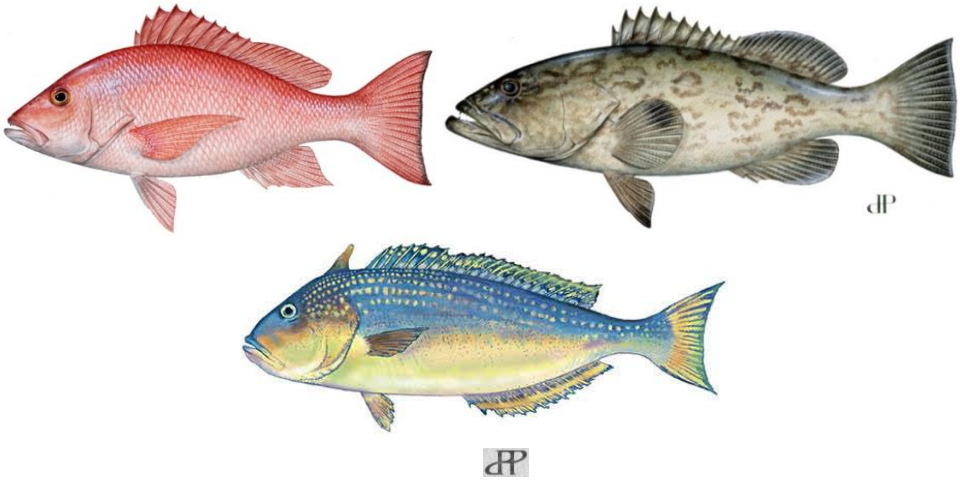
Tab B, No. 7
1/19/17

Modifications to Commercial Individual Fishing Quota Programs



Draft Amendment 36A
to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico including Environmental Assessment

January 2017

This is a publication of the Gulf of Mexico Fishery Management Council Pursuant to National Oceanic and Atmospheric Administration Award No. NA10NMF4410011.

This page intentionally blank

ENVIRONMENTAL ASSESSMENT COVER SHEET

Name of Action

Draft Amendment 36A to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico: Modifications to the Commercial Individual Fishing Quota Programs

Responsible Agencies and Contact Persons

Gulf of Mexico Fishery Management Council (Council)
2203 North Lois Avenue, Suite 1100
Tampa, Florida 33607
Ava Lasseter (Ava.Lasseter@gulfcouncil.org)

813-348-1630
813-348-1711 (fax)
gulfcouncil@gulfcouncil.org
http://www.gulfcouncil.org

National Marine Fisheries Service (Lead Agency)
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
Peter Hood (Peter.Hood@noaa.gov)

727-824-5305
727-824-5308 (fax)
http://sero.nmfs.noaa.gov

Type of Action

( ) Administrative
(X) Draft

( ) Legislative
( ) Final

ABBREVIATIONS USED IN THIS DOCUMENT

ACL	annual catch limit
AM	accountability measure
COI	certificate of inspection
Council	Gulf of Mexico Fishery Management Council
DPS	distinct population segment
DWG	deep-water 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
FMP	fishery management plan
GG	gag (grouper)
GSMFC	Gulf States Marine Fisheries Commission
GT-IFQ	grouper-tilefish individual fishing quota (program)
Gulf	Gulf of Mexico
IFQ	individual fishing quota
IPCC	Intergovernmental Panel on Climate Change
IRFA	initial regulatory flexibility analyses
ITQ	individual transferable quota
LEC	Law Enforcement Committee
LETC	Law Enforcement Technical Committee
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MMPA	Marine Mammal Protection Act
MSY	maximum sustainable yield
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OY	optimum yield
PAHs	polyaromatic hydrocarbons
PP	public participant
RA	Regional Administrator
Reef Fish FMP	Reef Fish Fishery Management Plan
RFA	regulatory flexibility analyses
RG	red grouper
RIR	regulatory impact review
RS-IFQ	red snapper individual fishing quota (program)
Secretary	Secretary of Commerce
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SSC	Scientific and Statistical Committee
SWG	shallow-water grouper
TAC	total allowable catch
TF	tilefish
TL	total length
VMS	vessel monitoring system

VOCs	volatile organic compounds

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1. INTRODUCTION

1.1 Background

Currently, there are two commercial individual fishing quota (IFQ) programs in the Gulf of Mexico (Gulf). Amendment 26[1] (GMFMC 2006) established the red snapper IFQ (RS-IFQ) program, and Amendment 29[2] (GMFMC 2008a) established the grouper and tilefish IFQ (GT-IFQ) program. The RS-IFQ program began on January 1, 2007 and the GT-IFQ program began on January 1, 2010.

As mandated by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and by Amendment 26, the Gulf of Mexico Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) collaboratively conducted a 5-year review of the RS-IFQ program (GMFMC and NMFS 2013), which was formally approved at the April 2013 Council meeting. The conclusions of the report are provided in Appendix B. The Council proceeded to appoint an Ad Hoc Red Snapper IFQ Advisory Panel to assist in recommending improvements to the program by identifying potential changes to the RS-IFQ program (Appendix C). The Council discussed a list of issues as potential modifications to the program at its February and April 2014 meetings and made modifications to the list. At its August 2014 meeting, the Council requested development of a scoping document to begin considering potential modifications to improve the performance of the RS-IFQ program. Scoping workshops were held in March 2015 (Appendix D).

At its January 2016 meeting, the Council decided to further evaluate the items under consideration in the scoping document in separate amendments (36A and 36B), and expanded the scope to apply the proposed actions to both the RS-IFQ and GT-IFQ programs. Amendment 36A addresses hail-in requirements for all commercial reef fish trips to enhance enforcement, what to do with quota held in inactive accounts, giving NMFS the authority to withhold IFQ allocation before an expected quota reduction, and adopting a dealer notification provision to notify NMFS of when a vessel will offload. Amendment 36B addresses the remaining items. The 5-year review of the GT-IFQ program is currently underway and the Council is expected to review a draft of the 5-year review sometime in 2017. It is important to note that both the RS-IFQ and GT-IFQ programs are managed under a common reporting system. This means that changes made to one program are likely to affect the other program. It is possible that future IFQ program reviews could be combined to evaluate all reef fish species managed under IFQs.

Prior to the division of Amendment 36 into sub-amendments, the potential changes to the RS-IFQ program evaluated in the scoping document were compiled from three sources: 1) previous Council discussions, 2) the conclusions and recommendations of the RS-IFQ program 5-year review, and 3) recommendations made by the Ad Hoc Red Snapper IFQ Advisory Panel. Administrative changes suggested to date, including changes proposed by the Ad Hoc Red Snapper IFQ Advisory Panel were omitted from this document because they were considered

[1] Reef Fish Amendment 26: Establish a Red Snapper Individual Fishing Quota Program
http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Amend26031606FINAL.pdf
[2] Reef Fish Amendment 29: Effort Management in the Commercial and Tilefish Fisheries
http://gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20Reef%20Fish%20Amdt%2029-Dec%2008.pdf

and included in a separate rule published in 2014 [79 FR 15287, March 19, 2014[3]]. A summary of the administrative changes was discussed at the April 2014 Council meeting.

Per the Magnuson-Stevens Act, the adoption of the RS-IFQ program in the Gulf required two referenda among eligible program participants: an initial referendum before development of the amendment and a final referendum before the amendment was submitted to the Secretary of Commerce. The Magnuson-Stevens Act only required a single referendum for the implementation of the GT-IFQ program, held after the program was developed and before the amendment was submitted to the Secretary of Commerce. An initial list of potential changes to the RS-IFQ program generated from the three sources above was submitted to the Office of the NOAA General Counsel for evaluation as to whether the changes to be considered would trigger referendum requirements. With the exception of the proposal to collect resource rent through auctions, which has been removed from further consideration, the Office of the NOAA General Counsel has advised that no referendum requirements apply to the development of this amendment.

IFQ Program Basics

- An IFQ **share** is a percentage of the commercial quota assigned to an IFQ participant, or shareholder. IFQ **allocation** refers to the actual pounds of fish represented by the shares that is possessed, landed, or sold during a given calendar year.
- At the beginning of each year, allocation is distributed to shareholders based on the share percentage held by the IFQ shareholder and the annual quota. Shares (percentage of the quota) and allocation (pounds available for the year) can be transferred among IFQ program participants.
- The transfer of shares equates to a sale of ownership of those shares and the transfer of allocation is a onetime transaction for the right to catch the quantity of pounds sold, often referred to as "leasing" by the public.
- **Appendix A** contains a glossary of terms used in the IFQ program.

Although the RS-IFQ and GT-IFQ programs were established through separate amendments and IFQ shares distributed independently for each program, both programs use the same web-based monitoring and reporting system. Therefore, the same shareholder, vessel, and dealer accounts are used to participate in both programs (i.e., a fisherman has one IFQ account that can be used for both the RS-IFQ and GT-IFQ programs). Additionally, shareholder accounts may hold and transfer shares and allocation from both programs, as well as land species in both programs. In 2013, of the 399 accounts with shares in the RS-IFQ program, 71% of those accounts also held

[3] http://www.gpo.gov/fdsys/pkg/FR-2014-03-19/pdf/2014-06065.pdf

shares in the GT-IFQ program. In that same year, of the 599 accounts that held red snapper allocation, 79% also held allocation in the GT-IFQ program; of the 368 vessels landing red snapper, 91% also landed grouper or tilefish. In addition, both programs follow the same regulations for landing notifications (hail-ins), offloading, cost-recovery fees, and account status determinations. This was in part the reason that the Council decided to expand the scope of this amendment to address both IFQ programs.

One of the Red Snapper 5-year review conclusions noted additional enforcement efforts may be necessary to deter violations, in addition to the requirement for the owner or operator of a vessel intending to land IFQ species to provide a landing notification, i.e., a hail-in. It was suggested that extending the hail-in requirement to all commercial reef fish trips, in addition to those landing IFQ species, would deter fishermen from illegally landing IFQ species. By extending the requirement to all commercial reef fish trips, law enforcement and port agents can be alerted in advance of trips returning to port and can meet vessels to inspect landings. Such a provision would also reduce illegal harvest of IFQ species that may not be reported or reported as another species (e.g., vermilion snapper).

Example: [shares] x [quota] = pounds of allocation

Shares = percentage of the total quota.
Allocation = pounds of the total quota represented by the shares.

Year 1
A shareholder has 3% of shares.
Quota is 1.0 mp.
The shareholder receives 30,000 lbs of allocation at beginning of year 1.

Year 2
The next year, the shareholder still has 3% of shares.
Quota increases to 1.5 mp.
The shareholder receives 45,000 lbs of allocation at beginning of year 2.

Year 3
During year 2, the shareholder sells 1% of shares (he now has 2% of shares).
Quota increases to 2.0 mp.
The shareholder receives 40,000 lbs of allocation at beginning of year 3.

The Red Snapper (RS-IFQ) Program

Prior to establishing the RS-IFQ program, the Gulf commercial red snapper fleet was overcapitalized, which means the collective harvest capacity of fishery vessels and participants was in excess of that required to efficiently take their share of the total allowable catch (Agar et al. 2014; Leal et al. 2005; Weninger and Waters 2003). This overcapacity caused commercial red snapper regulations to become increasingly restrictive over time, resulting in derby-style fishing conditions where participants compete with each other to harvest as many fish as possible

before the quota is met and the fishing season is closed (Weninger and Waters 2003). Solis et al. (2014) estimated that about one-fifth of the existing fleet could harvest the current commercial red snapper quota.

Derby-style fishing creates negative social and economic conditions, including reducing or eliminating considerations about weather conditions in deciding when to fish, adversely affecting safety at sea; flooding the market with fish thereby depressing ex-vessel prices and reducing profits; and increasing competition on the water thereby exacerbating user conflicts (Waters 2001). Further, derby fishing can adversely affect target and non-target stocks unnecessarily by providing participants less flexibility in deciding when, where, and how to fish.

An IFQ program surfaced as a tool with strong potential for effectively addressing the problems for commercial red snapper fishing. Although originally identifying a license limitation program as the preferred management approach, the Council ultimately voted in favor of an IFQ program. This decision was informed by public comments and was based on the determination an IFQ program would better resolve or reduce chronic problems related to overcapacity and derby conditions. Per the Magnuson-Stevens Act, the adoption of the RS-IFQ program in the Gulf required two referenda among eligible program participants: an initial referendum before development of the amendment and a final referendum before the amendment was submitted to the Secretary of Commerce for approval.

The RS-IFQ program was intended to help the Council address overfishing by reducing the rate of discard mortality that normally increases with increased fishing effort in overcapitalized fisheries (NRC 1999; Leal et al. 2005). IFQs provide the opportunity to better utilize fishing and handling methods, increase economic efficiency, and reduce bycatch of non-targeted species. Improving catch efficiency may also result in a decrease in regulatory discards of red snapper and other reef fish species by allowing fishermen the choice on when and where to fish. Additionally, the slower paced fishing and transferability of quota under the RS-IFQ program supports consolidation of the fishery, allowing fewer fishermen to operate over a longer season.

Amendment 26 (GMFMC 2006) evaluated a wide range of alternatives for various IFQ program components related to: program duration; ownership caps and restrictions; initial eligibility requirements; initial allocation of quota shares; appeals; transfer eligibility requirements; adjustments in commercial quota; enforcement; and administrative fees. The Council's intent was to design an IFQ program that best balances social, economic, and biological tradeoffs, while improving the fishery's ability to achieve fishery goals and objectives, including optimum yield.

RS-IFQ Program Goals

The goals of the RS-IFQ program are to reduce overcapacity in the commercial harvest of red snapper, and to the extent possible, the problems associated with derby fishing conditions. The RS-IFQ program 5-year review (GMFMC and NMFS 2013; Appendix B) found that progress had been made toward achieving the goals of the program. Concerning participant consolidation and overcapacity, the 5-year review concluded that the RS-IFQ program has had moderate success in reducing overcapacity. However, economic analyses indicate that additional

reductions in fleet capacity are still necessary to achieve the economically efficient fleet size (Solis et al. 2014).

Table 1.1.1. Commercial vessels landing red snapper by State.

Year	Total[1]	FL	AL/MS	LA	TX	% vessel overlap with GT-IFQ program[3]
2002 -2006[2]	485	-	-	-	-	NA
2007	309	224	8	42	60	NA
2008	300	219	16	37	49	NA
2009	294	221	14	27	40	NA
2010	384	309	30	27	34	**91%**
2011	362	292	27	20	31	**91%**
2012	371	304	23	23	28	**94%**
2013	368	295	20	27	35	**91%**
2014	401	320	23	26	36	**90%**
2015	415	341	24	28	40	**91%**

[1] The total number of vessels is less than the sum of vessels across states because some vessels land in multiple states.
[2] Values for 2002-2006 are average values across this time period from the coastal logbook records.
[3] Percentage of vessels landing red snapper that also landed GT-IFQ species.
Source: Table 6 in NMFS 2016a.

One metric used to assess the goal to reduce overcapacity concerned the number of vessels landing red snapper, which has decreased since implementation of the program. The number of vessels reached a low of 294 vessels in 2009 (Table 1.1.1). Since that time, the number of vessels has increased overall. Between 2013 and 2014, the number of commercial vessels landing red snapper increased by 9%, from 368 in 2013 to 401 in 2014. Between 2014 and 2015, the number of vessels landing red snapper increased an additional 3.5%, from 401 in 2014 to 415 in 2015. Although the increase in vessels occurred across nearly all states, these increases are primarily among vessels making landings in Florida. Despite the increase in the number of vessels landing red snapper, the number of vessels is still below the average number of vessels (485) in the 5 years preceding implementation of the RS-IFQ program.

Concerning the goal to mitigate the race to fish and concerns for safety at sea, the 5-year review concluded that the RS-IFQ program was successful at mitigating the race to fish and in providing fishermen with the opportunity to harvest and land red snapper year-round. Inflation-adjusted share, allocation, and ex-vessel prices increased, indicating that fishermen were successfully maximizing profits and had increased confidence in the RS-IFQ program. Safety at sea has increased and annual mortalities related to fishing have declined since the RS-IFQ program implementation (GMFMC and NMFS 2013).

Prior to implementation of the RS-IFQ program, the commercial harvest of red snapper was prosecuted during short seasons (Table 3.1.1). To allow NMFS to calculate landings toward the catch limit, the season would open for ten days at the beginning of each month then remain

closed for the duration of the month. Since implementation of the RS-IFQ program, fishing seasons are no longer applicable, as the opportunity to harvest red snapper is determined by a commercial vessel obtaining IFQ allocation to account for landings. The fishing season increased from an average of 109 calendar days during the 5 years preceding the RS-IFQ program to a year-round effort (GMFMC and NMFS 2013). Under the RS-IFQ program, any vessel possessing a commercial permit for reef fish and an IFQ vessel account may land red snapper provided adequate RS-IFQ allocation is present in the vessel account at the time of landing.

The Grouper Tilefish (GT-IFQ) program

The multi-species GT-IFQ program was implemented to reduce overcapacity of the grouper-tilefish fishing fleet, increase harvesting efficiency, and eliminate the race to fish. By rationalizing effort and reducing overcapacity, the GT-IFQ program is expected to prevent or mitigate derby-fishing conditions and improve profitability of commercial fishermen who target grouper and tilefish. Implemented January 1, 2010, anticipated benefits of the program include: increased market stability; elimination of quota closures; increased flexibility for fishing operations; cost-effective and enforceable management; improved safety at sea; and balancing of social, economic, and biological benefits. The 5-year review of the GT-IFQ program is currently underway and is evaluating the progress of the GT-IFQ program toward meeting the program's goals.

Currently, 13 reef fish species are managed under the GT-IFQ program as share categories. Gag and red grouper represent their own share categories, and the remaining species are managed as multi-species share categories (Table 1.1.2). The deep-water grouper (DWG) share category includes four species; the shallow-water grouper (SWG) category includes four species; and the tilefish (TF) category includes three species. Additional flexibility is provided to allow some species to be landed under the allocation of another share category. A proportion of gag (GG) and red grouper (RG) allocation are designated as multi-use, allowing RG allocation to be harvested under the GG quota share category, and vice versa. Scamp are designated as a SWG species, but may be landed using DWG allocation after all SWG allocation in an account has been harvested. Similarly, warsaw grouper and speckled hind are designated as DWG, but may be landed using SWG allocation after all DWG allocation in an account has been harvested. In each of the three multi-species share categories, one species comprised the majority of the landings in 2015: yellowedge grouper represented 77% of the DWG category; scamp represented 76% of the SWG category; and golden tilefish represented 90% of the TF category (NMFS 2016b).

Table 1.1.2. Share categories for species managed in the GT-IFQ program.

Deep-water grouper	**DWG**	Snowy grouper
		Speckled hind
		Warsaw grouper
		Yellowedge grouper
	GG	Gag
	RG	Red grouper
Shallow-water grouper	**SWG**	Black grouper
		Scamp
		Yellowfin grouper
		Yellowmouth grouper
Tilefish	**TF**	Blueline tilefish
		Golden tilefish
		Goldface tilefish

Although the grouper-tilefish commercial fleet was considered at overcapacity before implementation of the GT-IFQ program, a single fishing season was open for the respective species or species groups, which was closed when the respective quota was estimated to have been met. A summary of the season closures for grouper and tilefish species prior to implementation of the GT-IFQ program is provided in Section 3.1.

As noted, the GT-IFQ program 5-year review is evaluating the program's progress toward achieving its goals. According to the 2014 GT-IFQ program annual review (NMFS 2015b), the consolidation of shareholders, allocation holders, and vessels continued in 2014, although new participants also joined the program that year. For the first time since program implementation, the number of shareholders increased in 2015, from 628 shareholders in 2014 to 645 shareholders in 2015. Still, the number of shareholders in 2015 is 16% lower than the number of shareholders at the start of the program (NMFS 2016b). Also in 2014, 29 new accounts acquired shares, the proportion of accounts without shares increased to 26%, and accounts without permits increased to 26%. In 2015, there were between 21 and 36 new shareholder accounts within a given share category, which resulted in the creation of 59 new shareholders (NMFS 2016b). This was the largest number of new accounts created since the start of the program. For the first 5 years of the program, shares and allocation could only be sold to and fished by an entity that owns a valid commercial Gulf reef fish permit and has an active GT-IFQ online account. Since January 1, 2015, all U.S. citizens and permanent resident aliens became eligible to purchase GT-IFQ shares and allocation, although a valid Gulf reef fish permit is still required to harvest, possess, and land any allocation.

Table 1.1.3 provides the number of vessels landing each of the GT-IFQ share categories. The majority of GT-IFQ landings occur in Florida. Thus, landings made in the other four Gulf States are combined and provided by year. The total number of vessels making landings for each share category has decreased since implementation of the GT-IFQ program. Across all share categories, 630 commercial reef fish vessels made grouper or tilefish landings on average from

2007 through 2009, prior to program implementation. The total number of vessels making landings for any share category reached a low of 414 vessels in 2013. Between 2013 and 2015, the number of vessels increased by 7.2% to 446 vessels.

Table 1.1.3. Number of commercial vessels landing GT-IFQ program species by share category.

DWG	Total #	FL	Other Gulf	**GG**	Total #	FL	Other Gulf	**RG**	Total #	FL	Other Gulf
Pre-IFQ	238	NA	NA	**Pre-IFQ**	493	NA	NA	**Pre-IFQ**	546	NA	NA
2010	187	142	59	**2010**	415	379	44	**2010**	393	383	11
2011	192	148	54	**2011**	363	336	29	**2011**	383	375	9
2012	206	165	52	**2012**	384	354	37	**2012**	398	386	13
2013	185	144	52	**2013**	367	334	40	**2013**	363	356	9
2014	186	143	47	**2014**	376	348	29	**2014**	384	371	13
2015	165	125	47	**2015**	374	347	32	**2015**	376	369	9

SWG	Total #	FL	Other Gulf	**TF**	Total #	FL	Other Gulf	**All Categories**	Total #	FL	Other Gulf
Pre-IFQ	489	NA	NA	**Pre-IFQ**	166	NA	NA	**Pre-IFQ**	630	NA	NA
2010	322	284	54	**2010**	79	66	22	**2010**	452	401	64
2011	307	270	43	**2011**	75	59	23	**2011**	440	388	59
2012	343	304	52	**2012**	97	81	21	**2012**	449	398	61
2013	324	282	52	**2013**	78	61	23	**2013**	414	364	57
2014	353	310	46	**2014**	91	75	18	**2014**	434	386	51
2015	341	299	53	**2015**	86	66	24	**2015**	446	397	57

Notes: The total number of vessels is less than the sum of vessels across states because some vessels land in multiple states. Pre-IFQ is the annual average based on the years 2007 through 2009.
Source: Table 10 in NMFS 2016b.

1.2 Purpose and Need

The purpose of this action is to consider modifications to improve the performance of the RS-IFQ and GT-IFQ programs. The need is to prevent overfishing; to achieve, on a continuing basis, the optimum yield from federally managed fish stocks; and to rebuild the red snapper stock that has been determined to be overfished.

1.3 History of Management

This summary includes management actions pertinent to red snapper, grouper, and tilefish for the commercial sector, including changes to commercial permit requirements. A history of commercial quota changes for IFQ managed species is provided in the Description of the Fishery (Section 3.1). A complete history of management for the Reef Fish Fishery Management Plan

(Reef Fish FMP) is available on the Council's website: http://www.gulfcouncil.org/fishery_management_plans/reef_fish_management.php.

The final rule for the **Reef Fish FMP**, with its associated environmental impact statement (EIS), was effective November 8, 1984 and defined the reef fish fishery management unit to include red snapper, red grouper, gag, the shallow-water groupers (scamp, black, yellowmouth, and yellowfin), and the deep-water groupers (snowy, warsaw, speckled hind, and yellowedge), as well as other important reef fish. Among the species currently managed under Gulf IFQ programs, only the tilefishes were not included in the original Reef Fish FMP.

The Reef Fish FMP included regulations designed to rebuild declining reef fish stocks and included a minimum size limit of 13 inches total length (TL) for red snapper, with exceptions that for-hire vessels were exempted until 1987 and each angler could keep 5 undersize fish.

Amendment 1, including environmental assessment (EA), regulatory impact review (RIR), and regulatory flexibility analyses (RFA), was implemented in 1990. The management measures included:

- The addition of 10 species to the management unit including the three species of tilefish that remain managed under the G-TF IFQ program (goldface, golden, and blueline).
- Prohibited the sale of undersized red snapper and deleted the allowance to keep 5 undersized red snapper;
- Set a 20-inch TL minimum size limit on red, yellowfin, black, and gag groupers;
- SWG were defined as black grouper, gag, red grouper, Nassau grouper, yellowfin grouper, yellowmouth grouper, rock hind, red hind, speckled hind, and scamp. DWG were defined as misty grouper, snowy grouper, yellowedge grouper, warsaw grouper, and scamp. Once the SWG quota is filled, landings of scamp are allowed and included under DWG quota; and
- Established a commercial reef fish vessel permit.

On November 7, 1989, NMFS announced that anyone entering the commercial reef fish fishery in the Gulf and South Atlantic after a control date of November 1, 1989 may not be assured of future access to the reef fish fishery if a management regime is developed and implemented that limits the number of participants in the fishery. The purpose of this announcement was to establish a public awareness of potential eligibility criteria for future access to the reef fish resource, and does not prevent any other date for eligibility or other method for controlling fishing effort from being proposed and implemented.

Amendment 3, including EA and RIR and implemented in July 1991, transferred speckled hind from the SWG category to the DWG category.

Amendment 4, including EA, RIR and initial RFA (IRFA), was implemented in May 1992. The amendment established a moratorium on the issuance of new commercial reef fish permits for a maximum period of three years. The moratorium was created to moderate short term future increases in fishing effort and to attempt to stabilize fishing mortality while the Council considers a more comprehensive effort limitation program. It allowed the transfer of permits between vessels owned by the permittee or between individuals when the permitted vessel is transferred.

Amendment 6, including EA, RIR and RFA, implemented in June 1993, extended the provisions of an emergency rule for red snapper endorsements for the remainder of 1993 and 1994, and it allowed the red snapper trip limits for qualifying and non-qualifying permitted vessels to be changed under the framework procedure for specification of the total allowable catch.

Amendment 7, including EA, RIR, and IRFA and implemented in February 1994, established reef fish dealer permitting and record keeping requirements, and allowed transfer of 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 and was not implemented.

Amendment 8, including EA, RIR and IRFA, proposed establishment of a red snapper individual transferable quota (ITQ) program. It was approved by NMFS and final rules were published on November 29, 1995. However, concerns about future Congressional funding for the ITQ program to become operational made it advisable to delay implementation pending Congressional action. In October 1996, Congress, through reauthorization of the Magnuson-Stevens Act, repealed the red snapper ITQ program and prohibited regional councils from submitting, or NMFS from approving and implementing, any new IFQ program before October 1, 2000.

Amendment 9, including EA, RIR and IRFA, implemented in July 1994, provided for collection of red snapper landings and eligibility data from commercial fishermen for the years 1990 through 1992. This amendment also extended the reef fish permit moratorium and red snapper endorsement system through December 31, 1995, to continue the existing interim management regime until longer term measures could be implemented. The Council received the results of the data collection in November 1994, at which time consideration of Amendment 8 resumed.

Amendment 11, including EA, RIR and IRFA, was partially approved by NMFS and implemented in January 1996. The approved provisions included:

- Limit sale of Gulf reef fish by permitted vessels to permitted reef fish dealers;
- Required that permitted reef fish dealers purchase reef fish caught in Gulf federal waters only from permitted vessels;
- Allowed transfer of reef fish permits and fish trap endorsements in the event of death or disability;
- Implemented a new reef fish permit moratorium for no more than 5 years or until December 31, 2000, while the Council considers limited access for the reef fish fishery;
- Allowed permit transfers to other persons with vessels by vessel owners (not operators) who qualified for their reef fish permit;

Amendment 13, including EA, RIR and IRFA was implemented in September 1996. The amendment further extended the red snapper endorsement system through the remainder of 1996 and, if necessary, through 1997, to give the Council time to develop a permanent limited access system that was in compliance with the new provisions of the Magnuson-Stevens Act.

Amendment 14, including EA, RIR and IRFA, was implemented in March and April 1997. The amendment provided the NMFS Regional Administrator with authority to reopen a fishery prematurely closed before the allocation was reached and modified the provisions for transfer of commercial reef fish vessel permits.

Amendment 15, including EA, RIR and IRFA and implemented in January 1998, included the following actions:

- Modified the red snapper endorsement system to create two classes of red snapper licenses. Class 1 licenses would have a 2,000-lb trip limit and would be issued to endorsement holders on March 1, 1997 and historical captains. Class 2 licenses would have a 500-lb trip limit and would be issued to other reef fish permit holders on March 1, 1997 with red snapper landings between January 1, 1990 and March 1, 1997. Licenses could be transferred without restriction. This red snapper license system was extended indefinitely or until replaced by an alternate license management system.
- Set monthly commercial red snapper openings to open at noon on the first day of each month and close at noon on the fifteenth day of each month until the commercial quota is reached. The commercial season is split into two time periods with the first period to begin on February 1 with two thirds of the quota, and the second period on September 1 with the remainder of the quota.

Amendment 16B, including EA, RIR and IRFA, was implemented on November 24, 1999. Among other actions, this amendment set the minimum size limit in fork length for scamp at 16 inches.

An August 1999 **regulatory amendment**, including EA, RIR, and IRFA, and implemented June 19, 2000, increased the commercial size limit for gag from 20 to 24 inches TL, and prohibited the commercial sale of gag, black, and red grouper each year from February 15 to March 15 (the peak of gag spawning season).

Amendment 17, including EA, RIR and IRFA, was implemented on August 10, 2000. This amendment extended the commercial reef fish permit moratorium for another 5 years from its previous expiration date of December 31, 2000 to December 31, 2005, unless replaced sooner by a comprehensive controlled access system. The purpose of the moratorium was to provide a stable environment in the fishery necessary for evaluation and development of a more comprehensive controlled access system for the entire commercial reef fish fishery.

Amendment 18A, including Supplemental EIS, RIR and IRFA, was implemented by NMFS on September 8, 2006. Among other actions, this amendment:

- Required a NMFS approved vessel monitoring system on board vessels with a commercial reef fish permit, including charter vessels that also have a commercial reef fish permit;
- Prohibited persons on vessels with both commercial and charter vessel reef fish permits from retaining reef fish caught under the recreational size, bag, and possession limits when commercial quantities of reef fish are onboard;
- Adjusted the maximum crew size onboard a vessel issued a certificate of inspection (COI) when the vessel has both a commercial and charter/headboat permits for reef fish to the minimum crew size required under the COI;

As part of the implementing regulations, NMFS added provisions to change the permit application process for all permits to an annual rather than biennial procedure, as well as simplify the income qualification documentation requirements for fisheries having income criteria.

Secretarial Amendment 1, including a Supplemental EIS, RIR and IRFA, was initially submitted to NMFS in September 2002 and was implemented July 15, 2004. It contains a ten-year rebuilding plan for red grouper based on three-year intervals.
Amendment 22, including Supplemental EIS, RIR and IRFA, was implemented July, 2005. It modified the red snapper rebuilding plan to rebuild the red snapper stock by 2032.

Amendment 24, including EA, RIR and IRFA, was implemented August, 2005. It established a permanent limited access system for the commercial sector for reef fish. Permits issued under the limited access system are renewable and transferable.

Amendment 26, including EIS, established a commercial IFQ program for red snapper. The amendment requires that, for any single fishing year, no person shall own IFQ shares that represent a percentage of the total, which exceeds the maximum percentage issued to a recipient at the time of the initial apportionment of IFQ shares. It also restricts initial eligibility to persons possessing a Class 1 or Class 2 endorsement, and allocates initial IFQ shares proportionately among eligible participants based on average annual landings. During the first 5 years of the program, IFQ shares/allocations can be transferred only to individuals/vessels with a valid commercial reef fish permit and to US citizens and permanent resident aliens thereafter.

Amendment 27 was implemented in February 2008. Among the actions, the commercial size limit for red snapper was reduced to 13 inches TL.

Amendment 29, implemented January 1, 2010, established the commercial IFQ program for groupers and tilefishes. As with the RS-IFQ program, during the first 5 years of the program, IFQ shares/allocations can be transferred only to individuals/vessels with a valid commercial reef fish permit and to US citizens and permanent resident aliens thereafter.

Amendment 30B, implemented in 2009, addresses the overfishing of gag. Among other actions, the amendment set interim allocations of gag and red grouper catches between the recreational and commercial sectors. The amendment also required that all vessels with federal commercial or charter/headboat permits for reef fish must comply with the more restrictive of state or federal reef fish regulations when fishing in state waters.

Amendment 31, including EIS and RIR, was implemented on May 26, 2010. The amendment addressed sea turtle interactions with bottom longline fishing gear and included the following management actions:

- Longline endorsement requirement - Vessels must have average annual reef fish landings of 40,000 lbs gutted weight or more from 1999 through 2007;
- Reef fish bottom longline fishing was restricted to outside the 35-fathom depth contour from June - August;

Amendment 32, effective March 12, 2012, established annual catch limits (ACLs) and annual catch targets for 2012 through 2015 for gag and for 2012 for red grouper. The amendment also:

- established a rebuilding plan for gag;
- contained a commercial gag and shallow-water grouper quota adjustment to account for dead discards;
- made adjustments to the multi-use IFQ allocation provisions in the GT-IFQ program; and
- reduced the commercial gag size limit.

Amendment 34 was implemented November 19, 2012. The amendment addressed crew size limits for dual-permitted vessels (i.e., vessels with both a charter/headboat and a commercial permit for reef fish, increasing the maximum crew size from three to four. It also eliminated the earned income qualification requirement for the renewal of commercial reef fish permits.

The **Framework Action** to Set the 2013 Gag Recreational Fishing Season and Modify the February-March Shallow-water Grouper Closed Season, eliminated the February 1 through March 31 shallow-water grouper closure shoreward of 20 fathoms.

The **Framework Action** to Retain 2016 Red Snapper Commercial Quota became effective December 28, 2015. The action withheld 4.9% of the 2016 commercial red snapper ACL prior to the annual distribution of red snapper allocation to the IFQ shareholders on January 1, 2016. This action allowed the allocations being established through Amendment 28 to be effective for the 2016 fishing year.

Amendment 28, including EIS, RIR, and RFA, will become effective on May 31, 2016. The amendment revised the commercial and recreational sector allocations of the red snapper ACLs, by shifting 2.5% of the commercial sector's allocation to the recreational sector. The resulting sector allocations for red snapper are 48.5% commercial and 51.5% recreational.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1 – Commercial Permitted Reef Fish Vessel Hail-in Requirement

Alternative 1: No Action. The owner or operator of a vessel landing individual fishing quota program (IFQ) species (red snapper, grouper, or tilefish) is responsible for ensuring that the National Marine Fisheries Service (NMFS) is contacted at least 3 hours, but no more than 24 hours, in advance of landing per IFQ advance notice of landing regulations.

Preferred Alternative 2: The owner or operator of a commercial reef fish permitted vessel landing commercially caught, federally managed reef fish from the Gulf is responsible for ensuring that NMFS is contacted at least 3 hours, but no more than 24 hours, in advance of landing. If IFQ species are to be landed, all IFQ advance notice of landings regulations must be followed. If non-IFQ species are to be landed, information required with the advance notice of landings will include date, time, pre-approved location of landing, and vessel identification number (Coast Guard certificate of documentation or state registration number).

Alternative 3: The owner or operator of a commercial reef fish permitted vessel landing any commercially caught, federally managed species from the Gulf is responsible for ensuring that NMFS is contacted at least 3 hours, but no more than 24 hours, in advance of landing. If IFQ species are to be landed, all IFQ advance notice of landings regulations must be followed. If non-IFQ species are to be landed, information required with the advance notice of landings will include date, time, pre-approved location of landing, and vessel identification number (Coast Guard certificate of documentation or state registration number).

Discussion:

All operators of vessels with a commercial reef fish permit are required to notify the National Marine Fisheries Service (NMFS) prior to departing on a trip ("hail-out") using either their vessel monitoring system (VMS) or phone. This applies to all trips, even those where commercial reef fish fishing will not occur. The vessel owner or operator must report to NMFS the primary fishery they will participate in on that trip and the primary type of fishing gear that will be on board the vessel. However, some vessel operators may revise the gear type in their declaration if they shift to another gear (e.g., start the trip in deeper water using longline and shift to handline gear when fishing in shallower waters). All vessels with a Gulf commercial reef fish permit are required to have a working VMS onboard, but the hail-out can be called in via the VMS phone line system. The VMS units are used to monitor vessel location, but can also be used to send and receive messages. The purpose of the VMS requirement as stated in Amendment 18A (GMFMC 2005) is to "improve enforceability of area restrictions in order to prevent excessive fishing pressure in stressed areas or on spawning aggregations of reef fish, and to enhance the ability of enforcement agencies to detect and prevent the use of fishing gear in areas where that gear is restricted because it could potentially damage sensitive habitat."

When harvesting IFQ species, vessel operators are required to provide an advance landing notification ("hail-in") 3 to 24 hours prior to landing. The hail-in must provide the landing date/time, landing location, the intended dealer, and the estimated pounds to be landed by share category. It may be completed through the VMS, Catch Share support 24-hour phone line, or internet. The landing may occur at any time during the day or night but a vessel must land within 1 hour after the arrival time given in the landing notification[4] and the fish must be offloaded from the vessel between 6 a.m. and 6 p.m., local time.[5] A landing transaction report is completed by the IFQ dealer and validated by the fisherman. The landing transaction includes the date, time, and dealer facility; weight and actual ex-vessel value of fish landed and sold; and the identities of the shareholder account, vessel, and dealer. All landings data are updated on a real-time basis as landing transactions are processed.

Although the hail-ins help enforce the IFQ programs, one of the Red Snapper 5-year review conclusions noted additional enforcement efforts may be necessary to deter violations. It was suggested that extending the hail-in requirement to all commercial reef fish trips, in addition to those landing IFQ species, would deter fishermen from illegally landing IFQ species. By extending the requirement to all commercial reef fish trips, law enforcement and port agents can be alerted in advance of trips returning to port and can meet vessels to inspect landings. Such a provision would also reduce illegal harvest of IFQ species that may not be reported or reported as another species (e.g., vermilion snapper).

Alternative 1 (No Action) would maintain the current reef fish hail-out and IFQ hail-in requirements. This alternative would not address the concern about the illegal harvest of IFQ species that may not be reported or reported as another species (e.g., vermilion snapper). Improvements to enforcement of the landings of IFQ species would need to be developed through other means such as recent enhancements in auditing landings notifications and transactions (GMFMC and NMFS 2013).

Preferred Alternative 2 would extend the hail-in requirement to any trips where commercial reef fish permitted vessels are landing commercially caught, federally managed reef fish from the Gulf. The hail-in requirement would not be as extensive as for a trip where IFQ species are to be landed. The intended dealer and the estimated pounds to be landed would not be required. The hail-in would only require the date, time, location of landing, and vessel identification number to be provided to NMFS 3 to 24 hours before landing. As with the IFQ program, this hail-in for non-IFQ reef fish species trips could be completed through the VMS, phone[6], or internet. Like IFQ landing locations, the landing location[7] submitted through the hail-in process must be pre-

[4] If a vessel is going to be delayed more than 1 hour after the stated arrival time, a new notification with an updated arrival time must be submitted. The captain is not required to wait an additional 3 hours if only one superseding landing notification has been submitted for the trip and if they are not changing the landing location. Changes to landing location require a new landing notification with the required 3-hour minimum.

[5] Offloading may continue past 6 p.m. if an authorized officer is present at the offloading at 6 p.m., is available to remain at the site while offloading continues, and authorizes the owner or operator of the vessel to continue offloading after 6 p.m., local time.

[6] Note: This service for the IFQ program costs approximately $600 per month ($7,200 annually). A similar service for non-IFQ hail-ins may need to be established and may have a similar cost if **Alternatives 2** or **3** are selected as preferred. This cost would not fall under the IFQ cost recovery category.

[7] If offloading at multiple locations after a trip is complete, fishermen may submit a hail-in for each landing location.

approved by law enforcement to ensure that the site exists and can be accessed by law enforcement. Pre-approved landing locations must be publicly accessible by land and water. Currently, OLE approves new landing locations at the end of each calendar-year quarter, and requests for new locations to be approved must be submitted at least 45 days before the end of that calendar-year quarter. Without a systematic method of determining landing locations and without those locations being publicly accessible by land and water, the effectiveness of the hail-in requirement would be reduced[8]. Requiring all commercial reef fish vessels to hail-in prior to landing when harvesting non-IFQ reef fish would be expected to improve the enforcement of the IFQ program. Marine enforcement agents would be better able to intercept commercially permitted reef fish vessels to detect the illegal harvest of IFQ species that may not be reported or reported as another species.

When using a VMS to enter a landing location, fishermen on IFQ trips currently need to select a landing location from a menu. Landing locations are not updated frequently for some VMS units, as they are considered updates, which have a cost associated with it. NMFS' Southeast Enforcement Division is working to change how landing locations are entered when using VMS. Rather than work from a menu with locations, they are working on a system where fishermen can enter a code for a particular location. This could simplify reporting landing locations via VMS, but it would still need to link back to an approved landing location contained in the IFQ database unless an additional list of non-IFQ locations is created.

Alternative 3 would extend the hail-in requirement beyond **Preferred Alternative 2** by including all trips by commercial reef fish permitted vessels landing any federally-managed commercially caught species from the Gulf. The information required in the hail-in would be the same as described for **Preferred Alternative 2**. This includes landing at a pre-approved landing location. By extending the universe of trips hailing in, marine enforcement agents would have a greater likelihood of detecting trips where the illegal harvest of unreported IFQ species occurred.

The following examines the differences in the number of vessels needing to hail in and the additional number of trips requiring hail-ins. The analysis uses data between 2007 when the red snapper IFQ program began (when hail-ins were first required) and 2015 (last year complete landings data are available).

In 2015, there were a total of 868 Gulf commercial reef fish permits (Table 2.1.1). Of these permits, 794 were associated with IFQ accounts. Of those IFQ accounts, only 763 of the accounts were legally able to harvest IFQ species, and considered an active IFQ account. The 31 that were not able to harvest IFQ species were accounts that were either not activated or suspended due to failure to provide IFQ citizenship information. Thus, there is a potential for up to 105 permitted vessels operating outside the IFQ program that would need to hail-in under **Preferred Alternative 2** and **Alternative 3**. Although the operators of these vessels were legally allowed to harvest reef fish species, not all reported reef fish landings. Using the Southeast Fisheries Science Center (SEFSC) Coastal Logbook files, there were only 533 vessels that harvested at least one pound of reef fish in 2015. This implies that there are around 335 "latent" permits. Within the IFQ program, only 485 of the 763 vessels legally able to land IFQ

species actually landed IFQ species. Comparing the number of vessels that actually harvested reef fish species (533) to the number that harvested IFQ species, there would only be an expected increase of 48 more vessels needing to hail-in under **Preferred Alternative 2**. However, this value could increase if operators of vessels with "latent" permits decided to start reef fish fishing. Under **Alternative 3**, the increase in the number of vessels would likely lead to more hail-ins than under **Preferred Alternative 2**.

Table 2.1.1. Gulf commercial reef fish permits in relation to landings and IFQ accounts.

	2015
Reef Fish permits	868
Vessels with reef fish landings[1]	533
"Latent" permits[1]	335
Reef Fish permits with IFQ accounts	794
With active IFQ account	763
With inactive IFQ accounts[2]	31
With IFQ landings	485

Sources: Southeast Regional Office permits database accessed 4/22/2016 and SEFSC Coastal Logbooks accessed 4/25/2016.

[1]The SEFSC Coastal logbook records were accessed to determine the number of vessels that harvested reef fish and this can be a proxy to determine the number of active reef fish permits.

[2]Inactive accounts are IFQ accounts that are still in an initial status (have not been activated) or vessel accounts that have an expired permit. Shareholder accounts are suspended when citizenship has not been provided or updated. Suspended accounts cannot harvest fish.

Because vessels make multiple trips per year, the SEFSC Coastal Logbooks were analyzed to estimate the increase in vessel hail-ins under **Preferred Alternative 2** compared to **Alternative 1** (one trip = one hail-in). Coastal Logbooks were analyzed to count the number of trips that landed at least one pound of reef fish and the number of trips within that subset that landed at least one pound of IFQ species (Table 2.1.2). Trips containing IFQ species accounted for between 80-91% of all reef fish trips since 2007[9]. The anticipated addition in the number of trips hailing in would be between 728 and 1,293 more hail-ins per year when examined over the 2007-2015 time period. The monthly average ranges from an additional 61 to 108 hail-ins per month (Table 2.1.2).

[9]Note: only the red snapper IFQ program was active from 2007-2009.

Table 2.1.2. Number of trips taken that harvested Gulf commercial reef fish and IFQ species.

Year	Trips with any Reef Fish	Trips with IFQ species	% Reef Fish trips with IFQ species	Number of trips without IFQ species	Monthly average of trips without IFQ species
2007	8,034	7,298	91%	736	61
2008	8,078	7,149	88%	929	77
2009	8,177	7,017	86%	1,160	97
2010	5,986	4,938	82%	1,048	87
2011	6,541	5,248	80%	1,293	108
2012	6,652	5,458	82%	1,194	100
2013	6,298	5,334	85%	964	80
2014	6,970	5,937	85%	1,033	86
2015	6,671	5,943	89%	728	61

Source: SEFSC Coastal Logbook database accessed on 4/25/16.
Note: The Red Snapper IFQ program began in 2007, and the Grouper-Tilefish IFQ program began in 2010.

