# Reef Fish Recreational Management for Headboat Survey Vessels

## Amendment 42 to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico
## Draft

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# ABBREVIATIONS USED IN THIS DOCUMENT

| | |
|---|---|
| ACL | annual catch limit |
| ACT | annual catch target |
| AM | accountability measure |
| AP | Advisory Panel |
| APA | Administrative Procedures Act |
| Council | Gulf of Mexico Fishery Management Council |
| CS | consumer surplus |
| CZMA | Coastal Zone Management Act |
| DQA | Data Quality Act |
| EA | environmental assessment |
| EEZ | exclusive economic zone |
| EFH | essential fish habitat |
| EIS | environmental impact statement |
| EJ | environmental justice |
| ESA | Endangered Species Act |
| FMP | Fishery Management Plan |
| Gulf | Gulf of Mexico |
| GMFMC | Gulf of Mexico Fishery Management Council |
| GSMFC | Gulf States Marine Fisheries Commission |
| HAPC | habitat area of particular concern |
| HBC | headboat collaborative |
| Headboat AP | Ad Hoc Reef Fish Headboat Advisory Panel |
| IFQ | individual fishing quota |
| LAPP | limited access privilege program |
| LHV | Landings History Vessel |
| Magnuson-Stevens Act | Magnuson-Stevens Fishery Conservation and Management Act |
| MMPA | Marine Mammal Protection Act |
| mp | million pounds |
| MRFSS | Marine Recreational Fisheries Survey and Statistics |
| MRIP | Marine Recreational Information Program |
| NEPA | National Environmental Policy Act |
| nm | nautical mile |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NOR | net operating revenue |
| OY | optimum yield |
| PFQ | permit fishing quota |
| PS | producer surplus |
| RA | Regional Administrator |
| RFA | Regulatory Flexibility Act of 1980 |
| RIR | Regulatory Impact Review |
| RQ | regional quotient |
| SBA | Small Business Administration |
| Secretary | Secretary of Commerce |

| | |
|---|---|
| SEDAR | Southeast Data, Assessment, and Review |
| SEFSC | Southeast Fisheries Science Center |
| SERO | Southeast Regional Office |
| SRHS | Southeast Region Headboat Survey |
| SSC | Scientific and Statistical Committee |
| TPWD | Texas Parks and Wildlife Department |
| USCG | United States Coast Guard |
| ww | whole weight |

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# CHAPTER 1. INTRODUCTION

## 1.1 Background

The Gulf of Mexico Fishery Management Council (Council) has taken steps to provide more flexibility in managing various components of the reef fish recreational sector. In 2014, the Council approved Reef Fish Amendment 40 which established separate private angling and federal for-hire components of the red snapper recreational sector in the Gulf of Mexico (Gulf), allocated the red snapper recreational annual catch limit (ACL) between these two components, and implemented separate closure provisions for each component. The federal for-hire component includes all for-hire operators with a valid or renewable federal reef fish charter/headboat permit (reef fish for-hire permit). The private angling component includes all other for-hire operators and private recreational anglers. The decrease over time in the proportion of the red snapper recreational ACL harvested by anglers fishing from federal for-hire vessels and differences in regulatory environments faced by federal for-hire operators and private anglers - including changes in state regulations relative to red snapper - contributed to the Council's decision to restructure the red snapper recreational sector are discussed in Amendment 40 (GMFMC 2014). Recreational fishing for other reef fish species has not been as restricted as red snapper, but fishing has closed for several species in federal waters in recent years for some of the same reasons. Also, some state water fishing seasons have differed from federal seasons. Thus, other species may also benefit from flexible management for different components of the recreational sector.

In early 2015, the Council requested the initiation of an amendment addressing management for the reef fish headboat component and established an Ad Hoc Reef Fish Headboat Advisory Panel (Headboat AP). The charge to the Headboat AP was to make recommendations relative to the design and implementation of flexible measures for the management of reef fish for the headboat component of the recreational sector. In addition to the Headboat AP, the Council also created an Ad Hoc Red Snapper Charter Vessel Advisory Panel (Charter AP), which was tasked with recommending measures for the management of red snapper for charter vessel operators, and requested the initiation of an amendment specific to charter vessels fishing for red snapper

**Definitions**

**Southeast Region Headboat Survey (SRHS)** – NMFS survey of headboats in the Gulf of Mexico and South Atlantic

**Landings History Vessel (LHV)** – a vessel that has a valid or renewable Gulf reef fish for-hire permit with individual landings history recorded by the SRHS as of December 31, 2015

**Recreational Annual Catch Limit (ACL)** – pounds of fish allowed to be landed by recreational fishers (includes anglers, fishing from private vessels, charter boats, and headboats)

**Red Snapper For-hire Quota** - pounds of red snapper allowed to be landed by federally-permitted for-hire vessels (charter boats and headboats)

(Amendment 41). It is important to emphasize that the Headboat AP is charged with recommendations for all reef fish, whereas the Charter AP is limited to red snapper.

Management measures under consideration in Amendment 42 include allocation-based programs and recommendations made by the Headboat AP. Summary reports of the Headboat AP meetings, including recommendations provided to the Council in May 2015 and May 2016, are provided in Appendix A.

In the Gulf, the National Marine Fisheries Service (NMFS) issues one reef fish for-hire permit that does not distinguish between headboats and charter vessels. Therefore, the development of two distinct amendments addressing the management of red snapper for the charter vessel component (Amendment 41) and the management of reef fish for the headboat component (Amendment 42) requires clear definitions of which vessels would be included in each amendment. The Council established a December 31, 2015 control date to help determine the time period during which vessels could meet the eligibility criteria for Amendment 42.

The Southeast Region Headboat Survey (SRHS) collects catch and effort data from headboats in the southeast region, thereby producing a landings history for each vessel included in the survey. In the Gulf, for the purpose of reporting (as specified in 50 C.F.R. § 622.26(b)), the SRHS considers a for-hire vessel to be a headboat if it meets these criteria:

1) Vessel is licensed to carry 15 or more passengers (as indicated on the vessel's certificate of inspection;
2) Vessel fishes in the exclusive economic zone or state and adjoining waters for federally managed species; and
3) Vessel charges primarily per angler (i.e., by the "head").

The SRHS has been conducted in the Gulf since 1986[1]. However, detailed catch histories by individual vessels were only recorded starting from 2004. In addition, for fishery managers, the SRHS continues to be the sole source for effort and landings estimates for the headboat component as a whole. For these reasons, the universe of vessels for Amendment 42 is defined as vessels that have valid or renewable Gulf reef fish for-hire permits with individual landings histories recorded by the SRHS as of the control date of December 31, 2015. Hereafter, these vessels are referred to as landings history vessels (LHV). For the Gulf, the number of LHV by state between 2011 and 2015 is provided in Table 1.1.1.

**Table 1.1.1.** Number of vessels reporting landings to the SRHS (LHVs) by Gulf state, 2011-2015.

| Year | AL | FL | LA | MS | TX | Total |
|---|---|---|---|---|---|---|
| 2011 | 8 | 35 | 4 | 5 | 17 | 69 |
| 2012 | 8 | 35 | 4 | 5 | 16 | 68 |
| 2013 | 8 | 36 | 3 | 5 | 16 | 68 |
| 2014 | 7 | 37 | 2 | 5 | 16 | 67 |
| 2015 | 9 | 36 | 2 | 5 | 15 | 67 |

Source: NMFS SRHS database 01/05/16.

[1] The SRHS also includes vessels with South Atlantic for-hire permits and some state-licensed vessels.

**Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) Requirements for Limited Access Privilege Programs (LAPPs)**

An LAP uses federal permits to assign the right to harvest a quantity of fish representing a portion of the total allowable catch that may be received or held for exclusive use by a person. The two programs being considered by the Council in Amendment 42 are an individual fishing quota (IFQ) program and a permit fishing quota (PFQ) program. Both types of programs are considered LAPPs and must meet certain Magnuson-Stevens Act requirements.

The Magnuson-Stevens Act states: "the Gulf Council(s) may not submit, and the Secretary may not approve or implement, a fishery management plan or amendment that creates an individual fishing quota program…unless such a system, as ultimately developed, has been approved by…a majority of those voting in the referendum among eligible permit holders with respect to the Gulf Council. For multispecies permits in the Gulf of Mexico, only those participants who have substantially fished the species proposed to be included in the individual fishing quota program shall be eligible to vote in such a referendum." The Council will determine which participants have substantially fished for the species proposed in this amendment and NMFS will conduct a referendum of those participants after details of the management program have been developed.

The Magnuson-Stevens Act prohibits any person from participating in a LAPP that is not a U.S. citizen, corporation, partnership, or other entity established under the laws of the U.S. or any state, or a permanent resident alien. It also requires participants to meet the eligibility and participation requirements established by the program. As previously indicated, for purposes of this amendment, all vessels must have valid or renewable Gulf reef fish for-hire permits with individual landings histories recorded by the SRHS as of December 31, 2015.

Section 303A(c) in the Magnuson-Stevens Act specifies requirements for LAPPs. The following is a list of the topics specified as LAPP requirements that may be relevant to potential management of the LHV:

- Goals and objectives of the program
- Program duration and provisions for regular review
- Enforcement, monitoring, and management
- Appeals process
- Initial allocation
- Maximum shares
- Transferability

The goals and objectives are provided in the Purpose and Need statement (Section 1.2). The Magnuson-Stevens Act specifies that a detailed review of the program be conducted after the first 5 years of implementation of the program and, thereafter, no less than once every 7 years. Section 303A(f) indicates a limited access privilege is a permit to be issued for no more than 10 years that will be renewed unless it has been revoked, limited, or modified.

An appeals process provides a procedure for resolving disputes regarding initial eligibility and distribution of shares and allocation. In the past, the Council has implemented regulatory

actions in a number of fisheries that have included an appeals process for eligibility determinations, including Amendment 29 which established the Grouper/Tilefish IFQ Program (GMFMC 200x). In each instance, the Council has utilized a virtually identical process. Because the process has been consistent and has worked well in different circumstances, consideration of other options for appeals is not necessary. In addition, appeals would be processed by the NMFS National Appeals Office which is governed by the regulations and policy at 15 CFR Part 906. Details of the appeals process are described in the appropriate sections of Chapter 2.

Management alternatives are developed in this amendment for requirements that necessitate further specification by the Council. For example, actions in this document have been established to analyze alternatives for several requirements including, but not limited to, initial allocation, maximum shares, and transferability.

## 1.2 Purpose and Need

The purpose of this action is to reduce management uncertainty and improve economic conditions for Gulf reef fish headboat operators/owners, and provide flexibility by increasing fishing opportunities for their angler passengers through a management program for vessels with a valid or renewable Gulf reef fish for-hire permit with individual landings history recorded by the SRHS as of December 31, 2015.

The need for this action is to prevent overfishing while helping achieve the optimum yield from the harvest of reef fish, and taking into account and allowing for variations among fishery resources and participants.

## 1.3 History of Management

The Reef Fish Fishery Management Plan (FMP) (with its associated Environmental Impact Statement [EIS]) was implemented in November 1984. The original list of species included in the management unit consisted of snappers, groupers, and sea basses. Gray triggerfish and *Seriola* species, including greater amberjack, were in a second list of species included in the fishery, but not in the management unit.

This summary focuses on management actions pertinent to recreational harvest of the reef fish species considered for this management program (red snapper, greater amberjack, gray triggerfish, gag, and red grouper) and the management of vessels with a for-hire permit. A complete history of management for the Reef Fish FMP is available on the Council's website.[2]

**Management of the Recreational Sector**

Since 1996, when **Amendment 11** was implemented, for-hire vessels fishing in federal waters are required to have a federal for-hire permit. The initial purpose of the permits was to address

[2] http://gulfcouncil.org/fishery-management/implemented-plans/reef-fish/

potential abuses in the bag limit allowances. It was thought that by having a permit to which sanctions could be applied would improve compliance. In addition, the permit requirement was seen as a way to enhance monitoring of the for-hire component of the recreational sector.

In 2003, a 3-year moratorium on the issuance of new for-hire permits was established through **Amendment 20** (GMFMC 2003), to limit further expansion in the for-hire fisheries, an industry concern, while the Council considered the need for more comprehensive effort management systems. This means that participation in the federal for-hire component is capped; no additional federal permits are available. The permit moratorium was extended indefinitely in 2006 through **Amendment 25** (GMFMC 2006). The number of for-hire permits has been decreasing since the establishment of the moratorium (GMFMC 2014a).

**Regulatory Amendment,** implemented in August 1999, closed two areas (i.e., created two marine reserves), 115 and 104 square nautical miles respectively, year-round to all fishing under the jurisdiction of the Council with a four-year sunset clause.

**Amendment 30B** (GMFMC 2008b) included an action requiring that vessels with federal commercial or for-hire permits comply with the more restrictive of federal or state regulations when fishing for reef fish, if regulations are different. The implementation of this provision reduced the fishing days available to vessels with a for-hire permit in comparison to the private recreational anglers, who were able to participate in the additional fishing opportunities provided in some state waters.

Finally, an amendment to require electronic reporting by charter vessels and to modify electronic reporting by headboats was approved by the Council at their January 2017 meeting. The purpose of the amendment is to improve the monitoring of for-hire vessel landings, thereby reducing the likelihood of exceeding the recreational sector ACL. The amendment is currently under review by the Secretary of Commerce (Secretary).

**Generic Management Amendments**

**Generic Sustainable Fisheries Act Amendment**, partially approved and implemented in November 1999, set the maximum fishing mortality threshold (MFMT) for most reef fish stocks at a fishing mortality rate corresponding to 30% spawning potential ratio ($F_{30\% \text{ SPR}}$).

**Generic Tortugas Marine Reserves**, implemented in August 2002, amended all seven FMPs and created two marine reserves where all fishing is prohibited. One 60 square mile reserve was created on a spawning aggregation site for mutton snapper in the Council's jurisdiction. The other (125 square miles) was created in the jurisdictions of the National Park Service, Florida Keys National Marine Sanctuary, Council, and State of Florida.

**Recreational Red Snapper Management**

A summary of red snapper management through 2006 can be found in Amendment 27/14 (GMFMC 2007) and in Hood et al. (2007), and is incorporated herein by reference. Prior to 1997, recreational fishing for all reef fish was open year round in federal waters of the Gulf.

