

9/17/2010

**REGULATORY AMENDMENT
TO THE REEF FISH FISHERY
MANAGEMENT PLAN**

**TO SET 2011 TOTAL ALLOWABLE CATCH
FOR RED GROUPER AND ESTABLISH MARKING
REQUIREMENTS FOR BUOY GEAR**

**September 2010
(Including Revised Environmental Assessment,
Regulatory Impact Review, and
Regulatory Flexibility Analysis)**



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FINDING OF NO SIGNIFICANT IMPACT

National Oceanic and Atmospheric Administration (NOAA) Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. On July 22, 2005, NOAA published a Policy Directive with guidelines for the preparation of a Finding of No Significant Impact (FONSI). In addition, the CEQ regulations at 40 C.F.R. Section 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 to 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, the recent Policy Directive from NOAA, 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?

Response: No, the proposed action would not jeopardize the sustainability of the target species. The most recent stock assessment update projects indicated that although the stock continues to be neither overfished or undergoing overfishing, the stock has declined since 2005. This decline was attributed to a 2005 episodic mortality event. The proposed action is intended to ensure the catch for 2011 will remain below the overfishing threshold, so that overfishing does not occur and the stock can increase to the stock biomass needed to harvest the equilibrium optimum yield. The Council’s Scientific and Statistical Committee recommended an acceptable biological catch at 6.31 million pounds (MP) gutted weight (GW). This difference between the overfishing threshold (7.42 MP GW) and the acceptable biological catch allows for scientific uncertainty in the assessment. The Scientific and Statistical Committee’s recommendation for acceptable biological catch is precautionary, recommending harvests slightly above that which would be achieved if the fishery were fishing at optimum yield (5.68 MP GW).

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

Response: No, the proposed action will not jeopardize the sustainability of any non-target species, and is not expected to substantially alter standard fishing practices during the 2011 fishing season. The action is intended to allow a decrease in the harvest of red grouper in the U.S. waters of the Gulf of Mexico (Gulf) from 7.57 to 5.68 MP GW, based on recent scientific advice indicating a decline in the status of the stock. Decreasing the total allowable catch could result in a shift in effort to other species, but this would be minimal for the recreational sector where regulations would not change as a result of this action. There could be a shift towards other species in the commercial sector, but harvest of the most desirable species is closely regulated through either an individual fishing quota program or through quotas. In addition, the red grouper commercial sector which lands approximately 80% of red grouper has not met its quota since 2006, so any shift in effort is unlikely.

3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat (EFH) as defined under the Magnuson-Stevens Act and identified in FMPs?

Response: No, the proposed action is not reasonably expected to cause substantial damage to the ocean and coastal habitats and/or EFH in the U.S. waters of the Gulf. Outside this proposed action, oil contamination to coastal and ocean habitats from the Deepwater Horizon MC252 oil spill is expected to have long-term significant impacts to major portions of the Gulf. This action should lessen overall impacts to EFH because effort needed to catch the allowable harvest will be reduced. Nevertheless, longline and vertical line gear has the potential to snag and entangle bottom structures. Although individual gear has a very small footprint the cumulative impact of the commercial and recreational fishing sector results in a large amount of gear being placed in the water, increasing the potential for impact. Additionally, anchoring can add to the potential damage of the bottom at fishing locations.

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

Response: No, the proposed action is not reasonably expected to have a substantial adverse impact on public safety or health. The commercial red grouper fishery in the Gulf of Mexico operates under an individual fishing quota, which removes the need to “race for the fish”, thus allowing fishermen to better choose when and how they want to fish. This increases safety at sea by eliminating the need for a derby fishery. The decrease from 7.57 MP to 5.68 MP GW in allowable harvest is not expected to substantially alter the manner in which the recreational fishery in the Gulf of Mexico is prosecuted. There is the potential that red grouper contaminated with oil from the Deepwater Horizon MC252 oil spill could be caught. However, federal and State governments have strong systems in place to test and monitor seafood safety and to prohibit harvesting from affected areas, keeping oiled products out of the market. NOAA Fisheries Service is working closely with the U.S. Food and Drug Administration (FDA) and the States to ensure seafood safety. The first and most important preventive step in protecting the public from potentially contaminated seafood is from NOAA Fisheries Service’s actions to close fishing and shellfish harvesting areas in federal waters of the Gulf that have been or are likely to be exposed to oil from the spill. In addition, NOAA and FDA are monitoring fish caught just outside of closed areas, and testing them for petroleum compounds, to ensure that the closed areas are sufficiently large so as to prevent the harvest of contaminated fish. NOAA conducts a combination of both sensory analysis (of tissue) and chemical analysis (of water, sediment, and tissue) to determine if seafood is safe. If managers determine that seafood may be affected, the next step is to assess whether seafood is tainted or contaminated to levels that could pose a risk to human health through consumption. So far, fish flesh tested from outside the closure areas have tested well below any level of concern for oil-based contamination.

5) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

Response: No, the proposed action is not expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species as the proposed action is not expected to substantially alter the manner in which the fishery is conducted in the Gulf of Mexico. A 2009 biological opinion for the Gulf of Mexico reef fish fishery determined the fishery is not likely to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of National Marine Fisheries Service or result in the destruction or adverse modification of critical habitat. In addition, the Gulf of Mexico reef fish fishery is classified in the 2010 Marine Mammal Protection Act List of Fisheries as Category III fishery

(74 FR 58859, November 16, 2009). This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from the fishery is less than or equal to 1% of the potential biological removal. Dolphins are the only species documented as interacting with this fishery. Bottlenose dolphins may feed on the bait, catch, and/or released discards of the reef fish fishery.

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.)?

Response: No, the proposed action is not expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area. The proposed action to decrease the allowable harvest of red grouper is not expected to substantially alter the manner in which the fishery is conducted in the Gulf of Mexico. Therefore, this action is not expected to further alter biodiversity or ecosystem function.

7) Are significant social or economic impacts interrelated with natural or physical environmental effects?

Response: No, the proposed action would not create any significant social or economic impacts interrelated with natural or physical environmental effects. Allowing decreased harvest of red grouper by both the commercial and recreational fishing sectors will have direct and indirect social and economic impacts to their respective sectors and to the shoreside operations that support them. However, these impacts are not related to, nor have an impact on, the natural or physical environment.

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

Response: No, the effects on the quality of the human environment are not likely to be highly controversial. The only source of controversy for the proposed action is that the fishing industry often questions the validity of the science involved in the estimates of annual harvest and the status of the various targeted fish stocks. However, because the commercial fishery has not met its quota since 2006 and there are no management changes for the recreational sector, this source of controversy will likely be minimal.

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, EFH, or ecologically critical areas?

Response: No, the proposed action is not reasonably expected to result in substantial impacts to unique areas, park land, prime farmlands, wetlands, wild and scenic rivers, or EFH. This action affects federal waters of the Gulf of Mexico. In regard to ecologically critical areas in the Gulf, areas such as the Flower Gardens and the Tortugas Marine Sanctuaries are closed to fishing and the Madison Swanson and Steamboat Lumps ecologically-critical areas are closed to bottom fishing. The action should have no impact on the *U.S.S. Hatteras*, located in federal waters off Texas, which is listed in the National Register of Historic Places; fishing occurs over this wreck, but the action is not expected to increase overall fishing effort. Therefore, there would be no additional impacts on these components of the environment from the proposed action.

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

Response: No, the effects on the human environment are not likely to be highly uncertain or involve unique or unknown risks. This action proposes to adjust the total allowable catch of red grouper, in accordance with approved procedures outlined in the Council's Reef Fish FMP. Adjustments to total allowable catch are made regularly in many fisheries, based on updated information regarding the status of a specific stock or stocks.

11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: No, there are no past or reasonably foreseeable future actions related to the proposed red grouper management action with individually insignificant but cumulatively significant impacts. The proposed action to decrease the allowable harvest of red grouper is not expected to substantially alter the manner in which the fishery is conducted. However, because of reductions in the total allowable catch needed to end overfishing for gag, some aspects of the red grouper harvest may need to be further regulated. The degree of the needed regulations on red grouper (if any) are not known at this time.

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 historical resources?

Response: The proposed action does not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. The action should have no impact on the *U.S.S. Hatteras*, located in federal waters off Texas, which is listed in the National Register of Historic Places; fishing occurs over this wreck, and the action does not increase overall fishing effort. Additionally, red grouper are not targeted in the western Gulf as red grouper are more commonly found in eastern Gulf waters. The proposed action is not expected to cause loss or destruction of significant scientific, cultural, or historical resources because there are none located in the affected area.

13) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

Response: No, the proposed action is not reasonably expected to result in the introduction or spread of a non-indigenous species. The proposed action to decrease the allowable harvest of the regional red grouper stock is not expected to substantially alter the manner in which the fishery is conducted. The fishery is prosecuted within the boundaries of the Gulf of Mexico reducing the likelihood of introducing non-indigenous species. The lionfish (*Pterois miles* and *P. volitans*) could be caught by reef fish fishermen, these species would be either released at the point of capture or killed consistent with the manner the fishery is prosecuted thus minimizing the spread of this species.

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?

Response: No, the proposed action does not establish a precedent for future action with significant effects, and it does not represent a decision in principle about future consideration. Fishing effort for gag is regulated through individual fishing quotas, size limits, and other fishing restrictions. The Council has based its decision on updated scientific information summarized in the EA regarding the status of the stock. The assessment indicates the stock has been depressed by an episodic mortality event but is not considered overfished and undergoing overfishing. Action is needed to allow the stock to recover to target levels. The proposed action, conducted in accordance with regulations established under the FMP, as amended to date, in no way constitutes a decision in principle about a future consideration. FMPs and their implementing regulations are always subject to future changes. The Council and NMFS have discretion to amend the FMP and accompanying regulations and may do so at any time, subject to the Administrative Procedures Act, National Environmental policy Act, and other applicable laws.

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?

Response: No, the proposed action is being taken pursuant to federal legal mandates for the management of fishery resources and does not implicate state or local requirements. It is not reasonably expected to threaten a violation of federal, state, local law, or requirements imposed for the protection of the environment.

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

Response: No, the proposed action is not reasonably expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species. In general, the proposed action to decrease the allowable harvest of red grouper is not expected to substantially alter the manner in which the fishery is conducted. The proposed harvest levels are adjusted well below the overfishing threshold to ensure overfishing does not occur. There may be some increasing of fishing pressure on a variety of other reef fish and non-targeted stocks, because of the decreased ability to harvest red grouper.

DETERMINATION:

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for this framework action to the FMP for the Reef Fish Fishery Resources of the Gulf of Mexico, it is hereby determined that this framework action will not significantly impact the quality of the human environment as described above and in the supporting Environmental Assessment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement (EIS) for this action is not necessary.



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7/17/2016
Date

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ABBREVIATIONS USED IN THIS DOCUMENT

| | |
|----------------------|--|
| ABC | Acceptable biological catch |
| ACL | Annual catch limit |
| ACT | Annual catch target |
| ALS | Accumulated Landings System |
| AM | Accountability measure |
| APA | Administrative Procedure Act |
| AW | Assessment workshop |
| Council | Gulf of Mexico Fishery Management Council |
| CS | Consumer surplus |
| CZMA | Coastal Zone Management Act |
| DQA | Data Quality Act |
| DWG | Deepwater grouper |
| EA | Environmental assessment |
| EEZ | Exclusive economic zone |
| EFH | Essential Fish Habitat |
| EIS | Environmental impact statement |
| EJ | Environmental Justice |
| ELMR | Estuarine Living Marine Resources |
| ESA | Endangered Species Act |
| F | Fishing mortality |
| FLS | Federal Logbook System |
| FMP | Fishery management plan |
| FTE | Full time equivalent |
| GMFMC | Gulf of Mexico Fishery Management Council |
| Gulf | Gulf of Mexico |
| GW | Gutted Weight |
| HAPC | Habitat Areas of Particular Concern |
| HMS | Highly Migratory Species |
| IFQ | Individual fishing quota |
| IRFA | Initial Regulatory Flexibility Analysis |
| LOF | List of Fisheries |
| MFMT | Maximum Fishing Mortality Threshold |
| MMPA | Marine Mammal Protection Act |
| MP | Million Pounds |
| MRFSS | Marine Recreational Fisheries Statistics Survey |
| MSST | Minimum Stock Size Threshold |
| Magnuson-Stevens Act | Magnuson-Stevens Fishery Conservation and Management Act |
| MSY | Maximum sustainable yield |
| NMFS | NOAA's National Marine Fisheries Service |
| NOAA | National Oceanographic and Atmospheric Administration |
| NOR | Net operating revenue |
| NOS | National Ocean Service |
| OFL | Overfishing limit |
| OMB | Office of Management and Budget |
| OY | Optimum yield |
| PRA | Paperwork Reduction Act |

| | |
|-------|---|
| PS | Producer surplus |
| RFA | Regulatory Flexibility Act |
| RIR | Regulatory impact review |
| SAFMC | South Atlantic Fishery Management Council |
| SEDAR | Southeast Data, Assessment, Review |
| SEFSC | Southeast Fisheries Science Center |
| SEIS | Supplemental environmental impact statement |
| SERO | Southeast Regional Office |
| SMZ | Special Management Zone |
| SPR | Spawning potential ratio |
| SSBR | Spawning stock biomass per recruit |
| SSC | Scientific and Statistical Committee |
| SWG | Shallow-water grouper |
| TAC | Total allowable catch |
| TL | Total length |
| USCG | United States Coast Guard |

ENVIRONMENTAL ASSESSMENT COVER SHEET

Responsible Agencies and Contact Persons

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Name of Action

Regulatory Amendment to the Reef Fish Fishery Management Plan to Set Allowable Catch for Red Grouper

Type of Action

Administrative Legislative
 Draft Final

ABSTRACT

The 2009 update stock assessment of the red grouper stock (SEDAR 2009a) indicated that, although the stock continues to be neither overfished or undergoing overfishing, the stock has declined since 2005. This decline was attributed to a 2005 episodic mortality event resulting in a little over 20% of the red grouper stock being killed, in addition to normal natural and fishing mortalities. Therefore, there is a need to improve the stock condition to a level where, at equilibrium, the stock can be harvested at optimum yield (OY). In addition, there is a need to implement rulemaking resulting from this amendment prior to January 1, 2011. The reason is so the 2011 commercial red grouper quota can be set and allow individual fishing quota (IFQ) shares to be adjusted to reflect any change in the total allowable catch (TAC). This environmental assessment evaluates three alternatives to meet these needs: maintain the TAC at 7.57 million pounds gutted weight (MP GW) (no action), reduce TAC to 6.31 MP GW (the highest allowable level), or reduce TAC to 5.68 MP GW (consistent with the Council's management objective). The commercial quota would be based on the 76%:24% commercial and recreational allocation. This document also addresses a need to label buoy gear with changes to the buoy gear definition in a second action. Two alternatives were evaluated to either mark the gear or not mark the gear. For the first action, the effects on the physical and biological environments tend to be reduced with lower TAC levels because they reduce fishing effort while the second action is neutral to these environments. The effects on the economic and social environments of the first action tend to be reduced in the short term with higher TAC levels, but can have long term implications if the stock is allowed to become overfished. The second action has minor costs associated with it. The administrative environment should not be effected by any of the alternatives of the first action because harvest restrictions and IFQ management would remain unchanged. Marking buoys as a result of the second action would be expected to improve the administrative environment by improving enforceability of buoy gear regulations.

EXECUTIVE SUMMARY

This consolidated regulatory amendment, environmental assessment, regulatory impact review, and regulatory flexibility analysis addresses two actions: To set the red grouper total allowable catch and evaluates three alternatives including a no action alternative; and whether to require buoy gear floats to be marked and evaluates two actions including a no action alternative. The actions apply to the reef fish fishery of the Gulf of Mexico and amends management measures developed under the Gulf of Mexico Fishery Management Council's (Council's) Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico. Authority for these measures is provided by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Red grouper is one of the most abundant grouper species in the Gulf of Mexico and is a major component of both the commercial and recreational sectors of the reef fish fishery. Most red grouper are caught by the commercial sector (about 80% on average). Management differs between the commercial and recreational sectors. The commercial sector is managed under an individual fishing quota (IFQ) system starting on January 1, 2010, and the recreational sector is managed with minimum size limits, aggregate and species-specific bag limits, and a closed season (February 1-March 31). Both sectors are subject to area closures.

Red grouper were declared overfished and placed under a rebuilding plan in 2004. A later assessment (2007) confirmed that the red grouper stock was overfished in the 1990s, but estimated the spawning stock had rebuilt and was close to its optimum yield spawning stock biomass level. With this change in stock status, new regulations were put in place in 2009 that increased the commercial red grouper quota from 5.31 to 5.75 million pounds and increased the red grouper bag limit to two fish (within a four-fish grouper aggregate bag limit). In the same amendment that established these regulations (Amendment 30B), the Council stated their intent to set red grouper annual catch limits at the equilibrium (i.e., long-term average) maximum sustainable yield or optimum yield level or the current year yield corresponding to the fishing mortality at maximum sustainable yield (F_{MSY}) or fishing mortality at optimum yield (F_{OY}), whichever is less.

A 2009 stock assessment update of the red grouper stock in the Gulf of Mexico (SEDAR 2009a) indicated the stock continues to be neither overfished or undergoing overfishing. However, the stock size had declined since 2005. A large part of this decline was attributed to an episodic mortality event in 2005 (most likely associated with red tide), that resulted in a little over 20% of the red grouper stock being killed on top of the normal natural and fishing mortalities. Based on this assessment, the Council's Scientific and Statistical Committee (SSC) recommended a 2011 acceptable biological catch level of 6.31 million pounds gutted weight (MP GW). This value is in excess of the present annual catch target of 7.57 MP GW.

The Council and NMFS have determined the established definition of buoy gear is ambiguous, which limits the enforceability of this gear type. Therefore, NMFS is proposing to modify its definition of buoy gear as used in the Gulf of Mexico reef fish fishery with the Council's concurrence. The proposed definition is more specific by limiting the number of hooks, limiting the terminal end weight, restricting materials used for the line, restricting the length of the drop line, and where the hooks may be attached. In addition, the Council requested that each buoy

must display the official number of the vessel (USCG documentation number or state registration number) to assist law enforcement in monitoring the use of the gear, which requires rulemaking

One purpose of this consolidated environmental assessment and regulatory amendment is to evaluate a decrease in total allowable catch and make the resulting commercial quota consistent with the goals and objectives of the Council's plan to manage red grouper to achieve the mandates of the Magnuson-Stevens Act. As indicated above, the 2009 update stock assessment of the red grouper stock indicated that although the stock continues to be neither overfished or undergoing overfishing, the stock has declined since 2005. Therefore, there is a need to improve the stock condition to a level where, at equilibrium, the stock can be harvested at OY. In addition, there is a need to implement rulemaking resulting from this amendment prior to January 1, 2011, so the 2011 commercial red grouper quota can be set to allow IFQ allocation to be adjusted to reflect any change in the quota. It is the intent of the Council that the recreational and commercial allocation of the stock annual catch limit will remain consistent with Amendment 30B where 24% is allocated to the recreational sector and 76% is allocated to the commercial sector. Because current regulations are sufficient to constrain the recreational harvest within its allocation, no recreational measures are evaluated in this amendment.

The other purpose of this document is to evaluate changing the definition of buoy gear, as defined in § 622.2. The Council requested NMFS add a requirement that buoys used in the deployment of this gear display the official number of the vessel on the buoy. The need for this requirement is to enhance the enforceability of the use of this gear. Without such labelling, fishermen could deploy the gear illegally and not be held accountable unless enforcement caught them in the act.

Action 1 evaluates a decrease of total allowable catch (TAC) of red grouper and make the resulting commercial quota consistent with the goals and objectives of the Fishery Management Plan for the Reef Fish Fishery of the Gulf of Mexico while achieving the mandates of the Magnuson-Stevens Act. The alternatives considered are:

Alternative 1: No Action - Maintain total allowable catch* at the SEDAR 12 equilibrium OY level as defined in the Amendment 30B. Total allowable catch would be 7.57 million pounds gutted weight (MP GW). Based on the 76%:24% commercial and recreational allocation of red grouper, the commercial quota would be 5.75 MP GW, and the recreational allocation would be 1.82 MP GW.

Alternative 2: Set the 2011 total allowable catch equal to the Scientific and Statistical Committee's recommended 2011 acceptable biological catch of 6.31 MP GW. This value represents 85% of the respective overfishing level (yield at F_{MSY}). Based on the 76%:24% commercial and recreational allocation of red grouper, the commercial quota would be 4.80 MP GW for 2011, and the recreational allocation would be 1.51 MP GW. After 2011, the total allowable catch and commercial quota would remain at the 2011 levels until modified by a subsequent amendment or framework procedure.

Preferred Alternative 3: Set the 2011 total allowable catch based on the yield projection for fishing at F_{OY} using the projection scenario recommended by the Scientific and Statistical Committee for setting the acceptable biological catch. Total allowable catch would be 5.68 MP GW for 2011. Based on the 76%:24% commercial and recreational

allocation of red grouper, the commercial quota would be 4.32 MP GW and the recreational allocation would be 1.36 MP GW for 2011. The total allowable catch and commercial quota would remain at the 2011 levels until modified by a subsequent amendment or framework procedure.

Alternative 1, no action, would maintain the current TAC of 7.57 as defined in Amendment 30B. Selection of this alternative would be inconsistent with current National Standard 1 guidance (71 FR 3180) because TAC would be above the acceptable biological catch (ABC) recommended by the Council's SSC of 6.31 MP GW. **Alternative 2** would set the TAC at the highest level allowed, or equal to the SSC's ABC recommendation. This amount is equal to 85% of the yield at F_{MSY} and was felt by the SSC to sufficiently reduce the probability that overfishing might occur in 2011. However, this alternative is inconsistent with the Council's method used in Amendment 30B where the annual catch target would be based on the yield associated with the fishing mortality associated with the optimum yield (F_{OY}). Preferred **Alternative 3** is the most conservative level of TAC and is based on the yield at F_{OY} . The TAC set from this alternative would have the lowest probability of overfishing of any of the considered alternatives.

Action 2 evaluates alternatives to require buoy gear used by the commercial Gulf of Mexico reef fish sector to mark gear with the official number of a vessel. The alternatives considered are:

Alternative 1: No Action – For buoy gear used in the Gulf of Mexico as defined in § 622.2, each buoy used with the gear does not need to display the official number of the vessel.

Preferred Alternative 2: For buoy gear used in the Gulf of Mexico, each buoy used with the gear must display the official number of the vessel.

The Council and NMFS have determined the established definition of buoy gear is ambiguous, which limits the enforceability of this gear type. In developing a new definition for buoy gear, the Council requested NMFS require the buoys used to mark deployed buoy gear display the official number of the vessel. **Alternative 1** is the no action alternative and would not require buoys to be marked. By not marking buoys, enforcement of buoy gear would be very difficult. Law enforcement personnel would not be able to determine who set gear if left unattended. **Preferred Alternative 2** requires the buoys be marked with vessel information. This will assist law enforcement agencies in identifying illegally set gears they come across as they monitor the commercial sector.

The effects of these actions on the physical and biological environments are positively related with fishing effort. When fishing effort increases, the effects on these environments increase. Assuming higher allowable landings result in greater fishing effort, **Action 1**, **Alternative 1** would have the greatest effect on these environments, followed by **Alternative 2**, and then **Preferred Alternative 3**. The capture of red grouper is primarily accomplished with longline and vertical line gear. These gear types primarily affect the physical environment by snagging and becoming entangled with the bottom. Higher fishing effort levels can have a negative direct effect on the red grouper biological environment by depressing the stock size (harvest and discards) or altering the community dynamics within this species' habitat. The Acton 2

alternatives would not affect fishing effort and so would be considered to have little or no impacts on the physical and biological environments.

The potential economic effects on the commercial sector of the **Action 1** alternatives were evaluated by measuring expected changes in annual gross revenues from commercial red grouper harvests between alternatives. Under **Alternative 1**, the annual ex-vessel value of red grouper harvested under the IFQ program is estimated at \$16.39 million (2008 dollars). **Alternative 2** was estimated to have an ex-vessel value at approximately \$13.68 million and **Preferred Alternative 3** was estimated at approximately \$12.31 million dollars. For the recreational sector, economic activity was characterized in the form of full time equivalent jobs, income impacts, output impacts, and value added impacts. With the lowering of the TAC from **Alternative 1** to **Preferred Alternative 3**, the analysis found there were greater decreases in economic activity as the TAC decreased. Because the well being of the social environment is linked to economic activity, the effects of the management measures to this environment mirror that of the economic environment.

Action 2 would have a minimal effect on the economic and social environments. **Alternative 1** would have no costs associated with it while **Preferred Alternative 2**, which would require fishermen to display the official number of their vessel on each buoy used, would have expenses associated with marking the gear. However, it is anticipated that **Preferred Alternative 2** would result in positive economic effects due to better monitoring and enforcement of regulations.

Because none of the **Action 1** alternatives would change the regulations currently in use to manage the fishery, the administrative environment would likely remain unchanged regardless of the alternative selected. NOAA Fisheries Service would continue to monitor the fishery and enforce the regulations to prevent overharvest of the stock. **Action 2, Alternative 1** would also not change the administrative environment. **Preferred Alternative 2** would be expected to positively affect the administrative environment because it would ease the monitoring and enforcement of regulations relative to buoy gear.

With respects to the cumulative effects, short-term negative impacts on the fishery's socioeconomic environment have occurred and are likely to continue due to the need to limit directed harvest and reduce bycatch mortality. These negative impacts can be minimized by selecting measures that would provide the least disruption to the fishery while maintaining total allowable catch consistent with the rebuilding plan. Given reductions in harvest needed for gag, further constraints may need to be applied to red grouper regulations to minimize gag regulatory discards. Global climate changes could have significant effects on Gulf fisheries; however, the extent of these effects is not known at this time. Additionally, the DeepHorizon/BP oil spill that occurred in April 2010 may affect red grouper populations by adversely affecting important habitat or interrupting critical life stages. However, the effects of this spill on red grouper and other reef fish populations are not understood and it may take time to assess what the effects are. Changes in the physical, biological, socioeconomic, and administrative environment will continue to be monitored and assessed by NOAA Fisheries Service and other agencies through data collection, stock assessments, and support of scientific studies. Currently, an update SEDAR assessment of Gulf of Mexico red grouper is scheduled for 2013.

1.0 INTRODUCTION

1.1 Background

Total allowable catch

Red grouper is one of the most abundant grouper species in the Gulf of Mexico (Gulf). Between 1999 and 2008, this species accounted for approximately 28% of the recreational grouper landings and 58% of commercial grouper landings in the Gulf (personal communication, Nick Farmer, SERO¹). Most red grouper are caught by the commercial sector (approximately 80% over the same time period). This species, like many grouper species, is a protogynous hermaphrodite, meaning that they start life as females and change sex to males later in life.

Management of this species differs between the commercial and recreational sectors. For the commercial grouper fisheries, an individual fishing quota (IFQ) system has been effective since January 1, 2010. Under this system, percentages of the commercial grouper quotas are allocated to IFQ participants who can then fish or trade their shares. Management of the recreational sector consists of minimum size limits, aggregate and species-specific bag limits, and a closed season (February 1-March 31). Both sectors are subject to a seasonal area closure of the Edges (i.e., January 1-April 30). In addition, all reef fish fishing is prohibited year round in two restricted fishing areas in the northwestern Gulf (Madison-Swanson and Steamboat Lumps), as well as the Tortugas Ecological Reserves off of the Florida Keys. These area closures are explained in more detail in Section 2.1.

Red grouper were declared overfished and placed under a rebuilding plan in 2004. The stock had been found to be overfished and undergoing overfishing in both a 1999 stock assessment (Schirripa and Legault 1999) and a subsequent 2002 assessment (NMFS 2002). However, the 2002 assessment indicated that the stock was recovering faster than previously estimated, most likely due to a strong recruitment year class in 1997. Management measures implemented in 2004 as part of the rebuilding plan included a reduced aggregate commercial shallow-water grouper quota, a red grouper quota within the aggregate quota, and a recreational bag limit of two red grouper within the five-fish aggregate grouper bag limit. In 2005, stepped commercial grouper trip limits (10,000, 7,500, and 5,500 pounds) were adopted for the commercial sector, and the recreational red grouper bag limit was further reduced to one fish. For 2006 through 2009, a fixed 6,000-pound commercial grouper trip limit was adopted. In 2007, the SEDAR 12 assessment confirmed the red grouper stock was overfished in the 1990s, but estimated the red grouper spawning stock had rebuilt to biomass at maximum sustainable yield starting in 1999, and that the 2005 stock status was close to its optimum yield spawning stock biomass level (SEDAR 12 2007). Consequently, the red grouper rebuilding plan could be replaced with a management policy to maintain the stock at its optimum yield level.

In response to the SEDAR 12 findings, Amendment 30B implemented new regulations for red grouper in 2009. These regulations reduced the gag recreational bag limit to two fish and the aggregate grouper bag limit to four fish, while increasing the red grouper bag limit to two fish. The commercial red grouper quota was increased from 5.31 to 5.75 million pounds gutted weight

¹ Dr. Nick Farmer, NOAA Fisheries Service, Southeast Regional Office, 263 13th Avenue South, St. Petersburg, Florida

(MP GW) representing an increase to the commercial allocation level of long-term average optimum yield. The Edges seasonal area closure, January-April, was added to the existing Madison-Swanson and Steamboat Lumps seasonal closures to protect spawning aggregations of gag. Amendment 30B also stated that, after completion of the next red grouper stock assessment or update, the Council's intent was to set red grouper annual catch limits, at the equilibrium (i.e., long-term average) maximum sustainable yield or optimum yield level or the current year yield corresponding to the fishing mortality at maximum sustainable yield (F_{MSY}) or fishing mortality at optimum yield (F_{OY}), whichever is less².

In 2009, new observer data indicated that sea turtle interactions with the bottom longline component of the reef fish fishery in the eastern Gulf were higher than previously estimated. Temporary measures restricting the where bottom longlines could be used for reef fish were put in place from May 18-June 28, 2010, until Amendment 31 was implemented. Measures from Amendment 31 included new requirements for the bottom longline component of the reef fish fishery including: an endorsement to fish east of Cape San Blas, time area closure during the months of June-August from 35 fathoms shoreward for bottom longline gear, and limiting gear to 1,000 hooks per vessel, with 750 rigged for fishing or fished. These measures are designed to lower longline effort. Bottom longlines account for the majority of commercially landed red grouper in the Gulf of Mexico.

The 2009 update stock assessment of the red grouper stock in the Gulf of Mexico (SEDAR 2009a) indicated the stock continues to be neither overfished or undergoing overfishing. However, the stock has declined since 2005. A large part of this decline was attributed to an episodic mortality event in 2005 (most likely associated with red tide), that resulted in a little over 20% of the red grouper stock being killed on top of the normal natural and fishing mortalities (personal communication, Clay Porch, SEFSC³). The annual catch target currently in effect was found to exceed the optimum yield level for 2010 from the model runs preferred by the Gulf of Mexico Fishery Management Council's (Council's) Scientific and Statistical Committee (SSC). After reviewing the assessment update, the SSC asked that projections of the status of red grouper and gag be rerun using updated landings estimates for 2009. The SSC was concerned that projected 2009 and 2010 harvest levels based on the current total allowable catches were too high and did not reflect actual landings. The requested scenarios used the 'red tide, constant catchability' model for red grouper, used updated estimates for 2009 landings data, and either set the 2010 harvest level equal to the current TAC or equal to 2009 estimated landings (NMFS 2010). The resulting analysis reported the present annual catch target (i.e., 7.57 MP GW) exceeded the 2011 acceptable biological catch level set by the SSC (6.31 MP GW) and 2011 optimum yield level (i.e., 5.68 MP GW) selected by the Council as the level to set the annual catch target.

² In Amendment 30B the Council chose to set the annual catch limit based on maximum sustainable yield and annual catch target based on optimum yield. The upper level of acceptable biological catch = maximum sustainable yield. However, under the National Standard 1 guidelines, the acceptable biological catch will normally be less than maximum sustainable yield, and annual catch limit cannot exceed acceptable biological catch. In the remainder of this document, 30B will be interpreted to have set annual catch limit = acceptable biological catch.

³ Dr. Clay Porch, NMFS Southeast Fisheries Science Center, Miami, Florida

A SEDAR update assessment for Gulf gag was also conducted in 2009. Recent discussions of how the gag update assessment treated commercial⁴ and recreational discards prompted the Council at its August 2010 meeting to request the Southeast Fisheries Science Center (SEFSC) to revisit its decisions on the size distribution of recreational discards and magnitude of commercial discards for gag grouper. The Council limited its request for red grouper to a sensitivity model run substituting observer-based commercial discard estimates in place of the existing estimates. The additional concerns for gag arose because the discard sizes for headboats were assigned using headboat observer data, but the discard sizes for the private and charter modes were assigned using a combination of the Mote Marine Laboratory tagging data and four fishery-dependent data sources. A consequence of this assignment was that the imputed size distribution for the private/charter fleets during the most recent four years was unexpectedly narrow and close to the recreational minimum size limit. In contrast, for red grouper the recreational discard sizes for all recreational modes were assigned using the headboat observer data and the imputed size distribution was not so truncated near the size limit. Although the Council did request the 2009 update panel to review the gag update assessment, they did not make a similar request for red grouper because the effects of these discrepancies did not trigger the same level of concern, particularly given the differences in how recreational discard size distributions were estimated. In addition, the Council determined the need to have a TAC reduction in place by January 1, 2011, was important so IFQ allocations can be distributed to shareholders at the beginning of the fishing year. However, the Council also recognized the effects on the red grouper assessment from potential changes in discard estimation should be evaluated for possible action in the near future.

Buoy Gear

In 1990, through Amendment 1 to the Gulf Reef Fish FMP, the Council established and NMFS implemented, in § 622.34(c), a longline and buoy gear boundary, shoreward of which the directed harvest of reef fish with longlines and buoy gear was prohibited. After this boundary was established, the use of buoy gear reduced significantly. Buoy gear is not commonly used in the South Atlantic snapper-grouper fishery, however, a resurgence of the use of buoy gear in the Gulf reef fish fishery has occurred since NMFS implemented a series of emergency regulations in 2009 to protect sea turtles. Many reef fish bottom longline vessels began using a modified version of traditional buoy gear to continue fishing in areas where bottom longlines were prohibited through emergency regulations initiated May 1, 2009 (74 FR 20229) and revised October 21, 2009 (74 FR 53889). Subsequently, reef fish vessels that did not qualify for a bottom longline endorsement through the regulations implementing Amendment 31 in May 2010 are converting to buoy gear to continue fishing for reef fish in the eastern Gulf.

Buoy gear is listed as an authorized gear in the hook-and-line component of the Gulf reef fish fishery under the Allowable Gear Rule (§ 600.725, 64 FR 67511). The Council and NMFS proposed revising the definition of buoy gear, as defined in § 622.2, through this rulemaking.

Buoy gear for use in the Gulf reef fish fishery is legally defined in § 622.2 as fishing gear consisting of a float and one or more weighted lines suspended there from, generally long

⁴ Memo from Bonnie Ponwith, SEFSC, to Roy Crabtree, SERO regarding a data request to re-evaluate commercial dead discard estimates for gag using available reef fish observer data.

enough to reach the bottom. A hook or hooks (usually 6-10) are on the lines at or near the end. The float and line(s) drift freely and are retrieved periodically to remove catch and re-bait hooks.

The Council and NMFS have determined the established definition of buoy gear is ambiguous, which limits the enforceability of this gear type. Under the current definition, there can be any number of lines suspended from a float, and although the number of hooks is recommended to be 6-10, there is no real restriction on the number of hooks that can be fished per float. Therefore, NMFS is proposing with the Council's to modify its definition of buoy gear as used in the Gulf of Mexico reef fish fishery. The proposed definition is more specific by limiting the number of hooks to no more than 10, limiting the terminal end weight to no more than 10 lbs, restricting the line to rope (not cable or wire), restricting the length of the drop line to no greater than two times the depth, and that hooks must be attached no more than 30 feet from the terminal end. In addition, the Council requested that each buoy must display the official number of the vessel (USCG documentation number or state registration number) to assist law enforcement in monitoring the use of the gear.

NMFS proposes revising the definition of buoy gear, as defined in § 622.2, through this rulemaking. Buoy gear is listed as an authorized gear in the hook-and-line component of the Gulf reef fish fishery under the Allowable Gear Rule (§ 600.725, 64 FR 67511) and is identified as an authorized gear for the South Atlantic snapper-grouper fishery at § 622.41(d).

1.2 Purpose and Need

The purpose of this consolidated environmental assessment and framework action is to propose a decrease in total allowable catch and make the resulting commercial quota consistent with the goals and objectives of the Council's plan to manage red grouper to achieve the mandates of the Magnuson-Stevens Act. The recreational and commercial allocation of the stock annual catch limit will remain consistent with Amendment 30B where 24% is allocated to the recreational sector and 76% is allocated to the commercial sector (GMFMC 2008). In addition, the document proposes to require buoys used in the deployment of buoy gear by the commercial sector display the official vessel number for the vessel setting that gear.

As indicated above, the 2009 update stock assessment of the red grouper stock (SEDAR 2009a) indicated that although the stock continues to be neither overfished or undergoing overfishing, the stock has declined since 2005. This decline was attributed to a 2005 episodic mortality event resulting in a little over 20% of the red grouper stock being killed in addition to normal natural and fishing mortalities (personal communication, Clay Porch, SEFSC³). Therefore, there is a need to improve the stock condition to a level where, at equilibrium, the stock can be harvested at optimum yield (OY). In addition, there is a need to implement rulemaking resulting from this amendment prior to January 1, 2011. The reason is so the 2011 commercial red grouper quota can be set and allow IFQ allocation to be adjusted to reflect any change in the total allowable catch. Both needs are consistent with the Magnuson-Stevens Act that requires NOAA Service and regional fishery management councils to prevent overfishing, and achieve, on a continuing basis, the optimum yield from federally managed fish stocks. These mandates are intended to ensure fishery resources are managed for the greatest overall benefit to the nation, particularly with respect to providing food production and recreational opportunities, and protecting marine ecosystems.

In proposed changes to the definition of buoy gear, as defined in § 622.2, the Council requested NMFS add a requirement that buoys used in the deployment of this gear display the official number of the vessel on the buoy. Currently there is no requirement that buoys be identified to a vessel. The need for this requirement is to enhance the enforceability of the use of this gear. Without such labelling, fishermen could deploy the gear illegally and not be held accountable unless enforcement caught them in the act. Therefore, the purpose of this assessment is to evaluate the effects of requiring official vessel numbers displayed on buoys used in setting buoy gear as part of the revised gear definition.

1.3 History of Management

A brief history of management is provided below as it pertains to this action. A more complete summary of red grouper management can be found in Amendment 30B. Information on management of the reef fish fishery as a whole can be obtained by contacting the Council.

The Reef Fish Fishery Management Plan (FMP) and Environmental Impact Statement (EIS) was implemented in November 1984. The regulations, 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.

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

Set a 20-inch total length (TL) minimum size limit on red grouper, Nassau grouper, yellowfin grouper, black grouper, and gag; set a five-grouper recreational daily bag limit; Set an 11.0 MP GW commercial quota for grouper, with the commercial quota divided into a 9.2 MP GW shallow-water grouper (SWG) quota and a 1.8 MP GW deep-water grouper (DWG) quota. SWG were defined as black grouper, gag, red grouper, Nassau grouper, yellowfin grouper, yellowmouth grouper, rock hind, red hind, speckled hind, and scamp. Scamp would be applied to the DWG quota once the SWG quota was filled. DWG were defined as misty grouper, snowy grouper, yellowedge grouper, warsaw grouper, and scamp once the SWG quota was filled. Goliath grouper were not included in the quotas; established a framework procedure for specification of total allowable catch (TAC) to allow for annual management changes; established the fishing year to be January 1 through December 31; 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. The annual framework procedures were updated in Amendment 18A (EA/RIR/IRFA; implemented on September 8, 2006), to incorporate the Southeast Data Assessment and Review (SEDAR) assessment methodology. Amendment 3 also revised the FMP's primary objective from a 20% SSBR target to a 20% spawning potential ratio (SPR). The amendment also transferred speckled hind from the SWG quota category to the DWG quota category.

Amendment 4 (EA/RIR), implemented on May 8, 1992, established a moratorium on the issuance of new reef fish permits for a maximum period of three years. This moratorium was extended in **Amendment 9** (EA/RIR, implemented on July 27, 1994), **Amendment 11** (EA/RIR implemented January 1, 1996), and **Amendment 17** (EA/RIR), implemented on August 2, 2000). It was extended indefinitely in **Amendment 24** (EA/RIR/IRFA, implemented on August 17, 2005).

Amendment 7 (EA/RIR/IRFA), implemented in February 1994, established reef fish dealer permitting and record keeping requirements, allowed transfer of fish trap permits and endorsements between immediate family members during the fish trap permit moratorium, and allowed transfer of other reef fish permits or endorsements in the event of the death or disability of the person who was the qualifier for the permit or endorsement. A proposed provision of this amendment that would have required permitted vessels to sell harvested reef fish only to permitted dealers was disapproved by the Secretary of Commerce. However, this provision was ultimately implemented in **Amendment 11** (EA/RIR/IRFA, implemented January 1, 1996).

Generic Sustainable Fisheries Act Amendment (EA/RIR/IRFA), partially approved and implemented in November 1999, set the Maximum Fishing Mortality Threshold (MFMT) for most reef fish stocks at $F_{30\% SPR}$. Estimates of maximum sustainable yield (MSY), Minimum Stock Size Threshold (MSST), and OY were disapproved because they were based on SPR proxies rather than biomass based estimates.

An August 1999 regulatory amendment, implemented June 19, 2000, increased the commercial size limit for gag and black grouper from 20 to 24 inches TL, increased the recreational size limit for gag from 20 to 22 inches TL, prohibited commercial sale of gag, black, and red grouper each year from February 15 to March 15 (during the peak of gag spawning season), and established two marine reserves (Steamboat Lumps and Madison-Swanson) that are closed year-round to fishing for all species under the Council's jurisdiction [65 FR 31827]. The Steamboat Lumps and Madison-Swanson reserves were continued for an additional six years in **Amendment 21** (EA/RIR/IRFA; implemented in July 2003) until June 2010. The end date for the reserves was eliminated in **Amendment 30B** (see below).

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

Amendment 20 (EA/RIR), implemented on June 16, 2003, established a three-year moratorium on the issuance of new charter and head boat vessel permits in Gulf reef fish to limit further expansion in the for-hire fisheries while the Council considered the need for more comprehensive effort management systems. This moratorium was extended indefinitely in **Amendment 25** (Supplemental EIS/RIR/IRFA, implemented June 15, 2006).