Similar analyses for **Alternative 3** were not developed because data queries from the SEFSC Coastal Logbook database would be much more complex. Data required for these analyses would have to go down to the vessel level and different logbooks associated with different permits would need to be queried. However, a trip proxy was developed and is described in the following paragraph. Table 2.1.3 shows the number of reef fish permitted vessels that also carry other commercial federal permits. These are reef fish vessels that could be affected by **Alternative 3** as the vessel operators would have options to take trips targeting other federally managed species and not land reef fish. Note that a vessel landing fish caught under a South Atlantic or Caribbean permit would not be subject to this action.

Table 2.1.3. Federal commercial permit type, access type, region, and number of vessels with a permit for vessels that also have a commercial reef fish permit.

Federal Commercial Permits	Limited or Open Access	Permit Region	Number of vessels
King Mackerel	Limited	Joint	287
Gillnet for King Mackerel	Limited	Joint	7
Gulf of Mexico Shrimp	Limited	Gulf	10
Rock Shrimp	Limited	S. Atl.	0
South Atlantic Golden Crab	Limited	S. Atl.	2
South Atlantic Unlimited Snapper-Grouper	Limited	S. Atl.	55
South Atlantic 225 Trip Limit Snapper-Grouper	Limited	S. Atl.	4
South Atlantic Sea Bass Pot Endorsement	Limited	S. Atl.	0
South Atlantic Golden Tilefish Endorsement	Limited	S. Atl.	3
Swordfish Directed	Limited	Joint	14
Swordfish Handgear	Limited	Joint	6
Swordfish Incidental	Limited	Joint	15
Shark Directed	Limited	Joint	37
Shark Incidental	Limited	Joint	44
Atlantic Tuna Longline	Open	Joint	26
Atlantic Dolphin/Wahoo	Open	Joint	271
Spiny Lobster	Open	Joint	39
Spiny Lobster Tailing	Open	Joint	37
Spanish Mackerel	Open	Joint	345
Rock Shrimp - Carolinas Zone	Open	S. Atl.	3
South Atlantic Penaeid Shrimp	Open	S. Atl.	5
Gulf Royal Red Shrimp Endorsement	Open	Gulf	3
HMS Caribbean Small Boat Permit	Open	Caribbean	6
Smooth Hound Shark	Open	Caribbean	0

Source: Southeast Regional Office (SERO) LAPPs Branch, Permit Information Management System 12/20/2016.
S. Atl. = South Atlantic

To provide an estimate of how many extra hail-ins (trips) **Alternative 3** might create when compared to **Alternatives 1** and **Preferred Alternative 2**, a proxy for the above mentioned complicated vessel level analysis was derived from the trip ticket database. The trip ticket database was merged with a list of reef fish permitted vessels for 2014 and 2015, and the total number of trip tickets submitted by these vessels was calculated (one trip ticket equals one trip) [10]. These values are a proxy because the list of vessels were those that had a reef fish permit on it for at least for one day in 2014 and 2015 and does not account for when the permits were on or off each vessel. Therefore, it is an estimate of trips. For evaluating **Alternative 3** relative to

[10] Donna Bellais, pers. comm. Gulf States Marine Fisheries Commission, 2404 Government Street, Ocean Springs, MS 39564

Alternatives 1 and **Preferred Alternative 2**, the total number of trip tickets can be compared to the number of trips with reef fish or IFQ species provided in Table 2.1.2 for 2014 and 2015.

The following compares **Alternative 3** with **Alternative 1**. For 2014 and 2015, most trips by federally permitted reef fish vessels (≥82%) landed IFQ species (Table 2.1.4). The difference in the number of trips reporting IFQ species and all trips was 1,313 and 997 for 2014 and 2015, respectively. If these trips for 2014 and 2015 are averaged by month over the year and used as a proxy for the additional number of hail-ins under **Alternative 3**, the estimated number per month would be between 109 and 83 hail-ins, respectively, compared to **Alternative 1**, no action. It should be noted that if further conditions such as restricting hail-ins to only trips landing federally managed finfish species, (i.e., not federally managed crustaceans species), the number of additional trips from **Alternative 3** would likely be reduced.

Table 2.1.4. Number of trips taken that harvested Gulf commercial species or only IFQ species.

Year	Number of trip tickets for reef fish vessels	Trips with IFQ species	% trips with IFQ species	Number of trips without IFQ species	Monthly average of trips without IFQ species
2014	7,250	5,937	82%	1,313	109
2015	6,940	5,943	86%	997	83

Source: SEFSC Coastal Logbook database accessed on 4/25/16 and Fisheries Information Network database accessed on September 19, 2016.
Note: The Red Snapper IFQ program began in 2007, and the Grouper-Tilefish IFQ program began in 2010.

The following compares **Alternative 3** with **Preferred Alternative 2**. For 2014 and 2015, most trips by federally permitted reef fish vessels (96%) landed reef fish species (Table 2.1.5). The estimated additional number of trips requiring hail-ins from **Alternative 3** when compared to **Alternative 2** using 2014 and 2015 trip data would be 280 and 269 additional trips, respectively. If the additional trips are averaged over the year by month, the result would be 23 and 22 trips, respectively.

Table 2.1.5. Number of trips taken that harvested Gulf commercial species or only reef fish species.

Year	Number of trip tickets for reef fish vessels	Trips with any reef fish species	% trips with reef fish species	Number of trips without reef fish species	Monthly average of trips without reef fish species
2014	7,250	6,970	96%	280	23
2015	6,940	6,671	96%	269	22

Source: SEFSC Coastal Logbook database accessed on 4/25/16 and Fisheries Information Network database accessed on September 19, 2016.
Note: The Red Snapper IFQ program began in 2007, and the Grouper-Tilefish IFQ program began in 2010.

This action was reviewed at a joint Gulf States Marine Fisheries Commission (GSMFC) Law Enforcement Committee (LEC) and Gulf of Mexico Fishery Management Council (Council)

Law Enforcement Technical Committee (LETC) meeting in October 2016.[11] After reviewing the above analyses, the Committees recommended that either **Preferred Alternative 2** or **Alternative 3** be adopted by the Council. The Committees were concerned about the additional workload the added hail-ins would create; however, OLE staff indicated officers would not be expected to increase the number of landings they inspect. What officers would have is information on additional vessel landings from which they could select vessel landings to observe. The Committees concluded the impact of expanding the hail-in requirement would be negligible because the number of additional trips is manageable and officers would not be expected to increase the number of landings they observe.

[11] Meeting summary available at: http://gulfcouncil.org/council_meetings/BriefingMaterials/BB-10-2016/L%20-%205%20Revised%20-%20LETC-LEC%20meeting%20summary%20Oct%202016.pdf

2.2 Action 2 – Non-activated IFQ Shareholder Accounts

2.2.1 Action 2.1 – Returning Non-activated IFQ Shares to NMFS

Alternative 1: No Action. IFQ shares held in accounts that have never been activated may remain unused.

Preferred Alternative 2: For shares in red snapper IFQ program accounts that have never been activated in the current system, return the shares to NMFS:

Preferred Option 2a: on the effective date of the final rule implementing this amendment.

Option 2b: one year following the effective date of the final rule implementing this amendment.

Preferred Alternative 3: For shares in grouper-tilefish IFQ program accounts that have never been activated in the current system, return the shares to NMFS:

Preferred Option 3a: on the effective date of the final rule implementing this amendment.

Option 3b: one year following the effective date of the final rule implementing this amendment.

Note: **Alternatives 2** and **3** may be selected as preferred with different options.

Discussion:

This action addresses IFQ accounts that received shares through the initial apportionment when each IFQ program began, but the accounts have never been accessed by the shareholder. Termed ***non-activated IFQ accounts***, these accounts possess shares but none of the shares or annual allocation associated with the shares has been landed or transferred to another account because the user has not logged into the account to complete such actions. In contrast, ***inactive IFQ accounts*** are accounts that have been accessed at some point since implementation of the respective program, but the user may not have logged in to the account in a given year. This action would only apply to shares held in non-activated IFQ accounts, that is, accounts that have never been accessed.

The red snapper individual fishing quota (RS-IFQ) program 5-year review (GMFMC and NMFS 2013) did not distinguish between inactive and non-activated accounts; only inactive accounts were identified. According to the RS-IFQ program 5-year review, 29% of accounts (173 accounts) during the first year of the program were inactive and contained 2.6% (equivalent to 78,543 lbs) of the total commercial quota. By 2011, the number of inactive accounts had decreased to 102 accounts (17% of all accounts) and contained only 1.5% (50,743 lbs) of the year-end quota. Except for 2010, the remaining allocation at the end of the year primarily resided in inactive accounts. More than half of the inactive accounts are accounts that had never been accessed by the user (i.e., non-activated accounts).

As stated in the RS-IFQ program 5-year review, the initial assessment of trends in landings and RS-IFQ account activity indicated that landed yield is close to optimum yield (OY), as only a limited amount of red snapper quota is not harvested each year. Remaining quota is largely associated with inactive accounts, which have decreased in number over time. The 5-year review went on to recommend that the Council may want to consider redistributing or reallocating shares held in inactive accounts (GMFMC and NMFS 2013). The Council has expressed its intent to address shares held in accounts that have never been used, rather than accounts that may be inactive for a given year. Thus, going forward, there is a need to distinguish between non-activated and inactive accounts.

Although the grouper-tilefish IFQ (GT-IFQ) program 5-year review has not been completed, it is likely that a similar recommendation will be made regarding shares held in non-activated accounts in that program, as well. The number of non-activated accounts in each of the share categories of the GT-IFQ program has decreased since the program was implemented. The share categories for the grouper-tilefish IFQ (GT-IFQ) program are: deep-water grouper (DWG), shallow-water grouper (SWG), red grouper (RG), gag (GG), and tilefish (TF). For each share category, the number of non-activated accounts at the end of the first year of the program (2010) was 169 DWG accounts, 277 SWG accounts, 222 RG accounts, 244 GG accounts, and 101 TF accounts. In 2015, the number of inactive accounts (including non-activated accounts and accounts that were only inactive in 2014) had decreased in each share category by 35.5% (DWG), 19.5% (SWG), 25.2% (RG), 15.6% (GG), and 36.6% (TF). In contrast to previous years for which the number of inactive accounts generally decreased across share categories, the number of inactive accounts increased from 2014 to 2015 for all share categories; however, the proportion of inactive accounts among the total number of accounts remained nearly the same for all share categories except tilefish, which decreased by 3% (Table 13 in NMFS 2016b).

All IFQ program accounts were contacted by mail and/or phone in January 2012 to verify citizenship or residency status, a requirement to hold shares. In addition, NMFS began posting the IFQ accounts with an initial indicator (which denotes non-activated accounts) on the IFQ program website in 2012.[12] This website has since been updated to also include the amount of shares held by each account. The number and amount of shares held in non-activated IFQ accounts has continued to decrease as the shareholder activated their account and either transferred the shares to other program participants or used the shares and associated allocation themselves. Table 2.2.1.1 provides the number of accounts and amount of shares held in non-activated accounts for both IFQ programs and share category, as of December 14, 2016. For all share categories, the amount of shares held in non-activated accounts is less than 1% of the respective commercial ACL.

[12] http://sero.nmfs.noaa.gov/operations_management_information_services/constituency_services_branch/freedom_of_information_act/common_foia/IFQShareholders.htm

Table 2.2.1.1. Number of accounts, amount of shares, and the pounds held in non-activated accounts for the 2016 commercial ACL, by share category for each IFQ program.

IFQ Program & Share category	Non-activated Accounts	Shares in Non-activated Accounts	2016 Commercial Quota (mp)	Equivalent Pounds for 2016 Quota
GT-IFQ Program	55*	n/a**	8.79	13,610
DWG	12	0.028516%	1.024	292
SWG	49	0.473285%	0.525	2,485
RG	40	0.147833%	7.780	11,501
GG	46	0.217390%	0.939	2,041
TF	6	0.055081%	0.582	321
RS-IFQ Program	32	0.244100%	6.097	14,883

*The total number of non-activated accounts for the GT-IFQ program does not equal the number of non-activated accounts for each share category of the GT-IFQ program, because some non-activated accounts hold shares for multiple share categories. **Shares are distributed for each share category of the GT-IFQ program; there are no shares for the program as a whole. Source: IFQ database accessed 12/14/2016.

Alternative 1 (No Action) would allow non-activated accounts to continue to hold shares and thus, the allocation associated with those shares to go unused. As noted in the conclusions of the RS-IFQ program 5-year review (Appendix B), **Alternative 1** would continue to restrict the ability of the commercial sector to fully harvest its ACL of IFQ species and thereby achieve OY.

Preferred Alternative 2 applies to non-activated shares in the RS-IFQ program and **Preferred Alternative 3** applies to non-activated shares in the GT-IFQ program. The RS-IFQ program was implemented three years prior to the GT-IFQ program, meaning that shareholders of non-activated accounts have had a longer time to activate their accounts. Further, the RS-IFQ program 5-year review has been completed, while the GT-IFQ program 5-year review is currently underway.

The same options are provided for each of **Preferred Alternatives 2** and **3**, which concern the timeline for returning non-activated IFQ shares to NMFS. **Preferred Options a** would return shares held in non-activated accounts to NMFS on the effective date for implementing this amendment, while **Options b** would delay the return of shares held in non-activated accounts for one year following the effective data for implementing this amendment. Depending on the alternative selected in Action 2.2 for distributing the shares held in non-activated accounts, **Preferred Options a** would provide these shares sooner for redistribution than **Options b**. On the other hand, **Options b** would allow more time for the shareholders of the non-activated accounts to activate and either transfer their shares or begin participating in the program. Activating an account may take a small amount of time as citizenship and other information need to be supplied before the account can be accessed. Furthermore, if any of these accounts belong to deceased shareholders, then the process may take longer due to legal requirements.

2.2.2 Action 2.2 – Method of Redistributing Shares from Non-activated Accounts

Alternative 1: No Action. Do not redistribute the red snapper and grouper-tilefish shares that were returned to NMFS.

Preferred Alternative 2: Redistribute the shares from each share category equally among all shareholders of that share category.

Alternative 3: Redistribute the shares from each share category according to the proportion of shares held by shareholders of that share category at the time the shares are redistributed by NMFS.

Alternative 4: Redistribute the shares equally from each share category to the allocation-only account holders with a commercial reef fish permit and landings in ~~2016~~ 2015 for that share category, but not related to other accounts with shares.
*IPT recommendations: add "equally" and change 2016 to 2015.

Discussion:

After non-activated shares are returned to NMFS, the Council would decide how to distribute the shares and/or annual allocation associated with the shares. Under **Alternative 1**, RS-IFQ and GT-IFQ shares would not be redistributed and the shares would remain with NMFS. The RS-IFQ program 5-year review noted that landed yield is close to, but below the commercial sector's ACLs, and thus share of OY, and recommended addressing the shares held in accounts that had never been accessed. On the other hand, the amount of shares held in non-activated accounts represents a relatively small amount of annual allocation for each of the share categories. Given the current quotas, the resulting pounds of allocation range from a low of 292 lbs of DWG quota to 14,883 lbs of red snapper quota, as of December 14, 2016 (Table 2.2.1.1). If no action is taken (**Alternative 1**), it is likely that the amount of shares in non-activated accounts will continue to decrease as other IFQ program participants locate the shareholders of non-activated accounts and arrange to transfer the shares. Table 2.2.2.1 provides the number of IFQ accounts for each share category by shareholding size. The 2016 quota is provided below each share category in pounds gutted weight.

Alternative 2 would distribute the shares associated with each share category equally among all current shareholders who hold shares of that share category. According to the 2015 RS-IFQ annual report, there were 386 red snapper shareholder accounts at the end of the year (Table 1 in NMFS 2016a). Some shareholders have multiple accounts due to joint ownership or participating in different businesses that hold IFQ accounts. If the Council were to select this alternative as preferred and distributed shares equally among all shareholder accounts for each share category, those entities that have set up multiple accounts would receive a greater amount of the redistributed shares than would entities who hold all of their shares in a single account. For example, a shareholder with a single account in which a larger amount of shares are held than the total amount of shares spread among another shareholder's multiple accounts would receive less shares than the shareholder with multiple accounts. Based on the number of

shareholder accounts at the end of 2015 (386 accounts), distributing the shares in the non-activated accounts equally among all red snapper shareholders would result in each shareholder account receiving the equivalent of 38.6 lbs of red snapper annual allocation under the 2016 quota.

Table 2.2.2.1. Number of IFQ accounts as of year-end 2015 by shareholding size, including the non-activated accounts.

IFQ Annual Report Bins	Share Bin	DWG 1,024,000	GG 939,000	RG 5,720,000	RS 6,097,297	SWG 525,000	TF 582,000
Small	0.000001 - 0.000156	32	30	46	16	39	24
	0.000157 - 0.000313	17	25	30	13	17	7
	0.000314 - 0.000625	19	21	14	12	20	10
	0.000626 - 0.001250	18	23	36	15	27	12
	0.001251 - 0.002500	30	34	34	24	45	15
	0.002501 - 0.005000	21	34	44	35	28	11
	0.005001 - 0.010000	27	38	27	37	48	22
	0.010001 - 0.049999	56	123	101	86	122	42
Medium	0.050000 - 1.499999	131	238	186	131	223	63
Large	≥ 1.5%	15	8	12	17	12	16

Source: IFQ database accessed 4/20/2016.

Alternative 3 would distribute the shares based on the amount of shares (proportion of the quota) held by each shareholder. This would be similar to a quota increase, in that additional quota is distributed as annual allocation in proportion to the amount of shares held by shareholders. Under **Alternative 3**, shareholders would receive not just additional annual allocation, but the durable shares associated with that allocation. By distributing shares based on the proportion of existing shareholdings, **Alternative 3** would not provide a greater amount of shares to shareholders who have spread their holding across multiple accounts, as would occur under **Alternative 2**. Rather, shareholders would receive additional shares in proportion to their existing shareholdings, regardless of the number of accounts created.

Alternative 4 would redistribute the shares from each share category to entities that meet the following criteria: 1) have an "allocation-only" account, which is a type of shareholder account that does not hold shares; 2) the account is associated with a valid or renewable commercial reef fish permit; 3) the permitted vessel made landings in 2016 in the share category for which shares will be redistributed; and 4) the account holder is not related to other shareholder accounts that hold shares. Table 2.2.2.2 provides the number of accounts with shares, allocation, and landings by entities with shares, without shares, and unrelated accounts without shares, by share category. Table 2.2.2.3 shows the amount of shares that would be distributed equally among allocation-only account holders, and the equivalent pounds of allocation based on the2016 quota for each share category (**Alternative 4**).

Table 2.2.2.2. The number of accounts with shares, allocation, landings (with and without shares, and not related to another account in that share category), at the end of 2015.

Accounts with:	DWG	GG	RG	RS	SWG	TF
Shares	366	574	530	386	581	222
Allocation	464	753	716	635	742	287
Landings	152	337	342	378	311	79
Landings, but no shares	60	143	145	210	131	40
Landings, but no shares and not related to an account with shares in that category	28	90	95	161	77	15

Source: IFQ database accessed 12/31/2015 for the number of accounts with shares. Allocation and landings are calculated throughout the entire year.

Table 2.2.2.3. The distribution of shares equally among all allocation-only account holders (Alternative 4).

Category	Shares percentage per account	Equivalent pounds based 2016 quotas
DWG	0.001018%	10 lbs
GG	0.002415%	23 lbs
RG	0.001556%	121 lbs
RS	0.001516%	92 lbs
SWG	0.006147%	32 lbs
TF	0.003672%	21 lbs

Note: Share percentages are limited to 6 decimal places. When shares are converted to allocation, the value is rounded to nearest whole pound.

The intent of **Alternative 4** is to provide some shares to IFQ program participants who are not shareholders and thus must obtain allocation (i.e., leasing) to land IFQ species. However, some shareholders also have allocation-only accounts, which are created to hold allocation (e.g., prior to allocation transfers, such as by brokers). Thus, the allocation-only account must also be associated with a commercial reef fish permit with landings in 2016 in the same share category as the redistributed shares. Further, the allocation-only account may not be related to another account that holds shares of that same share category; NMFS will determine which allocation-only accounts are related to other shareholder accounts with shares.

2.3 Action 3 – Retaining Annual Allocation before a Quota Reduction

Alternative 1: No Action. Distribute 100% of red snapper and grouper-tilefish annual allocation to IFQ shareholders on January 1 of each year.

Preferred Alternative 2: Provide the Regional Administrator the authority to withhold the amount of red snapper or grouper-tilefish annual allocation before distribution at the beginning of a year in which a commercial quota reduction is expected to occur. Withheld red snapper and grouper-tilefish annual allocation will be distributed to shareholders if the effective date of the final rule implementing the quota reduction has not occurred by:

Preferred Option a: June 1.
Option b: August 1.

Discussion:

Although the annual catch limit (ACL) for some IFQ managed species has been increasing in recent years (i.e., red snapper and red grouper), it is possible that a quota decrease could occur, such as following a stock assessment. Allocation is distributed at the beginning of the year, and most IFQ program participants begin to use or transfer their allocation early in the year. For example, many program participants obtain allocation early in the year to ensure they have available allocation to use throughout the year. Once shareholders begin transferring or landing allocation, it would not be possible to retroactively withdraw allocation from shareholder accounts should a quota decrease become effective after the beginning of the year.

Under **Alternative 1** (No Action), commercial IFQ allocation would continue to be distributed by January 1 of each year. Therefore, **Alternative 1** would not allow anticipated decreases in the commercial ACL of a species managed under an IFQ program to be factored into the allocation after the January 1, 2016, distribution of annual allocation to shareholders. If an ACL reduction should occur mid-year, the reduction could not go into effect for these species until the beginning of the following year unless the Council determines to withhold annual allocation through a framework action and there is sufficient time to implement the action.

Preferred Alternative 2 would allow NMFS to implement an anticipated decrease in the quota of any IFQ species or multi-species share categories after the start of a year by only distributing a portion of the annual allocation to shareholders on January 1. Implementing any change to an ACL would continue to require the Council and NMFS to take such action through the appropriate regulatory process, such as a framework action. Because most IFQ program participants begin to use or transfer their allocation early in the year, withholding some predetermined proportion of shareholders' allocation would not prevent fishermen from beginning to harvest a part of their allocation. On the other hand, not knowing whether the remainder of a shareholder's allocation will be released during the year could introduce seasonal inefficiencies in fishing operations and may affect allocation prices during that time.

Distributing IFQ allocation late in the year can affect IFQ program participants and market conditions in unintended ways. Subsequent to the retention of a portion of annual allocation at the beginning of the year, it is possible that an expected quota reduction would not occur. For example, the Secretary of Commerce could delay or disallow approval of the regulatory action and the ACL reduction would not occur under the anticipated timeline. If the Council selects **Preferred Alternative 2** as preferred, and an expected ACL reduction does not occur, **Preferred Option a** and **Option b** would provide a time by which any withheld IFQ allocation would be distributed to shareholders if the effective date of the final rule implementing the ACL reduction has not occurred. Withheld allocation would be returned on June 1 (**Preferred Option a**), or August 1 (**Option b**). Should an option not be selected, the Regional Administrator retains the authority to distribute withheld quota at any time if it becomes known that an expected ACL reduction is not going to occur during the year in which IFQ allocation was withheld. Should IFQ shares be transferred between participants during a year in which some portion of annual allocation was withheld and later distributed, the allocation will be distributed according to the shareholder at the time the allocation is released.

2.4 Action 4 – Dealer Notification Requirement for Beginning to Offload IFQ Species

Preferred Alternative 1: No Action. Do not require IFQ dealers to provide notification to NMFS specifying when a vessel will offload IFQ species.

Alternative 2: Require IFQ dealers to notify NMFS when a vessel will offload IFQ species. The notification must be made at least 1 hour, and no more than 24 hours, before offloading begins.

Alternative 3: Require IFQ dealers to notify NMFS when a vessel will offload IFQ species. The notification must be made at least 3 hours, and no more than 24 hours, before offloading begins.

Discussion:

This action to require a dealer notification is being considered as a way to improve law enforcement's ability to arrive at an approved landing location when the offloading of IFQ species is to occur. Currently, the owner or operator of a commercial vessel intending to land IFQ species must hail-in, providing a ***landing notification*** at least 3 but no more than 24 hours in advance of landing, and identifying an approved landing location. Although a commercial vessel may land at any time of the day or night, offloading of IFQ species must occur between 6 a.m. and 6 p.m.

Following a vessel offloading at an approved landing location, the IFQ dealer must submit a ***landing transaction*** using the online IFQ system, on the day of offload or within 96 hours of the landing notification, whichever occurs first. The fisherman landing the IFQ species must validate the landing transaction by entering the unique vessel's identification number when the

landing transaction is submitted. Although the landing notification and landing transaction provisions provide a window of time in which law enforcement could reasonably expect fish to be offloaded, law enforcement may arrive to observe the offloading of IFQ species from a vessel with a completed landing notification, only to find the operator or crew are not actively offloading at that time. For example, it is possible that a vessel's crew must wait to offload, such as when another vessel has previously arrived and already begun to offload with the same dealer. This action proposes to require IFQ dealers to notify NMFS when a vessel will offload IFQ species, and will be called a ***dealer notification***.

Preferred Alternative 1 would not require IFQ dealers to notify NMFS when a vessel carrying IFQ species will offload. Vessels intending to land IFQ species would continue to be required to hail-in to NMFS, providing a landing notification at least 3 hours and no more than 24 hours in advance of the landing time and approved location. Dealers would still be required to complete a landing transaction on the day of offload or within 96 hours of the landing notification, whichever occurs first.

Alternative 2 would require IFQ dealers to notify NMFS that a vessel that has landed IFQ species will begin to offload from 1 – 24 hours following the dealer's notification. **Alternative 3** would require IFQ dealers to notify NMFS that a vessel that has landed IFQ species will begin to offload beginning in at least 3 hours but no more than 24 hours following the dealer's notification. For both **Alternative 2** and **Alternative 3**, the offload would still occur between 6 a.m. and 6 p.m. The Council may wish to consider adding options to these alternatives to specify a window for when offloading must begin, following the offload notification. For both **Alternatives 2** and **3**, NMFS will specify a time window within the notification during which offloading may begin. If an offload is going to begin more than 1 hour after the time required to be given in the offload notification, a new offload notification with an updated time must be submitted.

CHAPTER 3. AFFECTED ENVIRONMENT

The actions in this amendment would affect the commercial sector of the reef fish fishery. The affected environment as it pertains to red snapper, groupers, and tilefishes of the Gulf of Mexico (Gulf) within the reef fish fishery has been described in detail in the following documents: Reef Fish Amendments 27/Shrimp Amendment 14 (GMFMC 2007), 30A (GMFMC 2008b), 30B (GMFMC 2008c), 32 (GMFMC 2011a), the Generic Essential Fish Habitat (EFH) Amendment (GMFMC 2004a), and the Generic Annual Catch Limits/Accountability Measures (ACL/AM) Amendment (GMFMC 2011b). This information is incorporated by reference and is summarized or updated below.

3.1 Description of the Fishery

A limited access commercial permit for reef fish is required for a vessel to harvest reef fish species in excess of the recreational bag limit. Commercial permits are valid for one year and may be renewed up to one year after the date of expiration; those permits that have expired within one year are termed renewable. On May 3, 2016, there were 852 valid or renewable commercial permits for reef fish, of which 759 were currently valid.

This section provides a summary of the quotas, landings, and fishing seasons for species managed under the two commercial individual fishing quota (IFQ) programs in the Gulf. The red snapper IFQ (RS-IFQ) program is a single species program. The grouper and tilefish IFQ (GT-IFQ) program includes single species share categories for gag (GG) and red grouper (RG), and multi-species categories for the shallow-water groupers (SWG), deep-water groupers (DWG), and tilefish (TF).

Red Snapper

Commercial harvest of red snapper from the Gulf began in the mid-1800s (Shipp 2001). In the Gulf, the commercial harvest of red snapper is prosecuted primarily with hook-and-line and bandit gear, with bandit gear being more prevalent. Longline gear captures a small percentage of total landings (generally < 5%; SEDAR 31 2013). Current regulations prohibit longline gear for the harvest of reef fish inside of 50 fathoms west of Cape San Blas. East of Cape San Blas, longline gear is prohibited for harvest of reef fish inside of 20 fathoms from September through May. From June through August, the longline boundary is shifted out to 35 fathoms to protect foraging sea turtles.

The red snapper stock has been found to be in decline or in an overfished condition since the first red snapper stock assessment in 1986 (Parrack and McClellan 1986). The first red snapper rebuilding plan was implemented in 1990 through Amendment 1 (GMFMC 1989). From 1990 through 2009, red snapper harvest was managed through the setting of an annual total allowable catch (TAC). This TAC was allocated with 51% going to the commercial sector and 49% to the recreational sector. Beginning in 2010, TAC was phased out in favor of an ACL as a result of

revisions to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Between 1990 and 2006, the principal method of managing the commercial sector for red snapper was with quotas and seasonal closures after each year's quota was filled. The result was a race for fish in which fishermen were compelled to fish as quickly as possible to maximize their catch of the overall quota before the season was closed. The fishing year was characterized by short periods of intense fishing activity with large quantities of red snapper landed during the open seasons. The result was short seasons and frequent quota overruns (Table 3.1.1). From 1993 through 2006, trip limits, limited access endorsements, split seasons and partial monthly season openings were implemented in an effort to slow the race for fish. At the beginning of the 1993 season, 131 boats qualified for red snapper endorsements on their commercial permits for reef fish that authorized them to land 2,000 lbs of red snapper per trip.

Table 3.1.1. Commercial red snapper landings including overages/underages and historical season length, 1986-2006. Commercial quotas began in 1990. Quotas and landings are in million pounds whole weight.

Year	Quota	Actual landings	Difference	Days Open (days that open or close at noon are counted as half-days) ("+" = split season)
1986	N/A	3.700	N/A	365
1987	N/A	3.069	N/A	365
1988	N/A	3.960	N/A	365
1989	N/A	3.098	N/A	365
1990	3.10	2.650	-0.450	365
1991	2.04	2.213	+0.173	235
1992	2.04	3.106	+1.066	52½ + 42 = 94½
1993	3.06	3.374	+0.314	94
1994	3.06	3.222	+0.162	77
1995	3.06	2.934	-0.126	50 + 1½ = 51½
1996	4.65	4.313	-0.337	64 + 22 = 86
1997	4.65	4.810	+0.160	53 + 18 = 71
1998	4.65	4.680	+0.030	39 + 28 = 67
1999	4.65	4.876	+0.226	42 + 22 = 64
2000	4.65	4.837	+0.187	34 + 25 = 59
2001	4.65	4.625	-0.025	50 + 20 = 70
2002	4.65	4.779	+0.129	57 + 24 = 81
2003	4.65	4.409	-0.241	60 + 24 = 84
2004	4.65	4.651	+0.001	63 + 32 = 95
2005	4.65	4.096	-0.554	72 + 48 = 120
2006	4.65	4.649	-0.001	72 + 43 = 115

Source: SEDAR 31 (2013) Data Workshop Report.
Commercial quotas/landings in gutted weight were multiplied by 1.11 to convert to ww.

The commercial sector had quota overruns in 10 of the 21 years before implementation of the RS-IFQ program in 2007. Each vessel that qualified for the RS-IFQ program was issued shares of the commercial quota and the amount of shares issued was based on historical participation. At the beginning of each year, each shareholder is issued allocation in pounds based on the amount of shares they have. Each shareholder is then allowed to harvest their allocation, transfer their allocation to other fishermen, or purchase allocation from other fishermen. In addition, shares can be transferred (bought and sold). As a result of the RS-IFQ program, the commercial red snapper season has not closed since 2007, but a commercial vessel cannot land red snapper unless it has sufficient allocation in its vessel account to cover the landing poundage. Thus, the RS-IFQ program has ended quota overruns (Table 3.1.2). Commercial landings have averaged 97.5% of the sector ACL from 2007 through 2015, and come closest to meeting the sector ACL in 2014 (99.2%).

Table 3.1.2. Red snapper commercial quotas (pounds gutted weight) since implementation of the RS-IFQ program, including quota increases, total landings, and proportion of quota landed.

Year	Jan 1	Quota Increase	Increase Date	Dec 31	Total Landings	% Quota Landed
2007	2,297,297	689,189	June 1	2,986,486	2,867,325	96.0%
2008	2,297,297	N/A	N/A	2,297,297	2,237,480	97.4%
2009	2,297,297	N/A	N/A	2,297,297	2,237,446	97.4%
2010	2,297,297	893,694	June 2	3,190,991	3,056,044	95.8%
2011	3,190,991	109,910	May 31	3,300,901	3,238,335	98.1%
2012	3,300,901	411,712	June 29	3,712,613	3,636,395	97.9%
2013	3,712,613	174,774 1,166,667	May 29 Sept 30	5,054,054	4,908,598	97.1%
2014	5,054,054	N/A	N/A	5,054,054	5,016,056	99.2%
2015	5,054,054	1,516,216	June 1	6,570,270	6,472,261	98.5%

Source: Southeast Regional Office (SERO) IFQ database.
http://sero.nmfs.noaa.gov/sustainable_fisheries/ifq/documents/pdfs/commercialquotascatchallowancetable.pdf

Grouper and Tilefish

Prior to implementation of the GT-IFQ program, commercial grouper-tilefish species were managed with limited access fishing permits, trip limits, size limits, closed seasons, and quotas. Temporary trip limits for the commercial fishery were implemented in March 2005. These trip limits were requested by the commercial fishing industry, and were effective until February 26, 2006. A 6,000-lb gutted weight aggregate DWG and SWG trip limit was implemented January 1, 2006 for the commercial grouper fleet. Trip limits were expected to prolong the commercial grouper fishing season and reduce the adverse socioeconomic effects of derby fishing, while still allowing all vessels, including high-capacity vessels, an opportunity to participate in the fishery (GMFMC 2008a).

The fishing seasons for the multi-species share categories experienced several closures prior to implementation of the GT-IFQ program (Table 3.1.3). Prior to 2004, red grouper were included in the SWG quota, and prior to 2009, gag was included in the SWG quota. The SWG season closed on November 15, 2004, and on October 10, 2005. From 2006 until the beginning of the GT-IFQ program, the SWG fishing season remained open year-round. The DWG and TF species experienced more frequent closures that occurred earlier in the year. The harvest of DWG closed on July 15, 2004 and June 2, 2007. As a result, between 2003 and 2007, the season length was reduced by 50%. The harvest of TF first closed on November 21, 2005, and again on July 22, 2006. In 2007, the commercial tilefish season was closed April 18. Thus, the season length for TF was reduced by more than 60% between 2003 and 2007 (GMFMC 2008a).

Table 3.1.3. Commercial gag and red grouper quotas, landings, and season length, in million pounds gutted weight. Red grouper was included in the SWG quota until 2004, and gag was included in the SWG quota until 2009.

Year	GG Quota	GG Landings	Days Open	RG Quota	RG Landings	Days Open
1990	7.8 SWG	0.79	311	7.8 SWG	4.74	311
1991	7.8 SWG	0.93	365	7.8 SWG	5.07	365
1992	8.2 SWG	1.24	366	8.2 SWG	4.46	366
1993	8.2 SWG	1.48	365	8.2 SWG	6.36	365
1994	8.2 SWG	1.28	365	8.2 SWG	4.89	365
1995	8.2 SWG	1.34	365	8.2 SWG	4.65	365
1996	8.2 SWG	1.27	366	8.2 SWG	4.34	366
1997	8.2 SWG	1.40	365	8.2 SWG	4.67	365
1998	8.2 SWG	2.25	365	8.2 SWG	3.70	365
1999	8.2 SWG	1.74	320	8.2 SWG	5.80	320
2000	8.2 SWG	1.91	320	8.2 SWG	5.70	320
2001	8.2 SWG	2.78	320	8.2 SWG	5.80	320
2002	8.2 SWG	2.66	320	8.2 SWG	5.79	320
2003	8.2 SWG	2.29	320	8.2 SWG	4.83	320
2004	8.8 SWG	2.88	275	5.31	5.64	319
2005	8.8 SWG	2.47	320	5.31	5.38	282
2006	8.8 SWG	1.37	320	5.31	5.10	365
2007	8.8 SWG	1.26	320	5.31	3.64	365
2008	8.8 SWG	1.32	320	5.31	4.75	366
2009	1.32	0.75	320	5.75	3.70	365

The gag stock in the Gulf was declared to be overfished and undergoing overfishing in August 2009. A rebuilding plan was implemented, initially through interim rules, to modify the multi-use provision in the commercial IFQ program to prevent red grouper allocation from being used to harvest gag until the rebuilding plan could be implemented through Amendment 32 (GMFMC 2011a), effective March 2012. The Gulf gag benchmark stock assessment was completed in 2014, and concluded that the stock was no longer overfished or undergoing overfishing.

Table 3.1.4 provides the annual quota for each share category since implementation of the GT-IFQ program including mid-year quota increases, if applicable. Table 3.1.5 provides the annual landings for each share category and the proportion of the quota landed for each share category by year. Landings of GT-IFQ species have remained below the ACL for each species and share category since the program began. In contrast to the RS-IFQ program, landings have generally remained further below the respective sector ACLs. Red grouper landings in 2014 reached a high of 98% of the ACL, while SWG landings met only 50% of the ACL.

Table 3.1.4. Annual quotas (pounds gutted weight) for GT-IFQ program share categories including quota increases since implementation of the GT-IFQ program.

DWG	Jan 1	Quota Increase	Increase Date	Dec 31	GG	Jan 1	Quota Increase	Increase Date	Dec 31
2010	1,020,000			1,020,000	**2010**	1,410,000			1,410,000
2011	1,020,000			1,020,000	**2011**	100,000	330,000	June 1	430,000
2012	1,020,000	107,000	Jan 30	1,127,000	**2012**	430,000	137,000	Mar 12	567,000
2013	1,118,000			1,118,000	**2013**	708,000			708,000
2014	1,110,000			1,110,000	**2014**	835,000			835,000
2015	1,101,000			1,101,000	**2015**	939,000			939,000

RG	Jan 1	Quota Increase	Increase Date	Dec 31	SWG	Jan 1	Quota Increase	Increase Date	Dec 31
2010	5,750,000			5,750,000	**2010**	410,000			410,000
2011	4,320,000	910,000	Nov 2	5,230,000	**2011**	410,000			410,000
2012	5,370,000			5,370,000	**2012**	410,000	99,000	Jan 30	509,000
2013	5,530,000			5,530,000	**2013**	518,000			518,000
2014	5,630,000			5,630,000	**2014**	523,000			523,000
2015	5,720,000			5,720,000	**2015**	525,000			525,000

TF	Jan 1	Quota Increase	Increase Date	Dec 31
2010	440,000			440,000
2011	440,000			440,000
2012	440,000	142,000	Jan 30	582,000
2013	582,000			582,000
2014	582,000			582,000
2015	582,000			582,000

Table 3.1.5. Commercial landings of GT-IFQ program species and proportion of ACL landed.

	2010		2011		2012		2013		2014	
DWG	624,762	**61%**	779,519	**76%**	963,835	**86%**	912,923	**82%**	1,048,142	**94%**
GG	493,938	**35%**	320,137	**74%**	525,066	**93%**	579,664	**82%**	689,528	**83%**
RG	2,913,858	**51%**	4,782,194	**91%**	5,217,205	**97%**	4,594,672	**83%**	5,498,754	**98%**
SWG	158,234	**30%**	186,235	**45%**	300,367	**59%**	307,846	**59%**	263,251	**50%**
TF	249,708	**57%**	386,134	**88%**	451,121	**78%**	440,091	**76%**	517,268	**89%**
ALL	4,440,500	**49%**	6,454,219	**86%**	7,457,594	**91%**	6,835,196	**81%**	8,016,943	**92%**

Source: Table 16 in NMFS 2015b.

3.2 Description of the Physical Environment

The Gulf has a total area of approximately 600,000 square miles (1.5 million km^2), including state waters (Gore 1992). It is a semi-enclosed, oceanic basin connected to the Atlantic Ocean by the Straits of Florida and to the Caribbean Sea by the Yucatan Channel (Figure 3.2.1). Oceanographic conditions are affected by the Loop Current, discharge of freshwater into the northern Gulf, and a semi-permanent, anti-cyclonic gyre in the western Gulf. The Gulf includes both temperate and tropical waters (McEachran and Fechhelm 2005). Gulf water temperatures range from 54º F to 84º F (12º C to 29º C) depending on time of year and depth of water. Mean annual sea surface temperatures ranged from 73 º F through 83º F (23-28º C) including bays and bayous (Figure 3.2.1) between 1982 and 2009, according to satellite-derived measurements (NODC 2011: http://accession.nodc.noaa.gov/0072888). In general, mean sea surface temperature increases from north to south with large seasonal variations in shallow waters.

The physical environment for Gulf reef fish is also detailed in the environmental impact statement (EIS) for the EFH Amendment, the Generic ACL/AM Amendment, and Reef Fish Amendment 40 (GMFMC 2004a; GMFMC 2011b; GMFMC 2014) and are incorporated by reference and further summarized below. In general, reef fish are widely distributed in the Gulf, occupying both pelagic and benthic habitats during their life cycle. A planktonic larval stage lives in the water column and feeds on zooplankton and phytoplankton (GMFMC 2004a). Juvenile and adult reef fish are typically demersal and usually associated with bottom topographies on the continental shelf (<100m) 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. For example, juvenile red snapper are common on mud bottoms in the northern Gulf, particularly off Texas through Alabama. Also, some juvenile snapper (e.g. mutton, gray, red, dog, lane, and yellowtail snappers) and grouper (e.g. Goliath grouper, red, gag, and yellowfin groupers) have been documented in inshore seagrass beds, mangrove estuaries, lagoons, and larger bay systems.

With respect to the National Register of Historic Places, there is one site listed in the Gulf. This is the wreck of the *U.S.S. Hatteras*, located in federal waters off Texas. Historical research indicates that over 2,000 ships have sunk on the Federal Outer Continental Shelf between 1625 and 1951; thousands more have sunk closer to shore in state waters during the same period. Only a handful of these have been scientifically excavated by archaeologists for the benefit of generations to come. Further information can be found at: http://www.boem.gov/Environmental-Stewardship/Archaeology/Shipwrecks.aspx.

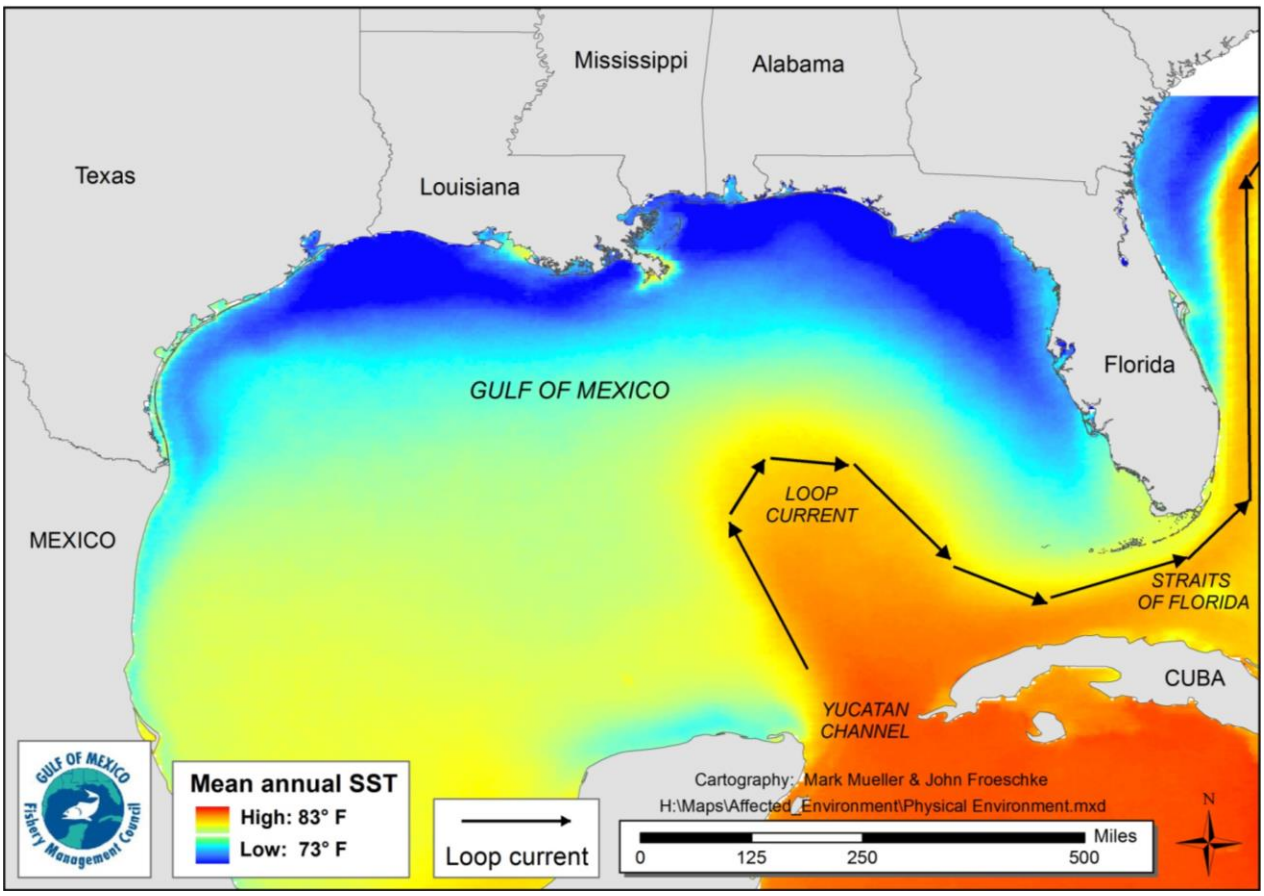


Figure 3.2.1. Physical environment of the Gulf, including major feature names and mean annual sea surface temperature as derived from the Advanced Very High Resolution Radiometer Pathfinder Version 5 sea surface temperature data set (http://accession.nodc.noaa.gov/0072888)

3.3 Description of the Biological Environment

The biological environment of the Gulf, including the species addressed in this amendment, is described in detail in the final EISs for Generic EFH Amendment, the Generic ACL/AM Amendment, and Reef Fish Amendment 40 (refer to GMFMC 2004a; GMFMC 2011b; GMFMC 2014) and is incorporated here by reference and further summarized below.

