures on small businesses, small organizations, and small governmental entities, with the goal of minimizing adverse impacts of burdensome regulations and record-keeping requirements on those entities. These analyses, which describe the type and number of small businesses affected, are provided in Section 6 and will be published in the *Federal Register* in full or in summary for public comment and submitted to the chief counsel for advocacy of the Small Business Administration.

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 associated with proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. These analyses can be found in Section 5 of this amendment.

Other major laws affecting federal fishery management decision-making are summarized below.

### **9.1 Administrative Procedures Act**

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (5 U.S.C. Subchapter II), which establishes a “notice and comment” procedure to enable public participation in the rulemaking process. Under the APA, 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 wait period from the time a final rule is published until it takes effect.

## **9.2 Coastal Zone Management Act**

Section 307(c)(1) of the federal Coastal Zone Management Act (CZMA) of 1972, as amended, requires that 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 C.F.R. part 930, subpart C. NMFS has determined that this action is consistent with the Coastal Zone Management programs of the states of Alabama, Florida, Louisiana, Mississippi, and Texas to the maximum extent possible. This determination will be submitted to the responsible state agencies under Section 307 of the CZMA.

## **9.3 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. Specifically, the Act directs the Office of Management and Budget (OMB) 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 OMB on the number and nature of complaints received. Pursuant to Section 515 of Public Law 106-554, this information document has undergone a predissemination review by the Southeast Regional Office, Sustainable Fisheries Division, and is available upon request.

## **9.4 Endangered Species Act**

The Endangered Species Act (ESA) of 1973, as amended, (16 U.S.C. Section 1531 et seq.) requires that 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 USFWS for all remaining species) to determine the potential impacts of the proposed action. Consultations are concluded informally when proposed actions "may affect but are not likely to adversely affect" endangered or threatened species or designated critical habitat. Formal consultations, including a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" endangered or threatened species or adversely modify designated critical habitat. If jeopardy or adverse modification is found, the consulting agency is required to suggest reasonable and prudent alternatives. A formal consultation for the Gulf of Mexico reef fish fishery was completed in 2005 and concluded mortalities of endangered and threatened species were uncommon from gear used in the reef fish fishery and were not likely to jeopardize the continued existence of threatened or endangered species. Based on reinitiation triggers in 50 CFR 402.16, there is no need to

conduct another consultation for this action.

## **9.5 Executive Orders**

### **9.5.1 E.O. 12630: Takings**

The Executive Order on Government Actions and Interference with Constitutionally Protected Property Rights that became effective March 18, 1988, requires that 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. There are no takings implications from the proposed action.

### **9.5.2 E.O. 13089: Coral Reef Protection**

The Executive Order on Coral Reef Protection requires federal agencies whose actions may affect U.S. coral reef ecosystems to identify those actions, utilize their programs and authorities to protect and enhance the conditions of such ecosystems; and, to the extent permitted by law, ensure that actions that they authorize, fund or carry out do not degrade the condition of that ecosystem. There are no implications to coral reefs by the action proposed.

### **9.5.3 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. No Federalism issues have been identified relative to the proposed action. Therefore, consultation with state officials under this Executive Order is not necessary.

### **9.5.4 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. This action would have no impacts to marine protected areas.

## **9.6 Marine Mammal Protection Act**

The 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 (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 NMFS has under the MMPA involves monitoring populations of marine mammals to make sure 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.

The MMPA requires commercial fisheries to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals in each fishery. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities. The GOM reef fish fishery is listed in Category III (69 FR 231) and therefore the proposed actions should have no effect on marine mammal populations.

### **9.7 Paperwork Reduction Act**

The Paperwork Reduction Act (PRA) of 1995 (44 U.S.C. 3501 et seq.) regulates the collection of public information by federal agencies to ensure that the public is not overburdened with information requests, that the federal government’s information collection procedures are efficient, and that 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.

Permit application processes are not being changed by this regulatory amendment, and no new reporting requirements or burdens are being proposed. Therefore, NMFS does not need to submit an additional request for information collection to the Office of Management and Budget for review.

### **9.8 Small Business Act**

The Small Business Act of 1953, as amended, Section 8(a), 15 U.S.C. 634(b)(6), 636(j), 637(a) and (d); Public Laws 95-507 and 99-661, Section 1207; and Public Laws 100-656 and 101-37 are administered by the Small Business Administration. Because most businesses associated with fishing are considered small businesses, NMFS, must make an assessment of how those regulations will affect small businesses. Implications to small businesses are discussed in Section 6, herein.

### **9.9 Essential Fish Habitat**

The amended MSFCMA included a new habitat conservation provision known as 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 2004a) to address the new EFH requirements contained within the MSFCMA. Section 305(b)(2) requires federal agencies to obtain a consultation for any action that may adversely affect EFH. An EFH consultation was conducted for this action and concluded this action will not adversely affect EFH.

## 10 LIST OF PREPARERS

### Gulf of Mexico Fishery Management Council

Frank Kennedy - Fishery Biologist

### National Marine Fisheries Service

Andrew Strelcheck – Fishery Biologist

Stephen Holiman – Fishery Economist

John Vondruska – Fishery Economist

Jim Waters – Fishery Economist

## 11 LIST OF AGENCIES AND PERSONS CONSULTED

The following agencies were consulted on the provisions of this amendment:

### Gulf of Mexico Fishery Management Council:

Reef Fish Advisory Panel

### National Marine Fisheries Service:

Southeast Regional Office

Southeast Fisheries Science Center

### Coastal Zone Management Offices:

Texas, Louisiana, Mississippi, Alabama, Florida

### Other Agencies, Organizations, and Persons:

Alabama Cooperative Extension Service

Alabama Department of Conservation and Natural Resources, Marine Resources Division

Florida Department of Environmental Protection

Florida Fish and Wildlife Conservation Commission

Florida Sea Grant

Louisiana Cooperative Extension Service

Louisiana Department of Wildlife and Fisheries

Mississippi Cooperative Extension Service

Mississippi Department of Marine Resources

National Marine Fisheries Service Southeast Regional Office

National Marine Fisheries Service Southeast Fisheries Science Center

National Marine Fisheries Service Washington Office

National Marine Fisheries Service Law Enforcement

Texas Cooperative Extension Service

Texas Parks and Wildlife Department

United States Fish & Wildlife Service

United States Coast Guard

## 12 TABLES

### 12.1 Section 6 Affected Environment Tables

Year	Annual totals, vessels with landings of grouper						Per-vessel medians (50 <sup>th</sup> percentiles), vessels with landings of grouper <sup>(2)</sup>								
	Vessels	Grouper landed, thousand pounds (gutted weight)	Est. gross revenue for grouper landed, thousand 2001 \$	Trips, all fish	Days away from port, all fish	Gross revenue, all fish, thousand 2001 \$	Grouper, pounds landed per year (gutted weight)	Est. gross revenue, grouper, 2001 \$ per year	Est. gross rev, all fish, 2001 \$ per year	% gross revenue from grouper	Engine horse-power	Vessel length (feet)	Trips per year with grouper landings	Trips per year, all fish	Days away from port per year, all fish
2002	961	10,836	\$26,785	16,696	55,419	\$49,266	2,480	\$6,560	\$21,006	74%	275	37	9	14	39
2003	937	9,704	\$24,588	16,368	55,221	\$46,649	2,269	\$5,839	\$20,711	71%	300	37	9	14	42
2004	885	9,781	\$23,002	12,545	41,346	\$42,602	2,253	\$5,656	\$20,425	74%	300	37	9	14	39
Avg	928	10,107	\$24,792	15,203	50,662	\$46,172									

(1) Statistics shown are for vessels with trips with landings of more than one pound (gutted weight) of shallow-water and deep-water grouper caught in the Gulf of Mexico (NMFS, SEFSC, file downloaded 17Mar05; species names and NMFS codes shown in Table 6.3.15). Ex-vessel value (gross revenue) is estimated in an iterative process that merges logbook-reported pounds landed and monthly prices (both on a round weight basis) from the Accumulated Landings System (ALS), starting with merges by species, state, county, year and month (NMFS, SEFC, files downloaded 25Mar05 for 2000-2004 and previously for earlier years). Real values in 2001\$ are obtained using monthly values for the Bureau of Labor Statistics Producer Price Index for all Commodities. Physical characteristics are for vessels for which the existence of valid permits ("active" permits as of February 1 of each year shown) for commercial fishing for Gulf reef fish could be determined using computer matching of the VESID fields (NMFS, SERO, Fisheries Permits Team, files downloaded 28Jun04).