Secretarial Amendment 1, implemented July 15, 2004, established a rebuilding plan, a 5.31 MP GW commercial quota, and a 1.25 MP GW recreational target catch level for red grouper. The amendment also reduced the commercial quota for SWG from 9.35 to 8.8 MP GW and reduced the commercial quota for DWG from 1.35 to 1.02 MP GW. The recreational bag limit for red

grouper was reduced to two fish per person per day. In this amendment bottom longlines were considered for movement out to 50 fathoms which had also been considered under Reef Fish Amendment 18 [54 FR 214].

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

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

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

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

Amendment 30B (EIS/RIR/IRFA), implemented May 2009, proposed to end overfishing of gag, revise red grouper management measures as a result of changes in the stock condition, establish annual catch limits (ACLs) and accountability measures (AMs) for gag and red grouper, manage SWG to achieve OY, and improve the effectiveness of federal management measures. The amendment: defined the gag MSST and OY; set interim allocations of gag and red grouper between recreational and commercial fisheries; made adjustments to the gag and red grouper TACs to reflect the current status of these stocks; established ACLs and AMs for the commercial

and recreational red grouper fisheries, commercial and recreational gag fisheries, and commercial aggregate SWG sector; reduced the aggregate recreational grouper bag limit from five to four fish, retained the two-gag limit within the aggregate, and increased the red grouper bag limit from one to two fish within the aggregate; extended the recreational closed season to February 1 – March 31 for all SWG; adjusted commercial grouper quotas; reduced the red grouper commercial minimum size limit from 20 inches to 18 inches TL; replaced the one month commercial grouper closed season with a four month seasonal area closure at the Edges, a 390 square nautical mile area in the dominant gag spawning grounds; eliminated the end date for the Madison-Swanson and Steamboat Lumps marine reserves; and required vessels with federal commercial or charter reef fish permits comply with the more restrictive of state or federal reef fish regulations when fishing in state waters.

Amendment 29 (EA/RIR/IRFA), implemented January 1, 2010, established an individual fishing quota system for the commercial grouper and tilefish fisheries.

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

A rule under the Endangered Species Act (ESA) was implemented October 16, 2009 that prohibited bottom longlining for Gulf reef fish east of 85°30'W longitude (near Cape San Blas, Florida) shoreward of the 35-fathom depth contour, and restricted the number of hooks on board to 1,000 hooks per vessel with no more than 750 hooks being fished or rigged for fishing at any given time. The rule replaced the 50-fathom boundary emergency rule in order to relieve social and economic hardship on longline fishermen who were prevented from fishing for SWG by the emergency rule, and to keep fishing restrictions consistent with the Amendment 31 actions in place while proposed Amendment 31 was reviewed. The rule was implemented after a Biological Opinion was completed by NOAA Fisheries Service on the continued authorization of the Gulf reef fish fishery, as managed under the Reef Fish FMP. That opinion, which considered the proposed actions in Amendment 31, concluded that the continued authorization of the Gulf reef fish fishery was likely to adversely affect sea turtles and sawfish, but was not likely to jeopardize the continued existence of any listed species. An Incidental Take Statement was issued specifying the amount and extent of anticipated take on a three-year basis, along with reasonable and prudent measures and associated terms and conditions deemed necessary and appropriate to minimize the impact of these takes [74 FR 53889].

Amendment 31 (EIS/RIR/IRFA), implemented on May 26, 2010, established additional restrictions on the use of bottom longline gear in the eastern Gulf of Mexico in order to reduce bycatch of endangered sea turtles, particularly loggerhead sea turtles. The amendment (1) prohibits the use of bottom longline gear shoreward of a line approximating the 35-fathom contour from June through August; (2) reduces the number of longline vessels operating in the fishery through an endorsement provided only to vessel permits with a demonstrated history of landings, on average, of at least 40,000 pounds of reef fish annually with fish traps or longline gear during 1999-2007; and (3) restricts the total number of hooks that may be possessed onboard each reef fish bottom longline vessel to 1,000, only 750 of which may be rigged for

fishing. Prior to the implementation of Amendment 31, the boundary line was moved to 50 fathoms by emergency rule effective May 18, 2009, and subsequently replaced on October 16, 2009 by a rule under the authority of the ESA moving the boundary to 35 fathoms and implementing the maximum hook provisions.

2.0 AFFECTED ENVIRONMENT

The action considered in this regulatory amendment would affect fishing in the Gulf of Mexico (Gulf) region (Figure 2.1). Therefore, the following descriptions of the physical, biological, economic, social, and administrative environments focus primarily on this region.

2.1 Physical Environment

The physical environment for reef fish, including red grouper, has been described in detail in the EIS for the Generic Essential Fish Habitat Amendment and is incorporated here by reference (GMFMC 2004). The Gulf has a total area of approximately 600,000 square miles (1.5 million kilometers²), including state waters (Gore 1992). It is a semi-enclosed, oceanic basin connected to the Atlantic Ocean by the Straits of Florida and to the Caribbean Sea by the Yucatan Channel. Oceanic conditions are primarily affected by the Loop Current, the discharge of freshwater into the northern Gulf, and a semi-permanent, anticyclonic gyre in the western Gulf. Gulf surface water temperatures normally range from 12° C to 29° C (54° F to 84° F) depending on time of year. In the Gulf, adult red snapper are found in submarine gullies and depressions; over coral reefs, rock outcroppings, and gravel bottoms; and are associated with oil rigs and other artificial structures (GMFMC, 2004).

The Deepwater Horizon MC252 oil spill has affected at least one-third of the Gulf area from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. The impacts of the Deepwater Horizon MC252 oil spill on the physical environment are expected to be significant and may be long-term. However, thus far the oil has remained in outside most of the west Florida Shelf where this species is particularly abundant (GMFMC 2004). Oil is dispersed on the surface, and because of the heavy use of dispersants (both at the surface and at the wellhead), oil is also documented as being suspended within the water column, some even deeper than the location of the broken well head. Floating and suspended oil is washing onto shore in several areas of the Gulf as are non-floating tar balls. Whereas suspended and floating oil degrades over time, tar balls are persistent in the environment and can be transported hundreds of miles.

Oil could exacerbate development of this year's hypoxic "dead" zone in the Gulf of Mexico. For example, oil on the surface of the water could restrict the normal process of atmospheric oxygen mixing into and replenishing oxygen concentrations in the water column. In addition, microbes in the water that break down oil and dispersant also consume oxygen; this could lead to further oxygen depletion.

Environmental Sites of Special Interest Relevant to Red Grouper (Figure 2.1.1)

Longline/Buoy Gear Area Closure - Permanent closure to use of these gears for reef fish harvest. The closure applies to inshore of 20 fathoms off the Florida shelf from September through May,

inshore of 35 fathoms off the Florida shelf from June through August, and inshore of 50 fathoms year round for the remainder of the Gulf (72,300 square nautical miles).

Madison/Swanson and Steamboat Lumps Marine Reserves - No-take marine reserves sited on gag spawning aggregation areas where all fishing except for surface trolling during May through October is prohibited (219 square nautical miles).

The Edges – No-take area closure from January 1 to April 30. All commercial and recreational fishing or possession of fish managed by the Council is prohibited. The intent of the closure is to protect gag and other groupers during their respective spawning seasons. Possession is allowed when transiting the area if gear is stowed in accordance with federal regulations. This area is not shown in Figure 2.1.1 due to its recent implementation. The boundaries of the closed area are: Northwest corner = 28° 51'N, 85° 16'W; Northeast corner = 28° 51'N, 85° 04'W; Southwest corner = 28° 14'N, 84° 54'W; Southeast corner = 28° 14'N, 84° 42'W.

Tortugas North and South Marine Reserves - No-take marine reserves cooperatively implemented by the state of Florida, National Ocean Service (NOS), the Council, and the National Park Service (see jurisdiction on chart) (185 square nautical miles). In addition, Generic Amendment 3 for addressing Essential Fish Habitat requirements, Habitat Areas of Particular Concern (HAPC), and adverse effects of fishing prohibited the use of anchors in these HAPCs in the following Fishery Management Plans (FMPs) of the Gulf: Shrimp, Red Drum, Reef Fish, Stone Crab, Coral and Coral Reefs in the Gulf; and Spiny Lobster and the Coastal Migratory Pelagic resources of the Gulf and South Atlantic (GMFMC 2005).

Additionally, Generic Amendment 3 for addressing Essential Fish Habitat requirements (GMFMC 2005) establishes an education program on the protection of coral reefs when using various fishing gears in coral reef areas for recreational and commercial fishermen.

Individual reef areas and bank HAPCs of the northwestern Gulf including: East and West Flower Garden Banks, Stetson Bank, Sonnier Bank, MacNeil Bank, 29 Fathom, Rankin Bright Bank, Geyer Bank, McGrail Bank, Bouma Bank, Rezak Sidner Bank, Alderice Bank, and Jakkula Bank - Pristine coral areas protected by preventing use of some fishing gear that interacts with the bottom (263.2 square nautical miles). Subsequently, some of these areas were made a marine sanctuary by NOS and this marine sanctuary is currently being revised. Bottom anchoring and the use of trawling gear, bottom longlines, buoy gear, and all traps/pots on coral reefs are prohibited in the East and West Flower Garden Banks, McGrail Bank, and on the significant coral resources on Stetson Bank.

Florida Middle Grounds HAPC - Pristine soft coral area protected from use of any fishing gear interfacing with bottom (348 square nautical miles).

Pulley Ridge HAPC - A portion of the HAPC where deep-water hermatypic coral reefs are found is closed to anchoring and the use of trawling gear, bottom longlines, buoy gear, and all traps/pots (2,300 square nautical miles).

Stressed Areas for Reef Fish - Permanent closure Gulf-wide of the near shore waters to use of fish traps, power heads, and roller trawls (i.e., “rock hopper trawls”) (48,400 square nautical miles).

Alabama Special Management Zone (SMZ) - In the Alabama SMZ, fishing by a vessel operating as a charter vessel or head boat, a vessel that does not have a commercial permit for Gulf reef fish, or a vessel with such a permit fishing for Gulf reef fish, is limited to hook-and-line gear with no more than three hooks. Nonconforming gear is restricted to bag limits, or for reef fish without a bag limit, to 5% by weight of all fish aboard.

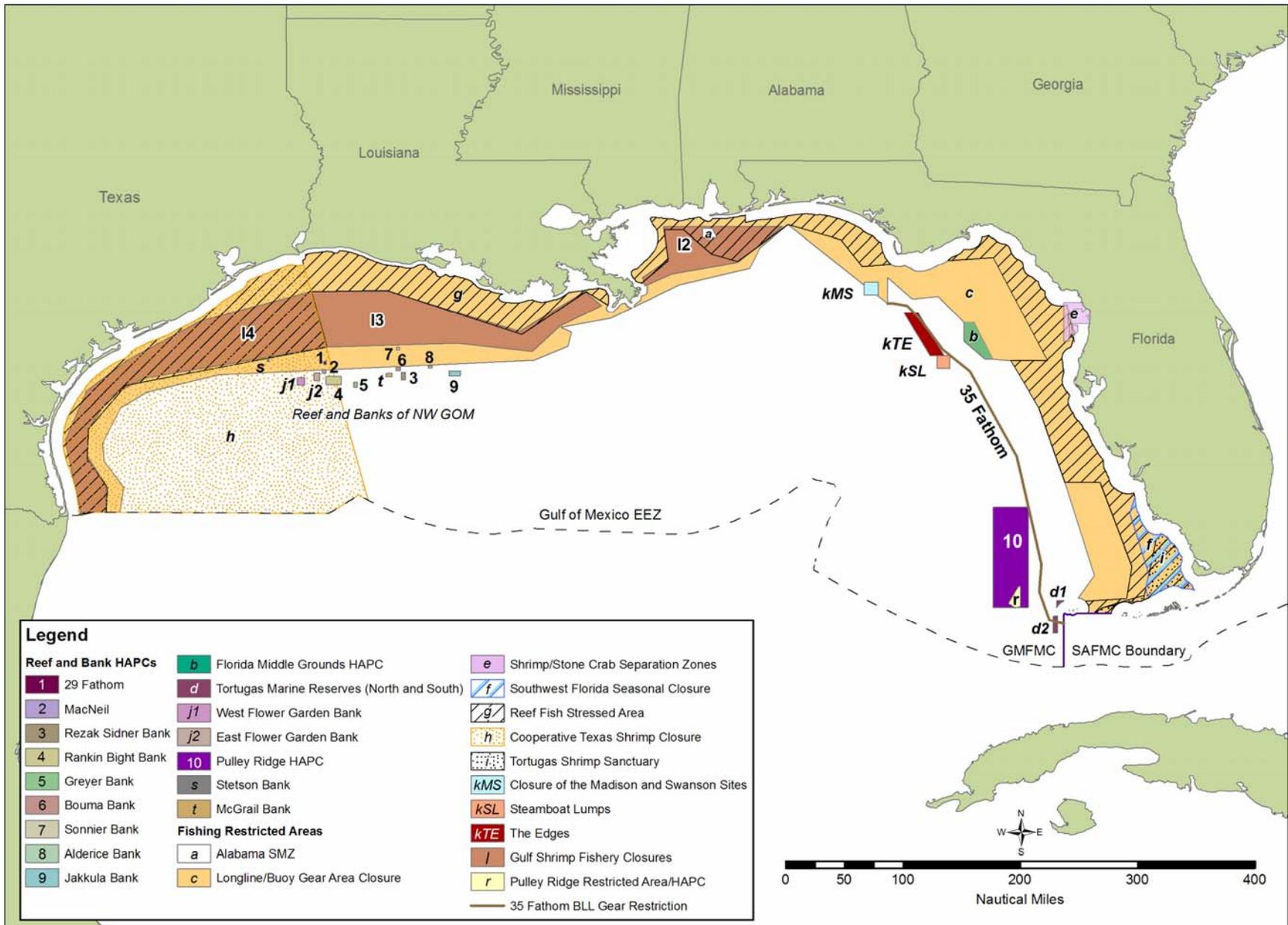


Figure 2.1.1 Map of fishery management closed or gear restricted areas in the Gulf of Mexico

2.2 Biological Environment

The biological environment of the Gulf of Mexico, including the species addressed in this amendment, is described in detail in the final EIS for the Generic Essential Fish Habitat amendment and is incorporated here by reference (GMFMC 2004).

2.2.1 Red Grouper and Reef Fish

Red Grouper Life History and Biology

In the Gulf, 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 Southeast Fishery Science Center's (SEFSC) Headboat Survey, and the Marine Recreational Fisheries Statistics Survey (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 of red grouper in the Gulf of Mexico has been estimated at 25 years (SEDAR 12 2007). Clear determinations of size and age of maturity have been difficult for red grouper (Fitzhugh et al. 2006 and references cited therein). Fitzhugh et al. (2006) determined the size and age at 50% maturity was approximately 11 inches (28 cm TL) at age 2. While previous estimates indicated that red grouper were 50% 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 10.5 years and 30 inches TL (76.5 cm TL) (Fitzhugh et al. 2006). Red grouper spawn from February until mid-July with peak spawning occurring in the eastern Gulf of Mexico during March through May (Fitzhugh et al. 2006). 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).

The Deepwater Horizon MC252 oil spill has affected at least one-third of the Gulf area from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. However, the affected areas are outside west Florida Shelf where red grouper are primarily found. Therefore the effects of the oil spill on red grouper populations and red grouper essential fish habitat will likely be minimal.

Status of the Red Grouper Stock and the Science and Statistical Committee (SSC) Recommendations

The most recent benchmark stock assessment for red grouper (SEDAR 12 2007) was completed in early February 2007. The assessment used an age-structured assessment model called ASAP (Legault and Restrepo 1999) that was the basis for the 2002 assessment and included data from 1986 through 2005. Approximately 99% of the landings were from the west coast of Florida and

the rest were from Alabama. The minimum stock size threshold and maximum fishing mortality threshold were defined for red grouper in Secretarial Amendment 1 as $(1-M)*SS_{MSY}$ and F_{MSY} , respectively. The red grouper stock assessment concluded that spawning stock size exceeded SS_{MSY} starting in 1999. This compares reasonably well with the results of the 2002 assessment which estimated the stock would be rebuilt by 2003 using a stock–recruit relationship of 0.8, which is similar to the 0.84 estimated by the current assessment. Recovery of the red grouper stock accelerated between 2001 and 2005 as a result of another very strong recruitment year class that occurred in 2000. Additionally, changes in the treatment of natural mortality during the SEDAR 12 assessment resulted in slightly more optimistic results when compared to the 2002 stock assessment. Fishing mortality on red grouper declined below MFMT starting in 1995 and has fluctuated but remained below MFMT with little trend through 2005. In 2005, fishing mortality was just below the target fishing mortality level of F_{OY} .

The 2009 update stock assessment of the red grouper stock in the Gulf of Mexico (SEDAR 2009a) was conducted using the same model as the 2007 assessment. After reviewing several model runs with varied parameter inputs, the SSC accepted the model run titled “Red Tide Model with Constant Catchability”. This model run allowed the natural mortality rate for 2005, a year when there was an extensive red tide event along the West Florida Shelf, to adjust above the base natural mortality rate. The best-fit result indicated that an additional mortality for red grouper corresponding to a little over 20% of the stock occurred in 2005.⁵ The stock was found to be neither overfished or undergoing overfishing. However, the stock has declined since 2005, much of which was attributed to an episodic mortality event in 2005 (most likely associated with red tide). The 2010 overfishing limit (OFL) or the yield associated with F_{MSY} for this model was estimated at 6.43 million pounds and the optimum yield (OY), calculated from the Council’s default definition as the yield at 75% of F_{MSY} , was estimated at 4.913 for 2010.

The SSC reviewed the 2009 assessment update. They felt that the estimated 2009 catches used in the projection model exceeded what would actually be caught and produced a more pessimistic projection than would be the case once the actual landings were known. The model projection used actual catches through 2008, and assumed that the entire TAC would be filled in 2009. At their June 2009 meeting, the SSC asked that projections of the status of red grouper and gag be rerun using updated landings estimates for 2009. The requested red grouper scenarios used the “Red Tide Model with Constant Catchability”, used updated landings estimates for 2009 data, and either set the 2010 harvest level equal to the current TAC or equal to 2009 estimated landings (NMFS 2010). For red grouper, projections were provided for fishing at F_{MSY} and F_{OY} . Given that the 2010 landings to date appeared to better match 2009 harvest levels

⁵ E-mail from Clay Porch (NMFS Southeast Fisheries Science Center) to Steven Atran (Gulf Council staff) dated June 24, 2009. There is confusion among some members of the public that the assessment claimed that 30% of the grouper were killed due to red tide. Dr. Porch’s e-mail states that “the estimate of the instantaneous episodic natural mortality rate was 0.3, and that this translates roughly to something like 30% of the stock being killed (I emphasized at the time that it wasn’t exactly 30%). Later during the meeting John (Walter) calculated the actual percentage for red grouper and it was a little over 20% (which I relayed to the AP, and I think the SSC, later on Tuesday)”.

than in previous years, the SSC selected the model runs where the 2010 projected harvest was equal to the estimated 2009 harvest. Thus, the SSC recommended the 2011 overfishing level be set consistent with the Councils current definition of the yield associated with fishing at F_{MSY} , or 7.42 MP GW. Because the revised projections (NMFS 2010) did not provide probabilities of overfishing based on the different landing projection scenarios, the SSC selected a 2011 acceptable biological catch of 6.31 MP GW. This level is equal to 85% of the yield at F_{MSY} and was felt by the SSC to reduce the probability that overfishing might occur in 2011.

General Information on Reef Fish Species

The National Ocean Service (NOS) of NOAA collaborated with National Marine Fisheries Service and the Council to develop distributions of reef fish (and other species) in the Gulf (SEA 1998). NOS obtained fishery-independent data sets for the Gulf, including SEAMAP, and state trawl surveys. Data from the Estuarine Living Marine Resources (ELMR) Program contain information on the relative abundance of specific species (highly abundant, abundant, common, rare, not found, and no data) for a series of estuaries, by five life stages (adult, spawning, egg, larvae, and juvenile) and month for five seasonal salinity zones (0-0.5, 0.5-5, 5-15, 15-25, and >25). NOS staff analyzed the data to determine relative abundance of the mapped species by estuary, salinity zone, and month. For some species not in the ELMR database, distribution was classified as only observed or not observed for adult, juvenile, and spawning stages.

Habitat types and life history stages can be found in more detail in GMFMC (2004). In general, reef fish are widely distributed in the Gulf, occupying both pelagic and benthic habitats during their life cycle. In general, both eggs and larval stages are planktonic. Larvae feed on zooplankton and phytoplankton. Exceptions to these generalizations include the gray triggerfish that lay their eggs in depressions in the sandy bottom, and gray snapper whose larvae are found around submerged aquatic vegetation. Juvenile and adult reef fish are typically demersal, and are usually associated with bottom topographies on the continental shelf (<100 m) which have high relief, i.e., coral reefs, artificial reefs, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings. However, several species are found over sand and soft-bottom substrates. Juvenile red snapper are common on mud bottoms in the northern Gulf, particularly off Texas through Alabama. Also, some juvenile snappers (e.g. mutton, gray, red, dog, lane, and yellowtail snappers) and groupers (e.g. goliath grouper, red, gag, and yellowfin groupers) have been documented in inshore seagrass beds, mangrove estuaries, lagoons, and larger bay systems (GMFMC 1981). More detail on hard bottom substrate and coral can be found in the FMP for Corals and Coral Reefs (GMFMC and SAFMC 1982).

At this time, it is unknown what the effects of the Deepwater Horizon MC252 oil spill will be on reef fish species. The oil has affected at least one-third of the Gulf area from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. For species who are distributed within the area impacted by the spill, the populations are likely to be affected. However, because reef fish species are demersal as juveniles and adults, the impacts are likely to be minimal. Eggs and larvae are found in surface waters, so species that spawn during the time period oil affected surface waters may suffer from increased egg and larval mortality rates.

Status of Reef Fish Stocks

The Reef Fish FMP currently encompasses 42 species. Stock assessments have been conducted on 11 species: red snapper (SEDAR 7 2005; SEDAR 7 Update 2009), vermilion snapper (Porch and Cass-Calay, 2001; SEDAR 9 2006a), yellowtail snapper (Muller et al. 2003; SEDAR 3 2003), gray triggerfish (Valle et al. 2001; SEDAR 9 2006b), greater amberjack (Turner et al. 2000; SEDAR 9 2006c), hogfish (Ault et al. 2003; SEDAR 6 2004a), red grouper (Schirripa and Legault 1999; NMFS 2002; SEDAR 12 2007, SEDAR 2009a), gag (Turner et al. 2001; SEDAR 10 2006, SEDAR 2009b), yellowedge grouper (Cass-Calay and Bahnick 2002), and goliath grouper (Porch et al. 2003; SEDAR 6 2004b). A review of the Nassau grouper's stock status was conducted by Eklund (1994), and updated estimates of generation times were developed by Legault and Eklund (1998).

Of the 11 species for which stock assessments have been conducted, the first quarter report of the 2010 Status of U.S. Fisheries (<http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm>) classifies four as overfished (greater amberjack, grey triggerfish, gag, and red snapper), and the same four as undergoing overfishing. Although it should be noted that greater amberjack, grey triggerfish, and red snapper are under rebuilding plans, and a rebuilding plan for gag is presently being developed in Amendment 32. In the most recent red snapper stock assessment update, red snapper overfishing was projected to have ended in 2009. Many of the stock assessments and stock assessment reviews can be found on the Council (www.gulfcouncil.org) and SEDAR (www.sefsc.noaa.gov/sedar) Websites.

2.2.2 Protected Species

There are 28 different species of marine mammals that may occur in the Gulf. All 28 species are protected under the Marine Mammals Protection Act and six are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback and North Atlantic right whales). Other species protected under the ESA occurring in the Gulf include five sea turtle species (Kemp's Ridley, loggerhead, green, leatherback, and hawksbill); two fish species (Gulf sturgeon and smalltooth sawfish), and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]). Information on the distribution, biology, and abundance of these protected species in the Gulf is included in final EIS to the Council's Generic Essential Fish Habitat amendment (GMFMC 2004) and the October 2009 ESA biological opinion on the reef fish fishery (NMFS 2009). Marine Mammal Stock Assessment Reports and additional information are also available on the National Marine Fisheries Service Office of Protected Species website: <http://www.nmfs.noaa.gov/pr/species/>.

The Gulf reef fish fishery is classified in the 2010 Marine Mammal Protection Act List of Fisheries as Category III fishery (74 FR 58859). This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from the fishery is less than or equal to 1% of the potential biological removal⁶. Dolphins are the only species documented as

⁶The potential biological removal is the maximum number of animals, not including natural

interacting with this fishery. Bottlenose dolphins may predate and depredate on the bait, catch, and/or released discards of the reef fish fishery.

All five species of sea turtles may be adversely affected by the Gulf reef fish fishery via incidental capture in hook-and-line gear (NMFS 2009). Incidental captures of sea turtle species occur in all commercial and recreational hook-and-line components of the reef fishery, but recent observer data indicate they are most frequent in the bottom longline component of the reef fish fishery. On an individual set basis, incidental captures may be relatively infrequent, but collectively, these captures sum to a high level of bycatch. Observer data indicate loggerhead sea turtles are the species most affected by the bottom longline component of the reef fish fishery and that is why a more detailed description of this species is included below. Mortality of sea turtles caught is particularly problematic in this fishery component, because many are dead or in poor condition upon retrieval of the gear as a result of forced submergence (i.e., drowning). Rulemaking from Amendment 31 constrains the bottom longline component of the fishery to limit sea turtle take. All sea turtles caught on hook-and-line and released alive may later succumb to injuries sustained at the time of capture or from exacerbated trauma from fishing hooks or lines that were ingested, entangling, or otherwise still attached when they were released. Sea turtle release gear and handling protocols are required to reduce the amount of gear on released animals and minimize post-release mortality.

Smalltooth sawfish are also affected by the Gulf reef fish fishery, but to a much lesser extent than hardshell sea turtles. Smalltooth sawfish primarily occur in the Gulf off peninsular Florida. Although the long, toothed rostrum of the smalltooth sawfish causes this species to be particularly vulnerable to entanglement in fishing gear, incidental captures in the commercial and recreational hook-and-line components of the reef fish fishery are rare events. Only eight smalltooth sawfish are estimated to be incidentally caught annually, and none are expected to result in mortality (NMFS 2009). Fishermen in this fishery are required to follow smalltooth sawfish safe handling guidelines.

The Deepwater Horizon MC252 oil spill may have adverse effects on protected species populations. Cetaceans, manatees, and sea turtles may be exposed to oil or dispersants. These toxic chemicals can affect them by externally by swimming in oil or dispersants or internally from eating or swallowing oil, consuming prey that has also come in to contact with oil, or breathing volatile compounds that the oil gives off. Sea turtles could be at additional risk from oil washing ashore on nesting beaches where nesting females and/or their nests may be exposed to chemicals, which may result in decreased survival of eggs and/or developmental defects in hatchlings.

2.3 Economic Environment

2.3.1 Commercial Sector

mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population

This section describes the economic environment associated with the commercial fleet that harvested species managed under the Gulf of Mexico Reef Fish Fishery Management Plan (FMP) from 1993-2008. As such, it should be considered as historical background given the implementation of the grouper/tilefish IFQ program on January 1, 2010, a description of which is provided in section 2.3.1.1, as well as new restrictions on the use of bottom longline gear to certain vessels and areas. While the reef fish fishery in general is discussed, it specifically focuses on the grouper sub-sector which is addressed in this regulatory Amendment, and is expected to be further addressed in a proposed interim rule and proposed Amendment 32 to the FMP. Also, this section uses the basic reporting format of the economic description of the fishery contained in Amendment 29.

The major sources of data summarized in this description include the Federal Logbook System (FLS) and Accumulated Landings System (ALS) for the commercial fishery, with price indices taken from the Bureau of Labor Statistics. Inflation adjusted revenues and prices are reported in 2008 constant dollars. Economic information is collected by an add-on survey to FLS trip reports supplemented by average prices calculated from ALS data. Consequently, landings totals in this section will be underestimated since official landings statistics are derived from the ALS. In the following discussion, several species/species groups are presented, namely, reef fish, shallow water grouper (SWG), deepwater grouper (DWG), tilefishes, red grouper, and gag. The SWG information includes red grouper and gag plus all other shallow water groupers, and the group for reef fish includes all grouper and tilefishes, plus all other reef fish.

Annual Landings, Ex-vessel Values and Effort

The commercial reef fish fishing fleet in the Gulf of Mexico is composed of vessels using different gear types and catching a variety of species. A license limitation program is in place in the reef fish fishery; to harvest commercial amounts of reef fish a vessel is required to have an active commercial permit on board. Commercial reef fish permits are renewable every year, although an owner is granted a grace period of one year to renew his permit. Non-renewal of a permit within this grace period results in permanent loss of that particular permit. According to the Southeast Regional Office website, the Constituency Services Branch (Permits) unofficially listed 893 current holders of Gulf of Mexico reef fish permits as of March 16, 2010⁷.

For the entire 1993-2008 period, Gulf permitted commercial reef fish vessels landed a total of 283 million pounds (MP) of reef fish (gutted weight) valued (ex-vessel) at \$639 million in nominal prices or \$785 million in 2008 (real) prices. In addition, these vessels landed another 18 MP of non-reef fish species valued at \$18 million in current prices or \$24 million in real prices. The grouper and tilefish fisheries accounted for 52 percent of all reef fish landings and 56 percent of reef fish ex-vessel values.

Gulf permitted commercial reef fish vessels landed annually an average of 7.47 MP of SWG, 1.16 MP of DWG, and 0.51 MP of tilefishes. The respective ex-vessel values are \$18.57 million, \$3.16 million, and \$0.76 million in nominal prices, or \$22.77 million, \$3.85 million, and \$0.94 million in real prices. Within the SWG, red grouper and gag dominated the fishery—red grouper

⁷ <http://sero.nmfs.noaa.gov/foia/HTML/RR.htm>

accounted for 68 percent of landings and 63 percent of ex-vessel values; gag accounted for 18 percent of landings and 21 percent of ex-vessel values.

Landing and revenue configurations over the years 1993-2008 can be gauged from Table 2.3.1.1, which breaks down average landings and revenues into several periods. One period spans the entire 1993-2008 data years; another covers the years 1999-2004, and, the other two include the years before and after the 1999-2004 period. In the table, SWG includes gag, red, and other SWG. The column “Reef” includes all reef fish species.

Table 2.3.1.1 Average Annual Landings and Revenues for Selected Species, 1993-2008.

| Period | Red Grouper | Gag | SWG | DWG | Tilefishes | Reef |
|--------------------------------|-------------|-------|--------|-------|------------|--------|
| Landings (1,000 lbs) | | | | | | |
| 1993-98 | 4,803 | 851 | 6,854 | 1,052 | 511 | 17,655 |
| 1999-04 | 5,694 | 1,848 | 8,750 | 1,314 | 528 | 19,487 |
| 2005-08 | 4,545 | 1,284 | 6,464 | 1,078 | 480 | 15,109 |
| 1993-08 | 5,073 | 1,333 | 7,467 | 1,156 | 510 | 17,706 |
| Nominal Value (\$1,000) | | | | | | |
| 1993-98 | 9,876 | 2,247 | 15,081 | 2,498 | 701 | 34,133 |
| 1999-04 | 12,915 | 5,347 | 21,661 | 3,557 | 804 | 44,324 |
| 2005-08 | 12,541 | 4,494 | 19,178 | 3,536 | 786 | 42,106 |
| 1993-08 | 11,682 | 3,971 | 18,572 | 3,155 | 761 | 39,948 |
| Real Value (\$1,000) | | | | | | |
| 1993-98 | 13,807 | 3,109 | 21,034 | 3,481 | 977 | 47,654 |
| 1999-04 | 15,654 | 6,442 | 26,212 | 4,304 | 974 | 53,619 |
| 2005-08 | 13,189 | 4,753 | 20,215 | 3,740 | 834 | 44,379 |
| 1993-08 | 14,345 | 4,769 | 22,771 | 3,854 | 940 | 49,072 |

Average annual landings of all species categories rose from the first period (1993-1998) to the next but fell in the third period (2005-2008); thus, landings of all species categories were highest during 1999-2004. Landings of reef fish experienced two distinct periods of decline since average yearly landings peaked at 19.49 MP during 1999-2004. During 2005-2006 average landings dropped 15 percent from this high and fell another 17 percent during 2007-2008. In general, average annual landings of SWG followed a similar trend. Average landings of all SWG rose by 28 percent in the second period and fell by 26 percent in the third period. During 2005-2006 average landings dropped 17 percent from a high of 8.75 MP during 1999-2004 and fell another 22 percent during 2007-2008. Average annual landings of red grouper rose by about 19 percent from the first to the second period and fell by 20 percent in the third period. Landings of red grouper during 2007-2008 declined 26 percent from those during 1999-2006. Average annual landings of gag showed a dramatic increase of 117 percent from the first to the second period and fell by 30 percent in the third period. The major decline in landings of gag took place during 2006-2008 declining 46 percent from levels reported during 2001-2005. Landings of DWG rose by about 25 percent in the second period and fell by 18 percent in the third period, although landings of DWG were 6 percent higher during 2007-2008 than those during 2005-2006. Landings of tilefishes rose by only 3 percent in the second period and fell by 9 percent in the third period. Average landings of tilefishes during 2006-2008 fell 25 percent relative to those during 2004-2005.

Nominal (current) and real (adjusted for inflation) ex-vessel revenues rose and fell from one period to the next in the same manner as landings. This implies that the second period (1999-2004) registered the highest ex-vessel values for all subject species. Nominal ex-vessel values rose in the second period by 31 percent, 138 percent, 44 percent, 42 percent, and 15 percent for red grouper, gag, SWG, DWG, and tilefishes, respectively. A substantial portion of these increases was due to inflation as can be inferred from the corresponding increases in real revenues of 13 percent, 107 percent, 25 percent, 24 percent, and 0 percent for the respective species. Decreases in the third period range from 13 percent for DWG to 26 percent for gag.

The number of boats actively participating in the fishery may be considered one measure of effort in the fishery. For the entire 1993-2008 period, the number of boats harvesting at least one pound of selected species averaged 742 for red grouper, 581 for gag, 939 for SWG, 359 for DWG, 207 for tilefishes, and 1,078 for reef fish. While landings in the grouper and tilefish fisheries in particular and reef fish fishery in general have shown patterns of increases and decreases, the number of boats actively participating in the fishery (except for gag) shows a pattern of decline over time. This pattern can be inferred from Table 2.3.1.2, which displays the average number of boats harvesting at least one pound of selected species over several sub-periods in 1993-2008. For reef fish as a whole, the number of boats in the fishery fell from an average high of 1,259 in the first period (1993-1998) to an average low of 798 in the third period (2005-2008). Vessel participation on average decreased 23 percent during 2007-2008 compared to 2005-2006. In general, a similar pattern can be observed for the grouper fishery and all its component fisheries, except gag. The average number of boats fell from 803 for red grouper, 1,066 for SWG, 401 for DWG, and 231 for tilefishes in the first period to its respective low of 609, 712, 284, and 189 in the third period. Only in the gag fishery did the number of boats rise from 533 in the first period to 659 in the second period, but it did fall in the third period to 536. This increase in the number of boats from the first period to the second could very well explain the large increase in gag landings in the second period. Vessel participation on average decreased 18, 16, 21, 28, and 24 percent during 2007-2008 compared to 2005-2006 for the red grouper, gag, SWG, DWG, and tilefishes, respectively. The fall in the number of boats in the third period for all fisheries considered here could be due to fish stock, natural, and economic conditions.

The downward trend in the number of boats landing reef fish is partly reflected in the number of trips taken by the remaining boats, but the decline in trips is not as dramatic as that for boats (see Table 2.3.1.2). Before it fell in the third period, the number of trips, except for tilefishes and reef fish, increased in the second period, and this increase could partly explain the increases in landings in the second period. Trips landing at least one pound of selected species averaged annually during 1993-2008 at 6,438 with a range 4,995 (2007) to 7,571 (1994) for red grouper, 4,734 with a range of 3,161 (1993) to 6,004 (2000) for gag, 9,436 with a range of 6,307 (2008) to 11,225 (1999) for SWG, 1,985 with a range of 792 (2008) to 2,957 (2003) for DWG, 790 with a range of 470 (2007) to 1,147 (1994) for tilefishes, and 13,929 with range of 8,098 (2008) to 17,216 (1994) for reef fish. For all species categories except gag, historical lows for trips were reported during 2007-2008; however, average annual trips landing gag during 2007-2008 still declined 30 percent from that during 1999-2004.

Days away from port may be considered another indicator of fishing effort in the fishery. This indicator, however, may not exactly reflect the time spent for fishing since boats have to travel to

fishing areas before they actually fish. This is true even with vessels that move around while fishing, such as those employing longline and troll gear types. The general pattern over time can provide some broad indications of the trend in fishing days. As can be deduced from Table 2.3.1.2, the pattern over time of days away from port generally mimics that of the number of trips. Days away from port rose in the second period for gag and DWG while they dropped for the other species categories. The third period, however, registered declines in days away from port for all species categories. Days away from port of boats landing at least one pound of selected species averaged annually during 1993-2008 at 31,652 with a range 25,598 to 37,748 for red grouper, 21,155 with a range of 15,643 to 26,088 for gag, 40,972 with a range of 31,437 to 49,524 for SWG, 11,870 with a range of 6,413 to 16,110 for DWG, 6,033 with range of 3,674 to 9,044 for tilefishes, and 50,535 with a range of 62,849 to 36,196 for reef fish. The reported years for the range limits generally mimic those of the number of trips.

Table 2.3.1.2 Average Number of Boats, Trips, and Days Away from Port for Trips Landing at Least One Pound of Selected Species, 1993-2008

| Period | Red Grouper | Gag | SWG | DWG | Tilefishes | Reef Fish |
|----------------------------|-------------|--------|--------|--------|------------|-----------|
| Boats | | | | | | |
| 1993-98 | 803 | 533 | 1,066 | 401 | 231 | 1,259 |
| 1999-04 | 771 | 659 | 964 | 368 | 193 | 1,083 |
| 2005-08 | 609 | 536 | 712 | 284 | 189 | 798 |
| 1993-08 | 742 | 581 | 939 | 359 | 207 | 1,078 |
| Trips | | | | | | |
| 1993-98 | 6,492 | 3,905 | 10,079 | 2,110 | 907 | 15,489 |
| 1999-04 | 7,051 | 5,809 | 10,378 | 2,422 | 814 | 15,052 |
| 2005-08 | 5,438 | 4,368 | 7,060 | 1,140 | 579 | 9,904 |
| 1993-08 | 6,438 | 4,734 | 9,436 | 1,985 | 790 | 13,929 |
| Days Away from Port | | | | | | |
| 1993-98 | 33,296 | 17,484 | 44,266 | 12,940 | 6,876 | 55,519 |
| 1999-04 | 33,142 | 24,595 | 42,972 | 13,729 | 6,312 | 52,688 |
| 2005-08 | 26,952 | 21,500 | 33,030 | 7,475 | 4,348 | 39,832 |
| 1993-08 | 31,652 | 21,155 | 40,972 | 11,870 | 6,033 | 50,535 |

One conclusion that can be drawn from the three indicators of fishing effort pertains to the kind of effort movement over time. With certain limitations, the general conclusion is that effort declined for all selected species, with peaks generally occurring in the second period (1999-2004). There are several potential reasons for the decline in effort for the selected species, such as the increase in fishing costs (particularly fuel cost in recent years), increase in harvesting efficiency, more restrictive regulations particularly for the grouper fishery, and even improvements in the stock status of certain species may contribute to the decline in fishing effort. However, more research is needed to determine which factors did contribute, or contribute significantly, to such decline in fishing effort.

Seasonal Characteristics

Fish stock, market, and harvesting conditions in addition to the regulatory regime are some of the factors that shape the seasonal characteristics of the reef fish fishery in general and the grouper

and tilefish fisheries in particular. How these factors affect seasonal behavior of the fishery will not be explored here.

The monthly pattern of landings and ex-vessel real revenues and prices may be gleaned from Table 2.3.1.3. Monthly landings of reef fish as a whole follows a rather straightforward pattern: landings increased in February and March then fell in a steady fashion the rest of the year. Red grouper, gag, and overall SWG landings follow a slightly different pattern: landings declined in February and March presumably due to the spawning closure, rose through the spring and early summer months, and declined during the rest of the year. Gag landings, however, did show some resiliency in the winter months. DWG and tilefish appear to follow a similar pattern, but somewhat different from the other species: landings increased for a few months starting in February and then some time in May or June slowly declined throughout the rest of the year. The effects of the closure of these fisheries in the summer months are evidenced by the sharp drop-off in average landings beginning in June for these species. For all groups, except DWG and red grouper, landings experienced a perceptible uptick in October.

For the period 1993-2008, landings averaged monthly at 423,000 pounds for red grouper, 111,000 pounds for gag, 622,000 pounds for SWG, 96,000 pounds for DWG, 42,000 pounds for tilefish, and 1,475,000 pounds for reef fish. Peak landings occurred in June for red grouper and SWG, January for gag, May for DWG and tilefish, and March for all reef fish. Monthly landings ranged from 280 (March) to 560 (June) thousand pounds for red grouper, 72 (September) to 156 (January) thousand pounds for gag, 489 (March) to 776 (June) thousand pounds for SWG, 54 (October) to 164 (May) thousand pounds for DWG, 31 (September) to 57 (March and May) thousand pounds for tilefish, and 1,107 (January) to 1,763 (March) thousand pounds for reef fish. Average monthly prices of all selected species, with the exception of tilefish, follow a similar pattern. Prices reached a peak in March, steadily fell until their trough in June, and then gradually rose but only to fall off slightly in the last two months of the year. The peak monthly price for tilefish occurred in January but the trough still occurred in June as with the rest of the selected species. Gag commanded the highest prices in all months, followed by DWG, then SWG, and then by red grouper and all reef fish. Tilefish had the lowest monthly prices. The clear difference in prices for various species, particularly between gag and red grouper, could indicate certain level of product differentiation in the marketing of the species.

Table 2.3.1.3. Average Monthly Landings (gutted weight), Revenues (2008 constant dollars), Ex-Vessel Prices (2008 constant dollars), Number of Boats, Trips, and Days Away from Port for Trips Landing at Least One Pound of Selected Species, 1993-2008.