General Information on Reef Fish Species

The National Ocean Service collaborated with the National Marine Fisheries Service (NMFS) and the Gulf of Mexico Fishery Management Council (Council) to develop distributions of reef fish (and other species) in the Gulf (SEA 1998). The National Ocean Service 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 parts per thousand). National Ocean Service staff analyzed these data to determine relative abundance of the mapped species by estuary, salinity zone, and month. For some species not in the ELMR Program database, distribution was classified as only observed or not observed for adult, juvenile, and spawning stages.

In general, reef fish are widely distributed in the Gulf, occupying both pelagic and benthic habitats during their life cycle. Habitat types and life history stages are summarized in Appendix F and can be found in more detail in GMFMC (2004a). 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 (<328 feet; <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 from Texas to 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 Fishery Management Plan (FMP) for Corals and Coral Reefs (GMFMC and SAFMC 1982).

Status of Reef Fish Stocks

The Reef Fish FMP currently encompasses 31 species (Table 3.3.1). Eleven other species were removed from the FMP in 2012 through the Generic ACL/AM Amendment (GMFMC 2011b). Stock assessments and stock assessment reviews have been conducted for 13 species and can be found on the Council (www.gulfcouncil.org) and SEDAR (www.sefsc.noaa.gov/sedar) websites. The assessed species are:

- Red Snapper (SEDAR 7 2005; SEDAR 7 Update 2009; SEDAR 31 2013; SEDAR 31 Update 2015)
- Vermilion Snapper (Porch and Cass-Calay 2001; SEDAR 9 2006c; SEDAR 9 Update 2011a)
- Yellowtail Snapper (Muller et al. 2003; SEDAR 3 2003; O'Hop et al. 2012)
- Mutton Snapper (SEDAR 15A 2008)
- Gray Triggerfish (Valle et al. 2001; SEDAR 9 2006a; SEDAR 9 Update 2011b, SEDAR 43 2015)
- Greater Amberjack (Turner et al. 2000; SEDAR 9 2006b; SEDAR 9 Update 2010; SEDAR 33 2014a)
- Hogfish (Ault et al. 2003; SEDAR 6 2004b; Cooper et al. 2013; SEDAR 37 2014)
- Red Grouper (NMFS 2002; SEDAR 12 2007; SEDAR 12 Update 2009, SEDAR 42 2015)
- Gag (Turner et al. 2001; SEDAR 10 2006; SEDAR 10 Update 2009; SEDAR 33 2014b)

- Black Grouper (SEDAR 19 2010)
- Yellowedge Grouper (Cass-Calay and Bahnick 2002; SEDAR 22 2011b)
- Tilefish (Golden) (SEDAR 22 2011a)
- Atlantic Goliath Grouper (Porch et al. 2003; SEDAR 6 2004a; SEDAR 23 2011)

The NMFS Office of Sustainable Fisheries updates its Status of U.S. Fisheries Report to Congress on a quarterly basis utilizing the most current stock assessment information. The most recent update can be found at: http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/. The status of both assessed and unassessed stocks as of the writing of this report is provided in Table 3.3.1. Of the six IFQ species that have been assessed, only red snapper is considered overfished at this time and none are undergoing overfishing. The stock status is unknown for scamp, snowy grouper, speckled hind, yellowfin grouper, yellowmouth grouper, warsaw grouper, blueline tilefish, and goldface tilefish. However, the annual catch limits for the other shallow-water grouper, deepwater grouper, and tilefish species groups has not been exceeded.

Table 3.3.1. Species of the Reef Fish FMP grouped by family.

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

Notes: *The East Florida/Florida Keys hogfish stock is considered overfished and undergoing overfishing.

**In 2013 the genus for yellowedge grouper, snowy grouper, and warsaw grouper was changed by the American Fisheries Society from *Epinephelus* to *Hyporthodus* (American Fisheries Society 2013).

***Atlantic goliath grouper is a protected grouper and benchmarks do not reflect appropriate stock dynamics. In 2013 the common name was changed from goliath grouper to Atlantic goliath grouper by

the American Fisheries Society to differentiate from the Pacific goliath grouper, a newly named species (American Fisheries Society 2013).

Protected Species

The Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) provide special protections to some species that occur in the Gulf. Appendix E includes a very brief summary of these two laws and more information is available on NMFS Office of Protected Resources website (http://www.nmfs.noaa.gov/pr/laws/). All 22 marine mammals in the Gulf are protected under the MMPA. Two marine mammals (sperm whales and manatees) are also protected under the ESA. Other species protected under the ESA include sea turtle species [Kemp's ridley, loggerhead (Northwest Atlantic distinct population segment (DPS), green (North Atlantic and South Atlantic DPSs), leatherback, and hawksbill), fish species (Gulf sturgeon, Nassau Grouper, and smalltooth sawfish), and coral species (elkhorn, staghorn, rough cactus, lobed star, mountainous star, and boulder star). Critical habitat designated under the ESA for smalltooth sawfish, Gulf sturgeon, and the Northwest Atlantic Ocean distinct population segment of loggerhead sea turtles also occur in the Gulf, though only loggerhead critical habitat occurs in federal waters.

The following sections provide a brief overview of the marine mammals, sea turtles, and fish that may be present in or near areas where Gulf reef fish fishing occurs and their general life history characteristics. Since none of the listed corals or designated critical habitats in the Gulf are likely to be adversely affected by the Gulf reef fish fishery, they are not discussed further.

Marine Mammals

The 22 species of marine mammals in the Gulf include one sirenian species (a manatee), which is under U.S. Fish and Wildlife Service's jurisdiction, and 21 cetacean species (dolphins and whales), all under NMFS' jurisdiction. Manatees primarily inhabit rivers, bays, canals, estuaries, and coastal waters rich in seagrass and other vegetation off Florida, but can occasionally be found in seagrass habitats as far west as Texas. Although most of the cetacean species reside in the oceanic habitat ($\geq$ 200 m), the Atlantic spotted dolphin is found in waters over the continental shelf (20-200 m), and the common bottlenose dolphin (hereafter referred to as bottlenose dolphins) is found throughout the Gulf, including within bays, sounds, and estuaries; coastal waters over the continental shelf; and in deeper oceanic waters.

Sperm whales are one of the cetacean species found in offshore waters of the Gulf (>200m) and are listed endangered under the ESA. Sperm whales, are the largest toothed whales and are found year-round in the northern Gulf along the continental slope and in oceanic waters (Waring et al. 2013). There are several areas between Mississippi Canyon and De Soto Canyon where sperm whales congregate at high densities, likely because of localized, highly productive habitats (Biggs et al. 2005; Jochens et al. 2008). There is a resident population of female sperm whales, and whales with calves frequently sighted there.

Bryde's whales are the only resident baleen whales in the Gulf and are currently being evaluated to determine if listing under the ESA is warranted. Bryde's whales (pronounced "BREW-days") in the Gulf are currently restricted to a small area in the northeastern Gulf near De Soto Canyon in waters between 100 – 400 m depth along the continental shelf break, though information in the southern Gulf is sparse (Waring et al. 2013). On September 18, 2014, NMFS received a revised petition from the Natural Resource Defense Council to list the Gulf Bryde's whale as an endangered. On April 6, 2015, NMFS found the petitioned action may be warranted and convened a Status Review Team to prepare a status review report. On December 8, 2016, NMFS proposed listing the Bryde's whale as endangered.

Although they are all the same species, **bottlenose dolphins** in the Gulf can be separated into demographically independent populations called stocks. Bottlenose dolphins are currently managed by NMFS as 36 distinct stocks within the Gulf. These include 31 bay, sound and estuary stocks, three coastal stocks, one continental shelf stock, and one oceanic stock (Waring et al. 2013). Additional climatic and oceanographic boundaries delineate the three coastal stocks such that the Gulf Eastern Coastal Stock ranges from 84°W to Key West, FL, the Northern Coastal Stock ranges from 84°W to the Mississippi River Delta, and the Gulf Western Coastal stock ranges from the Mississippi River Delta to the Texas/Mexico border. Marine Mammal Stock Assessment Reports and additional information on these species in the Gulf are available on the NMFS Office of Protected Species website: http://www.nmfs.noaa.gov/pr/sspecies/.

Bottlenose dolphin adults range from 6 to 9 feet (1.8 to 2.8 m) long and weigh typically between 300 to 600 lbs (136 to 272 kg). Females and males reach sexual maturity between ages 5 to 13 and 9 to 14, respectively. Once mature, females give birth once every 3 to 6 years. Maximum known lifespan can be 50 years for males and greater than 60 years for females (Reynolds 2000).

The MMPA requires that each commercial fishery be classified by the number of marine mammals they seriously injure or kill. NMFS's List of Fisheries classifies U.S. commercial fisheries into three categories based on the number of incidental mortality or serious injury they cause to marine mammals. More information about the List of Fisheries and the classification process can be found at: http://www.nmfs.noaa.gov/pr/interactions/fisheries/lof.html.

NMFS classifies reef fish bottom longline/hook-and-line gear in the MMPA 2015 List of Fisheries as a Category III fishery (79 FR 77919). This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from any fishery is less than or equal to 1% of the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. Dolphins are the only species documented as interacting with these fisheries. Bottlenose dolphins are a common predator around reef fish vessels. They prey upon on the bait, catch, and/or released discards of fish from the reef fish fishery.

Turtles

Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly migratory and travel widely throughout the Gulf. Several volumes exist that cover the biology and ecology of these species (i.e., Lutz and Musick (eds.) 1997; Lutz et al. 2003; Wynekan et al. (eds.) 2013).

Green sea turtle hatchlings are thought to occupy pelagic areas of the open ocean and are often associated with *Sargassum* rafts (Carr 1987; Walker 1994). Pelagic stage green sea turtles are thought to be carnivorous. Stomach samples of these animals found ctenophores and pelagic snails (Frick 1976; Hughes 1974). At approximately 20 to 25 cm carapace length, juveniles migrate from pelagic habitats to benthic foraging areas (Bjorndal 1997). As juveniles move into benthic foraging areas a diet shift towards herbivory occurs. They consume primarily seagrasses and algae, but are also known to consume jellyfish, salps, and sponges (Bjorndal 1980, 1997; Paredes 1969; Mortimer 1981, 1982). The diving abilities of all sea turtles species vary by their life stages. The maximum diving range of green sea turtles is estimated at 110 m (360 ft) (Frick 1976), but they are most frequently making dives of less than 20 m (65 ft.) (Walker 1994). The time of these dives also varies by life stage. The maximum dive length is estimated at 66 minutes with most dives lasting from 9 to 23 minutes (Walker 1994).

The **hawksbill's** pelagic stage lasts from the time they leave the nesting beach as hatchlings until they are approximately 22-25 cm in straight carapace length (Meylan 1988; Meylan and Donnelly 1999). The pelagic stage is followed by residency in developmental habitats (foraging areas where juveniles reside and grow) in coastal waters. Little is known about the diet of pelagic stage hawksbills. Adult foraging typically occurs over coral reefs, although other hard-bottom communities and mangrove-fringed areas are occupied occasionally. Hawksbills show fidelity to their foraging areas over several years (van Dam and Diéz 1998). The hawksbill's diet is highly specialized and consists primarily of sponges (Meylan 1988). Gravid females have been noted ingesting coralline substrate (Meylan 1984) and calcareous algae (Anderes Alvarez and Uchida 1994), which are believed to be possible sources of calcium to aid in eggshell production. The maximum diving depths of these animals are not known, but the maximum length of dives is estimated at 73.5 minutes. More routinely, dives last about 56 minutes (Hughes 1974).

Kemp's ridley hatchlings are also pelagic during the early stages of life and feed in surface waters (Carr 1987; Ogren 1989). After the juveniles reach approximately 20 cm carapace length they move to relatively shallow (less than 50m) benthic foraging habitat over unconsolidated substrates (Márquez-M. 1994). They have also been observed transiting long distances between foraging habitats (Ogren 1989). Kemp's ridleys feeding in these nearshore areas primarily prey on crabs, though they are also known to ingest mollusks, fish, marine vegetation, and shrimp (Shaver 1991). The fish and shrimp Kemp's ridleys ingest are not thought to be a primary prey item but instead may be scavenged opportunistically from bycatch discards or discarded bait (Shaver 1991). Given their predilection for shallower water, Kemp's ridleys most routinely make dives of 50 m or less (Soma 1985; Byles 1988). Their maximum diving range is unknown. Depending on the life stage a Kemp's ridleys may be able to stay submerged anywhere from 167 minutes to 300 minutes, though dives of 12.7 minutes to 16.7 minutes are much more common

(Soma 1985; Mendonca and Pritchard 1986; Byles 1988). Kemp's ridleys may also spend as much as 96% of their time underwater (Soma 1985; Byles 1988).

Leatherbacks are the most pelagic of all ESA-listed sea turtles and spend most of their time in the open ocean. Although they will enter coastal waters and are seen over the continental shelf on a seasonal basis to feed in areas where jellyfish are concentrated. Leatherbacks feed primarily on cnidarians (medusae, siphonophores) and tunicates. Unlike other sea turtles, leatherbacks' diets do not shift during their life cycles. Because leatherbacks' ability to capture and eat jellyfish is not constrained by size or age, they continue to feed on these species regardless of life stage (Bjorndal 1997). Leatherbacks are the deepest diving of all sea turtles. It is estimated that these species can dive in excess of 1000 m (Eckert et al. 1989) but more frequently dive to depths of 50 m to 84 m (Eckert et al. 1986). Dive times range from a maximum of 37 minutes to more routines dives of 4 to 14.5 minutes (Standora et al. 1984; Eckert et al. 1986; Eckert et al. 1989; Keinath and Musick 1993). Leatherbacks may spend 74% to 91% of their time submerged (Standora et al. 1984).

Loggerhead hatchlings forage in the open ocean and are often associated with *Sargassum* rafts (Hughes 1974; Carr 1987; Walker 1994; Bolten and Balazs 1995). The pelagic stage of these sea turtles are known to eat a wide range of things including salps, jellyfish, amphipods, crabs, syngnathid fish, squid, and pelagic snails (Brongersma 1972). Stranding records indicate that when pelagic immature loggerheads reach 40-60 cm straight-line carapace length, they begin to live in coastal inshore and nearshore waters of the continental shelf throughout the U.S. Atlantic (Witzell 2002). Here they forage over hard- and soft-bottom habitats (Carr 1986). Benthic foraging loggerheads eat a variety of invertebrates with crabs and mollusks being an important prey source (Burke et al. 1993). Estimates of the maximum diving depths of loggerheads range from 211 m to 233 m (692-764ft.) (Thayer et al. 1984; Limpus and Nichols 1988). The lengths of loggerhead dives are frequently between 17 and 30 minutes (Thayer et al. 1984; Limpus and Nichols 1988; Limpus and Nichols 1994; Lanyon et al. 1989) and they may spend anywhere from 80 to 94% of their time submerged (Limpus and Nichols 1994; Lanyon et al. 1989).

All of the above sea turtles are adversely affected by the Gulf reef fish fishery. Incidental captures are- infrequent, but occur in all commercial and recreational hook-and-line and longline components of the reef fish fishery. Observer data indicate that the bottom longline component of the fishery interacts solely with loggerhead sea turtles. Captured loggerhead sea turtles can be released alive or can be found dead upon retrieval of bottom longline gear as a result of forced submergence. Sea turtles caught during other reef fish fishing with other gears are believed to all be released alive due to shorter gear soak. All sea turtles released alive may later succumb to injuries sustained at the time of capture or from exacerbated trauma from fishing hooks or lines that were ingested, entangled, or otherwise still attached when they were released. Sea turtle release gear and handling protocols are required in the commercial and for-hire reef fish fisheries to minimize post-release mortality.

NMFS has conducted specific analyses ("Section 7 consultations") evaluating potential effects from the Gulf reef fish fishery on sea turtles (as well as on other ESA-listed species and critical habitat) as required by the ESA. On September 30, 2011, the Southeast Regional Office

completed a biological opinion (Opinion), which concluded that the continued authorization of the Gulf reef fish fishery is not likely to jeopardize the continued existence of any sea turtles (loggerhead, Kemp's ridley, green, hawksbill, and leatherback) (NMFS 2011). An incidental take statement was issued specifying the amount and extent of anticipated take, along with reasonable and prudent measures and associated terms and conditions deemed necessary and appropriate to minimize the impact of these takes. On July 1, 2016, NMFS requested reinitiation of consultation to address the newly listed green sea turtle DPSs.

Fish

Historically the **smalltooth sawfish** in the U.S. ranged from New York to the Mexico border. Their current range is poorly understood but believed to have contracted from these historical areas. Smalltooth sawfish primarily occur in the Gulf off peninsular Florida and are most common off Southwest Florida and the Florida Keys. Historical accounts and recent encounter data suggest that immature individuals are most common in shallow coastal waters less than 25 meters (Bigelow and Schroeder 1953; Adams and Wilson 1995), while mature animals occur in waters in excess of 100 meters (Simpfendorfer pers. comm. 2006). Smalltooth sawfish feed primarily on fish. Mullet, jacks, and ladyfish are believed to be their primary food resources (Simpfendorfer 2001). Smalltooth sawfish also prey on crustaceans (mostly shrimp and crabs) by disturbing bottom sediment with their saw (Norman and Fraser 1938; Bigelow and Schroeder 1953).

Smalltooth sawfish are also adversely affected by the Gulf reef fish fishery, but are interacted with to a much lesser extent than sea turtles. 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 anticipated to be incidentally caught every three year in the entire ref fish fishery, and none are expected to result in mortality (NMFS 2011). In the September 30, 2011, Opinion, NMFS concluded that the continued authorization of the Gulf reef fish fishery is not likely to jeopardize the continued existence of smalltooth sawfish (NMFS 2011). An incidental take statement was issued specifying the amount and extent of anticipated take, along with reasonable and prudent measures and associated terms and conditions deemed necessary and appropriate to minimize the impact of these takes. Fishermen in this fishery are required to follow smalltooth sawfish safe handling guidelines.

The Nassau Grouper Biological Report (Hill and Sadovy de Mitcheson, 2013) provides a detailed description of the species' distribution. The **Nassau grouper's** confirmed distribution currently includes "Bermuda and Florida (USA), throughout the Bahamas and Caribbean Sea" (*e.g.*, Heemstra and Randall 1993). They are considered a rare or transient species off Texas in the northwestern Gulf (Gunter and Knapp 1951 in Hoese and Moore 1998). The first confirmed sighting of Nassau grouper in the Flower Garden Banks National Marine Sanctuary, which is located in the northwest Gulf approximately 180 kilometers southeast of Galveston, Texas, was reported by Foley et al. (2007). Many earlier reports of Nassau grouper up the Atlantic coast to North Carolina have not been confirmed. The Nassau grouper is primarily a shallow-water,

insular fish species that has long been valued as a major fishery resource throughout the wider Caribbean, South Florida, Bermuda, and the Bahamas (Carter et al. 1994). As larvae, Nassau grouper are planktonic. After an average of 35-40 days and at an average size of 32 millimeters total length (TL), larvae recruit from an oceanic environment into demersal habitats where they settle as juveniles (Colin 1992; Eggleston 1995). As juveniles grow, they move progressively to deeper areas and offshore reefs (Tucker et al. 1993; Colin et al. 1997). Smaller juveniles occur in shallower inshore waters (3.7-16.5 m) and larger juveniles are more common near deeper (18.3-54.9 m) offshore banks (Bardach et al. 1958; Cervigón 1966; Silva Lee 1974; Radakov et al. 1975; Thompson and Munro 1978). Adult Nassau grouper also tend to be relatively sedentary and are commonly associated with high-relief coral reefs or rocky substrate in clear waters to depths of 130 m. Generally, adults are most common at depths less than 100 m (Hill and Sadovy de Mitcheson 2013) except when at spawning aggregations where they are known to descend to depths of 255 m (Starr et al. 2007). Nassau grouper form spawning aggregations at predictable locations around the winter full moons, or between full and new moons (Smith 1971; Colin 1992; Tucker et al. 1993; Aguilar-Perera 1994; Carter et al. 1994; Tucker and Woodward 1994). Few formal stock assessments have been conducted for Nassau grouper, likely because of limited data.

On June 29, 2016, NMFS published a final rule (81 FR 42268) listing Nassau grouper as threatened under the ESA. For Nassau grouper, the most serious threats to the status and recovery of Nassau grouper are fishing at spawning aggregations and inadequate law enforcement protecting spawning aggregations. However, there are no known spawning aggregations of Nassau grouper in the Gulf or any U.S. waters. Therefore, the reef fish fishery is not fishing, even incidentally, on spawning aggregations and is not contributing to this major threat. Similarly, as fishing at spawning aggregations does not occur in the Gulf, concerns about inadequate law enforcement protecting spawning aggregations is not relevant, and the reef fish fishery does not negatively contribute to the impact of this threat as it relates to recovery.

Northern Gulf of Mexico Hypoxic Zone

Every summer in the northern Gulf, a large hypoxic zone forms. It is the result of allochthonous materials and runoff from agricultural lands by rivers to the Gulf, increasing nutrient inputs from the Mississippi River, and a seasonal layering of waters in the Gulf (see http://www.gulfhypoxia.net/). The layering of the water is temperature and salinity dependent and prevents the mixing of higher oxygen content surface water with oxygen-poor bottom water. For 2014, the extent of the hypoxic area was estimated to be 5,052 square miles and is similar the running average for over the past 5 years of 5,543 square miles Gulf (see http://www.gulfhypoxia.net/).

The hypoxic conditions in the northern Gulf directly impact less mobile benthic macroinvertebrates (e.g., polychaetes) by influencing density, species richness, and community composition (Baustian and Rabalais 2009). However, more mobile macroinvertebrates and demersal fishes (e.g., red snapper) are able to detect lower dissolved oxygen levels and move away from hypoxic conditions. Therefore, although not directly affected, these organisms are indirectly affected by limited prey availability and constrained available habitat (Baustian and Rabalais 2009; Craig 2012). For red snapper, Courtney et al. (2013) have conjectured that the

hypoxic zone could have an indirect positive effect on red snapper populations in the western Gulf. They theorize that increased nutrient loading may be working in 'synergy' with abundant red snapper artificial habitats (oil platforms). Nutrient loading likely increases forage species biomass and productivity providing ample prey for red snapper residing on the oil rigs, thus increasing red snapper productivity. Grouper and tilefish are less common in the northern Gulf, so the northern Gulf hypoxic zone influences these stock less.

Climate change

Climate change projections show increases in sea-surface temperature and sea level; decreases in sea-ice cover; and changes in salinity, wave climate, and ocean circulation (Intergovernmental Panel on Climate Change (IPCC) http://www.ipcc.ch/). These changes are likely to affect plankton biomass and fish larvae abundance that could adversely impact fish, marine mammals, seabirds, and ocean biodiversity. Kennedy et al. (2002) and Osgood (2008) have suggested global climate change could affect temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; change precipitation patterns and cause a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influence the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs. The National Oceanic and Atmospheric Administration's (NOAA) Climate Change Web Portal[13] indicates the average sea surface temperature in the Gulf will increase by 1.2-1.4ºC for 2006-2055 compared to the average over the years 1956-2005. For reef fishes, Burton (2008) speculated climate change could cause shifts in spawning seasons, changes in migration patterns, and changes to basic life history parameters such as growth rates. It is unclear if reef fish distribution in the Gulf has been affected. For some reef fish species such as the smooth puffer, there has been a distributional trend to the north in the Gulf. For other species such as red snapper and the dwarf sand perch, there has been a distributional trend towards deeper waters. For other reef fish species such as the dwarf goatfish, there has been a distributional trend both to the north and to deeper waters. These changes in distributions have been hypothesized as a response to environmental factors such as increases in temperature.

The distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Hollowed et al. (2013) provided a review of projected effects of climate change on the marine fisheries and dependent communities. Integrating the potential effects of climate change into the fisheries assessment is currently difficult due to the time scale differences (Hollowed et al. 2013). The fisheries stock assessments rarely project through a time span that would include detectable climate change effects.

Greenhouse gases

The IPCC (http://www.ipcc.ch/) has indicated greenhouse gas emissions are one of the most important drivers of recent changes in climate. Wilson et al. (2014) inventoried the sources of

[13] http://www.esrl.noaa.gov/psd/ipcc/ocn/

greenhouse gases in the Gulf from sources associated with oil platforms and those associated with other activities such as fishing. A summary of the results of the inventory are shown in Table 3.3.2 with respect to total emissions and from fishing. Commercial fishing and recreational vessels make up a small percentage of the total estimated greenhouse gas emissions from the Gulf (1.43% and 0.59%, respectively).

Table 3.3.2. Total Gulf greenhouse gas emissions estimates (tons per year) from oil platform and non-oil platform sources, commercial fishing, and percent greenhouse gas emissions from commercial fishing vessels of the total emissions*.

Emission source	Greenhouse Gas CO_2	CH_4	N_2O	Total CO_{2e}**
Oil platform	11,882,029	271,355	167	17,632,106
Non-platform	22,703,695	2,029	2,698	23,582,684
Total	34,585,724	273,384	2,865	41,214,790
Commercial fishing	585,204	2	17	590,516
Percent commercial fishing	1.69	>0.01	0.59	1.43

*Compiled from Tables 7.9 and 7.10 in Wilson et al. (2014).

**The CO_2 equivalent (CO_{2e}) emission estimates represent the number of tons of CO_2 emissions with the same global warming potential as one ton of another greenhouse gas (e.g., CH_4 and N_2O). Conversion factors to CO_{2e} are 21 for CH_4 and 310 for N_2O.

Deepwater Horizon MC252 Oil Spill

On April 20, 2010 an explosion occurred on the Deepwater Horizon MC252 oil rig approximately 36 nautical miles (41 statute miles) off the Louisiana coast. Two days later the rig sank. An uncontrolled oil leak from the damaged well continued for 87 days until the well was successfully capped by British Petroleum on July 15, 2010. The Deepwater Horizon MC252 oil spill affected at least one-third of the Gulf area from western Louisiana east to the Florida Panhandle and south to the Campeche Bank in Mexico (Figure 3.3.1).

As reported by NOAA's Office of Response and Restoration (NOAA 2010), the oil from the Deepwater Horizon MC252 spill is relatively high in alkanes, which can readily be used by microorganisms as a food source. As a result, the oil from this spill is likely to biodegrade more readily than crude oil in general. The Deepwater Horizon MC252 oil is also relatively much lower in polyaromatic hydrocarbons (PAHs), which are highly toxic chemicals that tend to persist in the environment for long periods of time, especially if the spilled oil penetrates into the substrate on beaches or shorelines. Like all crude oils, MC252 oil contains volatile organic compounds (VOCs) such as benzene, toluene, and xylene. Some VOCs are acutely toxic but because they evaporate readily, they are generally a concern only when oil is fresh.[14]

[14] Source: http://sero.nmfs.noaa.gov/deepwater_horizon/documents/pdfs/fact_sheets/oil_characteristics.pdf

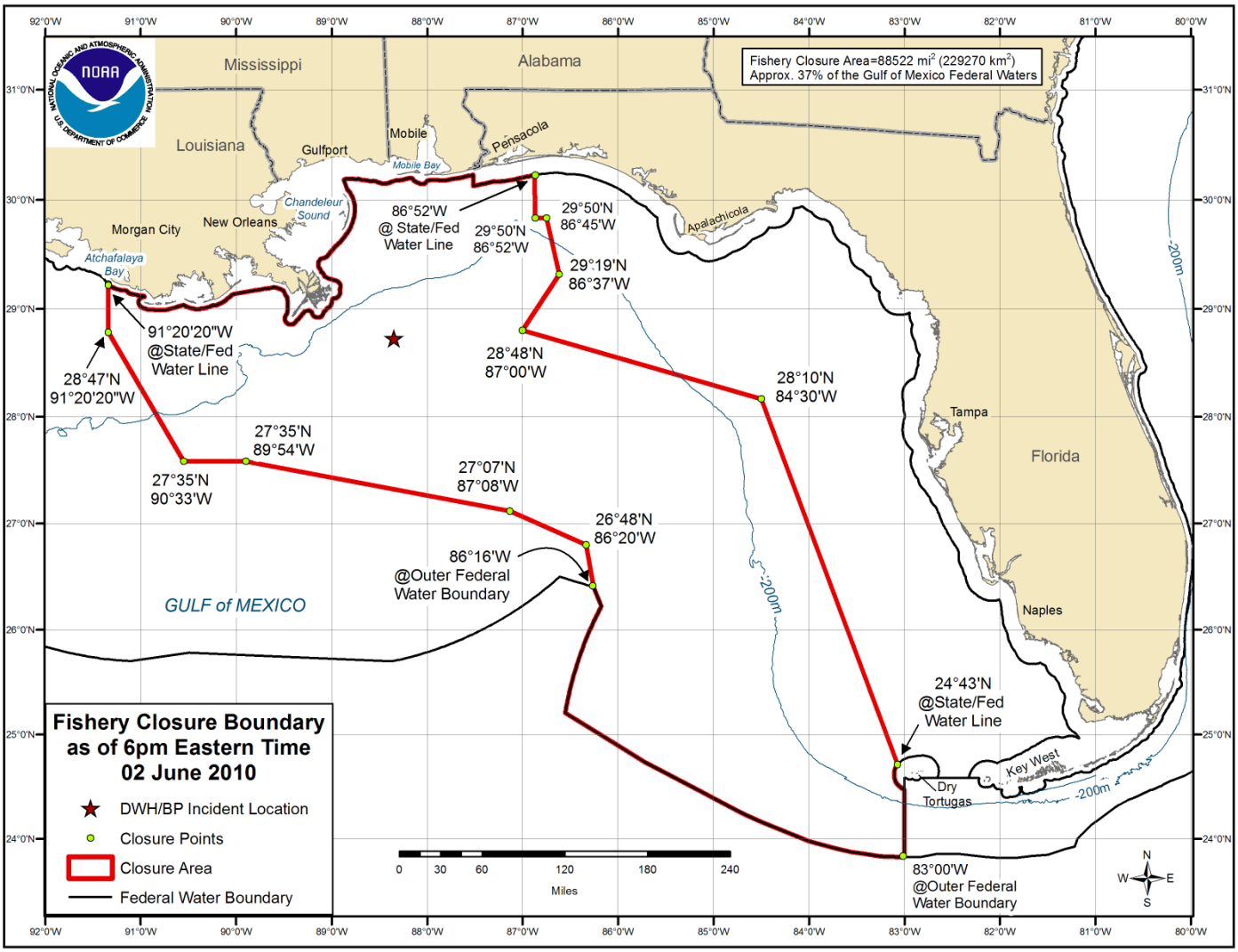


Figure 3.3.1. Fishery closure at the height of the Deepwater Horizon MC252 oil spill.

In addition to the crude oil, over a million gallons of the dispersant, Corexit 9500A®, was applied to the ocean surface and an additional hundreds of thousands of gallons of dispersant was pumped to the mile-deep well head (National Commission 2010). No large-scale applications of dispersants in deep water had been conducted until the Deepwater Horizon MC252 oil spill. Thus, no data exist on the environmental fate of dispersants in deep water. However, a study found that, while Corexit 9500A® and oil are similar in their toxicity, when Corexit 9500A® and oil were mixed in lab tests, toxicity to microscopic rotifers increased up to 52-fold (Rico-Martínez et al. 2013). This suggests that the toxicity of the oil and dispersant combined may be greater than anticipated.

Oil could exacerbate development of the hypoxic "dead" zone in the Gulf as could higher than normal input of water from the Mississippi River drainage. 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.

General Impacts on Fishery Resources

The presence of PAHs in marine environments can have detrimental impacts on marine finfish, especially during the more vulnerable larval stage of development (Whitehead et al. 2012). When exposed to realistic yet toxic levels of PAHs (1–15 µg/L), greater amberjack (*Seriola dumerili*) larvae develop cardiac abnormalities and physiological defects (Incardona et al. 2014). The future reproductive success of long-lived species, including red drum (*Sciaenops ocellatus*) and many reef fish species, may be negatively affected by episodic events resulting in high-mortality years or low recruitment. These episodic events could leave gaps in the age structure of the population, thereby affecting future reproductive output (Mendelssohn et al. 2012). Other studies have described the vulnerabilities of various marine finfish species, with morphological and/or life history characteristics similar to species found in the Gulf, to oil spills and dispersants (Hose et al. 1996; Carls et al. 1999; Heintz et al. 1999; Short 2003).

An increase in histopathological lesions were found in red snapper (*Lutjanus campechanus*) in the area affected by the oil, but Murawski et al. (2014) found that the incidence of lesions had declined between 2011 and 2012. The occurrence of such lesions in marine fish is not uncommon (Sindermann 1979; Haensly et al. 1982; Solangi and Overstreet 1982; Khan and Kiceniuk 1984, 1988; Kiceniuk and Khan 1987; Khan 1990). Red snapper diet was also affected after the spill. A decrease in zooplankton consumed, especially by adults (>400 mm TL) over natural and artificial substrates may have contributed to an increase in the consumption of fish and invertebrate prey- more so at artificial reefs than natural reefs (Tarnecki and Patterson 2015).

The effect of oil, dispersants, and the combination of oil and dispersants on fishes of the Gulf remains an area of concern. Twenty-first century dispersant applications are thought to be less harmful than their predecessors. However, the combination of oil and dispersants have proven to be more toxic to marine fishes than either dispersants or crude oil alone. Marine fish which are more active (e.g., a pelagic species versus a demersal species) appear to be more susceptible to negative effects from interactions with weathered oil/dispersant emulsions. These effects can include mobility impairment and inhibited respiration (Swedmark et al. 1973). Another study found that while Corexit 9500A® and oil are similar in their toxicity, when Corexit 9500A® and oil were mixed in lab tests, toxicity to microscopic rotifers increased up to 52-fold (Rico-Martínez et al. 2013). These studies suggest that the toxicity of the oil and dispersant combined may be greater than anticipated.

Deepwater Coral Communities

Deepwater corals are particularly vulnerable to episodic mortality events such as oil spills, since corals are immobile. Severe health declines have been observed in three deepwater corals in response to dispersant alone (2.3–3.4 fold) and the oil–dispersant mixtures (1.1–4.4 fold) compared to oil-only treatments (DeLeo et al. 2015). Increased dispersant concentrations

appeared to exacerbate these results. As hundreds of thousands of gallons of dispersant were applied near the wellhead during the Deepwater Horizon MC252 oil spill, the possibility exists that deepwater corals may have been negatively impacted by the oil spill and subsequent spill remediation activities.

Several studies have documented declines in coral health or coral death in the presence of oil from the Deepwater Horizon MC252 oil spill (White et al. 2012; Hsing et al. 2013; Fisher et al. 2014). Sites as far as 11 km southwest of the spill were documented to have >45% of the coral colonies affected by oil (White et al. 2012; Hsing et al. 2013), and, though less affected, a site 22 km in 1900 m of water had coral damage caused by oil (Fisher et al. 2014). Coral colonies from several areas around the wellhead had damage to colonies that seemed to be representative of microdroplets as all colonies were not affected, and colonies that were affected had patchy distributions of damaged areas (Fisher et al. 2014). Because locations of deep-sea corals are still being discovered, it is likely that the extent of damage to deep-sea communities will remain undefined.

Outstanding Effects

As a result of the Deepwater Horizon MC252 oil spill, a consultation pursuant to ESA Section 7(a)(2) was reinitiated. As discussed above, on September 30, 2011, the Protected Resources Division released an Opinion, which after analyzing best available data, the current status of the species, environmental baseline (including the impacts of the recent Deepwater Horizon MC252 oil spill in the northern Gulf), effects of the proposed action, and cumulative effects, concluded that the continued operation of the Gulf reef fish fishery is not likely to jeopardize the continued existence of green, hawksbill, Kemp's ridley, leatherback, or loggerhead sea turtles, nor the continued existence of smalltooth sawfish (NMFS 2011). For additional information on the Deepwater Horizon MC252 oil spill and associated closures, see: http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm.

3.4 Description of the Economic Environment

A description of the reef fish stocks affected by the actions considered in this Amendment is provided in Chapter 1.1. Details on the economic environment for the recreational and commercial sectors of the Gulf reef fish fishery, or components thereof, are provided in the Red Grouper Allowable Harvest Framework Action (GMFMC, 2016), Modifications to Gag Minimum Size Limits, Recreational Season and Black Grouper Minimum Size Limits Framework Action (GMFMC, 2016), Gulf Reef Fish Amendment 28 (GMFMC, 2015), Modifications to Greater Amberjack Allowable Harvest and Management Measures Framework Action (GMFMC, 2015), and the Framework Action to Set the Annual Catch Limit and Bag Limit for Vermilion Snapper, Set Annual Catch Limit for Yellowtail Snapper, and Modify the Venting Tool Requirement (GMMFC, 2013). This Amendment does not contain management measures that would affect the recreational sector and thus additional details on the economic environment of that sector are not provided here. Recent descriptions and performance information related to the GT-IFQ and RS-IFQ programs are included in the Gulf of Mexico

2015 Red Snapper Individual Fishing Quota Annual Report (NMFS, 2016a) and Gulf of Mexico 2015 Grouper-Tilefish Individual Fishing Quota Annual Report (NMFS, 2016b). These reports include detailed information on program participants, program activity, quota, landings, price information, and enforcement. The information in those reports is incorporated here by reference. The following section contains additional information on the economic environment of this fishery.

3.4.1 Permits

Any fishing vessel that harvests and sells any of the reef fish species managed under the reef fish FMP from the Gulf EEZ must have a valid Gulf reef fish permit. Some detailed information regarding Gulf reef fish permits is provided in section 2.1 and that information is incorporated here by reference. From a historical perspective, the number of permits that were valid in a given year has continually decreased in the years after the RS-IFQ program was implemented, and this decline has continued since the GT-IFQ program was implemented, but not at a slower rate. Specifically, from 2008 to 2015, the number of permits that were valid in each year were 1099, 998, 969, 952, 917, 898, 882, and 868, respectively. As of January 20, 2017, there were 848 valid or renewable reef fish permits, 779 of which were valid. In order to harvest IFQ species, a vessel permit must also be linked to an IFQ account and possess sufficient allocation for this species. IFQ accounts can be opened and valid permits can be linked to IFQ accounts at any time during the year. Eligible vessels can receive allocation from other IFQ participants.

3.4.2 Shareholders

As of December 14, 2016, there were 750 IFQ accounts with shares in one or more share categories. On average (mean), each of these accounts holds just over .13% of the shares in each category. However, the distribution of shares within each category is highly skewed as reflected by the detailed information proved in Table 2.2.2.1. As a result, the median share held by each account is much less than the average (mean) share; specifically, it is less than .001% in the DWG, TF and RS categories, while slightly higher for RG, Gag, and other SWG at .002, .008, and .008 %, respectively (see Table 3.4.1.1). Further, some accounts have much higher shares. The largest % of shares held by a single account in each category ranges from 2.297% for Gag to 13.031% for DWG.

Quota Shares have value in multiple ways. Specifically, shares have market value because they are an asset. The asset value of each account's shares is determined by the market price of shares and the amount of shares it contains. Statistics regarding the maximum, median, and average (mean) value of each account's shares are in Table 3.4.2.2, and is reflective of the distribution of shares across accounts. In addition to their asset value, shares have value because they result in annual allocation which can either be leased or used for harvesting purposes (i.e., landings). Statistics regarding the potential lease value associated with the annual allocation for each account with shares are provided in Table 3.4.2.3, while statistics regarding the potential ex-vessel value associated using their annual allocation for harvesting purposes is provided in Table 3.4.2.4.

As discussed in section 2.2, not all accounts have been activated. Not activated accounts are the primary subject of Action 2.1. Statistics regarding the shares held by these accounts (as of December 14, 2016), the asset value of the shares, the potential lease and ex-vessel values of the associated annual allocations are provided in Tables 3.4.2.5 to 3.4.2.8. If shares held by the not activated accounts are returned and redistributed per Action 2.2, they would be expected to go to accounts that have been activated. Those shares could be redistributed among all activated accounts in a given category, or possibly only to those accounts with an active status. Activated accounts have an active or a suspended status at any point in time. In general, suspended accounts are not allowed to engage in any activity until the cause of their suspended status has been addressed. Statistics regarding the shares held by all activated accounts as of December 14, 2016, the asset value of the shares, the potential lease and ex-vessel values of the associated annual allocations are provided in Tables 3.4.2.9 to 3.4.2.12. Statistics regarding the shares held by accounts with an active status, the asset value of the shares, the potential lease and ex-vessel values of the associated annual allocations are provided in Tables 3.4.2.13 to 3.4.2.16. Statistics regarding the shares held by suspended accounts, the asset value of the shares, the potential lease and ex-vessel values of the associated annual allocations are provided in Tables 3.4.2.17 to 3.4.2.20.

Table 3.4.2.1. Quota Share Statistics[15] for All 750 IFQ Accounts with Shares, December 14, 2016.

Statistic	DWG Shares	RG Shares	Gag Shares	SWG Shares	TF Shares	RS Shares
Maximum	13.031	4.168	2.297	4.433	11.864	4.774
Total	100.00	100.00	100.00	100.00	100.00	100.00
Median	0.000	0.002	0.008	0.008	0.000	0.000
Mean	0.133	0.133	0.133	0.133	0.133	0.133

Table 3.4.2.2. Quota Share Value[16] Statistics for All 750 IFQ Accounts with Shares, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$1,699,976	$4,170,547	$473,801	$156,872	$633,857	$9,636,420	$10,686,172
Total	$13,046,635	$100,057,634	$20,631,355	$3,538,563	$5,343,205	$201,855,901	$344,473,294
Median	$0	$2,179	$1,697	$277	$0	$3	$55,042
Mean	$17,396	$133,410	$27,508	$4,718	$7,124	$269,141	$459,298

[15] Shares are not aggregated across categories because a 1% share does not represent the same poundage or value across categories. For e.g., a 5% share that is spread across all categories is not truly equal to a 5% share in a single category such as red snapper.

[16] Share Value estimates are based on 2015 share prices per pound (IFQ database accessed 12/14/16) and pounds under 2017 quotas.

Table 3.4.2.3. Lease Value[17] of Annual Allocation in 2017 for All 750 IFQ Accounts with Shares, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$156,120	$347,005	$40,975	$13,965	$53,167	$885,679	$976,915
Total	$1,198,160	$8,325,169	$1,784,232	$315,006	$448,177	$18,552,491	$30,623,234
Median	$0	$181	$147	$25	$0	$0	$4,697
Mean	$1,598	$11,100	$2,379	$420	$598	$24,737	$40,831

Table 3.4.2.4. Ex-Vessel Value[18] of Annual Allocation in 2017 for All 750 IFQ Accounts with Shares, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$615,141	$1,277,757	$110,417	$106,366	$199,548	$1,318,487	$1,736,148
Total	$4,720,957	$30,655,294	$4,808,035	$2,399,293	$1,682,120	$27,618,594	$71,884,293
Median	$0	$667	$396	$188	$0	$0	$13,665
Mean	$6,295	$40,874	$6,411	$3,199	$2,243	$36,825	$95,846

Table 3.4.2.5. Quota Share Statistics for the 81 IFQ Shareholders with Not Activated Accounts, December 14, 2016.

Statistic	DWG Shares	RG Shares	Gag Shares	SWG Shares	TF Shares	RS Shares
Maximum	0.017	0.043	0.047	0.240	0.034	0.136
Total	0.029	0.148	0.217	0.473	0.055	0.244
Median	0.000	0.000	0.000	0.000	0.000	0.000
Mean	0.000	0.002	0.003	0.006	0.001	0.003

Table 3.4.2.6. Quota Share Value Statistics for the 81 IFQ Shareholders with Not Activated Accounts, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$2,158	$43,335	$9,789	$8,486	$1,795	$274,302	$274,302
Total	$3,720	$147,908	$44,847	$16,747	$2,943	$492,694	$708,860
Median	$0	$0	$15	$3	$0	$0	$1,074
Mean	$46	$1,826	$554	$207	$36	$6,083	$8,751

[17] Annual allocation lease value estimates are based on 2015 allocation prices (IFQ database accessed 12/14/16) and pounds under 2017 quotas.

[18] Ex-vessel value estimates are based on 2015 average ex-vessel prices (IFQ database accessed 12/14/16) and pounds under 2017 quotas. Ex-vessel value is estimated using all ex-vessel price data, including outliers, consistent with how it is estimated in the annual reports.

Table 3.4.2.7. Lease Value of Annual Allocation in 2017 for the 81 IFQ Shareholders with Not Activated Accounts, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$198	$3,606	$847	$755	$151	$25,211	$25,211
Total	$342	$12,307	$3,878	$1,491	$247	$45,283	$63,548
Median	$0	$0	$1	$0	$0	$0	$93
Mean	$4	$152	$48	$18	$3	$559	$785

Table 3. 4.2.8. Ex-Vessel Value of Annual Allocation in 2017 for the 81 IFQ Shareholders with Not Activated Accounts, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$781	$13,277	$2,281	$5,754	$565	$37,531	$37,531
Total	$1,346	$45,316	$10,451	$11,355	$926	$67,412	$136,807
Median	$0	$0	$3	$2	$0	$0	$304
Mean	$17	$559	$129	$140	$11	$832	$1,689

Table 3. 4.2.9. Quota Share Statistics for the 669 IFQ Shareholders with Activated[19] Accounts, December 14, 2016.