Although catch levels were controlled through minimum size limits and bag limits, the recreational sector exceeded its allocation of the red snapper total allowable catch; however, the overages were declining through more restrictive recreational management measures. The Sustainable Fisheries Act of 1996 required the establishment of quotas for recreational and commercial fishing that, when reached, result in a prohibition on the retention of fish caught for each sector, respectively, for the remainder of the fishing year. With the establishment of a recreational quota in 1997, the Regional Administrator (RA) was authorized to close the recreational season when the quota is reached, as required by the Magnuson-Stevens Act. From 1997 through 1999, NMFS implemented the recreational red snapper quota requirement through an in-season monitoring process by establishing a quota monitoring team that, through monitoring landings data that were available, plus projecting landings based on past landings patterns, projected closing dates a few weeks in advance. Between 1996 and 2013, the recreational fishing season in federal waters decreased from 365 days to 42 days.[3]

An interim rule, published on April 2, 2007, reduced the red snapper total allowable catch to 6.50 million pounds (mp), resulting in a recreational quota of 3.19 mp; reduced the red snapper recreational bag limit from four fish to two fish per person per day; prohibited the captain and crew of for-hire vessels from retaining the recreational bag limit; and established a target red snapper bycatch mortality reduction goal for the shrimp fishery that equates to 50% of the bycatch mortality that occurred during 2001-2003 and a level of shrimp effort equal to that observed in the fishery in 2005.

In 2008, joint **Amendment 27/Shrimp Amendment 14** (GMFMC 2007) revised the rebuilding plan for red snapper. For the recreational sector, the rule implemented a June 1 through September 30 fishing season in conjunction with a 2.45 mp recreational quota, 16-inch total length (TL) minimum size limit, 2-fish bag limit, and zero bag limit for captain and crew of for-hire vessels.

The Sustainable Fisheries Act required that the Regional Administrator close the recreational red snapper season when the quota is projected to be met. When Reef Fish **Amendment 27/Shrimp Amendment 14** (GMFMC 2007) was submitted to NMFS, the Council requested that the five Gulf states adopt compatible regulations in state waters. Florida adopted a compatible two-fish bag limit, but maintained its state red snapper fishing season of April 15 through October 31, 78 days longer than the federal fishing season. Texas also maintained its four-fish bag limit and year-round fishing season in its state waters. Prior to the start of the 2008 season, NMFS recalculated its projections for recreational red snapper catches in light of the state regulations, and projected that there would be a 75% probability that the recreational quota would not be exceeded if the season closed on August 5. As a result, NMFS took action to set the 2008 season to be June 1 to August 5.

A **February 2010 regulatory amendment** (GMFMC 2010) increased the red snapper total allowable catch from 5.00 mp to 6.95 mp, which increased the recreational quota from 2.45 mp to 3.40 mp. However, NMFS estimated that in 2009, the recreational sector overharvested its

[3] Upon availability of a quota increase in 2013, the 28-day recreational season was supplemented by a 14-day fall season for a total of 42 days.

quota by approximately 75%. In recalculating the number of days needed to fill the recreational quota, even with the quota increase, NMFS projected that the 2010 season would need to be shortened to June 1 through July 24, and published notice of those dates prior to the start of the recreational fishing season.

In April 2010, the *Deepwater Horizon* MC252 deep-sea drilling rig exploded and sank off the coast of Louisiana. Because of the resulting oil spill, approximately one-third of the Gulf was closed to fishing for much of the summer months. The direct loss of fishing opportunities due to the closure, plus the reduction in tourism throughout the coastal Gulf, resulted in a much lower catch than had been projected. After the recreational season closed on July 24, NMFS estimated that 2.30 mp of the 3.40 mp recreational quota remained unharvested (NMFS 2010). However, due to the fixed October 1 to December 31 closed season, NMFS could not reopen the recreational season without an emergency rule to suspend the closure. Consequently, the Council requested an emergency rule to provide the RA with the authority to reopen the recreational red snapper season. After considering various reopening scenarios, the Council requested that the season be reopened for eight consecutive weekends (Friday, Saturday and Sunday) from October 1 through November 21 (24 fishing days).

In January 2011, the Council submitted a **regulatory amendment** (GMFMC 2011a) to NMFS to increase the red snapper total allowable catch to 7.19 mp, with a 3.52 mp recreational quota. The final rule implemented the increase and established a 48-day recreational red snapper season that was June 1 through July 18.

On August 12, 2011, NMFS published an emergency rule that, in part, increased the recreational red snapper quota by 345,000 lbs for the 2011 fishing year and provided the agency with the authority to reopen the recreational red snapper season later in the year, if the recreational quota had not been filled by the July 19 closing date. However, in August of that year, based on headboat data plus charter boat and private recreational landings through June, NMFS calculated that 80% of the recreational quota had been caught. With the addition of July landings data plus Texas survey data, NMFS estimated that 4.40 to 4.80 mp were caught, well above the 3.87 mp quota. Thus, no unused quota was available to reopen the recreational fishing season.

A **March 2012 regulatory amendment** (GMFMC 2012b) set the 2012 recreational quota for red snapper at 3.96 mp based on a recent population assessment which showed that overfishing had ended. The regulatory amendment also eliminated the fixed recreational red snapper closed season of October 1 - December 31. By eliminating the closure date, NMFS can re-open the recreational harvest for red snapper if any remaining quota is available, without the delay of additional rulemaking. On May 30, 2012, NMFS published a final rule to increase the sector quotas and establish the 2012 recreational red snapper fishing season as June 1 through July 11. However, the north-central Gulf experienced extended severe weather during the first 26 days of the 2012 recreational red snapper fishing season, including Tropical Storm Debby. Due to the severe tropical weather, the season was extended by 6 days and closed on July 17.

On March 25, 2013, an emergency rule [78 FR 17882] was published in the *Federal Register* giving NMFS the authority to set separate closure dates for the recreational red snapper season in federal waters off individual Gulf states. The closure dates would depend on whether state

regulations were consistent with federal regulations for the recreational red snapper season length or bag limit.

A **March 2013 framework action**[4] (GMFMC 2013a) modified the 2013 recreational red snapper quota to 4.15 mp. Based on the emergency rule to allow separate closure dates, NMFS announced that the recreational red snapper season in federal waters would open on June 1. Off Mississippi and Alabama, which had consistent state regulations, the season would be 34 days and close on July 5. The other Gulf States had inconsistent state regulations, and the fishing seasons in federal waters were announced as follows. Off Texas, the season would be 17 days and close on June 18. Off Louisiana, the season would be 24 days and close on June 25. Off Florida, the season would be 26 days and close on June 27.

Texas and Louisiana filed a legal challenge to the separate closure dates, and on May 31, 2013, the U.S. District Court in Brownsville, Texas, set aside the emergency rule. As a result of this Court decision, the recreational red snapper season in federal waters was changed to make it the same in federal waters off all five Gulf states. Considering the catches expected later in the year during the extended state-water seasons off Texas, Louisiana, and Florida, NMFS established a Gulf-wide federal recreational red snapper season at 28 days long, opening on June 1 and closing to recreational red snapper harvest at 12:01 a.m., June 29, 2013.

A **July 2013 framework action** (GMFMC 2013b) increased the 2013 recreational quota from 4.15 mp to 5.39 mp. The quota increase was implemented by re-opening federal waters to red snapper recreational fishing for 14 days beginning on October 1, 2013, at 12:01 a.m. and closing on October 15, 2013, at 12:01 a.m. Therefore, the total fishing days for 2013 was 42 days.

On March 26, 2014, in response to a legal challenge from commercial fishermen, the U.S. District Court for the District of Columbia ruled that NMFS failed to require adequate accountability measures (AM) for the recreational sector, failed to prohibit the retention of fish after the recreational quota had been harvested, and failed to use the best scientific information available when determining whether there should be a 2013 fall fishing season. In response to the Court's decision and to reduce the probability of the recreational sector exceeding its quota, the Council requested, through an emergency rule, that NMFS implement an annual catch target (ACT) that is 20% less than the 2014 recreational quota; the ACT would be used to set the season length in federal waters. The emergency rule, published on May 15, 2014 [79 FR 27768], resulted in a recreational ACT of 4.31 mp. In addition, several Gulf states announced extended state-water fishing seasons. Given the additional harvest estimated to come from state waters, a 9-day fishing season in federal waters was established for 2014.