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Landings (thousand pounds) | | | | | | | | | | | | |
| Red G | 379 | 310 | 280 | 397 | 485 | 560 | 537 | 525 | 411 | 407 | 382 | 400 |
| Gag | 156 | 103 | 116 | 139 | 142 | 117 | 100 | 81 | 72 | 107 | 93 | 108 |
| SWG | 637 | 494 | 489 | 638 | 742 | 776 | 722 | 683 | 550 | 597 | 553 | 587 |
| DWG | 91 | 101 | 145 | 118 | 164 | 126 | 73 | 83 | 76 | 54 | 69 | 56 |
| Tilefishes | 39 | 41 | 57 | 43 | 57 | 43 | 38 | 39 | 31 | 40 | 50 | 30 |
| Reef Fish | 1,107 | 1,722 | 1,763 | 1,658 | 1,659 | 1,630 | 1,448 | 1,401 | 1,305 | 1,402 | 1,305 | 1,306 |
| Real Value (\$1,000) | | | | | | | | | | | | |
| Red G | 1,168 | 927 | 902 | 1,219 | 1,317 | 1,409 | 1,395 | 1,461 | 1,180 | 1,190 | 1,106 | 1,071 |
| Gag | 577 | 375 | 453 | 517 | 494 | 390 | 338 | 283 | 262 | 381 | 330 | 369 |

| | | | | | | | | | | | | |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| SWG | 2,120 | 1,590 | 1,692 | 2,100 | 2,197 | 2,117 | 2,012 | 2,007 | 1,668 | 1,854 | 1,711 | 1,703 |
| DWG | 320 | 348 | 515 | 414 | 528 | 374 | 229 | 276 | 255 | 181 | 234 | 181 |
| Tilefishes | 78 | 78 | 107 | 82 | 98 | 72 | 69 | 73 | 59 | 78 | 92 | 54 |
| Reef Fish | 3,268 | 4,892 | 5,391 | 5,040 | 4,558 | 4,064 | 3,664 | 3,690 | 3,540 | 3,910 | 3,567 | 3,489 |
| Real Prices (\$) | | | | | | | | | | | | |
| Red G | 3.08 | 2.99 | 3.22 | 3.07 | 2.72 | 2.52 | 2.60 | 2.78 | 2.87 | 2.92 | 2.90 | 2.68 |
| Gag | 3.71 | 3.65 | 3.90 | 3.71 | 3.47 | 3.32 | 3.40 | 3.51 | 3.62 | 3.56 | 3.57 | 3.42 |
| SWG | 3.33 | 3.22 | 3.46 | 3.29 | 2.96 | 2.73 | 2.79 | 2.94 | 3.03 | 3.11 | 3.09 | 2.90 |
| DWG | 3.52 | 3.44 | 3.55 | 3.51 | 3.22 | 2.97 | 3.13 | 3.31 | 3.37 | 3.36 | 3.39 | 3.22 |
| Tilefishes | 1.98 | 1.89 | 1.88 | 1.88 | 1.73 | 1.69 | 1.80 | 1.88 | 1.90 | 1.93 | 1.83 | 1.80 |
| Reef Fish | 2.95 | 2.84 | 3.06 | 3.04 | 2.75 | 2.49 | 2.53 | 2.63 | 2.71 | 2.79 | 2.73 | 2.67 |
| Boats | | | | | | | | | | | | |
| Red G | 301 | 277 | 288 | 341 | 374 | 369 | 358 | 350 | 319 | 303 | 284 | 280 |
| Gag | 223 | 225 | 223 | 270 | 278 | 268 | 248 | 234 | 220 | 229 | 217 | 214 |
| SWG | 390 | 426 | 438 | 481 | 500 | 480 | 453 | 436 | 412 | 408 | 386 | 377 |
| DWG | 93 | 141 | 162 | 149 | 147 | 127 | 94 | 88 | 88 | 83 | 80 | 75 |
| Tilefishes | 42 | 46 | 61 | 55 | 72 | 66 | 49 | 53 | 48 | 40 | 43 | 37 |
| Reef Fish | 452 | 547 | 566 | 584 | 589 | 561 | 547 | 515 | 489 | 496 | 478 | 472 |
| Trips | | | | | | | | | | | | |
| Red G | 500 | 400 | 430 | 572 | 665 | 661 | 655 | 621 | 528 | 505 | 456 | 446 |
| Gag | 375 | 350 | 350 | 469 | 494 | 460 | 420 | 385 | 345 | 379 | 355 | 352 |
| SWG | 690 | 756 | 803 | 901 | 947 | 895 | 856 | 801 | 718 | 734 | 676 | 659 |
| DWG | 124 | 223 | 272 | 235 | 220 | 189 | 134 | 127 | 130 | 119 | 111 | 101 |
| Tilefishes | 54 | 57 | 78 | 67 | 96 | 89 | 64 | 72 | 61 | 50 | 54 | 48 |
| Reef Fish | 889 | 1,388 | 1,489 | 1,363 | 1,298 | 1,194 | 1,177 | 1,056 | 988 | 1,076 | 1,002 | 1,008 |
| Days Away | | | | | | | | | | | | |
| Red G | 2,413 | 2,060 | 2,144 | 2,866 | 3,236 | 3,282 | 3,186 | 3,052 | 2,543 | 2,460 | 2,191 | 2,220 |
| Gag | 1,660 | 1,435 | 1,460 | 2,050 | 2,224 | 2,216 | 2,020 | 1,866 | 1,560 | 1,648 | 1,473 | 1,542 |
| SWG | 2,989 | 2,928 | 3,195 | 3,774 | 4,218 | 4,174 | 3,953 | 3,780 | 3,208 | 3,109 | 2,822 | 2,822 |
| DWG | 851 | 1,080 | 1,349 | 1,292 | 1,443 | 1,244 | 868 | 886 | 787 | 695 | 708 | 667 |
| Tilefishes | 416 | 433 | 633 | 522 | 741 | 680 | 466 | 547 | 452 | 379 | 413 | 351 |
| Reef Fish | 3,479 | 4,120 | 4,546 | 4,681 | 5,008 | 4,891 | 4,713 | 4,431 | 3,835 | 3,797 | 3,501 | 3,533 |

As may be expected, prices for SWG fell in between the relatively high gag prices and low red grouper prices. The landings dominance of red grouper in the SWG complex brought down the prices for SWG nearer to the red grouper prices than to those of gag. Relatively lower prices for other reef fish also brought down the prices for reef fish further below the red grouper prices.

After adjusting for inflation, monthly prices per pound for red grouper averaged \$2.86 and ranged from \$2.52 to \$3.22; those for gag averaged at \$3.57 and ranged from \$3.32 to \$3.90; those for SWG averaged at \$3.07 and ranged from \$2.73 to \$3.46; those for DWG averaged at \$3.33 and ranged from \$2.97 to \$3.55; those for tilefish averaged at \$1.85 and ranged from \$1.69 to \$1.98; and, those for reef fish averaged at \$2.77 and ranged from \$2.49 to \$3.06.

Some general measures of effort in the grouper and tilefish fisheries, such as the number of boats, trips, and days away from port, also exhibit certain forms of seasonality. The seasonal patterns for these measures of effort averaged over the 1993-2008 period can be inferred from Table 2.3.1.3. For all selected species except DWG, the average number of boats landing at least

one pound of the selected species follows a similar pattern. The number of boats increased over the first few months, peaked in May, and declined slightly through the rest of the year. The number of active boats landing at least one pound of DWG peaked in March and declined significantly in the summer months. This is probably due to closures of the fishery in recent years as the TAC is reached during the summer months. A similar pattern can also be observed for the number of trips taken by these vessels. Trips increased in the first few months, peaked also in May (March for DWG and reef fish), and declined through the rest of the year. The pattern for the number of days away from port is more uniform than those for number of boats and trips. With the only exception being red grouper peaking in June, days away from port increased in the first few months, peaked in May, and declined throughout the rest of the year.

The monthly number of boats landing at least one pound of selected species averaged at 320 for red grouper, 237 for gag, 432 for SWG, 110 for DWG, 51 for tilefish and 525 for reef fish. The monthly number of trips averaged at 537 for red grouper, 395 for gag, 786 for SWG, 165 for DWG, 66 for tilefish, and 1,161 for reef fish. Monthly days away from port averaged at 2,638 for red grouper, 1,763 for gag, 3,414 for SWG, 989 for DWG, 503 for tilefish, and 4,211 for reef fish.

Distribution by Gear Type

Various gear types are used in the harvest of reef fish. In the particular case of the grouper and tilefish fisheries, vertical/handlines and longlines are the two dominant gear types, with traps comprising a distant third gear type. There are, however, variations in gear dominance depending on the species caught. One should recall that since February 2007, traps have been prohibited for use in harvesting reef fish. How landings from traps would be distributed among the remaining gear types cannot be determined. The performance of the fishery in 2007-2008 may yield some information, but this is not pursued here.

Table 2.3.1.4. Selected Fishery Performance Measures by Gear Type, 1993-2008.

| | Diving | Handlines | Longlines | Other Gear | Traps | Trolling |
|-----------------------------------|--------|-----------|-----------|------------|-------|----------|
| Landings (thousand pounds) | | | | | | |
| Red Grouper | 11 | 1,328 | 3,068 | 7 | 700 | 2 |
| Gag | 29 | 860 | 427 | 5 | 11 | 3 |
| SWG | 53 | 2,836 | 3,862 | 16 | 740 | 7 |
| DWG | 0 | 188 | 963 | 2 | 4 | 1 |
| Tilefish | 0 | 20 | 488 | 1 | 1 | 1 |
| Reef Fish | 111 | 10,723 | 5,702 | 42 | 1,164 | 36 |
| Real Value (\$1,000) | | | | | | |
| Red Grouper | 31 | 3,747 | 8,748 | 21 | 1,912 | 6 |
| Gag | 105 | 3,084 | 1,517 | 18 | 38 | 13 |
| SWG | 180 | 9,073 | 11,523 | 52 | 2,046 | 25 |
| DWG | 1 | 560 | 3,280 | 5 | 10 | 3 |
| Tilefish | 0 | 31 | 906 | 1 | 2 | 1 |
| Reef Fish | 296 | 29,489 | 16,646 | 93 | 2,620 | 91 |
| Boats | | | | | | |
| Red Grouper | 41 | 572 | 142 | 9 | 61 | 12 |

| | | | | | | |
|----------------------------|-----|--------|--------|-----|-------|-----|
| Gag | 30 | 458 | 111 | 5 | 27 | 14 |
| SWG | 48 | 761 | 160 | 13 | 63 | 26 |
| DWG | 4 | 250 | 122 | 3 | 8 | 5 |
| Tilefish | 2 | 116 | 97 | 2 | 4 | 2 |
| Reef Fish | 51 | 896 | 168 | 23 | 66 | 51 |
| Trips | | | | | | |
| Red Grouper | 207 | 4,440 | 1,252 | 25 | 526 | 21 |
| Gag | 172 | 3,588 | 787 | 18 | 148 | 34 |
| SWG | 319 | 7,060 | 1,421 | 39 | 573 | 60 |
| DWG | 5 | 1,282 | 681 | 4 | 12 | 6 |
| Tilefish | 2 | 344 | 435 | 3 | 10 | 3 |
| Reef Fish | 372 | 11,038 | 1,706 | 80 | 648 | 126 |
| Days Away from Port | | | | | | |
| Red Grouper | 346 | 17,099 | 11,394 | 110 | 2,833 | 47 |
| Gag | 279 | 12,543 | 7,455 | 48 | 829 | 59 |
| SWG | 482 | 24,684 | 12,794 | 138 | 2,942 | 116 |
| DWG | 10 | 5,520 | 6,228 | 22 | 91 | 22 |
| Tilefish | 5 | 1,975 | 4,006 | 13 | 51 | 10 |
| Reef Fish | 544 | 32,001 | 14,623 | 210 | 3,080 | 270 |

Table 2.3.1.4 presents several fishery performance measures by gear type. In terms of landings, longlines have dominated the grouper and tilefish fisheries. Handlines have been the dominant gear in the gag and reef fish fisheries. Except for fish traps, all the other gear types accounted for relatively small amounts of grouper and tilefish landings. In addition, trap catches only matter in the SWG fishery (95% red grouper). The distribution of revenues mimics that of landings. That is, longlines generated the most ex-vessel revenues for all grouper and tilefish fisheries, except gag wherein handlines accounted for most of the ex-vessel revenues (as well as all reef fish). In terms of the number of boats, number of trips, and days away from port, handlines dominated the grouper and tilefish fisheries. With more handline boats in all fisheries considered here, it is only logical to expect that handlines would account for more trips and days away from port than any other gear types in all subject fisheries. However, due to longer trips in deeper waters, longlines account for more days at sea for DWG and tilefishes than handlines.

After adjusting for inflation, annual prices per pound for red grouper averaged \$2.85 for longlines and \$2.82 for vertical lines; those for gag averaged \$3.55 for longlines and \$3.59 for vertical lines; those for SWG averaged \$2.98 for longlines and \$3.20 for vertical lines; those for DWG averaged \$3.41 for longlines and \$2.97 for vertical lines; those for tilefishes averaged \$1.86 for longlines and \$1.55 for vertical lines; and, those for reef fish averaged \$2.92 for longlines and \$2.75 for vertical lines.

Distribution by Area

Since grouper caught in the Gulf of Mexico are landed mostly in Florida, distribution of landings by area is presented by separating Florida into four areas—Southwest FL (statistical reporting areas 1-3; approximately Monroe and Collier counties), South-Central (areas 4-5; approximately Lee-Pinellas counties), West-Central FL (area 6; approximately Pasco to Citrus counties), and Northwest FL (areas 7-10; approximately Levy to Escambia counties). Landings of groupers for Alabama through Texas may include confidential data and are combined with northwest Florida

and labelled as the Northern Gulf. Although the case for tilefishes is a little different, since substantial landings also occur in the Gulf States other than Florida, the geographic division is maintained to provide more information on the distribution of grouper.

Table 2.3.1.5 presents several fishery performance measures by area which are identical to those presented by gear type. For the period 1993-2008, South-Central FL led all other areas in the red grouper landings, followed by the West-Central Gulf, then by Southwest FL, and lastly by the Northern Gulf. For gag landings, the Northern Gulf led the group, followed by South-Central FL, West-Central FL, and Southwest FL. It should be noted that the combined gag landings of the four Florida areas significantly outweighed those of AL-TX. The South-Central FL region also led in the landings of SWG, followed by West-Central FL, the Northern Gulf, and Southwest FL. The Northern Gulf led all areas in landings of DWG, followed by South-Central FL, Southwest FL, and West-Central FL. The Northern Gulf also led all areas in landings of tilefishes, followed by South-Central FL, West-Central FL, and Southwest FL.

The revenue configuration by area essentially mirrors that of the landing configuration. The South-Central FL area had the highest revenues for red grouper and SWG while the Northern Gulf area had the highest revenues in gag, DWG, and tilefishes.

Table 2.3.1.5. Distribution of average landings, revenues, boats, trips, and days away from port by area in the Gulf, 1993-2008.

| | NorthGulf | W-Central FL | S-Central FL | Southwest FL | Other |
|-----------------------------------|-----------|--------------|--------------|--------------|-------|
| Landings (thousand pounds) | | | | | |
| Red Grouper | 689 | 1,186 | 2,348 | 757 | 92 |
| Gag | 479 | 342 | 424 | 75 | 13 |
| SWG | 1,666 | 1,692 | 3,002 | 974 | 132 |
| DWG | 647 | 48 | 324 | 117 | 20 |
| Tilefishes | 338 | 46 | 76 | 40 | 10 |
| Reef Fish | 9,557 | 2,062 | 3,712 | 1,976 | 399 |
| Real Value (\$1,000) | | | | | |
| Red Grouper | 1,939 | 3,303 | 6,683 | 2,153 | 268 |
| Gag | 1,717 | 1,223 | 1,511 | 272 | 47 |
| SWG | 5,364 | 5,094 | 8,992 | 2,915 | 407 |
| DWG | 2,168 | 162 | 1,082 | 379 | 63 |
| Tilefishes | 666 | 87 | 106 | 61 | 19 |
| Reef Fish | 26,046 | 5,831 | 10,720 | 5,438 | 1,037 |
| Real Prices (\$) | | | | | |
| Red Grouper | 2.81 | 2.79 | 2.85 | 2.84 | 2.90 |
| Gag | 3.58 | 3.57 | 3.56 | 3.61 | 3.71 |
| SWG | 3.22 | 3.01 | 2.99 | 2.99 | 3.08 |
| DWG | 3.35 | 3.35 | 3.34 | 3.24 | 3.20 |
| Tilefishes | 1.97 | 1.90 | 1.40 | 1.53 | 1.91 |
| Reef Fish | 2.73 | 2.83 | 2.89 | 2.75 | 2.60 |
| Boats | | | | | |
| Red Grouper | 274 | 231 | 250 | 221 | 56 |
| Gag | 287 | 179 | 194 | 84 | 31 |
| SWG | 428 | 249 | 261 | 254 | 78 |

| | | | | | |
|----------------------------|--------|-------|--------|-------|-------|
| DWG | 206 | 54 | 98 | 71 | 24 |
| Tilefishes | 116 | 28 | 58 | 44 | 12 |
| Reef Fish | 514 | 256 | 269 | 308 | 106 |
| Trips | | | | | |
| Red Grouper | 2,118 | 1,394 | 1,816 | 973 | 138 |
| Gag | 2,174 | 1,060 | 1,180 | 251 | 70 |
| SWG | 4,273 | 1,649 | 2,000 | 1,313 | 201 |
| DWG | 1,358 | 97 | 302 | 184 | 44 |
| Tilefishes | 478 | 49 | 135 | 108 | 20 |
| Reef Fish | 7,101 | 1,743 | 2,140 | 2,614 | 330 |
| Days Away from Port | | | | | |
| Red Grouper | 7,179 | 7,316 | 11,106 | 5,327 | 725 |
| Gag | 6,893 | 4,756 | 7,354 | 1,840 | 311 |
| SWG | 14,340 | 7,788 | 11,697 | 6,177 | 970 |
| DWG | 6,415 | 798 | 3,032 | 1,338 | 288 |
| Tilefishes | 3,245 | 433 | 1,440 | 760 | 154 |
| Reef Fish | 20,662 | 8,014 | 12,197 | 8,306 | 1,356 |

In terms of the number of boats landing at least one pound of selected species, the Northern Gulf led all areas for all selected species. Considering the landing/revenue contribution of this area to total landing/revenue of grouper and tilefish, it would appear that many boats in this area caught relatively small amounts of fish, possibly even with respect to DWG and tilefish. There were more boats in the South-Central FL region than in the Southwest FL or West-Central FL areas, except for all reef fishes combined. The ranking of trips by area is the same as that for boats, indicating that larger numbers of boats in an area are associated with greater numbers of trips. However, the ranking of days away from port does not match the rankings of boats or trips by area for red grouper and gag. The South-Central area includes the greatest number of days away from port for red grouper, gag and SWG because it includes a concentration of boats with reef fish longlines that take trips of long duration.

Species Composition

As a multi-species fishery, a fishing trip in the reef fish fishery in general and grouper and tilefish fisheries in particular catches a variety of species. To reduce clutter in the next two tables, per trip species composition is presented by major species grouping. An exception to this is the explicit consideration of red grouper and gag, because they comprise the majority of species under consideration in this amendment.

Table 2.3.1.6 presents the percent distribution of species caught during trips landing at least one pound of selected species while Table 2.3.1.7 presents the percent distribution of species caught during trips where the selected species produced a majority of trip revenues. The set of percents under the sub-heading “Red Grouper” pertains to the percent composition of species caught in trips landing at least one pound of red grouper (Table 2.3.1.6) or trips where red grouper generated a plurality of revenues (Table 2.3.1.7). Similar description applies to the other sub-headings. All numbers are calculated as percent to the total reef and non-reef fish species caught in a trip. Given this method, the sum of reef fish and non-reef fish number should add to 100 percent. Also, the sum of SWG, DWG, tilefish, snappers, ORF (other reef fish) should equal the

number for reef fish. In addition, the sum of red grouper, gag, and OSWG (other shallow water grouper) should equal the number for SWG. Take for example the first row of numbers under the red grouper sub-heading. Reef fish (93.7 percent) plus non-reef fish (6.3 percent) equals 100 percent. Also, the sum of SWG (69.5 percent), DWG (2.9 percent), tilefish (0.9 percent), snappers (9.6 percent), ORF (10.7 percent) is equal to the number for reef fish (93.7 percent, approximately). And the sum of red grouper, gag, and OSWG is equal to SWG (52.0 + 7.8 + 9.8 = 69.5 percent, approximately).

It is not surprising that for trips landing at least one pound of red grouper, or gag, or SWG, the dominant species group caught was SWG (see Table 2.3.1.6). It is, however, a little interesting to notice from the table that for trips landing at least one pound of DWG, the dominant species group was not DWG but snappers; however, in recent years these percentages are nearly equal. In fact, until recently there was more SWG caught on those trips than DWG. For trips landing at least one pound of tilefish, this species was the dominant species group caught for the entire 1993-2008 period and all three sub-periods. Within the SWG group, red grouper was clearly the dominant species caught in trips landing at least one pound of any of the SWG species.

Table 2.3.1.6. Percent species composition on trips landing at least one pound of selected species, 1993-2008.

| Period | Red G | Gag | OSWG | SWG | DWG | Tilefish | Snappers | ORF | Reef | Non-Reef | All Species |
|--------------------|-------|------|------|------|------|----------|----------|------|------|----------|-------------|
| Red Grouper | | | | | | | | | | | |
| 1993-98 | 52.0 | 7.8 | 9.8 | 69.5 | 2.9 | 0.9 | 9.6 | 10.7 | 93.7 | 6.3 | 100.0 |
| 1999-04 | 52.3 | 15.2 | 8.6 | 76.1 | 3.0 | 0.7 | 9.9 | 6.0 | 95.6 | 4.4 | 100.0 |
| 2005-08 | 50.9 | 13.3 | 5.5 | 69.7 | 2.6 | 0.8 | 17.3 | 6.2 | 96.6 | 3.4 | 100.0 |
| 1993-08 | 51.8 | 12.1 | 8.2 | 72.1 | 2.9 | 0.8 | 11.8 | 7.7 | 95.2 | 4.8 | 100.0 |
| Gag | | | | | | | | | | | |
| 1993-98 | 41.5 | 15.0 | 3.0 | 59.4 | 4.3 | 1.1 | 17.8 | 12.1 | 94.8 | 5.2 | 100.0 |
| 1999-04 | 41.3 | 21.0 | 3.0 | 65.3 | 4.8 | 0.8 | 17.9 | 7.8 | 96.6 | 3.4 | 100.0 |
| 2005-08 | 44.5 | 16.4 | 3.3 | 64.2 | 4.5 | 1.0 | 20.6 | 6.9 | 97.2 | 2.8 | 100.0 |
| 1993-08 | 42.3 | 17.6 | 3.1 | 62.9 | 4.5 | 1.0 | 18.6 | 9.0 | 96.2 | 3.8 | 100.0 |
| SWG | | | | | | | | | | | |
| 1993-98 | 34.0 | 6.0 | 8.5 | 48.5 | 4.9 | 1.6 | 25.8 | 13.0 | 93.8 | 6.2 | 100.0 |
| 1999-04 | 35.9 | 11.8 | 7.6 | 55.4 | 5.0 | 1.1 | 26.0 | 8.2 | 95.6 | 4.4 | 100.0 |
| 2005-08 | 36.9 | 10.4 | 5.1 | 52.4 | 5.2 | 1.3 | 30.5 | 7.2 | 96.6 | 3.4 | 100.0 |
| 1993-08 | 35.5 | 9.4 | 7.2 | 52.2 | 5.0 | 1.3 | 27.2 | 9.6 | 95.3 | 4.7 | 100.0 |
| DWG | | | | | | | | | | | |
| 1993-98 | 14.0 | 2.1 | 5.5 | 21.7 | 18.8 | 7.4 | 34.7 | 10.6 | 93.1 | 6.9 | 100.0 |
| 1999-04 | 14.6 | 6.1 | 5.9 | 26.6 | 19.7 | 6.4 | 35.1 | 8.1 | 95.9 | 4.1 | 100.0 |
| 2005-08 | 11.8 | 5.6 | 4.4 | 21.7 | 30.1 | 10.8 | 29.3 | 6.3 | 98.3 | 1.7 | 100.0 |
| 1993-08 | 13.6 | 4.6 | 5.3 | 23.5 | 22.4 | 8.0 | 33.3 | 8.5 | 95.6 | 4.4 | 100.0 |
| Tilefish | | | | | | | | | | | |
| 1993-98 | 10.3 | 1.6 | 6.0 | 17.8 | 26.9 | 17.9 | 22.6 | 9.7 | 94.9 | 5.1 | 100.0 |
| 1999-04 | 8.9 | 4.3 | 5.4 | 18.6 | 34.3 | 19.3 | 17.6 | 6.8 | 96.7 | 3.3 | 100.0 |
| 2005-08 | 7.0 | 3.2 | 3.3 | 13.4 | 34.9 | 22.3 | 21.0 | 6.3 | 98.0 | 2.0 | 100.0 |
| 1993-08 | 8.8 | 3.1 | 5.0 | 16.9 | 31.9 | 19.7 | 20.3 | 7.7 | 96.4 | 3.6 | 100.0 |

On trips landing at least one pound of red grouper, the share of SWG rose in the second period but fell in the third period. A similar scenario happened with respect to the share of red grouper, gag, OSWG, and DWG. The share of tilefish fell in the second period and gained slightly in the third period. Snappers caught on those trips increased over time from about 9.6 percent to 17.3 percent. On trips landing at least one pound of gag, the share of SWG increased over time, from 59.4 percent in the first period to 65.3 percent in the second period and 64.2 percent in the third period. The share of DWG increased in the second period and fell in the third period; that for tilefish fell in the second period and gained in the third period. The share of snappers increased over time. On trips landing at least one pound of SWG the share of SWG rose in the second period and fell in the third period; that for red grouper increased over time, from 34.0 percent in the first period to 36.9 percent in the third period; that for gag rose in the second period and fell in the third period; that for DWG slightly rose over time; and, that for tilefish fell in the second period and increased in the third period. On these trips, the share of snappers increased from 25 percent to over 30 percent.

Table 2.3.1.7. Percent species composition on trips with a majority of revenues generated by selected species, 1993-2008.

| Period | Red G | Gag | OSWG | SWG | DWG | Tilefish | Snappers | ORF | Reef | Non-Reef | All Species |
|--------------------|-------|------|------|------|------|----------|----------|------|------|----------|-------------|
| Red Grouper | | | | | | | | | | | |
| 1993-98 | 76.7 | 4.9 | 6.0 | 87.6 | 1.1 | 0.3 | 3.2 | 3.6 | 95.9 | 4.1 | 100.0 |
| 1999-04 | 77.3 | 8.7 | 5.2 | 91.1 | 0.8 | 0.2 | 3.1 | 2.5 | 97.7 | 2.3 | 100.0 |
| 2005-08 | 77.0 | 9.5 | 4.4 | 90.9 | 0.6 | 0.2 | 4.0 | 2.1 | 97.8 | 2.2 | 100.0 |
| 1993-08 | 77.0 | 7.5 | 5.3 | 89.8 | 0.9 | 0.2 | 3.3 | 2.8 | 97.1 | 2.9 | 100.0 |
| Gag | | | | | | | | | | | |
| 1993-98 | 18.2 | 59.0 | 3.3 | 80.5 | 0.6 | 0.1 | 5.7 | 11.3 | 98.2 | 1.8 | 100.0 |
| 1999-04 | 23.6 | 58.0 | 3.4 | 85.0 | 1.8 | 0.2 | 5.3 | 5.8 | 98.1 | 1.9 | 100.0 |
| 2005-08 | 22.2 | 55.6 | 3.8 | 81.5 | 1.5 | 0.1 | 9.0 | 6.8 | 99.0 | 1.0 | 100.0 |
| 1993-08 | 21.7 | 57.5 | 3.5 | 82.7 | 1.4 | 0.1 | 6.6 | 7.6 | 98.4 | 1.6 | 100.0 |
| SWG | | | | | | | | | | | |
| 1993-98 | 60.9 | 10.1 | 12.8 | 83.8 | 1.2 | 0.4 | 4.3 | 6.3 | 96.1 | 3.9 | 100.0 |
| 1999-04 | 58.7 | 18.4 | 10.7 | 87.7 | 1.3 | 0.3 | 4.2 | 4.1 | 97.5 | 2.5 | 100.0 |
| 2005-08 | 63.7 | 17.0 | 6.7 | 87.4 | 1.0 | 0.3 | 5.6 | 3.6 | 97.9 | 2.1 | 100.0 |
| 1993-08 | 60.8 | 15.2 | 10.3 | 86.3 | 1.2 | 0.3 | 4.6 | 4.7 | 97.2 | 2.8 | 100.0 |
| DWG | | | | | | | | | | | |
| 1993-98 | 3.1 | 0.7 | 2.6 | 6.4 | 65.2 | 13.6 | 4.3 | 4.2 | 93.6 | 6.4 | 100.0 |
| 1999-04 | 2.5 | 1.9 | 1.9 | 6.3 | 66.7 | 15.5 | 3.3 | 4.1 | 95.8 | 4.2 | 100.0 |
| 2005-08 | 1.8 | 1.7 | 2.1 | 5.6 | 66.3 | 17.5 | 4.3 | 4.5 | 98.2 | 1.8 | 100.0 |
| 1993-08 | 2.5 | 1.4 | 2.2 | 6.1 | 66.0 | 15.4 | 3.9 | 4.2 | 95.7 | 4.3 | 100.0 |
| Tilefish | | | | | | | | | | | |
| 1993-98 | 0.7 | 0.1 | 1.8 | 2.7 | 9.2 | 82.2 | 0.7 | 1.0 | 95.7 | 4.3 | 100.0 |
| 1999-04 | 0.4 | 0.2 | 0.4 | 0.9 | 11.4 | 84.2 | 0.8 | 1.2 | 98.6 | 1.4 | 100.0 |
| 2005-08 | 0.9 | 0.5 | 0.5 | 1.8 | 13.1 | 81.2 | 1.3 | 1.6 | 99.1 | 0.9 | 100.0 |
| 1993-08 | 0.7 | 0.3 | 0.9 | 1.8 | 11.3 | 82.4 | 0.9 | 1.3 | 97.8 | 2.2 | 100.0 |

On trips landing at least one pound of DWG, the share of SWG rose over time, from 21.7 percent in the first period to 26.6 percent in the second period, only to fall back to the same level during

the third period; those shares for red grouper and gag followed the same trend, although gag rose from 2.1 percent in the first period to 5.6 percent in third; that DWG slightly rose in the second period and rose significantly higher in the third period; that for tilefish fell in the second period but rose in the third. On these trips, the share of snappers stayed near 35 percent in the first two periods while dropping below 30% in the third period. On trips landing at least one pound of tilefish, the share of SWG rose in the second period and fell in the third; that for red grouper fell over the years; that for gag significantly increased in the second period and fell in the third; that for DWG rose in the second period and fell in the third; that for tilefish steadily rose over time. On these trips, the share of snappers stayed relatively high at 17 to 23 percent.

Vessels by Landing Categories

Vessels in the reef fish fishery caught not only several species but also varying amounts of the species. Table 2.3.1.8 presents landing categories of vessels landing at least one pound of red grouper, gag, SWG, DWG, or tilefish, using average landings per boat over the years 1993-2008, 1999-2004, and 2005-2008. The species columns indicate that boats of varying landing categories landed at least one pound of that particular species. Take for example the first row of the table, with landing category of 1 to 499 pounds. During 1993-2008, an average of 1,012 boats landed at least one pound of red grouper, 774 boats landed at least one pound of gag, and so on. Since boats land a variety of species, the numbers within this landing category are not additive across species. However, boats are additive across landing categories within each species.

Table 2.3.1.8. Number of boats by average landing category for trips landing at least one pound of selected species, 1993-2008, 1999-2004, and 2005-2008.

| Category | Red Grouper | Gag | SWG | DWG | Tilefish | Grouper/Tilefish |
|-------------------|-------------|-----|-----|-----|----------|------------------|
| 1993-2008 | | | | | | |
| 1 - 499 lbs | 1,012 | 774 | 994 | 686 | 459 | 963 |
| 500-999 lbs | 210 | 189 | 268 | 120 | 62 | 277 |
| 1,000-3,999 lbs | 412 | 378 | 533 | 169 | 104 | 534 |
| 4,000-9,999 lbs | 238 | 235 | 313 | 106 | 57 | 321 |
| 10,000-49,999 lbs | 322 | 314 | 508 | 156 | 89 | 494 |
| => 50,000 lbs | 320 | 112 | 428 | 94 | 35 | 503 |
| 1999-2004 | | | | | | |
| 1 - 499 lbs | 510 | 429 | 446 | 367 | 223 | 428 |
| 500-999 lbs | 146 | 110 | 140 | 57 | 33 | 144 |
| 1,000-3,999 lbs | 250 | 270 | 301 | 104 | 64 | 288 |
| 4,000-9,999 lbs | 149 | 195 | 247 | 76 | 35 | 236 |
| 10,000-49,999 lbs | 213 | 212 | 325 | 110 | 46 | 346 |
| => 50,000 lbs | 187 | 51 | 260 | 41 | 15 | 295 |
| 2005-2008 | | | | | | |
| 1 - 499 lbs | 297 | 313 | 267 | 225 | 219 | 260 |
| 500-999 lbs | 90 | 78 | 94 | 55 | 26 | 91 |
| 1,000-3,999 lbs | 156 | 197 | 224 | 88 | 35 | 217 |
| 4,000-9,999 lbs | 106 | 114 | 128 | 34 | 30 | 130 |
| 10,000-49,999 lbs | 192 | 142 | 231 | 87 | 36 | 233 |
| => 50,000 lbs | 111 | 12 | 156 | 21 | 8 | 186 |

As can be observed from Table 2.3.1.8, boats are concentrated in the lower end of the distribution regardless of the period and/or species considered. Of particular interest is perhaps the last column--boats landing at least one pound of grouper or tilefish. For the period 1993-2008, there were 963 boats in the lowest category and 503 boats in the highest category. In 1999-2004 and 2005-2008, only 428 and 260 boats were in the lowest category and 295 and 186 boats in the highest category, respectively. This indicates that many boats fell out of the fishery during these two time periods, implying further that several boats active in the years before 1999 or after 2005 were not active in the in-between years. And they could be the same or different boats. In all three time periods, the lowest two categories included 31 to 40 percent of all boats, and the rest of the boats were practically evenly spread out across the remaining categories. There is a trend towards accumulation in the highest two landings category. From 1999-2008, 37 percent of vessels were in these categories while only 32 percent were in these categories from 1993-2008.

Boats using different gear types land varying amounts of fish, so the distribution of boats across various landing categories would vary by gear type. To provide some insights into this issue, a table similar to the one above is presented with added information on gear types used, but to avoid clutter only those boats landing at least one pound of grouper or tilefish are included (see Table 2.3.1.9). This table also provides additional information. First, handline and longline boats dominate the fishery in all landing categories. Second, there are more handline boats composing each landing category than boats using other gear types. Third, handline and longline boats become more dominant as one moves from lower to higher landing categories. Fourth, there are more longline boats than handline boats in the highest category, regardless of the period considered although there would be even more longline boats under the 1999-2004 period.

Table 2.3.1.9. Number of boats by average landing category, by gear type, for trips landing at least one pound of grouper or tilefish, 1993-2008, 1999-2004, and 2005-2008.

| Category | Diving | Handlines | Longlines | Other Gear | Traps | Troll |
|-------------------|--------|-----------|-----------|------------|-------|-------|
| 1993-2008 | | | | | | |
| 1-499 lbs | 131 | 1,005 | 40 | 108 | 63 | 204 |
| 500-999 lbs | 34 | 264 | 21 | 16 | 22 | 29 |
| 1,000-3,999 lbs | 51 | 544 | 53 | 28 | 33 | 39 |
| 4,000-9,999 lbs | 23 | 330 | 34 | 14 | 27 | 3 |
| 10,000-49,999 lbs | 16 | 482 | 90 | 4 | 43 | 2 |
| => 50,000 lbs | 2 | 226 | 211 | 0 | 60 | 0 |
| 1999-2004 | | | | | | |
| 1-499 lbs | 75 | 451 | 18 | 27 | 13 | 117 |
| 500-999 lbs | 9 | 131 | 11 | 3 | 4 | 14 |
| 1,000-3,999 lbs | 30 | 311 | 26 | 11 | 9 | 18 |
| 4,000-9,999 lbs | 12 | 236 | 20 | 6 | 6 | 1 |
| 10,000-49,999 lbs | 7 | 313 | 52 | 2 | 25 | 0 |
| => 50,000 lbs | 0 | 109 | 145 | 0 | 36 | 0 |
| 2005-2008 | | | | | | |
| 1-499 lbs | 34 | 272 | 8 | 4 | 0 | 28 |
| 500-999 lbs | 13 | 89 | 6 | 0 | 1 | 3 |
| 1,000-3,999 lbs | 16 | 219 | 14 | 1 | 7 | 6 |
| 4,000-9,999 lbs | 11 | 128 | 16 | 0 | 2 | 1 |
| 10,000-49,999 lbs | 3 | 193 | 40 | 0 | 17 | 0 |

| | | | | | | |
|---------------|---|----|-----|---|----|---|
| => 50,000 lbs | 1 | 66 | 103 | 0 | 11 | 0 |
|---------------|---|----|-----|---|----|---|

2.3.1.1 The IFQ Program

Information on the performance of the Gulf of Mexico commercial grouper/tilefish sector of the reef fish fishery prior to the implementation of the current individual fishing quota (IFQ) program was provided in the previous section. Discussion of the expected effects of the IFQ program is provided in GMFMC (2009a) and is incorporated herein by reference. The IFQ program became effective January 1, 2010, though the determination of shares and allocations was made based on information available as of October 1, 2009. Further, restrictions on the use of bottom longline to particular vessels operating in particular areas at certain times of the year were implemented under GMFMC (2009b) in order to reduce sea turtle interactions, and discussion of the expected effects of such are incorporated herein by reference. The following section provides a description of the IFQ program in terms of eligible participants, the distribution of shares and allocations among initial shareholders, as well as vessels qualifying for bottom longline endorsements. Emphasis is placed on entities with initial shares and allocations of red grouper. No attempt is made to incorporate information on the combining or transfers of the initial shares or appeals of initial determinations as these activities are still ongoing.

Everyone who owned a valid (active or renewable) commercial Gulf of Mexico reef fish permit as of October 1, 2009, and who had grouper or tilefish landings reported under their permit during the qualifying time period of 1999 through 2004 received initial IFQ shares and allocation. Owners of a valid commercial Gulf of Mexico reef fish permit that did not have any landings during the qualifying time period did not receive initial IFQ shares or allocation but are able to purchase shares or allocation from IFQ shareholders.

The initial IFQ shares distributed to each participant was determined by the average annual landings of grouper and tilefish from logbooks associated with their reef fish permit(s) during the time period 1999 through 2004, with an allowance for dropping 1 year. Dropping a year allows a participant to remove the year with the lowest landings. All grouper and tilefish landings associated with a valid commercial reef fish permit for the qualifying period were attributed to the permit holder as of October 1, 2009, including those reported by a person who held the permit prior to the current owner. Anyone purchasing a reef fish permit after September 30, 2009, did not receive grouper or tilefish shares associated with that permit.

As of October 1, 2009, 970 entities owned a valid commercial Gulf reef fish permit and thus were deemed eligible for initial shares and allocation. However, of these 970 entities, only 908 had grouper or tilefish landings reported under their permit during the qualifying time period and thus actually received initial IFQ shares and allocation, while the other 62 permit owners did not. Although some of these 62 permit owners were active in the grouper/tilefish fishery, at least with respect to the current analysis, they are no longer considered fishery participants since they did not initially receive shares or allocation. Thus, only the 908 permit owners that initially received shares and allocation, and the vessels attached to those permits, are of interest for current purposes.

An IFQ share is a percentage of the commercial quota for each species. A fisherman's initial shares were determined by the proportion of the total landings associated with their reef fish permit during the qualifying period relative to landings reported on all reef fish permits during the qualifying period. For example, if 2.1 percent of the total red grouper landings during the qualifying period were landed under a particular permit, the fisherman holding that permit received 2.1 red grouper shares. The amount of shares a fisherman holds only changes if the fisherman buys or sells shares, or if another participant's permit is revoked and those shares are redistributed to other eligible participants.

IFQ allocation is the pounds a fisherman is ensured the opportunity to possess, land, or sell in a fishing year. For each species or species group, a fisherman's allocation is determined each year by multiplying his shares by the current commercial quota. There are five species or species groups within the IFQ program: red grouper, gag, other SWG (i.e. black grouper, rock hind, red hind, scamp, yellowfin grouper, and yellowmouth groupers), DWG (i.e. yellowedge grouper, misty grouper, snowy grouper, warsaw grouper, and speckled hind), and tilefish (blueline, golden, goldface, anchor, and blackline). For 2010, their respective commercial quotas were as follows: 5.75 MP, 1.41 MP, .41 MP, .44 MP, and 1.02 MP respectively. However, only 97% of these quotas were initially allocated to the initial shareholders since three percent was set aside to resolve appeals. Any amount remaining of the three percent set-aside after the appeals process is completed will be proportionately distributed to initial IFQ shareholders. Thus, the initial quota to be allocated across initial shareholders was as follows for each species/species group: 5.58 MP, 1.37 MP, .40 MP, .43 MP, and .99 MP respectively.

Everyone who owns a valid commercial Gulf of Mexico reef fish permit and has an active IFQ online account is eligible to purchase IFQ shares and allocation from current IFQ shareholders for the first five years of the IFQ program. After five years, all U.S. citizens and permanent resident aliens will be eligible to purchase IFQ shares and allocation.

Share caps have been established for each share category (i.e., red grouper, gag, other SWG, DWG, and tilefish). Share caps are defined as the maximum IFQ share issued to a person, corporation, or other entity at the time of initial apportionment of the IFQ shares. The IFQ program will also limit the amount of allocation that could be purchased or held by a person or corporation cumulatively during a given calendar year with an allocation cap. The allocation cap for the commercial grouper and tilefish fisheries equal the total amount of pounds that corresponds to the share caps. The initial share caps established for red grouper, gag, other SWG, DWG, and tilefish were 4.21%, 2.29%, 7.05%, 14.18%, and 11.47%, respectively. In 2010, the maximum total allocation associated with these share caps is 483,505 pounds.

Finally, flexibility in the use of red grouper and gag shares has been built into the program via the establishment of multiuse allocations. These multiuse allows fishermen to use a small portion of their allocation for one species (either red or gag grouper) to harvest another species (either gag or red grouper) that would otherwise be discarded because the fisherman does not possess allocation for that species. Multiuse allocation will be derived at the beginning of each year by converting a portion of the allocation for red grouper and gag to allocation that can be used for either species. Initially, 8 percent of gag and 4 percent of red grouper allocation was set aside as multiuse allocation. Multiuse allocation is not available for use by fishers until the

species-specific allocation for the fish they wish to land and sell (either gag or red grouper) is exhausted.