(2) Frequency distributions were computed separately for each variable.

Table 6.3.2. NMFS southeast coastal fisheries logbook-reported commercial fishing activity for **trips** with landings of Gulf shallow-water and deep-water grouper, 2002-2004 <sup>(1)</sup>

Year	Annual totals, trips with grouper landings						Per-trip medians (50 <sup>th</sup> percentiles), trips with grouper landings <sup>(2)</sup>			Per-trip 75th, 90th and 99th percentiles, pounds of grouper landed		
	Vessels	Trips	Days away from port, grouper	Grouper landed, thousand pounds (gutted weight)	Est. gross revenue for grouper landed, thousand 2001 \$	Gross revenue, all fish, same trips, thousand 2001 \$	Grouper, pounds landed (gutted weight)	Gross rev., grouper, 2001 \$	Gross rev., all fish, 2001 \$	75th percentile	90th percentile	99th percentile
2002	961	11043	46,056	10,836	\$26,785	\$40,700	283	\$726	\$2,133	1,010	2,679	8,467
2003	937	10879	46,373	9,704	\$24,588	\$39,228	235	\$616	\$2,058	855	2,564	8,165
2004	885	9576	39,434	9,781	\$23,002	\$34,201	271	\$664	\$1,866	1,028	3,019	8,687
Average	928	10,499	43,954	10,107	\$24,792	\$38,043						

(1) See footnote 1, Table 6.3.1.

(2) Frequency distributions were computed separately for each variable.

Table 6.3.3. NMFS southeast coastal fisheries logbook-reported commercial fishing activity for **vessels** with landings of Gulf shallow-water and deep-water grouper using longlines, 2002-2004 <sup>(1)</sup>

Year	Annual totals, vessels with landings of grouper using longlines						Per-vessel medians (50 <sup>th</sup> percentiles), vessels with landings of grouper using longlines <sup>(2)</sup>								
	Vessels	Grouper landed, thousand pounds (gutted weight)	Est. gross revenue for grouper landed, thousand 2001 \$	Trips, all fish	Days away from port, all fish	Gross revenue, all fish, thousand 2001 \$	Grouper, pounds landed per year (gutted weight)	Est. gross revenue, grouper, 2001 \$ per year	Est. gross rev, all fish, 2001 \$ per year	% gross revenue from grouper	Engine power (horsepower)	Vessel length (feet)	Trips with grouper landings per year	Trips per year, all fish	Days away from port per year, all fish
2002	166	5,478	\$13,365	2,841	17,950	\$18,860	25,022	\$60,367	\$95,539	84%	233	43	10	15	113
2003	165	5,800	\$14,619	2,658	18,119	\$19,030	26,651	\$71,009	\$101,916	90%	240	44	12	14	116
2004	155	5,564	\$13,064	2,469	15,966	\$17,328	30,982	\$72,438	\$96,272	88%	250	45	10	13	112
Avg	162	5,614	\$13,683	2,656	17,345	\$18,406									

(1) See footnote 1, Table 6.3.1. Annual totals for dollar values, numbers of trips and days away from port shown in Tables 6.3.3-6.3.9 and Table 6.3.10 for all fish are not additive across gear types and area fished because some trips and vessels involve more than one gear type and/or more than one area fished.

(2) Frequency distributions were computed separately for each variable.

Table 6.3.4. NMFS southeast coastal fisheries logbook-reported commercial fishing activity for **trips** with landings of Gulf shallow-water and deep-water grouper using longlines, 2002-2004 <sup>(1)</sup>

Year	Annual totals, trips with grouper landings						Per-trip medians (50 <sup>th</sup> percentiles), trips with grouper landings <sup>(2)</sup>			Per-trip 75th, 90th and 99th percentiles, pounds of grouper landed		
	Vessels	Trips	Days away from port, grouper	Grouper landed, thousand pounds (gutted weight)	Est. gross revenue for grouper landed, thousand 2001 \$	Gross revenue, all fish, same trips, thousand 2001 \$	Grouper, pounds landed (gutted weight)	Gross rev., grouper, 2001 \$	Gross rev., all fish, 2001 \$	75th percentile	90th percentile	99th percentile
2002	166	1,734	14,438	5,478	\$13,365	\$15,261	2,360	\$5,872	\$6,764	4,664	7,090	11,858
2003	165	1,834	15,446	5,800	\$14,619	\$16,523	2,557	\$6,548	\$7,341	4,613	6,749	12,984
2004	155	1,537	13,114	5,564	\$13,064	\$14,500	2,985	\$7,012	\$7,723	5,099	7,273	13,462
Average	162	1,702	14,333	5,614	\$13,683	\$15,428						

(1) See footnote 1, Table 6.3.1, and footnote 1, Table 6.3.3.

(2) Frequency distributions were computed separately for each variable.

Table 6.3.5. NMFS southeast coastal fisheries logbook-reported commercial fishing activity for **vessels** with landings of Gulf shallow-water and deep-water grouper using vertical lines, 2002-2004 <sup>(1)</sup>

Year	Annual totals, vessels with landings of grouper						Per-vessel medians (50 <sup>th</sup> percentiles), vessels with landings of grouper <sup>(2)</sup>								
	Vessels	Grouper landed, thousand pounds (gutted weight)	Est. gross revenue for grouper landed, thousand 2001 \$	Trips, all fish	Days away from port, all fish	Gross revenue, all fish, thousand 2001 \$	Grouper, pounds landed per year (gutted weight)	Est. gross revenue, grouper, 2001 \$ per year	Est. gross rev, all fish, 2001 \$ per year	% gross revenue from grouper	Engine horse-power	Vessel length (feet)	Trips per year with grouper landings	Trips per year, all fish	Days away from port per year, all fish
2002	806	4,247	\$10,952	14,537	41,544	\$35,765	1,440	\$3,846	\$15,824	47%	280	36	7	14	35
2003	769	3,080	\$8,076	13,843	39,933	\$31,192	1,223	\$3,200	\$16,075	44%	300	35	7	14	35
2004	720	3,374	\$8,209	12,808	35,203	\$27,255	1,379	\$3,582	\$14,825	48%	300	36	8	14	30
Avg	765	3,567	\$9,079	13,729	38,893	\$31,404									

(1) Vertical lines include electric reels (E) and hooks and lines (H). See footnote 1, Table 6.3.1, and footnote 1, Table 6.3.3.

(2) Frequency distributions were computed separately for each variable.