In October 2014, the Council approved a framework action to formally adopt the ACT as a buffer to the recreational sector ACL. The framework action also adopted a quota overage adjustment such that if the recreational quota is exceeded in a fishing season, the amount of the

[4] Prior to 2013, regulatory actions made under the Reef Fish framework procedure for setting total allowable catch, or the generic framework procedure in the Generic Annual Catch Limits/Accountability Measures Amendment, were referred to as either framework actions or regulatory amendments. Beginning in 2013, such actions were referred to only as framework actions.

overage is deducted from the following year's quota (GMFMC 2014b). The final rule became effective April 20, 2015.

**Amendment 40** (GMFMC 2014a) divided the recreational quota into a federal for-hire component quota (42.3%) and a private angling component quota (57.7%) for the recreational harvest of red snapper. In 2015, this resulted in an ACT of 2.371 mp for the federally permitted for-hire component (45 federal fishing days) and 3.234 mp for the private angling component (10 federal fishing days), respectively. The 2015 season closures for the recreational harvest of red snapper were determined separately for each component based on each component's ACT. **Amendment 40** also included a 3-year sunset provision on the separation of the recreational sector into distinct components.

At its August 2015 meeting, the Council approved **Amendment 28** (GMFMC 2015) which 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. This amendment became effective on May 31, 2016. The **Framework Action** to Retain 2016 Red Snapper Commercial Quota became effective December 28, 2015, which allowed the revised allocations established through Amendment 28 to be effective for the 2016 fishing year. On March 3, 2017, a U.S. district court vacated **Amendment 28** and subsequently ordered that the sector quotas for 2017 be set consistent with the previous sector allocations of 51% commercial and 49% recreational.

**Amendment 45** (GMFMC 2016) extended the separate management of the federal for-hire and private angling components for an additional 5 years through the 2022 red snapper fishing season.

**Recreational Greater Amberjack Management**

**Amendment 1** [with its associated environmental assessment (EA), regulatory impact review (RIR), and initial regulatory flexibility analysis (IRFA)] to the Reef Fish FMP, implemented in 1990, added greater amberjack and lesser amberjack to the list of species in the management unit. It set a greater amberjack recreational minimum size limit of 28 inches fork length (FL), a three-fish recreational bag limit. This amendment's objective was to stabilize the long-term population levels of all reef fish species by establishing a survival rate of biomass into the stock of spawning age to achieve at least 20% spawning stock biomass per recruit (SSBR), relative to the SSBR that would occur with no fishing. A framework procedure for specification of total allowable catch (TAC) was created to allow for annual management changes.

**Amendment 12**, implemented in January 1997, reduced the greater amberjack bag limit from three fish to one fish per person, and created an aggregate bag limit of 20 reef fish for all reef fish species not having a bag limit (including lesser amberjack, banded rudderfish, almaco jack, and gray triggerfish). NMFS disapproved proposed provisions to include lesser amberjack and banded rudderfish along with greater amberjack in an aggregate one-fish bag limit and to establish a 28-inch fork length (FL) minimum size limit for those species.

**Generic Sustainable Fisheries Act Amendment**, partially approved and implemented in November 1999, set the MFMT for greater amberjack at the fishing mortality necessary to achieve 30% of the unfished spawning potential $F_{30\% SPR}$. Estimates of maximum sustainable yield (MSY), minimum stock size threshold (MSST), and optimum yield (OY) were disapproved because they were based on spawning potential ratio (SPR) proxies rather than biomass-based estimates.

**Secretarial Amendment 2**, implemented in July 2003, for greater amberjack, specified MSY as the yield associated with $F_{30\% SPR}$ (proxy for $F_{MSY}$) when the stock is at equilibrium, OY as the yield associated with an $F_{40\% SPR}$ when the stock is at equilibrium, MFMT equal to $F_{30\%SPR}$, and MSST equal to (1-M)*$B_{MSY}$ (where M = natural mortality) or 75% of $B_{MSY}$. It also set a rebuilding plan limiting the harvest to 2.9 mp for 2003-2005, 5.2 mp for 2006-2008, 7.0 mp for 2009-2011, and for 7.9 for 2012. This was expected to rebuild the stock in 7 years. Regulations implemented in 1997 and 1998 (Amendments 12 and 15 to the Reef Fish FMP) were deemed sufficient to comply with the rebuilding plan so no new regulations were implemented.

**Amendment 30A**, implemented August 2008, was developed to stop overfishing of gray triggerfish and greater amberjack. The amendment established ACLs and AMs for greater amberjack and gray triggerfish. For greater amberjack, the rebuilding plan was modified, increasing the recreational minimum size limit to 30 inches FL, implementing a zero bag limit for captain and crew of for-hire vessels, and setting commercial and recreational quotas.

**Regulatory Amendment**, implemented in June 2011, specified the greater amberjack recreational closed season from June 1 – July 31. The intended effect of this final rule was to mitigate the social and economic impacts associated with implementing in-season closures.

**Amendment 35**, implemented in 2012, in response to a 2010 update stock assessment, established a new ACL equal to the acceptable biological catch at 1.78 mp, which was less than the current annual catch limit of 1.83 mp. Reducing the stock ACL by 18% from no action was expected to end overfishing. The Council also considered bag limits and closed season management measures for the recreational fishing sector but did not alter any recreational management measures.

**A Framework Action**, implemented in January 2016, adjusted the ACLs, reduced the recreational minimum size limit to 34 inches FL, and reduced the commercial trip limit to 1,500 lbs gutted weight (gw).

The Council approved a **Framework Action** at the August 2017 meeting that would modify the rebuilding plan for greater amberjack and modify the recreational closed season. This action is under review by the Secretary.

The Council approved a **Framework Action** at the October 2017 meeting that would modify the recreational fishing year and modify the recreational closed season. This action is under review by the Secretary.

**Recreational Gray Triggerfish Management**

A complete description of the management can be found in Reef Fish Amendment 46 (GMFMC 2017) which is currently under development, and is incorporated here by reference. Reef Fish **Amendment 30A** (GMFMC 2008a) established a stock rebuilding plan beginning in 2008 as required by the Magnuson-Stevens Act. Commercial and recreational ACTs, ACLs, and AMs were also established in **Amendment 30A**, along with the 21% commercial and 79% recreational sector allocation. For the recreational sector, a post-season AM was established. If the ACL for a single year, or the 3-year running average of recreational landings, resulted in the ACL being exceeded, then the length of the fishing season would be shortened the next year based on the amount by which the ACT was exceeded.

An **interim rule,** implemented in 2012 reduced the recreational ACL to 241,200 lbs ww and the recreational ACT to 217,100 lbs ww. The **interim rule** also established in-season closure authority for the recreational sector based on the ACT. Therefore, if the recreational gray triggerfish ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries can close the recreational sector from harvesting gray triggerfish for the rest of the year (78 FR 27084). The **interim rule** reduced fishing levels until long-term management measures were implemented.

**Amendment 37** (GMFMC 2012a), implemented in 2013, adjusted the commercial and recreational ACLs and ACTs, established a two-fish recreational daily bag limit, established an annual fishing season closure from June 1 through July 31 for the commercial and recreational sectors, and revised the in-season AM for the recreational sector by eliminating the 3-year running average ACL. In addition, an overage adjustment for the recreational sector was added.