2.3.1.2 Initial Shareholders and Vessels

Although it would be expected that practically all initial shareholders would be currently participating in the fisheries for which they received shares, logbook data for 2008 and 2009 indicate otherwise. In fact, a combination of Southeast and Highly Migratory Species (HMS) logbook data indicate that a rather large percentage of the vessels associated with the initial shareholders and permits were not commercially active in any of the federally managed species covered by these two logbook programs. Specifically, 233, or nearly 26%, of the 908 vessels associated with the permits initially receiving shares and allocations of grouper or tilefish were apparently not commercially active in any of the fisheries covered by these logbooks in either 2008 or 2009. This finding seems to suggest that many of the initial shareholders and their vessels have left commercial fishing, at least temporarily. As such, it is unlikely that these shareholders and vessels will use their shares to generate commercial fishing revenues and personal income in the short-term. In turn, these initial shareholders likely value their shares for their asset value which is derived from their ability to sell their shares at some point in the future or, alternatively, sell or lease their annual allocation in the short-term. These inactive shareholders represent relatively significant percentages of the total shares for each species: 21.5% of red grouper, 13.3% of gag, 17.5% of other SWG, 14% of DWG, and 16% of tilefish shares respectively. Unless these shareholders decide to sell their shares or their annual allocations in the short-term, relatively significant proportions of the annual commercial quotas in each instance may not be harvested.

Certain statistical findings suggest potential reasons as to why these vessels have been inactive and others have remained active. First, vessels that were inactive in 2008 and 2009 are somewhat smaller, in terms of length and fuel capacity, and less powerful, in terms of horsepower, on average than the 675 vessels that were commercially active in either or both years. The difference is approximately 13% in each case.

Second, and more importantly, the inactive vessels received much smaller initial shares and allocations on average than their commercially active counterparts. Specifically, the inactive shareholders received shares that were 23%, 57%, 40%, 54%, and 47% lower on average than commercially active shareholders for red grouper, gag, other SWG, DWG, and tilefish respectively. In terms of allocations, inactive shareholders received 7,325 pounds on average while active shareholders received 11,172 pounds on average, representing a difference of approximately 34%. These results also support the hypothesis that inactive shareholders represent relatively smaller commercial operations than those that have remained active in recent years. For various reasons, it may not have been possible for these relatively smaller operations to remain economically viable in recent years. Further, their allocations may not be sufficient to re-enter the grouper/tilefish fisheries. If volume as measured by landings is a primary determinant of economic viability in the current market and regulatory environment, then it is possible and perhaps likely that these smaller shareholders intend to and will in fact sell their shares to larger operations.

In 2008 and 2009, 608 and 616 initial grouper/tilefish shareholders and their vessels were commercially active respectively. Some vessels were active in only one year while others were active in both years. On average, the shares and allocations between vessels that were active in 2008 as opposed to 2009 differed very little. However, their total landings and revenue and, to a lesser extent, the distribution of those landings and revenues across species, did change between 2008 and 2009. Specifically, on average, average annual gross revenue decreased by approximately 13.4% from \$71,158 to \$61,618 between these two years. Although revenue decreased for all grouper/tilefish species, the most pronounced decreases were in red grouper revenue, which fell by about \$5,700 on average (27%), and gag revenue, which fell by approximately \$3,400 on average (45%). As a result, these vessels' dependency on grouper/tilefish revenue also declined, representing approximately 50% of their total revenue in 2008 but only 45% in 2009. In turn, dependence on other southeast logbook species (e.g. snappers, coastal migratories, dolphin, wahoo, etc.) increased between these two years.

Of the 908 initial grouper/tilefish shareholders, 815 received shares and allocation of red grouper. Of these, 191 were not commercially active in any fisheries covered by federal logbooks. A comparison of all commercially inactive grouper/tilefish shareholders with commercially inactive red grouper shareholders indicated few differences, with one important exception. Commercially inactive red grouper shareholders had, on average, much larger shares and allocations of red grouper relative to all inactive grouper/tilefish shareholders. The average allocation of red grouper to commercially inactive red grouper shareholders was 6,459 pounds on average, or 18% larger than all commercially inactive grouper/tilefish shareholders. In fact, this allocation is very similar to the average for commercially active grouper/tilefish shareholders. Given their relatively large allocations and thus shares of red grouper, it is uncertain why these red grouper shareholders have not been commercially active and thus what their likely intentions are with respect to their red grouper shares (i.e. to personally use them for generating commercial fishing revenues and income in the short-term or hold/sell their shares/allocations). What they do with their shares and allocations in the short-term is critical given that they hold 21.5% of the red grouper shares representing approximately 1.23 MP of the 2010 commercial red grouper quota.

Of the 624 commercially active red grouper shareholders, the number of commercially active shareholders in 2008 and 2009 was nearly identical (560 and 562 respectively). However, average annual gross revenue decreased from \$68,357 to \$60,783, or 11%, between 2008 and 2009. Although revenue reductions occurred for all grouper/tilefish species, the most significant reductions were in revenue from red grouper landings (-27%) and gag landings (-45%). The maximum annual commercial fishing revenue by an individual vessel during these two years was approximately \$606,000.

Further, of the 624 commercially active red grouper shareholders, 126 were not active in the red grouper fishery between 2008 and 2009, in terms of landings, while 498 were active in one or both years. Significant differences exist between these two groups of shareholders, indicative of very different commercial fishing operations.

First, with respect to their shares and allocations, the red grouper shareholders that were active in the red grouper fishery received much larger allocations of red grouper, gag, and other SWG on average (11,259 pounds in total) than their inactive counterparts (3,443 pounds in total). Conversely, they received somewhat smaller allocations of DWG and tilefish on average (1,779 pounds in total) than

their inactive counterparts (2,645 pounds in total). In terms of physical characteristics, red grouper shareholders that were not active in the red grouper fishery had vessels with a slightly larger (11%) horsepower and a somewhat significantly higher (21%) fuel capacity than those who were active in the red grouper fishery. This may be reflective of the fisheries in which they participate and are relatively dependent. For example, average annual gross revenue was \$66,065 for red grouper shareholders that were active in the red grouper fishery, while average annual gross revenue was only \$55,812 (nearly 16% less) for red grouper shareholders that were not active in the red grouper fishery. The distribution of those revenues across different species and fisheries differed even more significantly. For red grouper shareholders active in the red grouper fishery, revenue from red grouper, gag, and other SWG landings accounted for 49% of gross revenue, revenue from DWG and tilefish landings accounted for 11% of gross revenue, while landings of other species accounted for the other 40%. Conversely, for red grouper shareholders that were not active in the red grouper fishery, only 2% of their gross revenue came from landings of red grouper, gag, and other SWG, nearly 14% came from landings of DWG and tilefish, almost 11% came from landings of HMS species, while the other 73% came from landings of other logbook species.

Most importantly, for the 126 commercially active red grouper shareholders who have not been active in the red grouper fishery, it is likely that they intend to hold onto or sell their shares at some point in the future. Thus, in the short-term, these shares (5.5% of the total) and accompanying allocations (318,063 pounds, or 2,524 pounds on average) may not be used for harvesting purposes in the short-term. Commercially inactive red grouper shareholders and commercially active red grouper shareholders who have not been active in the red grouper fishery together account for 27% of the red grouper shares and approximately 1.55 MP of the 2010 commercial red grouper quota.

Conversely, for the 498 commercially active red grouper shareholders who have been active in the red grouper fishery, they are likely to continue operating in the fishery. The difference between their recent landings and allocations is critical in this respect. On average, their recent red grouper landings were 8,053 pounds on average and their average red grouper allocation in 2010 was 8,404 pounds. Thus, they are harvesting at levels very close (96%) to their current allocations.

With respect to the 126 commercially active red grouper shareholders that were not active in the red grouper fishery, 97 were not active in the red grouper fishery in 2008 while 84 were not active in the red grouper fishery in 2009. Some differences are notable between these two years. Contrary to other groups of shareholders, average annual gross revenue actually increased from \$52,453 in 2008 to \$59,690 in 2009, or approximately 14%. Although dependence on revenue from DWG landings decreased from 2008 (13% of total revenue) to 2009 (8% of gross revenue), dependence on revenue from HMS landings increased, accounting for 6.7% of total revenue in 2008 but 14.2% of gross revenue in 2009. At least within this group of shareholders, these findings may illustrate a shift in effort out of the DWG fishery into HMS fisheries. However, in both years, the vast majority of their revenue still came from other logbook species (e.g. snappers, coastal migratories, dolphin, wahoo, etc.) and thus they remain highly dependent on these fisheries.

Of the 498 commercially active red grouper shareholders who have been active in the red grouper fishery, 463 and 482 shareholders were active in the red grouper fishery in 2008 and 2009 respectively. Some important changes occurred in their harvesting behavior between those two years, particularly when considered in relation to their red grouper shares and allocations. Specifically, their average annual gross revenue fell from \$71,245 in 2008 to \$60,662 in 2009, a decrease of 15%. The majority of this reduction was due to decreases in revenue from red grouper landings (30%) and gag landings (47%). On average, these vessels' red grouper landings fell from

9,425 pounds in 2008 to 6,734 pounds per vessel in 2009. This reduction is most likely due to gear restrictions that were temporarily implemented in 2009 to reduce interactions with sea turtles. A somewhat modified version of these gear restrictions was permanently established in 2010. As previously noted, their average red grouper allocation in 2010 was 8,404 pounds. If these vessels operate as they did in 2008, they would use all of their allocation and potentially attempt to purchase additional shares or allocation, likely from commercially inactive red grouper shareholders. Conversely, if they operate as they did in 2009, then they would not use all of their allocation and thus some of the commercial quota they represent (as much as 830K pounds) would not be harvested. If they operate somewhere between the two then, as previously suggested, they would likely harvest at levels comparable to their allocations and thus harvest all of the commercial quota they represent.

2.3.1.3 Bottom Longline Endorsements

As previously mentioned, restrictions on the use of bottom longline were temporarily established in 2009 and a modified version of those restrictions was implemented in 2010. Most critically, these restrictions include: 1) a prohibition on the use of bottom longline gear shoreward of a line approximating the 35-fathom depth contour from June through August; 2) an endorsement requirement to harvest reef fish using bottom longline gear in the eastern Gulf of Mexico, and 3) a restriction on the number of hooks that may be possessed onboard each reef fish bottom longline vessel operating in the eastern Gulf of Mexico to 1,000 hooks total, only 750 of which may be fished or rigged for fishing at any given time.

Only federally-permitted vessels with demonstrated average annual landings of 40,000 pounds of reef fish taken by fish traps or longlines during 1999-2007 qualified for the endorsement. Of the 908 initial grouper/tilefish shareholders, 293 vessels had used bottom longline or trap gear for commercial reef fish harvesting purposes. However, only 62 of these vessels met the 40,000 pound threshold and thus qualified for the bottom longline endorsement. Thus, the other 231 vessels will need to either change the gear they use for harvesting reef fish (and possibly the species they target), purchase an endorsement from one of the 62 qualifying vessels, which also requires them to possess a valid commercial vessel permit for Gulf reef fish, or exit the Gulf reef fish fishery. Their ability to purchase an endorsement may be highly limited given the relatively small number of available endorsements. This option may be further limited by the potential unwillingness of the qualifying vessel owners to sell their endorsements, which is likely to be quite dependent on their intention to operate in the fishery. That is, if they have recently been active in the fishery, then they are more likely to continue operating and thus probably less likely to sell their endorsement. Conversely, if they have not been active in the fishery, then they would be more likely to sell their endorsement.

Of the 62 vessels that qualified for the bottom longline endorsement, 54 were active, both commercially and in the grouper/tilefish fishery specifically in 2008 and 2009, while the other 8 qualifying vessels were not commercially active. As such, the number of bottom longline endorsements available for purchase is likely very small, and thus would potentially command a fairly high market value, all other things being equal.

Comparatively speaking, the commercially inactive vessels with bottom longline endorsements are relatively smaller in length (31 ft) and fuel capacity (460 gallons) on average than their active counterparts (47 ft and nearly 1,400 gallons respectively). As previously implied, this may

indicate that “larger” vessels capable of harvesting larger volumes of fish, potentially at greater distances offshore, are necessary to be economically viable in the bottom longline reef fish fishery under current market and regulatory conditions. Interestingly, this may not have always been the case since, at least on average and in the red grouper fishery, the commercially inactive vessels received a larger allocation of red grouper (nearly 44K pounds) than their commercially active counterparts (39,630 pounds). On the other hand, their total grouper/tilefish allocations (52,546 pounds) were somewhat smaller on average than their commercially active counterparts (59,380 pounds). Importantly, the commercially active vessels with longline endorsements average landings of red grouper (26,811 pounds) was well within their average allocation in 2010 (39,630 pounds).

All 54 commercially active vessels with bottom longline endorsements are not only grouper/tilefish shareholders in general but red grouper shareholders specifically and thus differences in this respect do not exist. For the commercially active red grouper shareholders with bottom longline endorsements, some important changes occurred in their operations and thus commercial fishing revenue between 2008 and 2009. First, annual gross revenue fell by nearly 25% from approximately \$182K to \$137K on average. Practically all of this decrease was due to a reduction in revenue from red grouper landings (37%) and gag landings (48%). Though these vessels are still most dependent on revenue from red grouper landings, that dependency fell somewhat between 2008 and 2009, with such revenue accounting for 51% of gross revenue in 2008 and 43% in 2009. More significantly, in 2008, these vessels’ were harvesting red grouper at levels close to their 2010 allocations (i.e. approximately 32,800 pounds in red grouper landings on average as opposed to 39,630 in red grouper allocation). But they were well within their 2010 allocations in 2009, as average red grouper landings fell to 20,844 pounds. As such, they will likely not harvest all of their allocation in 2010 and thus some portion of the commercial quota they represent will not be harvested.

Most of the commercially active red grouper shareholders with bottom longline endorsements were specifically active in the red grouper fishery in 2008 or 2009, though not the same vessels were active (or inactive) in the fishery in each year. Specifically, 49 of these 54 vessels were active and 5 were not active in each year.

With respect to those active in the red grouper fishery, their operations and commercial fishing revenue changed significantly between 2008 and 2009. Specifically, average annual gross revenue fell from approximately \$179K in 2008 to \$133K in 2009, or nearly 26%. Practically all of this reduction was due to a decrease in revenue from red grouper landings, which fell from approximately \$104K in 2008 to \$65K in 2009 on average. Revenue from DWG landings remained approximately the same (approximately \$30K). As such, these vessels became much more dependent on revenue from DWG landings and much less dependent on revenue from red grouper landings, although the latter still represent the largest portion of their total revenue. Similar to all commercially active red grouper shareholders with bottom longline endorsements, in 2008, these vessels’ were harvesting red grouper at levels close to their 2010 allocations (i.e. approximately 36,124 pounds in red grouper landings on average as opposed to 42,250 in red grouper allocation). But they were well within their 2010 allocations (41,340 pounds) in 2009, as average red grouper landings fell to 22,971 pounds. As such, they will likely not harvest all of

their allocation in 2010 and thus some portion of the commercial quota they represent may not be harvested.

Finally, with respect to the red grouper shareholders with bottom longline endorsements that were not active in the red grouper fishery, their operations also changed significantly between 2008 and 2009. Specifically, annual gross revenue fell by nearly 21% from approximately \$221K in 2008 to \$175K in 2009 on average. These vessels appear to be “economic highliners” based only on these figures. Practically all of the decrease in their gross revenue was due to a decrease in revenue from DWG landings, which fell from nearly \$83K in 2008 to \$34K in 2009 (a 58% decrease) on average. An explanation for this result is not immediately obvious since the gear restrictions implemented in 2009 were thought to primarily affect harvests of red grouper and other SWG species. More importantly, although these vessels had no red grouper landings in 2008 or 2009, they held rather large 2010 red grouper allocations on a per vessel basis, nearly 14K pounds for the vessels inactive in 2008 and nearly 23K pounds for the vessels inactive in 2009. As such, for vessels seeking to purchase a bottom longline endorsement and red grouper shares or allocation, these 5 vessels may present the best opportunity. However, caution must be used in placing too much certainty on these results as they are based on only 5 observations in each year.

2.3.1.4 IFQ Dealers

Commercial vessels landing reef fish, including red grouper, can only sell their catch to federally permitted fish dealers. Because there are no income or sales requirements to acquire a federal dealer permit, the total number of dealers can vary over the course of the year and from year to year. However, under the IFQ program, in addition to possessing a valid federal dealer permit, a dealer must establish an IFQ online account and obtain an IFQ dealer endorsement in order to purchase red grouper and other grouper/tilefish species managed under the IFQ program. Although 188 dealers possessed valid Gulf reef fish dealer permits on May 12, 2010, only 103 dealers had also established IFQ accounts and obtained dealer endorsements. As such, the descriptive information provided below is only with respect to these 103 dealers or subsets thereof. Also, a single dealer may operate more than one offloading facility, and thus the number of offloading facilities exceeds the number of dealers.

Of the 103 IFQ dealers, 97 were active in either 2008 or 2009 with respect to commercial purchases of seafood, while 6 dealers were not commercially active in this respect. More specifically, in 2008, 95 IFQ dealers had commercial purchases of seafood, while 84 dealers had commercial purchases of Gulf grouper/tilefish, and 70 IFQ dealers had commercial purchases of Gulf red grouper. In 2009, these figures were 93, 85, and 73 respectively and thus relatively unchanged from 2008.

Although the number of active dealers in each of these respects changed little from 2008 to 2009, the value of their purchases declined noticeably. For all commercially active IFQ dealers, total seafood purchases decreased from approximately \$110 million to \$95.5 million, or more than 13%, of which approximately \$5 million was due to a reduction in purchases of Gulf grouper/tilefish. More specifically, the vast majority of this decrease was due to a reduction in purchases of red grouper (\$2.5 million) and gag (\$2.1 million).

According to data from the ALS, total purchases of Gulf grouper/tilefish were approximately \$23.2 million and \$17.6 million (2008 dollars) in 2008 and 2009 respectively. These dealers accounted for approximately 91% of all Gulf grouper/tilefish purchases in 2008 and 2009, implying that the other 9% was purchased by Gulf reef fish dealers that no longer have a dealer permit, have not established an IFQ account, or have not obtained a dealer endorsement. This may indicate that some dealers previously active in purchasing Gulf grouper/tilefish have decided to no longer participate in the fishery, which may in turn lead to a redistribution of landings and sales to those dealers participating in the IFQ program.

These commercially active dealers are very heterogeneous with respect to their total purchases, ranging from a minimum of approximately \$2,000 up to \$13.8 million in 2008 and \$17.9 million in 2009. The extent to which they are dependent on purchases of Gulf grouper/tilefish also varies greatly, with some not at all dependent and others completely dependent on such purchases in 2008. And while none of these dealers are completely dependent on purchases of red grouper, as much as 85% of their total purchases were red grouper in 2008.

The high degree of heterogeneity between IFQ dealers makes it difficult to discuss the “average” or representative IFQ dealer. In such instances, it is generally more appropriate to use median rather than mean values. Thus, on average, commercially active IFQ dealers averaged approximately \$448K and \$373K in seafood purchases in 2008 and 2009 respectively, indicating that such purchases decreased by about 17% between those two years. Their dependency on grouper/tilefish purchases also fell slightly with such purchases accounting for nearly 15% of all their seafood purchases in 2008 and approximately 12% in 2009. Their dependency on purchases of red grouper changed little between 2008 and 2009.

With respect to the dealers active in the grouper/tilefish fishery, similar to all commercially active IFQ dealers, their total seafood purchases declined by approximately \$13 million, or 12%, from \$105.8 million in 2008 to \$92.9 million in 2009. Their average total seafood purchases decreased from \$468K to \$395K, or 16%, from 2008 to 2009. As would be expected, given that they were active in the fishery, they are slightly more dependent on grouper/tilefish purchases than all commercially active IFQ dealers. However, their dependency on purchases of grouper/tilefish declined more noticeably relatively to all commercially active IFQ dealers, from nearly 23% in 2008 to less than 18% in 2009. This decline seems to have been primarily caused by a decrease in purchases of red grouper, which represented 11% of their seafood purchases in 2008 to but less than 8% in 2009 on average.

Landings of gag fell from approximately 1.49 MP in 2008 to .82 MP in 2009, with the ex-vessel revenue similarly decreasing from \$4.93 million in 2008 to \$2.72 million (2008 dollars) in 2009. The IFQ dealers that have been active in the gag fishery accounted for 96% of all gag purchases in 2008 and 2009 respectively. Thus, dealer participation in this fishery is likely to be relatively stable in the short-term, all other factors being equal.

With respect to the actions being considered in this regulatory Amendment, IFQ dealers that have been actively participating in the red grouper fishery are the most likely to be indirectly affected. These dealers accounted for \$84.4 million in seafood purchases in 2008 but only \$66.2

million in 2009. This decrease of over \$18 million represents a decline of nearly 22% in purchases, much higher than all commercially active IFQ dealers or those active in the grouper/tilefish fishery. Landings of red grouper fell from approximately 5.55 MP in 2008 to 4.27 MP in 2009, with the ex-vessel revenue similarly decreasing from \$13.39 million in 2008 to \$10.22 million (2008 dollars) in 2009. The IFQ dealers that have been active in the red grouper fishery accounted for 87% and 90% of all red grouper purchases in 2008 and 2009 respectively, again indicating that some dealers that have recently been active in the fishery may have chosen to no longer participate given the implementation of the IFQ program and other new regulations. On average, these dealers' total seafood purchases decreased from nearly \$432K to \$376K on average, or 13%. These dealers are much more dependent on purchases of grouper/tilefish in general and specifically red grouper, though their dependence on grouper/tilefish and red grouper in particular declined noticeably from 2008 to 2009. Specifically, purchases of grouper/tilefish accounted for 37% of their seafood purchases in 2008 but less than 29% in 2009 on average. Further, on average, their purchases of red grouper fell from more than \$39K to less than \$19K, a decrease of 52%, from 2008 to 2009.

2.3.1.5 Commercial Economic Impacts

Estimates of the economic activity (impacts) associated with the Gulf of Mexico commercial grouper and tilefish harvests were derived using the model developed for and applied in NMFS (2009c). Based on the annual ex-vessel revenues for red grouper in 2008 of \$13.39 million (2008 dollars), the commercial red grouper harvests are estimated to have supported 2,524 full time equivalent (FTE) jobs and generate approximately \$176 million in output (sales) impacts and approximately \$75 million in income impacts to the U.S. economy. Among the jobs supported, 329 FTE jobs are estimated to have been in the harvesting sector and 201 FTE jobs are in the dealer/processor sector. Given the reduction in annual ex-vessel revenues for red grouper to \$10.22 million (2008 dollars) in 2009, these figures fell to 1,926 full time equivalent (FTE) jobs, \$135 million in output (sales) impacts, and \$57 million in income impacts per year respectively to the U.S. economy. In terms of jobs supported, these figures also fell to 251 FTE jobs in the harvesting sector and 153 FTE jobs in the dealer/processor sector respectively. Thus, the reduction in red grouper ex-vessel revenues has led to a decrease in these various economic impacts of approximately 24%.

Similar but more dramatic changes are seen with respect to the economic impacts resulting from the commercial gag fishery. Specifically, based on the annual ex-vessel revenues for gag in 2008 of \$4.93 million (2008 dollars), the commercial gag harvests are estimated to have supported 929 FTE jobs and generate approximately \$65 million in output (sales) impacts and approximately \$28 million in income impacts to the U.S. economy. Among the jobs supported, 121 FTE jobs and 74 FTE jobs are estimated to have been in the harvesting sector and in the dealer/processor sector respectively. Given the reduction in annual ex-vessel revenues for gag to \$2.72 million (2008 dollars) in 2009, these figures decreased to 513 full time equivalent (FTE) jobs, \$36 million in output (sales) impacts, and \$15 million in income impacts per year respectively to the U.S. economy. In terms of jobs supported, these figures fell to 67 FTE jobs in the harvesting sector and 41 FTE jobs in the dealer/processor sector. Thus, the reduction in gag ex-vessel revenues has led to a decrease in these various economic impacts of approximately 45%.

Finally, with respect to all grouper and tilefish species managed under the IFQ program, annual ex-vessel revenues fell from \$23.2 million in 2008 (2008 dollars) to \$17.6 million (2008 dollars) in 2009. In 2008, these harvests are estimated to have supported 4,378 FTE jobs and generate approximately \$306 million in output (sales) impacts and approximately \$130 million in income impacts to the U.S. economy. Among the jobs supported, 121 FTE jobs and 74 FTE jobs are estimated to have been in the harvesting sector and the dealer/processor sector respectively. Given the reduction in annual ex-vessel revenues from these harvests in 2009, these figures decreased to 3,307 full time equivalent (FTE) jobs, \$231 million in output (sales) impacts, and \$98 million in income impacts per year respectively to the U.S. economy. In terms of jobs supported, these figures also fell to 432 FTE jobs in the harvesting sector and 263 FTE jobs in the dealer/processor sector respectively. Thus, the reduction in grouper/tilefish ex-vessel revenues has led to a decrease in these various economic impacts of approximately 25%.

Approximately two-thirds of the jobs supported by these harvests are estimated to accrue to the restaurant sector. These estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors).

2.3.1.6 Imports

Information on the imports of all snapper and grouper species, either fresh or frozen, from 1993-2006 are provided in GMFMC (2009) and are incorporated herein by reference. Although information on the imports of individual snapper or grouper species is not available, imports of all grouper species combined is available. In 2007, imports of all grouper species rose to a historic high of approximately 4.85 MP valued at approximately \$27.75 million (2008 dollars), declined to approximately 3.97 MP valued at approximately \$24.75 million in 2008, and increased to 4.30 MP valued at \$23.56 million in 2009 (2008 dollars) (NMFS 2010a). These amounts are contrasted with the domestic harvest of all grouper in the Gulf of Mexico which peaked at approximately 9.49 MP in 1993 and have averaged slightly more than 7 MP in recent years (NMFS 2010b). Although the levels of domestic production and imports are not totally comparable for several reasons, including considerations of different product form, such as fresh versus frozen, and possible product mislabelling, it is clear that import penetration has been fairly significant in the U.S. grouper market.

2.3.2 Recreational Sector

Additional information on the Gulf of Mexico recreational sector in general is provided in Reef Fish Amendment 25/Coastal Migratory Pelagics Amendment 17 (GMFMC 2005b), the 2005 recreational sector grouper regulatory amendment (GMFMC 2005c), Reef Fish Amendment 27/Shrimp Amendment 14 (GMFMC 2007), Reef Fish Amendment 30A (GMFMC 2008b), Reef Fish Amendment 30B (GMFMC 2008a) and is incorporated herein by reference.

2.3.2.1 Angler Effort

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

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

Other measures of effort are possible, such as the number of harvest trips (the number of individual angler trips that harvest a particular species regardless of target intent), and directed trips (the number of individual angler trips that either targeted or caught a particular species), among other measures, but the three measures of effort listed above are used in this assessment. Given the subject nature of this Amendment, estimates of red grouper effort and total marine recreational fishing effort in the Gulf for 2005-2009 are provided in Tables 2.3.2.1 -2.3.2.7.

Trips targeting red grouper only represented approximately .7% of all recreational trips in the Gulf on average. No trend between 2005 and 2009 is discernible with respect to the number or percentage of trips targeting red grouper. More trips report catching than targeting red grouper. Specifically, the number of trips catching red grouper is typically three times greater than the number of trips targeting red grouper. As such, trips catching red grouper represent approximately 2.3% of all recreational trips in the Gulf on average. Furthermore, the number of trips catching red grouper in 2008 and 2009 was more than double the number in 2006 and 2007, indicating a potential upward trend.

Anglers in west Florida represented nearly all (99.7%) of the target effort for red grouper from 2005-2009. Alabama anglers reported a minor amount of target effort and only in 2005. From 2006-2009, all red grouper target effort was accounted for by west Florida anglers. The geographic distribution of red grouper catch effort is similar. Specifically, between 2005 and 2009, anglers in west Florida represented nearly all (99.2%) of the catch effort for red grouper. Alabama anglers accounted for the remaining catch effort (.8%). And as would be expected given the dominance of west Florida anglers, their catch effort increased significantly in 2008 and 2009 relative to the previous two years.

Just as west Florida anglers are dominant with respect to the geographic distribution of target and catch effort, so is the private boat sector with respect to mode. Specifically, private boats represented nearly 93% of target effort and more than 89% of catch effort for red grouper on average between 2005 and 2009. The charter mode is of secondary importance, accounting for slightly more than 6% of target effort for red grouper. The charter mode is slightly more important in terms of catch effort for red grouper, representing 9% of the total. The shore mode accounts for relatively minor amounts of both target effort (<1%) and catch effort (1.7%) for red grouper. However, the shore mode has accounted for a greater percentage (approximately 4%) of red grouper catch effort in 2008 and 2009 while the relative importance of the private boat

sector has somewhat declined in those years. Further, although the charter mode represented nearly 16% of catch effort in 2005, it has accounted for only about half of that percentage in subsequent years.

Table 2.3.2.1.1 Target trips for red grouper and total recreational trips, 2005-2009.

| | Red Grouper Target Trips | Percent | Total Trips |
|---------|--------------------------|---------|-------------|
| 2005 | 184,311 | .84 | 21,906,426 |
| 2006 | 115,268 | .48 | 23,862,890 |
| 2007 | 155,315 | .64 | 24,267,431 |
| 2008 | 197,460 | .82 | 24,108,842 |
| 2009 | 163,836 | .73 | 22,296,834 |
| Average | 163,238 | .70 | 23,288,484 |

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 2.3.2.1.2 Red grouper target trips and percent distribution, by state, 2005-2009.

| | Red Grouper Target Trips | | | | Percent Distribution | | | |
|---------|--------------------------|---------|----|----|----------------------|------|----|----|
| | AL | WFL | LA | MS | AL | WFL | LA | MS |
| 2005 | 2,312 | 181,999 | 0 | 0 | 1.3 | 98.7 | 0 | 0 |
| 2006 | 0 | 115,268 | 0 | 0 | 0 | 100 | 0 | 0 |
| 2007 | 0 | 155,315 | 0 | 0 | 0 | 100 | 0 | 0 |
| 2008 | 0 | 197,460 | 0 | 0 | 0 | 100 | 0 | 0 |
| 2009 | 0 | 163,836 | 0 | 0 | 0 | 100 | 0 | 0 |
| Average | 462 | 162,776 | 0 | 0 | .3 | 99.7 | 0 | 0 |

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 2.3.2.1.3 Red grouper target trips and percent distribution, by mode, 2005-2009.

| | Red Grouper Target Trips | | | Percent Distribution | | |
|---------|--------------------------|---------|---------|----------------------|---------|---------|
| | Shore | Charter | Private | Shore | Charter | Private |
| 2005 | 0 | 14,221 | 170,089 | 0 | 7.7 | 92.3 |
| 2006 | 0 | 5,992 | 106,902 | 0 | 5.2 | 94.8 |
| 2007 | 2,444 | 8,534 | 146,781 | 1.6 | 5.5 | 92.9 |
| 2008 | 0 | 14,246 | 178,962 | 0 | 7.2 | 92.8 |
| 2009 | 4,251 | 9,870 | 153,966 | 2.6 | 6.0 | 91.4 |
| Average | 1,339 | 10,573 | 151,340 | .8 | 6.3 | 92.8 |

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 2.3.2.1.4 Catch trips for red grouper and total recreational trips, 2005-2009.

| | Red Grouper Catch Trips | Percent | Total Trips |
|------|-------------------------|---------|-------------|
| 2005 | 541,018 | 2.47 | 21,906,426 |
| 2006 | 297,903 | 1.25 | 23,862,890 |
| 2007 | 324,920 | 1.34 | 24,267,431 |
| 2008 | 723,336 | 3.00 | 24,108,842 |
| 2009 | 720,035 | 3.23 | 22,296,834 |

| | | | |
|---------|---------|------|------------|
| Average | 521,442 | 2.26 | 23,288,484 |
|---------|---------|------|------------|

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 2.3.2.1.5 Red grouper catch trips and percent distribution, by state, 2005-2009.

| | Red Grouper Catch Trips | | | | Percent Distribution | | | |
|---------|-------------------------|---------|----|----|----------------------|------|----|----|
| | AL | WFL | LA | MS | AL | WFL | LA | MS |
| 2005 | 11,916 | 529,102 | 0 | 0 | 2.2 | 97.8 | 0 | 0 |
| 2006 | 4,833 | 293,072 | 0 | 0 | 1.6 | 98.4 | 0 | 0 |
| 2007 | 164 | 324,756 | 0 | 0 | 0 | 100 | 0 | 0 |
| 2008 | 28 | 723,308 | 0 | 0 | 0 | 100 | 0 | 0 |
| 2009 | 932 | 719,103 | 0 | 0 | .1 | 99.9 | 0 | 0 |
| Average | 3,575 | 517,868 | 0 | 0 | .8 | 99.2 | 0 | 0 |

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 2.3.2.1.6 Red grouper catch trips and percent distribution, by mode, 2005-2009.

| | Red Grouper Catch Trips | | | Percent Distribution | | |
|---------|-------------------------|---------|---------|----------------------|---------|---------|
| | Shore | Charter | Private | Shore | Charter | Private |
| 2005 | 2,362 | 133,144 | 712,417 | 0.3 | 15.7 | 84.0 |
| 2006 | 0 | 74,507 | 820,483 | 0.0 | 8.3 | 91.7 |
| 2007 | 3,344 | 56,490 | 875,990 | 0.4 | 6.0 | 93.6 |
| 2008 | 40,638 | 80,733 | 839,375 | 4.2 | 8.4 | 87.4 |
| 2009 | 32,242 | 62,919 | 791,786 | 3.6 | 7.1 | 89.3 |
| Average | 15,717 | 81,559 | 808,010 | 1.7 | 9.0 | 89.3 |

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Head boat data do not support the estimation of target or catch effort because target intent is not collected and harvest data (the data reflect only harvest information and not total catch) is collected on a vessel basis and not by individual angler. Table 2.3.2.1.7 provides estimates of the number of head boat angler days for all Gulf States from 2005 through 2009.

Table 2.3.2.1.7 Head boat angler days.

| | WFlorida/Alabama | Louisiana | Texas | Total |
|---------|------------------|-----------|--------|---------|
| 2005 | 130,233 | na | 59,857 | 190,090 |
| 2006 | 124,049 | 5,005 | 70,789 | 199,843 |
| 2007 | 136,880 | 2,522 | 63,764 | 203,166 |
| 2008 | 130,176 | 2,945 | 41,188 | 174,309 |
| 2009 | 142,438 | 3,268 | 50,737 | 196,443 |
| Average | 132,755 | 3,435 | 57,267 | 193,457 |

*na=not available.

Source: NMFS Head Boat Survey.

2.3.2.2 Economic Value

Economic value in the recreational sector is measured in terms of consumer surplus (CS) to anglers and producer surplus (PS) to charterboat and head boat operations. Consumer surplus is

the amount of money that an angler would be willing-to-pay for a fishing trip over and above the cost of the trip. Producer surplus is the amount of money that the operator earns on the trip per angler over and above the cost of providing the trip. Because the PS is unknown, net operating revenue (NOR) is used as the proxy for PS, where NOR is defined as operating revenues minus variable operating costs. Variable operating costs include all trip costs (fuel, ice, bait, food, etc.) except payments to captain and crew (labor). Therefore, the NOR for a trip is the return used to pay all labor wages, returns to capital, and owner profits. A discussion of these variables and estimates of appropriate values are provided in Amendment 17A to the South Atlantic Snapper-Grouper FMP (SAFMC 2010). In summary, the estimated CS for a grouper trip is approximately \$126 (2008 dollars) and the estimated NOR is approximately \$146 and \$48 (2008 dollars) per charterboat and head boat angler trip, respectively.

2.3.2.3 For-Hire Vessels

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

A federal for-hire vessel permit has been required for reef fish since 1996 and the sector currently operates under a limited access system (GMFMC 2005b). On March 23, 2010, there were 1,376 valid or renewable Gulf reef fish for-hire permits. A valid permit is a non-expired permit. Expired reef fish for-hire permits may not be actively fished, but are renewable for up to one year after expiration. Because of the extended renewal period, numerous permits may be expired but renewable at any given time of the year. The majority of the 1,376 permits valid or renewable on March 23, 2010 were registered with Florida addresses (823 or approximately 60%), followed by 229 permits (nearly 17%) with Texas addresses, 127 permits (approximately 9%) with Alabama addresses, 94 permits (nearly 7%) with Louisiana addresses, and 48 permits (approximately 3%) with Mississippi addresses. The registration address for the federal permit does not restrict operation to federal waters off that state; however, vessels would be subject to state permitting requirements, should such exist. Although the permit does not distinguish between head boats and charterboats, an estimated 79 head boats operate in the Gulf. The majority of these vessels, 43 (approximately 54%), operate from Florida ports, followed by 22 vessels (approximately 28%) in Texas, 10 vessels (13%) in Alabama, and 4 (5%) vessels in Louisiana.

Information on Gulf head boat and charterboat operating characteristics, including average fees and net operating revenues, are included in GMFMC (2007) and is incorporated herein by reference.

2.3.2.4 Recreational Economic Impacts

The value estimates provided in Section 2.3.2.2 should not be confused with angler expenditures or economic activity (impacts) associated with these expenditures. While expenditures for a specific good or service may represent a proxy or lower bound of value (a person would not

logically pay more for something than it was worth to them), expenditures do not represent the net value of the good or service (benefit minus cost), nor the change in value associated with a change in the fishing experience. Estimates of the economic impacts resulting from the recreational gag and red grouper fisheries are provided in GMFMC (2008) and incorporated herein by reference.

2.4 Description of the Social Environment

2.4.1 Historical Background

Most of the information in this section, which generally only incorporates data through 2007, provides an historical context with respect to the relationships between the red grouper fishery and communities around the Gulf of Mexico. The implementation of the grouper/tilefish IFQ program on January 1, 2010, a description of which is provided in section 2.3.1.1, and new restrictions on the use of bottom longline gear to certain vessels (i.e. those which qualified for longline endorsements) and areas have likely caused significant changes to the nature and strength of these relationships. These changes and their probable effects on certain aspects of the social environment are discussed in section 2.4.2.

This description will generally begin at the county level and follow with a description of the communities within in each county. Utilizing demographic data at the county level will allow for updated statistics from the Census Bureau which produces estimates for geographies (counties; minor civil divisions; census designated places, etc.) that are larger than 20,000 prior to the decennial census.⁸ Because employment opportunities often occur within a wider geographic boundary than just the community level, a discussion of various demographics within the county is appropriate.

The county-level description will focus primarily on the demographic character and a discussion of coastal growth and development that seems to affect many coastal communities, especially those with either or both commercial and recreational working waterfronts. The rapid disappearance of these types of waterfronts has important implications for the disruption of various types of fishing-related businesses and employment and has generated programs to protect and preserve this infrastructure (Stan Mayfield Working Waterfronts Florida Forever Grant Program 2009; North Carolina Sea Grant 2007). The process of “gentrification” which tends to push those of a lower socio-economic class out of traditional communities as property values and taxes rise has become common along coastal areas of the U.S. and around the world. Working waterfronts tend to be displaced with development that is often stated as the “highest

⁸ American Community Survey estimates are based on data collected over a three year time period. The estimates represent the average characteristics of population and housing between January 2005 and December 2007 and do not represent a single point in time. Because these data are collected over three years, they include estimates for geographic areas with populations of 20,000 or more. The ACS one-year estimates are only available for geographic areas with populations of 65,000 or more.

and best” use of waterfront property, but often is not associated with water-dependent occupations. However, with the continued removal of these types of businesses over time the local economy becomes less diverse and more reliant on the service sector and recreational tourism. As home values increase, people within lower socio-economic class find it difficult to live within these communities and consequently spend more time and expense commuting to work if jobs continue to be available. Newer residents often have no association with the water-dependent employment and may see that type of work and its associated gear as unappealing to the aesthetics of the community. Looking at demographic trends within counties and communities can provide some indication as to whether these types of coastal change may be occurring.

Although the most recent estimates of census data have been used here, many of the statistics related to the economic condition of counties and communities do not capture the most recent downturn in the economy which may have significant impacts on current employment opportunities and business operations. Therefore, in the demographic descriptions of both counties and communities, it should be understood that in terms of unemployment, the current conditions could be worse than indicated by the estimates used here. To be consistent, census data are used for the various demographic characteristics and as noted earlier are limited to the most recent estimates which are 2007 and in some cases 2008. More current data are noted when available. Other aspects of trade and market forces as a result of the economic downturn could also affect the business operations of vessels, dealers, wholesalers and retail seafood businesses and may not be reflected in the demographic profile provided here.

Pinellas County

Pinellas County has seen steady growth since 1990 through 2007 as its population has grown to 922,127 (Table 2.4.1). A majority of Pinellas County residents were white for all three past decennial censuses, but that number has decreased steadily over the years and has been estimated to have dropped to 85.4% in 2007. Of the minority populations, Hispanics have seen the greatest growth from 2.4% in 1990 to 6.7% in 2007 with African Americans the largest minority population at 10.7%. In 2007, overall, Florida’s population was 77.8% white 20.1% Hispanics and 16.0% African Americans. The median age for residents of Pinellas County was estimated to have been 44.8 years which is slightly higher than the median age for the entire state. Coastal urban areas like St. Petersburg and others are popular retirement destinations as they offer numerous medical facilities and other amenities that are desirable to retirees. Unemployment in Pinellas County in 2007, at 5%, was lower than the state-wide unemployment rate of 6%. The percentage of families below the poverty level was estimated at 8.2% which was also below the 9% for the state as a whole during 2007. Pinellas County had a slightly higher owner-occupied housing rate than the state with slightly over 71.2% of owner-occupied housing to the state-wide estimate of 70.3% for 2007. Although the median value of homes in the county has more than doubled since the 1990s at \$190,800, it is still below the state average (U.S. Census Bureau 2009).