Table 6.3.6. NMFS southeast coastal fisheries logbook-reported commercial fishing activity for **trips** with landings of Gulf shallow-water and deep-water grouper using vertical lines, 2002-2004 <sup>(1)</sup>

Year	Annual totals, trips with grouper landings						Per-trip medians (50 <sup>th</sup> percentiles), trips with grouper landings <sup>(2)</sup>			Per-trip 75th, 90th and 99th percentiles, pounds of grouper landed		
	Vessels	Trips	Days away from port, grouper	Grouper landed, thousand pounds (gutted weight)	Est. gross revenue for grouper landed, thousand 2001 \$	Gross revenue, all fish, same trips, thousand 2001 \$	Grouper, pounds landed (gutted weight)	Gross rev., grouper, 2001 \$	Gross rev., all fish, 2001 \$	75th percentile	90th percentile	99th percentile
2002	806	8,494	28,663	4,247	\$10,952	\$23,657	197	\$504	\$1,705	582	1,299	3,432
2003	769	8,412	28,450	3,080	\$8,076	\$21,158	156	\$406	\$1,575	460	988	2,348
2004	720	7,444	24,467	3,374	\$8,209	\$18,326	188	\$464	\$1,498	564	1,193	3,202
Average	765	8,117	27,193	3,567	\$9,079	\$21,047						

(1) Vertical lines include electric reels (E) and hooks and lines (H). See footnote 1, Table 6.3.1, and footnote 1, Table 6.3.3.

(2) Frequency distributions were computed separately for each variable.

Table 6.3.7. NMFS southeast coastal fisheries logbook-reported commercial fishing activity for vessels with landings of Gulf reef fish, 1993-2004 <sup>(1)</sup>

Year, with averages for 2002-2004 only	Annual totals, vessels with landings of Gulf reef fish						Per-vessel medians (50th percentiles), vessels with landings of Gulf reef fish <sup>(2)</sup>							
	Vessels	Gulf reef fish landed, thousand pounds (gutted weight)	Est. gross revenue for Gulf reef fish landed, thousand 2001 \$	Trips, all fish	Days away from port, all fish	Gross revenue, all fish, thousand 2001 \$	Gulf reef fish, landed per year (gutted weight)	Est. gross revenue, Gulf reef fish, 2001 \$ per year	Est. gross rev, all fish, 2001 \$ per year	% gross revenue from Gulf reef fish	Engine horse-power	Vessel length (feet)	Trips per year, all fish	Days away from port per year, all fish
1993	1,347	16,303	\$34,137	19,632	64,381	\$39,689	3,251	\$6,817	\$9,562	96%	165	36	11	28
1994	1,387	16,767	\$36,921	20,447	69,134	\$42,448	3,787	\$7,952	\$10,836	96%	200	36	11	31
1995	1,303	15,872	\$33,711	18,943	62,831	\$38,896	3,482	\$7,227	\$10,407	96%	210	36	11	27
1996	1,143	15,584	\$33,779	17,629	58,902	\$38,702	3,475	\$7,632	\$11,259	95%	210	37	12	31
1997	1,169	17,345	\$37,521	18,441	61,301	\$42,869	3,400	\$7,872	\$11,870	95%	225	37	12	30
1998	1,136	16,763	\$40,262	17,773	56,830	\$45,633	3,779	\$8,895	\$12,526	96%	240	37	12	30
1999	1,117	18,829	\$44,166	19,848	63,211	\$50,646	4,644	\$11,291	\$15,936	96%	250	37	14	35
2000	1,134	18,715	\$44,005	19,064	60,495	\$49,906	4,915	\$11,929	\$16,017	97%	253	36	13	31
2001	1,068	19,056	\$44,539	17,905	57,889	\$49,771	4,974	\$11,436	\$16,501	97%	280	36	13	34
2002	1,061	19,736	\$45,837	17,763	57,116	\$50,548	5,208	\$12,594	\$16,458	98%	275	36	13	34
2003	1,026	18,886	\$43,692	17,570	57,219	\$47,726	5,509	\$13,250	\$17,056	98%	300	36	14	37
2004	975	18,128	\$40,131	16,069	50,684	\$43,314	6,024	\$12,829	\$15,640	99%	300	37	13	31
Average, 2002-2004	1,021	18,917	\$43,220	17,134	55,006	\$47,196								

(1) See footnote 1, Table 6.3.1, and footnote 1, Table 6.3.3.

(2) Frequency distributions were computed separately for each variable.

Table 6.3.8. NMFS southeast coastal fisheries logbook-reported commercial fishing activity for vessels with landings of Gulf reef fish using longlines, 1993-2004 <sup>(1)</sup>

Year, with averages for 2002-2004 only	Annual totals, vessels with landings of Gulf reef fish						Per-vessel medians (50th percentiles), vessels with landings of Gulf reef fish <sup>(2)</sup>							
	Vessels	Gulf reef fish landed, thousand pounds (gutted weight)	Est. gross revenue for Gulf reef fish landed, thousand 2001 \$	Trips, all fish	Days away from port, all fish	Gross revenue, all fish, thousand 2001 \$	Gulf reef fish, pounds landed per year (gutted weight)	Est. gross revenue, Gulf reef fish, 2001 \$ per year	Est. gross rev, all fish, 2001 \$ per year	% gross revenue from Gulf reef fish	Engine horse-power	Vessel length (feet)	Trips per year, all fish	Days away from port per year, all fish
1993	196	5,189	\$11,192	2,632	19,556	\$14,953	19,974	\$41,664	\$66,064	91%	101	42	12	99
1994	200	5,072	\$11,710	2,896	20,955	\$14,936	20,073	\$44,492	\$62,786	91%	160	42	14	108
1995	193	4,808	\$10,420	2,705	19,488	\$13,701	18,023	\$38,853	\$59,894	91%	180	43	13	104
1996	190	4,849	\$11,183	2,962	20,151	\$14,591	18,243	\$44,143	\$60,959	91%	180	43	15	106
1997	188	5,626	\$12,827	2,798	19,846	\$16,235	23,287	\$53,387	\$70,360	92%	210	43	14	105
1998	174	5,354	\$12,910	2,572	17,881	\$16,899	22,609	\$52,579	\$82,507	95%	213	44	13	106
1999	165	6,620	\$16,095	2,704	18,622	\$19,699	33,194	\$80,235	\$110,571	95%	220	43	14	125
2000	181	6,224	\$15,125	3,063	20,489	\$20,237	27,545	\$70,191	\$107,242	89%	223	44	16	124
2001	164	6,497	\$15,608	2,779	18,492	\$19,147	33,789	\$76,852	\$96,316	94%	228	43	15	121
2002	167	6,353	\$14,881	2,881	18,065	\$19,064	30,637	\$69,866	\$95,545	95%	233	43	15	113
2003	167	6,724	\$16,168	2,706	18,256	\$19,121	33,145	\$78,507	\$100,961	98%	240	44	14	116
2004	157	6,765	\$15,108	2,633	16,219	\$17,622	34,432	\$76,621	\$97,143	98%	250	45	14	112
Average, 2002-2004	164	6,614	\$15,386	2,740	17,513	\$18,602								

(1) See footnote 1, Table 6.3.1, and footnote 1, Table 6.3.3.

(2) Frequency distributions were computed separately for each variable.