Statistic	DWG Shares	RG Shares	Gag Shares	SWG Shares	TF Shares	RS Shares
Maximum	13.031	4.168	2.297	4.433	11.864	4.774
Total	99.978	99.859	99.790	99.529	99.953	99.763
Median	0.000	0.004	0.016	0.015	0.000	0.000
Mean	0.149	0.149	0.149	0.149	0.149	0.149

Table 3. 4.2.10. Quota Share Value Statistics for the 669 IFQ Shareholders with Activated Accounts, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$1,699,976	$4,170,547	$473,801	$156,872	$633,857	$9,636,420	$10,686,172
Total	$13,042,915	$99,909,726	$20,586,508	$3,521,816	$5,340,262	$201,363,207	$343,764,434
Median	$5	$4,072	$3,229	$519	$0	$202	$82,759
Mean	$19,496	$149,342	$30,772	$5,264	$7,982	$300,991	$513,848

Table 3. 4.2.11. Lease Value of Annual Allocation in 2017 for the 669 IFQ Shareholders with Activated Accounts, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$156,120	$347,005	$40,975	$13,965	$53,167	$885,679	$976,915
Total	$1,197,819	$8,312,862	$1,780,353	$313,515	$447,931	$18,507,207	$30,559,687
Median	$1	$339	$279	$46	$0	$19	$7,405
Mean	$1,790	$12,426	$2,661	$469	$670	$27,664	$45,680

Table 3. 4.2.12. Ex-Vessel Value of Annual Allocation in 2017 for the 669 IFQ Shareholders with Activated Accounts, December 14, 2016. All dollar estimates are in 2015 $.

[19] "Activated" in this context means their account status was either "active" or "suspended" as of Dec. 14, 2016.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$615,141	$1,277,757	$110,417	$106,366	$199,548	$1,318,487	$1,736,148
Total	$4,719,610	$30,609,978	$4,797,584	$2,387,938	$1,681,194	$27,551,182	$71,747,487
Median	$2	$1,248	$752	$352	$0	$28	$21,143
Mean	$7,055	$45,755	$7,171	$3,569	$2,513	$41,183	$107,246

Table 3. 4.2.13. Quota Share Statistics for the 561 IFQ Shareholders with an Active Account Status, December 14, 2016.

Statistic	DWG Shares	RG Shares	Gag Shares	SWG Shares	TF Shares	RS Shares
Maximum	13.031	4.168	2.297	4.433	11.864	4.774
Total	97.327	97.291	98.566	98.017	95.783	97.710
Median	0.000	0.011	0.028	0.025	0.000	0.002
Mean	0.173	0.173	0.176	0.175	0.171	0.174

Table 3. 4.2.14. Quota Share Value Statistics for the 561 IFQ Shareholders with an Active Account Status, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$1,699,976	$4,170,547	$473,801	$156,872	$633,857	$9,636,420	$10,686,172
Total	$12,696,999	$97,340,097	$20,334,100	$3,468,338	$5,117,449	$197,218,594	$336,175,575
Median	$29	$11,397	$5,696	$891	$0	$3,835	$151,936
Mean	$22,633	$173,512	$36,246	$6,182	$9,122	$351,548	$599,243

Table 3. 4.2.15. Lease Value of Annual Allocation in 2017 for the 561 IFQ Shareholders with an Active Account Status, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$156,120	$347,005	$40,975	$13,965	$53,167	$885,679	$976,915
Total	$1,166,051	$8,099,059	$1,758,525	$308,754	$429,241	$18,126,278	$29,887,908
Median	$3	$948	$493	$79	$0	$352	$13,123
Mean	$2,079	$14,437	$3,135	$550	$765	$32,311	$53,276

Table 3. 4.2.16. Ex-Vessel Value of Annual Allocation in 2017 for the 561 IFQ Shareholders with an Active Account Status, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$615,141	$1,277,757	$110,417	$106,366	$199,548	$1,318,487	$1,736,148
Total	$4,594,440	$29,822,705	$4,738,761	$2,351,677	$1,611,049	$26,984,103	$70,102,734
Median	$11	$3,492	$1,327	$604	$0	$525	$34,689
Mean	$8,190	$53,160	$8,447	$4,192	$2,872	$48,100	$124,960

Table 3. 4.2.17. Quota Share Statistics for the 108 IFQ Shareholders with a Suspended Account Status, December 14, 2016.

Statistic	DWG Shares	RG Shares	Gag Shares	SWG Shares	TF Shares	RS Shares

Maximum	1.991	1.365	0.323	0.770	4.003	1.507
Total	2.652	2.568	1.224	1.511	4.170	2.053
Median	0.000	0.000	0.000	0.000	0.000	0.000
Mean	0.025	0.024	0.011	0.014	0.039	0.019

Table 3. 4.2.18. Quota Share Value Statistics for the 108 IFQ Shareholders with a Suspended Account Status, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$259,721	$1,365,816	$66,698	$27,259	$213,855	$3,041,343	$3,061,085
Total	$345,916	$2,569,630	$252,408	$53,479	$222,814	$4,144,613	$7,588,859
Median	$0	$112	$92	$16	$0	$0	$1,762
Mean	$3,203	$23,793	$2,337	$495	$2,063	$38,376	$70,267

Table 3. 4.2.19. Lease Value of Annual Allocation in 2017 for the 108 IFQ Shareholders with a Suspended Account Status, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$23,852	$113,641	$5,768	$2,427	$17,938	$279,529	$281,327
Total	$31,768	$213,803	$21,829	$4,761	$18,689	$380,930	$671,779
Median	$0	$9	$8	$1	$0	$0	$149
Mean	$294	$1,980	$202	$44	$173	$3,527	$6,220

Table 3.4.2.20. Ex-Vessel Value of Annual Allocation in 2017 for the 108 IFQ Shareholders with a Suspended Account Status, December 14, 2016. All dollar estimates are in 2015 $.

Statistic	DWG	RG	Gag	SWG	TF	RS	All
Maximum	$93,981	$418,454	$15,544	$18,483	$67,325	$416,127	$452,784
Total	$125,171	$787,274	$58,822	$36,261	$70,145	$567,080	$1,644,752
Median	$0	$34	$21	$11	$0	$0	$395
Mean	$1,159	$7,290	$545	$336	$649	$5,251	$15,229

3.4.3 Vessels

Some detailed information regarding vessels that participate in the reef fish fishery as well as the RS-IFQ and GT-IFQ programs are provided in sections 2.1 (see table 2.1.1) and section 1.1 (see tables 1.1.1 and 1.1.2). That information is incorporated here by reference.

The information in tables 3.4.3.1 and 3.4.3.2 describes the activity of all 731 vessels that were active in the IFQ programs from 2011 to 2015, including their activities in Gulf and South Atlantic non-IFQ fisheries. Vessel participation in the IFQ programs is very fluid and not all of these vessels were active in an IFQ fishery or any other fishery covered by the Coastal logbooks during this time. The number of vessels that were active in the IFQ fisheries in each year from 2011 through 2015 was: 471, 473, 447, 473, and 484, respectively.

The information in tables 3.4.3.3 and 3.4.3.4 account for the activities of all 1,020 vessels that were active in the Gulf reef fish fishery from 2011 to 2015. As with the IFQ fisheries, vessel participation in the Gulf reef fish fishery is very fluid and not all of these vessels were active in

the Gulf reef fish fishery or any other fishery covered by the Coastal logbooks during this time. The number of vessels that were active in the Gulf reef fish fishery in each year from 2011 through 2015 was: 578, 584, 567, 617, and 581, respectively.

The information in tables 3.4.3.5 and 3.4.3.6 account for the fishing activity of the 842 vessels with valid permits as of Dec. 7, 2016 from 2011 through 2015. Although 842 vessels had valid Gulf reef fish permits as of Dec. 7, 2016, 228 of these vessels had no Gulf or South Atlantic landings from 2011 through 2015 based on IFQ data (IFQ database accessed 12/14/16) and Coastal Logbook data (L. Perruso, personal communication, 12/2/16). Thus, only 614 of these vessels had landings according to these two sources between 2011 and 2015.

Table 3.4.3.1. Revenue Per Vessel Statistics for the 731 Vessels Active in Gulf IFQ Programs from 2011-2015. All dollar estimates are in 2015 $.

Statistic	IFQ Revenue	Gulf Non-IFQ Revenue	South Atlantic Revenue	Total Gross Revenue
Maximum	$2,526,408	$2,137,797	$294,094	$4,646,978
Median	$30,469	$17,819	$0	$64,083
Mean	$95,285	$69,692	$1,610	$166,587

Table 3.4.3.2. Total Revenue and Revenue Per Vessel Statistics for the 731 Vessels Active in Gulf IFQ Programs from 2011-2015 by Year. All dollar estimates are in 2015 $.

Year	Number of Vessels	Statistic	IFQ Revenue	Gulf Non-IFQ Revenue	South Atlantic Revenue	Total Gross Revenue
2011	507	Maximum	$822,177	$788,585	$144,073	$1,564,485
		Total	$34,798,866	$28,488,696	$831,853	$64,119,415
		Median	$22,082	$17,666	$0	$53,394
		Mean	$68,637	$56,191	$1,641	$126,468
2012	499	Maximum	$836,060	$1,052,499	$137,591	$1,726,206
		Total	$41,396,071	$30,344,100	$838,966	$72,579,136
		Median	$30,776	$17,382	$0	$67,762
		Mean	$82,958	$60,810	$1,681	$145,449
2013	479	Maximum	$1,901,900	$1,592,744	$84,563	$3,266,955
		Total	$47,952,067	$34,134,606	$607,961	$82,694,635

		Median	$31,276	$18,834	$0	$60,840
		Mean	$100,109	$71,262	$1,269	$172,640
2014	505	Maximum	$2,224,675	$2,137,797	$294,094	$4,362,472
		Total	$54,828,613	$38,846,974	$1,045,642	$94,721,230
		Median	$35,119	$19,534	$0	$73,230
		Mean	$108,572	$76,925	$2,071	$187,567
2015	502	Maximum	$2,526,408	$2,120,570	$105,148	$4,646,978
		Total	$58,473,702	$41,857,721	$688,858	$101,020,281
		Median	$35,490	$16,870	$0	$65,489
		Mean	$116,481	$83,382	$1,372	$201,236

Table 3.4.3.3. Total Revenue and Revenue Per Vessel Statistics for the 1,020 Vessels Active in the Gulf Reef Fish Fishery from 2011-2015. All dollar estimates are in 2015 $.

Statistic	IFQ Revenue	Gulf Non-IFQ Revenue	South Atlantic Revenue	Total Gross Revenue
Maximum	$2,526,408	$2,137,797	$415,405	$4,646,978
Median	$8,166	$12,368	$0	$41,807
Mean	$69,046	$56,249	$5,279	$130,574

Table 3.4.3.4. Revenue Per Vessel Statistics for the 1,020 Vessels Active in the Gulf Reef Fish Fishery from 2011-2015 by Year. All dollar estimates are in 2015 $.

Year	Number of Vessels	Statistic	IFQ Revenue	Gulf Non-IFQ Revenue	South Atlantic Revenue	Total Gross Revenue
2011	692	Maximum	$822,177	$788,585	$272,683	$1,564,485
		Total	$34,798,866	$32,109,572	$3,659,436	$70,567,875
		Median	$6,204	$12,882	$0	$37,096
		Mean	$50,287	$46,401	$5,288	$101,977
2012	693	Maximum	$836,060	$1,052,499	$415,405	$1,726,206
		Total	$41,396,071	$33,893,922	$3,487,630	$78,777,622
		Median	$7,684	$11,801	$0	$40,846
		Mean	$59,735	$48,909	$5,033	$113,676
2013	672	Maximum	$1,901,900	$1,592,744	$271,469	$3,266,955
		Total	$47,952,067	$37,897,489	$3,173,842	$89,023,398
		Median	$8,650	$12,417	$0	$43,161

		Mean	$71,357	$56,395	$4,723	$132,475
2014	703	Maximum	$2,224,675	$2,137,797	$294,094	$4,362,472
		Total	$54,828,613	$43,775,377	$3,870,686	$102,474,675
		Median	$8,012	$13,440	$0	$46,366
		Mean	$77,992	$62,269	$5,506	$145,768
2015	679	Maximum	$2,526,408	$2,120,570	$287,612	$4,646,978
		Total	$58,473,702	$45,762,733	$3,964,425	$108,200,860
		Median	$12,867	$11,864	$0	$44,992
		Mean	$86,117	$67,397	$5,839	$159,353

Table 3.4.3.5. Total Revenue and Revenue Per Vessel Statistics for the 614 Vessels with Valid Gulf Reef Fish Permits as of Dec. 7, 2016 that were Active from 2011-2015. All dollar estimates are in 2015 $.

Statistic	IFQ Revenue	Gulf Non-IFQ Revenue	South Atlantic Revenue	Total Gross Revenue
Maximum	$2,526,408	$2,137,797	$415,405	$4,646,978
Median	$25,747	$18,712	$0	$67,762
Mean	$93,241	$70,173	$5,262	$168,676

Table 3.4.3.6. Total Revenue and Revenue Per Vessel Statistics for the 614 Active Vessels with Valid Gulf Reef Fish Permits as of Dec. 7, 2016 that were Active from 2011-2015 by Year. All dollar estimates are in 2015 $.

Year	Number of Vessels	Statistic	IFQ Revenue	Gulf Non-IFQ Revenue	South Atlantic Revenue	Total Gross Revenue
2011	426	Maximum	$822,177	$742,309	$272,683	$1,564,485
		Total	$30,035,046	$24,813,393	$2,212,130	$57,060,568
		Median	$21,265	$18,884	$0	$61,964
		Mean	$70,505	$58,247	$5,193	$133,945
2012	458	Maximum	$836,060	$890,147	$415,405	$1,726,206
		Total	$36,910,184	$27,280,088	$2,541,719	$66,731,991
		Median	$24,103	$18,143	$0	$67,914
		Mean	$80,590	$59,564	$5,550	$145,703
2013	455	Maximum	$1,674,210	$1,592,744	$271,469	$3,266,955
		Total	$42,493,501	$31,635,585	$2,033,864	$76,162,950
		Median	$25,612	$17,811	$0	$61,788
		Mean	$93,392	$69,529	$4,470	$167,391

2014	491	Maximum	$2,224,675	$2,137,797	$294,094	$4,362,472
		Total	$52,584,564	$38,343,019	$2,606,657	$93,534,240
		Median	$29,730	$21,273	$0	$77,887
		Mean	$107,097	$78,092	$5,309	$190,497
2015	517	Maximum	$2,526,408	$2,120,570	$287,612	$4,646,978
		Total	$56,812,794	$42,623,953	$2,956,488	$102,393,234
		Median	$28,051	$17,220	$0	$67,214
		Mean	$109,889	$82,445	$5,719	$198,053

3.4.4 Dealers

The information in tables 3.4.4.1 and 3.4.4.2 account for the activities of all 178 dealers that were active in the IFQ programs from 2011 to 2015. Like vessels, dealer participation in the IFQ programs is fluid and not all of these dealers were active in one or both IFQ programs during this time. Information on the number of dealers active in each of the two programs in a specific year is provided in the annual reports.

Table 3.4.4.1. Purchases Per Dealer Statistics for the 178 Dealers Active in Gulf IFQ Programs from 2011-2015. All dollar estimates are in 2015 $.

Statistic	IFQ Purchases	Gulf Non-IFQ Purchases	South Atlantic Purchases	Total Purchases
Maximum	$9,743,574	$4,902,577	$3,071,392	$10,408,504
Median	$49,935	$3,427	$0	$193,510
Mean	$384,239	$225,057	$46,187	$655,483

Table 3.4.4.2. Total Purchases and Purchases Per Dealer Statistics for the 178 Dealers Active in Gulf IFQ Programs from 2011-2015 by Year. All dollar estimates are in 2015 $.

Year	Number of Dealers	Statistic	IFQ Purchases	Gulf Non-IFQ Purchases	South Atlantic Purchases	Total Purchases
2011	115	Maximum	$4,228,602	$3,317,153	$3,071,392	$6,565,981
		Total	$34,807,792	$25,109,395	$5,461,712	$65,378,899
		Median	$45,061	$583	$0	$187,759
		Mean	$302,676	$218,343	$47,493	$568,512
2012	117	Maximum	$4,105,866	$3,004,376	$2,885,881	$5,660,812
		Total	$41,377,491	$24,632,602	$5,651,179	$71,661,272
		Median	$55,487	$5,252	$0	$206,859
		Mean	$353,654	$210,535	$48,301	$612,490
2013	120	Maximum	$5,761,917	$4,104,867	$2,799,391	$6,730,089
		Total	$47,958,814	$28,592,715	$5,933,101	$82,484,630
		Median	$58,385	$5,123	$0	$218,750
		Mean	$399,657	$238,273	$49,443	$687,372
2014	135	Maximum	$8,878,495	$3,934,230	$3,055,876	$10,034,218

		Total	$54,842,125	$31,117,460	$6,277,512	$92,237,097
		Median	$51,036	$3,903	$0	$175,508
		Mean	$406,238	$230,500	$46,500	$683,238
2015	131	Maximum	$9,743,574	$4,902,577	$1,857,899	$10,408,504
		Total	$58,473,702	$29,632,825	$5,219,857	$93,326,384
		Median	$39,600	$4,503	$0	$173,449
		Mean	$446,364	$226,205	$39,846	$712,415

3.4.5 Imports

Imports of seafood products compete in the domestic seafood market and have in fact dominated many segments of the seafood market. Imports aid in determining the price for domestic seafood products and tend to set the price in the market segments in which they dominate. Seafood imports have downstream effects on the local fish market. At the harvest level for reef fish in general and red grouper in particular, imports affect the returns to fishermen through the ex-vessel prices they receive for their landings. As substitutes to domestic production of reef fish, including red grouper, imports tend to cushion the adverse economic effects on consumers resulting from a reduction in domestic landings. The following describes the imports of fish products which directly compete with domestic harvest of reef fish, including red grouper.

Imports of fresh snapper increased steadily from 21.7 mp product weight (pw) in 2011 to 26 mp pw in 20154. Total revenue from fresh snapper imports increased from $65 million (2015 dollars5) in 2011 to a five-year high of $78.7 million in 2015. Imports of fresh snappers primarily originated in Mexico, Central America, or South America, and entered the U.S. through the port of Miami. Imports of fresh snapper were highest on average (2011 through 2015) during the months March through August. Imports of frozen snapper were substantially less than imports of fresh snapper from 2011 through 2015. Frozen snapper imports ranged from 8.5 mp pw worth $21.1 million (2015 dollars) in 2011 to 12.3 mp pw worth $33.2 million in 2015. Imports of frozen snapper primarily originated in South America (especially Brazil), Indonesia, and Mexico. The majority of frozen snapper imports entered the U.S. through the ports of Miami and New York. Imports of frozen snappers tended to be lowest during March through June when fresh snapper imports were strong.

Imports of fresh grouper ranged from 8.2 mp pw in 2011 to 10.7 mp pw in 2015. Total revenue from fresh grouper imports ranged from $27.9 million (2015 dollars) to $44.4 million during this time period. The bulk of fresh grouper imports originated in Mexico and entered the U.S. through Miami and Tampa. From 2011 through 2015, fresh grouper imports were lowest on average during the month of March and higher the rest of the year, with a peak in July. Imports of frozen grouper were minimal and stable from 2011 through 2015, ranging from 1.3 mp pw to 2 mp pw. The average annual value of frozen grouper imports during this time period was $3.3 million (2015 dollars). Frozen grouper imports generally originated in Mexico and to a lesser extent, Asia and entered the U.S. through Miami and Tampa. There was an inverse relationship in monthly landings between frozen and fresh groupers, with average imports being the highest in March for frozen grouper and lower during other months.

3.4.6 Economic Impacts of the Gulf of Mexico IFQ Fisheries

The commercial harvest and subsequent sales and consumption of fish generates business activity as fishermen expend funds to harvest the fish and consumers spend money on goods and services, such as red grouper purchased at a local fish market and served during restaurant visits. These expenditures spur additional business activity in the region(s) where the harvest and purchases are made, such as jobs in local fish markets, grocers, restaurants, and fishing supply establishments. In the absence of the availability of a given species for purchase, consumers would spend their money on substitute goods and services. As a result, the analysis presented below represents a distributional analysis only; that is, it only shows how economic effects may be distributed through regional markets and should not be interpreted to represent the impacts if these species are not available for harvest or purchase.

Estimates of the U.S. average annual business activity associated with the commercial harvest of IFQ species in the Gulf were derived using the model[20] developed for and applied in NMFS (2015b) and are provided in Table 3.X. This business activity is characterized as full-time equivalent jobs, income impacts (wages, salaries, and self-employed income), and output (sales) impacts (gross business sales). Income impacts should not be added to output (sales) impacts because this would result in double counting.

It should be noted that the results provided should be interpreted with caution and demonstrate the limitations of these types of assessments. These results are based on average relationships developed through the analysis of many fishing operations that harvest many different species. Separate models for individual species are not available. In 2015, landings of Gulf IFQ species resulted in approximately $58.474 million in gross revenue. In turn, this revenue generated employment, income, value-added and output impacts of 7,926 jobs, $212.95 million, $300.87 million, and $579.87 billion, respectively.

Table 3.4.5.1. Economic impacts of the Gulf of Mexico IFQ Fisheries in 2015 (2015$).

Industry sector	Direct	Indirect	Induced	Total
Harvesters				
Employment impacts (FTE jobs)	1,382	215	284	1,881
Income Impacts (000 of dollars)	31,570	5,861	14,174	51,606
Total value-added impacts	33,652	21,102	24,252	79,006
Output Impacts (000 of dollars)	58,474	47,573	47,080	153,127
Primary dealers/processors				
Employment impacts (FTE jobs)	288	115	200	602
Income Impacts (000 of dollars)	10,301	9,493	8,979	28,773
Total value-added impacts	10,980	12,113	16,904	39,997
Output Impacts (000 of dollars)	33,155	24,973	33,043	91,170
Secondary wholesalers/distributors				
Employment impacts (FTE jobs)	134	29	129	292
Income Impacts (000 of dollars)	6,137	1,825	6,454	14,416
Total value-added impacts	6,541	3,061	11,024	20,627
Output Impacts (000 of dollars)	16,437	5,993	21,440	43,870
Grocers				

[20] A detailed description of the input/output model is provided in NMFS (2011).

Employment impacts (FTE jobs)	572	65	127	764
Income Impacts (000 of dollars)	12,623	4,194	6,336	23,154
Total value-added impacts	13,456	6,759	10,727	30,941
Output Impacts (000 of dollars)	21,575	10,977	21,059	53,611
Restaurants				
Employment impacts (FTE jobs)	3,565	238	583	4,386
Income Impacts (000 of dollars)	50,638	15,358	29,006	95,002
Total value-added impacts	53,978	27,452	48,871	130,301
Output Impacts (000 of dollars)	98,699	42,959	96,437	238,095
Harvesters and seafood industry				
Employment impacts (FTE jobs)	5,941	662	1,323	7,926
Income Impacts (000 of dollars)	111,269	36,732	64,948	212,950
Total value-added impacts	118,608	70,487	111,778	300,873
Output Impacts (000 of dollars)	228,339	132,475	219,059	579,873

3.5 Description of the Social Environment

This amendment affects commercial management of reef fish, particularly the RS-IFQ and GT-IFQ programs, as well as the commercial management of other reef fish. This section provides the background for the proposed actions which will be evaluated in Chapter 4. Gulf commercial reef fish permits and vessels with Gulf commercial reef fish permits that also carry other federal permits are included by state and community in order to provide information on the geographic distribution of reef fish fishing involvement. Commercial red snapper and grouper tilefish landings are included by state to provide information on the geographic distribution of fishing involvement. Descriptions of RS-IFQ and GT-IFQ participants (shareholders, allocation holders, and dealers) are included at the state and community level. Descriptions of fishing communities including the top communities involved in red snapper and grouper tilefish fishing in the Gulf are included here. These community level data are presented in order to meet the requirements of National Standard 8 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). National Standard 8 requires the consideration of the importance of fishery resources to human communities when considering changes to fishing regulations.

Recent descriptions of the RS-IFQ and GT-IFQ programs are contained in annual reports produced by NMFS (2015a, b; 2016a, b) and are incorporated here by reference. These reports include detailed information on program participants, program activity, quota, landings, price information, and enforcement.

3.5.1 Permits

Gulf commercial reef fish permits are issued to individuals residing in all Gulf states, as well as in other states (Table 3.5.1.1). The majority of Gulf commercial reef fish permits are issued to individuals residing in Florida (over 79%, Table 3.5.1.1), followed by Texas (9%), Louisiana (approximately 4.5%), and Alabama (approximately 4.3%). Residents of Mississippi and several other states (California, Georgia, North Carolina, New Jersey, New York, Ohio, Oregon, South Carolina, and Wisconsin) also hold Gulf commercial reef fish permits, but these states represent a smaller percentage of the total number of issued permits.

Table 3.5.1.1. Number of Gulf commercial reef fish permits by state.

State	Permits
AL	36
FL	672
LA	38
MS	8
TX	77
Other	16
Total	**847**

Source: SERO Permit Office, December 20, 2016.

Gulf commercial reef fish permits are held by individuals with mailing addresses in a total of 219 communities (SERO Permit Office, December 20, 2016). Communities with the most Gulf commercial reef fish permits are located in Florida and Texas (Table 3.5.1.2). The community with the most Gulf commercial reef fish permits is Panama City, Florida (approximately 7.3% of commercial reef fish permits, Table 3.5.1.2).

Table 3.5.1.2. Top communities by number of Gulf commercial reef fish permits.

State	Community	Permits
FL	Panama City	62
FL	Key West	43
FL	St. Petersburg	26
TX	Galveston	23
FL	Largo	21
FL	Seminole	21
FL	Pensacola	20
FL	Destin	19
TX	Corpus Christi	18
FL	Cortez	16
FL	Miami	15
FL	Tarpon Springs	15
FL	Clearwater	14
FL	Tampa	14
FL	Apalachicola	13
FL	Lynn Haven	13
FL	Naples	13
FL	Steinhatchee	12
FL	Palm Harbor	11
FL	Fort Myers	10
TX	Houston	10

Source: SERO Permit Office, December 20, 2016.

As of December 20, 2016, a total of 847 Gulf commercial reef fish permits were valid, renewable, or transferable (Table 3.5.1.1). A total of 509 vessels, approximately 60% of Gulf commercial reef fish permitted vessels also carry other commercial federal permits (Table 3.5.1.1 and 3.5.1.3). Gulf commercial reef fish permitted vessels that also carry additional federal permits are detailed by permit type, access type, and region in Table 2.1.3 in Section 2.1. The majority of vessels that carry a Gulf commercial reef fish permit and additional federal permits are registered with a homeport in Florida (approximately 83%, Table 3.5.13), followed by Texas (6.3%), Louisiana (5.5%), and Alabama (3.3%). Vessels with homeports in Mississippi and a few other states also carry a Gulf commercial reef fish permit and additional federal permits, but these states represent a smaller percentage of the total number of dual permitted vessels.

Table 3.5.1.3. Number of vessels with a Gulf commercial reef fish permit that also carry additional federal permit(s) by state.

State	Vessels
AL	17
FL	423
LA	28
MS	6
TX	32
Other	3
Total	**509**

Source: SERO LAPPs Branch, Permit Information Management System accessed 12/20/2016.

Vessels with Gulf commercial reef fish permits that also carry additional federal permits are registered with homeports in a total of 132 communities (SERO LAPPs Branch, Permit Information Management System, December 20, 2016). Communities with the most dual permitted vessels are located in Florida, Texas, Alabama, and Mississippi (Table 3.5.1.4). The community with the most dual permitted vessels is Key West, Florida (approximately 12% of dual permitted vessels, Table 3.5.1.4), followed by Panama City, Florida (approximately 11%).

Table 3.5.1.4. Top homeport communities by number of vessels with a Gulf commercial reef fish permit that also carry additional federal permit(s).

State	Community	Vessels
FL	Key West	61
FL	Panama City	55
FL	Destin	28
FL	Tarpon Springs	21
FL	Cortez	20
TX	Galveston	13
FL	Madeira Beach	12
FL	Panama City Beach	11
FL	Pensacola	11
FL	Apalachicola	10
FL	Naples	8
FL	Seminole	8
FL	St. Petersburg	8
AL	Dauphin Island	7
FL	Clearwater	7
FL	Tampa	7
FL	St. Marks	6
FL	Steinhatchee	6
FL	Marathon	5
FL	Panacea	5
LA	Venice	5
MS	Pascagoula	5

Source: SERO LAPPs Branch, Permit Information Management System accessed 12/20/2016.

3.5.2 Landings

Red Snapper

The greatest proportions of the commercial red snapper catch are landed along the west coast of Florida (approximately 40.3%, Table 3.5.2.1) and in Texas (37.9%). Louisiana (15.9%) also includes a sizable amount of the commercial red snapper catch. Other Gulf states are also involved in commercial red snapper fishing, but these states represent a much smaller percentage of the total commercial landings.

Table 3.5.2.1. Percentage of total commercial red snapper landings by state for 2015.

State	Landings
AL/MS	5.8%
FL	40.3%
LA	15.9%
TX	37.9%

Source: SERO IFQ database accessed 12/14/16.

As shown in Section 1.1, the majority of commercial vessels landing red snapper make landings in Florida (79.8% of commercial vessels landing red snapper in 2014, Table 1.1.1), followed by Texas (approximately 9%), Louisiana (6.5%), and Alabama and Mississippi (5.7%). The total equals more than 100 when all states are summed together because some vessels land in multiple states. In 2014, about 90% of vessels landing red snapper also landed grouper tilefish (Table 1.1.1).

Grouper Tilefish

When all share categories of group tilefish are aggregated, the majority of the GT-IFQ catch is landed along the west coast of Florida (approximately 91.1% of all GT-IFQ share category landings, Table 3.5.2.2). Other Gulf states are also involved in commercial grouper tilefish fishing, but these states represent a much smaller percentage of the total commercial landings.

Table 3.5.2.2. Percentage of total commercial grouper tilefish landings by state for 2015.

State	Landings
AL/MS	0.1%
FL	91.1%
LA	2.0%
TX	6.8%

Source: SERO IFQ database accessed 12/14/16.

As shown in Section 1.1, the majority of commercial vessels landing grouper tilefish IFQ species make landings in Florida (approximately 89% of commercial vessels landing all share categories of grouper tilefish IFQ species in 2014, Table 1.1.3). Vessels landing in other Gulf states represent a smaller percentage of the total vessels landing grouper tilefish (approximately 11.7% in 2014, Table 1.1.3). The total equals more than 100 when all states are summed together because some vessels land in multiple states.

3.5.3 IFQ Participants

IFQ participants include shareholders, allocation holders, dealers, and vessels. Participants are described in detail in the 2015 RS and GT-IFQ program annual reports (NMFS 2016a, b). The majority of participants are described here at the state and community level; however, participating vessels are described by state in Section 1.1 and Section 3.5.2.

Shareholders

The number of shareholders in the RS-IFQ program increased from 376 accounts in 2014 to 386 accounts in 2015 (NMFS 2016a) and the number of shareholder accounts in the GT-IFQ program increased to 645 in 2015 (NMFS 2016b). This was the first year since the start of both programs where the number of shareholders increased.

As of December 14, 2016, a total of 750 IFQ accounts held shares in either the RS-IFQ program or GT-IFQ program, or both programs (SERO LAPPs Branch; includes active, suspended, and non-activated accounts). The majority of shareholders have a mailing address in Florida (77.6% of shareholders, Table 3.5.3.1), followed by Texas (approximately 9%), Alabama (4.7%), and Louisiana (4.1%). Shareholders with mailing addresses in Mississippi and in other states (California, Georgia, Iowa, Maryland, Montana, New Jersey, New York, Ohio, Oregon, South Carolina, Tennessee, Virginia, and Wyoming) also hold shares, but these states represent a smaller percentage of the total number of shareholders.

Table 3.5.3.1. Number of Gulf IFQ shareholders by state.

State	Shareholders
AL	35
FL	582
LA	31
MS	12
TX	66
Other	24
Total	**750**

Source: SERO IFQ database accessed 12/14/16.

Gulf IFQ shareholders have mailing addresses in a total of 233 communities (SERO LAPPs Branch, December 14, 2016). Communities with the most shareholders are located in Florida and Texas (Table 3.5.3.2). The community with the most shareholders is Panama City, Florida (6% of shareholders, Table 3.5.3.2), followed by Key West (approximately 4.1%) and St. Petersburg, Florida (approximately 3.3%).

Table 3.5.3.2. Top communities by number of Gulf IFQ shareholder accounts.

State	Community	Shareholders
FL	Panama City	45
FL	Key West	31
FL	St. Petersburg	25
FL	Largo	24
TX	Galveston	20
FL	Destin	19
FL	Apalachicola	17
FL	Pensacola	16
FL	Tallahassee	15
FL	Cortez	14
FL	Clearwater	13
FL	Steinhatchee	13
FL	Tampa	13
FL	Lynn Haven	12
FL	Tarpon Springs	12

Source: SERO IFQ database accessed 12/14/16.

Account Holders (without shares)

As of December 14, 2016, a total of 408 IFQ accounts were active without shares (SERO LAPPs Branch, includes active accounts without shares in any RS-IFQ or GT-IFQ share category). Active accounts include those that have logged in and are up to date on citizenship requirements. However, these accounts may be related to accounts with shares. The majority of active accounts without shares have mailing addresses in Florida (77.7% of active accounts without shares, Table 3.5.3.3), followed by Texas (approximately 7.6%), Alabama (approximately 5%) and Louisiana (4.4%). Active account holders without shares also have mailing addresses in Mississippi and other states (Alaska, Georgia, Maryland, North Carolina, New York, Ohio, Oklahoma, South Carolina, and Wisconsin), but these states represent a smaller percentage of the total number of active accounts without shares.

Table 3.5.3.3. Number of Gulf IFQ active accounts without shares by state.

State	Accounts
AL	20
FL	317
LA	18
MS	7
TX	31
Other	15
Total	**408**

Source: SERO IFQ database accessed 12/14/16.

Active account holders without shares have mailing addresses in a total of 170 communities (SERO LAPPs Branch, December 14, 2016). Communities with the most account holders without shares are located in Florida and Texas (Table 3.5.3.4). The community with the most shareholders is Panama City, Florida (approximately 5.9% of active accounts without shares, Table 3.5.3.4), followed by Key West (approximately 4.7%) and St. Petersburg, Florida (approximately 4.2%).

Table 3.5.3.4. Top communities by number of Gulf IFQ active accounts without shares.

State	Community	Accounts
FL	Panama City	24
FL	Key West	19
FL	St. Petersburg	17
FL	Seminole	13
FL	Largo	12
FL	Destin	10
FL	Clearwater	9
TX	Galveston	9
FL	Hudson	8
FL	Fort Myers	7
FL	Carrabelle	6
FL	Naples	6
FL	Bokeelia	5
FL	Cape Coral	5
FL	Gulf Breeze	5
FL	Tallahassee	5
FL	Tampa	5

Source: SERO IFQ database accessed 12/14/16.

Dealers

The majority of GT-IFQ and RS-IFQ dealers are located in Florida (range of approximately 76-80% of Gulf IFQ dealers for 2011-2015, Table 3.5.3.5), followed by Louisiana and Texas. Gulf IFQ dealers are also located in Alabama and Mississippi, but a smaller number of dealers are located in these states.

Table 3.5.3.5. Number of Gulf IFQ dealers by state for 2011-2015.

Year	AL/MS	FL	LA	TX
2011	7	75	9	11
2012	6	79	8	8
2013	5	76	10	9
2014	8	94	9	10
2015	9	98	10	9

Source: SERO IFQ database accessed 12/14/16.

Gulf IFQ dealer facilities are located in a total 95 communities (SERO LAPPs Branch, Gulf IFQ dealers with landings 2011-2015). Communities with the most Gulf IFQ dealer facilities are located in Florida, Texas, Louisiana, and Alabama (Table 3.5.3.6). The community with the most Gulf IFQ dealers is Key West, Florida (approximately 6.5% of Gulf IFQ dealers, Table 3.5.3.6), followed by Madeira Beach and Panama City, Florida (each with approximately 5.1% of Gulf IFQ dealers).

Table 3.5.3.6. Top communities by number of Gulf IFQ dealer facilities with landings during 2011-2015.

State	Community	*Dealer Facilities
FL	Key West	18
FL	Madeira Beach	14
FL	Panama City	14
FL	Pensacola	8
FL	Steinhatchee	8
FL	Tarpon Springs	8
TX	Galveston	8
FL	Ft. Myers Beach	7
LA	Venice	7
FL	Crystal River	6
FL	St. James City	6
FL	St. Petersburg	6
FL	Apalachicola	5
FL	Ft. Myers	5
FL	Matlacha	5
FL	Naples	5
FL	Panacea	5
AL	Bon Secour	4
FL	Clearwater	4
FL	Destin	4
FL	Hudson	4
LA	Golden Meadow	4
LA	Hackberry	4
TX	Freeport	4
TX	Surfside Beach	4

Source: SERO IFQ database accessed 12/14/16.
*Multiple dealers can use the same facility and a dealer can operate at multiple facilities.

3.5.4 Fishing Communities

Red Snapper

The program-specific commercial fishing engagement index scores for the RS-IFQ program are presented in Table 3.5.4.1. The index is an indicator of the importance of red snapper fishing in a community relative to other communities. It is a measure of red snapper fishing through fishing activity including pounds and value of red snapper, number of reef fish permits, and number of red snapper dealers within the community. RS-IFQ engagement scores are standardized so that 0 is the mean. The highest engagement score of 19.32 was attained by Galveston, Texas in 2014 and the lowest engagement score was -0.01 in 2013 for Saint James City, Florida. There were 46 communities highly engaged (1.0 standard deviation or above the mean) in the red snapper fishery for at least one year from 2011 through 2015 (Table 3.5.4.1). The majority of these communities are from Florida (approximately 65%, Table 3.5.4.1); however, communities from Alabama, Louisiana, Mississippi, and Texas are also included.

Table 3.5.4.1. Fishing engagement index scores of communities highly engaged in the RS-IFQ program for one or more years from 2011 through 2015.

Community	State	2011	2012	2013	2014	*2015
GALVESTON	TX	11.32	11.61	14.04	19.32	18.89
DESTIN	FL	18.26	18.46	16.47	14.34	12.79
PANAMA CITY	FL	13.37	14.37	17.02	14.20	11.83
MADEIRA BEACH	FL	4.47	4.42	4.79	4.60	7.44
KEY WEST	FL	-0.15	-0.15	-0.15	-0.14	6.16
GOLDEN MEADOW/LEEVILLE	LA	9.96	7.90	1.48	0.99	5.44
PENSACOLA	FL	5.02	5.59	4.49	4.05	4.95
APALACHICOLA	FL	3.70	3.65	3.22	4.08	4.05
TARPON SPRINGS	FL	5.19	4.78	4.89	5.15	3.83
STEINHATCHEE	FL	0.91	1.25	0.81	1.76	3.38
VENICE	LA	1.67	2.04	1.47	1.39	3.32
FORT MYERS BEACH	FL	1.19	0.94	1.21	1.07	3.14
FREEPORT	TX	2.50	3.37	3.09	1.94	2.86
PORT BOLIVAR	TX	2.85	2.56	2.28	1.87	2.54
CORTEZ	FL	2.32	2.75	2.29	2.28	2.43
HOUMA	LA	1.50	2.07	4.27	1.36	2.35
MATAGORDA	TX	2.27	2.25	2.09	1.70	2.34
PASCAGOULA	MS	4.48	4.34	4.14	4.59	2.33
SAINT PETERSBURG	FL	5.38	5.62	4.13	4.28	2.15
CRYSTAL RIVER	FL	1.67	1.66	1.38	1.69	2.09
SURFSIDE BEACH	TX	-0.15	-0.15	-0.15	-0.14	2.05
HACKBERRY	LA	-0.09	-0.08	-0.08	-0.07	1.89
PANACEA	FL	2.23	1.54	1.92	2.31	1.86
BAYOU LA BATRE	AL	1.97	1.79	1.78	1.53	1.80
CLEARWATER	FL	1.99	2.31	1.90	1.56	1.68
HUDSON	FL	1.23	1.39	1.46	1.72	1.58

REDINGTON SHORES	FL	1.61	2.08	2.56	3.02	1.41
SAINT JAMES CITY	FL	0.04	0.41	-0.01	0.15	1.41
INDIAN SHORES	FL	0.04	0.05	0.39	0.50	1.38
MATLACHA	FL	0.39	0.79	0.45	0.80	1.34
YANKEETOWN	FL	0.23	0.25	0.39	0.43	1.24
FORT MYERS	FL	0.41	0.41	0.68	1.16	1.23
ORANGE BEACH	AL	0.73	0.73	1.68	1.21	1.20
BOKEELIA	FL	0.04	0.47	0.51	0.54	1.20
DUNEDIN	FL	0.61	1.49	1.18	1.06	1.07
THEODORE	AL	0.82	0.69	1.79	0.90	0.88
NAPLES	FL	1.46	0.89	1.23	0.73	0.81
SEMINOLE	FL	1.31	1.49	0.80	0.79	0.69
FORT WALTON BEACH	FL	1.73	0.58	1.01	0.54	0.59
PANAMA CITY BEACH	FL	0.42	0.46	0.80	1.00	0.57
SLIDELL	LA	-0.09	1.01	0.70	1.10	0.54
TAMPA	FL	2.63	1.29	0.59	0.58	0.45
TALLAHASSEE	FL	1.02	0.46	0.41	0.32	0.41
HOMOSASSA	FL	1.67	0.76	0.37	0.32	0.33
CORPUS CHRISTI	TX	1.62	1.33	1.33	1.58	0.26
BURAS	LA	2.62	1.68	1.00	-0.07	-0.11

Source: SERO Permit Office, SERO Community ALS, and SERO IFQ database accessed 12/14/16.
*Some elements of the 2015 index are based on a different data set than previous years and therefore include a slight variation. The ALS was used to tabulate landings and dealers by community for 2011-2014; however LAPPs data was used for landings and dealers for 2015.

Of the 46 communities found in Table 3.5.4.1, 21 communities were highly engaged for all years from 2011 through 2015 (Figures 3.5.4.1-3.5.4.2). The engagement scores for these highly engaged communities demonstrate some fluctuation, but for the most part tend to be relatively stable despite both upward and downward movement in engagement scores. d Panama City, Florida which show greater fluctuations (Figure 3.5.4.1). The communities of Galveston, Texas; Destin, Florida; and Panama City, Florida have all remained as top communities although their rankings have shifted over time.

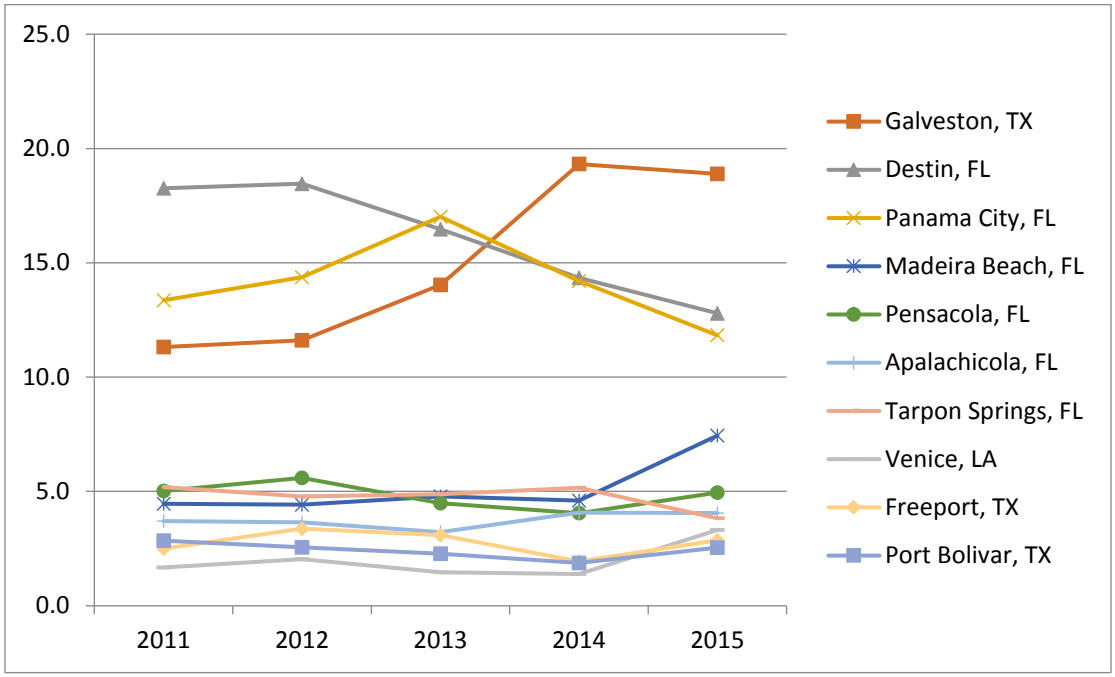


Figure 3.5.4.1. Fishing engagement scores for communities highly engaged in the RS-IFQ program for all years from 2011 through 2015.
Source: SERO Permit Office, SERO Community ALS, and SERO IFQ database accessed 12/14/16.