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Table 2.4.1. Pinellas County census demographics (Source: U.S. Census Bureau)

| Factor | 1990 | 2000 | 2007 |
|--|---------|---------|---------|
| Total population | 851,659 | 921,495 | 922,147 |
| Population Density (Persons per sq. mi.)* | 2895 | 3132 | 3351 |
| Median Age | N/A | 43 | 44.8 |
| Ethnicity or Race (Percent) | | | |
| White | 90.5 | 87.2 | 85.4 |
| Black or African American | 7.7 | 9.4 | 10.6 |
| American Indian and Alaskan Native | 0.2 | 0.7 | 0.7 |
| Asian | 1.1 | 2.4 | 3.2 |
| Hispanic or Latino (any race) | 2.4 | 4.6 | 6.7 |
| Educational Attainment (Population 25 and over) | | | |
| Percent with less than 9th grade | 6.6 | 3.9 | 3.5 |
| Percent high school graduate or higher | 78.1 | 84 | 87.2 |
| Percent with a Bachelor's degree or higher | 18.5 | 22.9 | 26.6 |
| Household income (Median \$) | 26,296 | 37,111 | 43,591 |
| Poverty Status (Percent of population with income below poverty line) | 9.5 | 10 | 11.6 |
| Home Ownership (Percent) | | | |
| Owner occupied | 69.2 | 70.8 | 71.2 |
| Value Owner-occupied Housing (Median \$) | 73,800 | 96,500 | 190,800 |
| Employment Status (Population 16 yrs and over) | | | |
| Percent of civilian labor force unemployed | 4.5 | 4.3 | 5 |
| Occupation (Percent) | | | |
| Management, professional, and related occupations | N/A | 34.2 | 35.6 |
| Service occupations | N/A | 15.5 | 16.5 |
| Sales and office occupations | N/A | 31 | 29.5 |
| Farming, fishing, and forestry occupations | 1.5 | 0.2 | 0.1 |
| Construction, extraction, and maintenance occupations | N/A | 8.1 | 8.9 |
| Production, transportation, and material moving occupations | N/A | 11 | 9.4 |
| Industry (Percent) | | | |
| Agriculture, forestry, fishing and hunting | 1.6 | 0.2 | 0.2 |
| Manufacturing | 13 | 10.1 | 8.7 |
| Percent government workers | 11 | 10.8 | 10.8 |

* Data from NOAA Spatial Patterns of Socioeconomic Data 1970 to 2000 and the U.S. Census Bureau 2009

Pinellas County is highly urbanized with a population density that grew from 1,775 persons per square mile in 1970 to just over 3,132 persons per square mile in 2000. State-wide Florida had an estimated overall population density of 338 persons per square mile in 2007 up slightly from 296 in 2000 (NOAA Spatial Patterns of Socioeconomic Data 1970 to 2000 and the U.S. Census Bureau 2009).

Pinellas County Communities

Madeira Beach is centrally located among a series of barrier island communities just west of St. Petersburg on the Gulf coast of Pinellas County that have become known as important tourist destinations for their white sand beaches. Madeira Beach is primarily a residential community with few industrial or service businesses, although the John's Pass area continues to grow with a variety of shops and restaurants that cater to both locals and tourists.

The community of Madeira Beach is often called the “Grouper Capital of the U.S.” because the majority of grouper harvested in the U.S. waters are landed here (Wilson et al. 1998). While the community continues to land the majority of grouper, there has been considerable change in the makeup of the commercial fleet. There were once four fish houses that catered to a commercial fleet estimated to include 130 vessels that offloaded regularly at local docks (Lucas 2001). That number has declined to around 70-75 vessels in recent years, the majority of which are longline vessels and according to one industry representative, they continue to constitute over 95% of the fleet home ported there (personal communication, R. Spaeth,⁹). Longline vessels have on average 3-4 crew members including the captain. There were an estimated 441 employees working on vessels and employed at fish houses in 2000 with many living in close proximity if not in the community itself (Lucas 2001). The number of employees for both vessels and fish houses has declined, as the number the number of vessels and fish houses has declined and may be around 300 based on estimates from earlier research (Lucas 2001). It was estimated that there were 48 bandit reel vessels in Madeira Beach in 2000. However, that number has fallen noticeably over the past nine years according to one industry representative (personal communication, R. Spaeth).

In terms of reliance on Gulf reef fish, total landings within Madeira Beach for the time period 1999-2007 indicate substantial reliance upon red grouper in terms of pounds landed at just below 40% and just above 45% of overall value. Other species that are important to the total landings in Madeira Beach are gag and yellowedge grouper (Figure 2.4.1). Shark fins are not measured by the pound and therefore have only a bar representing value. If the majority of vessels that presently off-load in Madeira Beach are longline vessels, Figure 2.4.1 suggests fish dealers in this community rely substantially upon several species harvested with that gear type.

Since the initial rule to prohibit longline gear inside of 35 fathoms off Florida’s west-central coast was implemented in 2009, vessel owners have adopted several strategies to mitigate the impacts. Many vessels in the Madeira Beach area have converted either permanently or temporarily to vertical line gear. To reduce the costs of this conversion, some are using rod and reels rather than permanently installed “bandit reels.” As a result, many vessels have had reduced landings and are not meeting trip expenses with the amounts of fish landed. Hired captains are taking on increased debt and fish houses are often left with these expenses unpaid as some captains have been let go, while others have quit. Overall landings for one fish house have dropped from 100,000 pounds to 5,000 pounds a month according to the manager who said that several employees have been laid off and leased equipment returned (R. Spaeth, personal communication). According to NMFS port agents, an estimated 75% of longline vessels in this area may have converted to vertical line fishing. Those who have not converted are choosing to fish elsewhere or have chosen to tie vessels to the dock and not fish at all. Some vessels were fishing outside of 50 fathoms until the deepwater grouper component of the fishery closed.

⁹ R. Spaeth, Madeira Beach Seafood, St. Petersburg, Florida

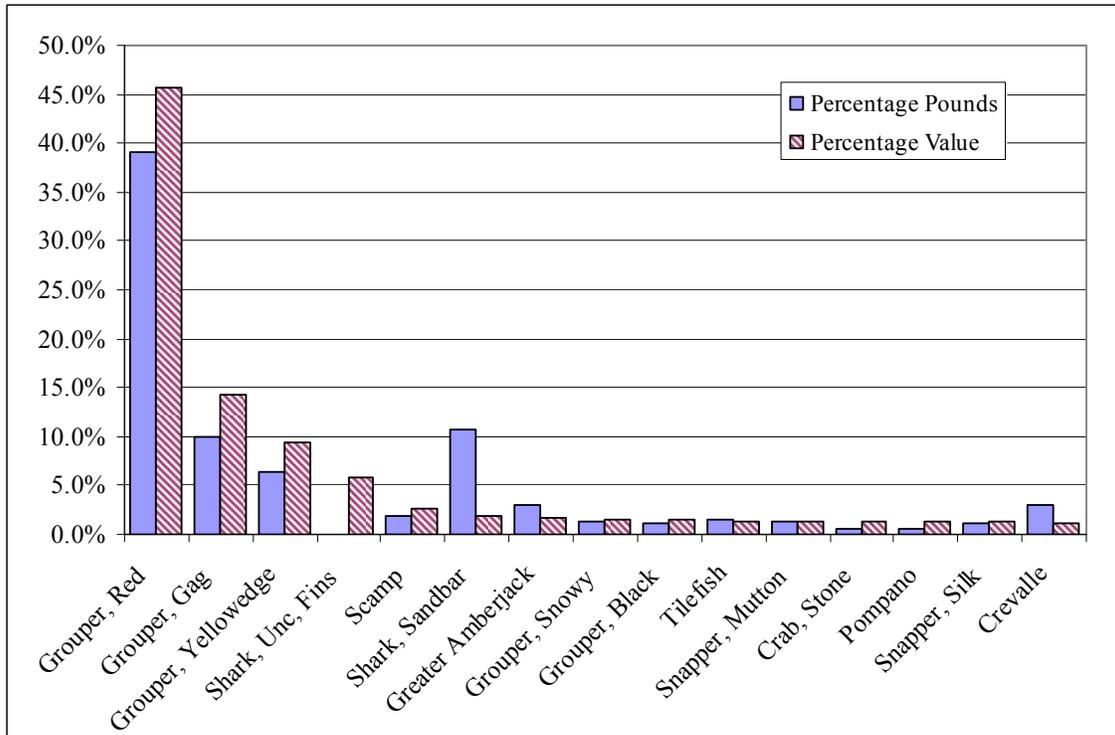


Figure 2.4.1. Percentage of pounds and value for top fifteen species landed from total landings in Madeira Beach 1999-2007 (Source: ALS SEFSC 2009).

The community of Tarpon Springs is approximately 25 miles north of Madeira Beach on U.S. Highway 19. There are longline vessels located within the community that would also be affected by the actions within this amendment. This community has a long history associated with commercial sponge fishing, but tourism has capitalized on that image as sponge fishing itself has declined and dockside areas are filled more with tourist than fishermen today. There were as many as 50 fishing vessels home ported in Tarpon Springs in 2002, most of them shrimp vessels. That number may have declined as the shrimp fishery has experienced a severe downturn due to economic hardship from increasing imports and fluctuating fuel prices (Impact Assessment, Inc. 2005).

Of those species that dominate landings in Tarpon Springs in terms of value, pink shrimp is by far the most valuable contributing over 30% of value for total landings from 1999-2007(Figure 2.4.2). Red grouper is second in terms of value and pounds landed with just over 15% of value and 14% of pounds landed. Stone crab and gag grouper are the next two most valuable species, with stone crab accounting for 15% of value for landings within the community.

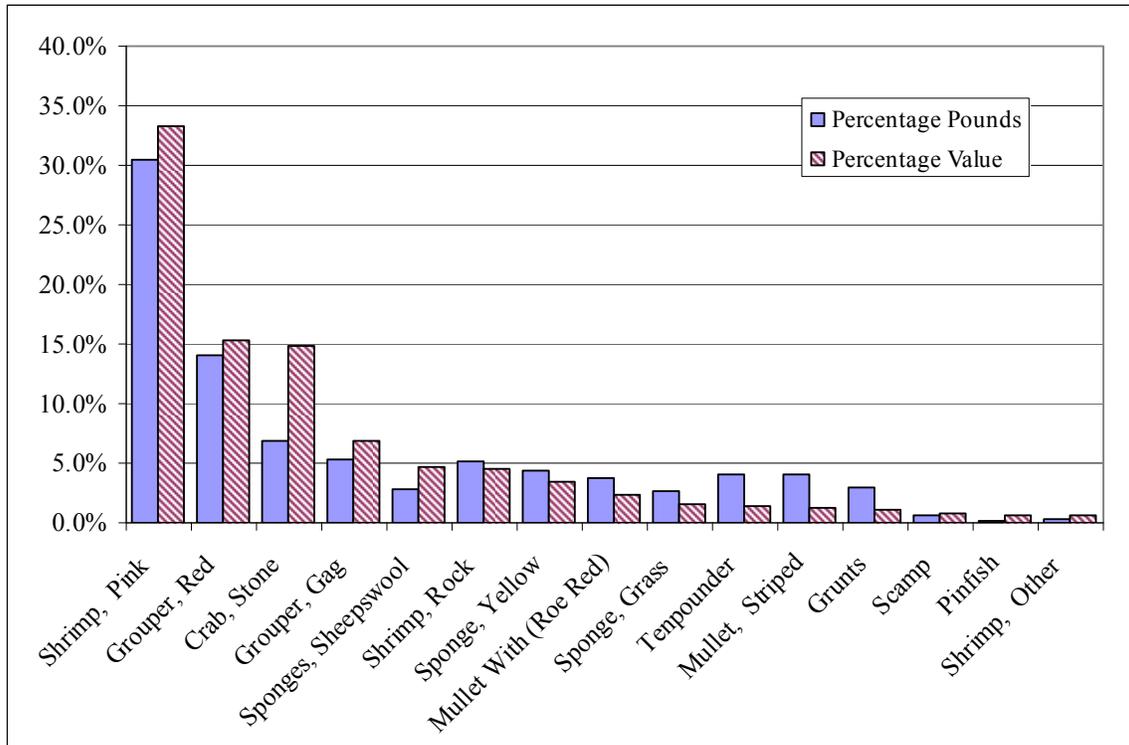


Figure 2.4.2. Percentage of pounds and value for top fifteen species landed from total landings in Tarpon Springs 1999-2007 (Source: ALS SEFSC 2009).

With the implementation of the rule prohibiting longline gear inside of 35 fathoms, according to NMFS port agents, one longline vessel from Tarpon Springs has converted to vertical line gear while another is fishing elsewhere. Other vessels may not be fishing at all or no longer homeporting there.

Both communities within Pinellas County are surrounded by highly urbanized or suburbanized environments that are embedded within a coastal economy that is driven by recreational tourism and seasonal residence by retirees or tourists. The county is the most densely populated county in the state with a population density twice that of the most populous county in Florida, Miami-Dade. Because development pressures have existed for some time, waterfront property that has not experienced some type of redevelopment is likely exceptional. According to one fish house owner, prior to the decline in the housing market, there were offers to purchase the waterfront property his fish house occupied for redevelopment into condos. While these pressures have lessened with the current recession, economic recovery may result in renewed attempts to acquire these working waterfronts for redevelopment.

Manatee County

Manatee County had a total population of 264,002 in 2000 that is estimated to have grown to over 310,000 by 2007 and almost 330,201 by 2008 (Manatee Economic Development Council 2009; Table 2.4.2). The population density for the county has grown rapidly from an estimated 129 persons per square mile in 1970 to just over 350 persons in 2000 and 424 persons in 2007

(NOAA Spatial Patterns of Socioeconomic Data 1970 to 2000 and the U.S. Census Bureau). The majority of residents was identified as white (84.4%) in 2007 and was estimated to have dropped slightly to 83.3% in 2008. The Hispanic population has grown from 4.5% in 2000 to over 13.0% in 2008 (Manatee Economic Development Council 2009). The median age for the residents of Manatee County was estimated to have been 43.1 years or slightly older than the state-wide average. An estimated 4.8% of the population in the civilian force was unemployed in Manatee County, which was lower than the state-wide average of 6%. The percentage of individuals below the poverty level was estimated at 10.9% in 2007 which was higher than the 9% state-wide average. Manatee County had a slightly higher owner occupied housing rate in 2007 than for the whole state with slightly over 73.5% compared to 70.3% (U.S. Census Bureau 2009).

Table 2.4.2. Manatee County Census Demographics (Source: U.S. Census Bureau)

| Factor | 1990 | 2000 | 2007 |
|--|-------------|-------------|-------------|
| Total population | 211,707 | 264,002 | 310,764 |
| Population Density (Persons per sq. mi.)* | 281 | 350 | 424 |
| Median Age | N/A | 43.6 | 43.1 |
| Ethnicity or Race (Percent) | | | |
| White | 89.9 | 87.5 | 84.4 |
| Black or African American | 7.8 | 8.6 | 8.9 |
| American Indian and Alaskan Native | 0.2 | 0.6 | 0.6 |
| Asian | 6 | 1.1 | 1.8 |
| Hispanic or Latino (any race) | 4.5 | 9.3 | 12.5 |
| Educational Attainment (Population 25 and over) | | | |
| Percent with less than 9th grade | 8.1 | 5.6 | 4.5 |
| Percent high school graduate or higher | 75.6 | 81.4 | 85.7 |
| Percent with a Bachelor's degree or higher | 15.5 | 20.8 | 25.7 |
| Household income (Median \$) | 25,951 | 38,673 | 50,416 |
| Poverty Status (Percent of population with income below poverty line) | 10.2 | 10.1 | 10.9 |
| Home Ownership (Percent) | | | |
| Owner occupied | 70.9 | 73.8 | 73.5 |
| Value Owner-occupied Housing (Median \$) | 79,400 | 119,400 | 231,000 |
| Employment Status (Population 16 yrs and over) | | | |
| Percent of civilian labor force unemployed | 4.9 | 3.6 | 4.8 |
| Occupation (Percent) | | | |
| Management, professional, and related occupations | N/A | 29.1 | 30.3 |
| Service occupations | N/A | 16.9 | 16.6 |
| Sales and office occupations | N/A | 28.2 | 28 |
| Farming, fishing, and forestry occupations | 4.1 | 1.4 | 1 |
| Construction, extraction, and maintenance occupations | N/A | 11.2 | 12.3 |
| Production, transportation, and material moving occupations | N/A | 13.2 | 11,8 |
| Industry (Percent) | | | |
| Agriculture, forestry, fishing and hunting | 4.4 | 1.6 | 1.1 |
| Manufacturing | 13.5 | 11.7 | 9.2 |
| Percent government workers | 11.8 | 12.4 | 12.4 |

* Data from NOAA Spatial Patterns of Socioeconomic Data 1970 to 2000 and the U.S. Census Bureau 2009

Manatee County Communities

The community of Cortez is listed as a potential fishing community in Manatee County and classified as primarily involved in fishing (Impact Assessment, Inc. 2005). In Figure 2.4.3, the two operating fish houses are the A.P. Bell Fish Company (Co.) on the far left and Cortez Bait and Seafood on the far right. There is a long history of commercial fishing in Cortez as many descendants of the North Carolina fishermen who settled the community in the 1800s still live and work there. Historically, this community was principally involved in the inshore net fishery for mullet and other finfish until the 1994 constitutional amendment that banned the traditional net gear. Many fishermen moved into other inshore and offshore fisheries. In the 1970s, prior to the net ban, there was an expansion into the offshore reef fish fishery that continues today with both vertical line and longline vessels home ported within the community. There were three fish house operating in the community prior to the net ban, but shortly after the implementation of the ban, two fish houses closed. Cortez Bait and Seafood opened during the late nineties, but little, if any reef fish are landed there. The A.P. Bell Fish Company with approximately 60 employees was established in the 1940s and has numerous reef fish vessels that offload snapper and grouper. Much of the product landed at A.P. Bell Fish Co. goes to local or regional markets serving retail stores and restaurants.



Figure 2.4.3. Historic commercial working waterfront Cortez, Florida (Source: Google Earth 2009).

It is estimated that 17 reef fish vessels, the majority of which are longline vessels, homeport in the area and all but three offload at A.P. Bell Fish Co. The other vessels that do not land fish at Bell Fish Co. offload at private docks and sell to another wholesaler. None of the vessels from the community fish for shark (personal communication, G. Brooks¹⁰).

The community of Cortez has been pressured by coastal development as sprawling growth from Bradenton moves west. There has been a celebrated resistance to a variety of development conflicts within the village over many years which have resulted in the waterfront and contiguous neighborhoods being listed as a National Register Historic District. The community was named a Florida Waterfronts Community in 1995 and implemented zoning regulations to limit the type of development and retain the working waterfront and commercial character. Rising property values and taxes have made it difficult for commercial fishermen to live within the historic village proper and many now live in Bradenton and the surrounding area. The community recently celebrated the opening of a maritime museum located in the old rural grade school that highlights the commercial fishing heritage of the community and educates the public in historic boat building techniques and other aspects of fishing culture. Earlier in the decade, land was purchased by a non-profit within the community to form the FISH Preserve which will act as a buffer to development and preserve environmentally sensitive land protecting the historic village from encroaching development (<http://fishnews.org/preserve/> accessed March 11, 2009).

The community of Cortez had significant landings of baitfish as just over 30% of all pounds landed during 1999-2007 were baitfish (Figure 2.4.4). However, in terms of value, red grouper is by far the most important species with over 30% of value from all species landed attributed to that species which far outgains other species landed in the community. Because the majority of reef fish landings here come from longline vessels, the fishing community is highly reliant on longline gear and has been affected by recent regulatory changes.

Since the implementation of the emergency rule regarding longline gear restrictions, several vessels homeported in Cortez have converted to vertical line but have seen a significant reduction in landings (personal communication, G. Brooks and K. Bell¹¹). Some captains of fleet owned vessels have quit or were let go because of an inability to generate sufficient revenue from catches to meet the costs of a fishing trip. As a result, the fish houses have been forced to accept losses for hired captains who decide to leave. Employees at one fish house have been let go and for those that remain hours have been cut back. Some dealers with freezing capability must rely on frozen fish to meet the demand as the supply of fresh fish is insufficient (personal communication, K. Bell).

¹⁰ G. Brooks, Gulf Fishermen's Association, Clearwater, Florida

¹¹ K. Bell, A.P. Bell Fish Company, Cortez, Florida

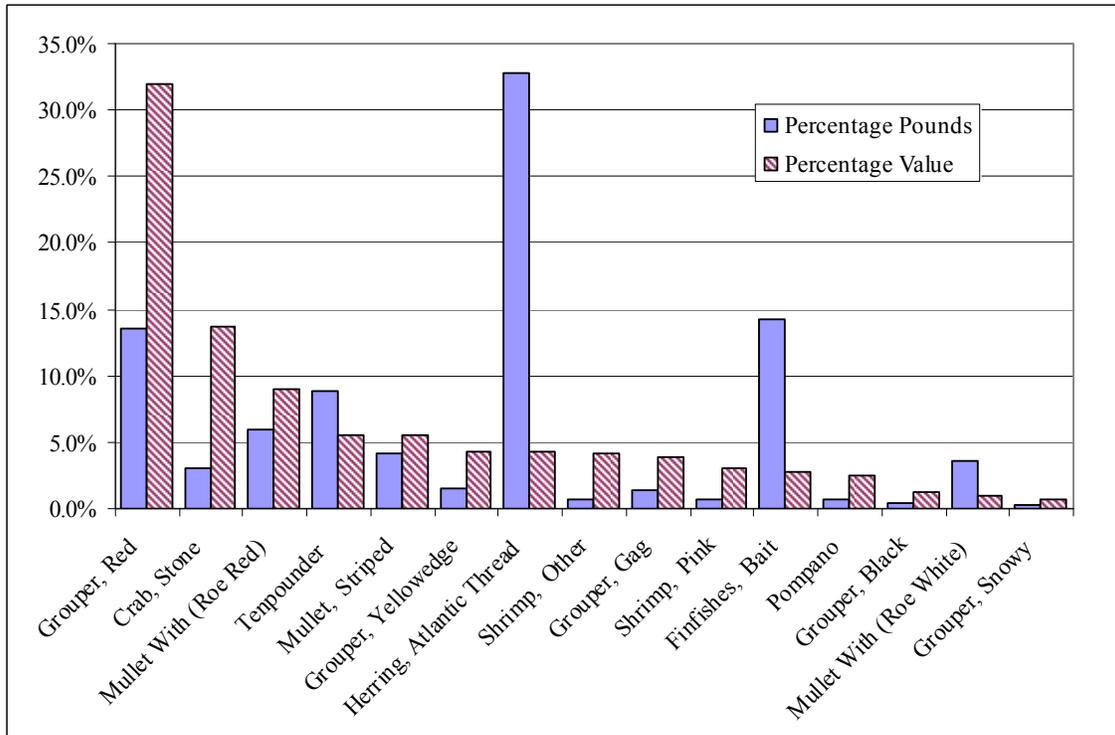


Figure 2.4.4. Percentage of pounds and value for top fifteen species landed from total landings in Cortez, Florida 1999-2007 (Source: ALS SEFSC 2009).

Panama City

Located in Bay County, demographics for which are presented in Table 2.4.3, **Panama City** has a long history of both commercial and recreational fishing. Today there remains substantial infrastructure devoted to both fisheries. The community had nine active processors and employed 55 persons in 2000. There were numerous docking facilities for both commercial and recreational fishermen at that time (Impact Assessment, Inc. 2005). This community has had the highest percentage of longline vessels home ported in a community. Table 2.4.4 provides the most currently available information regarding fishing infrastructure in Panama City. This information was accurate as of January 2008 according to the local NMFS port agent.

Table 2.4.3. Bay County Census Demographics (Source: U.S. Census Bureau)

| Factor | 1990 | 2000 | 2007 |
|--|-------------|-------------|-------------|
| Total population | 126,994 | 148,217 | 163,805 |
| Population Density (Persons per sq. mi.)* | 166.3 | 194.1 | 216.2 |
| Median Age | 33.2 | 37.4 | 39.4 |
| Percent under 5 years of age | 7.3 | 6.1 | 6.9 |
| Percent 65 years and older | 12.0 | 13.4 | 14.3 |
| Ethnicity or Race (Percent/one or more races) | | | |
| White | 86.3 | 85.8 | 85.4 |
| Black or African American | 10.8 | 11.2 | 12.1 |
| American Indian and Alaskan Native | .7 | 1.5 | 1.7 |
| Asian | 1.8 | 2.3 | 2.6 |
| Hispanic or Latino (any race) | 1.8 | 2.4 | 3.5 |
| Non-Hispanic (White alone) | N/A | 82.8 | 80.4 |
| Educational Attainment (Population 25 and over) | | | |
| Percent with less than 9th grade | 7.6 | 5 | 4.1 |
| Percent high school graduate or higher | 74.7 | 81.0 | 86.3 |
| Percent with a Bachelor's degree / higher | 15.7 | 17.7 | 20.9 |
| Household income (Median \$) | 24,684 | 36,092 | 48,516 |
| Poverty Status (Percent Pop below poverty line) | 14.4 | 13.0 | 11.7 |
| Owner Occupied Housing (Percent) | 65.5 | 68.6 | 66.2 |
| Value Owner-occupied Housing (Median \$) | 61,600 | 93,500 | 182,300 |
| Civilian Labor Force Unemployed (% 16 yrs & over) | 3.9 | 4.9 | 5.6 |
| Occupation (Percent) | | | |
| Management, professional, and related | N/A | 28.5 | 32.4 |
| Service | N/A | 19.7 | 18.5 |
| Sales and office | N/A | 28.1 | 27.6 |
| Farming, fishing, and forestry | 2.0 | 0.6 | 0.2 |
| Construction, extraction, and maintenance | N/A | 12.3 | 12.6 |
| Production, transportation, and material moving | N/A | 10.8 | 8.7 |
| Industry and Class of Worker (Percent) | | | |
| Agriculture, forestry, fishing and hunting | 1.8 | .9 | 0.5 |
| Manufacturing | 8.4 | 6.5 | 5.9 |
| Percent government workers | 20.7 | 17.7 | 18.5 |
| Self-employed workers | 6.8 | 6.7 | 6.3 |

Table 2.4.4. Fishing Infrastructure in Panama City

| Infrastructure or Service | Quantity |
|--|-----------------|
| Air fill stations (diving) | Several |
| Bars/clubs (dockside or in town) | Several |
| Boat yards/ Boat builders (recreational/commercial) | Several |
| Churches with maritime theme | None observed |
| Docking facilities (commercial) | 4 |
| Fishing Gear, Electronics, Welding, and other repair | 25 |
| Fishing associations (recreational/commercial) | 3 |
| Fish processors, Wholesale Fish House | 6 |
| Fisheries research laboratories | 1 |
| Fishing monuments | 0 |
| Fishing pier | 3 |
| Hotels/Inns (dockside) | 6 |
| Marine railways/haul out facilities | 0 |
| Museums—fishing/marine-related | 1 |
| Net makers | 10 |
| NMFS or state fisheries office (port agent, etc.) | 1 Fed/1State |
| Public boat ramps | 30 |
| Recreational docks/marinas | 28 |
| Bait & Tackle/fishing supplies | 108 |
| Recreational Fishing Tournaments | Several |
| Sea Grant Extension office | 0 |
| Seafood restaurants | 100+ |
| Seafood retail markets | 20+ |
| Trucking operations | 0 |
| Site-seeing/pleasure tours | 12 |
| Charter/Head Boats | 100+ |
| Commercial Boats | 100+ |

The top species in terms of landings and value from 1999-2007 in Panama City are red snapper and yellowfin tuna with red snapper contributing over 20% of the value of all landings and yellowfin tuna approximately 17%. Gag grouper was next in terms of value and fourth in pounds landed. Red grouper was fourth in percentage of value with just below 15% of value for all landings (Figure 2.4.5).

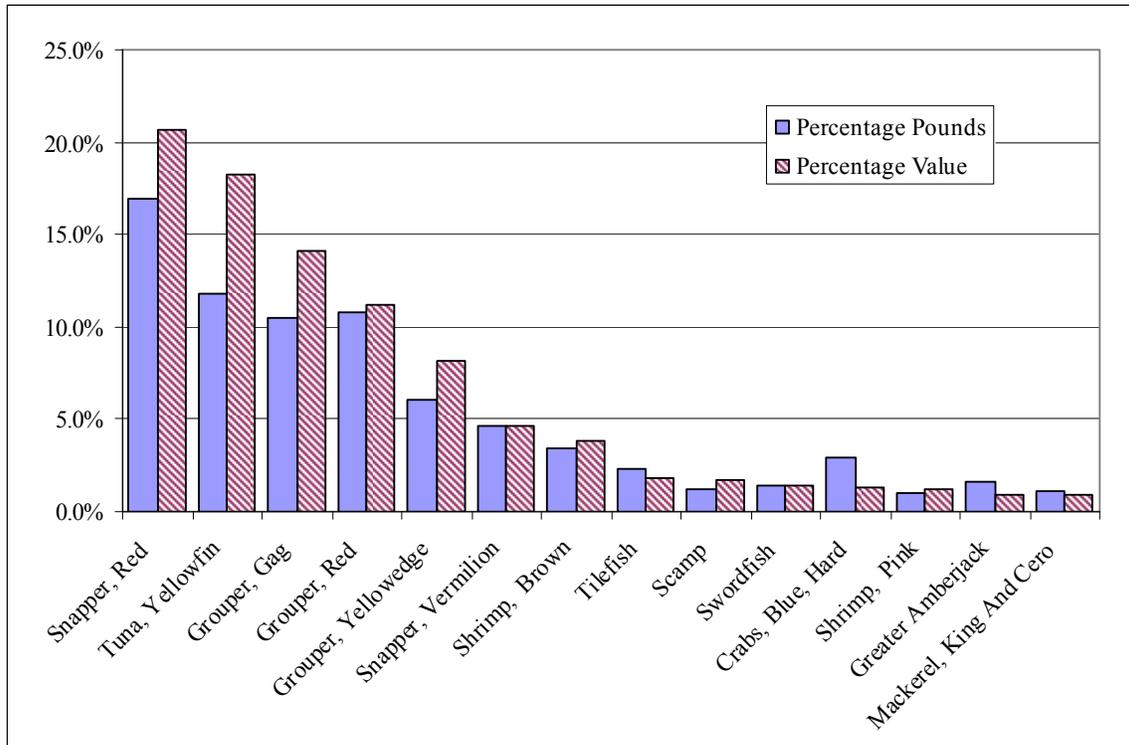


Figure 2.4.5. Percentage of pounds and value for top fifteen species landed out of total landings in Panama City, Florida 1999-2007 (Source: ALS SEFSC 2009).

Apalachicola

Located in Franklin County, demographics for which are presented in Table 2.4.5, **Apalachicola** also has a long history with both commercial and recreational fishing. Today there remains a working waterfront with landings of various species including shrimp, oysters and grouper. The community has a substantial amount of infrastructure devoted to both commercial and recreational fishing, but is seeing an increasing growth in tourism which could increase pressure for development on the working waterfronts. (Impact Assessment, Inc. 2005).

Oysters are by far the most important species in terms of value of landings for the community, with just below 25% of value for all landings over the time period of 1999-2007 as seen in Figure 2.4.6. Oysters represent slightly over 23% of landings in terms of pounds. Pink shrimp is the second most valuable species with just over 20% of the value for all landings within the community. Red grouper makes up 9.4% of total value for landings.

Table 2.4.5. Franklin County Census Demographics (Source: U.S. Census Bureau)

| Factor | 1990 | 2000 | 2007 |
|---|-------------|-------------|-------------|
| Total population | 8,967 | 11,057 | 11,291 |
| Population Density (Persons per sq. mi.)* | N/A | 73.0 | 74.1 |
| Median Age | N/A | 40.8 | N/A |
| Percent under 5 years of age | 6.3 | 4.6 | 5.8 |
| Percent 65 years and older | 18.0 | 15.7 | 18.1 |
| Ethnicity or Race (Percent/one or more races) | | | |
| White | 86.7 | 82.4 | 86.7 |
| Black or African American | 12.4 | 16.6 | 11.3 |
| American Indian and Alaskan Native | 0.5 | 1.2 | 0.5 |
| Asian | 0.2 | 0.3 | 0.4 |
| Hispanic or Latino (any race) | 0.7 | 2.4 | 1.7 |
| Non-Hispanic (White alone) | N/A | 79.8 | 85.1 |
| Educational Attainment (Population 25 and over) | | | |
| Percent with less than 9th grade | 17.5 | 8.1 | 8.0 |
| Percent high school graduate or higher | 59.5 | 68.3 | N/A |
| Percent with a Bachelor's degree or higher | 12.4 | 12.4 | N/A |
| Household income (Median \$) | 17,247 | 26,756 | 35,182 |
| Percent of Population below Poverty Line | 26.6 | 17.7 | 18.6 |
| Owner Occupied Housing (Percent) | 80.5 | 79.2 | 79.2 |
| Value Owner-occupied Housing (Median \$) | 51,700 | 105,300 | N/A |
| Percent of Civilian Labor Force Unemployed (16 yrs and over) | 8.5 | 3.6 | 4.0 |
| Occupation (Percent) | | | |
| Management, professional, and related occupations | N/A | 21.2 | N/A |
| Service occupations | N/A | 21 | N/A |
| Sales and office occupations | N/A | 23.2 | N/A |
| Farming, fishing, and forestry occupations | 12.2 | 9.7 | 3.0 |
| Construction, extraction, and maintenance occupations | N/A | 13 | N/A |
| Production, transportation, and material moving occupations | N/A | 11.9 | N/A |
| Industry and Class of Worker (Percent) | | | |
| Agriculture, forestry, fishing and hunting | 12.6 | 9.2 | N/A |
| Manufacturing | 6.0 | 4.8 | N/A |
| Percent government workers | 17.9 | 18.5 | 21.3 |
| Self-employed workers | 17.3 | 19.4 | N/A |

* Data from NOAA Spatial Patterns of Socioeconomic Data 1970 to 2000 and the U.S. Census Bureau 2009

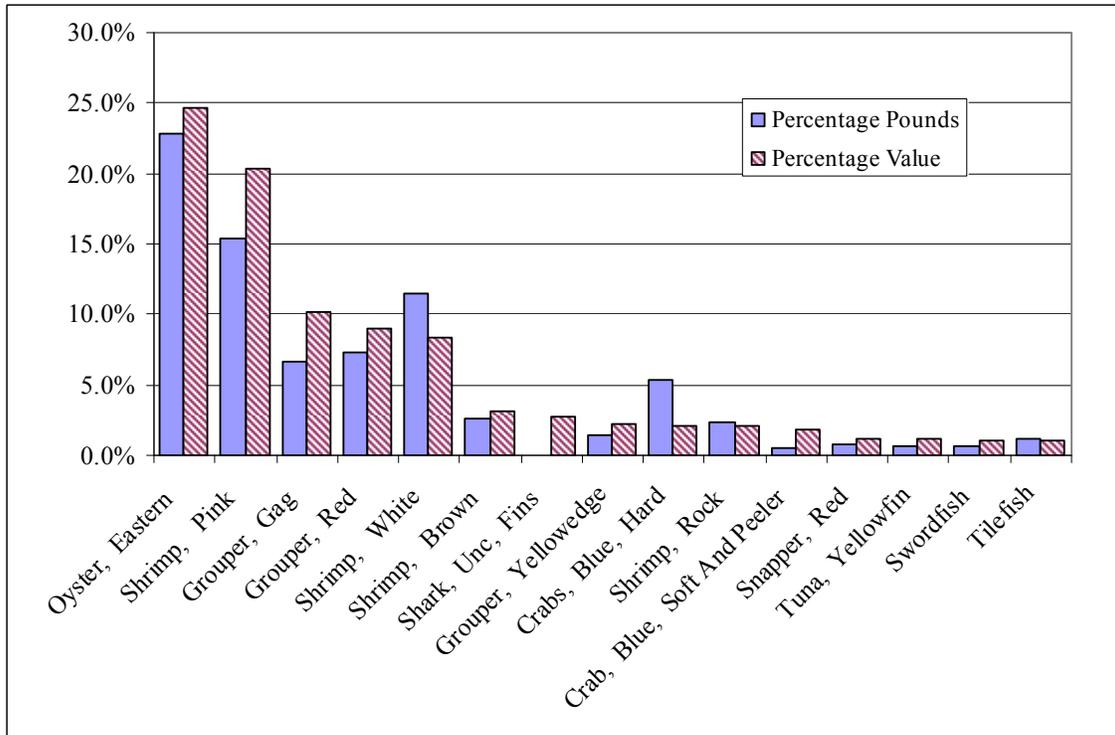


Figure 2.4.6. Percentage of pounds and value for top fifteen species landed out of total landings in Apalachicola, Florida 1999-2007 (Source: ALS SEFSC 2009).

Key West

Finally, the community of **Key West** has a long history of association with the fishing industry and continues to represent an important location for both recreational and commercial fishing. While in its early history there has always been a mix of both commercial and recreational fishing, today, recreational fishing and tourism dominate the waterfront landscape. The community continues to hold on to some commercial waterfront, but much of it has moved to areas away from the downtown area and primary tourism destinations.

In terms of landings and value from 1999-2007, spiny lobster is the most valuable and highest in pounds landed. Pink shrimp is next with yellowtail snapper close behind (Figure 2.4.7). Red grouper is within the top ten most important species but has contributed less than 5% in terms of landings or value for the community of Key West.

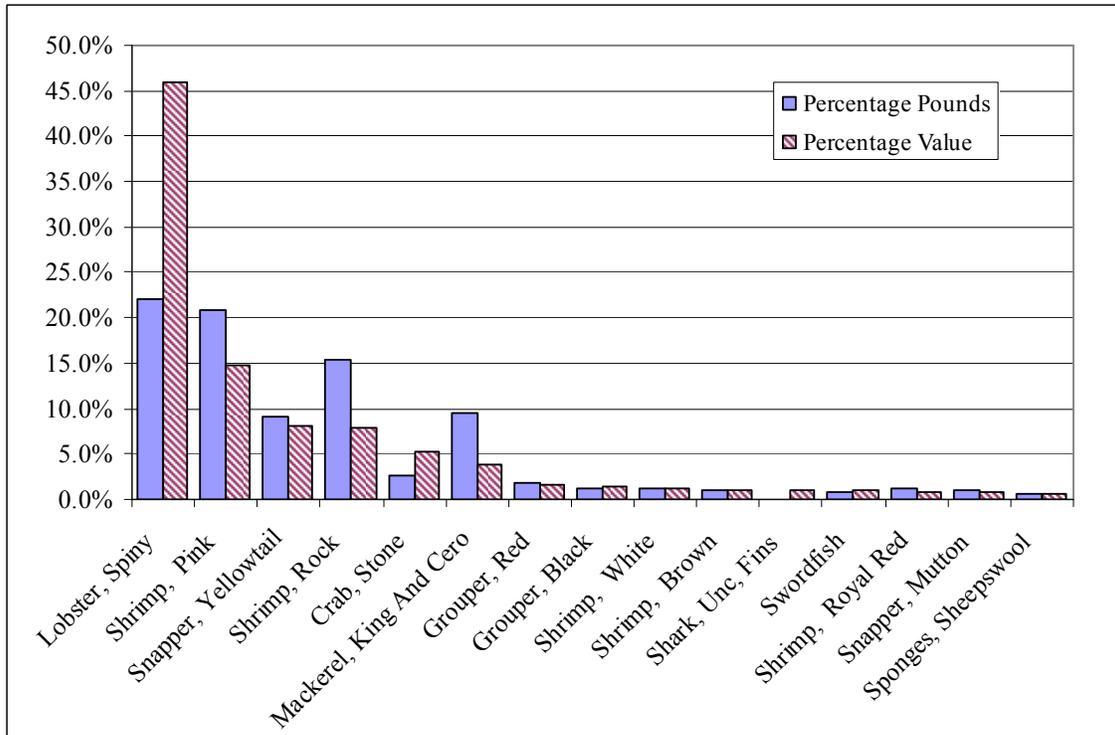


Figure 2.4.7. Percentage of pounds and value for top fifteen species landed out of total landings in Key West, Florida 1999-2007 (Source: ALS SEFSC 2009).

2.4.2 Current and Projected Social Environment

The purpose of the information in Table 2.4.6, and also in Figures 2.4.8-2.4.17, is to provide a more accurate representation of these communities' current and near-term relationship with the red grouper fishery in 2010 and 2011. Providing a more current picture of these relationships is important since the action in this Amendment is to consider alternatives which would set the 2011 commercial red grouper quota.

Certain aspects of Table 2.4.6 require some explanation. First, only current IFQ dealers and initial 2010 red grouper IFQ shareholders and allocation recipients are considered. Thus, dealers and vessels that were active in the red grouper fishery in 2008 or 2009 but are not current IFQ dealers or initial red grouper IFQ allocation recipients were not considered in the analysis since they are not current participants in the fishery and thus not likely to be directly or indirectly affected by the action in this Amendment. For IFQ dealers, "current" refers to dealers that possessed a valid Gulf reef fish permit, had established an IFQ dealer account, and obtained an IFQ dealer endorsement as of May 13, 2010. Further, a dealer's community is based on the physical location of its primary business as opposed to mailing address or "off-site" unloading locations. An "initial" shareholder and allocation recipient refers to those "persons" who were given red grouper allocations effective Jan. 1, 2010 based on information as of October 1, 2009. A shareholder's community is based on the primary permit owner's residential address. Second, a community will only receive a ranking, and implicitly ranking "points," if it has a positive (i.e.

non-zero) value for that indicator. So, a null cell indicates that a particular community was not “active” with respect to that particular indicator.

Third, since most communities had less than three IFQ dealers purchasing red grouper in 2008 and 2009, the actual revenue figures are not provided in the table in order to ensure confidentiality. However, this information is presented in relative terms, not only in Tables 2.4.6 and 2.4.7 based on the rankings, but more precisely in Figures 2.4.8-2.4.17, where the size of each circle indicates the magnitude of the red grouper revenue in each community relative to other communities. Similarly, if the number of red grouper shareholders in a community is less than three, their initial 2010 red grouper allocations are suppressed in Table in order to protect confidentiality, although the community’s ranking is still provided. Most communities had more than three red grouper shareholders and thus the information is provided in most instances. Fourth, information regarding the number of longline endorsement qualifiers in each community is not confidential and therefore is also provided.

Finally, shareholders’ red grouper revenue, number of active shareholder vessels in the red grouper fishery, and projected 2010 landings in each community are based on shareholders’ 2008 or 2009 fishing activities and geographic landing patterns as indicated in the table. Projected 2010 landings are also determined by the 2010 initial allocations for shareholders residing in each community. That is, the geographic distribution of red grouper landings by each shareholder’s vessel in 2008 and 2009 was “applied” to its 2010 initial red grouper allocation and then aggregated at the community level. Since shareholder red grouper revenue in one or both years was confidential in many communities, some shareholders were not active in the fishery in 2008 or 2009, and some shareholders’ vessels and landings could not be attached to a current IFQ dealer and thus an associated community, only the rankings are provided in this table. However, as with dealer revenue, this information is illustrated in a relatively more precise manner in Figures 2.4.11-2.4.16.

Indicators reflecting fishing activities and geographic landing patterns in 2008 were weighted less (by 50%) than those in 2009 when calculating ranking points for those particular indicators and are therefore less influential on a community’s overall rank. The rationale for the lower weight applied to 2008 based indicators, and implicitly higher weights for the indicators based on 2009 and 2010 information (actual and projected), is that the fishery’s regulatory environment changed substantially in 2009 and 2010 due to the new longline gear restrictions, longline endorsements, and the IFQ program. As such, it is logical to conclude that fishing and landings patterns for 2009, particularly in combination with the 2010 IFQ allocations and information on longline endorsement qualifiers, will be much more indicative of the fishery’s structure and performance in 2010 and 2011 than those in 2008.