Table 6.3.9. NMFS southeast coastal fisheries logbook-reported commercial fishing activity for vessels with landings of Gulf reef fish using vertical lines, 1993-2004 <sup>(1)</sup>

Year, with averages for 2002-2004 only	Annual totals, vessels with landings of Gulf reef fish						Per-vessel medians (50th percentiles), vessels with landings of Gulf reef fish <sup>(2)</sup>								
	Vessels	Gulf reef fish landed, thousand pounds (gutted weight)	Est. gross revenue for Gulf reef fish landed, thousand 2001 \$	Trips, all fish	Days away from port, all fish	Gross revenue, all fish, thousand 2001 \$	Gulf reef fish, pounds landed per year (gutted weight)	Est. gross revenue, Gulf reef fish, 2001 \$ per year	Est. gross rev, all fish, 2001 \$ per year	% gross revenue from Gulf reef fish	Engine horse-power	Vessel length (feet)	Trips per year, all fish	Days away from port per year, all fish	
1993	1,156	9,705	\$20,197	17,426	50,732	\$29,660	2,094	\$4,453	\$8,074	91%	170	36	11	26	
1994	1,203	10,203	\$22,042	17,912	53,839	\$31,459	2,322	\$5,143	\$9,653	91%	200	36	11	28	
1995	1,095	9,591	\$20,314	16,381	46,435	\$27,722	2,275	\$4,796	\$8,080	92%	216	35	11	24	
1996	934	9,759	\$20,532	15,038	42,644	\$27,379	2,084	\$4,554	\$8,904	91%	210	36	12	27	
1997	983	10,607	\$22,344	16,223	45,604	\$30,621	2,083	\$4,742	\$8,817	91%	230	36	12	27	
1998	933	10,720	\$25,815	15,465	41,216	\$32,490	2,600	\$6,347	\$10,457	92%	240	35	12	28	
1999	943	11,092	\$25,601	17,359	47,053	\$34,336	3,185	\$7,654	\$13,298	92%	250	35	14	31	
2000	971	11,035	\$25,732	16,695	45,388	\$35,695	3,311	\$7,870	\$13,003	94%	260	35	13	28	
2001	906	11,422	\$26,519	15,581	43,719	\$35,457	3,206	\$7,382	\$12,922	94%	300	36	14	29	
2002	909	12,111	\$28,218	15,553	43,356	\$37,410	3,207	\$7,729	\$13,004	96%	280	35	13	29	
2003	864	11,223	\$25,433	15,072	42,280	\$32,795	2,957	\$7,258	\$12,883	96%	300	35	14	30	
2004	819	10,417	\$23,132	13,940	37,443	\$28,961	3,575	\$8,136	\$12,546	97%	300	36	13	26	
Average, 2002-2004	864	11,251	\$25,594	14,855	41,026	\$33,055									

(1) Vertical lines include electric reels (E), and hooks and lines (H). See footnote 1, Table 6.3.1, and footnote 1, Table 6.3.3.

(2) Frequency distributions were computed separately for each variable.

Table 6.3.10. Real ex-vessel value (in thousands of 2001 dollars) of NMFS southeast coastal fisheries logbook-reported landings of all fish for trips with landings of Gulf shallow-water or deep-water grouper, 2000-2004 <sup>(1)</sup>

Year & gear	Texas (Areas 18-21)	Western LA (Areas 13-17)	East LA-MS-AL (Areas 11-12)	Northwest FL (Areas 7-10)	West Central FL (Areas 3-6)	Florida Keys (Areas 1-2)	All Areas
<b>Longlines</b>							
2000	461	1,197	45	2,391	10,781	571	15,463
2001	469	777	64	2,309	11,569	792	15,982
2002	540	1,177	85	1,941	11,071	437	15,261
2003	1,296	733	120	1,967	11,782	625	16,523
2004	861	423	19	1,364	10,866	967	14,500
Avg, 2000-2004	725	861	67	1,994	11,214	678	15,546
Percentage	4.7%	5.5%	0.4%	12.8%	72.1%	4.4%	100.0%
<b>Vertical Lines</b>							
2000	1,756	5,075	1,149	5,486	6,866	961	21,294
2001	2,202	4,628	1,330	6,234	6,558	818	21,776
2002	2,631	4,895	1,434	7,380	6,403	916	23,657
2003	2,703	4,956	1,898	5,940	4,974	679	21,158
2004	1,888	4,134	1,094	5,851	4,727	603	18,326
Avg, 2000-2004	2,236	4,738	1,381	6,178	5,906	795	21,242
Percentage	10.5%	22.3%	6.5%	29.1%	27.8%	3.7%	100.0%
<b>All Gear</b>							
2000	2,215	6,265	1,203	8,380	19,297	1,936	39,314
2001	2,665	5,417	1,428	9,120	19,013	1,878	39,529
2002	3,145	6,060	1,524	9,636	18,738	1,588	40,700
2003	3,973	5,694	2,030	7,975	17,958	1,591	39,228
2004	2,732	4,562	1,118	7,348	16,638	1,774	34,202
Avg, 2000-2004	2,946	5,600	1,461	8,492	18,329	1,753	38,595
Percentage	7.6%	14.5%	3.8%	22.0%	47.5%	4.5%	100.0%

(1) See footnote 1, Table 6.3.1, and footnote 1, Table 6.3.3.

## 12.2 Section 7 Environmental Consequences Tables

Table 7.3.1 Summary of projected net revenues (thousands of dollars), by gear type. Loss is relative to historical performance; difference in net revenue refers to change from net revenue for quotas.								
	Alternative 1:		Alternative 2: Quotas and trip limits (10,000, 7,500 & 5,500)					
Gear Type	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Vertical Lines	\$478	\$14,498	\$413	\$65	0.4%	\$454	\$24	0.2%
Bottom Longlines	\$1,116	\$10,668	\$1,611	-\$495	-4.6%	\$1,465	-\$348	-3.3%
Fish Traps	\$32	\$1,636	\$44	-\$12	-0.7%	\$53	-\$20	-1.2%
Other Gears	\$6	\$228	\$4	\$2	0.7%	\$5	\$1	0.3%
Total	\$1,632	\$27,029	\$2,072	-\$440	-1.6%	\$1,976	-\$344	-1.3%
	Alternative 1:		Alternative 3: Quotas and trip limits (7,500 & 5,000)					
Gear Type	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Vertical Lines	\$478	\$14,498	\$358	\$120	0.8%	\$391	\$87	0.6%
Bottom Longlines	\$1,116	\$10,668	\$2,102	-\$985	-9.2%	\$1,824	-\$708	-6.6%
Fish Traps	\$32	\$1,636	\$95	-\$62	-3.8%	\$88	-\$56	-3.4%
Other Gears	\$6	\$228	\$2	\$3	1.5%	\$4	\$2	0.9%
Total	\$1,632	\$27,029	\$2,557	-\$924	-3.4%	\$2,307	-\$674	-2.5%
	Alternative 1:		Alternative 4: Quotas and trip limits (7,500 & 3,500)					
Gear Type	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Vertical Lines	\$478	\$14,498	\$305	\$173	1.2%	\$341	\$137	0.9%
Bottom Longlines	\$1,116	\$10,668	\$2,646	-\$1,530	-14.3%	\$2,031	-\$914	-8.6%
Fish Traps	\$32	\$1,636	\$185	-\$153	-9.3%	\$146	-\$114	-7.0%
Other Gears	\$6	\$228	\$0	\$5	2.3%	\$3	\$3	1.2%
Total	\$1,632	\$27,029	\$3,137	-\$1,504	-5.6%	\$2,521	-\$889	-3.3%
	Alternative 1:		Alternative 5: Quotas and trip limits (4,000 & 1,000)					
Gear Type	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Vertical Lines	\$478	\$14,498	\$791	-\$313	-2.2%	\$493	-\$15	-0.1%
Bottom Longlines	\$1,116	\$10,668	\$5,022	-\$3,905	-36.6%	\$3,057	-\$1,941	-18.2%
Fish Traps	\$32	\$1,636	\$446	-\$413	-25.3%	\$216	-\$184	-11.2%
Other Gears	\$6	\$228	\$6	\$0	0.0%	\$5	\$1	0.3%
Total	\$1,632	\$27,029	\$6,264	-\$4,631	-17.1%	\$3,771	-\$2,139	-7.9%
	Alternative 1:		Alternative 6: Quotas and trip limits (6,000)					
Gear Type	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Vertical Lines	\$478	\$14,498	\$366	\$112	0.8%	\$397	\$81	0.6%
Bottom Longlines	\$1,116	\$10,668	\$2,206	-\$1,090	-10.2%	\$1,876	-\$760	-7.1%
Fish Traps	\$32	\$1,636	\$73	-\$40	-2.5%	\$76	-\$44	-2.7%
Other Gears	\$6	\$228	\$3	\$3	1.2%	\$4	\$2	0.9%
Total	\$1,632	\$27,029	\$2,648	-\$1,015	-3.8%	\$2,353	-\$721	-2.7%