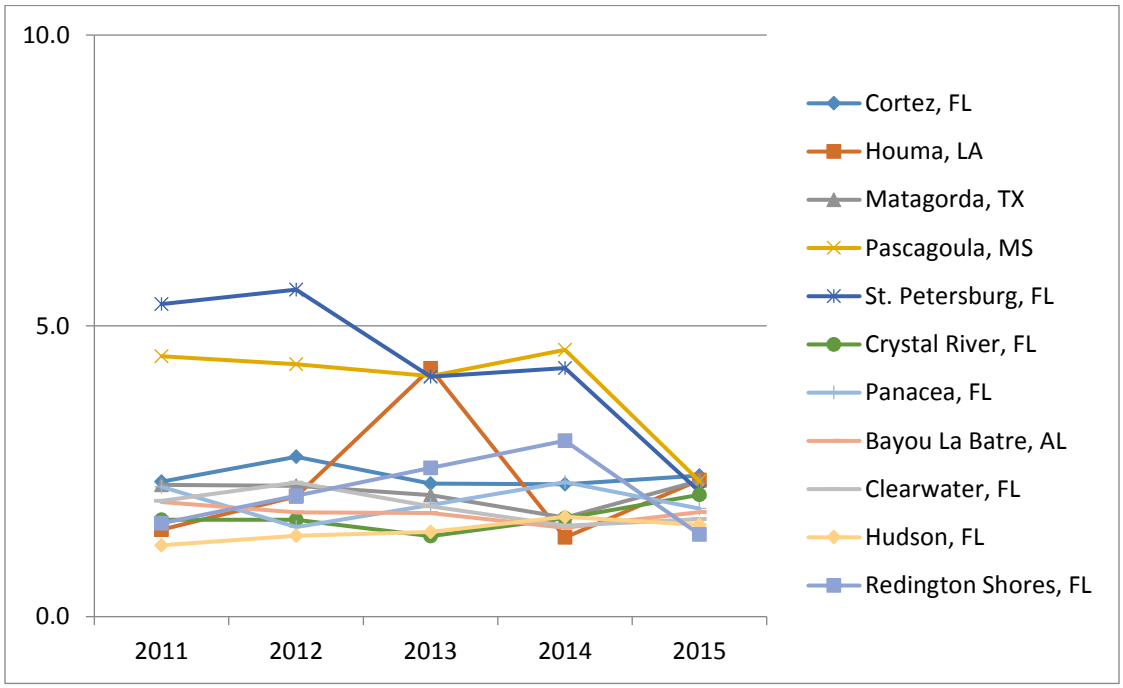


Figure 3.5.4.2. Fishing engagement scores for communities highly engaged in the RS-IFQ program for all years from 2011 through 2015 continued.
Source: SERO Permit Office, SERO Community ALS, and SERO IFQ database accessed 12/14/16.

Another measure of a community's involvement in a particular fishery is its Regional Quotient (RQ). RQ is the proportion of red snapper landed within a community out of the total amount of

red snapper landed within the region. It is an indicator of the percentage contribution in value or pounds of red snapper landed within that community to the regional fishery. This proportional measure does not provide the number of pounds or value of the catch; data that might be confidential at the community level for many places. The RQ is reported only for those communities that were highly engaged for all years from 2011through 2015. A community's proportion of total landings is not static and changes over time and therefore Figure 3.5.4.3 provides rankings by RQ value for five years: 2011 to 2015.

The top three communities in terms of commercial landings of red snapper are Destin, Florida; Galveston, Texas; and Panama City, Florida (Figure 3.5.4.3). Although Destin, Florida ranked first for commercial red snapper landings in 2011 and 2012, the community has since been replaced by Galveston, Texas in terms of commercial landings of red snapper.

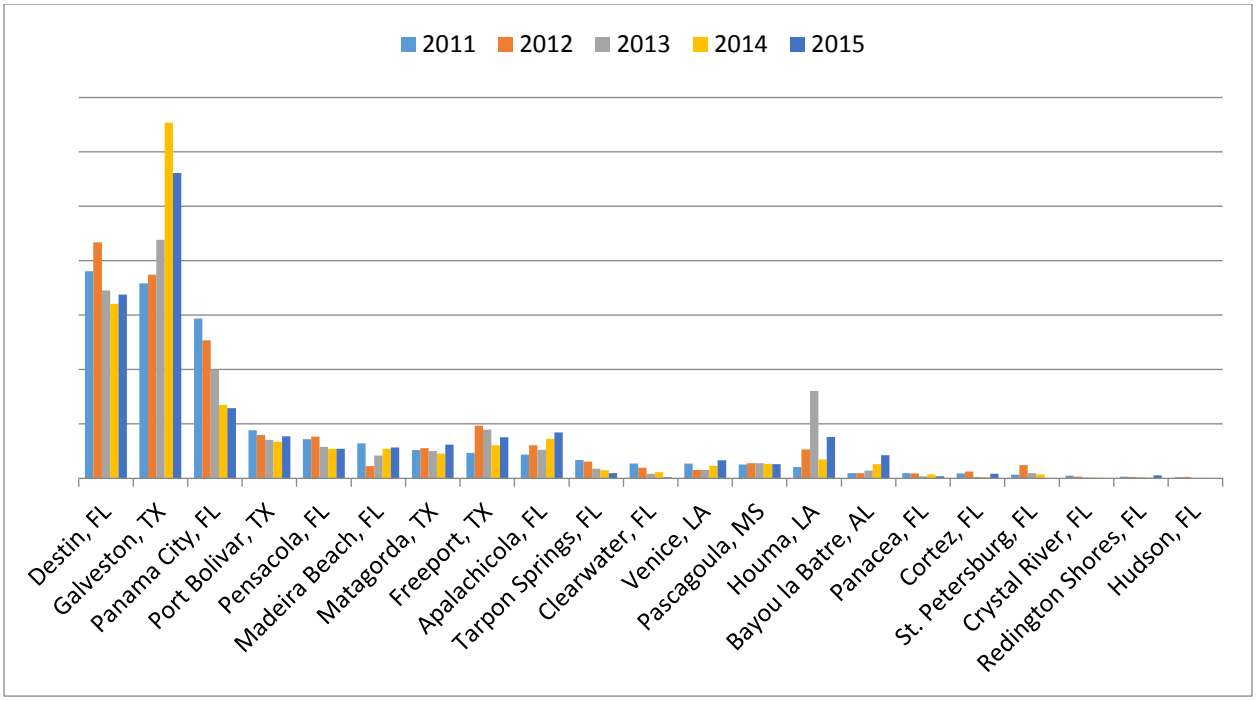


Figure 3.5.4.3. RQ (value) for communities highly engaged in the RS-IFQ program for all years from 2011 through 2015. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO IFQ database accessed 12/14/16.

Grouper Tilefish

The program-specific commercial fishing engagement index scores for the GT-IFQ program are presented in Table 3.5.4.2. The index is an indicator of the importance of grouper tilefish fishing in a community relative to other communities. It is a measure of grouper tilefish fishing through fishing activity including pounds and value of grouper tilefish, number of reef fish permits, and number of grouper tilefish dealers within the community. There were 50 communities highly engaged (1.0 standard deviation or above the mean) in the grouper tilefish fishery for at least one year from 2011 through 2015 (Table 3.5.4.2). The majority of these communities are from

Florida (78%, Table 3.5.4.2); however communities from Alabama, Louisiana, Mississippi, and Texas are also included.

Table 3.5.4.2. Fishing engagement index scores of communities highly engaged in the GT-IFQ program for one or more years from 2011 through 2015.

State	Community	2011	2012	2013	2014	*2015
FL	MADEIRA BEACH	19.51	18.17	18.96	18.73	23.16
FL	PANAMA CITY	8.03	8.97	9.44	8.33	10.67
FL	KEY WEST	8.40	10.33	10.27	9.72	8.39
FL	TARPON SPRINGS	6.25	7.92	7.81	7.79	5.85
TX	GALVESTON	2.31	1.64	3.11	3.91	5.71
FL	CORTEZ	7.21	6.71	4.34	5.00	5.70
FL	APALACHICOLA	5.44	5.65	4.11	4.04	4.52
FL	REDINGTON SHORES	4.48	5.59	6.25	7.88	4.16
FL	DESTIN	6.99	5.74	5.29	4.67	3.45
FL	FORT MYERS BEACH	2.63	2.52	2.89	2.94	3.34
FL	STEINHATCHEE	1.26	2.14	1.19	1.90	3.06
FL	INDIAN SHORES	-0.16	-0.16	-0.16	-0.16	2.69
FL	CRYSTAL RIVER	2.30	2.21	1.88	2.12	2.61
FL	PENSACOLA	2.73	3.24	2.43	2.43	2.40
FL	SAINT PETERSBURG	8.26	8.52	9.18	9.87	2.18
FL	CLEARWATER	2.12	3.19	2.78	1.28	2.15
FL	HUDSON	0.63	1.12	0.84	1.09	2.00
FL	PANACEA	1.86	1.14	1.42	1.79	1.85
FL	SAINT JAMES CITY	0.95	1.11	0.81	0.49	1.80
LA	VENICE	-0.16	0.62	0.65	0.45	1.63
FL	MATLACHA	0.80	1.31	0.52	1.12	1.59
FL	FORT MYERS	1.11	1.62	0.80	1.76	1.58
LA	GOLDEN MEADOW/LEEVILLE	3.02	1.93	1.49	1.16	1.55
FL	NAPLES	1.69	1.90	1.18	1.71	1.49
FL	BOKEELIA	0.53	0.57	0.47	0.58	1.38
FL	YANKEETOWN	-0.16	-0.16	-0.16	-0.16	1.31
FL	HERNANDO BEACH	0.30	0.25	0.27	0.28	1.26
FL	DUNEDIN	1.30	1.14	1.40	1.25	1.15
AL	ORANGE BEACH	-0.16	-0.16	0.26	0.28	1.14
TX	SURFSIDE BEACH	-0.16	-0.16	-0.16	-0.16	1.06
FL	SAINT MARKS	1.01	0.50	0.41	0.47	0.81
TX	FREEPORT	0.93	1.04	0.78	0.67	0.69
FL	MARATHON	4.19	3.17	4.23	3.26	0.54
AL	BAYOU LA BATRE	1.26	1.03	0.91	0.90	0.53
FL	FORT WALTON BEACH	1.38	0.39	0.82	0.34	0.48
FL	TALLAHASSEE	1.14	0.91	0.61	0.73	0.48

FL	TAMPA	2.30	0.62	0.29	1.11	0.44
FL	HOMOSASSA	1.06	0.85	0.80	0.84	0.41
LA	SLIDELL	-0.16	1.38	0.39	0.40	0.36
AL	BON SECOUR	0.91	1.15	-0.16	0.64	0.30
AL	THEODORE	0.60	0.37	1.20	0.28	0.24
TX	HOUSTON	1.04	0.84	0.70	0.73	0.20
FL	BIG PINE KEY	0.30	-0.16	1.41	1.99	0.14
FL	ANNA MARIA	0.30	1.06	0.85	0.53	0.08
FL	KEY LARGO	2.29	2.28	1.59	1.70	0.02
FL	SUMMERLAND KEY	3.31	1.77	1.98	1.19	-0.04
FL	ISLAMORADA	1.85	1.73	1.46	3.18	-0.10
FL	RUSKIN	2.88	2.29	2.19	1.54	-0.10
FL	TAVERNIER	0.45	1.74	1.58	0.22	-0.10
FL	LAND O LAKES	1.18	0.75	0.23	0.65	-0.16

Source: SERO Permit Office, SERO Community ALS, and SERO IFQ database accessed 12/14/16.
*Some elements of the 2015 index are based on a different data set than previous years and therefore include a slight variation. The ALS was used to tabulate landings and dealers by community for 2011-2014; however LAPPs data was used for landings and dealers for 2015.

Of the 50 communities found in Table 3.5.4.4, 18 communities were highly engaged for all years from 2011 through 2015 (Figures 3.5.4.4-3.5.4.5). The engagement scores for these highly engaged communities demonstrate some fluctuation, but tend to be fairly stable, except for St. Petersburg, Florida which declined substantially in 2015. Most of these communities are from Florida, with the exceptions being Galveston, Texas and Golden Meadow/Leeville, Louisiana. The community of Madeira Beach, Florida has remained the top community over time.

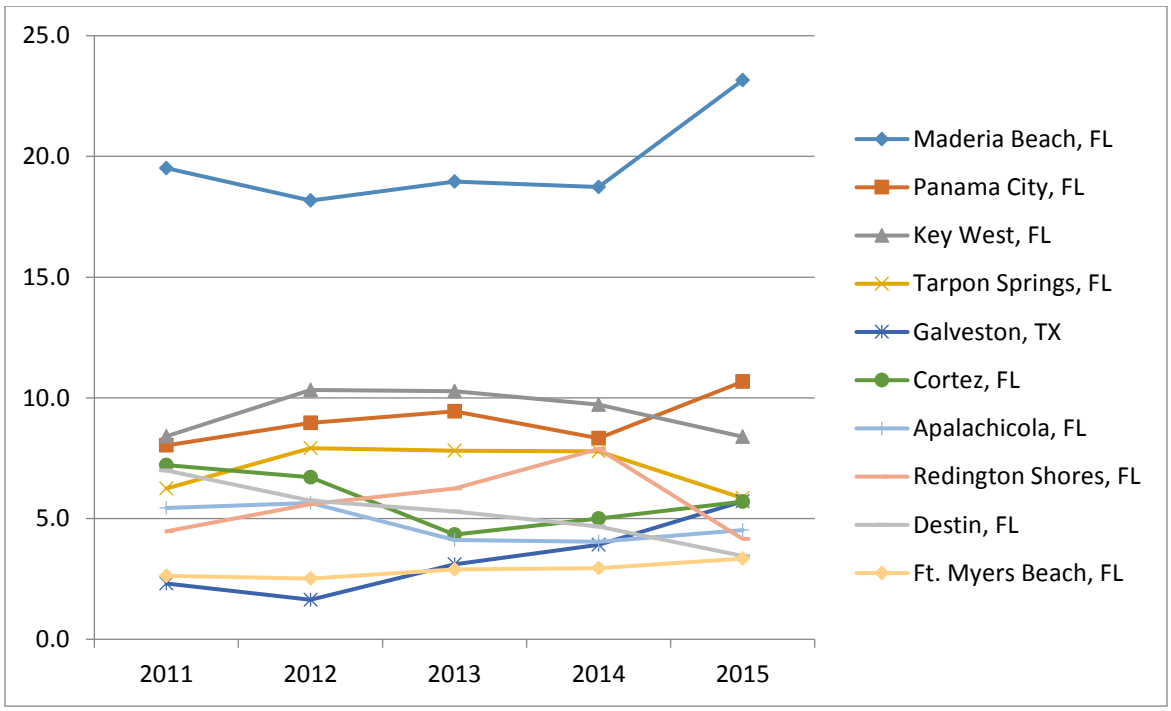


Figure 3.5.4.4. Fishing engagement scores for communities highly engaged in the GT-IFQ program for all years from 2011 through 2015.
Source: SERO Permit Office, SERO Community ALS, and SERO IFQ database accessed 12/14/16.

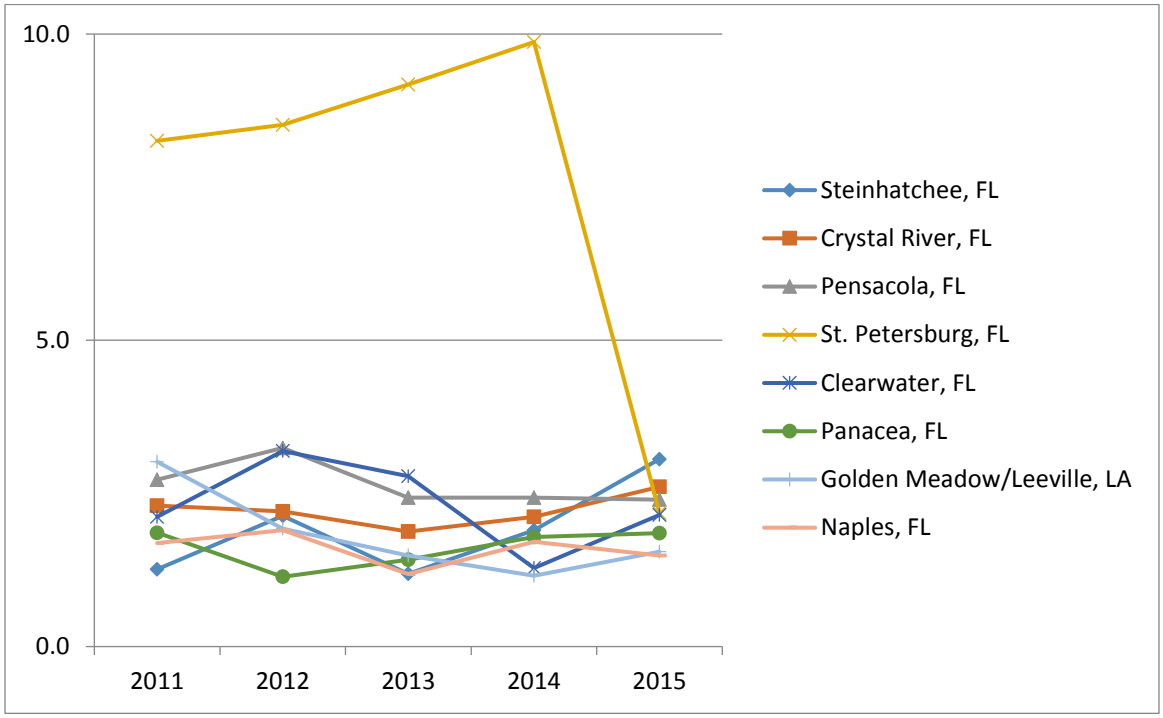


Figure 3.5.4.5. Fishing engagement scores for communities highly engaged in the GT-IFQ program for all years from 2011 through 2015 continued.
Source: SERO Permit Office, SERO Community ALS, and SERO IFQ database accessed 12/14/16.

RQ is the proportion of grouper tilefish landed within a community out of the total amount of grouper tilefish snapper landed within the region. It is an indicator of the percentage contribution in value or pounds of grouper tilefish landed within that community to the regional fishery. The RQ is reported only for those communities that were highly engaged for all years from 2011through 2015. Because a community's proportion of total landings changes over time, Figure 3.5.4.6 provides rankings by RQ value for five years: 2011 to 2015.

The top community in terms of grouper tilefish landings is Madeira Beach, Florida (Figure 3.5.4.6). The rankings of Cortez, Apalachicola, Panama City, and Tarpon Springs, Florida vary by year in terms of commercial landings of grouper tilefish; however they all remain ranked within the top six communities by commercial landings of grouper tilefish through 2011 to 2015.

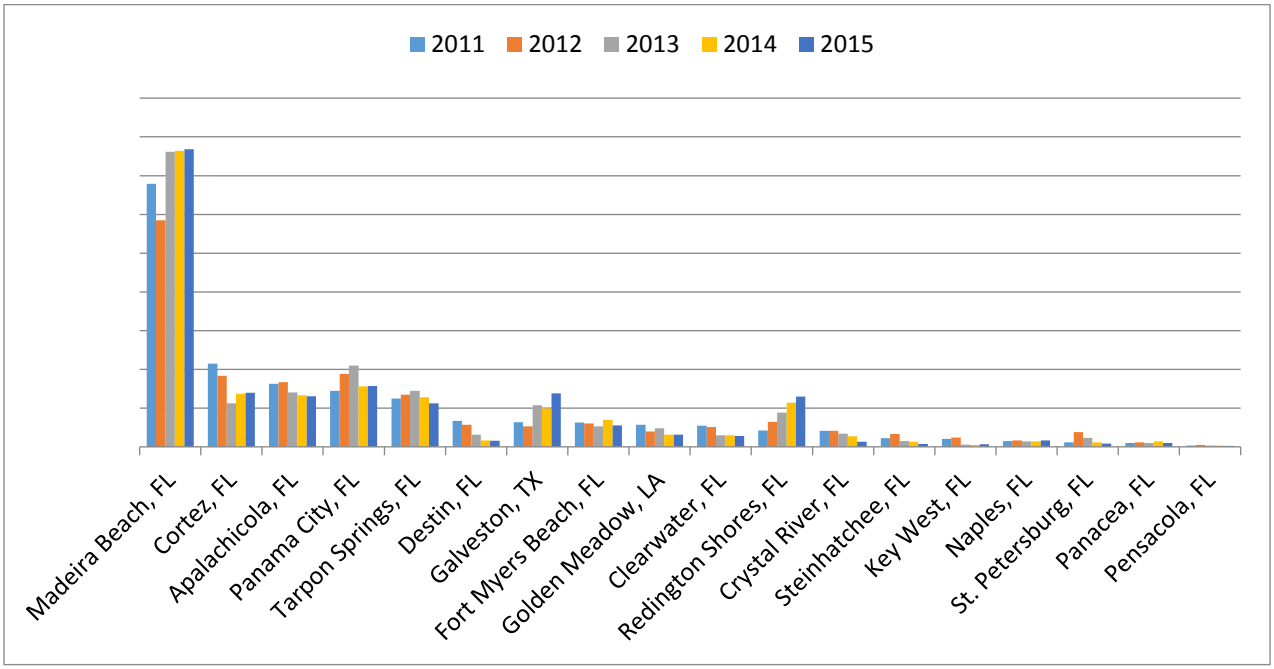


Figure 3.5.4.6. RQ (value) for communities highly engaged in the GT-IFQ program for all years from 2011 through 2015. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO IFQ database accessed 12/14/16.

3.5.5 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. The main focus of Executive Order 12898 is to consider "the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories…" This executive order is generally referred to as environmental justice (EJ).

Information on race, ethnicity, and income status for groups at the different participation levels in the IFQ programs (shareholders, captains, crew, dealers, and employees of commercial fishing businesses, etc.) is not available, because these types of data are not collected by NMFS or other agencies. Commercial fishermen and associated businesses and communities along the coast may be affected by the actions in this amendment. However, as addressed in the social effects analysis for each action (Chapter 4), the effects are generally expected to be minimal. Further, the actions in this amendment would not affect IFQ program participants differently based on race, ethnicity, or income status. Thus, disproportionate impacts to EJ populations are not expected to result from any of the actions in this amendment. Nevertheless, the lack of impacts on EJ populations cannot be assumed. Finally, there are no known claims for customary usage

or subsistence consumption of any of the species managed under the IFQ programs by any population including tribes or indigenous groups.

3.6 Description of the Administrative Environment

3.6.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Act (16 U.S.C. 1801 *et seq*.), originally enacted in 1976 as the Fishery Conservation and Management Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the 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 is shared by the Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for promulgating regulations to implement proposed plans and amendments after ensuring management measures are consistent with the Magnuson-Stevens Act and with other applicable laws summarized in Appendix A. In most cases, the Secretary has delegated this authority to NMFS.

The Council is responsible for fishery resources in federal waters of the Gulf. These waters extend to 200 nautical miles offshore from the seaward boundaries of the Gulf States of Alabama, Florida, Louisiana, Mississippi, and Texas, as those boundaries have been defined by law. The length of the Gulf coastline is approximately 1,631 miles. Florida has the longest coastline of 770 miles along its Gulf coast, followed by Louisiana (397 miles), Texas (361 miles), Alabama (53 miles), and Mississippi (44 miles).

The Council consists of seventeen voting members: 11 public members appointed by the Secretary; one each from the fishery agencies of Texas, Louisiana, Mississippi, Alabama, and Florida; and one from NMFS. The public is 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 National Oceanic and Atmospheric Administration's Office of 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. These activities are being coordinated by the Council's Law Enforcement Advisory Panel

and the Gulf States Marine Fisheries Commission's Law Enforcement Committee, which have developed joint enforcement agreements and cooperative enforcement programs (www.gsmfc.org).

Reef fish stocks are assessed through the SEDAR process. As species are assessed, stock condition and ABCs are evaluated. As a result, periodic adjustments to stock ACLs and other management measures are deemed needed to prevent overfishing. Management measures are implemented through plan or regulatory amendments.

3.6.2 State Fishery Management

The purpose of state representation at the Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters. The state governments of Texas, Louisiana, Mississippi, Alabama, and Florida have the authority to manage their respective state fisheries. Each of the five Gulf States exercises legislative and regulatory authority over their respective state's natural resources through discrete administrative units. Although each agency is the primary administrative body with respect to the states' natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources. A more detailed description of each state's primary regulatory agency for marine resources is provided on their respective Web pages (Table 3.6.2.1).

Table 3.6.2.1. Gulf state marine resource agencies and Web pages.

State marine resource agency	Web page
Alabama Marine Resources Division	http://www.outdooralabama.com/
Florida Fish and Wildlife Conservation Commission	http://myfwc.com/
Louisiana Department of Wildlife and Fisheries	http://www.wlf.louisiana.gov/
Mississippi Department of Marine Resources	http://www.dmr.ms.gov/
Texas Parks and Wildlife Department	http://tpwd.texas.gov/

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

4.1 Action 1 – Commercial Permitted Reef Fish Vessel Hail-in Requirement

4.1.1 Direct and Indirect Effects on the Physical Environment

As described in Section 3.2, adult reef fish such as red snapper, groupers, and tilefish, which are targeted by the reef fish fishery, are typically associated with hard bottom (e.g., coral reefs, artificial reefs, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings). Commercial reef fish fishing uses handlines (mostly bandit rigs and electric reels, occasionally rod-and-reel) and bottom longlines (see Section 3.1). The following describes the effects of common fishing gear on the physical environment.

Handline gear used in fishing for reef fish is generally suspended over hard bottom because many managed reef fish species occur higher over this type of substrate than over sand or mud bottoms (GMFMC 2004a). Handline 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 fishing with rod-and-reel also lays 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 (A. David, Southeast Fisheries Science Center, pers. comm.), a clear indication that bottom fishing has had an impact on the physical environment prior to fishing being prohibited in the area (GMFMC 2003).

Anchor damage is also associated with handline fishing vessels, particularly by the recreational sector where fishermen may repeatedly visit well marked fishing locations. 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 cumulative effects of repeated anchoring could damage the hard bottom areas where fishing for red snapper occurs.

Bottom 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 (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 soft corals (e.g., gorgonians) usually appeared unharmed while stony corals often had portions broken off. However, in a different study where deployed bottom longline gear was directly observed (Atlantic tilefish fishery), no evidence of gear movement was documented, even when placed in strong currents (Grimes et al. 1982). This was attributed to anchors set at either end of the bottom longline as well as sash weights along the line to prevent movement. Based on these 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). Because bottom longlines are a minor gear type used in harvesting red snapper by the commercial sector, any effects to the physical environment by this gear as a result of this action would likely be minor.

Whether the hail-in requirements are extended to cover trips by non-individual fishing quota (IFQ) commercially permitted reef fish vessels (**Preferred Alternative 2** and **Alternative 3**) or not (**Alternative 1**) should have no direct or indirect effect on the physical environment. It is unlikely that extending the hail-in requirement would change how the fishery is prosecuted. Most trips by permitted reef fish vessels already hail in because they have IFQ species onboard (> 80 %; Table 2.1.4). Further, it is unlikely that a fisherman would not make a trip just because they were required to hail in. Thus, there should be no change in how reef fish fishing gear is deployed and how it interacts with the environment regardless of which alternative is selected.

4.1.2 Direct and Indirect Effects on the Biological/Ecological Environment

Direct and indirect effects from fishery management actions have been discussed in detail in Reef Fish Amendment 22 and Reef Fish Amendment 27/Shrimp Amendment 14 (GMFMC 2004b and 2007) and in several red snapper framework actions (GMFMC 2010, 2012, 2013) and are incorporated here by reference. Potential impacts of the 2010 Deepwater Horizon MC252 oil spill on the biological/ecological environment are discussed in Section 3.3 and the January 2011 Framework Action (GMFMC 2011c) and are also incorporated here by reference. These impacts may include recruitment failure and reduced fish health. Management actions that affect this 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. Fishing gears have different selectivity patterns which refer to a fishing method's ability to target and capture organisms by size and species. This would include the number of discards, mostly sublegal fish or fish caught during seasonal closures, and the mortality associated with releasing these fish.

Fishing can affect life history characteristics of reef fish such as growth and maturation rates. For example, Fischer et al. (2004) and Nieland et al. (2007) found that the average size-at-age of red snapper had declined and associated this trend with fishing pressure. Lombardi-Carlson et al. (2006) found that the mean size of gag at age was larger pre-1990 than in post-1990 years and suggested this change was also due to fishing. For red snapper, Woods (2003) found that the size at maturity for Gulf of Mexico (Gulf) red snapper had declined and speculated this change may also have been due to increases in fishing effort. Grouper reproduction may also have been impacted by fishing. Fitzhugh et al. (2006) reported the size at 50% maturity and 50% transition from females to males was smaller in their studies compared to earlier year. In addition, for

hermaphroditic species, fishing pressure has been suggested for changes in sex ratios. 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 Gulf of Mexico Fishery Management Council's (Council) Reef Fish Stock Assessment Panel that the reduction in proportion of males may have a potentially negative consequence on population reproductive potential (GMFMC 1998). It has been suggested the resulting reduction in the number of males is a consequence of males being more aggressive feeders than females. Thus, hook-and-line fishing on gag spawning aggregations tends to selectively remove males before females (Gilmore and Jones 1992; Koenig at al. 1996). A decline in the ratio of male to female gag in the Gulf has been an ongoing source of concern. Furthermore, for species that aggregate such as gag, the species is particularly vulnerable to fishing because they are concentrated at specific locations. This problem is confounded because of the depth gag spawn (from 27-66 fathoms, but concentrated around 44 fathoms; Koenig at al. 1996). At these depths, gag are vulnerable to mortality from barotrauma through the capture process

The reef fish fishery can also affect species outside the reef fish complex. Specifically, sea turtles have been observed to be directly affected by the longline component of the Gulf reef fish fishery. These effects occur when sea turtles interact with fishing gear and result in an incidental capture injury or mortality and are summarized in GMFMC (2009). However, for sea turtles and other listed species, the most recent biological/ecological opinion for the Reef Fish Fishery Management Plan concluded authorization of the Gulf reef fish fishery managed in the reef fish plan is not likely to jeopardize the continued existence of sea turtles, smalltooth sawfish, or *Acropora* species (See section 3.3 for more information). This fishery is also not expected to adversely affect marine mammals, the primary gears used by the commercial sector (longline and hook-and-line) were classified in the 2017 proposed List of Fisheries (81 FR 54019) as a Category III fishery with regard to marine mammal species, indicating this gear has little effect on these populations (see Section 3.3 for more information).

This action is not expected to have any direct or indirect effects on the biological environment regardless of which alternative is selected. As discussed in Section 4.1.1, whether the hail-in requirements are extended to cover trips by non-IFQ commercially permitted reef fish vessels (**Preferred Alternative 2** and **Alternative 3**) or not (**Alternative 1**), should not change how the fishery is prosecuted or the number of fish harvested. Thus, the action should have no direct or indirect effect on the biological environment.

4.1.3 Direct and Indirect Effects on the Economic Environment

Alternative 1 would maintain the current hail-in requirement for commercial permitted reef fish vessels, such that the owner or operator of a vessel landing IFQ species must notify the National Marine Fisheries Service (NMFS) between 3 and 24 hours prior to landing. **Alternative 1** would not be expected to affect the harvest of IFQ species, and so **Alternative 1** would not be expected to result in any direct economic effects. **Preferred Alternative 2** and **Alternative 3** require the same hail-in time period to NMFS of 3 to 24 hours prior to landing, but they expand the scope of which vessels would be required to hail-in.

Preferred Alternative 2 would require a commercial reef fish permitted vessel landing any commercially caught reef fish from the Gulf to hail-in. If IFQ species are to be landed, the hail-in requirements for a vessel under **Preferred Alternative 2** are identical to that of **Alternative 1**; if no IFQ species are to be landed, **Preferred Alternative 2** differs from **Alternative 1** in that a hail-in will be required, providing date, time, location of landing, and vessel identification number. While **Preferred Alternative 2** would not be expected to affect the harvest of IFQ species or other reef fish, it may still result in minor direct economic effects due to the opportunity cost associated with the time burden of additional hail-ins and due to potential additional communication costs. The positive indirect economic effects of **Preferred Alternative 2** stem from the potential reduction in illegal harvest of IFQ species as a result of better interception of commercially permitted reef fish vessels by marine enforcement agents. In 2015, **Preferred Alternative 2** would have incorporated, for a hail-in, the 11% of reef fish trips that did not land IFQ species, amounting to 61 trips per month on average (Table 2.1.2). The potential reduction in any illegal harvest of IFQ species then must be weighed against the negative indirect economic effects of **Preferred Alternative 2**, which relate to the incurred public costs if any additional enforcement results.

Alternative 3 would broaden the hail-in requirement to commercial reef fish permitted vessels landing any commercially caught, federal managed species from the Gulf. If IFQ species are to be landed, the hail-in requirements for a vessel under **Alternative 3** are identical to that of **Alternative 1**; if no IFQ species are to be landed, **Alternative 3** differs from **Alternative 1** in that a hail-in will be required, providing date, time, location of landing, and vessel identification number. While **Alternative 3** would not be expected to affect the harvest of IFQ species or other reef fish, it may still result in minor direct economic effects due to the opportunity cost associated with the time burden of additional hail-ins and due to potential additional communication costs. As with **Preferred Alternative 2**, the positive indirect economic effects of **Alternative 3** stem from the potential reduction in illegal harvest of IFQ species as a result of better interception of commercially permitted reef fish vessels by marine enforcement agents. In 2015, **Alternative 3** would have incorporated, for a hail-in, the 14% of trips that landed commercially caught, federal managed species but that did not land IFQ species, amounting to 83 trips per month on average (Table 2.1.4). The average number of additional monthly trips requiring a hail-in under **Alternative 3** would be greater than that under **Preferred Alternative 2** by 22 trips. Thus, the positive indirect economic effects of **Alternative 3** would be greater than that of **Preferred Alternative 2**, assuming the same relative increase in vessel interception by marine enforcement agents. With the same relative increase in vessel interception comes an increase in incurred public costs if any additional enforcement results, and so **Alternative 3** would incur greater negative indirect economic effects than **Preferred Alternative 2**.

4.1.4 Direct and Indirect Effects on the Social Environment

This action would expand the requirement for commercial reef fish permitted vessels to provide a landing notification to NMFS between 3 and 24 hours in advance of landing IFQ species (hail-in). Currently, only commercial reef fish permitted vessels with IFQ species aboard must complete the landing notification. No additional effects would be expected from retaining this requirement (**Alternative 1,** No Action) as no change would be made concerning the harvest of IFQ species and commercial vessels participating in the IFQ programs are accustomed to submitting the landing notification.

For reef fish permitted vessels that have not landed IFQ species, direct effects would be expected from expanding the hail-in requirement to vessels that make landings of non-IFQ program reef fish (**Preferred Alternative 2**). These effects would accrue to a relatively small number of vessels and trips and relate to the added burden of 1) obtaining approval for the vessel's landing location, if the vessel does not already land at an approved IFQ landing location, and 2) completing the landing notification. Because the information to be provided in a non-IFQ species landing notification would be simpler than the information required of vessels landing IFQ species and all reef fish permitted vessels have the equipment necessary to complete a landing notification, effects related to the burden of completing the landing notification under **Alternative 2** would be minimal and short-term.

The number of vessels and trips that would be affected by expanding the hail-in requirement under **Preferred Alternative 2** would be limited. Currently, the majority of commercial reef fish permitted vessels that are actively used to land reef fish make landings of IFQ species. In 2015, of the 868 reef fish permitted vessels, 533 used the permit by making at least one landing that included reef fish species. Of these 533 vessels, 485 made at least one landing that included IFQ species, requiring the vessel to hail-in (Table 2.1.1). In 2015, then, 91% of commercial vessels using their permit to land reef fish also landed IFQ species and thus, have submitted a landing notification requiring more information than would be required under **Preferred Alternative 2**. By number of trips in 2015, 89% of trips made by vessels with a commercial reef fish permit that landed any reef fish species, made landings with IFQ species (Table 2.1.2). Thus, the number of vessels and trips that would be directly affected under **Preferred Alternative 2** would be small.

The greatest potential for negative effects under **Preferred Alternative 2** concerns the requirement to land at an approved landing location. It is unknown how many additional landings sites would need to be approved, thus the extent of these effects is unknown. Further, it is possible that some landing locations currently used by vessels to land non-IFQ reef fish may not satisfy the requirements for an approved landing location. This would result in direct negative effects on operators and crew as vessels would no longer be allowed to land non-IFQ reef fish species where they are accustomed to landing.

Alternative 3 would affect vessels with both a reef fish permit and another commercial permit when those vessels make landings with the non-reef fish permit. Similar to **Preferred Alternative 2**, these vessels already possess the equipment necessary to complete a landing notification, which can be accomplished using the VMS required of all reef fish vessels. Also similar to **Preferred Alternative 2**, these vessels would need to land at an approved landing location. This would be an added burden for obtaining approval for the landing location and could result in greater negative effects if the landing locations currently used do not satisfy NMFS' requirements for an approved landing location. This would require the vessel operator and crew to land at different locations, potentially affecting relationships with dealers in unknown ways.

Using 2015 data, it is possible to approximate the number of vessels and trips that make non-IFQ species reef fish landings and would thus be affected under **Preferred Alternative 2**. For **Alternatives 3**, the number of additional vessels that would be required to provide a landing

notification is unknown. Table 2.1.3 provides the number of reef fish permitted vessels that also possesses each of the other federal commercial permits, however, many of the reef fish permitted vessels possess more than one of the other federal permits. The number of unique vessels with a reef fish permit and one or more other federal permits has not been determined because this data query is much more complex. The number of additional trips that would need to provide a landing notification under **Alternative 3** can be approximated. To compare with **Alternative 1**, in 2015, 997 trips were made by reef fish permitted vessels that did not land any IFQ species, or 14% of trips taken by reef fish permitted vessels (Table 2.1.4). These trips include those that landed reef fish species other than those managed under the IFQ programs. To compare with **Preferred Alternative 2**, in 2015, 269 trips by vessels possessing a reef fish permit made landings without any reef fish species. Thus, the direct negative effects would be greater from **Alternative 3** compared to **Preferred Alternative 2**, but the number of trips that would potentially be affected is small.

4.1.5 Direct and Indirect Effects on the Administrative Environment

This action would directly affect the administrative environment by adding to the administration of the Office of Law Enforcement (OLE) and the Southeast Regional Office (SERO). These effects would primarily be associated with using a vessel monitoring system (VMS) or phones for hailing in and the approval of landing locations.

Preferred Alternative 2 and **Alternative 3** would increase the number of VMS hail-in notifications that OLE uses to determine which vessels to intercept. To do so, changes must be made to the VMS system. The VMS form would need to be updated to show new landing locations, assuming some operators of permitted reef fish vessels land at non-approved sights when offloading non-IFQ species. Approved locations can be selected from a drop down menu on a VMS form. New locations need to be added to the form, which can take several months to update. However, to simplify the process, OLE has proposed moving away from the dropdown menu and moving to a coded system for approved landing locations. Landing location codes, which can easily updated, can be provided to fishermen to use when hailing in. The VMS form would also need to be updated so that fishermen could indicate whether or not they have IFQ species on board.

Currently, fishermen landing IFQ species can use a phone to do their hail-in. If non-IFQ trips under **Preferred Alternative 2** and **Alternative 3** can also hail-in by phone, this would require a new contract with a phone answering service. This would have a cost associated with it for NMFS to cover. The current cost to the IFQ program is approximately $600 per month ($7,200 annually). A similar service for non-IFQ hail-ins would likely have a similar cost. Additionally, this cost could not be paid for by IFQ cost recovery funds as the IFQ system is. Thus, to cover these non-IFQ hail-in phone calls would require funds from a different NFMS account.

As discussed above, including non-IFQ trips for commercially permitted reef fish vessels to provide hail-ins would likely add to number of landing locations that OLE would need to approve. Approving a site requires OLE staff to visit the location to ensure the site is accessible and safe. However, it is likely the number of locations would be minimal given many fishermen already land their fish at approved sites. In addition to OLE approving the site, SERO staff would need to add the location to the SERO IFQ data base to generate landing notification

emails to different law enforcement agencies.

Under **Alternative 1**, there would be no change in who is required to hail in. It would be restricted to those reef fish permitted vessels landing IFQ species. Compared to **Alternative 1**, the effects from **Preferred Alternative 2** and **Alternative 3** would adversely affect the administrative environment given the discussion above with the added burden to the VMS program and possible need for a phone-based hail-in system. However, these effects would likely not be significant. This is because, as discussed in Section 2.1, most trips by commercially permitted reef fish vessels land IFQ species (>80%). As a result, any increase in hail-ins and approval of landing locations are likely to be modest. **Alternative 3**, because it would cover more trips, would be expected to have greater adverse effects than **Preferred Alternative 2**.

4.2 Action 2 – Non-activated IFQ Shareholder Accounts

4.2.1 Action 2.1 – Returning Non-activated Shares to NMFS

4.2.1.1 Direct and Indirect Effects on the Physical Environment

This action would either allow non-activated IFQ accounts to remain as is (**Alternative 1**), or transfer shares from non-activated IFQ accounts [**Preferred Alternatives 2** (red snapper) and **3** (grouper-tilefish)] to NMFS. This action is primarily administrative, so this action should not change how the IFQ fishery is prosecuted. Thus, no direct or indirect effects are expected to the physical environment regardless of which alternative or option (**Options 2a-3b**) is selected.

4.2.1.2 Direct and Indirect Effects on the Biological/Ecological Environment

This action would either allow non-activated IFQ accounts to remain as is (**Alternative 1**), or transfer shares from non-activated IFQ accounts [**Preferred Alternatives 2** (red snapper) and **3** (grouper-tilefish)] to NMFS. This action is primarily an administrative, so no direct or indirect effects are expected to the biological environment regardless of which alternative or option (**Options 2a-3b**) is selected because this action should not change how the IFQ fishery is prosecuted.

4.2.1.3 Direct and Indirect Effects on the Economic Environment

This action considers alternative timeframes to return non-activated red snapper and grouper-tilefish IFQ shares to NMFS. Once returned to NMFS, these shares would be redistributed based on the provisions discussed in Action 2.2. **Alternative 1** (No Action) would not distribute non-activated IFQ shares and would therefore not affect current commercial red snapper and grouper-tilefish harvests. Consequently, **Alternative 1** would not be expected to result in direct economic effects.

Alternatives 2 and **3** would return non-activated red snapper and grouper-tilefish IFQ shares to NMFS, respectively. **Option a** would return the shares on the effective date of the final rule implementing this amendment. Compared to **Option a**, **Option b** would delay the return of the

shares by one year. Because returned IFQ shares would be redistributed, **Alternatives 2** and **3** would provide additional fishing opportunities to IFQ participants. For each share category, the maximum additional amount that could be harvested annually would equal the amount of annual allocation corresponding to the non-activated IFQ shares in that category. If IFQ participants take advantage of these additional harvesting opportunities, **Alternatives 2** and **3** would be expected to result in direct economic benefits proportional to the additional red snapper and grouper-tilefish harvests.

Estimates discussed in this section were computed based on median prices provided in Table 4.2.1.3.1. Median share and annual allocation prices are used in this analysis because of the large number of zeros reported in transactions. Estimates of the maximum additional harvests by share category and associated expected change in ex-vessel value, gross revenues (ex-vessel value net of 3% cost recovery fee), IFQ share values, and IFQ allocation values for **Alternatives 2** and **3**, are provided in Table 4.2.1.3.2.

Table 4.2.1.3.1. Ex-vessel, shares and allocation transfer prices per pound by IFQ program and category in 2015. All prices in 2015 dollars.

IFQ Program and Share Category	Ex-Vessel Price ($/lb)	Share Price ($/lb)	Allocation Transfer Price ($/lb)
Red Snapper IFQ RS	$4.85	$33.62	$3.09
Grouper-Tilefish IFQ			
DWG	$4.62	$12.74	$1.18
SWG	$4.61	$6.74	$0.60
RG	$3.94	$12.86	$1.07
GG	$5.07	$21.97	$1.90
TF	$2.90	$9.18	$0.77

Source: Grouper-tilefish prices from J. Stephen, pers. comm., 12/20/16.
Red Snapper prices from 2015 Red Snapper IFQ Program Annual Report

Table 4.2.1.3.2. Pounds, annual ex-vessel value, annual gross revenue (ex-vessel value net of cost recovery fees), share values and annual allocation transfer values by IFQ program and category for Alternatives 2 and 3. All dollar values in 2015 dollars.

IFQ Program and Share Category	Equivalent Pounds	Ex-Vessel Value	Gross Revenue	Share Value	Allocation Transfer Value
Red Snapper IFQ RS (Alternative 2)	14,883	$72,183	$70,017	$500,366	$45,988
Grouper-Tilefish IFQ (Alternative 3)					
DWG	292	$1,349	$1,309	$3,720	$345
SWG	2,485	$11,456	$11,112	$16,749	$1,491
RG	11,501	$45,314	$43,955	$147,903	$12,306
GG	2,041	$10,348	$10,037	$44,841	$3,878
TF	321	$931	$903	$2,947	$247
Grouper-Tilefish Total		$69,398	$67,316	$216,159	$18,267

Although IFQ shares are a privilege that can be revoked, they are assets that can be freely exchanged in markets and used as collateral for bank loans. If red snapper and grouper-tilefish IFQ shares are traded in well-functioning markets, IFQ share prices should be a reflection of the stream of discounted net benefits expected to be derived from holding an additional unit of IFQ share. Detailed discussions on IFQ markets and on determinants of share prices in IFQ markets are provided in Newell et al. (2005a, 2005b). Because IFQ share prices reflect the discounted stream of net benefits expected to be derived from an IFQ share in the long-term, an evaluation of the potential economic effects based on changes in overall asset values (i.e., share prices) would capture long-term economic changes.

Under **Alternative 2**, the proposed return of non-activated red snapper shares would be expected to make available $500,366 in share value once redistributed to IFQ participants. If IFQ participants fully take advantage of the additional fishing opportunities provided by **Alternative 2**, expected annual increases in ex- vessel values, gross revenues, and allocation value would be estimated at approximately $72,183, $70,017, and $45,988, respectively.