For each indicator, ranking points are equal to the inverse of the ranking relative to the total number of communities receiving a ranking for that indicator. Thus, for example, if a community ranks first out of 43 communities receiving a ranking for that indicator, then it receives 43 ranking points. Conversely, if it ranked 43rd out of 43 communities, that community receives one ranking point. If a community does not receive a ranking for an indicator, then it receives no (zero) ranking points. A community’s overall rank is based on the aggregation of ranking points across all indicators, again noting the lower weights attached to the indicators

based on 2008 fishing activities and geographic landing patterns. In instances where communities were “tied” with respect to a particular indicator, which was particularly an issue with respect to the number of longline endorsement qualifiers, the projected 2010 red grouper landings based on 2009 patterns was used as the “tiebreaker” indicator. Thus, for example, if two communities had the same number of longline endorsement qualifiers, the community with the higher level of projected 2010 red grouper landings, as based on 2009 patterns, was given the higher ranking. This indicator was chosen as the “tiebreaker” as it is believed to be the most important factor with respect to predicting the fishery’s structure and performance in 2010 and 2011.

As seen in Figures 2.4.8 and 2.4.9, the majority of revenue from red grouper landings with IFQ dealers in 2008 and 2009 was concentrated along Florida’s west central coast, particularly in Pinellas County (Madeira Beach, St. Petersburg, Tarpon Springs, Redington Shores, and Clearwater) and the communities of Ruskin and Crystal River. Revenue from red grouper landings with IFQ dealers is also concentrated in Apalachicola and Panama City in both years. Although revenue from red grouper landings with IFQ dealers in 2008 was also fairly significant in Key West, it decreased significantly in 2009, potentially as a result of the new bottom longline gear restrictions. Similarly, and consistent with previously discussed information, recent regulatory changes have also apparently eliminated the relationship between vessels with 2010 red grouper allocation and IFQ dealers in Manatee county and the communities therein, at least temporarily.¹²

Similar to the distribution of red grouper revenue by dealer community, the information illustrated in Figure 2.4.10 indicates that the initial 2010 red grouper allocations by shareholder community are heavily concentrated along Florida’s west central coast, particularly in Pinellas County (Seminole, Largo, Clearwater, Palm Harbor, St. Petersburg, and Madeira Beach) but also Manatee county (Cortez and Bradenton), Valrico, and Tampa. With respect to this key indicator, Manatee County and the communities therein have been able to maintain a strong relationship with the red grouper fishery. In terms of individual communities, Panama City has the highest concentration of initial 2010 red grouper allocation.

¹² This preliminary finding may be due to an issue regarding certain reef fish dealer permits.

Table 2.4.6. Ranking of Communities Associated with the Red Grouper Fishery Based on Key Indicators

| STATE | CITY | 2008 Red Grouper Dealer Revenue Rank | 2009 Red Grouper Dealer Revenue Rank | 2010 Initial Red Grouper Allocation (lbs) | 2010 Initial Red Grouper Allocation Rank | 2010 Initial Shareholders' Red Grouper Revenue 2008 Rank | Number of Active Red Grouper Shareholder Vessels 2008 Rank | Projected 2010 Red Grouper Landings (2008 Pattern) | 2010 Initial Shareholders' Red Grouper Revenue 2009 Rank | Number of Active Red Grouper Shareholder Vessels 2009 Rank | Projected 2010 Red Grouper Landings (2009 Pattern) | Number of Longline Endorsement Qualifiers | Longline Endorsement Rank | Overall Rank |
|-------|------------------|--------------------------------------|--------------------------------------|---|--|--|--|--|--|--|--|---|---------------------------|--------------|
| FL | PANAMA CITY | 4 | 6 | 431,761 | 1 | 1 | 1 | 4 | 3 | 2 | 3 | 7 | 1 | 1 |
| FL | MADEIRA BEACH | 1 | 1 | 179,201 | 10 | 8 | 6 | 1 | 4 | 1 | 1 | 4 | 4 | 2 |
| FL | APALACHICOLA | 3 | 3 | 142,515 | 12 | 6 | 3 | 3 | 2 | 4 | 2 | 1 | 12 | 3 |
| FL | ST PETERSBURG | 2 | 4 | 220,909 | 8 | 7 | 5 | 5 | 9 | 7 | 11 | 1 | 14 | 4 |
| FL | CLEARWATER | 8 | 7 | 274,294 | 5 | 4 | 17 | 12 | 6 | 14 | 13 | 4 | 5 | 5 |
| FL | TARPON SPRINGS | 5 | 2 | 109,678 | 13 | 21 | 8 | 10 | 21 | 6 | 8 | 0 | | 6 |
| FL | REDINGTON SHORES | 7 | 5 | 41,769 | 39 | 19 | 11 | 8 | 25 | 9 | 6 | 1 | 13 | 7 |
| FL | STEINHATCHEE | 20 | 13 | 108,847 | 15 | 22 | 9 | 14 | 15 | 12 | 12 | 0 | | 8 |
| FL | CRYSTAL RIVER | 11 | 8 | 72,255 | 21 | 36 | 10 | 6 | 27 | 11 | 7 | 0 | | 9 |
| FL | PANACEA | 17 | 15 | 60,699 | 28 | 14 | 12 | 11 | 13 | 16 | 14 | 0 | | 10 |
| FL | TAMPA | 24 | 25 | 160,521 | 11 | 12 | 18 | 24 | 5 | 20 | 29 | 2 | 10 | 11 |
| FL | FT MYERS BEACH | 14 | 10 | 53,124 | 34 | 26 | 21 | 9 | 20 | 22 | 10 | 0 | | 12 |
| FL | HUDSON | 25 | 23 | 68,962 | 23 | 13 | 28 | 20 | 17 | 19 | 20 | 0 | | 13 |
| FL | KEY WEST | 6 | 24 | 16,209 | 49 | 48 | 2 | 2 | 48 | 5 | 4 | 0 | | 14 |
| FL | TALLAHASSEE | 13 | 12 | 10,589 | 51 | 41 | 7 | 13 | 42 | 8 | 16 | 0 | | 15 |
| FL | DESTIN | 12 | 16 | 3,318 | 56 | 50 | 4 | 7 | 52 | 3 | 5 | 0 | | 16 |
| FL | NAPLES | 21 | 20 | 62,786 | 26 | 37 | 22 | 16 | 28 | 23 | 15 | 0 | | 17 |
| FL | SAINT MARKS | 23 | 22 | 94,891 | 17 | 45 | 14 | 18 | 51 | 17 | 19 | 1 | 15 | 18 |
| FL | LARGO | | | 312,956 | 4 | 2 | | | 1 | | | 7 | 2 | 19 |
| FL | GAINESVILLE | 16 | 11 | 1,276 | 60 | 44 | 15 | 19 | 40 | 13 | 18 | 0 | | 20 |
| FL | SARASOTA | 35 | 30 | 109,476 | 14 | 23 | 36 | 31 | 19 | 39 | 32 | 1 | 16 | 21 |
| FL | VALRICO | | | 242,272 | 7 | 5 | | | 7 | | | 5 | 3 | 22 |
| FL | SEMINOLE | | | 415,363 | 2 | 10 | | | 10 | | | 4 | 6 | 23 |
| FL | CORTEZ | | | 316,417 | 3 | 3 | | | 12 | | | 2 | 11 | 24 |
| FL | PALM HARBOR | | | 255,711 | 6 | 11 | | | 8 | | | 4 | 7 | 25 |
| FL | BRADENTON | | | 217,550 | 9 | 9 | | | 11 | | | 3 | 8 | 26 |
| FL | EASTPOINT | 18 | 17 | 0 | | | 13 | 15 | | 10 | 9 | 0 | | 27 |
| FL | FT MYERS | 30 | 29 | 53,288 | 33 | 33 | 29 | 27 | 34 | 38 | 30 | 0 | | 28 |
| FL | HERNANDO BEACH | 9 | 18 | 16,744 | 48 | 40 | 38 | 33 | 43 | 30 | 26 | 0 | | 29 |
| FL | INDIAN SHORES | 15 | 14 | 0 | | | 16 | 22 | | 15 | 21 | 0 | | 30 |
| FL | SPRING HILL | | | 92,966 | 18 | 20 | | | 18 | | | 1 | 17 | 31 |
| FL | RUSKIN | 10 | 9 | 0 | | | 19 | 17 | | 26 | 27 | 0 | | 32 |
| FL | DUNEDIN | 29 | 36 | 55,274 | 32 | 32 | 30 | 28 | 33 | | | 1 | 25 | 33 |
| FL | PALMETTO | | | | 25 | 17 | | | 22 | | | 1 | 20 | 34 |
| FL | HOLIDAY | | | 68,986 | 22 | 30 | | | 24 | | | 1 | 19 | 35 |
| FL | LECANTO | | | 100,453 | 16 | 28 | | | 26 | | | 0 | | 36 |
| FL | BOKEELIA | 27 | 21 | 51,922 | 35 | 39 | | | 31 | | | 0 | | 37 |
| FL | NEW PORT RICHEY | | | 40,675 | 40 | 16 | | | 16 | | | 0 | | 38 |
| FL | ST PETE BEACH | | | 19,619 | 46 | 15 | | | 14 | | | 0 | | 39 |
| FL | PARRISH | | | *** | 29 | 25 | | | 32 | | | 1 | 22 | 40 |
| FL | MARCO ISLAND | 28 | 31 | *** | 54 | 47 | 34 | 26 | 49 | 37 | 28 | 0 | | 41 |
| FL | TREASURE | | | 30,641 | 41 | 18 | | | 23 | | | 1 | 28 | 42 |

| | ISLAND | | | | | | | | | | | | | |
|-------|-----------------|--------------------------------------|--------------------------------------|---|--|--|--|--|--|--|--|---|---------------------------|--------------|
| FL | PENSACOLA | 32 | 32 | 2,360 | 57 | 42 | 27 | 41 | 46 | 21 | 38 | 0 | | 43 |
| STATE | CITY | 2008 Red Grouper Dealer Revenue Rank | 2009 Red Grouper Dealer Revenue Rank | 2010 Initial Red Grouper Allocation (lbs) | 2010 Initial Red Grouper Allocation Rank | 2010 Initial Shareholders' Red Grouper Revenue Rank (2008) | Number of Active Red Grouper Shareholder Vessels Rank (2008) | Projected 2010 Red Grouper Landings (2008 Pattern) | 2010 Initial Shareholders' Red Grouper Revenue Rank (2009) | Number of Active Red Grouper Shareholder Vessels Rank (2009) | Projected 2010 Red Grouper Landings (2009 Pattern) | Number of Longline Endorsement Qualifiers | Longline Endorsement Rank | Overall Rank |
| FL | LYNN HAVEN | | | 58,041 | 30 | 27 | | | 39 | | | 1 | 23 | 44 |
| FL | CARRABELLE | | | 65,569 | 24 | 34 | | | 35 | | | 0 | | 45 |
| FL | EVERGLADES | 22 | 19 | 0 | | | 33 | 23 | | 35 | 23 | 0 | | 46 |
| FL | CHIEFLAND | | | *** | 38 | 24 | | | 37 | | | 1 | 27 | 47 |
| FL | HOMOSASSA | | 27 | *** | 47 | | | | 45 | 34 | 17 | 0 | | 48 |
| FL | NOKOMIS | 26 | 26 | *** | 62 | | 25 | 29 | | 28 | 35 | 0 | | 49 |
| FL | FT WALTON BEACH | 31 | 33 | 9,366 | 52 | 53 | 32 | 36 | 53 | 29 | 36 | 0 | | 50 |
| FL | CRAWFORDVILLE | | | 23,767 | 45 | 29 | | | 29 | | | 0 | | 51 |
| AL | BAYOU LA BATRE | | | *** | 67 | 55 | 20 | 34 | 60 | 18 | 22 | 0 | | 52 |
| FL | LAKELAND | | | *** | 27 | 43 | | | 44 | | | 1 | 21 | 53 |
| FL | MARIANNA | | | *** | 42 | 31 | | | 36 | | | 0 | | 54 |
| FL | SAFETY HARBOR | | | *** | 44 | 35 | | | 30 | | | 0 | | 55 |
| FL | SOPCHOPPY | | | 48,540 | 36 | 38 | | | 38 | | | 0 | | 56 |
| TX | PORT ISABEL | | | 7,066 | 53 | | | | 47 | 36 | 25 | 2 | 9 | 57 |
| FL | GULFPORT | 34 | 34 | 0 | | | 24 | 25 | | 27 | 33 | 0 | | 58 |
| FL | LAND O LAKES | 37 | 35 | *** | 55 | 46 | 41 | 40 | 55 | 32 | 34 | 0 | | 59 |
| FL | LAKE PARK | 19 | 39 | 0 | | | 23 | 21 | | 41 | 41 | 0 | | 60 |
| FL | CUDJOE KEY | 36 | 37 | 465 | 63 | 58 | 26 | 37 | 56 | 25 | 39 | 0 | | 61 |
| TX | GALVESTON | | | 77,501 | 20 | | | | 59 | | | 1 | 18 | 62 |
| FL | LITHIA | | | 78,031 | 19 | 51 | | | 62 | | | 0 | | 63 |
| FL | MARATHON | 39 | 40 | 2,344 | 58 | 57 | 37 | 32 | 58 | 33 | 37 | 0 | | 64 |
| FL | MATLACHA | | 28 | 0 | | | | | | 24 | 24 | 0 | | 65 |
| FL | JACKSONVILLE | | | 28,755 | 43 | 49 | | | 50 | | | 0 | | 66 |
| TX | CORPUS CHRISTI | | | 15,483 | 50 | 54 | | | 41 | | | 0 | | 67 |
| AL | BON SECOUR | | | 0 | | | 35 | 30 | | 31 | 31 | 0 | | 68 |
| FL | KISSIMMEE | | | *** | 31 | | | | | | | 1 | 24 | 69 |
| AL | NEWTON | | | *** | 37 | | | | | | | 1 | 26 | 70 |
| AL | THEODORE | | | *** | 64 | 56 | 31 | 35 | 57 | 43 | 43 | 0 | | 71 |
| FL | PORT ST JOE | | | 1,647 | 59 | 52 | | | 54 | | | 0 | | 72 |
| FL | BONITA SPRINGS | 33 | 38 | 0 | | | 39 | 38 | | 40 | 40 | 0 | | 73 |
| LA | GRAND ISLE | 38 | | 995 | 61 | 59 | 40 | 39 | 61 | | | 0 | | 74 |
| LA | VENICE | | 41 | *** | 68 | | | | | 42 | 42 | 0 | | 75 |
| TX | HOUSTON | | | *** | 65 | | | | | | | 0 | | 76 |
| TX | MATAGORDA | | | *** | 66 | | | | | | | 0 | | 77 |

*** - Data is confidential

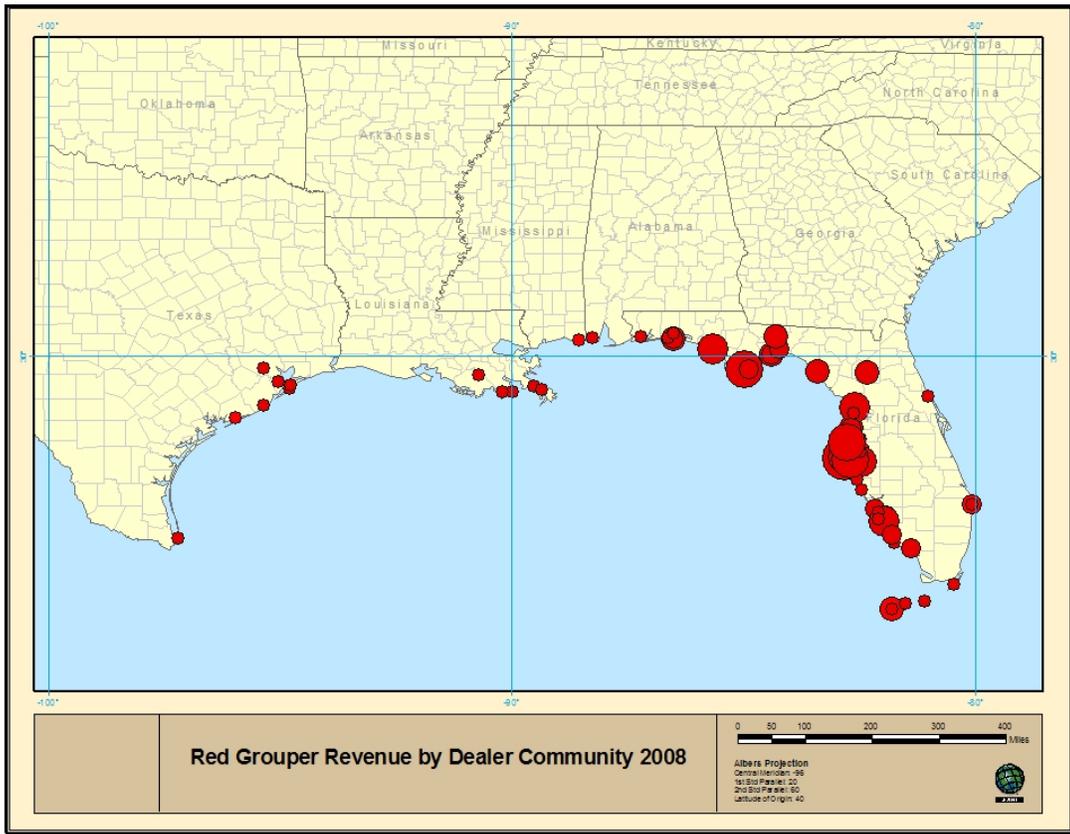


Figure 2.4.8 Red grouper revenue by dealer community for 2008.

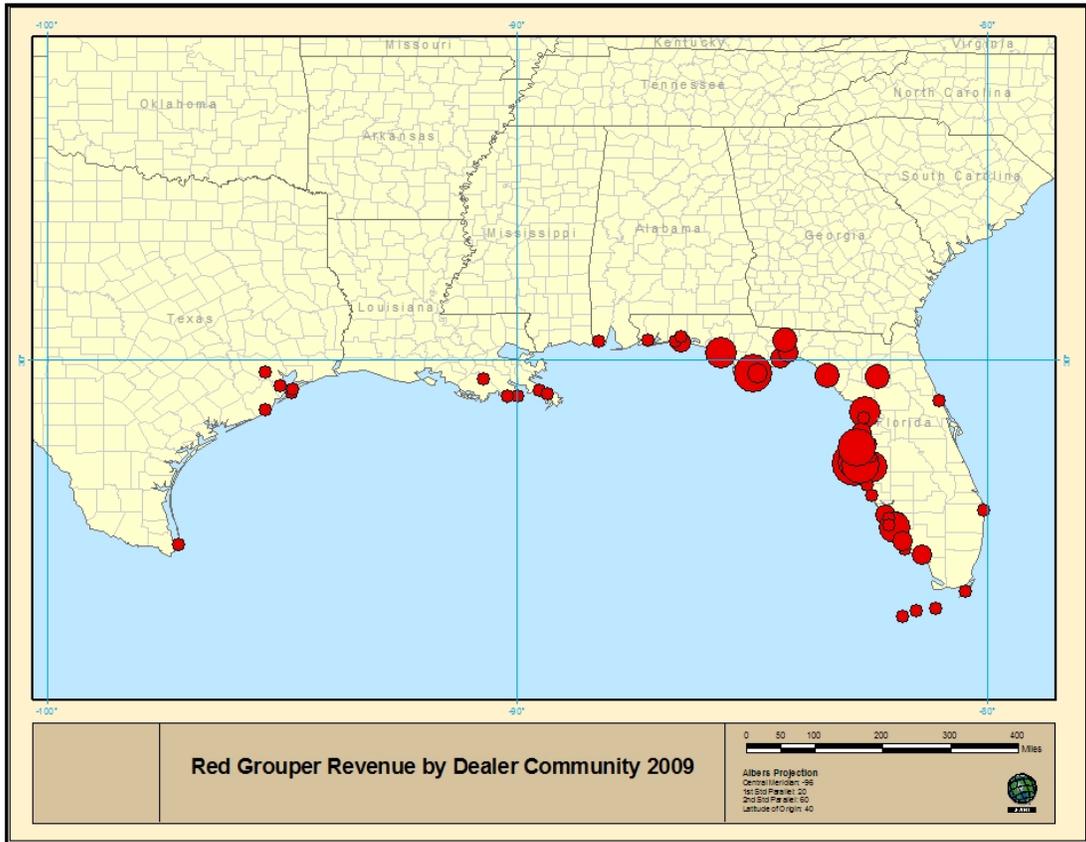


Figure 2.4.9 Red grouper revenue by dealer community for 2009.

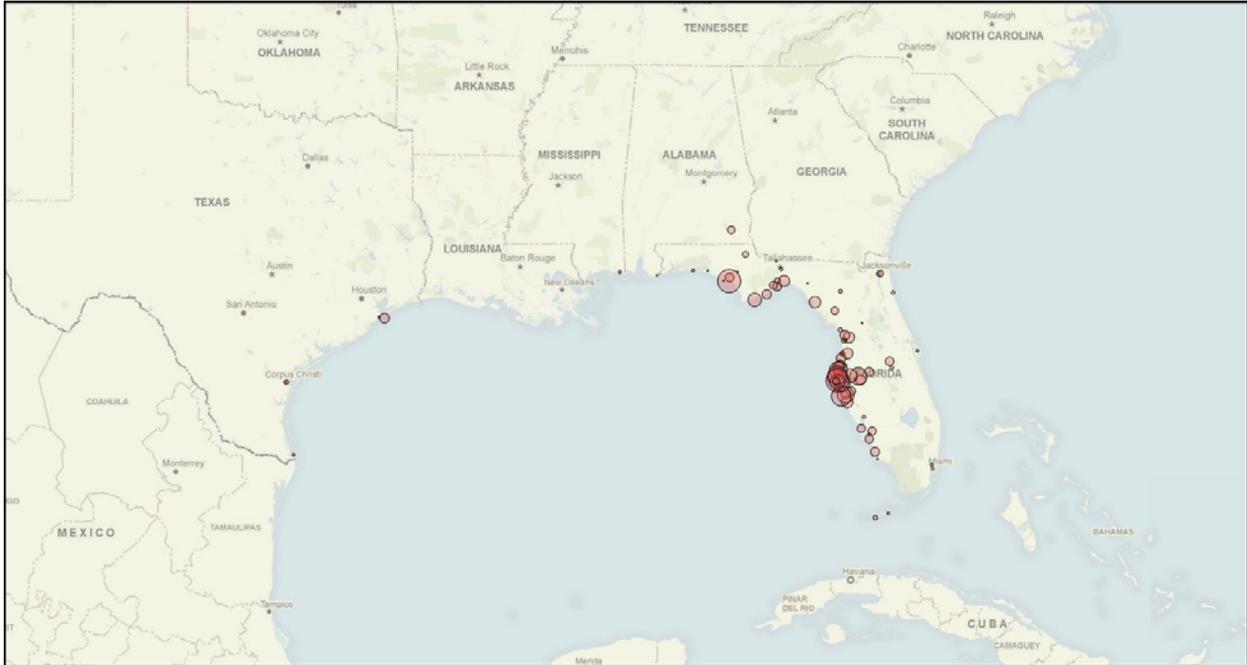


Figure 2.4.10 Initial 2010 Red Grouper Allocation by Shareholder Community

Figures 2.4.11 and 2.4.12 illustrate the geographic distribution of red grouper revenue in 2008 and 2009 for initial 2010 red grouper shareholders. According to this information, again, red grouper revenue by shareholders in these two years was heavily concentrated along Florida’s west central coast, particularly in Pinellas County (Largo, Clearwater, St. Petersburg, Madeira Beach, Seminole, and Palm Harbor) but also Manatee county (Cortez and Bradenton), Valrico, and Tampa. Again, the highest concentration of red grouper revenue by shareholders was in Panama City though Apalachicola was also prominent in this respect.

Figures 2.4.13 and 2.4.14 demonstrate the geographic distribution of active red grouper shareholder vessels in 2008 and 2009. This indicator attempts to capture the number of vessels in the harvesting sector that have been and are likely to continue being active in the red grouper fishery rather than the gross value of those vessels’ activity and thus offers a somewhat different perspective on the extent to which each community is engaged in the fishery. Although vessels are somewhat concentrated in Pinellas county (St. Petersburg, Madeira Beach, and Tarpon Springs), and this concentration did increase from 2008 to 2009, significant concentrations also exist in Panama City, Key West, Apalachicola, Destin, and Tallahassee.¹³ This finding suggests that these latter communities support relatively more, but also relatively smaller, vessel operations compared to those in Pinellas County. Within Pinellas County, a noticeable redistribution of vessels took place between 2008 and 2009 with vessel concentration shifting from St. Petersburg to Tarpon Springs and particularly Madeira Beach. Further, and consistent with the trend in dealer revenue, the number of shareholder vessels landing in Key West decreased significantly from 2008 to 2009.

¹³ Since Tallahassee is not a port, vessels associated with this community must be landing in another port and selling their product to dealers who transport it to Tallahassee.

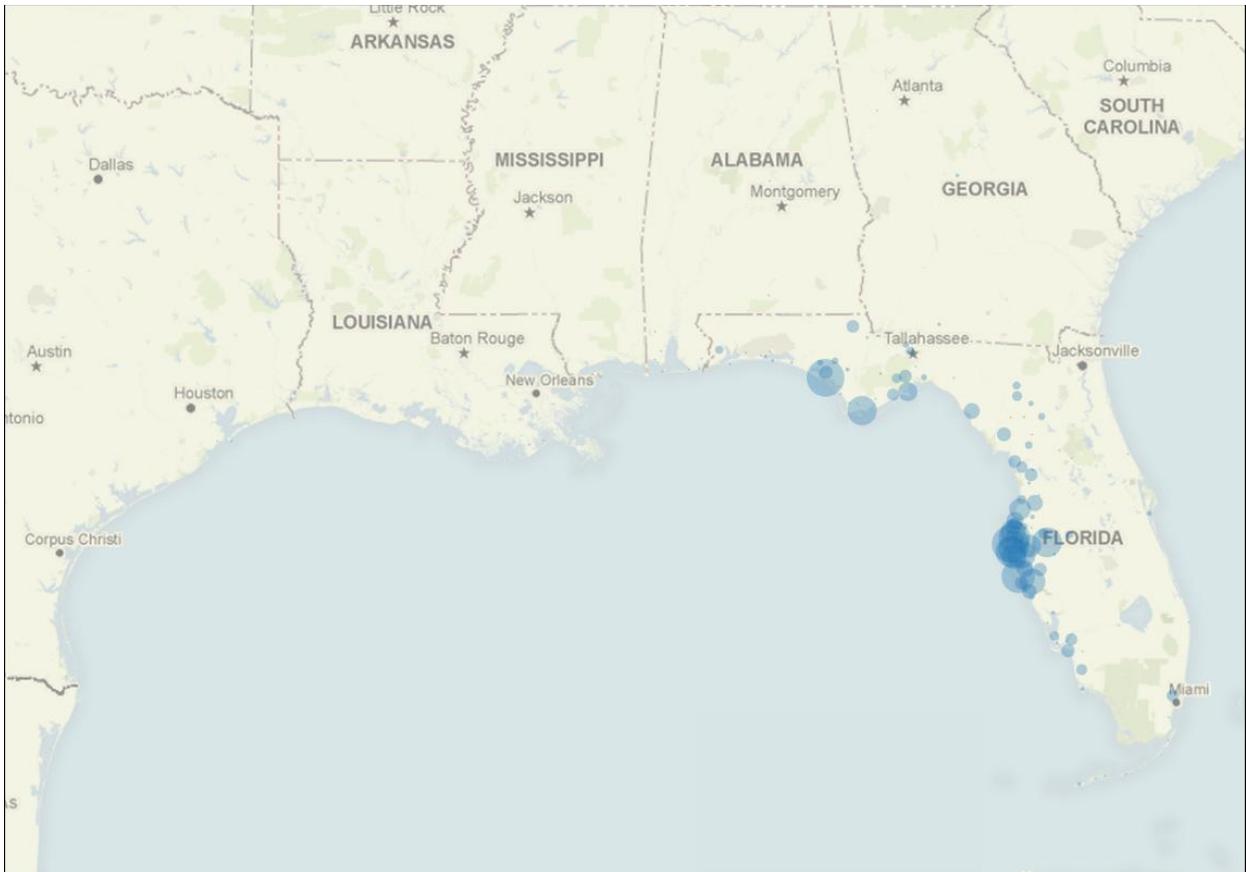


Figure 2.4.11 Red Grouper Revenue in 2008 for Initial 2010 Red Grouper Shareholders

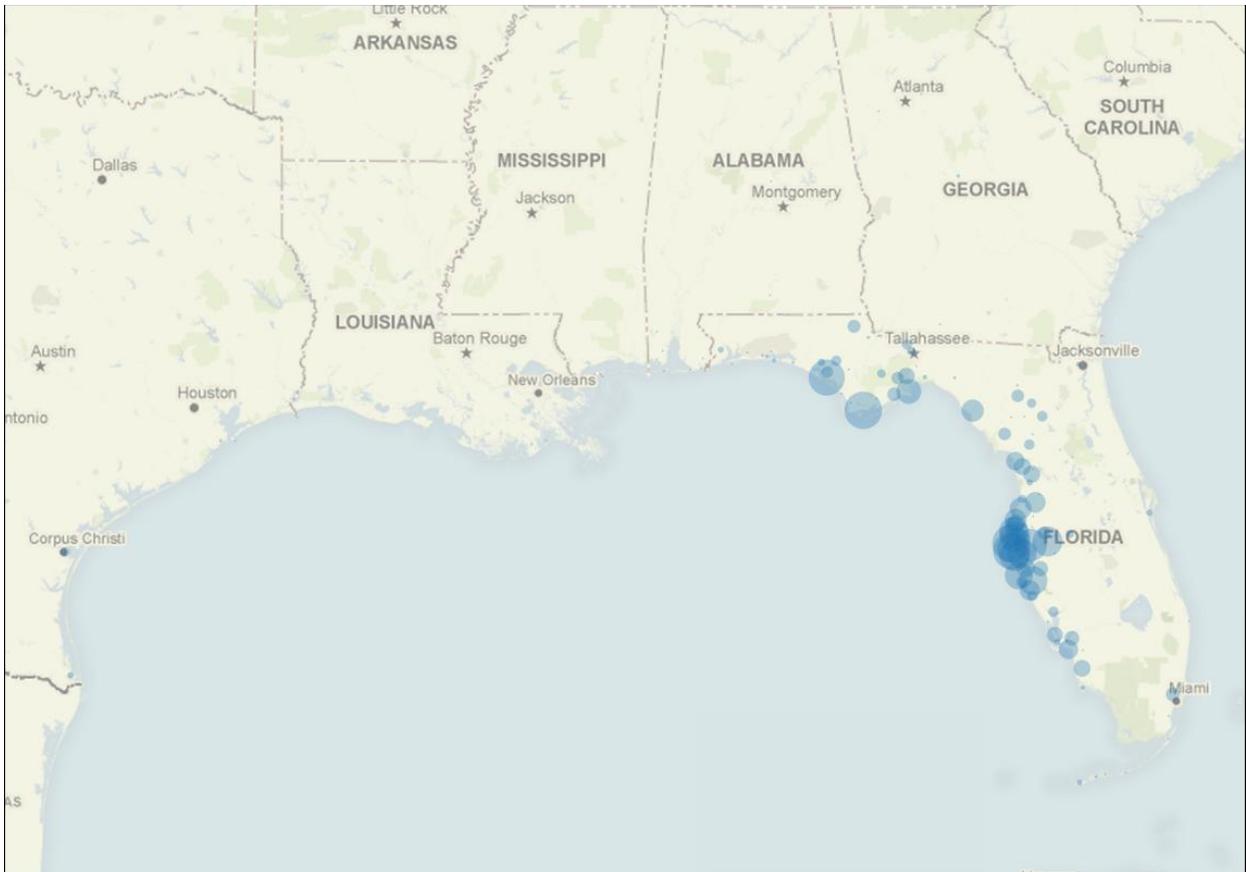


Figure 2.4.12 Red Grouper Revenue in 2009 for Initial 2010 Red Grouper Shareholders

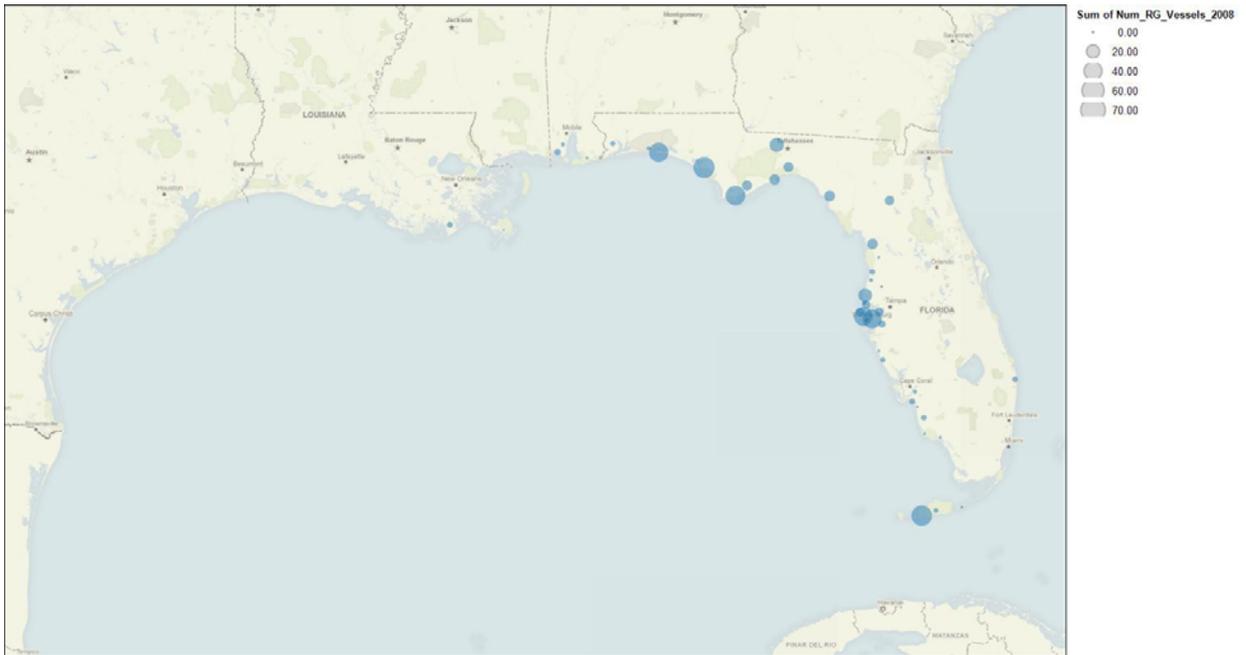


Figure 2.4.13 Number of Initial 2010 Red Grouper Shareholder Vessels with Red Grouper Landings in 2008

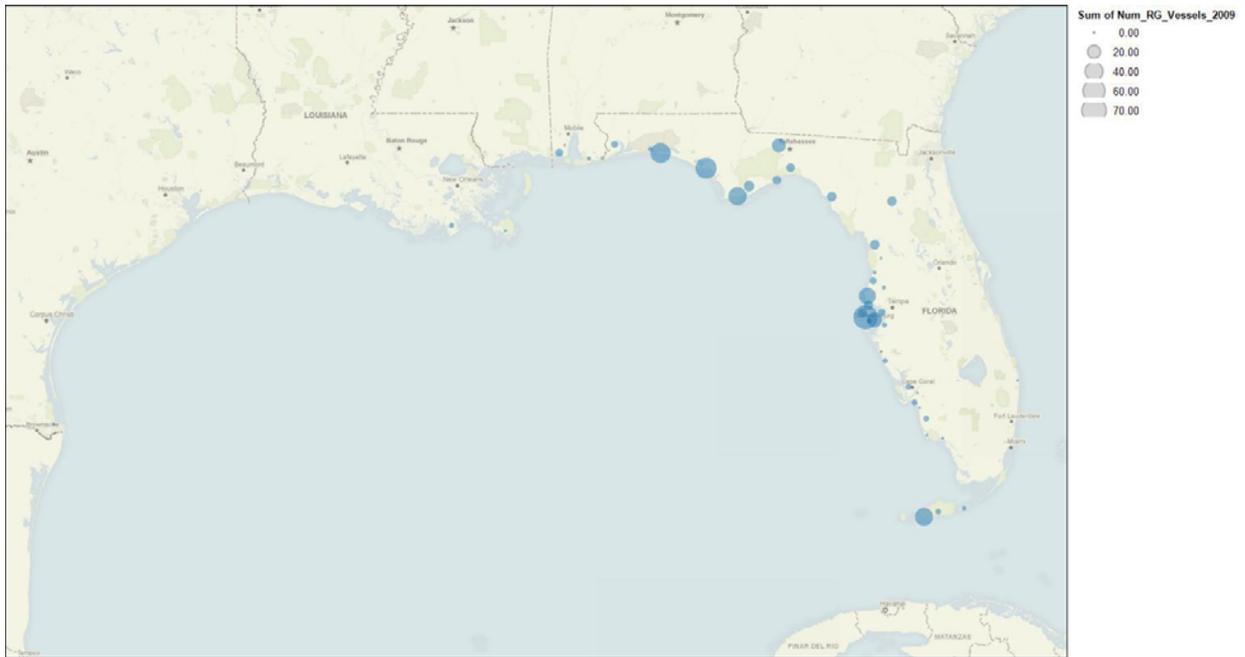


Figure 2.4.14 Number of Initial 2010 Red Grouper Shareholder Vessels with Red Grouper Landings in 2009

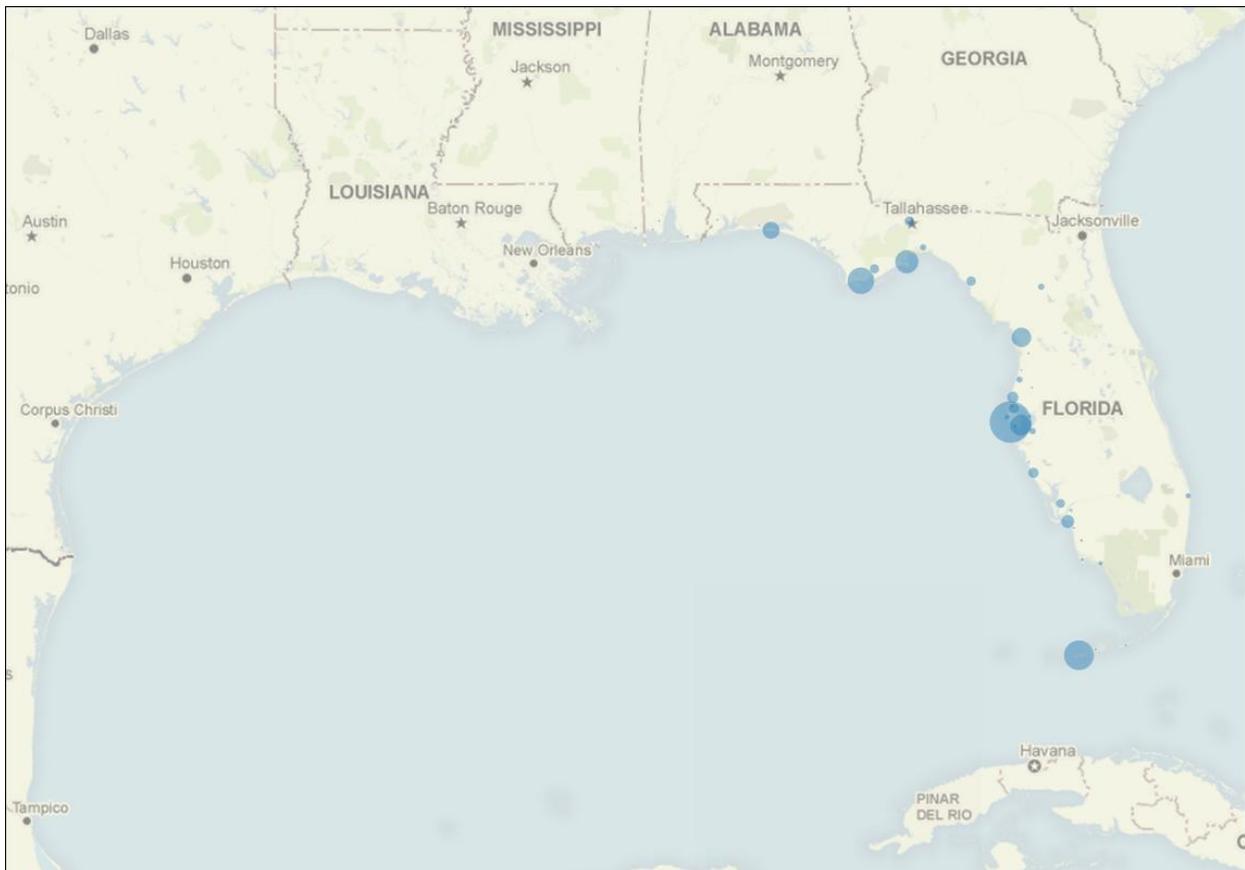


Figure 2.4.15 Projected 2010 Red Grouper Landings Based on Initial 2010 Red Grouper Shareholders' 2008 Landing Patterns

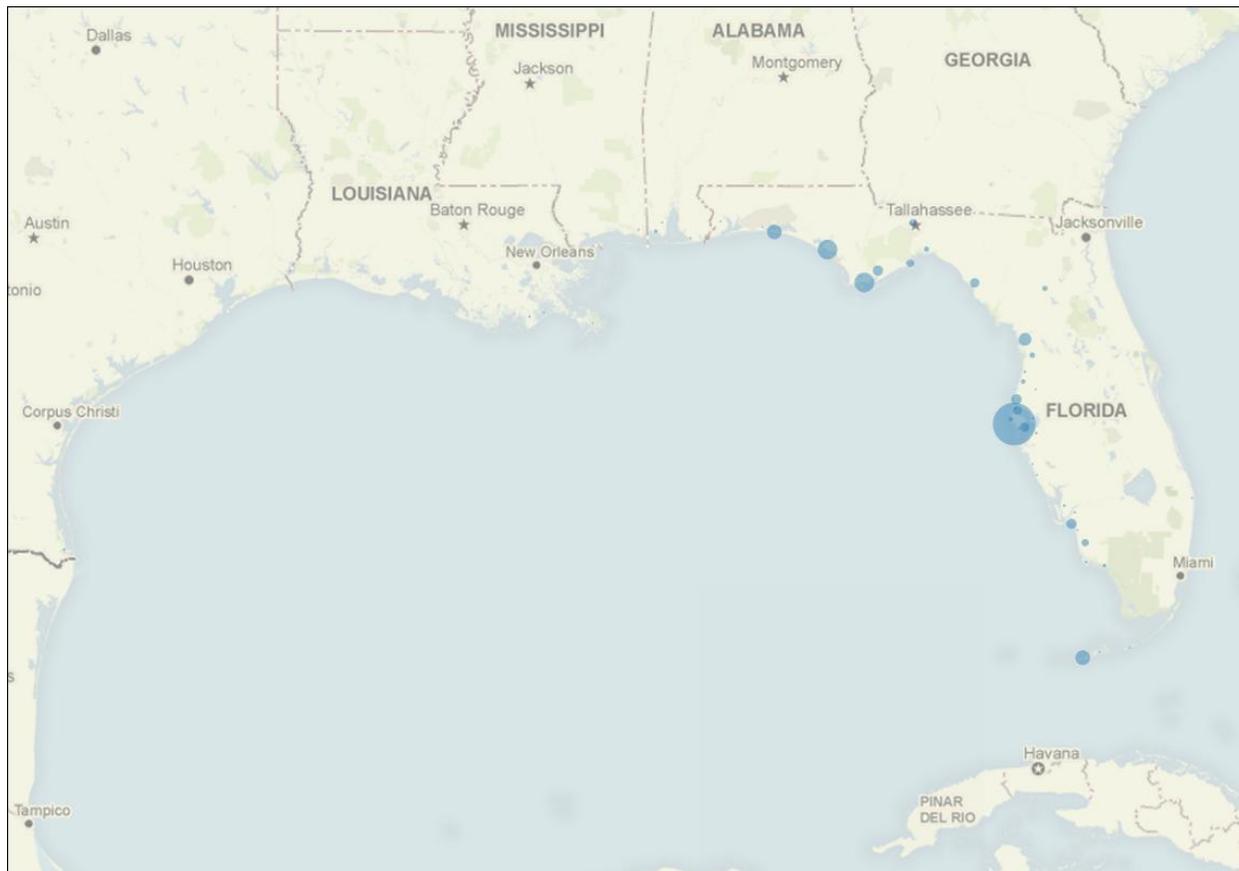


Figure 2.4.16 Projected 2010 Red Grouper Landings Based on Initial 2010 Red Grouper Shareholders' 2009 Landing Patterns

The information in Figures 2.4.15 and 2.4.16 illustrates the potential distribution of red grouper landings in 2010 based on the initial 2010 red grouper allocations in combination with vessels' 2008 or 2009 landing patterns respectively. According to this information, landings are likely to be most concentrated along Florida's west central coast, particularly in Pinellas County (Madeira Beach, Redington Shores, St. Petersburg, and Tarpon Springs) and Crystal River, with lower concentrations taking place in Apalachicola, Panama City and, to a lesser extent, Key West and Destin. If landing patterns in 2010 are more similar to those in 2009 as opposed to 2008, then landings will be highly concentrated in Madeira Beach, with much lower levels of landings occurring in Key West, Ft. Myers Beach, and St. Petersburg.