Because of rounding, losses may not sum to totals shown and totals may differ among tables.

Table 7.3.2 Summary of projected net revenues (thousands of dollars), by fishing area. Loss is relative to historical performance; difference in net revenue refers to change from net revenue for quotas.

	Alternative 1:		Alternative 2: Quotas and trip limits (10,000, 7,500 & 5,500)					
Fishing Area	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Texas	\$190	\$2,432	\$173	\$17	0.7%	\$189	\$1	0.0%
Western LA	\$133	\$4,173	\$138	-\$5	-0.1%	\$144	-\$10	-0.2%
Eastern LA-MS-AL	\$22	\$1,054	\$20	\$3	0.3%	\$21	\$1	0.1%
Northwest FL	\$297	\$5,478	\$247	\$50	0.9%	\$286	\$11	0.2%
West-Central FL	\$910	\$12,760	\$1,404	-\$494	-3.9%	\$1,245	-\$335	-2.6%
FL Keys	\$79	\$1,117	\$91	-\$12	-1.1%	\$92	-\$12	-1.1%
Other	\$0	\$13	\$0	\$0	0.0%	\$0	\$0	0.0%
Total	\$1,632	\$27,029	\$2,073	-\$441	-1.6%	\$1,976	-\$344	-1.3%
	Alternative 1:		Alternative 3: Quotas and trip limits (7,500 & 5,000)					
Fishing Area	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Texas	\$190	\$2,432	\$178	\$12	0.5%	\$182	\$8	0.3%
Western LA	\$133	\$4,173	\$148	-\$14	-0.3%	\$154	-\$20	-0.5%
Eastern LA-MS-AL	\$22	\$1,054	\$17	\$6	0.5%	\$19	\$3	0.3%
Northwest FL	\$297	\$5,478	\$246	\$51	0.9%	\$262	\$35	0.6%
West-Central FL	\$910	\$12,760	\$1,866	-\$956	-7.5%	\$1,581	-\$672	-5.3%
FL Keys	\$79	\$1,117	\$103	-\$24	-2.1%	\$108	-\$28	-2.5%
Other	\$0	\$13	\$0	\$0	0.0%	\$0	\$0	0.0%
Total	\$1,632	\$27,029	\$2,557	-\$925	-3.4%	\$2,307	-\$675	-2.5%
	Alternative 1:		Alternative 4: Quotas and trip limits (7,500 & 3,500)					
Fishing Area	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Texas	\$190	\$2,432	\$188	\$2	0.1%	\$184	\$6	0.2%
Western LA	\$133	\$4,173	\$165	-\$31	-0.8%	\$151	-\$18	-0.4%
Eastern LA-MS-AL	\$22	\$1,054	\$16	\$7	0.6%	\$18	\$5	0.4%
Northwest FL	\$297	\$5,478	\$249	\$48	0.9%	\$243	\$54	1.0%
West-Central FL	\$910	\$12,760	\$2,386	-\$1,477	-11.6%	\$1,811	-\$901	-7.1%
FL Keys	\$79	\$1,117	\$133	-\$54	-4.8%	\$115	-\$36	-3.2%
Other	\$0	\$13	\$0	\$0	0.0%	\$0	\$0	0.0%
Total	\$1,632	\$27,029	\$3,136	-\$1,504	-5.6%	\$2,522	-\$889	-3.3%
	Alternative 1:		Alternative 5: Quotas and trip limits (4,000 & 1,000):					
Fishing Area	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Texas	\$190	\$2,432	\$250	-\$60	-2.5%	\$230	-\$40	-1.6%
Western LA	\$133	\$4,173	\$230	-\$96	-2.3%	\$196	-\$63	-1.5%
Eastern LA-MS-AL	\$22	\$1,054	\$16	\$6	0.6%	\$18	\$4	0.4%
Northwest FL	\$297	\$5,478	\$613	-\$316	-5.8%	\$404	-\$107	-2.0%
West-Central FL	\$910	\$12,760	\$4,878	-\$3,969	-31.1%	\$2,781	-\$1,872	-14.7%
FL Keys	\$79	\$1,117	\$275	-\$196	-17.5%	\$142	-\$63	-5.6%
Other	\$0	\$13	\$0	\$0	0.0%	\$0	\$0	0.0%
Total	\$1,632	\$27,029	\$6,263	-\$4,631	-17.1%	\$3,772	-\$2,139	-7.9%
	Alternative 1:		Alternative 6: Quotas and trip limits (6,000):					
Fishing Area	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Texas	\$190	\$2,432	\$191	-\$1	0.0%	\$191	-\$1	0.0%
Western LA	\$133	\$4,173	\$148	-\$15	-0.4%	\$150	-\$16	-0.4%
Eastern LA-MS-AL	\$22	\$1,054	\$17	\$6	0.5%	\$19	\$3	0.3%
Northwest FL	\$297	\$5,478	\$231	\$66	1.2%	\$254	\$43	0.8%
West-Central FL	\$910	\$12,760	\$1,957	-\$1,048	-8.2%	\$1,632	-\$722	-5.7%
FL Keys	\$79	\$1,117	\$103	-\$24	-2.1%	\$108	-\$29	-2.6%
Other	\$0	\$13	\$0	\$0	0.0%	\$0	\$0	0.0%
Total	\$1,632	\$27,029	\$2,647	-\$1,015	-3.8%	\$2,354	-\$722	-2.7%

Because of rounding, losses may not sum to totals shown and totals may differ among tables.