The return of non-activated grouper-tilefish shares considered in **Alternative 3** would be expected to result in additional share value of $216,159 once redistributed to IFQ participants. If IFQ participants fully take advantage of the additional grouper-tilefish fishing opportunities provided by **Alternative 2**, expected annual increases in ex-vessel values, gross revenues, and allocation value would be estimated at approximately $69,398, $67,316, and $18,267, respectively. For some IFQ categories, e.g., red grouper, it is unlikely that IFQ participants would harvest the totality of the additional annual allocation resulting from to the return of non-activated shares. Therefore, annual estimates provided here should be considered as upper bound values. For **Alternatives 2** and **3**, relative to **Option b**, **Option a** would be expected to provide an additional year of benefits, as measured by annual increases in ex-vessel values, gross revenues, and allocation value, because it would return non-activated shares one year before **Option b**.

4.2.1.4 Direct and Indirect Effects on the Social Environment

Additional effects would not be expected from **Alternative 1** (No Action), which would allow shares held in non-activated accounts to remain unused. Because the quota associated with these shares remains inaccessible for use by other program participants, some negative indirect effects currently exist by allowing these shares to remain unused. Given the very small amount of quota held in these accounts (Table 2.2.1.1), these effects are minimal. Further, the number of accounts and amount of shares remaining unused has continued to decline as other IFQ program participants locate the holders of these non-activated accounts and arrange to transfer the shares. Thus, the issue of unused shares in non-activated accounts would be expected to continue to resolve itself if the Council selects **Alternative 1**.

Preferred Alternatives 2 and **3** would close the remaining non-activated accounts in the red snapper and grouper-tilefish IFQ programs, respectively, and return the shares to NMFS for redistribution (see Action 2.2). Although direct negative effects would be expected from reclaiming shares previously distributed to some shareholders, NMFS has attempted to contact the holders of these accounts to resolve the lack of activity and the Council has not received any comments from the holders of these non-activated accounts that they wish the accounts to remain

unused. Thus, any direct negative effects for the shareholders of these accounts would be negligible.

Because this action only addresses the recovery of the non-activated shares, the direct positive effects that would be expected from providing additional quota to other IFQ program participants is discussed for Action 2.2. Indirect effects would be expected from the timeline for returning the shares to NMFS, provided as options in this action. As of January 2, 2017, the red snapper IFQ program has been in place for 10 years, and the grouper-tilefish IFQ program for 7 years. The shares in accounts to be returned to NMFS have gone unused since the inception of each program. **Preferred Options 2a** and **3a** would return the shares in non-activated accounts to NMFS one year prior to **Options 2b** and **3b**. Thus, indirect positive effects for those IFQ program participants who will receive the shares (Action 2.2) would be greater under **Preferred Options 2a** and **3a** compared with **Options 2b** and **3b**, as the shares and associated allocation would be available for use sooner.

4.2.1.5 Direct and Indirect Effects on the Administrative Environment

Under **Alternative 1**, there would be no returning non-activated IFQ accounts to NMFS, thus there would be no change in the administrative environment. **Preferred Alternatives** 2 and **3** of Action 2.1 would directly affect the administrative environment by adding to the administrative burden of SERO, which tracks IFQ shareholder accounts. SERO would need to notify owners of non-activated IFQ accounts that if they do not activate their accounts, any shares in the accounts would be lost. In addition, SERO staff would ultimately need to close the non-activated IFQ accounts and distribute those shares (Action 2.2). However, any adverse effects to the administrative environment are not expected to be significant. This is because 1) this is a one-time event and 2) it is a simple procedure to close the accounts and transfer the shares to NMFS. There should be little difference in effects between **Preferred Alternatives 2** and **3** given the number of non-activated IFQ accounts in the Grouper-Tilefish IFQ program is very similar to the number of accounts in the Red Snapper IFQ program (55 versus 32 accounts; Table 2.2.1.1). If both alternatives are selected as preferred, the effects would double.

Both **Preferred Alternatives** 2 and **3** have options (**Options 2a, 2b, 3a,** and **3b**) on when the shares would be returned to NMFS. None of the options should have a direct effect on the action as the procedures for returning shares to NMFS should remain the same. However, there could be indirect effects. By waiting one year after the effective date of the final rule implementing Amendment 36A (**Options 2b** and **3b**), holders of non-activated IFQ accounts would have more time to activate their accounts, thus reducing the number of non-activated IFQ accounts. This should reduce the administrative burden of **Alternatives 2** and **3** compared to selecting **Options 2a** and **3a**.

4.2.2 Action 2.2 – Method of Redistributing Shares from Non-activated Accounts

4.2.2.1 Direct and Indirect Effects on the Physical Environment

This action would redistribute shares from non-activated IFQ accounts (Action 2.1) to IFQ shareholders. This means that there would be more fish harvested under **Preferred Alternative 2** and **Alternatives 3 and 4** when compared to **Alternative 1** because IFQ allocation that hasn't been caught would likely now be caught by fishermen active in the IFQ program. This may lead to an increase in fishing effort, resulting in greater impacts to the physical environment as discussed in Section 4.1.1. However, any increase in fishing effort is expected to be minimal as any increase in total allocation is a small fraction of the respective red snapper and grouper-tilefish quotas (Table 2.2.1.1).

Whether any of **Alternatives 2-4** would have a greater or lesser adverse effect on the physical environment than each other is difficult to assess. Each alternative would distribute the same total amount of shares (and allocation). How the alternatives differ is the distribution method of the non-activated shares – equal (**Preferred Alternative 2**), proportional (**Alternative 3**) or by share category (**Alternative 4**). This is part of the administrative accounting of shares and allocation. It should not have implications in how fishing gear is set.

4.2.2.2 Direct and Indirect Effects on the Biological/Ecological Environment

This action would redistribute shares from non-activated IFQ accounts (Action 2.1) to IFQ shareholders. This means that there would be more fish harvested under **Preferred Alternative 2** and **Alternatives 3 and 4** when compared to **Alternative 1** because IFQ allocation that hasn't been caught would likely now be caught by fishermen active in the IFQ program. This would result in more fish being removed from the different IFQ species' population, an adverse effect as described in Section 4.1.2. However, any increase in harvest is expected to be minimal as any increase in total allocation is a small fraction of the respective red snapper and grouper-tilefish quotas (Table 2.2.1). The commercial harvest would not be expected to exceed the different IFQ species respective annual catch limits because of other harvest controls inherent to the IFQ programs.

Whether any of **Alternatives 2-4** would have a greater or lesser adverse effect on the biological environment than each other is difficult to assess. Each alternative would distribute the same total amount of shares (and allocation). How the alternatives differ is the distribution method of the non-activated shares – equal (**Preferred Alternative 2**), proportional (**Alternative 3**) or by share category (**Alternative 4**). This is part of the administrative accounting of shares and allocation. There should be no differences in how many fish are harvested for each IFQ species between alternatives.

As discussed above, this action should not change how the fishery is prosecuted because any increase in harvest would be minimal. Therefore, this action is not expected to affect other species such as sea turtles and other reef fish.

4.2.2.3 Direct and Indirect Effects on the Economic Environment

This action considers alternative redistribution methods for non-activated IFQ shares returned to NMFS. **Alternative 1** would not redistribute the shares to IFQ participants. Therefore, potential aggregate economic benefits that could be derived from the shares (discussed in Action 2.1) would not materialize.

Because **Alternatives 2-4** would redistribute the non-activated shares to IFQ participants, direct economic benefits would be expected to result from these alternatives. Although the same aggregate benefits (provided in Action 2.1) are expected to result from each of the alternatives, they differ by the number of recipients and by the distribution method considered. In general, for a given distribution method (equal or proportional), the greater the number of recipients, the smaller individual share amounts each recipient would receive. Table 4.2.2.3.1 provides the number of accounts with various characteristics (ownership type, landings participation) by share category.

Table 4.2.2.3.1. Number of accounts by selection criteria and share category.

Accounts with:	DWG	GG	RG	RS	SWG	TF
Shares (Number of Recipients in Alternatives 2 and 3)	366	574	530	386	581	222
Allocation	464	753	716	635	742	287
Landings	152	337	342	378	311	79
Landings, but no shares	60	143	145	210	131	40
Landings, but no shares and not related to an account with shares in that category (Number of Recipients in Alternative 4)	28	90	95	161	77	15

Source: J. Stephen, pers. comm. 12/20/16.

Alternative 2 would distribute the shares from each share category equally among shareholders of that share category. Table 4.2.2.3.2 provides estimated number of pounds, annual ex-vessel value, annual gross revenue, share values and annual allocation transfer values apportioned to each eligible account under **Alternative 2**. These estimates were derived by dividing estimates in Table 4.2.2.3.1 by the number of eligible accounts.

Table 4.2.2.3.2. Pounds, annual ex-vessel value, annual gross revenue (ex-vessel value net of cost recovery fees), share values and annual allocation transfer values distributed to each eligible account under Alternative 2.

Share Category	Number of Accounts	Pounds	Ex-Vessel Value	Gross Revenue	Share Value	Allocation Transfer Value
RS	386	39	$187	$181	$1,296	$119
DWG	366	1	$4	$4	$10	$1
SWG	581	4	$20	$19	$29	$3
RG	530	22	$85	$83	$279	$23
GG	574	4	$18	$17	$78	$7
TF	222	1	$4	$4	$13	$1

Given the large number of accounts relative to the pounds to apportion under **Alternative 2**, economic benefits expected for each account are modest. For example, each eligible account would receive four pounds of shallow water grouper, yielding annual ex vessel and allocation values of $20 and $3, respectively. Because **Alternative 3** would distribute shares from each share category according to the proportion of shares held by shareholders of that share category, some accounts would receive more than the amounts indicated in **Alternative 2** while others would receive less, as determined by the percentage of that share category they own.

Alternative 4 would distribute the shares from each category equally among the allocation-only account holders with a commercial reef fish permit and landings in 2015. Table 4.2.2.3.3 provides estimated number of pounds, annual ex-vessel value, annual gross revenue, share values and annual allocation transfer values apportioned to each eligible account under **Alternative 4**. These estimates were derived by dividing estimates in Table 4.2.2.3.1 by the number of accounts eligible to receive shares under **Alternative 4**. Relative to **Alternative 2**, individual benefits provided to each account are slightly larger under **Alternative 4** because the number of eligible recipients is smaller.

Table 4.2.2.3.3. Pounds, annual ex-vessel value, annual gross revenue (ex-vessel value net of cost recovery fees), share values and annual allocation transfer values distributed to each eligible account under Alternative 4.

Share Category	Number of Accounts	Pounds	Ex-Vessel Value	Gross Revenue	Share Value	Allocation Transfer Value
RS	161	92	$448	$435	$3,108	$286
DWG	28	10	$48	$47	$133	$12
SWG	77	32	$149	$144	$218	$19
RG	95	121	$477	$463	$1,557	$130
GG	90	23	$115	$112	$498	$43
TF	15	21	$62	$60	$196	$16

4.2.2.4 Direct and Indirect Effects on the Social Environment

After the shares in non-activated accounts are returned to NMFS (Action 2.1), this action would not redistribute the shares (**Alternative 1**) or redistribute the shares from each share category to shareholders (**Preferred Alternative 2** and **Alternative 3**) or to IFQ account holders who do not have shares (**Alternative 4**). Some negative effects would be expected from **Alternative 1** (No Action) as the shares and associated allocation from non-activated accounts would no longer be available; other program participants would not be able to seek out the remaining shareholders of the non-activated accounts to negotiate transferring the shares, nor would the shares be distributed to IFQ program participants by NMFS. Although there is a small amount of shares and associated allocation held in all non-activated accounts (Table 2.2.1.1), preventing access to the allocation associated with these shares only decreases the ability of commercial fishermen to harvest the entire quota each year.

Direct positive effects would be expected for IFQ program participants who receive shares from non-activated accounts. These positive effects would correspond to the economic benefits of

having more access to fishing privileges, such that greater benefits would accrue from a greater amount of shares received. Nevertheless, any positive effects would be minimal as the shares held in the non-activated accounts represents a very small amount of the quota for each species or species group.

The number of recipients that would receive redistributed shares differs between **Alternatives 2** and **3** and **Alternative 4**, and is inversely correlated with the amount of shares that each recipient would receive. For example, a larger number of recipients would each receive a smaller amount of shares, while a smaller number of recipients would each receive a proportionately larger amount of shares. The "Number of Accounts" column in Table 4.2.2.3.2 provides the number of recipients that would receive shares for each share category under either **Alternative 2** or **3**. **Alternative 2** would distribute those shares equally among the accounts, and thus recipients, while **Alternative 3** would distribute the shares in proportion to the amount of shares held by each of the recipients. For **Alternative 2**, each shareholder would receive shares representing the equivalent number of pounds for the 2016 quotas provided under the "pounds" column in Table 4.2.2.3.2. Thus, each red snapper shareholder would receive shares representing 39 lbs of annual allocation for the 2016 quota. This is the largest amount of annual allocation that would be distributed among the species categories. In contrast, each deep-water grouper shareholder would receive shares representing 1 lb of allocation, given the 2016 quota. Because **Alternative 3** would distribute the shares proportionately based on the shares held for each share category, shareholders who have greater shareholdings for a share category would receive more shares than those shareholders with less shares.

The number of recipients that would receive shares under **Alternative 4** is less than the number of existing shareholders for each share category (**Alternatives 2** and **3**). Thus, **Alternative 4** would provide each recipient with a greater amount of shares than each recipient would receive under **Alternative 2**; both **Alternatives 2** and **4** propose to redistribute shares equally among identified recipients. Greater benefits would accrue to each recipient under **Alternative 4** than each recipient under **Alternative 2**. However, the recipients would not be the same entities for each share category.

Just as greater benefits would be expected for those receiving a greater amount of shares, benefits would accrue to the program participants who receive shares, while no benefits would result for those who do not receive shares. For each share category, existing shareholders would benefit from **Alternatives 2** and **3**, while account holders who actively harvest allocation but do not hold shares for any share category would benefit from **Alternative 4**.

4.2.2.5 Direct and Indirect Effects on the Administrative Environment

Alternative 1 would not redistribute shares from non-activated IFQ accounts (Action 2.1) and so would not create any additional burden to the administrative environment. **Preferred Alternative 2** and **Alternatives 3** and **4** will directly affect the administrative environment. However, these effects would likely be minimal as this action is a one-time event. Both **Preferred Alternative 2** and **Alternative 3** are straight forward in how the shares from non-activated accounts are distributed and should be fairly simple for SERO staff to calculate and distribute. As such, any direct effects would likely be similar. **Alternative 4** requires more analysis because of the effort needed to determine which accounts can receive additional shares

(see Section 2.2.2 for more detail parsing of accounts). Thus, this alternative would have effect this environment the most.

Alternatives 3 and **4** could indirectly affect the administrative environment. Shares are taken out to six decimal places. Thus, anyone who has a calculated share increase of less than 0.000001 would receive nothing. Fishermen who feel they should have received some fraction of a share, but received nothing might appeal the process and create an additional burden to administrative procedures controlled by SERO staff.

4.3 Action 3 – Retaining Annual Allocation before a Quota Reduction

4.3.1 Direct and Indirect Effects on the Physical Environment

This action would allow the Regional Administrator (RA) to withhold allocation if the ACL for an IFQ species is expected to be reduced in the following year. This action is primarily administrative, so no direct or indirect effects are expected to the physical environment regardless of which alternative (**Alternative 1** or **Preferred Alternative 2**) or option (**Option a and b**) is selected. Reducing an ACL for an IFQ species would be a separate action. Any effects to the physical environment from that action would be analyzed in the plan amendment or framework action supporting the reduction.

4.3.2 Direct and Indirect Effects on the Biological/Ecological Environment

This action would allow the RA to withhold allocation if the ACL for an IFQ species is expected to be reduced in the following year. This action is primarily administrative, so no direct or indirect effects are expected to the biological environment regardless of which alternative (**Alternative 1** or **Preferred Alternative 2**) or option (**Option a and b**) is selected. Reducing an ACL for an IFQ species would be a separate action. Any effects to the biological environment from that action would be analyzed in the plan amendment or framework action supporting the reduction.

4.3.3 Direct and Indirect Effects on the Economic Environment

This action considers withholding a portion of the red snapper or grouper-tilefish annual allocations in anticipation of a potential mid-year quota decrease. **Alternative 1** (No Action) would continue to distribute to shareholders the totality of their respective annual allocations by January 1 of each year. Therefore, **Alternative 1** would not be expected to result in direct economic effects because it would not affect the commercial red snapper or grouper-tilefish harvests. However, because **Alternative 1** may delay the timely implementation of needed quota decreases, **Alternative 1** could result in indirect adverse economic effects stemming from forgone benefits that would accrue to a user group (for example as a result of reallocation) or from negative biological effects on the stocks. For example, if a quota decrease is warranted in a given year following a stock assessment, the delay in reducing the quota could adversely impact the rebuilding of the stock, thereby resulting in negative economic effects. These negative

effects would be mitigated by delaying the economic costs to commercial fishermen who would continue to harvest the totality of their allocation.

Alternative 2 would grant managers the authority to withhold a portion of the commercial annual allocation in anticipation of a mid-year quota decrease. In and of itself, the flexibility to retain a portion of commercial annual IFQ allocations is an administrative measure that would not be expected to result in direct economic effects. However, **Alternative 2** would be expected to result in indirect economic benefits and costs. By affording the flexibility to implement needed management measures as soon as possible, including mid-year, **Alternative 2** would be expected to generate indirect economic benefits. These benefits would result from the timely provision of additional fishing opportunities to a user group (as a result of reallocation) or from positive effects on the stocks expected to result from the management measures implemented. However, retaining a portion of the commercial quota would engender costs to IFQ participants due to forgone harvesting opportunities. Even if the retained quota is subsequently returned to shareholders, they may suffer economic losses due to potential market gluts that could result from a mid-year influx of annual allocation. In that respect, the sooner the withheld quota is returned, the smaller these potential losses would be. Therefore, **Option a**, which would return the allocation sooner (June 1) would be less costly than **Option b**. Under **Option b**, retained quota would be returned by August 1. The net indirect economic effects of **Alternative 2** would be determined the relative magnitude of expected benefits of the management measures implemented and by the costs borne by IFQ participants.

4.3.4 Direct and Indirect Effects on the Social Environment

Since inception of each commercial IFQ program, the quota for IFQ managed species has generally increased resulting in the distribution of additional annual allocation. However, it is possible for a quota to be decreased, as well. Additional effects would not be expected from retaining **Alternative 1** (No Action), and 100% of IFQ annual allocation would continue to be distributed to shareholders on January 1 of each year. This allows IFQ program participants to plan and to begin using annual allocation at the earliest possible date. Under **Alternative 1**, if the quota for an IFQ managed species decreases, the quota reduction must be applied to the distribution of annual allocation for the following year, as it would not be possible to withdraw annual allocation from IFQ accounts after it has been distributed and program participants have begun using and transferring allocation with other participants. In contrast, a quota reduction may be implemented after the beginning of the year for the recreational sector, and for commercial species not managed with IFQs. NMFS would re-estimate the length of a fishing season for the reduced quota and the RA has the regulatory authority to implement an in-season closure, if necessary.

In the event a quota reduction is expected, **Preferred Alternative 2** would provide the RA with the authority to withhold the amount of annual allocation before distribution to IFQ accounts at the beginning of the year. This authority is intended to allow a necessary quota reduction to be applied in a year following the initiation of the regulatory process which due to the timeline of comment periods and agency review, may not be completed by the first of the year. As noted above, this is only an issue for IFQ programs which distribute fishing privileges as allocation at the beginning of the year. For quotas not managed as IFQs, a quota reduction may be implemented concurrently with the publication of the final rule, as fishing privileges are used

during open seasons, which may be closed for the recreational sector or non-IFQ commercial species once a quota is estimated to have been met.

Negative effects can result from IFQ allocation being distributed late in the year, as fishing behavior and market prices may change. Thus, selecting a date by which annual allocation would be distributed if the regulatory process has not been finalized, could mitigate these effects. An earlier date (**Preferred Option a**) would be preferable than a date closer to the end of the year (**Option b**), by better mitigating any negative effects of a late release of allocation.

4.3.5 Direct and Indirect Effects on the Administrative Environment

Should a reduction in an IFQ species' ACL be anticipated within the fishing year, a framework action would need to be implemented to withhold some of the commercial ACL under **Alternative 1**, no-action. Conversely, under **Preferred Alternative 2**, the RA would have the authority to withhold the ACL and no framework action would be needed. Therefore, should the ACL need to be withheld, **Preferred Alternative 2** would reduce the burden on the administrative environment compared to **Alternative 1**. **Preferred Option b** would likely have less of an administrative burden under **Preferred Alternative 2** relative to **Option a** because there would be more time to implement an ACL reduction.

Regardless of which alternative is selected as preferred, this action would have minimal effects on the administrative environment. NMFS currently has a program and system in place to issue, transfer, and monitor IFQ shares and allocation. Therefore, any additional administrative burden from the ACL would occur within an existing NMFS program and not requiring the development of a new program. **Preferred Alternative 2** would not relieve the administrative burden needed to develop and implement a plan amendment or framework action to reduce the ACL. This work would be needed regardless of which alternative is selected as preferred.

4.4 Action 4 – Dealer Notification Requirement for Beginning to Offload IFQ Species

4.4.1 Direct and Indirect Effects on the Physical Environment

Similar to the discussion for Action 1 in section 4.1.1, whether the dealer notification requirements are required (**Alternative 2** and **Alternative 3**) or not (**Preferred Alternative 1**) should have no direct or indirect effect on the physical environment. It is unlikely that requiring dealer notifications would change how the fishery is prosecuted. Commercial IFQ fishermen would still make their trips and fishing effort should remain unchanged. Thus, there should be no change in how reef fish fishing gear is deployed and how it interacts with the environment regardless of which alternative is selected.

4.4.2 Direct and Indirect Effects on the Biological/Ecological Environment

This action is not expected to have any direct or indirect effects on the biological environment regardless of which alternative is selected. As discussed in Section 4.4.1, whether the dealer notification requirements are required (**Preferred Alternative 2 and Alternative 3**) or not (**Alternative 1**), should not change how the fishery is prosecuted or the number of fish harvested. Thus, the action should have no direct or indirect effect on the biological environment.

4.4.3 Direct and Indirect Effects on the Economic Environment

Preferred Alternative 1 would maintain the status quo, wherein IFQ dealers are not required to provide notification to NMFS specifying when a vessel will offload IFQ species. **Preferred Alternative 1** would not be expected to affect harvest of IFQ species and therefore would not be expected to result in any direct economic effects. **Alternatives 2** and **3** both require IFQ dealers to notify NMFS when a vessel will offload IFQ species, and differ solely in how far in advance that notification can be made.

Alternative 2 requires IFQ dealers to provide notification to NMFS between 1 hour and 24 hours prior to a vessel offloading IFQ species. The notification required in **Alternative 2** provides a better timeframe, in comparison to Preferred Alternative 1 with a vessel hail-in notification alone, for law enforcement to arrive at an approved landing site and observe offloading. The positive indirect economic effect of **Alternative 2** would stem from law enforcement having better notification of when offloading of IFQ species will occur, for observation of accurate accounting of IFQ species. The negative indirect economic effects of **Alternative 2** would relate to the time required by dealers to notify NMFS and the time constraint on when offloading could occur in relation to the notification. This effect would increase if offloading is delayed and a new notification must be submitted by dealers, and both the vessel and dealer must wait to begin offloading.

Alternative 3 requires IFQ dealers to provide notification to NMFS between 3 hours and 24 hours prior to a vessel offloading IFQ species. Similar to **Alternative 2**, the notification required in **Alternative 3** provides a better timeframe, in comparison to **Preferred Alternative 1** with a vessel hail-in notification alone, for law enforcement to arrive at an approved landing site and observe offloading. Since **Alternative 3** requires notification to occur at least 3 hours prior to offloading whereas **Alternative 2** requires only a minimum of 1 hour prior notice, the positive indirect economic effect of **Alternative 3** would be greater, stemming from law enforcement having even more advanced notification of when offloading of IFQ species will occur, for observation of accurate accounting of IFQ species. While the time required of dealers to notify NMFS of offloading would be the same under **Alternatives 2** and **3**, the negative indirect economic effect of **Alternative 3** relating to the time constraint on when offloading could occur in relation to the notification would be greater than from **Alternative 2**. This effect would increase if offloading is delayed and a new notification must be submitted by dealers, and both the vessel and dealer must wait to begin offloading.

4.4.4 Direct and Indirect Effects on the Social Environment

Some IFQ program participants have informed the Council that after submitting a landing notification (hail-in) some vessels do not offload if law enforcement is present. Instead, the operators of these vessels wait to offload when law enforcement is not present. Because the landing transaction need not be completed for up to 96 hours following the landing notification, a narrower window within which law enforcement would be alerted of a vessel beginning to offload was suggested to improve IFQ program compliance.

Action 4 proposes to add a new notification to the IFQ program that would be completed by IFQ dealers, providing NMFS with a window during which offloading would begin. Therefore, any direct effects that would result from this action would accrue to these dealers, as they would be responsible for submitting the dealer notification and ensuring its accuracy. No effects would be expected from **Alternative 1** (No Action), as the dealer notification would not be adopted.

Alternatives 2 and **3** would require dealers to notify NMFS specifying a window of when offloading would occur. This requirement was originally suggested to the Council by approved IFQ program dealers. Nevertheless, other IFQ program dealers have since testified to the Council that they do not support this new requirement as 1) they do not want the added responsibility to ensure that vessels begin offloading within the specified time, 2) they felt the notification was not needed, or 3) they had not observed vessels waiting for law enforcement to leave before offloading and thus, did not see this as a problem. Thus, some negative effects would be expected to accrue to dealers under **Alternatives 2** or **3**, compared to **Alternative 1**. These negative effects would correspond to 1) the additional burden of completing the notification, 2) bearing the consequences of an incomplete or incorrectly submitted notification, and 3) potentially complicating the offloading process, especially for dealers with more than one landed vessel waiting to offload. Any benefits to adopting the notification requirement for program participants due to improved program compliance remain unknown. By requiring a longer time in advance before a vessel may begin offloading, the negative effects on dealers would be greater under **Alternative 3** (at least 3 hours before offloading may begin) than **Alternative 2** (at least one hour before offloading may begin).

4.4.5 Direct and Indirect Effects on the Administrative Environment

Preferred Alternative 1 (No Action) would not require IFQ dealers to notify NMFS when a vessel carrying IFQ species will offload. Therefore, this alternative would not have any effect on the administrative environment.

Alternatives 2 and **3** would directly affect the administrative environment. To implement either of the alternatives, the environment would be burdened with having to create an offload reporting system[21]. This would require the development of an online reporting apparatus, webpages, some form of quality control process, etc. In addition, an auditing system would need to be developed to match advance landing notifications from vessels landing IFQ species with the dealer reports. SERO staff has estimated this system would require two people spending a

[21] Personal communication, Jessica Stephens, Limited Access Privilege Programs/Data Management Branch, Southeast Regional Office, St. Petersburg, Florida, 33701.

quarter of their time monitoring the dealer reporting system. Although the system would improve law enforcement personnel's ability to arrive at an approved landing location when the offloading of IFQ species is to occur, it would also double the number of emails they will receive for each landing (an IFQ vessel landing report and a dealer report). Unless somehow the IFQ vessel landing reports and dealer reports can be merged, this would add a burden to law enforcement personnel who are already concerned about the number of reports they receive.[22]

The effects from this action the administrative environment are not expected to be significant. Dealers are already involved in the IFQ program as they are required to complete a landing transaction. Therefore, any additional administrative burden from dealer reporting would occur within an existing NMFS program.

[22] Meeting summary available at: http://gulfcouncil.org/council_meetings/BriefingMaterials/BB-10-2016/L%20-%205%20Revised%20-%20LETC-LEC%20meeting%20summary%20Oct%202016.pdf

CHAPTER 5. LIST OF AGENCIES AND PERSONS CONSULTED

PREPARERS

Name	Expertise	Responsibility	Agency
Ava Lasseter	Anthropologist	Co-Team Lead – Amendment development, social analyses	GMFMC
Peter Hood	Fishery biologist	Co-Team Lead – Amendment development, biological analyses, cumulative effects analysis	SERO
Assane Diagne	Economist	Economic analyses	GMFMC
Mike Travis	Economist	Economic analyses	SERO
Christina Package-Ward	Anthropologist	Social analyses	SERO
Jessica Stephen	Fishery biologist	Data analyses	SERO
Janet Miller	Fishery technician	Data analyses	SERO

REVIEWERS

Name	Expertise	Responsibility	Agency
Noah Silverman	Environmental Protection Specialist	National Environmental Policy Act review	SERO
Mara Levy	Attorney	Legal review	NOAA GC
Adam Bailey	Technical writer and editor	Regulatory writer	SERO
Scott Sandorf	Technical writer and editor	Regulatory writer	SERO
Jennifer Lee	Biologist	Protected Resources review	SERO
David Dale	Biologist	Essential Fish Habitat review	SERO
Britni LaVine	Fishery biologist	Data analyses	SERO
Mike Jepson	Anthropologist	Review	SERO
Juan Agar	Economist	Review	SEFSC
Sue Gerhart	Fishery biologist	Review	SERO
Carrie Simmons	Fishery biologist	Review	GMFMC

GMFMC = Gulf of Mexico Fishery Management Council; NOAA GC = National Oceanic and Atmospheric Administration General Counsel; SEFSC = Southeast Fisheries Science Center; SERO = Southeast Regional Office of the National Marine Fisheries Service

AGENCIES and ORGANIZATIONS CONSULTED

National Marine Fisheries Service
- Southeast Fisheries Science Center
- Southeast Regional Office
- Office for Law Enforcement

NOAA General Counsel

United States Coast Guard
Texas Parks and Wildlife Department
Alabama Department of Conservation and Natural Resources/Marine Resources Division
Louisiana Department of Wildlife and Fisheries
Mississippi Department of Marine Resources
Florida Fish and Wildlife Conservation Commission

CHAPTER 6. REFERENCES

Adams, W.F., and C. Wilson. 1995. The status of the smalltooth sawfish, *Pristis pectinata* Latham 1794 (Pristiformes: Pristidae) in the United States. Chondros 6(4):1-5.

Agar, J., J. Stephen, A. Strelcheck, and A. Diagne. 2014. The Gulf of Mexico Red Snapper IFQ Program: The First Five Years. *Marine Resource Economics*. Vol. 29, No. 2, pp. 177-198.

American Fisheries Society. 2013. Common and Scientific Names of Fishes from the United States, Canada, and Mexico. Seventh Edition. Special Publication 34. Bethesda, MD.

Anderes Alvarez, B. L., and I. Uchida. 1994. Study of hawksbill turtle (*Eretmochelys imbricata*) stomach content in Cuban waters. Pages 27-40 *in* Study of the Hawksbill Turtle in Cuba (I). Ministry of Fishing Industry, CUBA. Ministry of Fishing Industry, Cuba.

Ault, J. S., S. G. Smith, G. A. Diaz, and E. Franklin. 2003. Florida hogfish fishery stock assessment. University of Miami, Rosenstiel School of Marine Science. Contract No. 7701 617573 for Florida Marine Research Institute, St. Petersburg, Florida. http://www.sefsc.noaa.gov/sedar/download/SEDAR6_RW4.pdf?id=DOCUMENT

Barnette, M. C. 2001. A review of the fishing gear utilized within the Southeast Region and their potential impacts on essential fish habitat. NOAA Technical. Memorandum. NMFS-SEFSC-449. National Marine Fisheries Service. St. Petersburg, Florida.

Baustian, M. M. and N. N. Rabalais. 2009. Seasonal composition of benthic macroinfauna exposed to hypoxia in the northern Gulf of Mexico. Estuaries and Coasts, 32:975–983.

Bigelow, H.B., and W.C. Schroeder. 1953. Sawfishes, guitarfishes, skates and rays, pp. 1-514. *In:* Tee-Van, J., C.M Breder, A.E. Parr, W.C. Schroeder and L.P. Schultz (eds). Fishes of the Western North Atlantic, Part Two. Mem. Sears Found. Mar. Res. I.

Biggs, D.C., Jochens, A.E., Howard, M.K., DiMarco, S.F., Mullin, K.D., Leben, R.R., Muller-Karger, F.E., & Hu, C. 2005. Eddy forced variations in on- and off-margin summertime circulation along the 1000-m isobath of the northern Gulf of Mexico, 2000–2003, and links with sperm whale distributions along the middle slope. In: W. Sturges & A. Lugo-Fernandez (Eds.), Circulation in the Gulf of Mexico: Observations and models. (Vol. 161). Washington, D.C.: American Geophysical Union.

Bjorndal, K. A. 1997. Foraging ecology and nutrition of sea turtles. P. L. Lutz, and J. A. Musick, editors. The Biology of Sea Turtles. CRC Press, Boca Raton.

Bjorndal, K. A. 1980. Nutrition and grazing behavior of the green turtle, Chelonia mydas. Marine Biology 56:147-154.

Bolten, A. B., and G. H. Balazs. 1995. Biology of the early pelagic stage - the 'lost year'. Pages 579-581 *in* K. A. Bjorndal, editor. Biology and Conservation of Sea Turtles. Smithsonian Institution Press, Washington, DC.

Brongersma, L. D. 1972. European Atlantic turtles. Zoologische Verhandelingen (121):1-318.

Burke, V. J., S. J. Morreale, and A. G. J. Rhodin. 1993. Lepidochelys kempii (Kemp's ridley sea turtle) and Caretta caretta (loggerhead sea turtle): diet. Herpetological Review 24(1):31-32.

Burton, M. 2008. Southeast U.S. Continental Shelf, Gulf of Mexico, and U.S. Caribbean. In: Osgood, K. E., ed. Climate Impacts on U.S. Living Marine Resources: National Marine Fisheries Service Concerns, Activities and Needs. U.S. Dep. Commerce, NOAA Tech. Memo. NMFSF/SPO-89, 118 p.

Byles, R. 1988. Satellite Telemetry of Kemp's Ridley Sea Turtle, *Lepidochelys kempi*, in the Gulf of Mexico. Report to the National Fish and Wildlife Foundation:40 pp.

Carls, M.G., S.D. Rice, and J.E. Hose. 1999. Sensitivity of Fish Embryos to Weathered Crude Oil: Part I. Low-level Exposure during Incubation Causes Malformations, Genetic Damage, and Mortality in Larval Pacific Herring (*Clupea pallasi*). Environmental Toxicology and Chemistry 18(3): 481–493.

Carr, A. F. 1986. RIPS, FADS, and little loggerheads. BioScience 36(2):92-100.

Carr, A. 1987. New perspectives on the pelagic stage of sea turtle development. Conservation Biology 1(2):103-121.

Cass-Calay, S. L., and M. Bahnick. 2002. Status of the yellowedge grouper fishery in the Gulf of Mexico. Contribution SFD 02/03 – 172. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center. Miami, Florida.

Coleman, F.C., C.C. Koenig, and L.A. Collins. 1996. Reproductive styles of shallow-water groupers (Pisces: Serranidae) in the eastern Gulf of Mexico and the consequences of fishing on spawning aggregations. Environmental Biology of Fishes 47: 129-141.

Cooper, W., A.Collins, J. O'Hop, and D. Addis. 2013. The 2013 Stock Assessment Report for Hogfish in the South Atlantic and Gulf of Mexico. Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, St. Petersburg, FL. 295 p. with App.

Courtney, J. M., A. C. Courtney, and M. W. Courtney. 2013. Nutrient Loading Increases Red Snapper Production in the Gulf of Mexico. Hypotheses in the Life Sciences 3:7-14

Craig, J. K. 2012. Aggregation on the edge: effects of hypoxia avoidance on the spatial distribution of brown shrimp and demersal fishes in the Northern Gulf of Mexico. Mar. Ecol. Prog. Ser., 445: 75–95.

DeLeo, D.M., D.V. Ruiz-Ramos, I.B. Baums, and E.E. Cordes. 2015. Response of deep-water corals to oil and chemical dispersant exposure. Deep-Sea Research II. In press.

Eckert, S. A., D. W. Nellis, K. L. Eckert, and G. L. Kooyman. 1986. Diving patterns of two leatherback sea turtles (Dermochelys coriacea) during internesting intervals at Sandy Point, St. Croix, U.S. Virgin Islands. Herpetologica 42(3):381-388.

Eckert, S. A., K. L. Eckert, P. Ponganis, and G. L. Kooyman. 1989. Diving and foraging behavior of leatherback sea turtles (Dermochelys coriacea). Canadian Journal of Zoology 67(11):2834-2840.

Fischer, A. J., M. S. Baker, Jr., and C. A. Wilson. 2004. Red snapper (*Lutjanus campechanus*) demographic structure in the northern Gulf of Mexico based on spatial patterns in growth rates and morphometrics. Fishery Bulletin 102:593–603.

Fisher, C.R., P. Hsing, C.L. Kaiser, D.R., Yoerger, H.H. Roberts, W.W. Shedd, E.E. Cordes, T.M. Shank, S.P. Berlet, M.G. Saunders, E.A. Larcom, J.M. Brooks. 2014. Footprint of *Deepwater Horizon* blowout impact to deep-water coral communities. Proceedings of the National Academy of Sciences 111: 11744-11749. doi: 10.1073/pnas.1403492111

Fitzhugh, G.R., H.M. Lyon, W.T. Walling, C.F. Levins, and L.A. Lombardi-Carlson. 2006a An update of Gulf of Mexico red grouper reproductive data and parameters for SEDAR 12. Draft working document for SEDAR 12 Data Workshop. 17p. SEDAR 12-DW-04.

Fitzhugh, G.R., H.M. Lyon, L.A. Collins, W.T. Walling, L. Lombardi-Carlson. 2006b. Update of gag reproductive parameters: Eastern Gulf of Mexico. NMFS Panama City Lab Contribution 05-06. 25p SEDAR10-DW3.

Frick, J. 1976. Orientation and behavior of hatchling green turtles Chelonia mydas in the sea. Animal Behavior 24(4):849-857.

Gilmore, R.G., and R.S. Jones. 1992. Color variation and associated behavior in the Epinepheline groupers, *Mycteroperca microlepis* (Goode and Bean) and *M. phenax* (Jordan and Swain). Bulletin of Marine Science 51:83-103.

GMFMC. 1981. Environmental impact statement and fishery management plan for the reef fish resources of the Gulf of Mexico and environmental impact statement. Gulf of Mexico Fishery Management Council, Tampa, Florida. http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/RF%20FMP%20and%20EIS%201981-08.pdf

GMFMC. 1989. Amendment 1 to the reef fish fishery management plan including environmental assessment, regulatory impact review, and regulatory flexibility analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida. http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/RF%20Amend-01%20Final%201989-08-rescan.pdf

GMFMC. 1998. August 1998 report of the reef fish stock assessment panel. Gulf of Mexico Fishery Management Council, Tampa, FL. 19 p.

GMFMC. 2003. Amendment 21 to the reef fish fishery management plan, environmental assessment, regulatory impact review, and initial regulatory flexibility analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida.
http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Amend21-draft%203.pdf

GMFMC. 2004a. Final environmental impact statement for the generic essential fish habitat amendment to the following fishery management plans of the Gulf of Mexico: shrimp fishery of the Gulf of Mexico, red drum fishery of the Gulf of Mexico, reef fish fishery of the Gulf of Mexico, stone crab fishery of the Gulf of Mexico, coral and coral reef fishery of the Gulf of Mexico, spiny lobster fishery of the Gulf of Mexico and South Atlantic, coastal migratory pelagic resources of the Gulf of Mexico and South Atlantic. Gulf of Mexico Fishery Management Council. Tampa, Florida.
http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20EFH%20EIS.pdf

GMFMC. 2004b. Amendment 22 to the fishery management plan for the reef fish fishery of the Gulf of Mexico, U.S. waters, with supplemental environmental impact statement, regulatory impact review, initial regulatory flexibility analysis, and social impact assessment. Gulf of Mexico Fishery Management Council. Tampa, Florida.
http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Amend%2022%20Final%2070204.pdf

GMFMC. 2005. Amendment 18A to the Reef Fish FMP for resolving enforcement of regulations, for updating the framework procedure for setting total allowable catch, and to reduce bycatch mortality of incidentally caught endangered sea turtles and smalltooth sawfish. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607. 192 pp with appendices.

GMFMC. 2006. Final amendment 26 to the Gulf of Mexico reef fish fishery management plan to establish a red snapper individual fishing quota program, including supplemental environmental impact statement, initial regulatory flexibility analysis, and regulatory impact review. Gulf of Mexico Fishery Management Council. Tampa, Florida.
http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Amend26031606FINAL.pdf

GMFMC. 2007. Final amendment 27 to the reef fish fishery management plan and amendment 14 to the shrimp fishery management plan including supplemental environmental impact statement, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida. 490 pp with appendices.
http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20RF%20Amend%2027-%20Shrimp%20Amend%2014.pdf

GMFMC. 2008a. Amendment 29 to the reef fish fishery management plan – effort management in the commercial grouper and tilefish fisheries including draft environmental impact statement and regulatory impact review. Gulf of Mexico Fishery Management Council. Tampa, Florida.

http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20Reef%20Fish%20Amdt%2029-Dec%2008.pdf

GMFMC. 2008b. Final reef fish amendment 30A: greater amberjack – revised rebuilding plan, accountability measures; gray triggerfish – establish rebuilding plan, end overfishing, accountability measures, regional management, management thresholds and benchmarks including supplemental environmental impact statement, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida. http://www.gulfcouncil.org/docs/amendments/Amend-30A-Final%20208.pdf

GMFMC. 2008c. Final Amendment 30B: gag – end overfishing and set management thresholds and targets. Red grouper – set optimum yield, TAC, and management measures, time/area closures, and federal regulatory compliance including environmental impact statement, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council, Tampa, Florida. 427 p. http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20Amendment%2030B%2010_10_08.pdf

GMFMC. 2009. Final amendment 31 to the fishery management plan for reef fish resources in the Gulf of Mexico addresses bycatch of sea turtles in the bottom longline component of the Gulf of Mexico reef fish fishery, includes draft environmental impact statement and regulatory impact review. Gulf of Mexico Fishery Management Council. Tampa, Florida. 261 pp with appendices. http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20Draft%20RF%20Amend%2031%206-11-09.pdf

GMFMC. 2010. Final regulatory amendment the reef fish fishery management plan to set total allowable catch for red snapper including revised environmental assessment, regulatory impact review, and regulatory flexibility analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida. http://www.gulfcouncil.org/docs/amendments/Final%20Red%20Snapper%20Regulatory%20Amendment%203_26_10.pdf

GMFMC. 2011a. Final reef fish amendment 32 – gag grouper – rebuilding plan, annual catch limits, management measures, red grouper – annual catch limits, management measures, and grouper accountability measures. Gulf of Mexico Fishery Management Council. Tampa, Florida. http://www.gulfcouncil.org/docs/amendments/Final%20RF32_EIS_October_21_2011%5b2%5d.pdf

GMFMC. 2011b. Final generic annual catch limits/accountability measures amendment for the Gulf of Mexico fishery management council's red drum, reef fish, shrimp, coral and coral reefs fishery management plans, including environmental impact statement, regulatory impact review, regulatory flexibility analysis, and fishery impact statement. Gulf of Mexico Fishery Management Council. Tampa, Florida. http://www.gulfcouncil.org/docs/amendments/Final%20Generic%20ACL_AM_Amendment-September%209%202011%20v.pdf

GMFMC. 2011c. Regulatory amendment to the reef fish fishery management plan to set 2011 total allowable catch for red snapper. Gulf of Mexico Fishery Management Council. Tampa, Florida.
http://www.gulfcouncil.org/docs/amendments/Red%20Snapper%202011%20Regulatory%20Amendment%20-%201-11.pdf

GMFMC. 2012. Final regulatory amendment to the fishery management plan for the reef fish resources of the Gulf of Mexico, revise fall recreational fixed closed season and set 2012 and 2013 quotas for red snapper. Gulf of Mexico Fishery Management Council. Tampa, Florida.
http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20Red%20Snapper%20Fall%20Season%20and%20Quota%20RegAmend%20-%2003-20-2012.pdf

GMFMC. 2013. Red snapper 2013 quota increase and supplemental recreational season, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Framework action to the fishery management plan for the reef fish resources of the Gulf of Mexico. Gulf of Mexico Fishery Management Council. Tampa, Florida.
http://www.gulfcouncil.org/docs/amendments/Final%20Red%20Snapper%20Framework%20Action%20Set%202013%20Quotas%2008-01-13.pdf

GMFMC. 2014. Final amendment 40 to the reef fish fishery management plan for the reef fish resources of the Gulf of Mexico – recreational red snapper sector separation. Gulf of Mexico Fishery Management Council, Tampa, Florida. 274 p.
http://www.gulfcouncil.org/docs/amendments/RF%2040%20-%20Final%2012-17-2014.pdf

GMFMC and NMFS. 2013. Red snapper individual fishing quota program 5-year review. Jointly prepared by Gulf of Mexico Fishery Management Council and NMFS Southeast Regional Office. Tampa and St. Petersburg, FL.
http://www.gulfcouncil.org/docs/amendments/Red%20Snapper%205-year%20Review%20FINAL.pdf

GMFMC and SAFMC. 1982. Fishery Management Plan for Coral and Coral Reefs in the Gulf of Mexico and South Atlantic Fishery Management Councils. Gulf of Mexico Fishery Management Council, Lincoln Center, Suite 881, 5401 W. Kennedy Boulevard, Tampa, Florida; South Atlantic Fishery Management Council, Southpark Building, Suite 306, 1 Southpark Circle, Charleston , South Carolina, 29407. 332 p.
http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Coral%20FMP.pdf

Gore, R. H. 1992. The Gulf of Mexico: A treasury of resources in the American Mediterranean. Pineapple Press. Sarasota, Florida.