Based on the information in Figure 2.4.17, longline endorsement qualifiers are highly concentrated along Florida's west central coast, again particularly in Pinellas County (Largo, Clearwater, Madeira Beach, Palm Harbor, and Seminole), though also in Valrico and Tampa, and to a lesser extent in Manatee County (Cortez and Bradenton). Along with Largo, Panama City has the largest number of longline endorsement qualifiers, consistent with previously discussed information.

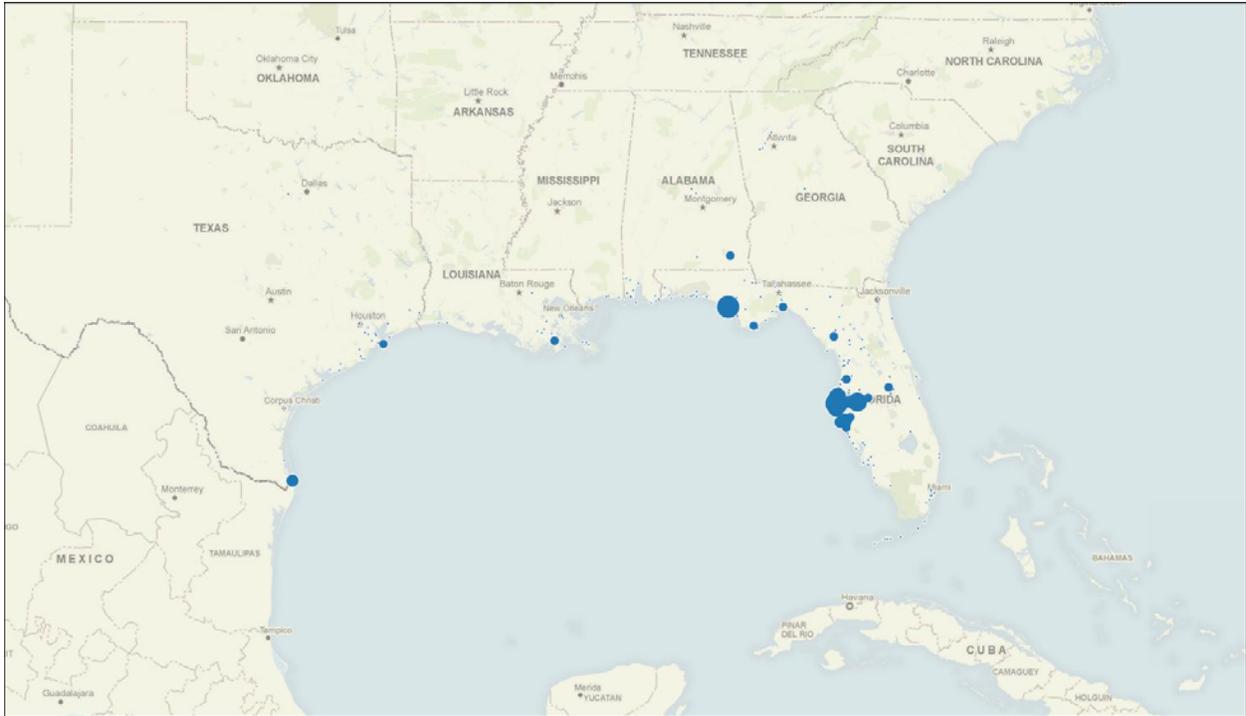


Figure 2.4.17 Distribution of Longline Endorsement Qualifiers

After accounting for all of these key indicators, the information in Table 2.4.7 suggests that the individual communities of Panama City, Madeira Beach, and Apalachicola have the strongest relationship with the red grouper fishery, though St. Petersburg, Clearwater, Tarpon Springs, and Redington Shores also have relatively strong ties to the fishery. At the county level, Pinellas County clearly has the strongest relationship to the fishery of any county in the Gulf of Mexico region. Steinhatchee, Crystal River, Tampa, and Panacea also have somewhat strong relationships with the red grouper fishery.

Finally, the available information suggests that a community's involvement with regard to fishing and/or the fishing infrastructure will change over time, most recently due to changes in federal regulations. Although these circumstances are evident, the current profiles remain the most detailed information available for most communities. Using the current profiles for fishing communities in Florida, Table 2.4.7 provides a characterization of those communities with regard to their involvement in fishing.

A community's involvement in fishing is characterized as either: primarily involved, secondarily involved and tangentially involved. *Primarily-involved* are communities where the economies and primary foci of social interaction may be mixed to a greater or lesser degree, but there remains an observable collective focus on fishing and its industries. *Secondarily-involved* communities are often primarily involved in sales and service, agriculture, tourism, and/or manufacturing enterprises where commercial fishing and associated industry is important, but secondary to these other industries. *Tangentially-Involved* communities are cities and/or towns in which fishing plays a subsidiary role to other forms of economic and social activity (Impact Assessment, Inc. 2005).

The communities highlighted in Table 2.4.7 are those that have been identified as having relatively a relatively significant relationship to the red grouper fishery. Importantly, Panama City, Madeira Beach, Apalachicola, and Tarpon Springs are communities primarily involved with fishing, as is Crystal River, while Clearwater and St. Petersburg are secondarily involved. Thus, the communities with the strongest relationships to the red grouper fishery are also relatively dependent on fishing in general.

Table 2.4.7. Preliminary Characterization of Fishing-Oriented Towns and Cities along the Florida Gulf Coast (Impact Assessment, Inc. 2005).

| Primarily-Involved | Secondarily-Involved | Tangentially-Involved |
|---------------------------|-----------------------------|------------------------------|
| Apalachicola | Anna Maria Island | Alva |
| Boca Grande | Aripeka | Anclote |
| Carrabelle | Bagdad | Apollo Beach |
| Cedar Key | Bradenton | Archer |
| Chokoloskee | Bradenton Beach | Bell |
| Cortez | Clearwater | Belleair |
| Crystal River | Crawfordville | Brandon |
| Eastpoint | Dover | Brooksville |
| Everglades City | Dunedin | Cantonment |
| Fort Myers Beach | Englewood | Cape Coral |
| Homosassa | Fort Myers | Captiva Island |
| Hudson | Fort Walton Beach | Chiefland |
| Inglis/Yankeetown | Freeport | Copeland |
| Jena/Steinhatchee | Gibsonton | DeFuniak Springs |
| Keaton Beach | Goodland | El Jobean |
| Madeira Beach | Gulf Breeze | Estero |
| Panacea | Lakeland | Gulf Hammock |
| Panama City | Lecanto | Gulfport |
| Panama City Beach | Lynn Haven | Hernando |
| Pensacola | Marco Island | Holiday |
| Pine Island | Mary Esther | Holmes Beach |
| Port St. Joe | Mexico Beach | Indian Rocks Beach |
| Punta Gorda | Milton | Inverness |
| Sopchoppy | Navarre | Lamont |
| St. Marks | New Port Richey | Lanark Village |
| Suwannee | Ozona/Palm Harbor | Largo |
| Tarpon Springs | Pace | Longboat Key |
| - | Palmetto | Lutz |
| - | Placida | Nokomis/ Odessa |
| - | Port Charlotte | North Fort Myers |
| - | Port Richey | Old Town |
| - | Ruskin | Oldsmar |
| - | Santa Rosa Beach | Osprey |
| - | Sarasota | Redington Beach |
| - | Shalimar | Riverview |
| - | Southport | Royal Palm Hammock |
| - | Spring Hill | Sanibel Island |
| - | St. Petersburg | Seminole |
| - | Tampa | Terra Ceia |
| - | Youngstown | Tierra Verde |
| - | - | Treasure Island |
| - | - | Trenton |
| - | - | Valparaiso |
| - | - | Venice |
| - | - | White City |

2.5 Environmental Justice Considerations

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In

addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. This executive order is generally referred to as environmental justice (EJ).

Persons employed in the red grouper fishery and associated businesses and communities along the Gulf coast of Florida would be expected to be affected by this proposed action. Information on the race and income status for groups at the different participation levels (vessel owners, crew, dealers, processors, employees, employees of associated support industries, etc.) is not available. County level data; however, have been assessed to ensure the most recent estimates. Because this proposed action would be expected to affect fishermen and associated industries in numerous communities along the west Florida coast, as discussed above, it is possible that other counties or communities have poverty or minority rates that exceed the EJ thresholds.

Information on the communities discussed above was examined to identify the potential for EJ concern. Specifically, the rates of minority populations and the percentage of the population that was below the poverty line were examined. The threshold for comparison that was used was 1.2 times the state average such that, if the value for the community or county was greater than or equal to 1.2 times the state average, then the community or county was considered an area of potential EJ concern. Census data for the year 2007 was used and the estimate of the minority (interpreted as non-white, including Hispanic) population was 38.7%, while 12.6% of the total population was estimated to be below the poverty line. These values translate in EJ thresholds of approximately 46.4% and 15.1%, respectively. Based on the demographic information provided above, no potential EJ concern is evident for Pinellas County as it falls below the thresholds with regard to poverty and percent of minorities.

However, additional communities beyond those profiled above would be expected to be affected by the actions in this regulatory amendment. Because these communities have not been profiled, the absence of potential EJ concerns cannot be assumed. However, although some communities expected to be affected by this proposed amendment may reside in counties that have minority or economic profiles that exceed the EJ thresholds and, therefore, constitute areas of concern, no EJ issues have been identified or are expected to arise. No negative environmental consequences are expected to accrue to this proposed amendment. While adverse social and economic consequences are expected to accrue to fishermen in the red grouper fleet and associated industries and communities due to the reduction of expenditures and revenues associated with an expected change in fishing behavior and harvest levels, the environmental consequences of this regulatory amendment are expected to be positive. This regulatory amendment is expected to result in a net short term reduction in the mortality of red grouper by the commercial sector. Reduced mortality would be expected to increase the environmental benefits this species contributes to the marine environment and the general health and condition of this environment.

2.6 Administrative Environment

2.6.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management

Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the Exclusive Economic Zone, an area extending 200 nautical miles from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the Exclusive Economic Zone.

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

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

The Council consists of seventeen voting members: 11 public members appointed by the Secretary; one each from the fishery agencies of Texas, Louisiana, Mississippi, Alabama, and Florida; and one from National Marine Fisheries Service. The public is also involved in the fishery management process through participation on advisory panels and through council meetings that, with few exceptions for discussing personnel matters, are open to the public. The regulatory process is also in accordance with the Administrative Procedures Act, in the form of “notice and comment” rulemaking, which provides extensive opportunity for public scrutiny and comment, and requires consideration of and response to those comments.

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

2.6.2 State Fishery Management

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

regulatory agencies when managing marine resources. A more detailed description of each state's primary regulatory agency for marine resources is provided in Amendment 22 (GMFMC 2004).

3.0 MANAGEMENT ALTERNATIVES

3.1.1 Action 1: Set Red Grouper Total Allowable Catch

Alternative 1: No Action - Maintain total allowable catch* at the SEDAR 12 equilibrium optimum yield level as defined in the Amendment 30B. Total allowable catch would be 7.57 million pounds gutted weight (MP GW). Based on the 76%:24% commercial and recreational allocation of red grouper, the commercial quota would be 5.75 MP GW, and the recreational allocation would be 1.82 MP GW.

Alternative 2: Set the 2011 total allowable catch equal to the Scientific and Statistical Committee's recommended 2011 acceptable biological catch of 6.31 MP GW. This value represents 85% of the respective overfishing level (yield at F_{MSY}). Based on the 76%:24% commercial and recreational allocation of red grouper, the commercial quota would be 4.80 MP GW for 2011, and the recreational allocation would be 1.51 MP GW. After 2011, the total allowable catch and commercial quota would remain at the 2011 levels until modified by a subsequent amendment or framework procedure.

Preferred Alternative 3: Set the 2011 total allowable catch based on the yield projection for fishing at F_{OY} using the projection scenario recommended by the Scientific and Statistical Committee for setting the acceptable biological catch. Total allowable catch would be 5.68 MP GW for 2011. Based on the 76%:24% commercial and recreational allocation of red grouper, the commercial quota would be 4.32 MP GW and the recreational allocation would be 1.36 MP GW for 2011. The total allowable catch and commercial quota would remain at the 2011 levels until modified by a subsequent amendment or framework procedure.

Note: * Total allowable catch is equivalent to a stock annual catch limit.

Discussion and Rationale:

This action proposes alternatives to consider a decrease of total allowable catch (TAC) of red grouper and make the resulting commercial quota consistent with the goals and objectives of the Fishery Management Plan for the Reef Fish Fishery of the Gulf of Mexico while achieving the mandates of the Magnuson-Stevens Act. In Amendment 30B, the Council set TAC at the fishery-wide catch at the equilibrium optimum yield (OY) of 7.57 MP GW. The Council chose this TAC level because the red grouper stock was at or above the spawning stock biomass associated with OY in 2004 and this level accomplished the Council's intent to manage all reef fish species at OY levels once rebuilt (SEDAR 12 2007). Projections had indicated red grouper stock biomass would continue to increase with the TAC and the Council also indicated they would manage the stock at this equilibrium OY target level until a new stock assessment was completed. There were concerns the stock biomass might decrease because indices of abundance suggested that as the strong 1999 year-class moved through the fishery, stock biomass may begin to decline. However, at the time Amendment 30B was approved, preliminary landings for the first four to five months of 2008 showed an increase in landings over 2007.

There are no changes proposed to the recreational red grouper regulations for any of the alternatives. During 2006-2008, annual recreational landings of red grouper were relatively

stable at between 0.86 to 0.96 MP GW (Table 7.3 in SEDAR 2009a), well below the recreational allocations for any of the alternatives. In May 2009, the aggregate bag limit was reduced from five to four grouper, and the red grouper bag limit was increased from one to two fish. the February 15-March 14 recreational closed season was extended to February 1-March 31 on all shallow-water grouper¹⁴. Despite these changes, preliminary estimates of recreational red grouper landings in 2009 remain in line with recent years at 0.98 MP GW (NMFS 2010). Therefore, changes to the recreational red grouper regulations are not considered to be necessary regardless of which alternative is adopted.

Alternative 1, no action, would maintain TAC at 7.57 MP GW as defined in Amendment 30B. Based on the current commercial and recreational allocation, the commercial quota would be 5.75 MP GW. Selection of this alternative would be inconsistent with current National Standard 1 guidance (71 FR 3180) because TAC would be above the acceptable biological catch (ABC) recommended by the Council's SSC of 6.31 MP GW. This value is also inconsistent with the Council's criteria developed in Amendment 30B for setting the annual catch limit. The annual catch limit is to be set based on the yield associated with F_{MSY} . Given the 2011 level is now projected to be 7.42 MP GW (NMFS 2010), the TAC from this alternative would be 150,000 pounds too high and result in overfishing.

Alternative 2 would set the TAC at the highest level allowed, or equal to the SSC's ABC recommendation. The SSC, in setting its ABC recommendation, selected a 2011 ABC of 6.31 MP GW. This amount is equal to 85% of the yield at F_{MSY} and was felt by the SSC to sufficiently reduce the probability that overfishing might occur in 2011. Where possible, the SSC prefers to use a distribution of probabilities of overfishing for different harvest projection scenarios to set the ABC. However, these were not available for the projections provided in NMFS (2010). Given that fishing at F_{MSY} should result in a 50% probability of overfishing, the SSC determined an ABC of 85% of the yield at fishing at F_{MSY} should reduce this probability to between 15 and 45%. This is within the range the SSC is currently considering for their ABC control rule being developed for the Generic ACL/AM Amendment (GMFMC 2010a).

Preferred Alternative 3 is the most conservative level of TAC. The 5.68 MP GW 2011 TAC and commensurate 4.32 MP GW commercial quota is the lowest level considered in this action. This action is based on projected yield streams that assume the harvest for 2010 is equal to the estimated 2009 landings (4.69 MP GW). This alternative is consistent with the methods used by the Council in Amendment 30B for setting the annual catch target. In that amendment, the annual catch target is the yield associated with F_{OY} . The TAC set from this alternative would have the lowest probability of overfishing of any of the considered alternatives.

3.1.1 Action 2: Buoy gear labelling

Alternative 1: No Action – For buoy gear used in the Gulf of Mexico as defined in § 622.2, each buoy used with the gear does not need to display the official number of the vessel.

¹⁴ Due to the timing of the implementation of Amendment 30B, the first year of the February 1 – March 31 recreational closed season was 2010.

Preferred Alternative 2: For buoy gear used in the Gulf of Mexico, each buoy used with the gear must display the official number of the vessel.

As described in Section 1.1, the Council and NMFS have determined the established definition of buoy gear is ambiguous, which limits the enforceability of this gear type. In developing a new definition for buoy gear, the Council requested NMFS require the buoys used to mark deployed buoy gear display the official number of the vessel. The official number, as defined in 50 CFR 600.10, means “the documentation number issued by the USCG or the certificate number issued by a state or by the USCG for an undocumented vessel.”

Alternative 1 is the no action alternative and would not require buoys to be marked. By not marking buoys, enforcement of buoy gear would be very difficult. Law enforcement personnel would not be able to determine who set gear if left unattended. **Preferred Alternative 2** requires the buoys be marked with vessel information. This will assist law enforcement agencies in identifying illegally set gears they come across as they monitor the commercial sector.

3.2 Environmental Consequences

3.2.1 Direct and Indirect Effects on Physical Environment

Sections 2.1, 2.2, and GMFMC (2004) describe the physical environment and habitat use by groupers, particularly for red grouper, and are incorporated by reference. Groupers are carnivorous bottom dwellers, generally associated (as adults) with hard-bottomed substrates, and rocky reefs. Eggs and larvae for all species are pelagic. For red grouper, juveniles are found in nearshore waters until they reach approximately 16 inches and move offshore (GMFMC 2004). Adults are associated with rocky outcrops, wrecks, reefs, ledges, crevices, caverns, as well as “live bottom” areas, in depths of 3 to 190 m. Red grouper are most abundant in state and federal waters off the west Florida shelf.

Fishing mostly affects the physical environment through interactions with fishing gear. In the commercial sector, most red grouper are caught with longlines. Prior to 2007, longline gear accounted for 59% of the commercial red grouper landings, vertical line gear for 27%, and traps for 14% landings. Other gears such as spearfishing accounted for the remainder of landings. Traps became illegal for harvest of reef fish after February 7, 2007. Nearly all of the recreational red grouper landings were caught with vertical line gear.

Longlines

Longline gear is deployed over hard bottom habitats using weights to keep the gear in direct contact with the bottom. Its potential for adverse impact is dependent on the type of habitat it is set on, the presence or absence of currents, and the behavior of fish after being hooked. In addition, this gear upon retrieval can abrade, snag, and dislodge smaller rocks, corals, and sessile invertebrates (Bohnsack in Hamilton, 2000; Barnette 2001). Direct underwater observations of longline gear in the Pacific halibut fishery by High 1998 noted that the gear could sweep across the bottom. Some halibut were observed pulling portions of longlines 15 to 20 feet over the

bottom. Although the gear was observed in contact with or snagged on a variety of objects including coral, sturdy flexible corals usually appeared unharmed while hard corals often had portions broken off. However, in another study that directly observed deployed longline gear (Atlantic tilefish fishery) found no evidence that the gear shifted significantly, even when set in currents. This was attributed to anchors set at either end of the longline as well as sash weights along the line to prevent movement (Grimes et al. 1982). Based on the direct observations, it is logical to assume that bottom longline gear would have a minor impact on sandy or muddy habitat areas. However, due to the vertical relief that hardbottom and coral reef habitats provide, it would be expected that bottom longline gear may become entangled, resulting in potential negative impacts to habitat (Barnette 2001).

Vertical lines

Concentrations of many managed reef fish species are higher on hard bottom areas than on sand or mud bottoms, thus vertical line gear fishing generally occurs over hard bottom areas (GMFMC 2004). Vertical lines include multi-hook lines known as bandit gear, handlines, and rod-and-reels. Vertical-line gear is less likely to contact the bottom than longlines, but still has the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001).

In using bandit gear, a weighted line is lowered to the bottom, and then the lead is raised slightly off the bottom (Siebenaler and Brady 1952). The gear is in direct contact with the bottom for only a short period of time. Barnette (2001) suggests that physical impacts may include entanglement and minor degradation of benthic species from line abrasion and the use of weights (sinkers).

Commercial or recreational fishing with rod-and-reel and handlines also puts gear on the bottom. The terminal part of the gear is either lifted off the bottom like fishing with bandit gear, or left contacting the bottom. Sometimes the fishing line can become entangled on coral and hard bottom outcroppings. The subsequent algal growth can foul and eventually kill the underlying coral (Barnette 2001). Researchers conducting studies in the restricted fishing area at Madison-Swanson reported seeing lost fishing line on the bottom, much of which appeared to be fairly old and covered with growth (personal communication, Andrew David), a clear indication that bottom fishing has had an impact on the physical environment prior to fishing being prohibited in the area (GMFMC 2003). The National Fish and Wildlife Foundation, in issuing grants to remove marine debris, established monofilament fishing line is a priority marine debris issue¹⁵.

Anchor damage is also associated with vertical-line fishing vessels, particularly by the recreational sector where fishermen may repeatedly visit well marked fishing locations. Bohnsack (in Hamilton 2000) points out that “favorite” fishing areas such as reefs are targeted and revisited multiple times, particularly with the advent of global positioning technology. The

¹⁵ National Fish and Wildlife Foundation 2006 Marine Debris Grants Program Recipients web page, <http://www.nfwf.org/Content/ContentFolders/NationalFishandWildlifeFoundation/Programs/MarineDebrisPreventionandRemovalProgram/2006MarineDebrisProjectBriefs.pdf>

cumulative effects of repeated anchoring could damage the hard bottom areas where fishing for grouper occurs.

Buoy gear

No studies of the effects of buoy gear on habitat have been conducted to date. Because of the variety of ways this gear has been set based on testimony from fishermen at Council meetings, the effects of the gear are likely intermediate to longline and vertical line gear. Some fishermen have set buoy gear so it drapes on the bottom similar to longlines while others have set this gear so that the hooks drift just above the bottom similar to how vertical gear is set. The new definition of buoy gear with its limitation of the number of hooks on the gear, terminal end weight, placement of hooks, and the length of the drop line (Section 1.1), should effect the physical environment more like vertical gear than longlines.

Fish traps

Fish traps were an important part of the reef fish fishery and previously accounted for as much as 14% of the annual red grouper landings. Traps are often set on live substrate and can cause damage to corals, gorgonians, sponges, and submerged aquatic vegetation (Barnette 2001). In addition, lost traps can continue to move on the bottom with currents continuing to damage adjacent bottom habitat. However, the Council phased out this gear in February 2007, so it is no longer allowed to be used. Thus, this gear no longer impacts habitat in the Gulf of Mexico.

Spear and Powerhead

Spearguns and slings are used in both commercial and recreational grouper fishing but are a relatively minor component of both. Barnette (2001) cited a study by Gomez (1987) that concluded that spearfishing on reef habitat may result in some coral breakage, but damage is probably negligible. In addition, there could be some impacts from divers touching coral with hands or from resuspension of sediment by fins (Barnette 2001). Such impacts should be negligible to non-existent for well-trained and experienced spearfishermen who stay in the water column and avoid contact with the bottom.

As noted in Section 2, oil from the Deepwater Horizon MC252 incident may have affected a large portion (~30%) of the Gulf. Although this incident is not attributable the actions analyzed in this amendment, the oil has affected the physical environment. At this time, the information is incomplete on the incident and still being collected regarding the overall impact to the nearshore and offshore physical environments. Potential effects include restricting the normal process of atmospheric oxygen mixing into and replenishing oxygen concentrations in the water column, oxygen depletion from microbes as the break down oil and dispersants, and impacting bottom or nearshore/inshore areas should the oil reach the bottom. However, because the area affected by the oil does not overlap with the primary habitat for red grouper, the effects of the oil on this species' essential fish habitat should be minimal.

For **Action 1, Alternative 1** (no action) would maintain the 7.57 MP GW total allowable catch, and result in no changes to the commercial quota. Therefore, this alternative should have no additional effects on the physical environment. **Alternatives 2 and 3** would reduce the total

allowable catch to 6.31 and 5.68 MP GW, respectively. These alternatives would be expected to have the fewer impacts on the physical environment when compared with **Alternative 1**, because they would likely result in lower levels of fishing effort and less opportunity for gear interactions with habitat.

For **Action 2**, neither **Alternative 1** or **Preferred Alternative2** should have any additional effects on the physical environment. This action should not have an effect on fishing effort and thus the physical environment beyond what gear is currently being set. Regardless of whether the buoys have vessel information displayed or not, the buoys would be deployed as part setting the gear.

3.2.2 Direct and Indirect Effects on Biological/Ecological Environment

Red grouper demonstrate the typical life history pattern for managed reef fish species as summarized in Section 2.2, and GMFMC (2004, 2009), and incorporated here by reference. Both eggs and larval stages are planktonic with larvae feeding on zooplankton and phytoplankton. Juvenile and adult grouper are typically demersal, and are usually associated with bottom topographies on the continental shelf which have high relief, i.e., coral reefs, artificial reefs, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings. Females mature on average at 380 mm (15.0 inches) TL and 3.5 years (Fitzhugh et al. 2006). The reported size and age of 50% transition from females to males of 765 mm (30.1 inches) TL and 10.5 years, respectively. Red grouper spawn from February until mid-July, with peak spawning occurring in March, April and May (Fitzhugh et al. 2006). This species has been aged up to 28-years old, but begin to recruit to the fishery at around ages 4 and 5 (Lombardi-Carlson et al. 2006). The most recent red grouper stock assessment updated indicated the Gulf of Mexico stock was not overfished nor undergoing overfishing (SEDAR 12 2007); however, a recent stock assessment updated noted the stock size was depressed (SEDAR 2009a).

Fishery management actions that affect the biological/ecological environment mostly relate to the impacts of fishing on a species' population size, life history, and the role of the species within its habitat. Removal of fish from the population through fishing reduces the overall population size. Maximum sustainable yield (MSY is the largest average catch that can be taken at a sustained level of harvest from a stock under average environmental conditions. Associated with MSY is the fishing mortality and stock biomass associated with MSY (F_{MSY} and B_{MSY} , respectively) from which optimum yield, minimum stock size threshold, and maximum fishing mortality rate are generally derived. If fishing is allowed to exceed F_{MSY} for several years, then the stock size will decline to a level where the harvest can no longer be maximized. This overfishing can manifest itself in two ways. The first is growth overfishing where the fishing pressure on smaller fish is too high to allow the fishery to produce MSY. The second is recruitment overfishing where the fishing pressure is so high that the population is no longer able to replace itself. Recruitment overfishing for an extended period of time could lead to the collapse of the stock, or a condition where all fishing effort including bycatch from non-directed fisheries, would need to be severely curtailed or ended for the stock to rebuild. Taken to its extreme, recruitment overfishing could result in the economic and biological extinction of a stock.

Fishing pressure can affect various aspects of a species' life history. For example, the proportion of male gag in the population has decreased from historical levels of 17% (Hood and Schlieder 1992) to 2-10% in the 1990s (Coleman et al. 1996, June 8, 1998 memo from Fitzhugh, Collins and White), leading to concerns by the Council's Reef Fish Stock Assessment Panel that the reduction in proportion of males may have a potentially negative consequence on population reproductive potential (GMFMC 1998). In other reef fish species (e.g., vermilion snapper; Zhao et al. 1997, Hood and Johnson 1999), fishing appears to have shifted the size distribution to smaller sizes. Increased fishing pressure has also been associated with a depression in the size at maturity. While neither of these trends are evident in red grouper, changes in fishing regulations appear to have an effect on red grouper growth. The mean average length at age for red grouper was found to be larger after regulations went into effect in 1990 (Lombardi-Carlson et al. 2006a).

Changes in the abundance from fishing (e.g., changing fishing selectivities) are likely to have ecological effects. 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. Recent advances in ecosystem modeling are providing some insights into the cascading effects of populations in response to each other. Currently, the only model for the Gulf that could address these issues is an Ecopath model being developed by the Florida Fish and Wildlife Research Institute and NOAA Fisheries (Behzad Mahmoudi, personal communication¹⁶). The development of this model is ongoing and it would be impractical to apply at this time. Without knowing how an increase or decrease in the abundance of red grouper or gag would affect other populations or that it would even be detectable, the ecological effects of the various alternatives cannot be distinguished at this time.

Even though current models that can examine the linkages between species are not yet adequate to look at the effects of management measures, it is important to note that some species such as red snapper, greater amberjack, gag, and gray triggerfish are being managed to improve their stock condition. Other species (e.g., vermilion snapper and deepwater grouper) are being managed to maintain a certain stock condition. Therefore, the effects of improving or maintaining the red grouper stock to avoid overfishing could have an adverse effect on these stocks. These effects could come about through competition for food or space. For example, red grouper feed on a variety of shrimp, crabs, and lobsters (Bullock and Smith 1991). Less of these prey may be available to other reef fish species if red grouper stocks are allowed to increase. Another example of these linkages would be the relationship between species richness of benthic habitats due to a behavior of red grouper (Coleman and Williams 2002). Excavations created by red grouper harbor suites of fish and invertebrate species including vermilion snapper *Rhomboplites aurorubens*, black grouper *Mycteroperca bonaci* and spiny lobster *Panulirus argus*.

It is important to note that oil from the broken well head from the Deepwater Horizon MC252 may affect larger areas of the Gulf. Mortality on larvae caused by the oil spill could result in declines in recruitment in future year classes (USFWS 2004). As noted in Section 3.1, effects on the physical environment such as low oxygen and the inter-related effects that culminate and magnify through the food web could lead to impacts on the ability of larvae and post-larvae to

¹⁶ Dr. Behzad Mahmoudi, Florida Fish and Wildlife Research Institute, St. Petersburg, Florida

survive, even if they never encounter oil. Presently, this oil is concentrated in the northern Gulf and away from most red grouper EFH (GMFMC 2004). However, if the oil does shift to the west Florida shelf, impacts from the oil would be expected to negatively impact the recovery of this stock from the 2005 mortality event assumed in the stock assessment model, as well as have short- and potentially long-term economic impacts on commercial and recreational fisheries in the Gulf. In addition, effects of oil exposure may not always be lethal, but can create sub-lethal effects on all life stages of fish (USFWS 2004). There is the potential that the stressors can be additive, and each stressor may increase the susceptibility to the harmful effects of the other. At this time, the information needed to assess the aforementioned effects is incomplete and still being collected.

For **Action 1**, **Alternative 1** is the least conservative of the red grouper TAC alternatives and would result in the highest probability of overfishing occurring. Relative to **Alternatives 1** and **2**, **Preferred Alternative 3** is the most conservative TAC and would have the highest likelihood of preventing overfishing and maintaining the stock biomass above the minimum stock size threshold. Direct effects include an increase in the abundance of red grouper relative to **Alternatives 1** and **2**. Indirect effects could include an increase in regulatory discards due to increased incidental catch by fishermen targeting other species in the same habitat. In addition, there could be an increase in species richness of benthic habitats due to a behavior of red grouper described as habitat engineering. The direct and indirect effects of **Alternative 2** would be intermediate to **Alternatives 1** and **3**.

For **Action 2**, neither **Alternative 1** or **Preferred Alternative 2** should have any additional effects on the biological environment. This action should not have an effect on fishing effort and thus catches beyond what gear is currently being set. Regardless of whether the buoys have vessel information displayed or not, the buoys would be deployed as part setting the gear.

3.2.3 Direct and Indirect Effects on the Economic Environment

3.2.3.1 Effects on the Commercial Sector

The potential economic effects on the commercial sector of the alternatives considered in this action are evaluated by measuring expected changes in annual gross revenues from commercial red grouper harvests. Total changes in gross ex-vessel revenues are obtained by subtracting legally required cost recovery fees from the ex-vessel values of the expected red grouper harvest. Under the grouper and tilefish individual fishing quota program, fishermen are required to pay 3% of the ex-vessel value of grouper harvested to defray management costs. Total ex-vessel values were calculated by multiplying commercial annual catch limits by an average ex-vessel price. The estimated average Gulf-wide ex-vessel price was \$2.85 per pound of red grouper (gutted weight) in 2008, as derived from the National Marine Fisheries Statistics website data (<http://www.st.nmfs.noaa.gov/st1/commercial/index.html>) and adjusted using a conversion factor of 1.18 to convert whole weights into gutted weights (SEDAR 12). Table 3.2.3.1 provides commercial annual catch limits, ex-vessel values, gross revenues, and expected changes in gross revenues for each of the alternatives considered. Estimated ex vessel values and changes in ex vessel values and in gross revenues provided below assume that IFQ participants have the ability to harvest the totality of their annual red grouper allocation. However, this assumption may be challenged by limited harvest rate currently observed in the commercial red grouper fishery. As

of July 21, 2010, fishermen participating in the grouper and tilefish IFQ program have harvested 1.37 mp of red grouper (<https://ifq.sero.nmfs.noaa.gov/ifqgt/main.html#>) out of a 5.75 mp commercial quota. While harvest rates can increase during the remaining months of 2010, it is highly likely that a sizeable portion of the quota will not be harvested by the end of the year. Under those conditions, estimated losses in ex vessel values and in gross revenues provided in Table 3.2.3.1 would represent maximum potential losses, with effective losses prorated to reflect the harvested portion of the commercial quota.

Alternative 1 would maintain the current commercial red grouper annual catch limit and, as a result, would not be expected to result in any change in total ex-vessel value received from red grouper harvests. Under **Alternative 1**, the annual ex-vessel value of red grouper harvested under the individual fishing quota program is estimated at \$16.39 million (2008 dollars).

Table 3.2.3.1: Commercial annual catch limits (ACLs), ex-vessel values, and gross revenues under alternative red grouper total allowable catches (TACs)

| | TAC million lbs (gutted weight) | Commercial ACL million lbs (gutted weight) | Ex vessel Values | Changes in Ex Vessel Value | Changes in Gross Revenues |
|----------------------------|---------------------------------------|---|---------------------|-------------------------------|------------------------------|
| Alternative 1 | 7.57 | 5.75 | \$16,387,500 | | |
| Alternative 2 | 6.31 | 4.80 | \$13,680,000 | -\$2,707,500 | -\$2,626,275 |
| Preferred Alternative 3 | 5.68 | 4.32 | \$12,312,000 | -\$4,075,500 | -\$3,953,235 |

Alternative 2 would decrease the commercial red grouper annual catch limit to 4.80 million pounds. The ex-vessel value of red grouper harvests under **Alternative 2** is estimated at approximately \$13.68 million. Relative to **Alternative 1**, losses in ex-vessel value and in gross revenues expected from the implementation of **Alternative 2** are estimated at approximately \$2.71 million and \$2.63 million, respectively.

Preferred Alternative 3 would decrease the commercial red grouper annual catch limit to approximately 4.32 mp, resulting in an estimated ex-vessel value of approximately \$12.31 million. Relative to **Alternative 1**, expected losses in ex-vessel value and in gross revenues anticipated under **Preferred Alternative 3** are estimated at approximately \$4.01 million and \$3.95 million, respectively.

While changes in gross revenue estimates are sufficient to provide an ordinal ranking of the alternatives, the economic analysis provided in this section does not account for several factors. The analysis does not include economic effects that could result from potential behavioral changes by individual fishing quota participants. For example, the effects of decreases in commercial annual catch limit on the number and length of fishing trips and on crew size are not included. Fishermen may or may not elect to adjust the number of fishing trips in response to an annual catch limit adjustment. In addition, although red grouper individual fishing quota participants prosecute red grouper as a part of a multi-species reef fish fishery, the analysis does

not account for possible changes in targeting behavior, which could result in harvests with different species composition. These effects could impact gross revenues as well as the operating costs of individual fishing quota participants. Potential behavioral changes were omitted due to data limitations. Economic effects expected from these behavioral changes could conceivably be approximated if data on changes in trip structure, harvest composition, and operating costs resulting from a change in annual catch limit were available. However, such information is currently unavailable due to the very recent implementation of the grouper and tilefish individual fishing quota program.

3.2.3.2 Effects on the Recreational Sector

Management measures considered in this regulatory amendment are not expected to result in changes in recreational fishing season length, bag or size limits. Therefore, neither direct nor indirect economic effects on the recreational sector are expected from this action.

3.2.3.3 Economic Activity Associated with Estimated Economic Effects

This section provides estimates of the economic activity associated with the potential changes in commercial ex-vessel revenues that may occur as a result of the proposed management changes. This economic activity is characterized in the form of full time equivalent (FTE) jobs, income impacts (wages, salaries, and self-employed income), output (sales) impacts (gross business sales), and value added impacts (difference between the value of goods and the cost of materials or supplies). Income and value-added impacts are not equivalent, though similarity in the magnitude of multipliers may result in roughly equivalent values. These estimates are provided to inform the decision process of the potential consequences of the proposed management actions. However, it should be emphasized that these estimates should not be confused with potential changes in economic value as a result of the proposed management measures. Estimates of the potential changes in economic value are provided in Section 3.2.3.1

The calculation of the change in economic activity utilizes common variables used in the calculation of the expected change in economic value, specifically the expected change in ex-vessel revenues in the commercial sector. Because both assessments (change in economic value and change in economic activity) use these common variables, the ranking of alternatives based on the magnitude of these effects is unaffected by the metric examined; the greater the estimated change in economic value, the greater the estimated change in economic activity.

The estimates of the change in economic activity should be used or interpreted with caution. While some change (loss or gain) of economic activity would be expected with any change in commercial revenues, the full change (loss or gain) of the estimates provided below should not be expected to occur as a result of the proposed management changes. The primary reason for this caution is the calculation of these results does not account for behavioral changes that would be expected to occur in response to the proposed management changes. In the commercial sector, any estimated losses in ex-vessel revenues may be overstated if fishermen are able to direct their fishing effort to substitute species. In the event that gains in revenues for a particular species are forecast, these gains may come at the expense of reduced harvests (and revenues) of other species. As a result, the net gain may be overstated.

In addition to uncertainty associated with the estimation of changes in ex-vessel revenues, some categories of economic activity associated with these revenues should not be expected to be affected to the extent encompassed by the model estimates when fishing revenues change. As seen in the table below, commercial fishing revenues are estimated to generate economic activity in multiple sectors of the economy. These include the harvester, dealer/processor, wholesaler/distributor, grocer, and restaurant sectors. While the loss of jobs and economic activity in the harvester and dealer/processor sectors may seem reasonable in response of declines in fish revenues due to potentially limited substitution opportunities, similar losses in other sectors are less reasonable. As presented in Table 3.2.3.2, the economic activity associated with the estimated change in ex-vessel revenues is dominated by activity in the restaurant sector. Given dining substitution alternatives, including both imported and domestic seafood, as well as non-seafood fare, there should be little rational expectation that reduction in the supply of a single species, even a popular species like red grouper, would result in the loss of either the full amount or a substantial portion of the estimated associated economic activity. The same logic applies to activity in the grocers sector and, to lesser degrees, secondary wholesalers/distributors and primary dealers/processors; each sector would be expected to attempt to locate and promote the sales of similar product from alternative sources or other products. Even should diners choose to eat out less in response to a reduced supply of domestic seafood, a portion of the food component of their affected restaurant expenditures would be expected to be re-directed to grocery expenditures, while a portion of the recreational (entertainment) component of their affected restaurant expenditures would be expected to be re-directed towards other recreational activities. The remaining portion of their affected restaurant expenditures would be expected to be redirected to other budget expenses. As a result, while the resulting economic activity associated with these behavioral changes would no longer be associated with the domestic fishery for the regulated species, the economic activity in certain sectors would likely be maintained rather than lost.

In summary, the following results capture neither the behavioral possibilities within the fishing industry itself nor the substitution possibilities in associated sectors. Some loss of economic activity in some sectors and communities is likely unavoidable in response to reduced commercial ex-vessel revenues. However, loss of the total economic activity associated with these revenues is less likely.

Table 3.2.3.2 provides estimates of the potential change in economic activity associated with the estimated change in commercial ex-vessel revenues for **Alternatives 2 and 3** relative to **Alternative 1**. Based on an estimated decrease in ex-vessel values of approximately \$2.71 million (2008 dollars) in 2010, **Alternative 2** is expected to result in the loss of support a total of 510 FTE jobs, approximately \$15.13 million in income impacts, and approximately \$35.65 million in output (sales) impacts relative to **Alternative 1**. Consistent with the lower total allowable catch in **Preferred Alternative 3** relative to **Alternative 2**, **Preferred Alternative 3** is expected to also be associated with greater decreases in economic activity relative to **Alternative 1**. However, the effects on the economic environment from **Alternative 1** may be have greater negative long term effects if fishing at higher TAC levels leads to the stock being overfished and subsequent TACs need to be reduced to allow the stock to recover.