Table 7.3.3 Summary of projected number of trips by gear type, and boats by alternative

Alternative 2: Quotas and trip limits (10,000, 7,500 & 5,500)							
Gear Type	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Vertical Lines	7,770	7,857	87	1%	7,818	48	1%
Bottom Longlines	1,560	1,594	34	2%	1,597	37	2%
Fish Traps	414	419	5	1%	417	3	1%
Other Gears	399	402	3	1%	401	2	1%
Total	10,143	10,272	129	1%	10,232	90	1%
Boats	922	924	2	0%	916	-6	-1%
Alternative 3: Quotas and trip limits (7,500 & 5,000)							
Gear Type	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Vertical Lines	7,770	7,910	140	2%	7,861	91	1%
Bottom Longlines	1,560	1,616	56	4%	1,627	67	4%
Fish Traps	414	422	8	2%	420	7	2%
Other Gears	399	403	4	1%	402	2	1%
Total	10,143	10,350	208	2%	10,310	167	2%
Boats	922	926	4	0%	910	-12	-1%
Alternative 4: Quotas and trip limits (7,500 & 3,500)							
Gear Type	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Vertical Lines	7,770	7,984	215	3%	7,896	126	2%
Bottom Longlines	1,560	1,632	72	5%	1,697	137	9%
Fish Traps	414	402	-12	-3%	428	14	3%
Other Gears	399	427	28	7%	403	3	1%
Total	10,143	10,446	303	3%	10,423	281	3%
Boats	922	928	6	1%	887	-35	-4%
Alternative 5: Quotas and trip limits (4,000 & 1,000)							
Gear Type	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Vertical Lines	7,770	7,993	224	3%	8,144	374	5%
Bottom Longlines	1,560	1,650	90	6%	2,622	1,062	68%
Fish Traps	414	425	11	3%	583	169	41%
Other Gears	399	405	5	1%	405	5	1%
Total	10,143	10,473	330	3%	11,753	1,611	16%
Boats	922	929	7	1%	789	-133	-14%
Alternative 6: Quotas and trip limits (6,000)							
Gear Type	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Vertical Lines	7,770	7,910	140	2%	7,862	93	1%
Bottom Longlines	1,560	1,619	59	4%	1,633	73	5%
Fish Traps	414	421	8	2%	419	5	1%
Other Gears	399	403	3	1%	402	3	1%
Total	10,143	10,353	210	2%	10,317	174	2%
Boats	922	926	4	0%	913	-9	-1%



Table 7.3.4 Summary of projected number of trips by gear type and boats by alternative

Alternative 2: Quotas and trip limits (10,000, 7,500 & 5,500)							
Fishing Area	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Texas	558	560	2	0%	559	1	0%
Western LA	1,097	1,099	2	0%	1,098	1	0%
Eastern LA-MS-AL	417	420	2	1%	419	1	0%
Northwest FL	3,394	3,444	50	1%	3,421	27	1%
West-Central FL	3,873	3,936	64	2%	3,924	52	1%
FL Keys	800	809	9	1%	808	8	1%
Other	3	3	0	0%	3	0	0%
Total	10,143	10,272	129	1%	10,232	90	1%
Boats	922	924	2	0%	916	-6	-1%
Alternative 3: Quotas and trip limits (7,500 & 5,000)							
Fishing Area	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Texas	558	561	3	1%	561	3	0%
Western LA	1,097	1,100	3	0%	1,100	2	0%
Eastern LA-MS-AL	417	420	3	1%	420	2	1%
Northwest FL	3,394	3,475	81	2%	3,448	54	2%
West-Central FL	3,873	3,974	102	3%	3,969	96	2%
FL Keys	800	816	16	2%	811	11	1%
Other	3	3	0	0%	3	0	0%
Total	10,143	10,350	208	2%	10,310	167	2%
Boats	922	926	4	0%	910	-12	-1%
Alternative 4: Quotas and trip limits (7,500 & 3,500)							
Fishing Area	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Texas	558	562	4	1%	562	4	1%
Western LA	1,097	1,101	3	0%	1,102	4	0%
Eastern LA-MS-AL	417	421	4	1%	420	3	1%
Northwest FL	3,394	3,515	121	4%	3,466	72	2%
West-Central FL	3,873	4,025	152	4%	4,052	179	5%
FL Keys	800	819	19	2%	819	19	2%
Other	3	3	0	0%	3	0	0%
Total	10,143	10,446	303	3%	10,423	281	3%
Boats	922	928	6	1%	887	-35	-4%
Alternative 5: Quotas and trip limits (4,000 & 1,000)							
Fishing Area	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Texas	558	566	8	1%	574	16	3%
Western LA	1,097	1,106	9	1%	1,129	32	3%
Eastern LA-MS-AL	417	423	6	1%	423	5	1%
Northwest FL	3,394	3,521	127	4%	3,645	251	7%
West-Central FL	3,873	4,032	159	4%	5,096	1,223	32%
FL Keys	800	822	22	3%	884	84	11%
Other	3	3	0	0%	3	0	0%
Total	10,143	10,473	330	3%	11,753	1,611	16%
Boats	922	929	7	1%	789	-133	-14%
Alternative 6: Quotas and trip limits (6,000)							
Fishing Area	Alt. 1:	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Quotas only	Trips	Difference	% Diff	Trips	Difference	% Diff
Texas	558	562	4	1%	561	3	1%
Western LA	1,097	1,101	4	0%	1,100	3	0%
Eastern LA-MS-AL	417	421	4	1%	420	2	1%
Northwest FL	3,394	3,474	80	2%	3,449	55	2%
West-Central FL	3,873	3,975	102	3%	3,972	100	3%
FL Keys	800	817	17	2%	812	12	1%
Other	3	3	0	0%	3	0	0%
Total	10,143	10,353	210	2%	10,317	174	2%
Boats	922	926	4	0%	913	-9	-1%

Because of rounding, numbers of trips may not sum to totals shown and totals may differ among tables.

Table 7.3.5 Estimated closure dates based on fishery performance, by year

Alternative 1: Quotas only								Alternative 2: Quotas and trip limits (10,000, 7,500 & 5,500)							
Year	Quotas only				Trip Limits w/ no extra trips				Trip limits with extra trips						
	SWG	DWG			SWG	DWG			SWG	DWG					
2000	18-Nov	17-Aug			6-Dec	17-Aug			1-Dec	17-Aug					
2001	27-Nov	31-Oct			5-Dec	22-Nov			4-Dec	10-Nov					
2002	11-Nov	29-Nov			2-Dec	18-Dec			24-Nov	15-Dec					
2003		29-Jul				4-Aug				3-Aug					
2004	13-Nov	7-Jun			*	11-Jun			*	11-Jun					
Alternative 1: Quotas only								Alternative 3: Quotas and trip limits (7,500 & 5,000)							
Year	Quotas only				Trip Limits w/ no extra trips				Trip limits with extra trips						
	SWG	DWG			SWG	DWG			SWG	DWG					
2000	18-Nov	17-Aug			12-Dec	20-Aug			7-Dec	20-Aug					
2001	27-Nov	31-Oct			15-Dec	1-Dec			13-Dec	21-Nov					
2002	11-Nov	29-Nov			16-Dec				1-Dec						
2003		29-Jul				6-Aug				5-Aug					
2004	13-Nov	7-Jun			*	15-Jun			*	14-Jun					
Alternative 1: Quotas only								Alternative 4: Quotas and trip limits (7,500 & 3,500)							
Year	Quotas only				Trip Limits w/ no extra trips				Trip limits with extra trips						
	SWG	DWG			SWG	DWG			SWG	DWG					
2000	18-Nov	17-Aug				27-Aug			9-Dec	24-Aug					
2001	27-Nov	31-Oct				21-Dec			17-Dec	27-Nov					
2002	11-Nov	29-Nov							9-Dec						
2003		29-Jul				7-Aug				6-Aug					
2004	13-Nov	7-Jun			*	15-Jun			*	14-Jun					
Alternative 1: Quotas only								Alternative 5: Quotas and trip limits (4,000 & 1,000)							
Year	Quotas only				Trip Limits w/ no extra trips				Trip limits with extra trips						
	SWG	DWG			SWG	DWG			SWG	DWG					
2000	18-Nov	17-Aug							19-Dec	6-Sep					
2001	27-Nov	31-Oct													
2002	11-Nov	29-Nov													
2003		29-Jul				14-Sep				24-Aug					
2004	13-Nov	7-Jun			*				*	29-Jun					
Alternative 1: Quotas only								Alternative 6: Quotas and trip limits (6,000)							
Year	Quotas only				Trip Limits w/ no extra trips				Trip limits with extra trips						
	SWG	DWG			SWG	DWG			SWG	DWG					
2000	18-Nov	17-Aug			8-Dec	23-Aug			6-Dec	23-Aug					
2001	27-Nov	31-Oct			16-Dec	27-Nov			13-Dec	16-Nov					
2002	11-Nov	29-Nov			16-Dec				2-Dec	30-Dec					
2003		29-Jul				14-Aug				7-Aug					
2004	13-Nov	7-Jun			*	24-Jun			*	16-Jun					