Grimes, C. B., K. W. Able, and S. C. Turner. 1982. Direct observation from a submersible vessel of commercial longlines for tilefish. Transactions of the American Fisheries Society 111:94-98.

Gunter and Knapp 1951. Fishes, new, rare or seldom recorded from the Texas coast. Tex. J. Sci. 3:134-138.

Haensly, W.E., J.M. Neff, J.R. Sharp, A.C. Morris, M.F. Bedgood, and P.D. Beom 1982. Histopathology of *Pleuronectes platessa* from Aber Wrac'h and Aber Benoit, Brittany, France: long-term effects of the Amoco Cadiz crude oil spill. Journal of Fish Disease 5: 365-391.

Hamilton, A. N., Jr. 2000. Gear impacts on essential fish habitat in the Southeastern Region. National Marine Fisheries Service, Southeast Fisheries Science Center. Pascagoula, Mississippi.

Heintz, R.A., J.W. Short, and S.D. Rice. 1999. Sensitivity of fish embryos to weathered crude oil: Part II. Increased mortality of pink salmon (*Oncorhynchus gorbuscha*) embryos incubating downstream from weathered Exxon *Valdez* crude oil. Environmental Toxicology and Chemistry 18(3): 494–503.

High, W. L. 1998. Observations of a scientist/dicer on fishing technology and fisheries biology. AFSC Processed Report 98-01. National Marine Fisheries Service, Alaska Fisheries Science Center. Seattle, Washington.

Hollowed, A. B., Barange, M., Beamish, R., Brander, K., Cochrane, K., Drinkwater, K., Foreman, M., Hare, J., Holt, J., Ito, S-I., Kim, S., King, J., Loeng, H., MacKenzie, B., Mueter, F., Okey, T., Peck, M. A., Radchenko, V., Rice, J., Schirripa, M., Yatsu, A., and Yamanaka, Y. 2013. Projected impacts of climate change on marine fish and fisheries. ICES Journal of Marine Science 70: 1023–1037.

Hood, P. B., and R. A. Schlieder. 1992. Age, growth, and reproduction of gag, *Mycteroperca microlepis* (Pices: Serranidae), in the eastern Gulf of Mexico. Bulletin of Marine Science 51(3):337-352.

Hose, J.E., M.D. McGurk, G.D. Marty, D.E. Hinton, E.D Brown, and T.T. Baker. 1996. Sublethal effects of the (Exxon *Valdez*) oil spill on herring embryos and larvae: morphological, cytogenetic, and histopathological assessments, 1989–1991. Canadian Journal of Fisheries and Aquatic Sciences 53: 2355-2365.

Hsing, P., B. Fu, E.A. Larcom, S.P. Berlet, T.M. Shank, A.F. Govindarajan, A.J. Lukasiewicz, P.M. Dixon, C.R. Fisher. 2013. Evidence of lasting impact of the *Deepwater Horizon* oil spill on a deep Gulf of Mexico coral community Elementa: Science of the Anthropocene 1: 1-15.

Hughes, G. R. 1974. Is a sea turtle no more than an armored stomach? Bulletin of the South African Association for Marine Biological Research 11:12-14.

Incardona, J.P, L.D. Gardner, T.L. Linbo, T.L. Brown, A.J. Esbaugh, E.M. Mager, J.D. Stieglitz, B.L. French, J.S. Labenia, C.A. Laetz, M. Tagal, C.A. Sloan, A. Elizur, D.D. Benetti, M. Grosell, B.A. Block, and N.L. Scholz. 2014. *Deepwater Horizon* crude oil impacts the developing hearts of large predatory pelagic fish. Proceedings of the National Academy of Sciences 111(15): E1510–E1518.

Jochens, A., Biggs, D., Benoit-Bird, K., Engelhaupt, D., Gordon, J., Hu, C., Jaquet, N., Johnson, M., Leben, R., Mate, B., Miller, P., Ortega-Ortiz, J., Thode, A., Tyack, P., & Würsig, B. 2008. Sperm whale seismic study in the Gulf of Mexico: Synthesis report. (OCS Study MMS 2008-006). New Orleans, LA: U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region.

Keinath, J. A., and J. A. Musick. 1993. Movements and diving behavior of leatherback turtle. Copeia 1993(4):1010-1017.

Kennedy, V. S., R.R. Twilley, J. A. Kleypas, J. H. Cowan, Jr., S. R. Hare. 2002. Coastal and marine ecosystems and & global climate change. Pew Center on Global Climate Change, Arlington, VA. 52 p.

Khan, R.A. 1990. Parasitism in Marine Fish after Chronic Exposure to Petroleum Hydrocarbons in the Laboratory and to the Exxon *Valdez* Oil Spill. Bulletin of Environmental Contamination and Toxicology 44: 759-763.

Khan, R.A. and J.W. Kiceniuk. 1984. Histopathological effects of crude oil on Atlantic cod following chronic exposure. Canadian Journal of Zoology 62: 2038-2043.

Khan R.A. and J.W. Kiceniuk. 1988. Effect of petroleum aromatic hydrocarbons on monogeneids parasitizing Atlantic cod, *Gadus morhua*. Bulletin of Environmental Contamination and Toxicology 41: 94-100.

Kiceniuk J.W. and R.A. Khan. 1987. Effect of petroleum hydrocarbons on Atlantic cod, *Gadus morhua,* following chronic exposure. Canadian Journal of Zoology 65: 490-494.

Koenig, C. C., F. C. Coleman, L. A. Collins, Y. Sadovy, and P. L. Colin. 1996. Reproduction in gag (*Mycteroperca microlepis*)(Pisces: Serranidae) in the eastern Gulf of Mexico and the consequences of fishing spawning aggregations. *In* F. Arraguin-Sánchez, J. L. Munro, M. C. Balgos, and D. Pauly, editors. Biology, fisheries and culture of tropical groupers and snappers. ICLARM Conf. Proc. 48:307-323.NOAA.

Lanyon, J.M., C.J. Limpus, and H., Marsh. 1989. Dugongs and turtles: grazers in the seagrass system. *In:* Larkum, A.W.D, A.J., McComb and S.A., Shepard (eds.) Biology of Seagrasses. Elsevier, Amsterdam, 610.

Leal, D., M. de Alessi, and P. Baker. 2005. The ecological role of IFQs in U.S. fisheries: A guide for federal policy makers. Property and Environment Research Center (PERC), February.

Limpus, C.J., and N., Nichols. 1988. The southern oscillation regulates the annual numbers of green turtles (*Chelonia mydas*) breeding around northern Australia. Australian Journal of Wildlife Research 15:157.

Limpus, C.J., and N., Nichols. 1994. Progress report on the study of the interaction of El Niño Southern Oscillation on annual *Chelonia mydas* numbers at the southern Great Barrier Reef

rookeries. *In:* Proceedings of the Australian Marine Turtle Conservation Workshop, Queensland Australia.

Lombardi-Carlson. L.A., G.R. Fitzhugh, B.A. Fable, M. Ortiz, C. Gardner. 2006. Age, length and growth of gag from the NE Gulf of Mexico 1979-2005. NMFS Panama City Lab Contribution 06-03.57 p. SEDAR10-DW2.

Lutz, P. L., and J. A. Musick, editors. 1997. The biology of sea turtles. CRC Press, Boca Raton, Florida.

Lutz, P. L., J. A. Musick, and J. Wyneken. 2003. The Biology of Sea Turtles. Volume II. CRC Press, Inc., Washington, D.C.

Márquez-M, R. 1994. Synopsis of biological data on the Kemp's ridley turtle, *Lepidochelys kempii* (Garman 1880). U. S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida.

McEachran, J.D. and J.D. Fechhelm. 2005. Fishes of the Gulf of Mexico, Vol. 2. University of Texas Press. Austin, Texas.

Mendelssohn, I.A., G.L. Andersen, D.M. Baltz, R.H. Caffey, K.R. Carman, J.W. Fleeger, S.B. Joye, Q. Lin, E. Maltby, E.B. Overton, and L.P. Rozas. 2012. Oil Impacts on Coastal Wetlands: Implications for the Mississippi River Delta Ecosystem after the *Deepwater Horizon* Oil Spill. BioScience 62: 562–574.

Mendonca, M. T., and P. C. H. Pritchard. 1986. Offshore movements of post-nesting Kemp's ridley sea turtles (Lepidochelys kempii). Herpetologica 42:373-380.

Meylan, A. 1984. Feeding ecology of the hawksbill turtle (Eretmochelys imbricata) spongivory as a feeding niche in the coral reef community. University of Florida.

Meylan, A. 1988. Spongivory in hawksbill turtles: a diet of glass. Science 239:393-395.

Meylan, A. B., and M. Donnelly. 1999. Status justification for listing the hawksbill turtle (Eretmochelys imbricata) as critically endangered on the 1996 IUCN Red List of Threatened Animals. Chelonian Conservation and Biology 3(2):200-204.

Mortimer, J. A. 1981. The feeding ecology of the west Caribbean green turtle (Chelonia mydas) in Nicaragua. Biotropica 13(1):49-58.

Mortimer, J. A. 1982. Feeding ecology of sea turtles. Pages 103-109 *in* K. A. Bjorndal, editor. Biology and Conservation of Sea Turtles. Smithsonian Institution Press, Washington D.C.

Muller, R. G., M. D. Murphy, J. de Silva, and L. R. Barbieri. 2003. Final report submitted to the national marine fisheries service, the Gulf of Mexico fishery management council, and the

South Atlantic fishery management council as part of the southeast data, assessment, and review (SEDAR) iii. Florida Fish and Wildlife Conservation Commission, FWC-FMRI Report: IHR 2003-10. Florida Fish and Wildlife Research Institute. St. Petersburg, Florida.

Murawski, S, A., W. T. Hogarth, E. B. Peebles, and L. Barbeiri. 2014. Prevalence of External
Skin Lesions and Polycyclic Aromatic Hydrocarbon Concentrations in Gulf of Mexico Fishes, Post-Deepwater Horizon. Transactions of the American Fisheries Society 143(4):1084-1097.

National Commission. 2010. The use of surface and subsea dispersants during the BP Deepwater Horizon oil spill. National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling (National Commission). Staff Working Paper No. 4. http://www.oilspillcommission.gov/sites/default/files/documents/Updated%20Dispersants%20Working%20Paper.pdf

Nieland, D. L., C. A. Wilson III, and A. J. Fischer. 2007. Declining size-at-age among red snapper in the Northern Gulf of Mexico off Louisiana, USA: recovery or collapse? Pages 329-336 in W. F. Patterson, III, J. H. Cowan, Jr., G. R. Fitzhugh and D. L. Nieland, editors. Red snapper ecology and fisheries in the U.S. Gulf of Mexico. American Fisheries Society, Symposium 60, Bethesda, Maryland.

NMFS. 2002. Status of red grouper in United States waters of the Gulf of Mexico during 1986-2001, revised. Contribution No. SFD-01/02-175rev. National Marine Fisheries Service, Southeast Fisheries Science Center. Miami, Florida.

NMFS. 2011. Biological Opinion on the Continued Authorization of Reef Fish Fishing under the Gulf of Mexico Reef Fish Fishery Management Plan. Available at: http://sero.nmfs.noaa.gov/protected_resources/section_7/freq_biop/documents/fisheries_bo/03584_gom_reef_fish_biop_2011_final.pdf

NMFS. 2015a. 2014 Gulf of Mexico red snapper individual fishing quota annual report. SERO-LAPP-2015-03. NMFS Southeast Regional Office. St. Petersburg, FL. http://sero.nmfs.noaa.gov/sustainable_fisheries/ifq/documents/pdfs/annual_reports/2014_rs_annualreport.pdf

NMFS. 2015b. Gulf of Mexico 2014 grouper-tilefish individual fishing quota annual report. SERO-LAPP-2015-02. NMFS Southeast Regional Office. St. Petersburg, FL. http://sero.nmfs.noaa.gov/sustainable_fisheries/lapp_dm/archives/documents/pdfs/2015/sero_lapp_2015_02_gt_2014_annualreport_final.pdf

NMFS. 2016a. 2015 Gulf of Mexico red snapper individual fishing quota annual report. SERO-LAPP-2015-12. NMFS Southeast Regional Office. St. Petersburg, FL. http://sero.nmfs.noaa.gov/sustainable_fisheries/ifq/documents/pdfs/annual_reports/2015_rs_annualreport_final.pdf

NMFS. 2016b. Gulf of Mexico 2015 grouper-tilefish individual fishing quota annual report. SERO-LAPP-2015-13. NMFS Southeast Regional Office. St. Petersburg, FL.

http://sero.nmfs.noaa.gov/sustainable_fisheries/ifq/documents/pdfs/annual_reports/2015_gt_annualreport_final.pdf

NOAA. 2010. Deepwater Horizon Oil: Characteristics and Concerns. NOAA Office of Response and Restoration, Emergency Response Division. 2 pp. http://www.noaa.gov/deepwaterhorizon/publications_factsheets/documents/OilCharacteristics.pdf

Norman, J. R., and F. C. Fraser. 1938. Giant Fishes, Whales and Dolphins. W. W. Norton and Company, Inc, New York, NY. 361 pp.

NRC (National Research Council). 1999. Sharing the Fish: Toward a National Policy on Individual Fishing Quotas. Washington, DC: National Academy Press.

Ogren, L. H. 1989. Distribution of juvenile and subadult Kemp's ridley sea turtles: preliminary results from 1984-1987 surveys. Pages 116-123 *in* C. W. Caillouet Jr., and J. A.M. Landry, editors. Proceedings of the First International Symposium on Kemp's Ridley Sea Turtle Biology, Conservation, and Management. Texas A&M University Sea Grant College, Galveston, Texas.

O'Hop, J., M. Murphy, and D. Chagaris. 2012. The 2012 stock assessment report for yellowtail snapper in the south Atlantic and Gulf of Mexico. Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute. St. Petersburg, Florida.

Osgood, K. E. (editor). 2008. Climate Impacts on U.S. Living Marine Resources: National Marine Fisheries Service Concerns, Activities and Needs. U.S. Dep. Commerce, NOAA Tech. Memo. NMFSF/SPO-89, 118 pp.

Paredes, R.P. 1969. Introduccion al Estudio Biologico de *Chelonia mydas agassizi* en el Perfil de Pisco, Master's thesis, Universidad Nacional Federico Villareal, Lima, Peru.

Parrack, N.C. and D.B. McClellan. 1986. Trends in Gulf of Mexico red snapper population dynamics, 1979-85. National Marine Fisheries Service, Southeast Fisheries Center, Miami, Florida. Coastal Resources Division Contribution No. CRD-86/87-4. 116 p.

Porch, C. E., A. M. Eklund, and G. P. Scott. 2003. An assessment of rebuilding times for goliath grouper. Contribution: SFD 2003-0018. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center. Miami, Florida.

Porch, C. E., and S. L. Cass-Calay. 2001. Status of the vermilion snapper fishery in the Gulf of Mexico – assessment 5.0. Sustainable Fisheries Division Contribution No. SFD-01/01-129. National Marine Fisheries Service, Southeast Fisheries Science Center. Miami, Florida.

Reynolds, J.E. III, R.S. Wells, and S.D Eide. 2000. The Bottlenose Dolphin: Biology and Conservation. University Press of Florida. 289 pp.

Rico-Martínez, R., T.W. Snell, and T.L. Shearer. 2013. Synergistic toxicity of Macondo crude oil and dispersant Corexit 9500A® to the *Brachionus plicatilis* species complex (Rotifera). Environmental Pollution 173:5-10.

SEA (Strategic Environmental Assessment Division, NOS). 1998. Product overview: Products and services for the identification of essential fish habitat in the Gulf of Mexico. NOS, Page 7-62 DEIS for EFH for the Gulf of Mexico FMPs July 2003 Silver Spring MD; National Marine Fisheries Service, Galveston, Texas; and Gulf of Mexico Fishery Management Council. Tampa Florida.

SEDAR 3. 2003. Complete stock assessment report of yellowtail snapper in the southeastern United States – SEDAR 3, Assessment report 1. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 6. 2004a. SEDAR report 1 the goliath grouper in southern Florida: Assessment review and advisory report. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 6. 2004b. SEDAR report 2 the hogfish in Florida: Assessment review and advisory report. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 7. 2005. Stock assessment report of SEDAR 7 Gulf of Mexico red snapper. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 7 Update. 2009. Update stock assessment report of SEDAR 7 Gulf of Mexico red snapper. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 9. 2006a. Stock assessment report 1 of SEDAR 9: Gulf of Mexico gray triggerfish. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 9. 2006b. Stock assessment report 2 of SEDAR 9: Gulf of Mexico greater amberjack. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 9. 2006c. Stock assessment report 3 of SEDAR 9: Gulf of Mexico vermilion snapper assessment report 3. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 9 Update. 2010. SEDAR 9 stock assessment update report, Gulf of Mexico greater amberjack. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 9 Update. 2011a. SEDAR update stock assessment of vermilion snapper in the Gulf of Mexico. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 9 Update. 2011b. SEDAR update stock assessment of gray triggerfish in the Gulf of Mexico. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 10. 2006. Gulf of Mexico Gag Grouper Stock Assessment Report 2. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 10 Update. 2009. Stock assessment of gag in the Gulf of Mexico. – SEDAR update assessment. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 12. 2007. SEDAR12-Complete Stock Assessment Report 1: Gulf of Mexico Red Grouper. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 12 Update. 2009. Stock assessment of red grouper in the Gulf of Mexico – SEDAR update assessment. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 15A. 2008. Stock assessment report 3 (SAR 3) South Atlantic and Gulf of Mexico mutton snapper. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 19. 2010. Stock assessment report Gulf of Mexico and South Atlantic black grouper. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 22. 2011a. Stock assessment report Gulf of Mexico tilefish. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 22. 2011b. Stock assessment report Gulf of Mexico yellowedge grouper. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 23. 2011. Stock assessment report South Atlantic and Gulf of Mexico goliath grouper. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 31. 2013. Stock assessment report Gulf of Mexico red snapper. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 31 Update. 2015. Stock assessment of red snapper in the Gulf of Mexico 1872 – 2013 - with provisional 2014 landings. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/.

SEDAR 33. 2014a. Gulf of Mexico greater amberjack stock assessment report. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/

SEDAR 33. 2014b. Gulf of Mexico gag stock assessment report. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/

SEDAR 37. 2014. The 2013 stock assessment report for hogfish in the south Atlantic and Gulf of Mexico. Florida Fish and Wildlife Conservation Commission, St. Petersburg, Florida. 241 p. + appendices. Available from http://www.sefsc.noaa.gov/sedar/.

SEDAR 42. 2015. Gulf of Mexico red grouper stock assessment report. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/

SEDAR 43. 2015. Gulf of Mexico gray triggerfish stock assessment report. Southeast Data, Assessment, and Review. North Charleston, South Carolina. http://www.sefsc.noaa.gov/sedar/

Shaver, D. J. 1991. Feeding Ecology of Wild and Head-Started Kemp's Ridley Sea Turtles in South Texas Waters. Journal of Herpetology 25(3):327-334.

Shipp, R.L. 2001. The snapper fishery in the Gulf of Mexico, an historical perspective, and management implications. PowerPoint presentation to the Gulf of Mexico Fishery Management Council, January 2001.

Short, J. 2003. Long-Term Effects of Crude Oil on Developing Fish: Lessons from the Exxon *Valdez* Oil Spill. Energy Sources 25(6): 509-517.

Siebenaler, J. B. and Winfield Brady. 1952. A high speed annual commercial fishing reel. Technical series no. 4. University of Miami Marine Laboratory: Coral Gables, FL.

Simpfendorfer, CA. 2001. Essential habitat of the smalltooth sawfish, *Pristis pectinata*. Report to the National Fisheries Service‘s Protected Resources Division. Mote Marine Laboratory, Technical Report (786) 21pp.

Sindermann, C.J. 1979. Pollution-associated diseases and abnormalities of fish and shellfish: a review. Fisheries Bulletin 76: 717-749.

Solangi, M.A. and R.M. Overstreet. 1982. Histopathological changes in two estuarine fishes, *Menidia beryllina* (Cope) and *Trinectes maculatus* (Bloch and Schneider), exposed to crude oil and its water-soluble fractions. Journal of Fish Disease 5: 13-35.

Solis, D., J. del Corral, L. Perruso, and J. Agar. 2014. Individual fishing quotas and fishing capacity in the US Gulf of Mexico red snapper fishery. *Australian Journal of Agricultural and Resource Economics*, Vol. 58, pp. 1-23.

Soma, M. 1985. Radio biotelemetry system applied to migratory study of turtle. Journal of the Faculty of Marine Science and Technology, Tokai University, Japan, 21:47.

Standora, E. A., J. R. Spotila, J. A. Keinath, and C. R. Shoop. 1984. Body temperatures, diving cycles, and movement of a subadult leatherback turtle, Dermochelys coriacea. Herpetologica 40:169-176.

Swedmark, M., A. Granmo, and S. Kollberg. 1973. Effects of oil dispersants and oil emulsions on marine animals. Water Research 7(11): 1649-1672.

Tarnecki, J.H. and W.F. Patterson III. 2015. Changes in Red Snapper Diet and Trophic Ecology. Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science 7: 135–147.

Thayer, G.W., K.A., Bjorndal, J.C., Ogden, S.L., Williams, and J.C., Zieman. 1984. Role of large herbivores in seagrass communities. Estuaries 7:351.

Turner, S. C., C. E. Porch, D. Heinemann, G. P. Scott, and M. Ortiz. 2001. Status of the gag stocks of the Gulf of Mexico: assessment 3.0. August 2001. Contribution: SFD-01/02-134. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center. Miami, Florida.

Turner, S. C., N. J. Cummings, and C. P. Porch. 2000. Stock assessment of Gulf of Mexico greater amberjack using data through 1998. SFD-99/00-100. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center. Miami, Florida.
http://www.sefsc.noaa.gov/sedar/download/S9RD06_GAJassessGulf.pdf?id=DOCUMENT

Valle, M., C. Legault, and M. Ortiz. 2001. A stock assessment for gray triggerfish, *Balistes capriscus*, in the Gulf of Mexico. Contribution: SFD-01/02-124. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center. Miami, Florida.

van Dam, R. P., and C. E. Díez. 1998. Home range of immature hawksbill turtles (*Eretmochelys imbricata* (Linnaeus) at two Caribbean islands. Journal of Experimental Marine Biology and Ecology 220(1):15-24.

Walker, T. 1994. Post-hatchling dispersal of sea turtles. Proceedings of the Australian Marine Turtle Conservation Workshop 1994:79-94.

Waring, G.T., E. Josephson, K. Maze-Foley, and P.E. Rosel. 2013. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments—2012, Volume 1. 425 pp.

Waters, J.R. 2001. Quota Management in the Commercial Red Snapper Fishery. Marine Resource Economics 16:65–78.

Weninger, Q. and J.R. Waters. 2003. The economic benefits of management reform in the northern Gulf of Mexico Reef Fish Fishery. Journal of Environmental Economics and Management 46(2): 207-230.

White, H.K., P. Hsing, W. Cho, T.M. Shank, E.E. Cordes, A.M. Quattrini, R.K. Nelson, R. Camili, A.W.J. Demopoulos, C.R. German, J.M. Brooks, H.H. Roberst, W. Shedd, C.M. Reddy, C.R. Fisher. 2012. Impact of the *Deepwater Horizon* oil spill on a deep-water coral community in the Gulf of Mexico. Proceedings of the National Academy of Sciences 109:20303-20308.

Whitehead, A., B. Dubansky, C. Bodinier, T.I. Garcia, S. Miles, C. Pilley, V. Raghunathan, J.L. Roach, N. Walker, R.B. Walter, C.D. Rice, and F. Galvez. 2012. Genomic and physiological footprint of the *Deepwater Horizon* oil spill on resident marsh fishes. Proceedings of the National Academy of Science 109(50): 20298-20302.

Wilson, D., R. Billings, R. Chang, H. Perez, and J. Sellers. 2014. Year 2011 Gulfwide emissions inventory study. US Dept. of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study BOEM 2014-666.

Witzell, W. N. 2002. Immature Atlantic loggerhead turtles (*Caretta caretta*): suggested changes to the life history model. Herpetological Review 33(4):266-269.

Woods, M. K. 2003. Demographic differences in reproductive biology of female red snapper (*Lutjanus campechanus*) in the northern Gulf of Mexico. Master's thesis. University of South Alabama, Mobile, Alabama.

Wyneken, J., K. J. Lohmann, J. A. Musick (Eds). 2013. The Biology of Sea Turtles, Volume III Boca Raton, London, New York: CRC Press. 457 pp.

APPENDIX A. INDIVIDUAL FISHING QUOTA PROGRAM GLOSSARY

Active Account –An account, in which the allocation holder has landed, bought, and/or sold allocation within that year. Accounts activity status changes yearly based on the actions taken by the account.

Advance Landing Notification - A required 3-12 hour advanced landing notification stating the vessel identification, approved landing location, dealer's business name, time of arrival, and estimated pounds to be landed in each IFQ share category. Landing notifications can be submitted using either a vessel's VMS unit, through an IFQ entity's on-line account, or through the IFQ call service. The landing notification is intended to provide law enforcement officers the opportunity to be present at the point of landing so they can monitor and enforce IFQ requirements dockside. For the purpose of these regulations, the term landing means to arrive at the dock, berth, beach, seawall, or ramp. (The advanced landing notification window was expanded to 3-24 hours on October 27, 2014.)

Allocation – Allocation is the actual poundage of red snapper by which an account holder is ensured the opportunity to possess, land, or sell, during a given calendar year. IFQ allocation will be distributed to each IFQ shareholder at the beginning of each calendar year, and expire at the end of each calendar year. Annual IFQ allocation is determined by the amount of the shareholder's IFQ share and the amount of the annual commercial red snapper quota. Dealer accounts may not possess allocation.

Allocation Transfer – A transfer of allocation (pounds) from one shareholder account to another shareholder account. Through January 1, 2012, allocation can be transferred only to an entity that holds a valid Gulf commercial reef fish permit.

Arms-length Transaction – Transactions where the parties in the transaction are independent of each other (e.g. not being a relative or having an entity in common).

Entity – An individual, business, or association participating in the IFQ program. Each IFQ account is owned by a unique entity.

Gulf of Mexico Commercial Reef Fish Permit Holder – An entity that possesses a valid Gulf commercial reef fish permit and therefore, is eligible to be exempt from bag limits, to fish under a quota, or to sell Gulf reef fish in or from the Gulf Exclusive Economic Zone. There is an eligibility requirement and an annual fee associated with the permit.

IFQ Dealer Endorsement – The IFQ dealer endorsement is a document that a dealer must possess in order to receive Gulf of Mexico red snapper. The dealer endorsement can be downloaded free of charge from the IFQ dealer's online account.

Inactive Account – An account, in which the allocation holder has neither landed, bought, nor sold allocation within that year, including those who never logged into their account. Accounts activity status changes yearly based on the actions taken by the account.

Initial Account - An account which was never logged into by the account's owner(s) in the current online system, which began in 2010.

Landing Transaction – A landing transaction report that is completed by an IFQ dealer using the online IFQ system. This report includes the date, time, and location of transaction; weight and actual ex-vessel price of red snapper fish landed and sold; and information necessary to identify the fisherman, vessel, and dealer involved in the transaction. The fisherman landing IFQ species must validate the dealer transaction report by entering his unique vessel's personal identification number when the transaction report is submitted. After the dealer submits the report and the information has been verified, the website will send a transaction approval code to the dealer and the allocation holder.

Participant - An individual, business, or other entity that is part of an IFQ entity. For example, John Smith, the participant, may belong to multiple accounts such as John Smith, John and Jane Smith, and ABC Company. Share and allocation caps are tracked at the IFQ participant level and not the IFQ entity level.

Public Participant – A shareholder account that was opened after January 1, 2012, that does not have a permit associated with the account. Public participants may own and trade shares and allocation, but cannot harvest red snapper.

Share – A share is the percentage of the commercial quota assigned to a shareholder account that results in allocation (pounds) equivalent to the share percentage of the quota. Shares are permanent until subsequently transferred. Dealer accounts may not possess shares.

Share Cap – The maximum share allowed to be held by a person, business, or other entity. The share cap prevents one or more IFQ shareholders or entities from purchasing an excessive amount of IFQ shares and monopolizing the red snapper commercial sector.

Share Transfer – A transfer of shares from one shareholder account to another account. A shareholder must initiate the share transfer and the receiver must accept the transfer by using the online IFQ. Through January 1, 2012, shares can be transferred only to an entity that holds a valid Gulf commercial reef fish permit.

Shareholder – An account that holds a percentage of the commercial red snapper quota.

Shareholder Account – A type of IFQ account that may hold shares and/or allocation. This includes accounts that only hold allocation.

APPENDIX B. CONCLUSIONS FROM THE 5-YEAR REVIEW

The Red Snapper Individual Fishing Quota (IFQ) program 5-year review was completed by NMFS and Council staff (GMFMC and NMFS 2013). The conclusions from the review are provided below.

The original purpose and need defined in Amendment 26 (GMFMC 2006), reads as follows:

> *The purpose of the IFQ program proposed in this amendment is to reduce overcapacity in the commercial fishery and to eliminate, to the extent possible, the problems associated with derby fishing, in order to assist the Council in achieving OY.*

National Standard 1 of the Magnuson-Stevens Act mandates conservation and management measures prevent overfishing and achieve OY from a fishery. OY is defined as the amount of fish that will provide the greatest overall benefit to the nation, particularly with respect to food production and recreational opportunities. OY must take into account the protection of marine ecosystems and is prescribed based on the maximum sustainable yield (MSY) from the fishery, as reduced by any relevant economic, social, or ecological factors. In practice, the commercial sector's share of the quota is equivalent to the sector's share of OY for the red snapper fishery. Commercial harvests that are equal or very close to the quota without exceeding it would be consistent with the prevention of overfishing and achievement of OY mandated by the Magnuson-Stevens Act.

The RS-IFQ program 5-year review (GMFMC and NMFS 2013) evaluated the progress of the program towards achieving its goals and objectives. The performance of the RS-IFQ program in achieving OY was assessed by measuring its ability to constrain harvest at or below the quota while allowing RS-IFQ participants to harvest as much red snapper as possible.

Recommendations from the review have been presented to the Council and incorporated into the potential changes included in this scoping document. As part of the process of considering program modifications, the Council may wish to evaluate modifications to continue progress towards the program's goals and objectives, to improve program performance, participant satisfaction, and to continue assisting the Council in achieving OY.

The conclusions of the RS-IFQ program 5-year review[23] are:

Participant Consolidation and Overcapacity

> Conclusion 1: The RS-IFQ program has had moderate success reducing overcapacity, however economic analyses indicate that additional reductions in fleet capacity are still necessary.

[23] The full supporting summaries for each conclusion are provided in Appendix B. The entire Red Snapper IFQ Program 5-year review may be accessed at http://www.gulfcouncil.org/docs/amendments/Red%20Snapper%205-year%20Review%20FINAL.pdf

Achievement (or Harvesting) of Optimum Yield

Conclusion 2: The RS-IFQ program has been successful in reducing quota overages, which is consistent with the achievement of OY. Landings have averaged greater than 95% of the commercial quota; however, many inactive accounts remain and account for as much as 1.5% of the commercial quota.

Mitigating the Race to Fish and Safety at Sea

Conclusion 3: The RS-IFQ program was successful at mitigating the race to fish providing fishermen with the opportunity to harvest and land red snapper year-round. Inflation-adjusted share, allocation, and ex-vessel prices increased, indicating that fishermen were successfully maximizing profits and had increased confidence in the RS-IFQ program. Safety at sea has increased and annual mortalities related to fishing have declined since the RS-IFQ implementation. [According to Boen and Keithly (2012),] medium and large shareholders perceive that the RS-IFQ program has improved safety at sea.

Biological Outcomes

Conclusion 4: The implementation of the RS-IFQ program coupled with revisions to the red snapper rebuilding plan and reductions in quota and the commercial size limit, have all contributed to lower commercial fishing mortality rates and reduced discards. The RS-IFQ system has also prevented commercial quota overruns, which were frequent prior to RS-IFQ implementation. Discards continue to be high in the eastern Gulf where a large percentage of legal-sized red snapper are discarded by fishermen due to a lack of allocation.

Social Impacts

Conclusion 5: Large shareholders and western Gulf shareholders are generally more supportive of the RS-IFQ program than small to medium shareholders and those from the eastern Gulf. Entry and participation in the red snapper fishery is now more difficult and costly due to the increased costs of shares and allocation. Consolidation has resulted in less competition for harvest and higher revenues per trip. Crew sizes are smaller, but the ability to hire and keep stable crews has improved. The increase in the number of shareholders not landing any fish has led to perceptions that many are profiting from the program at the expense of hard-working fishermen.

Enforcement and Program Administration

Conclusion 6: RS-IFQ participants are generally satisfied with the IFQ online system and customer service when contacting NMFS and the 24-hour call service for advance landing notifications. Vessel monitoring systems, notification requirements, and random dockside inspections aid enforcement in monitoring program compliance; however, a variety of enforcement violations have been identified. Compliance has improved since RS-IFQ program implementation but additional enforcement efforts may be necessary to deter violations. IFQ program expenses currently exceed the 3% cost recovery collected for program administration, research, and enforcement.

References

Boen, C. and W. Keithly. 2012. Gulf of Mexico Red Snapper IFQ Program: Survey Results and Analysis.

GMFMC. 2006. Final amendment 26 to the Gulf of Mexico reef fish fishery management plan to establish a red snapper individual fishing quota program, including supplemental environmental impact statement, initial regulatory flexibility analysis, and regulatory impact review. Gulf of Mexico Fishery Management Council. Tampa, Florida. http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Amend26031606FINAL.pdf

GMFMC and NMFS. 2013. Red snapper individual fishing quota program 5-year review. Jointly prepared by Gulf of Mexico Fishery Management Council and NMFS Southeast Regional Office. Tampa and St. Petersburg, FL. http://www.gulfcouncil.org/docs/amendments/Red%20Snapper%205-year%20Review%20FINAL.pdf

APPENDIX C. AD HOC RED SNAPPER IFQ ADVISORY PANEL SUMMARY

Red Snapper IFQ Advisory Panel Meeting Summary
Gulf Council Office
Tampa, FL
November 5-6, 2013

In attendance	Council and Staff	Other attendees
Tom Adams	Doug Boyd	Jim Clements
Billy Archer	Assane Diagne	Sue Gerhart
Buddy Bradham	Ava Lasseter	Cathy Gill
Jason DeLaCruz	Karen Hoak	Buddy Guindon
Bob Gill	Carrie Simmons	Stephen Holiman
John Graham	Steven Atran	Peter Hood
Scott Hickman		Mike Jepson
Chris Horton		Tony Lamberte
David Krebs		Mara Levy
Seth Macinko		Kristen McConnell
Jerry Rouyea		Christina Package
Bob Spaeth		Jessica Stephen
Bill Tucker		Melissa Thompson
David Walker		Donny Waters
Mike Whitfield		Wayne Werner
Troy Williamson		
Jim Zubrick		

The meeting convened at 9 a.m. The AP appointed Bob Gill as Chair and Scott Hickman as Vice-chair. Assane Diagne reviewed the actions and preferred alternatives from Amendment 26, which established the Red Snapper IFQ program. Jessica Stephen summarized the IFQ program's 5-year review conclusions.

The AP then commented on the 5-year review. Overall, members felt that the program is working well and achieving its goals. The AP discussed whether the program goals should be modified or refined, and whether it is desirable to further reduce overcapacity. It was noted that fewer vessels than the existing fleet can harvest the entire commercial quota, but maximizing economic efficiency is not the goal of the fishery. Other potential goals could address new entrants to replace retiring fishermen, and minimizing discards.

The AP also discussed the 3% recovery fee, with some members wanting IFQ program participants to pay more, and other members pointing out that 3% is the maximum allowable under the Magnuson-Stevens Act, and that the recovery fee was never intended to pay for the program.

Jessica Stephen reviewed the administrative changes NMFS is making to the IFQ programs and gave an overview of the IFQ program structure, to provide context and background information for members of the AP who are not familiar with the program. The AP then reviewed each of the actions from Reef Fish Amendment 26, which established the red snapper IFQ program.

The AP discussed the IFQ program duration and review requirements. Because red snapper is part of a multi-species fishery, members felt the red snapper IFQ program review should be aligned with other IFQ managed species, and passed the following motion:

Motion: That consideration be given to the future consolidation of the red snapper and the grouper/tilefish IFQ program reviews.

Addressing ownership caps, AP members who are IFQ program participants explained that the existing 6% cap reflected the landings of a fleet owner, not an individual fisherman. There was discussion about IFQ shareholders who sell allocation but no longer fish, and concern that putting controls on the market-based system would affect the functioning of the program.

Concerning the eligibility requirements for the transfer of IFQ shares, the AP discussed IFQ shareowners who do not possess a reef fish permit. Some members felt it was important to distinguish the IFQ program as a tool to support the commercial industry rather than being an investment tool. The AP passed the following motion.

Motion: To restrict the future transfer of shares to only those individuals possessing a valid commercial reef fish permit.

Mara Levy reviewed the legal issues and referendum requirements in the Magnuson-Stevens Act which pertain to IFQ programs. It would be necessary to define who would be included in any future referendum.

Following review of the amendment's actions, the AP discussed the conclusions from the red snapper IFQ program 5-year review. The AP noted that discards have decreased in some parts of the Gulf and increased in others. The AP expressed that a full retention fishery is ultimately the direction they need to go in the future, even though the transition has been painful in other regions and it may not be popular in the Gulf. The AP passed the following motion.

Motion: To recommend that the Council consider a regulatory full retention red snapper fishery, with no size limits.

The AP then discussed whether enforcement should be increased at landing sites, and whether the number of approved landing sites should be decreased. No additional recommendations to the 5-year review were made.

The AP reviewed the objectives of the IFQ program. Members discussed the objective to reduce overcapacity, and what vessel capacity the industry should aim for. There has been redirected effort toward other reef fish species, and most vessels target multiple species, not red snapper alone. The AP discussed capping the price at which allocation could be leased, but expressed

concerns that shareowners would modify their behavior and use of allocation in ways unintended by the lease price cap. The AP discussed red snapper discards on vessels without sufficient allocation, and passed the following motion.

Motion: That the Council consider alternatives to allow a fisherman that does not have sufficient allocation to cover bycatch, to acquire the needed allocation prior to taking their next trip.

Next, the AP discussed shares held in accounts that have never been activated, alongside the issue of how to procure quota to provide for discards and new entrants to the fishery. The AP considered developing a type of quota set-aside, and expressed the need for the industry to further discuss these issues. The following motions resulted from the discussion.

Motion: Allow redistribution of shares in accounts that have never been activated since 2010, if the accounts are not active by December 31, 2014.

Motion: That the Council establish a quota bank using the shares from the inactive accounts from the previous motion.

Motion: That the shares from the previous motion be utilized for new entrants, to address discards, and to reduce bycatch.

Motion: The Council should develop a new ad hoc Advisory Panel, primarily of commercial red snapper stakeholders, to develop a plan to address new entrants' participation and bycatch, using future red snapper quota increases.

The AP then reviewed the presentation on administrative changes to the IFQ program. The issues raised here mainly concerned the timing and feasibility of landings and required notifications. Currently, a vessel is required to land within a declared 30 minute window, which some members of the AP felt is too short. Recognizing that modifying the landing time window affects how long enforcement officials must wait at the landing site, the AP passed the following motion.

Motion: 1 hour window to land (e.g., if landing at 5 pm, could land any time between 5-6 pm).

Another issue pertained to the required time limit for dealers to report landing transactions. Some members reported that the time requirement is too restrictive around holiday weekends. Jessica Stephen noted that even if the time period for the transaction was to be extended, fish may not be moved until the dealer submits the landing transaction. The AP then passed the following motion.

Motion: Offloading and landing transaction must occur within 72 hours of landing, excluding holidays and Sundays.

Finally, the issue of offloading after hours was discussed, and the AP passed the following motion.

Motion: If offloading has begun prior to 6 pm, offloading may continue after 6pm if law enforcement authorizes offload after hours

Other issues discussed included support for prohibiting deduction of ice and water weight when completing a landing transaction, and reviewing the number of approved landing locations. The AP then discussed other items outside of their charge.

The AP discussed the potential collection of a resource rent on the commercial red snapper quota but the motion recommending to the Council to consider imposing a resource rent failed. AP members indicated that rents were collected for oil and minerals and that the public should be compensated. It was also indicated that rent collections were not the norm in fisheries and that collections should not be limited to the commercial sector but include all users of the red snapper resource.

A member raised the issue of dual-permitted vessels having a crew size limit when fishing commercially, stating that the rule prohibits these vessels from taking family members fishing. Another member noted that eliminating the crew size restriction would give those with dual-permitted vessels with IFQ shares an unfair advantage. The AP passed the following motion.

Motion: To eliminate the crew size limit for dual permitted vessels fishing under the commercial IFQ system.

The AP then discussed putting additional reef fish species into IFQ programs, noting that effort had been redirected from those species now managed under IFQs, toward these other species. Members felt an IFQ program was important as an effort control for these species. The AP passed the following motion.

Motion: That the Council consider reopening Amendment 33, adding in all applicable reef fish to the IFQ program.

Finally, the AP discussed the concept of "dude fishing", where passengers pay to experience commercial fishing. There was discussion as to whether this would be considered commercial or charter fishing, as well as safety issues. The AP passed the following motion.

Motion: Request that the Council ask staff to develop a discussion paper on an option for commercial dude trips in the Gulf. A commercial dude trip is where a member of the recreational public goes out on a commercial fishing experience.

The meeting adjourned shortly before noon.

APPENDIX D. SUMMARY OF SCOPING WORKSHOPS

Scoping workshops were held from March 10-24, 2015 at the following locations:

Tuesday - March 10, 2015
Courtyard Marriott
142 Library Drive
Houma, LA 70360

Thursday - March 12, 2015
Hilton Garden Inn
6703 Denny Avenue
Pascagoula, MS 39567

Monday - March 16, 2015
Hilton Galveston Island Hotel
5400 Seawall Boulevard
Galveston Island, TX 77551

Tuesday - March 17, 2015
Renaissance Mobile
64 South Water Street
Mobile, AL 36602

Tuesday - March 17, 2015
Hawthorn Suites by Wyndham
501 East Goodnight Avenue
Aransas Pass, TX 78336

Wed - March 18, 2015
Hilton Garden Inn
1101 US Highway 231
Panama City, FL 32405

Tuesday - March 24, 2015
Hilton St. Petersburg
950 Lake Carillon Drive
St. Petersburg, FL 33716

Houma, Louisiana
March 10, 2015

Program Eligibility Requirements

- **Should accounts with shares but without a commercial reef fish permit be allowed to harvest the allocation associated with those shares?**

We still feel like we're overcapitalized so, expanding eligibility seems like a slippery slope. The requirement to have a reef fish permit to harvest fish needs to stay.

Inactive Accounts and Redistribution of IFQ Shares to Address Regulatory Discards

- **Should shares be redistributed from inactive accounts to those with no or small shares or to new entrants to reduce regulatory discards?**

The Council should consider coming up with some type of financing program. New entrants can't afford to buy shares and the banks won't back loans for boating startups. Bankers don't understand it. Some kind of government run loan process could help new entrants more than

gifting them small shares. It seems like redistributing them to the guys that are already in the fishery is more reasonable. Finance the new entrants rather than gift them.

Full retention requirements to address regulatory discards

- **Should the full retention of all commercially caught red snapper be required?**

Full retention is a great goal. Some of the people targeting vermillion or grouper are pulling up lots of red snapper and killing them. Full retention would force those fishermen to make the effort to get allocation. There might need to be quota banks to help with this, and you may need to give them extra to get the necessary allocation if you require full retention. If we can sell a fish that is big enough to bite the hook, there will be a market for the fish smaller than 13 inches. Full retention will be a lot harder on some of the guys than on others but we should throw fish in the box rather than throw them back dead if we catch them.

Caps on the Use or Possession of IFQ Shares and Allocation

- **Should caps on the amount of IFQ allocation held by and entity be established?**

The cap's example are difficult to handle and we are not so sure that it's harmed anyone. There hasn't been a mega corporation that's tried to buy everyone out.

Requirements for the Use of Shares and Allocation

- **Should use-it or lose-it provisions be established?**

The broker situation takes care of itself. In the derby days or even pre derby, as people got older, they hired captains to run their boats. The current use of the IFQ program is no different. Some of the active shareholders do the same as we've always done. The have someone run their boat or just sell their allocation.

Here in Louisiana we're in a pure red snapper environment. Forcing me to stay on my boat rather than sell my allocation or hire a captain would exacerbate the bycatch issue. Captains would continue fishing rather than lease to people in the south east who don't have snapper quota, but are catching snapper because the population is expanding.

- **Should a "lease-to-own" provision be considered?**

Lease to own sounds neat but may cause fishermen who are selling allocation to an individual go back to fishing rather than give someone else 'credit' for his harvest. It would promote owners to keep harvesting their own allocation rather than let others earn credit for something that isn't theirs. A credit towards ownership arrangement should be done on an individual level rather than at the agency level.

Enforcement of all Reef Fish Landings

- **Should all commercial reef fish vessels be required to hail-in, even if they are not landing IFQ species?**

Hail in and out for all reef fishermen is a good idea. It's a great enforcement tool and it gives law enforcement a better heads up. They don't have to check every landing but it is good information to know.

Council member and staff:
Myron Fischer
Emily Muehlstein
Bernie Roy

Pascagoula, LA
March 12, 2015

Program Eligibility Requirements

- **Should the future transfer of shares to only shareholder accounts that hold a valid commercial reef fish permit?**

It's fine how it is.

- **Should accounts with shares but without a commercial reef fish permit be allowed to harvest the allocation associated with those shares?**

Allowing shareholders/allocation holders to harvest without a reef fish permit goes against the goal of the program and would promote overcapitalization.