Table 3.2.3.2. Potential decreases in economic activity and employment associated with the estimated losses in ex-vessel values relative to Alternative 1. All dollar values are in 2008 dollars.

| Industry Sector | Alternative 2 | Preferred Alternative 3 |
|------------------------------------|---------------|-------------------------|
| Ex-vessel values | \$2,707,500 | \$4,075,500 |
| Harvesters | | |
| Employment impacts (FTE jobs) | 67 | 100 |
| Income Impacts | \$2,232,733 | \$3,361,000 |
| Output Impacts | \$5,803,083 | \$8,735,000 |
| Primary dealers/processors | | |
| Employment impacts (FTE jobs) | 41 | 61 |
| Income Impacts | \$1,877,375 | \$2,826,000 |
| Output Impacts | \$5,841,734 | \$8,793,000 |
| Secondary wholesalers/distributors | | |
| Employment impacts (FTE jobs) | 34 | 51 |
| Income Impacts | \$1,837,235 | \$2,766,000 |
| Output Impacts | \$4,307,762 | \$6,484,000 |
| Grocers | | |
| Employment impacts (FTE jobs) | 20 | 31 |
| Income Impacts | \$764,507 | \$1,151,000 |
| Output Impacts | \$1,663,138 | \$2,503,000 |
| Restaurants | | |
| Employment impacts (FTE jobs) | 348 | 524 |
| Income Impacts | \$8,481,116 | \$12,766,000 |
| Output Impacts | \$18,032,576 | \$27,144,000 |
| Total | | |
| Employment impacts (FTE jobs) | 510 | 768 |
| Income Impacts | \$15,192,965 | \$22,869,000 |
| Output Impacts | \$35,648,293 | \$53,660,000 |

3.2.3.4 Effects of Action 2: Buoy gear labelling

Alternative 1, which would not require marking of buoy gear is not expected to result in direct economic effects. However, this status quo alternative could be associated with indirect adverse economic effects that would result from added difficulties in monitoring and enforcing buoy gear regulations.

Preferred Alternative 2, which would require fishermen to display the official number of their vessel on each buoy used, is expected to ease the monitoring and enforcement of regulations relative to buoy gear. As such it is anticipated that **Preferred Alternative 2** would result in positive economic effects due to better monitoring and enforcement of regulations. However, relatively small expenses are expected to be incurred by fishermen using buoy gear to cover the costs of identifying the gear, e.g., paint and time required to apply the paint on the gear. The

economic costs to be supported by fishermen can be approximated based on the amount of time that would be required to identify the buoys. Expenses associated with the identification requirement are based on the fact that all commercial reef fish permit holders could elect to use buoy gear, and assume that an average of 20 buoys are used per vessel, and that 20 minutes are required to properly identify each buoy. Thus, for the 951 active or renewable commercial reef fish permits, a total of 6,340 hours would be required to identify the buoys. Economic costs incurred would total \$80,812, assuming an average nominal wage for fishers and fishing related workers of \$12.74¹⁷.

3.2.4 Direct and Indirect Effects on the Social Environment

Action 1 in this Amendment considers alternatives that would maintain or reduce the total allowable catch for red grouper in 2011. As noted in section 3.2.3, no adverse economic effects are expected to accrue to the recreational sector as a result of this action. Thus, potential direct adverse social effects on communities would only occur as a result of the potential reduction in the commercial sector's quota. In general, these adverse effects would be the result of potential reductions in revenue due to reduced commercial red grouper landings. A reduction in the commercial sector's quota could directly reduce the revenues and profits of businesses in the harvesting sector, and indirectly reduce the revenue and profits of dealers and other associated businesses, such as fishing gear and fuel suppliers, seafood markets, and seafood restaurants, as well as the incomes of individuals and households associated with these businesses. Revenue and profit reductions could lead to job losses in these sectors as well.

Alternative 1 (status quo) would maintain the current commercial quota of 5.75 MP in 2011 and, as a result, would not be expected to result in any adverse social effects on communities. However, this conclusion does not necessarily imply that the commercial sector would harvest the entire quota in 2011. As previously noted, red grouper landings in 2008 and 2009 (preliminary) were 5.55 and 4.27 MP respectively. Thus, recent history indicates that the commercial sector has not been harvesting its quota. It is still unclear how the commercial sector will perform under the new grouper/tilefish IFQ program. However, it does appear that the longline gear restrictions initially implemented in 2009 led to a relatively significant reduction in landings. Though modified, these restrictions became permanent in 2010. When combined with the limitation on the number of vessels allowed to use this gear under the endorsement program, it would seem likely that landings will continue to be relatively low by recent standards, even though vessels are expected to adapt to the new regulations by changing their gear and/or their red grouper shares and allocations. Further, as of June 30, 2010, only approximately 22% of the commercial quota had been harvested. As discussed in section 2.3.1.2, a relatively large number of shareholders holding a significant proportion of the 2010 allocation have not recently been active in the fishery, which may also partially explain the lower level of landings. In addition, many other shareholders' landings were not at or near their initial 2010 allocations. Thus, these shareholders may have "excess" allocation that may not be harvested under the status quo. Though other factors than those considered and discussed previously may also partly explain the reduced level of landings, and it is unclear whether those factors will continue to play a role in

¹⁷ The average wage rate of \$12.79/hour (<http://www.bls.gov/oes/2009/may/oes453011.htm>) provided by the Bureau of Labor Statistics was converted to 2008 dollars

2011, this fact provides additional evidence that it is unlikely the commercial sector would harvest its quota under **Alternative 1** in 2011. Exactly how much of the quota would be harvested under **Alternative 1** cannot be determined with current information.

Alternative 2 would decrease the commercial red grouper quota to 4.80 MP. Thus, the commercial sector's quota would be reduced by .95 MP or approximately 16.5% relative to **Alternative 1**. Although the quota reduction would not reduce the shares held by red grouper shareholders, it would reduce each shareholder's allocation proportionally (i.e. by 16.5%). If the commercial sector would have otherwise harvested its entire quota in 2011, then a proportional reduction in gross revenue (estimated at \$2.63 million) would be expected to occur for shareholders and their respective vessels. However, this reduction should be considered a maximum since, as previously noted, there is reason to believe that the entire quota would not be harvested in the aggregate. Specifically, this reduced quota is less than the 2008 landings but greater than the 2009 landings. As previously noted, landings data through the first half of the year suggest that 2010 landings will be even less.

However, the issue is not simply whether the reduced quota would restrict the aggregate harvest, but rather whether each shareholder's intended 2011 landings would be restricted by its reduced allocation under **Alternative 2** but not its allocation under **Alternative 1**. If a shareholder's intended 2011 landings would be restricted by its allocation under **Alternative 2** but not its allocation under **Alternative 1**, then **Alternative 2** would have a direct adverse effect on the shareholder relative to **Alternative 1** via a reduction in landings and gross revenue, which would likely translate into a reduction in profits, income and social well-being. These reductions would in turn adversely affect the individuals directly associated with the shareholder's vessel (e.g. captain, crew, and their respective households) and entities that conduct business with the shareholder's harvesting operations. For example, lower landings and revenue will generally translate into reduced spending on fuel, fishing supplies, and boat/gear maintenance services, which reduces the flow of revenue and income for the businesses that supply these products and services. Further, lower landings will lead to reduced purchases for seafood dealers, which will in turn reduce sales to seafood wholesalers and distributors, retailers, and restaurants. In general, the greater the reduction in landings and revenue in the harvesting sector, the greater will be the reduction in the flow of income in other associated sectors and thus social well-being.

From a community level perspective, whether these adverse effects will take place, as well as the absolute magnitude and relative importance of such, is a function of many other factors, including but not limited to those accounted for and discussed in section 2.4 regarding the strength of each community's relationship to the red grouper fishery as well as its general dependence on fishing. However, an additional factor is the geographic distribution of shareholders and associated vessels across communities, and the dealers to which they intend to sell their red grouper landings, with respect to those for which their reduced allocations under **Alternative 2** would be restrictive but their allocations under the status quo (**Alternative 1**) would not be restrictive on their 2011 harvests. That is, given other existing conditions, their intended 2011 landings would be at or below their allocations under **Alternative 1** but above their allocations under **Alternative 2**. For example, if a community is highly associated with shareholders and vessels for which their reduced allocations under **Alternative 2** would not be restrictive, then the adverse social effects under **Alternative 2** would likely be minimal, possibly non-existent, and thus equivalent to the status quo (**Alternative 1**).

Conversely, for communities strongly associated with shareholders and vessels for which their reduced allocations under **Alternative 2** would constrain their landings below their intended 2011 harvests, but would not be constrained the status quo, the direct and indirect adverse social effects under **Alternative 2** would be greater. Further, the more restrictive their reduced allocations under **Alternative 2**, the greater the adverse social effects will be. Shareholders could purchase additional allocation if their reduced allocations under **Alternative 2** are restrictive. However, purchases of quota allocation would constitute an additional expense for shareholders and their vessels under **Alternative 2**, which would still reduce their profits, income, and welfare below what would be experienced under the status quo (**Alternative 1**).

The critical point is that the probability an individual shareholder's quota allocation will be restrictive on its 2011 landings, and the likely magnitude of that restriction, will be greater and therefore the probability of lower landings and revenue in the harvesting sector is greater under **Alternative 2** than under the status quo (**Alternative 1**). Therefore, the probability that direct and indirect adverse social effects will take place and the magnitude of such for red grouper shareholders, their harvesting operations, and associated businesses and communities is greater under **Alternative 2** than under the status quo (**Alternative 1**). In turn, it is expected that social well-being will be less under **Alternative 2** than under the status quo (**Alternative 1**).

The geographic distribution of shareholders and associated vessels across communities in this respect is not known with a high degree of certainty. However, if their distribution is generally random across communities (i.e. there is no geographic "bias" with respect to the distribution of shareholders and vessels whose 2011 landings would be constrained by their allocations under **Alternative 2** but not under **Alternative 1**), then the community rankings in Table 2.4.5 should generally reflect the distribution of any direct and indirect social effects that would occur under **Alternative 2**. Thus, it would be expected that the greatest adverse effects would occur in the communities of Panama City, Madeira Beach, and Apalachicola and Pinellas County in general (including the communities of St. Petersburg, Clearwater, Tarpon Springs, and Redington Shores). Lesser adverse effects would likely be experienced in Steinhatchee, Crystal River, Tampa, and Panacea.

Preferred Alternative 3 would decrease the commercial red grouper quota to approximately 4.32 mp. Thus the commercial sector's quota would be reduced by 1.43 MP or nearly 25%. Although the quota reduction would not reduce the shares held by red grouper shareholders, it would reduce each shareholder's allocation proportionally (i.e. by approximately 25%). If the commercial sector would have otherwise harvested its entire quota in 2011, then a proportional reduction in gross revenue, estimated at \$3.95 million, would be expected to occur for shareholders and their respective vessels. Again, this reduction should be considered a maximum since there is reason to believe that the entire quota would not be harvested in the aggregate. Specifically, this reduced quota is less than the 2008 landings but nearly equivalent to the 2009 landings. Landings data through the first half of the year suggest that 2010 landings will be even less.

As noted above, the issue not simply whether the reduced quota would restrict the aggregate harvest, but rather whether each shareholder's intended 2011 landings would be restricted by its reduced allocation under **Preferred Alternative 3** but not its allocation under **Alternative 1**. If

a shareholder's intended 2011 landings would be restricted by its allocation under **Preferred Alternative 3** but not its allocation under **Alternative 1**, then **Preferred Alternative 3** would have a direct adverse effect on the shareholder relative to **Alternative 1** via a reduction in landings and gross revenue, which would likely translate into a reduction in profits, income and social well-being. Again, these reductions would lead to indirect adverse effects. In general, the greater the reduction in landings and revenue in the harvesting sector, the greater will be the reduction in the flow of income in other associated sectors and thus social well-being.

As explained above, from a community level perspective, whether these adverse effects will take place, as well as the absolute magnitude and relative importance of such, is a function of many other factors, including the geographic distribution of shareholders and associated vessels across communities, and the dealers to which they intend to sell their red grouper landings, with respect to those for which their reduced allocations under **Preferred Alternative 3** would be restrictive but their allocations under the status quo (**Alternative 1**) would not be restrictive on their 2011 harvests. That is, given other existing conditions, their intended 2011 landings would be at or below their allocations under **Alternative 1** but above their allocations under **Preferred Alternative 3**. For example, if a community is highly associated with shareholders and vessels for which their reduced allocations under **Preferred Alternative 3** would not be restrictive, then the adverse social effects under **Preferred Alternative 3** would likely be minimal, possibly non-existent, and thus equivalent to the status quo (**Alternative 1**).

Conversely, for communities strongly associated with shareholders and vessels for which their reduced allocations under **Preferred Alternative 3** would constrain their landings below their intended 2011 harvests, but would not be constrained the status quo, the direct and indirect adverse social effects under **Preferred Alternative 3** would be greater. Further, the more restrictive their reduced allocations under **Preferred Alternative 3**, the greater the adverse social effects will be. As under **Alternative 2**, shareholders could purchase additional allocation if their reduced allocations under **Preferred Alternative 3** are restrictive. However, purchases of quota allocation would constitute an additional expense for shareholders and their vessels under **Preferred Alternative 3**, which would still reduce their profits, income, and welfare below what would be experienced under the status quo (**Alternative 1**).

The critical point is that the probability an individual shareholder's quota allocation will be restrictive on its 2011 landings, and the likely magnitude of that restriction, will be greater and therefore the probability of lower landings and revenue in the harvesting sector is greater under **Preferred Alternative 3** than under the status quo (**Alternative 1**). Further, since the reduction in shareholders' allocations will be greater under **Preferred Alternative 3** than under **Alternative 2**, the probability an individual shareholder's quota allocation will be restrictive on its 2011 landings, and the likely magnitude of that restriction, will be greater and therefore the probability of lower landings and revenue in the harvesting sector is greater under **Preferred Alternative 3** than under **Alternative 2**. Therefore, the probability that direct and indirect adverse social effects will take place and the magnitude of such for red grouper shareholders, their harvesting operations, and associated businesses and communities is greater under **Preferred Alternative 3** than under **Alternative 2** or the status quo (**Alternative 1**). In turn, it is expected that social well-being will be less under **Preferred Alternative 3** than under **Alternative 2** or the status quo (**Alternative 1**).

As previously noted, the geographic distribution of shareholders and associated vessels across communities in this respect is not known with a high degree of certainty. However, if their distribution is generally random across communities, then the community rankings in Table 2.4.5 should generally reflect the distribution of any direct and indirect social effects that would occur under **Preferred Alternative 3**. Thus, as with **Alternative 2**, it would be expected that the greatest adverse effects would occur in the communities of Panama City, Madeira Beach, and Apalachicola and Pinellas County in general (including the communities of St. Petersburg, Clearwater, Tarpon Springs, and Redington Shores). Lesser adverse effects would likely be experienced in Steinhatchee, Crystal River, Tampa, and Panacea. Most importantly, the magnitude of the adverse social effects on these communities is expected to be greater under **Preferred Alternative 3** than under **Alternative 2**.

Action 2 in this Amendment considers alternatives regarding whether to require commercial reef fish fishermen who use buoy gear to mark it with their vessels' U. S. Coast Guard documentation number or a state vessel registration number. As described in Section 1.1, the Council and NMFS have determined that the current definition of buoy gear is ambiguous. Thus, a clearer definition of this gear type is being proposed. Enforceability of this revised definition will be difficult unless fishermen are required to mark their buoy gear with their vessels' Coast Guard documentation number or a state vessel registration number.

Alternative 1 is the no action alternative and would not require buoy gear to be marked. By not marking buoys, enforcement of buoy gear requirements would be very difficult. Law enforcement personnel would not be able to determine who set gear if left unattended. **Preferred Alternative 2** requires the buoys to be marked with the vessel's official identification number. This will assist law enforcement agencies in identifying illegally set gears they come across as they monitor the commercial sector.

Alternative 1, no action, would not require marking of buoy gear and is not expected to result in direct adverse social effects. However, this alternative could be associated with indirect adverse social effects that would result from additional problems in monitoring and enforcement of buoy gear regulations.

Preferred Alternative 2, which would require reef fish fishermen to display the official number of their vessel on each buoy used, is expected to ease the monitoring and enforcement of buoy gear regulations. As such, it is anticipated that **Preferred Alternative 2** would result in positive social effects as a result of improved monitoring and enforcement of these regulations. However, relatively small expenses are expected to be incurred by fishermen using buoy gear to cover the costs of identifying the gear, particularly the time required to mark the gear. Commercial reef fish fishermen must be knowledgeable of and abide by many existing federal and state regulations, which already require a considerable investment of their time. This new requirement will add to that burden and thus generate minimal direct, adverse social effects on these fishermen. However, any adverse social effects potentially resulting from this alternative are not likely to be discernible at the community level.

3.2.5 Direct and Indirect Effects on Administrative Environment

None of the **Action 1** alternatives (**Alternatives 1-3**) should result in any direct or indirect effects to the administrative environment, because the type of regulations needed to manage the fishery would remain unchanged regardless of what total allowable catch is set at. The National Marine Fisheries Service Office for Law Enforcement, in cooperation with state agencies, would continue to monitor regulatory compliance with existing regulations and National Marine Fisheries Service would continue to monitor both recreational and commercial landings to determine if landings are meeting or exceeding specified quota levels. The enforcement and administrative environments were recently enhanced with an individual fishing quota program for the commercial red grouper fishery, requiring National Marine Fisheries Service to monitor the sale of red grouper individual fishing quota shares, and a vessel monitoring systems in the reef fish fishery. Recordkeeping requirements for individual fishing quota shares have improved commercial quota monitoring and prevent or limit overages from occurring. The individual fishing quota and vessel monitoring system requirements have reduced the burden of monitoring compliance with commercial fishing regulations.

Action 2's Preferred Alternative 2 would have a positive effect on the administrative environment relative to **Alternative 1**. Requiring official vessel numbers on the buoys would enhance the ability of law enforcement agencies to check buoy gear in the field. If buoy gear was found to be out of compliance with the buoy gear definition, notices of violation could be issued to the owners of the vessel. Under **Alternative 1**, enforcement agencies would have to catch someone in the act of deploying illegal buoy gear in order to issue a notice of violation.

3.2.6 Cumulative Effects

The cumulative effects from setting the red grouper TAC have been analyzed in Amendment 30B, and cumulative effects to the reef fish fishery have been analyzed in Amendments 30A, 30B, and 31, and are incorporated here by reference. The effects of setting total allowable catch in this regulatory amendment are most closely aligned with the effects from the revisions to setting red grouper TAC in Amendment 30B. This analysis found the effects on the biophysical and socioeconomic environments are positive since they would ultimately restore/maintain the stock at a level that allows the maximum benefits in yield and commercial and recreational fishing opportunities to be achieved. However, short-term negative impacts on the fisheries' socioeconomic environment have occurred and are likely to continue due to the need to limit directed harvest and reduce bycatch mortality. These negative impacts can be minimized by selecting measures that would provide the least disruption to the fishery while maintaining total allowable catch consistent with the rebuilding plan. For the recreational sector (not analyzed in detail for this action but to be considered in Amendment 32), this would mean using combinations of bag limits, size limits and closed seasons to minimize disruptions, and for the commercial sector by using a combination of size limits with the individual fishing quota program. Given reductions in harvest needed for gag, further constraints may need to be applied to red grouper regulations to minimize gag regulatory discards.

There is a large and growing body of literature on past, present, and future impacts of global climate change induced by human activities. Some of the likely effects commonly mentioned are sea level rise, increased frequency of severe weather events, and change in air and water temperatures. The Environmental Protection Agency's climate change webpage provides basic background information on these and other measured or anticipated effects. Global climate

changes could have significant effects on Gulf fisheries; however, the extent of these effects is not known at this time. Possible impacts are outlined in Amendment 31 (GMFMC 2009) and the 2010 Red Snapper Regulatory Amendment (GMFMC 2010). In addition, the DeepwaterHorizon MC252 oil spill that occurred in April 2010 may affect red grouper populations. However, the effects of this spill on red grouper and other reef fish populations are not understood at this time because the effects of the spill are still ongoing even though the well head has been capped. If the spill impacts important habitat for these species or interrupt critical life history stages, the effects could reduce these specie's population sizes.

The effects of the proposed action are, and will continue to be, monitored through collection of landings data by National Marine Fisheries Service, stock assessments and stock assessment updates, life history studies, economic and social analyses, and other scientific observations. Landings data for the recreational sector in the Gulf of Mexico is collected through Marine Recreational Fisheries Statistics Survey, National Marine Fisheries Service' Head Boat Survey, and the Texas Marine Recreational Fishing Survey. Marine Recreational Fisheries Statistics Survey is currently being replaced by Marine Recreational Information Program, a program designed to improve the monitoring of recreational fishing. Commercial data is collected through trip ticket programs, port samplers, and logbook programs. Currently, an update SEDAR assessment of Gulf of Mexico red grouper is scheduled for 2013. In response to the Deepwater Horizon MC252 oil spill, increased frequency of surveys of the recreational sector's catch and effort, along with additional fishery independent information regarding the status of the stock are being made. This will allow future determinations regarding the impacts of the Deepwater Horizon MC252 oil spill on various fishery stocks, including red snapper. At this time it not possible to make such determinations.

4.0 REGULATORY IMPACT REVIEW

4.1 Introduction

The National Marine Fisheries Service requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: 1) provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action; 2) provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem; and, 3) ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. The RIR also serves as the basis for determining whether the proposed regulations are a "significant regulatory action" under the criteria provided in Executive Order (E.O.) 12866 and provides some information that may be used in conducting an analysis of impacts on small business entities pursuant to the Regulatory Flexibility Act (RFA). This RIR analyzes the impacts that the proposed management alternatives in this regulatory amendment to the Reef Fish FMP would be expected to have on the red grouper fishery.

4.2 Problems and Objectives

The problems and objectives addressed by this regulatory amendment are discussed in Section 1.2 of this document and are incorporated herein by reference. In summary, management measures considered in this regulatory amendment are intended to decrease the red grouper total allowable catch and make the resulting recreational and commercial quotas consistent with goals and objectives of the Council's plan to manage red grouper to achieve the mandates of the Magnuson-Stevens Act. This action also intends to require identification of buoy gear use in the Gulf of Mexico.

4.3 Description of Fisheries

A description of the Gulf red grouper fishery is provided in Section 2.3 of this document and is incorporated herein by reference.

4.4 Impacts of Management Measures

4.4.1 Action 1: Set Red Grouper Total Allowable Catch

A detailed analysis of the economic effects expected to result from this action is provided in Section 3.2.3 and is incorporated herein by reference. In addition to a no action alternative (**Alternative 1**), **Action 1** considers decreases in red grouper total allowable catch. **Alternative 2**, which is based on the recommendation made by the Council's Scientific and Statistical Committee, would decrease the commercial red grouper annual catch limit to 4.80 MP. **Preferred Alternative 3** would further decrease the commercial red grouper annual catch limit to approximately 4.32 MP. For the commercial sector, greater decreases in total allowable catch are expected to result in greater losses in economic benefits. Hence, the largest decrease in economic benefits is anticipated to be associated with **Preferred Alternative 3**. The Council selected **Preferred Alternative 3** because the TAC set from this alternative would have the

lowest probability of overfishing of any of the considered alternatives. **Alternative 2** is expected to result in a decrease in gross revenues of approximately \$2.63 million relative to **Alternative 1**, while **Preferred Alternative 3** would be expected to result in losses in gross revenues of approximately \$3.95 million.

4.4.2 Action 2: Buoy gear labelling

A detailed analysis of the economic effects expected to result from this action is provided in Section 3.2.3 and is incorporated herein by reference. In addition to the no action alternative (**Alternative 1**), **Action 2** considers identification requirements for buoy gear used in the Gulf of Mexico. **Preferred Alternative 2** would require vessel owner to display the vessel identification number on each buoy. Economic costs expected to result from **Preferred Alternative 2** are estimated at \$80,812. **Preferred Alternative 2** is expected to result in better enforcement and monitoring of regulations relative to buoy gear.

4.5 Public and Private Costs of Regulations

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

| | |
|--|----------|
| Council costs of document preparation, meetings, public hearings, and information dissemination..... | \$35,000 |
| NMFS administrative costs of document preparation, meetings, and review | \$30,000 |
| TOTAL..... | \$65,000 |

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

4.6 Determination of Significant Regulatory Action

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

materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order. Based on the information provided above, this action has been determined to not be economically significant for purposes of E.O. 12866.

5.0 REGULATORY FLEXIBILITY ACT ANALYSIS

5.1 Introduction

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

With certain exceptions, the RFA requires agencies to conduct an initial (IRFA) for each proposed rule. The IRFA is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. An IRFA is conducted to primarily determine whether the proposed action would have a “significant economic impact on a substantial number of small entities.” In addition to analyses conducted for the RIR, the IRFA provides: 1) A description of the reasons why action by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for, the proposed rule; 3) 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; and, 5) an identification, to the extent practicable, of all relevant federal rules, which may duplicate, overlap, or conflict with the proposed rule.

5.2 Statement of the need for, objectives of, and legal basis for the rule

A discussion of the reasons why action by the agency is being considered is provided in Section 1.2 of this document and is incorporated herein by reference. In summary, the purpose of this proposed rule is to set the red grouper total allowable catch and the resulting recreational and commercial quotas consistent with the goals and objectives of the Council’s red grouper rebuilding plan and achieving the mandates of the Magnuson-Stevens Act. The objective of this amendment is to allow the red grouper resource in the Gulf of Mexico to recover and allow harvest at optimum yield. The Magnuson-Stevens Act provides the statutory basis for this proposed rule.

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

This proposed rule is expected to directly affect commercial fishing vessels whose owners possess commercial Gulf reef fish permits or red grouper fishing quota shares. The Small Business Administration has established size criteria for all major industry sectors in the U.S.

including fish harvesters. A business involved in fish harvesting is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of \$4.0 million (NAICS code 114111, finfish fishing) for all its affiliated operations worldwide.

As of August 10, 2010, 951 entities possessed a valid or renewable Gulf of Mexico reef fish permit. All of these entities could be directly affected by the proposed action to require vessels with commercial Gulf reef fish permits to mark their buoy gear.

As of October 1, 2009, 970 entities owned a valid commercial Gulf of Mexico reef fish permit and thus were eligible for initial shares and allocation in the grouper/tilefish IFQ program. Of these 970 entities, 908 entities initially received shares and allocation of grouper or tilefish, and 815 entities specifically received red grouper shares and an initial allocation of the commercial sector's red grouper quota in 2010.

Of these 815 entities, 191 were not commercially fishing in 2008 or 2009 and thus have no commercial fishing revenue during these years. On average, these 191 entities received an initial allocation of 6,459 pounds of red grouper in 2010. Eight of these entities also received a bottom longline endorsement in 2010. These eight entities received a much higher initial allocation of red grouper in 2010, with an average of nearly 44,000 pounds. The other 624 entities that received red grouper shares and initial allocations in 2010 were active in commercial fisheries in 2008 or 2009. These 624 entities are expected to be directly affected by the proposed action to reduce the red grouper commercial quota.

The maximum annual commercial fishing revenue in 2008 or 2009 by an individual vessel with a commercial Gulf reef fish permit or red grouper fishing quota shares was approximately \$606,000 (2008 dollars). Based on this figure, all commercial fishing vessels expected to be directly affected by this proposed rule are determined for the purpose of this analysis to be small business entities.

Of the 624 commercial fishing vessels with commercial landings in 2008 or 2009, 126 vessels did not have any red grouper landings in 2008 or 2009. Their average annual gross revenue in these two years was approximately \$55,800 (2008 dollars). The vast majority of these vessels' commercial fishing revenue is from landings of snapper, mackerel, dolphin, and wahoo. However, they did become relatively more dependent on landings of HMS species and relatively less dependent on landings of deep-water grouper species in 2009. On average, these vessels received an initial allocation of 2,524 pounds of red grouper quota in 2010. Five of these vessels also received a bottom longline endorsement in 2010.

The other 498 commercial fishing vessels did have landings of red grouper in 2008 or 2009. Their average annual gross revenue from commercial fishing was approximately \$66,000 (2008 dollars) between the two years. On average, these vessels had 9,425 pounds and 6,734 pounds of red grouper landings in 2008 and 2009 respectively, or 8,053 pounds between the two years. Red grouper landings accounted for approximately 35% of these vessels' annual average gross revenue, and thus they are relatively dependent on revenue from red grouper landings. These vessels' average initial red grouper allocation in 2010 was 8,404 pounds. Therefore, on average, their recent red grouper landings are very near their 2010 red grouper allocation, though their red

grouper landings differed considerably between 2008 and 2009. Forty-nine of these vessels also received a bottom longline endorsement in 2010. These particular vessels' average annual revenue was approximately \$156,000 (2008 dollars) in 2008 and 2009. Revenue from red grouper landings fell from approximately \$104,000 to \$65,000 in 2009. Nonetheless, these vessels remain highly dependent on revenue from red grouper landings, which averaged approximately 36,000 pounds in 2008 and 23,000 pounds in 2009. Their average initial 2010 allocation of red grouper was approximately 42,000 pounds and thus they have been harvesting within that allocation in recent years, particularly in 2009.

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

This proposed rule would require vessels with commercial Gulf reef fish permits to mark their buoy gear with their Coast Guard documentation number or a state vessel registration number. All vessels with valid commercial Gulf reef fish permits are allowed to and thus could potentially use buoy gear. Thus, this requirement could potentially apply to all 951 vessels with valid or renewable commercial Gulf reef fish permits. The most significant burden imposed by this requirement is the time needed to mark the gear. Under the proposed definition of buoy gear, the maximum number of buoys per vessel is 20. It is estimated that it will take approximately 20 minutes to mark each buoy. Thus, the annual time burden per vessel is approximately 6.67 hours. According to the most recent data from the BLS, the average nominal wage for fishers and fishing related workers is \$12.79 (<http://www.bls.gov/oes/2009/may/oes453011.htm>), or \$12.74 in 2008 dollars. This value is used as a monetary estimate of the opportunity cost of time on a per hour basis. Thus, the annual opportunity cost per vessel resulting from this requirement is estimated to be approximately \$85. For all 951 vessels with valid or renewable commercial Gulf reef fish permits, the annual opportunity cost is estimated to be \$80,812.

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

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

5.6 Significance of economic impacts on small entities

Substantial number criterion

This proposed rule, if implemented, would be expected to directly affect 951 commercial fishing entities. All affected entities have been determined, for the purpose of this analysis, to be small entities. Therefore, it is determined that the proposed rule will affect a substantial number of small entities.

Significant economic impacts

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

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

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

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

The proposed action to require vessels with valid commercial Gulf reef fish permits to mark their buoy gear is expected to impose a minimal time burden and thus only opportunity costs on each vessel. Therefore, it is not expected to reduce the profits of small entities.

Of the 815 entities that received red grouper shares and an initial allocation of the commercial quota in 2010, 191 entities did not participate in commercial fishing in 2008 or 2009. Thus, they have no commercial fishing revenue and did not earn profits from commercial fishing in those two years. On average, these vessels received an initial allocation of 6,459 pounds of red grouper quota in 2010. Under the proposed action to decrease the red grouper quota, their average allocation of red grouper in 2011 would be reduced by approximately 1,608 pounds to 4,851 pounds. Using the 2008 average price of \$2.85 per pound, this loss in allocation could potentially represent a loss of nearly \$4,600 in gross revenue per entity. For the eight entities with red grouper shares that also possess longline endorsements, their average allocation of red grouper would be reduced by nearly 11,000 pounds from approximately 44,000 pounds to 33,000 pounds. Thus, their potential loss in gross revenue, estimated to be nearly \$31,400, could be much higher. However, in general, this potential loss in gross revenue could only lead to a loss in profits if these entities not only become active in commercial fishing, but specifically intend to harvest red grouper in 2011 and at a level above their reduced allocation. That is, a reduction in allocation can only lead to a reduction in landings if these entities intend to harvest at levels above their reduced allocation. Alternatively, these losses in gross revenue could be due to these entities’ inability to sell the allocations they are losing under the proposed action, though this possibility presumes that a demand for these allocations exists. Regardless, the significance of this potential loss in gross revenue to these 191 entities cannot be evaluated given the lack of information on potential gross revenue and profits from commercial fishing in general and specifically for red grouper.

Similarly, for the 126 entities with red grouper shares that participated in commercial fisheries other than red grouper, they earned approximately \$55,800 in annual gross revenue on average in 2008 and 2009. Profit estimates for these vessels are not currently available. However, since they did not have any red grouper landings, none of their gross revenue and thus none of their potential profits were the results of red grouper harvests. On average, these vessels received an initial allocation of 2,524 pounds of red grouper in 2010. Under the proposed action to decrease the red grouper quota, their average allocation of red grouper in 2011 would be reduced by approximately 629 pounds to 1,895 pounds. Using the 2008 average price of \$2.85 per pound,

this loss in allocation could potentially represent a loss of nearly \$1,800 in gross revenue per entity. However, this potential loss in gross revenue could only lead to a loss in profits if these entities intend to become active in the red grouper fishery in 2011 and at a level above their reduced allocation. That is, a reduction in allocation can only lead to a reduction in landings if these entities intend to harvest at levels above their reduced allocation. Thus, for example, if it were assumed that these vessels intended to harvest red grouper in 2011 at a level equivalent to their 2010 allocation, and this harvest was in addition to, rather than in place of, their recent commercial fishing activities, the reduction in allocation could lead to a maximum loss of approximately 3% in gross revenue which could in turn reduce profits. Alternatively, these losses in gross revenue could be due to these entities' inability to sell the allocations they are losing under the proposed action, though this possibility presumes that a demand for these allocations exists.

For the 498 entities with red grouper shares that participated in the commercial red grouper fishery in 2008 or 2009, they earned approximately \$66,000 in annual gross revenue on average in 2008 and 2009. Profit estimates for these vessels are not currently available. However, red grouper landings accounted for approximately 35% of these vessels' annual average gross revenue, and thus they are relatively dependent on revenue from red grouper landings. Under the proposed action to decrease the commercial red grouper quota, these vessels' red grouper allocations would be reduced by approximately 2,092 pounds from 8,404 pounds to 6,312 pounds on average. As these vessels have been harvesting at levels near their 2010 allocation in recent years on average, this reduction in red grouper allocation is likely to lead to a reduction in red grouper landings and therefore gross revenue. Using the average 2008 price of \$2.85 per pound, it is estimated that these vessels could lose nearly \$6,000, or approximately 9%, in annual gross revenue on average. A loss in gross revenue of this magnitude would likely lead to a reduction in profits.

However, 49 of these vessels also received a bottom longline endorsement in 2010. These particular vessels' average annual revenue was approximately \$156,000 in 2008 and 2009, of which revenue from red grouper landings accounted for approximately 54%. Thus, these vessels are highly dependent on revenue from red grouper landings, which averaged approximately 36,000 pounds in 2008 and 23,000 pounds in 2009. Under the proposed action, their allocation of red grouper in 2011 would decrease by approximately 10,400 pounds from 41,800 pounds to 31,400 pounds. For these particular vessels, the loss in red grouper landings could range from zero to the full amount of the decrease in allocation, though the latter seems unlikely. Even if these vessels intended to harvest red grouper in 2011 at levels comparable to 2008, prior to the implementation of regulations restricting the use of longline gear, they would only lose approximately 4,600 pounds in red grouper landings rather than the full amount of their reduced allocation. This loss in landings is estimated to be valued at approximately \$13,000 in gross revenue, or 8% of their average annual gross revenue. Such a loss in gross revenue would likely reduce their profits. However, if they intend to harvest at levels comparable to 2009, then their reduced allocation would still be above their intended landings. Therefore, the reduction in allocation would not lead to a reduction in landings from what they would otherwise have been and thus gross revenue and profits would also not be reduced.

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

Two alternatives, including the status quo, were considered for the action to reduce the red grouper TAC and commercial quota to 5.68 and 4.32 MP respectively. The first alternative, the status quo, would have maintained the red grouper TAC and commercial quota at their current levels of 7.57 MP and 5.75 MP respectively. This alternative is not consistent with the goals and objectives of the Council's plan to manage red grouper to achieve the mandates of the Magnuson-Stevens Act. Specifically, this alternative would be inconsistent with current National Standard 1 guidance because the TAC would be above the acceptable biological catch of 6.31 MP recommended by the Council's SSC.

The second alternative would have would set the red grouper TAC at the SSC's ABC recommendation of 6.31 MP, the highest level allowed, and the commercial quota at 4.80 MP. This amount is equal to 85% of the yield at F_{MSY} , which the SSC considered sufficient to reduce the probability that overfishing might occur in 2011. However, this alternative is inconsistent with the method established by the Council in Amendment 30B where the annual catch target would be based on the yield associated with the fishing mortality associated with the optimum yield (F_{OY}).

One alternative, the status quo, was considered for the action to require vessels with valid commercial Gulf reef fish permits to mark buoy gear with their U. S. Coast Guard documentation number or a state vessel registration number. The Council and NMFS have determined that the current definition of buoy gear is ambiguous. This ambiguity has led to problems with monitoring and enforcement of buoy gear regulations and thus a clearer definition of this gear type is being proposed. By not requiring the marking of buoy gear, this alternative would not improve the monitoring and enforcement of buoy gear regulations since law enforcement personnel would not be able to determine which vessel set the gear if left unattended.

6.0 OTHER APPLICABLE LAW

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

Administrative Procedures Act

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

Coastal Zone Management Act

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

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

Data Quality Act

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

Specifically, the 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.

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

Endangered Species Act

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

Marine Mammal Protection Act

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

Part of the responsibility that National Marine Fisheries Service has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as “depleted,” and a conservation plan

is developed to guide research and management actions to restore the population to healthy levels.

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

Under section 118 of the MMPA, National Marine Fisheries Service must publish, at least annually, a List of Fisheries (LOF) that places all U.S. commercial fisheries into one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in each fishery. The categorization of a fishery in the LOF determines whether participants in that fishery may be required to comply with certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan requirements. The reef fish fishery is classified as a Category III fishery indicating it has minimal impacts on marine mammals (see Section 2.2.2 of this regulatory amendment).

Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501 et seq.) regulates the collection of public information by federal agencies to ensure the public is not overburdened with information requests, the federal government's information collection procedures are efficient, and federal agencies adhere to appropriate rules governing the confidentiality of such information. The PRA requires National Marine Fisheries Service to obtain approval from the OMB before requesting most types of fishery information from the public.

Executive Orders

E.O. 12630: Takings

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

E.O. 12866: Regulatory Planning and Review

Executive Order 12866: Regulatory Planning and Review, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, National Marine Fisheries Service prepares a RIR for all fishery regulatory actions that either implement a new fishery management plan or significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society of proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major

alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations would have a significant economic impact on a substantial number of small entities in compliance with the RFA. A regulation is significant if it a) has an annual effect on the economy of \$100 million or more or adversely affects in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments and communities; b) creates a serious inconsistency or otherwise interferes with an action taken or planned by another agency; c) materially alters the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or d) raises novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order. National Marine Fisheries Service has preliminarily determined that this action will not meet the economic significance threshold of any criteria.

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

This Executive Order mandates that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions. Federal agency responsibilities under this Executive Order include conducting their programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons from participation in, denying persons the benefit of, or subjecting persons to discrimination under, such, programs policies, and activities, because of their race, color, or national origin. Furthermore, each federal agency responsibility set forth under this Executive Order shall apply equally to Native American programs. Environmental justice considerations are discussed in detail in Section 2.5.

E.O. 12962: Recreational Fisheries

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

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 actions that they authorize, fund, or carry out do not degrade the condition of that ecosystem. By definition, a U.S. coral reef ecosystem means those species, habitats, and other national resources associated with coral reefs in all maritime areas and zones subject to the jurisdiction or control of the United States (e.g., federal, state, territorial, or commonwealth waters).

Regulations are already in place to limit or reduce habitat impacts within the Flower Garden Banks National Marine Sanctuary. Additionally, National Marine Fisheries Service approved and implemented Generic Amendment 3 for Essential Fish Habitat, which established additional HAPCs and gear restrictions to protect corals throughout the Gulf (see Section 2.1 of this regulatory amendment). There are no implications to coral reefs by the actions proposed in this amendment.

E.O. 13132: Federalism

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

No Federalism issues have been identified relative to the action proposed in this amendment. Therefore, consultation with state officials under Executive Order 12612 is not necessary.

E.O. 13158: Marine Protected Areas

This Executive Order requires federal agencies to consider whether their proposed action(s) will affect any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural or cultural resource within the protected area. There are several MPAs, HAPCs, and gear-restricted areas in the eastern and northwestern Gulf (see Section 2.1 of this regulator amendment). The action in the regulatory amendment would not affect any areas reserved by federal, state, territorial, tribal or local jurisdictions.

Essential Fish Habitat

The amended Magnuson-Stevens Act included a new habitat conservation provision known as Essential Fish Habitat (EFH) that requires each existing and any new FMPs to describe and identify Essential Fish Habitat for each federally managed species, minimize to the extent

practicable impacts from fishing activities on EFH that are more than minimal and not temporary in nature, and identify other actions to encourage the conservation and enhancement of that EFH. To address these requirements the Council has, under separate action, approved an EIS (GMFMC 2004) to address the new EFH requirements contained within the Magnuson-Stevens Act. Section 305(b)(2) requires federal agencies to obtain a consultation for any action that may adversely affect EFH. An EFH consultation will be conducted for this action.

7.0 LIST OF PREPARERS

| Name | Expertise | Responsibility | Agency |
|---------------------|----------------------------------|--|--------|
| Mr. Steven Atran | Population Dynamics Statistician | Staff lead/Development of alternatives/Biological analyses | GMFMC |
| Dr. Assane Diagne | Economist | Economic analyses/Economic environmental consequences/RIR/Summary | GMFMC |
| Dr. Stephen Holiman | Economist | Economic review | SERO |
| Mr. Peter Hood | Biologist | Purpose and need/Rationale/ Physical, biological, and administrative affected environment/Ecological, biological, administrative and cumulative environmental consequences/ Other applicable law/Document review | SERO |
| Dr. Mike Jepson | Anthropologist | Social analyses | SERO |
| Mr. David Keys | NEPA Specialist | Regional NEPA review | SERO |
| Ms. Jennifer Lee | Biologist | Protected resources review | SERO |
| Dr. Carrie Simmons | Biologist | Document review | GMFMC |
| Mr. Andy Strelcheck | Biologist | Biological analyses | SERO |
| Dr. Mike Travis | Economist | Economic and social affected environments/Social environmental consequences/IRFA | SERO |
| Dr. Jim Waters | Economist | Economic analyses | SEFSC |

8.0 LIST OF AGENCIES CONSULTED

Gulf of Mexico Fishery Management Council
 NOAA Southeast Fishery Science Center
 NOAA SERO Protected Resources Division
 NOAA SER General Counsel

9.0 LITERATURE CITED

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