\* No closures were estimated for 2004 because landings data were not available after the shallow water grouper quota was met (November 15, 2004). If landings data were available after this time (November 15 – December 31, 2004), then closures for at least some of the various alternatives may have occurred.

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## 14 ALTERNATIVES CONSIDERED BUT REJECTED

### Red Grouper Annual TAC for 2006 through 2008

**Alternative 1. Status quo. Retain the red grouper TAC at 6.56 mp gutted weight until the next stock assessment is completed; the commercial red grouper quota is 5.31 mp gutted weight, commercial shallow-water grouper quota is 8.80 mp gutted weight, and recreational red grouper allocation is 1.25 mp gutted weight.**

**Alternative 2. Increase the red grouper TAC in 2006 to the constant catch rebuilding level of 7.03 mp gutted weight; the commercial red grouper quota is 5.69 mp gutted weight, commercial shallow-water grouper quota is 9.18 mp gutted weight, and recreational red grouper allocation is 1.34 mp gutted weight. In 2007, increase the red grouper TAC to 7.23 mp gutted weight (the commercial red grouper quota is 5.86 mp gutted weight, commercial shallow-water grouper quota is 9.35 mp gutted weight, and recreational red grouper allocation is 1.37 mp gutted weight) contingent upon completion of a red grouper stock assessment that shows such TAC is consistent with the red grouper rebuilding plan.**

**Alternative 3. Increase the red grouper TAC in 2006 to 7.23 mp gutted weight; the commercial red grouper quota is 5.86 mp gutted weight, commercial shallow-water grouper quota is 9.35 mp gutted weight, and recreational red grouper allocation is 1.37 mp gutted weight..**

Discussion: Secretarial Amendment 1 stipulates that any new ABC (TAC) will be set following a future stock assessment. A new assessment is scheduled for completion in June 2007. Following that assessment, higher TAC may be warranted if it can be shown that such harvest does not exceed the constant F targets that can rebuild the stock by 2012. However, until then a rebuilding plan has been established to end overfishing and rebuild the stock within a specified time period (ten years in this case) but overfishing continues and the M-SFCMA states that “ If the Secretary finds as a result of review that such plan, amendment or regulations have not resulted in adequate progress toward ending overfishing and rebuilding affected fish stocks, the Secretary shall—(B) ..... immediately notify the appropriate Council. Such notification shall recommend further conservation and management measures which the Council should consider under paragraph (3) to achieve adequate progress.”[Section 304 (e)(7)(B)]. Paragraph (3) contains the language to prepare plans, amendments, or management measures to end overfishing within one year [Section 304 (e) (3)]. Without new evidence that the stock has improved faster than expected and overfishing is no longer occurring, it is not justifiable to increase TAC at this time.

## APPENDIX A – Section 7.3 Supplemental Tables

Supplemental Table 7.3.1 Summary of projected net revenues (thousands of dollars), by gear type. Loss is relative to historical performance; difference in net revenue refers to change from net revenue for quotas.								
<b>2001-2003 costs</b>		Alternative 1:		Alternative 6: Quotas and trip limits (6,000)				
Gear Type	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Vertical Lines	\$478	\$14,498	\$366	\$112	0.8%	\$397	\$81	0.6%
Bottom Longlines	\$1,116	\$10,668	\$2,206	-\$1,090	-10.2%	\$1,876	-\$760	-7.1%
Fish Traps	\$32	\$1,636	\$73	-\$40	-2.5%	\$76	-\$44	-2.7%
Other Gears	\$6	\$228	\$3	\$3	1.2%	\$4	\$2	0.9%
<b>Total</b>	<b>\$1,632</b>	<b>\$27,029</b>	<b>\$2,648</b>	<b>-\$1,015</b>	<b>-3.8%</b>	<b>\$2,353</b>	<b>-\$721</b>	<b>-2.7%</b>
<b>Aug 2005 costs</b>		Alternative 1:		Alternative 6: Quotas and trip limits (6,000)				
Gear Type	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Vertical Lines	\$239	\$7,756	\$203	\$36	0.5%	\$208	\$30	0.4%
Bottom Longlines	\$685	\$6,397	\$1,700	-\$1,015	-15.9%	\$1,415	-\$729	-11.4%
Fish Traps	\$18	\$1,014	\$55	-\$37	-3.6%	\$57	-\$39	-3.8%
Other Gears	\$2	\$98	\$1	\$1	1.0%	\$1	\$1	0.7%
<b>Total</b>	<b>\$944</b>	<b>\$15,264</b>	<b>\$1,959</b>	<b>-\$1,015</b>	<b>-6.6%</b>	<b>\$1,681</b>	<b>-\$737</b>	<b>-4.8%</b>

Because of rounding, losses may not sum to totals shown and totals may differ among tables.

Supplemental Table 7.3.2 Summary of projected net revenues (thousands of dollars), by fishing area. Loss is relative to historical performance; difference in net revenue refers to change from net revenue for quotas.								
<b>2001-2003 costs</b>	Alternative 1:		Alternative 6: Quotas and trip limits (6,000):					
Fishing Area	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Texas	\$190	\$2,432	\$191	-\$1	0.0%	\$191	-\$1	0.0%
Western LA	\$133	\$4,173	\$148	-\$15	-0.4%	\$150	-\$16	-0.4%
Eastern LA-MS-AL	\$22	\$1,054	\$17	\$6	0.5%	\$19	\$3	0.3%
Northwest FL	\$297	\$5,478	\$231	\$66	1.2%	\$254	\$43	0.8%
West-Central FL	\$910	\$12,760	\$1,957	-\$1,048	-8.2%	\$1,632	-\$722	-5.7%
FL Keys	\$79	\$1,117	\$103	-\$24	-2.1%	\$108	-\$29	-2.6%
Other	\$0	\$13	\$0	\$0	0.0%	\$0	\$0	0.0%
<b>Total</b>	<b>\$1,632</b>	<b>\$27,029</b>	<b>\$2,647</b>	<b>-\$1,015</b>	<b>-3.8%</b>	<b>\$2,354</b>	<b>-\$722</b>	<b>-2.7%</b>
<b>Aug 2005 costs</b>	Alternative 1:		Alternative 6: Quotas and trip limits (6,000):					
Fishing Area	Quotas only		Trip Limits w/ no extra trips			Trip limits with extra trips		
	Loss	Net rev	Loss	Diff net rev	% Diff	Loss	Diff net rev	% Diff
Texas	\$127	\$1,590	\$135	-\$8	-0.5%	\$136	-\$9	-0.6%
Western LA	\$86	\$2,525	\$103	-\$18	-0.7%	\$103	-\$17	-0.7%
Eastern LA-MS-AL	\$12	\$503	\$9	\$3	0.5%	\$10	\$2	0.3%
Northwest FL	\$137	\$2,654	\$129	\$8	0.3%	\$136	\$1	0.1%
West-Central FL	\$530	\$7,395	\$1,504	-\$974	-13.2%	\$1,217	-\$687	-9.3%
FL Keys	\$52	\$586	\$78	-\$26	-4.4%	\$79	-\$27	-4.6%
Other	\$0	\$9	\$0	\$0	0.0%	\$0	\$0	0.0%
<b>Total</b>	<b>\$944</b>	<b>\$15,263</b>	<b>\$1,958</b>	<b>-\$1,014</b>	<b>-6.6%</b>	<b>\$1,680</b>	<b>-\$737</b>	<b>-4.8%</b>
Because of rounding, losses may not sum to totals shown and totals may differ among tables.								