In November 2016, NMFS published a **temporary rule**[5] for the recreational sector's harvest of gray triggerfish in 2017 that determined the recreational season would not reopen on January 1, 2017 and would remain closed the entire 2017 fishing year. This determination was based on the 2016 adjusted recreational ACL and ACT for gray triggerfish being exceeded by 215% and 245%, respectively. The gray triggerfish stock is overfished and this closure was necessary to protect the resource.

**Amendment 46**, implemented in January 2018, modified the gray triggerfish rebuilding plan, increased the recreational closed season, reduced the bag limit to one fish per person, increased the recreational minimum size limit to 16 inches FL, and increased the commercial trip limit to 16 fish.

**Recreational Gag Management**

Federal management of gag began in November 1984 with the implementation of the Reef Fish Fishery Management Plan and its associated EIS. The initial regulations, designed to rebuild declining reef fish stocks, included prohibitions on the use of fish traps, roller trawls, and

[5] http://sero.nmfs.noaa.gov/sustainable_fisheries/gulf_fisheries/reef_fish/2017/am46_gray_trigger/documents/pdfs/gulf_reef_trigger_closure_frnotice.pdf

powerhead-equipped spear guns within an inshore stressed area and directed the NMFS to develop data reporting requirements in the reef fish fishery.

In July 1985, the Florida Marine Fisheries Commission (now Florida Fish and Wildlife Conservation Commission [FWC]) established a Florida state regulation to set a minimum size limit of 18 inches TL for gag, black grouper, and several other shallow-water grouper species. In December 1986, FWC implemented a state recreational bag limit of five grouper per person per day, with an off-the-water possession limit of 10 per person, for any combination of groupers excluding rock hind and red hind.

**Amendment 1**, implemented in February 1990, established several reef fish management measures including a 20-inch TL minimum size limit on gag. Florida modified its regulations in 1990 to be consistent with the federal regulations.

A **regulatory amendment**, implemented in June 2000, increased the recreational size limit for gag from 20 to 22 inches TL and established two marine reserves (Steamboat Lumps and Madison-Swanson) that are closed year-round to fishing for all species under the Council's jurisdiction. An additional action to further increase the recreational minimum size limit for gag and black grouper by 1 inch per year until it reached 24 inches TL was disapproved by NMFS. [65 FR 31827].

In August 2009, the Council was notified by NMFS that the Gulf gag stock was both overfished and undergoing overfishing based on the results of a 2009 update stock assessment. The remaining summary focuses on the history of gag management since the stock was declared overfished. For a full history of grouper management, refer to Amendment 30B, History of Management Activities Affecting Grouper Harvest (GMFMC 2008b).

**Amendment 30B** (GMFMC 2008b), implemented in May 2009, established ACLs and AMs for gag and red grouper; managed shallow-water grouper to achieve OY and improve the effectiveness of federal management measures; defined the gag MSST and OY; set interim allocations of gag and red grouper between recreational and commercial fisheries; made adjustments to the gag and red grouper ACLs to reflect the current status of these stocks; established ACLs and AMs for the commercial and recreational gag harvest, and commercial aggregate shallow-water grouper harvest; adjusted recreational grouper bag limits and seasons; adjusted commercial grouper quotas; eliminated the end date for the Madison-Swanson and Steamboat Lumps marine reserves; and required that vessels with federal commercial or charter reef fish permits comply with the more restrictive of state or federal reef fish regulations when fishing in state waters.

An **Interim Rule** published December 1, 2010 [75 FR 74654]. While management measures for the gag rebuilding plan were being developed through Amendment 32, the **Interim Rule** reduced gag landings consistent with ending overfishing; implemented conservative management measures while a rerun of the update stock assessment was being completed; and temporarily halted the recreational harvest of gag until recreational fishing management measures being developed in Amendment 32 could be implemented to allow harvest at the appropriate levels.

An **Interim Rule**, effective from June 1, 2011 through November 27, 2011, and was extended for another 186 days or until Amendment 32 was implemented [76 FR 31874]. The gag 2009 update stock assessment was rerun in December 2010 addressing the problems with discards identified earlier in 2010. This assessment was reviewed in January 2011 by the Council's Scientific and Statistical Committee and presented to the Council at its February 2011 meeting. The assessment indicated that the gag commercial quota implemented in the December 1, 2010 interim rule could be increased and that a longer recreational season could be implemented. In response, the Council requested an interim rule while they continued to work on long-term measures including a gag rebuilding plan in Amendment 32. The interim rule set a two-month recreational gag fishing season from September 16 through November 15.

**Amendment 32**, implemented March 2012, set the commercial and recreational gag ACLs and ACTs for 2012 through 2015 and beyond; set the gag recreational season from July 1 through October 31 (the bag limit remained two gag in the four-grouper aggregate bag limit); and added an overage adjustment and in-season closure to the gag and red grouper recreational AMs to avoid exceeding the ACL.

**Amendment 38**, implemented March 1, 2013, revised the post-season recreational AM that reduces the length of the recreational season for all shallow-water grouper in the year following a year in which the ACL for gag or red grouper is exceeded. The modified AM reduces the recreational season of only the species for which the ACL was exceeded.

**Recreational Red Grouper Management**

Similar to the management of gag, the federal management of red grouper began in November 1984 with the implementation of the Reef Fish FMP and its associated EIS.

**Amendment 1**, implemented in 1990, set objectives to stabilize long-term population levels of all reef fish species by establishing a survival rate of biomass into the stock of spawning age fish to achieve at least 20% spawning stock biomass per recruit by January 1, 2000. Among the red grouper management measures implemented included setting a 20-inch TL minimum size limit on red grouper, and a five-grouper recreational daily bag limit.

**Secretarial Amendment 1**, implemented in July 2004, established a rebuilding plan, a 5.31 mp gw commercial quota, and a 1.25 mp gw recreational target catch level for red grouper. The recreational bag limit for red grouper was reduced to two fish per person per day.

**Amendment 27** was implemented in February 2008 and its reef fish bycatch reduction measures became effective June 1 2008). These measures addressed the use of non-stainless steel circle hooks when using natural baits to fish for Gulf reef fish and required the use of venting tools and dehooking devices when participating in the commercial or recreational reef fish fisheries.

**Amendment 30B**, implemented May 2009, proposed to end overfishing of gag, revise red grouper management measures as a result of changes in the stock condition, establish ACLs and AMs for gag and red grouper, manage shallow-water grouper to achieve optimum yield, and improve the effectiveness of federal management measures. The amendment: 1) defined the gag

minimum stock size threshold and OY; 2) set interim allocations of gag and red grouper between recreational and commercial fisheries; 3) made adjustments to the gag and red grouper TACs to reflect the current status of these stocks; 4) established ACLs and AMs for the commercial and recreational red grouper fisheries 5) adjusted recreational grouper bag limits and seasons; 6) eliminated the end date for the Madison-Swanson and Steamboat Lumps marine reserves; and 7) required that vessels with a federal charter vessel/headboat permit for Gulf reef fish must comply with the more restrictive of state or federal reef fish regulations when fishing in state waters.

**Amendment 32**, implemented in March 2012, set the constant catch red grouper commercial ACL at 6.03 mp and the red grouper recreational ACL at 1.90 mp. It also added an overage adjustment and in-season measures to the gag and red grouper recreational AMs to avoid exceeding the ACL and an AM for the red grouper bag limit that would reduce the four red grouper bag limit in the future to three red grouper, and then to two red grouper, if the red grouper recreational ACL is exceeded.