Inactive Accounts and Redistribution of IFQ Shares to Address Regulatory Discards

- **Should the closure of accounts and redistribution of shares in accounts that have never been activated in the current system be allowed if the accounts are not active by a specified date?**

1% is a great margin for any program. Leave it like it is. Those people know they have shares and they should be allowed to sell it when they want to.

To achieve optimum yield the Council may want consider allowing the allocation in inactive accounts to rollover and be distributed amongst active accounts.

- **Should shares be redistributed from inactive accounts to those with no or small shares or to new entrants to reduce regulatory discards?**

People in the program today have suffered the pains of the program. Therefore, they should reap the benefits of the program rather than being penalized by losing additional shares. People who have been actively fishing should be given first opportunity for ownership.

It would be difficult to decide who qualifies as new entrants or small shareholders. Additionally, new entrants can get in to the program, plenty of new entrants have bought in. It was understood when the program was initiated that this would happen. Shares would have a high value and the fishery would consolidate, making it difficult for new entrants.

Full retention requirements to address regulatory discards

- **Should the full retention of all commercially caught red snapper be required?**

It's probably not legal and it definitely would not work to require full retention. You cannot make someone keep what they catch and it seems difficult to enforce.

Typically, commercial fishermen aren't going to hang around and catch the wrong size or species of fish. They are already policing themselves.

The market value of the different sizes of fish will be an issue. Fishermen won't want to use their allocation on the less valued fish.

There isn't data to justify worrying about regulatory discard on the commercial side. The snapper population has exploded, so it's obviously not a biological issue.

Caps on the Use or Possession of IFQ Shares and Allocation

- **Should caps on the amount of IFQ allocation held by and entity be established?**

There is already a cap on shares and that was initiated when the program was put in place. The current share caps are fine.

- **Should caps on the amount of IFQ allocation landed by a single vessel be established?**

You shouldn't limit what a vessel can harvest that is like directly capping what a person can make. A vessel can only catch so much a year anyhow, so there is no need to put a limit on it.

- **Should a cap on the amount of shares or allocation a non-reef fish permitted shareholder may possess be established?**

The program was established to be traded and there is no need to undo the system. The only reason the program sold initially was because of the flexibility it allowed. It doesn't make sense to socialize the program and keep everyone at some artificial level.

Requirements for the Use of Shares and Allocation

- **Should unused IFQ allocation be allowed to roll-over for use in the following year?**

There are a lot of reasons the fish aren't caught in a year; weather, engine failure, personal reasons, etc. Unharvested allocation should be rolled over so people can catch their fish the next year.

- **Should a "lease-to-own" provision be considered?**

Lease-to-own is an interesting approach and people would have demonstrated through trip tickets that they've fished should be given priority if a situation arises where new shares become available.

Mid-Year Quota Changes

- **Should a portion of shareholders' allocation be withheld at the beginning of the year if a mid-year quota reduction is expected?**

Would it be more practical to handle the quota reduction in the following year rather than mid-year? Don't be conservative and hold back, rather, reduce the share of the individual fishermen who have already caught their allocation in the following year.

During the mid-year quota increase derby-like conditions were created and the market value of red snapper dropped. If there was a large increase late in the year the Council should consider adding the extra in the following year.

Enforcement of all Reef Fish Landings

- **Should all commercial reef fish vessels be required to hail-in, even if they are not landing IFQ species?**

No. If they have VMS we know where there are so it's not necessary. If violations happen it's a small problem.

Council member and staff:
Leann Bosarge
Emily Muehlstein
Bernie Roy

Galveston, Texas
March 16, 2015

Program Eligibility Requirements

- **Should the future transfer of shares to only shareholder accounts that hold a valid commercial reef fish permit?**

The IFQ program is achieving its intended goals as is. Red snapper is a public resource, and the public should be able to participate in the IFQ program if they wish.

- **Should accounts with shares but without a commercial reef fish permit be allowed to harvest the allocation associated with those shares?**

The fishery is still overcapitalized, but it is currently under refinement to a smaller number of participants. If they were to allow people without a reef fish permit to harvest then the progress we've made to reduce overcapitalization would be reversed. Allowing anyone with IFQ to fish would definitely increase overcapitalization.

- **Should shareholders not actively engaged in fishing be allowed to transfer their shares and allocation to other shareholders?**

Transferability of shares should be market driven. Members of the public should be allowed to buy and sell shares and allocation.

Inactive Accounts and Redistribution of IFQ Shares to Address Regulatory Discards

- **Should the closure of accounts and redistribution of shares in accounts that have never been activated in the current system be allowed if the accounts are not active by a specified date?**

IFQ account holders should be contacted about their inactive accounts. The agency needs to do their due diligence and let people know that they have inactive shares.

Inactivity may be caused by displacement or disaster so share owners should be given time and warning before accounts are closed.

- **Should shares be redistributed from inactive accounts to those with no or small shares or to new entrants to reduce regulatory discards?**

The fish in inactive accounts need to be harvested. A quota bank could be used to address the issue of dead discards. The allocation could be distributed to all reef fish permit holders, not just IFQ share owners.

If shares are redistributed they should be given to active shareholders. Allowing new entrants goes against the goal of reducing overcapitalization in the fishery. The program was set up to be market driven, you can be a new entrant by buying from current shareholders. Use the market based system, it's already in place and there is no need to start a new program.

New entrants to the program should be considered. Some qualification of what defines a new entrant would be necessary.

Full retention requirements to address regulatory discards

- **Should the full retention of all commercially caught red snapper be required?**

Actions that can prevent fish from being thrown back dead should be considered, on the recreational side also. Throwing back perfectly good fish dead makes no sense.

Eliminating the minimum size limit and implementing full retention will allow the market-based system to work to its full potential. It will teach fishermen to fish smarter and more efficiently. Making fishermen keep everything they catch will make them behave more conscientiously.

Caps on the Use or Possession of IFQ Shares and Allocation

- **Should caps on the amount of IFQ allocation held by and entity be established?**

Leave it just like it is. It works as a market based system for economic efficiency and changing the amount an individual can own would not necessarily change economic efficiency of the program. Reducing the share cap may increase overcapacity. No one voiced any desire for caps to be put into place.

- **Should caps on the amount of IFQ allocation landed by a single vessel be established?**

Putting restrictions on an entity who has the capability of harvesting a large amount of fish will hurt the effort of reducing overcapacity.

Requirements for the Use of Shares and Allocation

- **Should use-it or lose-it provisions be established?**

Leave it alone, the current framework is working fine. The beauty of the system is that it is flexible. One fisher's boat breaks down, another fisherman can use quota. Exclusion is a problem for those on the outside, but not for those on the inside of the IFQ program. By restricting brokering, you would be closing the door of opportunity for others. There is no market advantage or biological advantage to do so.

- **Should restrictions be placed on the sale of IFQ allocation and shares?**

Some people are long-term fishermen who are leasing their fish out to others for various personal reasons, and are not brokers per se. It would be difficult to separate the different users and restrict them.

Fishermen find quota if they need it; leasing and brokering when practicable to assist one another. If someone wants to buy quota, they can and, local fishermen help other fishers get quota to use for bycatch. Fishermen that have available quota can capitalize on those fishermen out on the water and have them bring in fish for them as dealers to fill orders. Dealers hire

fishermen to fish and can provide them quota if they don't have enough in their IFQ account. Fishermen can change behavior to avoid bycatch when no allocation is available.

- **Should a "lease-to-own" provision be considered?**

Eliminate the problems for new entrants by offering a loan program. The federally backed loan program for new entrants that was suggested by the AP should move forward. Consider making a place in the Federal Registry where fishermen can register their right to harvest; they can use that as collateral to get loans. Banks need something to collateralize. New guys can come into the system by buying shares and creating history. If an entity buys allocation, then they could be entered into a sort of lottery program, or some sort of lease to own program to help new entrants transition in to the program. At some point, new entrants will need to be considered so those fishermen need to be considered now. Current fishermen are getting older.

Mid-Year Quota Changes

- **Should a portion of shareholders' allocation be withheld at the beginning of the year if a mid-year quota reduction is expected?**

Withholding quota would either create a shortage or a potential end of year glut. Mid-year changes up or down are not good for businesses. Business plans are made at the beginning of the year. Midyear increases causes a market glut. With a higher percentage of fish, you have to find a higher percentage of customers. Fluctuations are not desirable for operating a business and create market inequities and instability. Make end of year quota increases available the next year on Jan 1st to avoid derby fishing conditions. For the best benefit of the country, the fishermen need to know when they can fish.

Get the Council and the stock assessment process in line to set quota at the beginning of the year rather than allow mid-year quota changes. Move data assessments to an earlier time and obtain real time reporting so managers can make decisions early on in the year, rather than making mid-year adjustments.

Council process is inefficient, small shareholders needs the fish as soon as they are available. Mid-season or not, a small shareholder will take fish whenever they can get them. A business plan is not as important to small operations.

Enforcement of all Reef Fish Landings

- **Should all commercial reef fish vessels be required to hail-in, even if they are not landing IFQ species?**

Yes, hailing in for all would give proper notification to law enforcement and get rid of violators. Everybody with federal reef fish permits should have VMS on board and follow a hail-in/hail-out requirement. It would increase expenses for law enforcement.

Additional Issues

The 5-year review program should include people with a vested interest.

A water weight percentage should be brought back (ice weight). Ice and slime weight gain that causes variances between weight when the fish is being offloaded and weight at the fish house (about 3%) needs to be considered.

Council member and staff:
Robin Riechers
Emily Muehlstein
Karen Hoak

Aransas Pass, TX
March 17, 2015

Program Eligibility Requirements

- **Should the future transfer of shares to only shareholder accounts that hold a valid commercial reef fish permit?**

Commercial quota is there to be fished and should be caught to achieve optimum yield. The only fear is that someone could buy up quota with no intention of fishing it; protections should be put in place to prevent that.

Inactive Accounts and Redistribution of IFQ Shares to Address Regulatory Discards

- **Should shares be redistributed from inactive accounts to those with no or small shares or to new entrants to reduce regulatory discards?**

Shares from inactive accounts should be available for public purchase or distributed to small entities rather than large current shareholders. Inactive shares could be purchased at market price from a quota bank

Inactive shares should be put into a quota bank. They could be used to manage the program more efficiently, like for discard mortality and better conservation of the resource. Also, they could be made available for use in pilot programs (i.e., commercial/recreational hybrid programs and research).

- **Should future increases to commercial red snapper quota be redistributed to new entrants or small shareholders?**

Increases in quota should benefit current shareholders. The industry already rebuilt the fishery taking on VMS and other burdens, and eventually benefited from those changes making them

fully accountable, self-policing, etc. Non-accountable sectors should not benefit with the efforts from those who were and are accountable.

People who were granted fish benefited from being granted fish, and commercial fishermen are not the only folks who should benefit from a rebuilding fishery.

Full retention requirements to address regulatory discards

- **Should the commercial red snapper minimum size limit be removed, requiring commercial fishermen to retain all caught red snapper?**

Remove minimum size limit for the commercial fishery based on the fact that smaller fish are targeted. When they fish by size selection, they use smaller weaker hooks which target smaller fish, and then dead discards become an issue. By removing the size limit, they can use smaller hooks leaving the larger breeding stock in the water.

- **Should the full retention of all commercially caught red snapper be required?**

Full retention seems good as long as it's good for the fish population. Breeding fish may be left in the water which would be good. Throwing back small fish dead is not beneficial.

Full retention may be a bad idea. On the west coast entire fisheries have been completely shut down because of choke species. If there is a species or sub-allocation of a species in a full retention fishery, and all the allocation gets used up, if you interact with that species, all fishing stops. Full retention program would require you to fully retain the species whose fishery is completely closed because of the full retention policy. One bad move in one day can cause a huge problem for everybody making it unlawful to fish at all, as in rockfish in California

A full retention program would have to be thoroughly vetted, phased in with a sun-set. The Council might consider making full retention only effective while the commercial season is open for the specific species is open.

Caps on the Use or Possession of IFQ Shares and Allocation

- **Should caps on the amount of IFQ allocation held by and entity be established?**

The 6% ownership cap put in place represented the largest harvester at the onset of the program. Social engineering by regulators will not provide better management than the free market already has.

Requirements for the Use of Shares and Allocation

- **Should use-it or lose-it provisions be established?**

Shares and allocations should remain in the hands of fishermen, but we should not to have 5 or 6 entities owning the whole fishery in a monopoly situation.

- **Should unused IFQ allocation be allowed to roll-over for use in the following year?**

Rollover, if done well, would serve the primary program goals well. Roll-over should be permitted when a commercial shareholder has issues that make it impossible for fishing to occur. Council will have to constrain what would constitute an emergency, or restrict number of times a person could roll-over allocation. The roll-over should allow fishermen to catch their fish but not artificially manipulate the market by withholding quota into the following year. A derby at the end of the year could be avoided by reducing the roll-over quota by a certain percentage, rather than allowing the entire allocation amount to roll-over.

- **Should a "lease-to-own" provision be considered?**

The guy buying allocation should get credit. He should not have to be dependent on the seller indefinitely. Sooner or later, he should get credit for being the fisherman catching the fish. There should be a time limit for selling your allocation – meaning you can sell you allocation so many years before you have to sell the shares or harvest them yourself.

Use it or lose it, it goes back to regulators being involved in social engineering. Fishermen should negotiate deals with the share owners, not have the government mandating when a person should achieve benefits. These are private transactions, not governmental regulations.

Mid-Year Quota Changes

- **Should a portion of shareholders' allocation be withheld at the beginning of the year if a mid-year quota reduction is expected?**

Instead of withholding every year to adjust for catastrophic events, take out quota at the beginning of the next year; that will meet the program goals far better than an in-season closure and the loss will be distributed better across all participants. If there is a stock assessment year is coming up and people are concerned about a reduction mid-year there may be a race to fish in the beginning of the year.

Enforcement of all Reef Fish Landings

- **Should all commercial reef fish vessels be required to hail-in, even if they are not landing IFQ species?**

If hail in/hail out would solve the problem, it should be required. Operators following the rules would not have a problem with the new requirement. Operators fishing for other species legally would not likely have a problem with it either. The only people that would object to the new requirement are likely to be those doing illegal things.

Only permit holders should weigh in on this issue, others' opinions shouldn't matter.

Additional Issues

Inter-sector trading should not be allowed.

Red snapper is rebuilding by using the IFQ program. It is effective and meeting its goals of reducing overcapacity, minimizing derby conditions, and rebuilding the resource. The program does not need wholesale changes to add in efficiencies and complications. Overharvesting has not been occurring. Improvements should promote accountability, assist in achieving OY, and collaboration between user groups. New entrants can buy into the program as is, and management is best left in the hands of the shareholders.

Council member and staff:
Greg Stunz
Emily Muehlstein
Karen Hoak

Mobile, AL
March 17, 2015

Program Eligibility Requirements

- **Should the future transfer of shares be restricted to only shareholder accounts that hold a valid commercial reef fish permit?**

No: Fishermen have invested in shares, and need the flexibility, such as in the event of accidents and other incidents.

Yes: Only if you have a commercial reef fish permit should you be able to buy shares, catch, and land fish.

- **Should accounts with shares but without a commercial reef fish permit be allowed to harvest the allocation associated with those shares?**

No:

- Commercial reef fish permit is needed for landing because they would have VMS and follow landing procedures. Need enforcement to sanction poaching vessels.
- This would allow more commercial fishing participants, and commercial reef fish permits are under a moratorium.
- This would open the commercial fishery to recreational participation.

- **Should shareholders not actively engaged in fishing be allowed to transfer their shares and allocation to other shareholders?**

Yes: Support for a use-it or lose-it provision. *[Use* referred to not withholding allocation from being landed.] Must use the shares you have, or a percentage of the shares you have. Catching optimum yield is the goal, so allocation needs to be used.

Inactive Accounts and Redistribution of IFQ Shares to Address Regulatory Discards

- **Should the closure of accounts and redistribution of shares in accounts that have never been activated in the current system be allowed if the accounts are not active by a specified date?**

Yes:

- But, there is a difference between accounts that have never been active and accounts not being used for a year or two. Those accounts that have never been active should have shares redistributed.
- Notice should be given now that shares in accounts that have never been active will be redistributed at the 10-year anniversary of the program.
- Only for accounts that have never been active or inactive for a decade should redistribution be considered.

- **Should shares be redistributed from inactive accounts to those with no or small shares or to new entrants to reduce regulatory discards?**

No:

- Redistributed shares should not just be given away. Shareholders earned their fish by landings history or they have invested in buying shares. Supports redistribution for discards.
- If additional fees are considered for the commercial sector, consider using value from the shares to be redistributed from inactive accounts.
- For redistribution have NMFS establish permit banks to sell allocations to increase cost recovery funds for law enforcement.
- Providing for new entrants is not a concern at this time.
- Distribute shares in equal amounts or according to their share percentage, but only among snapper IFQ shareholders. Providing allocation for red snapper discards in one area means less allocation and more discards in other areas. It may be possible to exchange allocation between species.
- Shares should stay within the red snapper fishery.

Full retention requirements to address regulatory discards

- **Should the commercial red snapper minimum size limit be removed, requiring commercial fishermen to retain all caught red snapper?**

No:

- There may not be a market for smaller fish.
- Non-IFQ commercial fishermen catch red snapper, too. So, there would not be sufficient allocation.

Yes: There is a market for small fish and good prices for them, so support for eliminating minimum size limit, but not full retention.

- **Should the full retention of all commercially caught red snapper be required?**

No:

- Should be fishermen's choice for what kind of fish they want to keep.
- People may not be willing to sell their allocation(s).

Yes: Support for the idea but difficult to do.

Caps on the Use or Possession of IFQ Shares and Allocation

- **Should caps on the amount of IFQ allocation held by and entity or landed by a single vessel be established?**

No: Opposed to caps on annual allocation for vessels or a single entity.

- **Should a cap on the amount of shares or allocation a non-reef fish permitted shareholder may possess be established?**

No: This would affect investment in the fishery among related accounts.

Requirements for the Use of Shares and Allocation

- **Should restrictions be placed on the sale of IFQ allocation and shares?**

No:

- Selling allocation should be allowed.
- Selling allocation means the fish still get caught. What does it matter who catches them?

Mid-Year Quota Changes

- **Should a portion of shareholders' allocation be withheld at the beginning of the year if a mid-year quota reduction is expected?**

No:

- Quota increases and decreases should only happen at the beginning of the year. Do not allow a mid-year quota increase or decrease, for either the commercial or recreational sectors. Distribution of quota at the beginning of the year only brings stability to the market.
- Another person agreed, but felt quota changes should occur at the beginning of the year for the commercial sector, only.

Enforcement of all Reef Fish Landings

- **Should all commercial reef fish vessels be required to hail-in, even if they are not landing IFQ species?**

Yes:

- Provided the IFQ participants are not charged for it.
- This would protect IFQ program participants.
- But, this could burden law enforcement resources, so their funding needs to be increased.

Additional Issues

General comments

- Happy with current program, so why change it?
- The discard problem is because of too many red snapper in certain areas of the Eastern Gulf.
- None of the proposed changes will help with the program or the recovery of the fishery.
- To do many of these changes NMFS would need to identify related accounts who are actively involved in fishing and who are investors.

Council member and staff:
David Walker
Ava Lasseter
Charlotte Schiaffo

10 people attended including:
Randy Boggs
Susan Boggs
Miranda Eubanks
Roy Howard
Larry Huntley
Tommy Land
Tom Steber
Brian Swindle
Carolyn Wood

Panama City, FL
March 18, 2015

Program Eligibility Requirements

- **Should the future transfer of shares be restricted to only shareholder accounts that hold a valid commercial reef fish permit?**

No:

- Everyone should have a chance to enter the program.
- Once you let the public buy shares, no restrictions should be put on their ability to receive full compensation for the use of their shares.
- Should require a commercial reef fish permit, except could impact fish houses' ability to keep allocation on hand for vessels that offload.
- Requiring shareholders to have a commercial reef fish permit will keep the fish in the fishery, but that would result in fishermen selling their boats and keeping their permits, resulting in a de facto fleet reduction.
- The program is working well, so why change it?

Yes:

- The program is working great, but there are issues that need to be addressed on permit eligibility.
- Support the requirement to have a reef fish permit; reducing overcapacity is a goal of the program, so fleet reduction would be beneficial.

- **Should accounts with shares, but without a commercial reef fish permit be allowed to harvest the allocation associated with those shares?**

No: Attendees do not support this suggestion.

- **Should shareholders not actively engaged in fishing be allowed to transfer their shares and allocation to other shareholders?**

Yes:

- There was support because fish houses need fish for bycatch and small shareholders, and it would benefit retiring fishermen.
- Leasing helps reduce discards, helps other fishermen, and those who do not hold shares.

Inactive Accounts and Redistribution of IFQ Shares to Address Regulatory Discards

- **Should the closure of accounts and redistribution of shares in accounts that have never been activated in the current system be allowed if the accounts are not active by a specified date?**

Yes: Attendees support this suggestion.

- **Should shares be redistributed from inactive accounts to those with no or small shares or to new entrants to reduce regulatory discards?**

No:

- Does not support giving new entrants shares in the red snapper IFQ program. If going to give away shares, put a moratorium on selling shares to anyone.
- Historical participants should be considered for the distribution of shares from inactive accounts.

Yes:

- It would help new entrants and small shareholders. There is a need for small shareholders to obtain more shares.
- Support redistribution of shares for small shareholders to account for regulatory discards.
- To do so, set up a pool of fish with the quota from inactive accounts, from which small shareholders and new entrants can buy shares. (Based on the Pacific Northwest federal fishery program.)
- Qualifiers for small shareholders and new entrants would be used for a federal IFQ bank.
- Some form of cap needs to be considered on the amount financed to new entrants and small shareholders.

Suggested criteria of a new entrant or small shareholder:

- Must have a reef fish permit and would not be allowed to lease fish.
- Don't prohibit a new entrant or small shareholder to lease their quota.
- New entrants and small shareholders are those who own shares equal to or less than 2,500 lbs.
- Own or lease a fishing vessel, and actively engage in reef fishing for a minimum of 24 months.

Full retention requirements to address regulatory discards

- **Should the commercial red snapper minimum size limit be removed, requiring commercial fishermen to retain all caught red snapper?**

No:

- Sounds like a good idea, but hard to execute and impractical.
- Discard mortality is a by-product of not having enough allocation.

Yes:

- Eliminate it; there is no biological reason to have a 13" size limit.
- Create a quota bank for fishermen to use for smaller fish that would now be retained, which would offset and reduce the dead discard uncertainty buffer [that is built into the red snapper quota].

- **Should the full retention of all commercially caught red snapper be required?**

No:

- There would be no way to stay within the available allocation. Discard mortality is a by-product of not having enough allocation.
- Have tried this in trawling, when fishermen have no control of what is coming over the rail.

- Would not be possible if had a choke species closure, where capture of another species is prohibited.

Yes: Full retention could work if increase the quota substantially (to 18mp).

Caps on the Use or Possession of IFQ Shares and Allocation

- **Should caps on the amount of IFQ allocation held by and entity or landed by a single vessel be established?**

No:
- This would negatively affect the market.
- Allocation caps would be detrimental to the industry because wholesalers need a reliable, steady supply of product.
- Caps can be circumvented.

- **Should a cap on the amount of shares or allocation a non-reef fish permitted shareholder may possess be established?**

No: Not necessary at this time. Such a provision could be needed in future, and if so would be addressed then.

Requirements for the Use of Shares and Allocation

- **Should use-it or lose-it provisions be established?**

No: Unless distributed allocation is not being harvested, this is not needed.

- **Should restrictions be placed on the sale of IFQ allocation and shares?**

No.

- **Should unused IFQ allocation be allowed to roll-over for use in the following year?**

No:
- This could complicate the process and harm the market.
- For conservation reasons, it's okay to leave a little extra fish in the water at the end of the year.
- This could affect the quota for the following year.

Yes: Could establish a provision for people who buy allocation ("lease fish") to have a buffer of 10% of their on-board poundage. Those accounts would start with a negative balance at the beginning of the next year.

- **Should a "lease-to-own" provision be considered?**

No:
- Concern that shareholders would be forced to give up their shares.
- Could reduce availability of quota to new entrants and small shareholders because shareholders don't want to give up shares.

- Some of this may already be going on among private entities. NMFS should not be a part of these private business transactions.

Yes: If we could track new entrants or small shareholders leasing allocation, give those who regularly buy allocation priority access to any new or unused fish that become available.

Mid-Year Quota Changes

- **Should a portion of shareholders' allocation be withheld at the beginning of the year if a mid-year quota reduction is expected?**

No:
- This could hurt small fishermen.
- If a quota decrease occurs, deduct it from the following year's quota.

Enforcement of all Reef Fish Landings

- **Should all commercial reef fish vessels be required to hail-in, even if they are not landing IFQ species?**

No: Recreational sector does not have such a requirement.

Yes:
- But, don't require reef fish vessels not carrying IFQ species to land at approved locations. Do require them to declare the landing sites.
- Require a simple landing notification without species information, and then do random checks instead. This keeps honest people honest and less honest people a little less dishonest.

Additional Issues

General comments
The IFQ program has stabilized the fishery.
The current IFQ program is working for now.
No need for Amendment 36, program is working fine.
There would be negative consequences in further micromanaging the fishery.

Price caps on selling allocation
- Establish a cap to the price of allocation ("lease price") of not more than 50% (or some other value) of the ex-vessel price. The rationale is it would possibly slow down the people (brokers) who are buying allocation strictly to resell the allocation to others.
    - Could have a problem because you don't always know the ex-vessel price.
- Opposes putting caps on the sale of allocation ("lease prices") because the system is based on the free market and the prices could only be supported by whatever the leasee is willing to pay.
- It hurts everyone if a cap is put on allocation price because it hurts the supply.

- Price controls established by the government have never worked.
- Price controls can be easily circumvented.

Grace period for acquiring allocation

- If bringing in red snapper without allocation, allow vessels to obtain the allocation to cover the poundage within a 30-day time limit with a maximum amount of 200 lbs. If can't obtain allocation, the value of the fish is forfeit and turned over to NMFS. Limit the frequency this provision could be used. Or, prohibit a vessel from returning to fish until allocation has been acquired to cover fish caught on a previous trip.

Council member and staff:
Pamella Dana
Ava Lasseter
Charlotte Schiaffo

21 people attended including:

Greg Abrams	Frank Gomez	Bart Niquet
Walter Akins	Chuck Guilford	Chris Niquet
Jerry Anderson	John Harris	Michelle Sempsrott
Dean Cox	H.R. Hough	Russell Underwood
Mike Eller	Gary Jarvis	Mike Whitfield

St. Petersburg, FL
March 24, 2015

Program Eligibility Requirements

- **Should the future transfer of shares be restricted to only shareholder accounts that hold a valid commercial reef fish permit?**

No:

- This item originated from a previous concern for a problem that has not materialized. Fishermen were concerned that shareholders would "sit on" and not fish distributed allocation.
- Realization the fishermen are aging, and after 5 years the fishery opened up, without issue. Changing things around now will add an element of uncertainty into the program.
- Status quo adds stability to the program.
- Program is a market-based fishery and is currently reducing overcapitalization. The program is working as it should.
- The fishermen are seeing problems (bycatch in the eastern gulf) and fixing the problems themselves. They are being proactive (i.e., industry-sponsored quota banks have been established for bycatch).
- As long as the shares are available on the open market, it is acceptable. It does not matter who owns the shares.

- **Should accounts with shares but without a commercial reef fish permit be allowed to harvest the allocation associated with those shares?**

No:

- Allowing someone without a reef fish permit to land allocation makes no sense. It would be hard to enforce. They would need to have VMS, and all other fishing requirements. It would disassemble the whole program. Too confusing. To land commercial fish, they would be required to have everything the commercial fishermen need to have.
- Promotes overcapitalization.
- Does not align with the goals of the program.
- Does not align with the purpose and need of Amendment 36.
- Provisions are already in place that define a commercial fishing boat.
- Reef fish permits are under moratorium for a good reason.

- **Should shareholders not actively engaged in fishing be allowed to transfer their shares and allocation to other shareholders?**

Yes:

- It promotes flexibility in the program and helps people who do not have allocation to be able to buy it for bycatch purposes.
- Fishermen depend on people with allocation who are not fishing to support other fishermen's fishing and bycatch.
- Fishermen need to be able to buy allocation ("lease") from someone who has some.
- If someone is required to fish their allocation, they will do so. Then, others will no longer be able to buy that allocation ("lease") from them, which will increase dead discards.
- Businesses have built stable business plans, and if you start to restrict one component of it, then you hurt the business plan.

Inactive Accounts and Redistribution of IFQ Shares to Address Regulatory Discards

- **Should the closure of accounts and redistribution of shares in accounts that have never been activated in the current system be allowed if the accounts are not active by a specified date?**

Yes:

- Close accounts after a reasonable period of time. In the interim, distribute the allocation among the current shareholders proportionately. Shareholders of the inactive accounts would be notified, but in the meantime, the allocation would not be wasted. Distributing the allocation would make people take action in activating their accounts.
- Notify inactive account shareholders that shares or allocation will be redistributed to established industry quota banks.

- **Should shares be redistributed from inactive accounts to those with no or small shares or to new entrants to reduce regulatory discards?**

No:

- If we are going to define a new entrant, use definition from the loan program.

- New entrants should not be given preferential treatment. Redistribute shares from inactive accounts proportionately among the grouper IFQ shareholders (assists with bycatch).

Full retention requirements to address regulatory discards

- **Should the commercial red snapper minimum size limit be removed and commercial fishermen be required to retain all caught red snapper?**

No:

- Keep status quo.
- Doing both of these together would reduce discards. Of all the suggestions in the document, these are the only two that reduce discards. If this could reduce discards substantially, it could increase allowable yield by reducing the discard assumption in the assessment process. Current mortality assumption is 20%. This proposed mortality assumption is 100%.
- Full retention could create problems with SPR.
- If you want to decrease discards, you must promote the transferring of allocation (leasing).
- The fishermen are using allocation sparingly. They are using it for bycatch (eastern gulf), and not for targeting red snapper. They are managing the bycatch.

Yes:

- For those who want electronic monitoring, full retention should speed up the implementation process.
- To get rid of discards, every fish caught needs to be landed and sold. Fish caught above allocation should be kept and sold with the money from the sale of the fish going into a government account. The fisherman has 30 days to find allocation with no fine/penalty. If he can't cover the allocation, the government gets the funds which go towards the costs of the program or improvements in the program.
-

Caps on the Use or Possession of IFQ Shares and Allocation

- **Should new caps on the use or possession of IFQ shares and allocation be established?**

No:

- No caps should be established. All allocation should be available for sale to fishermen and get fished. Don't muck up the system.
- Caps do not promote conservation.

Requirements for the Use of Shares and Allocation

- **Should use-it or lose-it provisions be established?**

No:

- Supports being able to use the allocation distributed from one's shares, or to sell it (allocation) to other fishermen that have a reef fish permit.
- Every year, some allocation is left on the table, and they don't want to lose it through additional restrictions.

- **Should restrictions be placed on the sale of IFQ allocation and shares?**

No:

- Investment in the program has been heavy by fishermen. Why should they have restrictions imposed on them?
- It does not help conservation.
- It would restrict new entrants and those who are retiring and getting out of the fishery.
- A person might have more than one account, and restrictions would prevent him from transferring allocation between accounts.
- It does not align with the goals of the IFQ program.
- Recent discussions of restricting allocation have resulted in people fishing their allocation instead of selling it ("leasing") because they are afraid of losing their shares if they don't fish them.

➢ **Should unused IFQ allocation be allowed to roll-over for use in the following year?**

No:

- Allocation must be used by the end of the year or you lose it. Keep status quo.
- Unused allocation builds the stock for the following year, which increases the quota. It's a good conservation method for the future.

Yes: Banking and borrowing may be an appropriate use for rollover of unused allocation, for the individual or the fleet as a whole.

➢ **Should a "lease-to-own" provision be considered?**

No:

- If a person was forced to sell their shares after selling their allocation ("leasing"), they would stop selling allocation in order to keep their shares.
- The government should not be involved in telling individuals they have to participate in a lease-to-own provision. The decision should be between the business partners as a private negotiation.
- An IFQ is an economic and conservation tool. This proposal does not promote conservation and it devalues allocation and shares.
- New entrants have to buy allocation ("lease"). New entrants do not need the government to intervene for them. No welfare program is needed. Government loan program would be acceptable for fishermen or new entrant to invest in the fishery.

Mid-Year Quota Changes

➢ **Should a portion of shareholders' allocation be withheld at the beginning of the year if a mid-year quota reduction is expected?**

No:

- This would promote instability in the fishery and in business operations.
- NMFS needs to be accountable for making quota changes before the start of the fishing year.

Enforcement of all Reef Fish Landings

- **Should all commercial reef fish vessels be required to hail-in, even if they are not landing IFQ species?**

Yes.

Additional Issues

General comments

- Add more species to the IFQ program to generate more cost recovery fees.
- Raise the crew size requirement for dually permitted vessels.
- Implement a federally backed program for IFQ share purchases.
- Establish some type of centralized management account (through a fish house or some umbrella entity) to hold allocation, and a fisherman can access it to get allocation through the fish house or entity.
- The Gulf Council should maintain management of the IFQ system and should vehemently oppose any scheme to take this authority away from them.
- Why fix something if it isn't broken? Reef Fish Amendment 36 should be scrapped.

Accounts and allocation

- Allocation needs to be in the account before the 3 hour notice. There are problems in the system where fish are being confiscated and fines levied because allocation is being transferred after they have given their 3-hour notice of hailing-in. There needs to be help with these issues.
- Develop a provision to allow fishermen to purchase allocation after landing to cover fish already caught. For example, establish a grace period to find allocation needed for their catch. (3 days proposed.) This would provide needed flexibility.

Council member and staff:
John Sanchez
Doug Gregory
Karen Hoak
Ava Lasseter

12 people attended including:

Glen Brooks	Eric Brazer	Joseph Abdo
Bill Tucker	Brad Gorst	Cody Chivas
Steve Maisel	Brian Lewis	
Jim Clements	Frank Chivas	

APPENDIX E. ALTERNATIVES CONSIDERED BUT REJECTED

At its June 2016 meeting, the Council removed the following alternatives from further consideration:

Small participants.

At its August 2016 meeting, the Council removed the following alternatives from further consideration:

Action 2 – Non-activated IFQ Shareholder Accounts

Action 2.1 – Returning Non-activated IFQ Shares to NMFS
Alternative 4: For shares in both the red snapper and grouper-tilefish IFQ program accounts that have never been activated in the current system, return the shares to NMFS:

Option 4a: on the effective date of the final rule implementing this amendment.

Option 4b: one year following the effective date of the final rule implementing this amendment.

Action 2.2 – Method of Redistributing Shares from Non-activated Accounts
Alternative 6: Do not redistribute shares, but distribute the annual allocation associated with the shares to participants through a NMFS quota bank each year.

Option 6a: Distribute the allocation equally among participants.

Option 6b: Distribute the red snapper allocation equally among participants who are fishing and landing red snapper in the eastern Gulf.

At its October 2016 meeting, the Council removed the following alternative from Action 2.2:

Action 2.2 – Method of Redistributing Shares from Non-activated Accounts
Alternative 4: Redistribute red snapper shares among grouper-tilefish shareholders in proportion to their shareholdings and redistribute grouper-tilefish shares among red snapper shareholders in proportion to their shareholdings.

APPENDIX F. OTHER APPLICABLE LAW

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

Administrative Procedure Act

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (APA) (5 U.S.C. 551 et seq.), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, the National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider, and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day waiting period from the time a final rule is published until it takes effect.

Coastal Zone Management Act

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

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

Data Quality Act

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

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

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

Endangered Species Act

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

On September 30, 2011, the Protected Resources Division released a biological opinion which, after analyzing best available data, the current status of the species, environmental baseline (including the impacts of the recent Deepwater Horizon MC 252 oil release event in the northern Gulf of Mexico), effects of the proposed action, and cumulative effects, concluded that the continued operation of the Gulf of Mexico reef fish fishery is not likely to jeopardize the continued existence of green, hawksbill, Kemp's ridley, leatherback, or loggerhead sea turtles, nor the continued existence of smalltooth sawfish (NMFS 2011a). On December 7, 2012, NMFS published a proposed rule to list 66 coral species under the ESA and reclassify *Acropora* from threatened to endangered (77 FR 73220). In a memorandum dated February 13, 2013, NMFS determined the reef fish fishery was not likely to adversely affect *Acropora* because of where the fishery operates, the types of gear used in the fishery, and that other regulations protect *Acropora* where they are most likely to occur. In a consultation memorandum dated October 7, 2014,

NMFS assessed the continued operation of the Gulf reef fish fishery's potential impact on the four newly-listed coral species occurring in the Gulf and concluded the fishery is not likely to adversely affect any of the protected coral species. Similarly, in a consultation memorandum dated September 16, 2014, NMFS assessed the continued authorization of South Atlantic and Gulf of Mexico fisheries' potential impacts on loggerhead critical habitat and concluded the Gulf reef fish fishery is not likely to adversely affect the newly designated critical habitat.

Marine Mammal Protection Act

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

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

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

Under Section 118 of the MMPA, NMFS must publish, at least annually, a List of Fisheries 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 List of Fisheries 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 primary gears used in the Gulf of Mexico reef fish fishery are still classified in the proposed 2014 MMPA List of Fisheries as Category III fishery (December 6, 2013; 78 FR 73477). The conclusions of the most recent List of Fisheries for gear used by the reef fish fishery can be found in Section 3.3.

Paperwork Reduction Act

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

Budget before requesting most types of fishery information from the public. Setting red snapper allocation would likely not have PRA consequences.

Executive Orders

E.O. 12630: Takings

The Executive Order on Government Actions and Interference with Constitutionally Protected Property Rights that became effective March 18, 1988, requires each federal agency to 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 National Oceanic and Atmospheric Administration Office of General Counsel will determine whether a Taking Implication Assessment is necessary for this amendment.

E.O. 12866: Regulatory Planning and Review

Executive Order 12866: Regulatory Planning and Review, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NMFS prepares a Regulatory Impact Review (RIR) for all fishery regulatory actions that either implement a new fishery management plan or significantly amend an existing plan (See Chapter 5). RIRs provide a comprehensive analysis of the costs and benefits to society of proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Analysis. A regulation is significant if it a) has an annual effect on the economy of $100 million or more or adversely affects in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments and communities; b) creates a serious inconsistency or otherwise interferes with an action taken or planned by another agency; c) materially alters the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or d) raises novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

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

This Executive Order mandates that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions. The Executive Order is described in more detail relative to fisheries actions in Section 3.5.2.

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 (Council) responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The Council also is responsible for developing, in cooperation with federal agencies, States and Tribes, a Recreational Fishery Resource Conservation Plan - to include a five-year agenda. Finally, the Order requires NMFS and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

E.O. 13132: Federalism

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

E.O. 13158: Marine Protected Areas

This Executive Order requires federal agencies to consider whether their proposed action(s) will affect any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural or cultural resource within the protected area. There are several marine protected areas, habitat areas of particular concern, and gear-restricted areas in the eastern and northwestern Gulf of Mexico.

Essential Fish Habitat

The amended Magnuson-Stevens Act included a new habitat conservation provision known as essential fish habitat (EFH) that requires each existing and any new FMPs to describe and identify EFH for each federally managed species, minimize to the extent practicable impacts from fishing activities on EFH that are more than minimal and not temporary in nature, and identify other actions to encourage the conservation and enhancement of that EFH. To address these requirements the Council has, under separate action, approved an Environmental Impact Statement (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.

References

GMFMC. 2004. Final environmental impact statement for the generic essential fish habitat amendment to the following fishery management plans of the Gulf of Mexico: shrimp fishery of the Gulf of Mexico, red drum fishery of the Gulf of Mexico, reef fish fishery of the Gulf of Mexico, stone crab fishery of the Gulf of Mexico, coral and coral reef fishery of the Gulf of Mexico, spiny lobster fishery of the Gulf of Mexico and South Atlantic, coastal migratory pelagic resources of the Gulf of Mexico and South Atlantic. Gulf of Mexico Fishery Management Council. Tampa, Florida.
http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20EFH%20EIS.pdf

NMFS. 2011. Biological opinion on the continued authorization of Reef Fish fishing under the Gulf of Mexico Reef Fish Fishery Management Plan. September 30, 2011. Available at: http://sero.nmfs.noaa.gov/pr/esa/Fishery%20Biops/03584%20GOM%20Reef%20Fish%20BiOp%202011%20final.pdf

APPENDIX G. SUMMARY OF HABITAT UTILIZATION BY LIFE HISTORY STAGE FOR SPECIES IN THE REEF FISH FMP

Common name	Eggs	Larvae	Early Juveniles	Late juveniles	Adults	Spawning adults
Red Snapper	Pelagic	Pelagic	Hard bottoms, Sand/ shell bottoms, Soft bottoms	Hard bottoms, Sand/ shell bottoms, Soft bottoms	Hard bottoms, Reefs	Sand/ shell bottoms
Queen Snapper	Pelagic	Pelagic	Unknown	Unknown	Hard bottoms	
Mutton Snapper	Reefs	Reefs	Mangroves, Reefs, SAV, Emergent marshes	Mangroves, Reefs, SAV, Emergent marshes	Reefs, SAV	Shoals/ Banks, Shelf edge/slope
Blackfin Snapper	Pelagic		Hard bottoms	Hard bottoms	Hard bottoms, Shelf edge/slope	Hard bottoms, Shelf edge/slope
Cubera Snapper	Pelagic		Mangroves, Emergent marshes, SAV	Mangroves, Emergent marshes, SAV	Mangroves, Reefs	Reefs
Gray Snapper	Pelagic, Reefs	Pelagic, Reefs	Mangroves, Emergent marshes, Seagrasses	Mangroves, Emergent marshes, SAV	Emergent marshes, Hard bottoms, Reefs, Sand/ shell bottoms, Soft bottoms	
Lane Snapper	Pelagic		Mangroves, Reefs, Sand/ shell bottoms, SAV, Soft bottoms	Mangroves, Reefs, Sand/ shell bottoms, SAV, Soft bottoms	Reefs, Sand/ shell bottoms, Shoals/ Banks	Shelf edge/slope
Silk Snapper	Unknown	Unknown	Unknown	Unknown	Shelf edge	
Yellowtail Snapper	Pelagic		Mangroves, SAV, Soft bottoms	Reefs	Hard bottoms, Reefs, Shoals/ Banks	

Common name	Eggs	Larvae	Early Juveniles	Late juveniles	Adults	Spawning adults
Wenchman	Pelagic	Pelagic			Hard bottoms, Shelf edge/slope	Shelf edge/slope
Vermilion Snapper	Pelagic		Hard bottoms, Reefs	Hard bottoms, Reefs	Hard bottoms, Reefs	
Gray Triggerfish	Reefs	Drift algae, *Sargassum*	Drift algae, *Sargassum*	Drift algae, Reefs, *Sargassum*	Reefs, Sand/ shell bottoms	Reefs, Sand/ shell bottoms
Greater Amberjack	Pelagic	Pelagic	Drift algae	Drift algae	Pelagic, Reefs	Pelagic
Lesser Amberjack			Drift algae	Drift algae	Hard bottoms	Hard bottoms
Almaco Jack	Pelagic		Drift algae	Drift algae	Pelagic	Pelagic
Banded Rudderfish		Pelagic	Drift algae	Drift algae	Pelagic	Pelagic
Hogfish			SAV	SAV	Hard bottoms, Reefs	Reefs
Blueline Tilefish	Pelagic	Pelagic			Hard bottoms, Sand/ shell bottoms, Shelf edge/slope, Soft bottoms	
Tilefish (golden)	Pelagic, Shelf edge/ Slope	Pelagic	Hard bottoms, Shelf edge/slope, Soft bottoms	Hard bottoms, Shelf edge/slope, Soft bottoms	Hard bottoms, Shelf edge/slope, Soft bottoms	
Goldface Tilefish	Unknown					
Speckled Hind	Pelagic	Pelagic			Hard bottoms, Reefs	Shelf edge/slope
Yellowedge Grouper	Pelagic	Pelagic		Hard bottoms	Hard bottoms	

Common name	Eggs	Larvae	Early Juveniles	Late juveniles	Adults	Spawning adults
Atlantic Goliath Grouper	Pelagic	Pelagic	Mangroves, Reefs, SAV	Hard bottoms, Mangroves, Reefs, SAV	Hard bottoms, Shoals/ Banks, Reefs	Reefs, Hard bottoms
Red Grouper	Pelagic	Pelagic	Hard bottoms, Reefs, SAV	Hard bottoms, Reefs	Hard bottoms, Reefs	
Warsaw Grouper	Pelagic	Pelagic		Reefs	Hard bottoms, Shelf edge/slope	
Snowy Grouper	Pelagic	Pelagic	Reefs	Reefs	Hard bottoms, Reefs, Shelf edge/slope	
Black Grouper	Pelagic	Pelagic	SAV	Hard bottoms, Reefs	Hard bottoms, Mangroves, Reefs	
Yellowmouth Grouper	Pelagic	Pelagic	Mangroves	Mangroves, Reefs	Hard bottoms, Reefs	
Gag	Pelagic	Pelagic	SAV	Hard bottoms, Reefs, SAV	Hard bottoms, Reefs	
Scamp	Pelagic	Pelagic	Hard bottoms, Mangroves, Reefs	Hard bottoms, Mangroves, Reefs	Hard bottoms, Reefs	Reefs, Shelf edge/slope
Yellowfin Grouper			SAV	Hard bottoms, SAV	Hard bottoms, Reefs	Hard bottoms

Source: Adapted from Table 3.2.7 in the final draft of the EIS from the Generic EFH Amendment (GMFMC 2004) and consolidated in this document.