Supplemental Table 7.3.3 Summary of projected number of trips by gear type, and boats by alternative							
<b>2001-2003 costs</b>							
	Alt. 1:	Alternative 6: Quotas and trip limits (6,000)					
Gear Type	Quotas only	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Trips	Trips	Difference	% Diff	Trips	Difference	% Diff
Vertical Lines	7,770	7,910	140	2%	7,862	93	1%
Bottom Longlines	1,560	1,619	59	4%	1,633	73	5%
Fish Traps	414	421	8	2%	419	5	1%
Other Gears	399	403	3	1%	402	3	1%
Total	10,143	10,353	210	2%	10,317	174	2%
Boats	922	926	4	0%	913	-9	-1%
<b>Aug 2005 costs</b>							
	Alt. 1:	Alternative 6: Quotas and trip limits (6,000)					
Gear Type	Quotas only	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Trips	Trips	Difference	% Diff	Trips	Difference	% Diff
Vertical Lines	7,642	7,835	193	3%	7,766	124	2%
Bottom Longlines	1,508	1,579	71	5%	1,589	81	5%
Fish Traps	410	420	10	2%	417	7	2%
Other Gears	395	401	6	1%	399	4	1%
Total	9,955	10,235	280	3%	10,171	216	2%
Boats	918	924	6	1%	910	-8	-1%
Because of rounding, losses may not sum to totals shown and totals may differ among tables.							

Supplemental Table 7.3.4 Summary of projected number of trips by gear type and boats by alternative							
<b>2001-2003 costs</b>	Alt. 1:	Alternative 6: Quotas and trip limits (6,000)					
Fishing Area	Quotas only	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Trips	Trips	Difference	% Diff	Trips	Difference	% Diff
Texas	558	562	4	1%	561	3	1%
Western LA	1,097	1,101	4	0%	1,100	3	0%
Eastern LA-MS-AL	417	421	4	1%	420	2	1%
Northwest FL	3,394	3,474	80	2%	3,449	55	2%
West-Central FL	3,873	3,975	102	3%	3,972	100	3%
FL Keys	800	817	17	2%	812	12	1%
Other	3	3	0	0%	3	0	0%
Total	10,143	10,353	210	2%	10,317	174	2%
Boats	922	926	4	0%	913	-9	-1%
<b>Aug 2005 costs</b>	Alt. 1:	Alternative 6: Quotas and trip limits (6,000)					
Fishing Area	Quotas only	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Trips	Trips	Difference	% Diff	Trips	Difference	% Diff
Texas	537	548	11	2%	547	10	2%
Western LA	1,064	1,077	13	1%	1,074	10	1%
Eastern LA-MS-AL	394	405	11	3%	400	6	2%
Northwest FL	3,336	3,443	107	3%	3,404	68	2%
West-Central FL	3,837	3,951	114	3%	3,943	106	3%
FL Keys	784	808	24	3%	800	17	2%
Other	3	3	0	0%	3	0	0%
Total	9,955	10,235	280	3%	10,171	216	2%
Boats	918	924	6	1%	910	-8	-1%
Because of rounding, numbers of trips may not sum to totals shown and totals may differ among tables.							

Supplemental Table 7.3.5 Estimated closure dates based on fishery performance, by year						
<b>2001-2003 costs</b>	Alternative 1:		Alternative 6: Quotas and trip limits (6,000)			
Year	Quotas only		Trip Limits w/ no extra trips		Trip limits with extra trips	
	SWG	DWG	SWG	DWG	SWG	DWG
2000	18-Nov	17-Aug	8-Dec	23-Aug	6-Dec	23-Aug
2001	27-Nov	31-Oct	16-Dec	27-Nov	13-Dec	16-Nov
2002	11-Nov	29-Nov	16-Dec		2-Dec	30-Dec
2003		29-Jul		14-Aug		7-Aug
2004	13-Nov	7-Jun		24-Jun		16-Jun
<b>Aug 2005 costs</b>						
<b>Aug 2005 costs</b>	Alternative 1:		Alternative 6: Quotas and trip limits (6,000)			
Year	Quotas only		Trip Limits w/ no extra trips		Trip limits with extra trips	
	SWG	DWG	SWG	DWG	SWG	DWG
2000	19-Nov	17-Aug	11-Dec	23-Aug	7-Dec	23-Aug
2001	28-Nov	31-Oct	16-Dec	27-Nov	14-Dec	16-Nov
2002	11-Nov	29-Nov	16-Dec		2-Dec	
2003		29-Jul		14-Aug		7-Aug
2004	14-Nov	7-Jun		24-Jun		17-Jun



Supplemental Table 7.3.6 Summary of projected landings by gear type (thousands of pounds, gutted weight), differences relative to landings for Alternative 1 (quotas only)

<b>2001-2003 costs</b>	Historical	Alt. 1:	Alternative 6: Quotas and trip limits (6,000)					
Gear Type		Quotas only	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Landings	Landings	Landings	Difference	% Diff	Landings	Difference	% Diff
Vertical Lines	3,561	3,297	3,363	66	2%	3,343	46	1%
Bottom Longlines	5,614	5,079	4,672	-407	-8%	4,797	-281	-6%
Fish Traps	863	843	824	-18	-2%	822	-21	-2%
Other Gears	70	67	68	1	2%	68	1	2%
<b>Total</b>	<b>10,107</b>	<b>9,285</b>	<b>8,927</b>	<b>-358</b>	<b>-4%</b>	<b>9,030</b>	<b>-255</b>	<b>-3%</b>

  

<b>Aug 2005 costs</b>	Historical	Alt. 1:	Alternative 6: Quotas and trip limits (6,000)					
Gear Type		Quotas only	Trip Limits w/ no extra trips			Trip limits with extra trips		
	Landings	Landings	Landings	Difference	% Diff	Landings	Difference	% Diff
Vertical Lines	3,561	3,284	3,353	68	2%	3,332	48	1%
Bottom Longlines	5,614	5,046	4,643	-403	-8%	4,764	-282	-6%
Fish Traps	863	843	824	-18	-2%	822	-21	-2%
Other Gears	70	67	68	1	2%	68	1	2%
<b>Total</b>	<b>10,107</b>	<b>9,240</b>	<b>8,888</b>	<b>-351</b>	<b>-4%</b>	<b>8,986</b>	<b>-254</b>	<b>-3%</b>

Because of rounding, losses may not sum to totals shown and totals may differ among tables.