**Amendment 38**, implemented in March 2013, revised the post-season recreational AM that reduces the length of the recreational season for all shallow-water grouper in the year following a year in which the ACL for gag or red grouper is exceeded. The modified accountability measure reduces the recreational season of only the species for which the ACL was exceeded. Additionally, the reef fish framework procedure was modified to include the addition of accountability measures to the list of items that can be changed through the standard framework procedure. This allows for faster implementation of measures designed to maintain harvest at or below the ACL. General language was added to the framework to accommodate future changes in naming of the Council's advisory committees and panels.

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

A March 2006 **regulatory amendment** (GMFMC 2005), implemented in July 2006, established a red grouper recreational bag limit of one fish per person per day as part of the five grouper per person aggregate bag limit, and prohibited for-hire vessel captains and crews from retaining bag limits of any grouper while under charter [71 FR 34534]. An additional provision established a

recreational closed season for red grouper, gag, and black grouper from February 15 to March 15 each year (matching a previously established commercial closed season) beginning with the 2007 season.

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

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

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

A December 2014 **framework action**, implemented in May 2015, reduced the bag limit from four fish per person per day to two fish per person per day and eliminated the bag limit reduction AM in 50 CFR 622.41(e)(2)(ii).

A January 2016 **framework action**, implemented in May 2016, increased the minimum size limit for recreationally caught gag and black grouper to 24 inches TL, and changed the gag recreational fishing season to June 1 through December 31, unless closed sooner due to the recreational ACL being reached.

# CHAPTER 2. MANAGEMENT ALTERNATIVES

In this amendment, the Gulf of Mexico Fishery Management Council (Council) must first determine the type of management approach deemed appropriate to addressing challenges for landings history vessels (LHV). In the second step, the Council has to focus on the design characteristics corresponding to the selected management approach. Based on this two-step decision making process, the first action includes alternative management approaches. The remaining actions include design elements and provisions corresponding to fishing quota programs. Therefore, all actions beginning with Action 2 are only valid if Alternative 2 or 3 is chosen in Action 1 and, the "No Action" alternatives in those actions assume a fishing quota program will be developed and are worded accordingly.

## 2.1 Action 1. Type of Recreational Management Program for Landings History Vessels

**Alternative 1.** No Action. For landings history vessels, continue to manage the reef fish species chosen in Action 2 using current recreational seasons, size limits, and bag limits.

**Alternative 2.** For landings history vessels, manage the reef fish species chosen in Action 2 by establishing an Individual Fishing Quota (IFQ) Program.

**Alternative 3.** For landings history vessels, manage the reef species chosen in Action 2 by establishing a Permit Fishing Quota (PFQ) Program.

**Discussion**

**Alternative 1** would continue to rely on bag limits, size limits, and fishing seasons to manage LHV. If the Council elects to continue to manage reef fish effort and harvests for LHV using traditional approaches, the range of management measures would be fairly limited and could be implemented through the framework process. Traditional management instruments, commonly referred to as command and control management, would include adjustments to the bag limits and changes to the structure of fishing seasons. None of the command and control approaches were favored by a majority of the Ad Hoc Reef Fish Headboat Advisory Panel (Headboat AP) members.

At their May 2015 meeting, the Headboat AP made a motion recommending the Council develop an allocation-based program (**Alternatives 2** and **3**) using reported landings from the Southeast Region Headboat Survey (SRHS). In a subsequent meeting held in May 2016, the Headboat AP further indicated its preference for the implementation of an IFQ program. In an allocation-based program, the quota is divided among participants, who can then choose when to use that allocation. In the case of an LHV program, each participant would have allocation to account for fish harvested by the passengers on each trip. Timely reporting is a key element of allocation-based programs; as allocation is used, it must be subtracted from the annual allocation for the participant. When a participant has used all of their allocation, they must stop fishing or obtain more allocation (if allowed by the program).

An IFQ program (**Alternative 2**) involves shares and allocation held by permit holders with landings history vessels in this case. Permit holders may be businesses or one or more individuals jointly holding a permit. Shares would be distributed to each permit holder based on the landings history associated with their permit in the SRHS and National Marine Fisheries Service (NMFS) databases. Those shares would represent a percentage of the LHV quota for the program. After the initial distribution, shares would be associated with the permit holder but not the permit itself. Therefore, shares could be transferred separately from the permit, in accordance with any restrictions in the program. Each year, NMFS would distribute allocation to participants holding shares; individual allocation would be determined by multiplying the share percentage by the LHV quota.

**Definitions**

**LHV Quota** – pounds or numbers of fish allowed to be landed by all vessels in the LHV program developed in this amendment

**Share –** a set percentage of the quota held by an IFQ or PFQ participant

**Allocation** – pounds or numbers of fish each LHV is allowed to land each year

A PFQ program (**Alternative 3**) involves shares and allocation associated with a permit, in this case the federal Gulf of Mexico (Gulf) reef fish charter/headboat permit that is associated with a vessel in the SRHS. Those shares would represent a percentage of the LHV quota and allocation would be distributed to the permit holder at the start of the year. Shares would not be independently transferrable. But if the permit transferred, the shares would transfer with the permit and now be associated with the new shareholder.

The two programs differ in terms of how the shares and/or allocation would be distributed, as well as other program details (Table 2.1.1). These types of programs could provide LHV with the flexibility to operate when customers are most abundant, which may differ by region. The programs could also promote safety at sea, by allowing vessels to wait for calm weather.

The NMFS Southeast Regional Office currently manages two commercial IFQ programs: the red snapper IFQ and the grouper–tilefish IFQ programs. The NMFS Southeast Regional Office also currently maintains and supports the commercial Bluefin Tuna Individual Bluefin Quota program, which is a type of PFQ. The Headboat Collaborative (HBC) pilot program (2014-2015) was also managed through the same online system. The structure of an IFQ or PFQ program for LHV could also be incorporated into the current online system. Participants would hold shares and allocation in accounts within the system and report landings via the system. Distribution, usage, and transfers would all be tracked by NMFS.

An IFQ or PFQ program would act as an accountability measure and replace the need for in-season closures or post-season restrictions. In the commercial IFQ programs, participants who hold shares are allowed to land up to 10% more of the amount of allocation left in their account on the last trip of the season. This allowance accounts for the inability to precisely weigh catch and must be paid back from the following year's allocation. If allocation for the LHV program is in numbers of fish, this type of overage allowance may not be needed.

**Table 2.1.1.** Comparison of proposed management programs.

| | IFQ (Alternative 2) | PFQ (Alternative 3) |
|---|---|---|
| **Shareholder:** | Account holder | Permit holder |
| **Allocation Distributed by:** | NMFS | NMFS |
| **Annual Allocation Distributed to:** | Accounts based on shareholdings and quota at the time of distribution | Permit accounts based on shareholdings and quota at the time of distribution |
| **Share Transfers:*** | Between entities with accounts; may transfer any percentage (e.g., partial amounts to one or more accounts or as a whole) | Must transfer permit to transfer shares; the whole share percentage is transferred with the permit, the percentage can never be divided; |
| **Allocation Transfers:*** | Between entities with accounts | Between permit holders with accounts |
| **Share Caps:** | Determined at time of transfer if violating share cap | Needs to be determined before permit transferred and may deny a permit transfer. |
| **Permit Transfers:** | Independent of the IFQ system, unless requirement to have a permit to hold shares | Before a permit transfer is approved, NMFS will need to see if the permit transfer violates the share caps |
| **Permit termination:** | Independent of the IFQ system, unless requirement to have a permit to hold shares. | Shares will need to be redistributed; allocation is transferred independent of permit. |

*Limitations may be set by the program.

Allocation-based programs, as with other management changes, can affect fishing behavior in complex and unpredictable ways. These changes can affect the utility of the fishery dependent information used in stock assessments. For example, the commercial IFQ program has resulted in the truncation of the commercial indices of abundance in several assessments. The change in behavior of fishing due to the IFQ system requires a different index of abundance due to changes in effort. Effort changes based on differences in allocation and how each vessel uses their allocation to plan fishing trips. To date in the Gulf, for any species in an IFQ program, indices of abundance have not been calculated since the start of the programs do to these problems. These issues also affect discard rates, although effort has been made to incorporate those changes in the stock assessment. Changes in catch rates coincident with the introduction of the commercial IFQs cannot be easily decoupled from possible changes in abundance. The problem is greatest at the beginning of a new program, before many years are available under the new management regime.

Compliance and Monitoring

The ability to enforce and monitor program compliance is a key component of this program. Some conditions that would aid in this include trip declarations, pre-landing notifications, and

restricted landing locations. In the HBC pilot program, e-mail notifications of hail-outs and hail-ins allowed enforcement and biological collection agents (port agents) to prioritize sampling.

Trip declarations made before leaving the dock (hail-outs) would include vessel name, return destination, and estimated date/time of return. These declarations would aid enforcement officers/agents and port agents in scheduling their activities for the day so they could meet a vessel when it returns to the dock. For the commercial IFQ system, declarations are made through the vessel monitoring system (VMS) unit or a call service center, and include vessel identifiers, type of fishing trip (e.g., Gulf, South Atlantic, highly migratory species), fishing activity (e.g., reef fish, mackerel, research trip), and permit type (i.e., commercial, charter or recreational). Trip declarations would need to be real-time for the LHV program and contain a method to distribute the information to enforcement and port agents. The commercial IFQ system does not currently distribute hail-out information. For the commercial IFQ program, notifications (hail-ins) are made through the VMS unit or a call service center and the commercial IFQ system distributes the information via email to the agents listed within the region of landing.

Pre-landing notifications (hail-ins) would aid in validation and auditing programs. Under the commercial IFQ program, notifications need to be submitted 3 to 24 hours in advance of landing and can be submitted through three different methods (online, VMS, call service center). For the HBC pilot program, pre-landing notifications were submitted 1 hour in advance of landing through VMS. The pre-landing notifications for the LHV program would contain information on the vessel, landing location, date and time of landing, and estimated pounds or numbers of IFQ/PFQ species being landed by species. The commercial IFQ system distributes the information via email to the agents listed within the region of landing. Methods that would have near real-time distribution would include a direct entry in the IFQ online system, entry through a VMS unit, or a 24-hour call service that enters the information in the IFQ online system. In the HBC pilot program, knowing the number of fish on board allowed port agents to ensure they had sufficient supplies for biological sampling available and allowed enforcement to immediately identify a discrepancy between the actual count and the hail-in count. Many of the agents felt that the hail-out/hail-in notifications improved sampling efficiency and reporting accuracy. For a VMS unit, the burden of the cost would be on the shareholder, while for a 24-hour call service center the burden of cost would be on NMFS. The HBC pilot program found that VMS units cost around $6,000, with a monthly service fee of around $60/month. Estimates for a call service center can be calculated through estimating the number of trips per year, and the amount of time per phone call.

In the commercial IFQ programs and the HBC pilot program, landing sites must be pre-approved by NMFS Office of Law Enforcement. This is to ensure that the sites are accessible to enforcement officers by land and water. Landing locations for LHV are more likely to be publicly accessible because the vessel must meet the customers and return to the same location.

## 2.2 Action 2. Species to Include in the LHV Management Program

**Alternative 1**: No Action. Do not define reef fish species to include in the management program.

**Preferred Alternative 2**: Include the following species in the management program:

**Preferred Option 2a**: Red snapper
**Preferred Option 2b**: Greater amberjack
**Preferred Option 2c**: Gray triggerfish
**Preferred Option 2d**: Gag
**Preferred Option 2e**: Red grouper

**Discussion**

For each reef fish species included in this action, the development of management measures specific to LHV would initially require the allocation of a portion of the recreational annual catch limit (ACL) to LHV. Only reef fish species that already have recreational ACLs are considered for inclusion in this amendment. Within the reef fish complex managed by the Council, the six species with separate recreational and commercial ACLs are: red snapper, gag, red grouper, greater amberjack, gray triggerfish, and black grouper.

The Headboat AP recommended the inclusion of these six major reef fish species. However, black grouper recreational landings are typically very low and a very limited number of black grouper are landed by LHV. Based on the negligible black grouper recreational landings, reef fish species considered for inclusion in this amendment exclude black grouper and are limited to the five major reef fish species with recreational ACLs.

Recreational fishing for most of these species has been limited in recent years, which has prompted the Council to search for new management regimes to increase fishing opportunities. Tables 2.2.1 to 2.2.5 show landings by LHV of each of the species and the proportion of those landings versus landings for the recreational sector as a whole. For LHV, red snapper has the highest landings by far in both numbers and pounds.

**Table 2.2.1.** Landings (in pounds) of red snapper by LHV from 2011 through 2015 by homeport region, plus percentage of the total recreational landings. Note: Some regions have been combined because of confidentiality requirements. 2015 landings are preliminary.

| Year | SWFL | NWFL | AL | MS/LA | TX | Total | Percent |
|---|---|---|---|---|---|---|---|
| **2011** | 14,362 | 218,833 | 80,867 | 29,578 | 286,928 | 630,568 | 15% |
| **2012** | 17,955 | 187,878 | 71,483 | 27,093 | 419,675 | 724,084 | 14% |
| **2013** | 12,493 | 132,300 | 56,378 | 22,618 | 221,491 | 445,280 | 5% |
| **2014** | 10,289 | 107,534 | 67,338 | 12,436 | 184,696 | 382,293 | 10% |
| **2015** | 19,003 | 102,632 | 94,718 | 18,188 | 333,733 | 568,273 | 10% |

Source: SRHS database, MRIP, LA Creel, TX HBS.

**Table 2.2.2.** Landings (in pounds) of gray triggerfish by LHV from 2011 through 2015 by homeport region, plus percentage of the total recreational landings. Note: Some regions have been combined because of confidentiality requirements. 2015 landings are preliminary.

| Year | SWFL | NWFL | AL/MS/LA | TX | Total | Percent |
|---|---|---|---|---|---|---|
| **2011** | 1,401 | 34,832 | 11,915 | 2,303 | 50,449 | 11% |
| **2012** | 997 | 13,570 | 3,018 | 1,121 | 18,706 | 7% |
| **2013** | 796 | 21,443 | 3,421 | 1,453 | 27,112 | 6% |
| **2014** | 229 | 7,002 | 932 | 530 | 8,693 | 4% |
| **2015** | 221 | 2,344 | 731 | 161 | 3,457 | 6% |

Source: SRHS database, MRFSS, LA Creel, TX HBS.

**Table 2.2.3.** Landings (in pounds) of greater amberjack by LHV from 2011 through 2015 by homeport region, plus percentage of the total recreational landings. Note: Some regions have been combined because of confidentiality requirements. 2015 landings are preliminary.

| Year | FL | Other Gulf | Total | Percent |
|---|---|---|---|---|
| **2011** | 31,915 | 30,921 | 62,836 | 6% |
| **2012** | 61,989 | 37,692 | 99,681 | 7% |
| **2013** | 34,961 | 38,286 | 73,247 | 5% |
| **2014** | 21,936 | 24,500 | 46,435 | 5% |
| **2015** | 23,251 | 35,249 | 58,500 | 6% |

Source: SRHS database, MRFSS, LA Creel, TX HBS; all MRFSS landings for greater amberjack from Monroe County are assigned to the South Atlantic.

**Table 2.2.4.** Landings (in pounds) of gag by LHV from 2011 through 2015 by homeport region, plus percentage of the total recreational landings. Note: Some regions have been combined because of confidentiality requirements. 2015 landings are preliminary.

| Year | SWFL | NWFL | AL/MS/LA | TX | Total | Percent |
|---|---|---|---|---|---|---|
| **2011** | 47,688 | 1,948 | 256 | 344 | 50,236 | 7% |
| **2012** | 34,707 | 9,808 | 408 | 595 | 45,519 | 4% |
| **2013** | 32,083 | 2,560 | 22 | 431 | 35,096 | 2% |
| **2014** | 40,023 | 1,598 | 93 | 183 | 41,898 | 5% |
| **2015** | 22,761 | 2,920 | 194 | 184 | 26,059 | 3% |

Source: SRHS database, MRFSS, LA Creel, TX HBS; all MRFSS landings for gag from Monroe County are assigned to the South Atlantic.

**Table 2.2.5.** Landings (in pounds) of red grouper by LHV from 2011 through 2015 by homeport region, plus percentage of the total recreational landings. Note: Some regions have been combined because of confidentiality requirements. 2015 landings are preliminary.

| Year | SWFL | NWFL | Other Gulf | Total | Percent |
|---|---|---|---|---|---|
| **2011** | 28,836 | 9,163 | 459 | 38,459 | 6% |
| **2012** | 74,211 | 12,731 | 382 | 87,324 | 5% |
| **2013** | 71,960 | 8,950 | 344 | 81,255 | 3% |
| **2014** | 41,145 | 5,953 | 175 | 47,272 | 3% |
| **2015** | 48,390 | 4,318 | 332 | 53,040 | 3% |

Source: SRHS database, MRFSS, LA Creel, TX HBS.

Some of the proposed species are overfished and/or undergoing overfishing (Table 2.2.6). Changes to management for these species could extend seasons and increase fishing opportunities while protecting the stock. **Alternative 1** would not specify reef fish species to include in the management program for LHV. Therefore, **Alternative 1** would not allow further development of management measures for LHV.

**Table 2.2.6.** Overfished and overfishing status of Gulf stocks considered for Amendment 42.

| Species | Status of the Gulf Stock | |
|---|---|---|
| | Overfished | Overfishing |
| Red Snapper | Y | N |
| Greater Amberjack | Y | Y |
| Gray Triggerfish | Y | N |
| Gag | N | N |
| Red Grouper | N | N |

**Preferred Alternative 2** provides species-specific options that would determine the scope of the program. The selection of a single option would result in a single-species program whereas the selection of more than one preferred option would result in a multi-species management program. The combined selection of **Preferred Options a** (red snapper) and **d** (gag) would mirror the species included in the HBC pilot program exempted fishing permit that expired at the end of 2015. These species are generally the most desirable among headboat passengers. Red snapper is overfished but not undergoing overfishing. The recreational sector experienced quota overages for many years until recently, and shorter seasons recently, as well. Although the recreational quota has increased in recent years, the season length has decreased, in part because the average size of the fish harvested has increased (i.e., it takes fewer fish to fill the quota). Gag recreational landings have been below the ACL since 2012. Although a stock assessment for gag, completed in 2014 (SEDAR 33 2014), indicated the gag stock was no longer overfished or undergoing overfishing, anecdotal information from fishermen indicate that the stock may not be in as good shape as suggested by the assessment. Low landings may be indicative of a reduced stock. New management for gag could help prevent overfishing from recurring.

**Preferred Alternative 2**, **Preferred Options a**-**e** would include red snapper and gag, plus three other species landed in relatively high numbers by headboats. Greater amberjack (**Preferred Option b**) and gray triggerfish (**Preferred Option c**) are both overfished and under rebuilding plans. Greater amberjack landings exceeded the ACL in 2013, and the season closed early in 2014, 2015, and 2016. The gray triggerfish season has closed before the end of the year since 2012, including 2016. Red grouper (**Preferred Option e**) is considered neither overfished nor undergoing overfishing. However, the red grouper ACL was exceeded in 2013 and the season closed in 2014; the Council reduced the bag limit for 2015 to try to extend the season, but it still closed early. In 2016, the quota was increased and the season is expected to remain open for the entire year with a two-fish bag limit.

The establishment of a separate management program for LHV harvesting red snapper (**Preferred Option a**) would not exempt the program from section 407(d) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) which requires that

red snapper recreational fishing be halted once the total recreational quota is caught. Some participants in the selected program may have to forgo remaining annual allocation of red snapper and lose fishing opportunities after the red snapper recreational ACL is caught. During the HBC pilot program, the total recreational quota was not reached for red snapper and HBC vessels were able to fish throughout the year. This provision does not apply to other species that might be included in the program.

## 2.3 Action 3. Participation at the Onset of the LHV Program

**Alternative 1.** No Action. Any vessel that meets the control date, has a valid or renewable federal reef fish for-hire permit, and is still participating in the SRHS, must participate in the program selected in Action 1.

**Alternative 2.** Any vessel that meets the control date, has a federal reef fish for-hire permit, *and is still participating in the SRHS*, may choose to opt out of the LHV program at the onset of the program. Vessels choosing not to participate must notify NMFS by October 1 of the year before implementation of the program. Vessels not in the program will be managed under the federal recreational regulations for species selected in Action 2.

**Alternative 3.** Any vessel that meets the control date and has a federal reef fish for-hire permit, *regardless of SRHS participation*, may choose to opt out of the program selected in Action 1 at the onset of the program. Vessels choosing not to participate must notify NMFS by October 1 of the year before implementation of the program. Vessels not in the program will be managed under the federal recreational regulations for species selected in Action 2.

**Discussion**

This action allows the Council to choose if the IFQ or PFQ program would be mandatory or voluntary. All the commercial IFQ programs currently in place in the southeast region are mandatory; anyone holding a commercial vessel permit for the species covered must participate in the program to fish for those species. **Alternative 1** would make the LHV program mandatory as well. Any vessel eligible to participate in the LHV program as of December 31, 2015, would have to maintain an IFQ/PFQ account with allocation to possess and land any of the species chosen for the program (Action 2).

**Alternatives 2** and **3** would allow vessels to opt out of the program chosen in Action 1, at the onset of the program. **Alternatives 2** and **3** would allow vessels that meet the control date still participating in the SRHS and any vessel that meets the control date to opt out, respectively. Each vessel owner would have until October 1 of the year before implementation to inform NMFS of his/her desire to not participate in the program. This would allow time for NMFS to calculate the LHV quota and IFQ/PFQ shares. Any LHV owner that does not contact NMFS by October 1 would be included in the program and would need allocation to fish for and land any of the species included in Action 2. The landings associated with any vessel opting out of the program may be subtracted from the LHV allocation set in Action 5. These landings would be calculated according to the formula chosen for initial distribution in Action 7.

The option not to participate would only be allowed at the onset of the program because that is when shares are distributed. Vessels not in the program may be able to join later, depending on transferability options chosen for endorsements/permits, shares, and allocation (Actions 4, 8, and 10) and options for new entrants in Action 15. Vessels opting out of the program would follow the applicable recreational regulations for charter vessels and private anglers. In the case of red snapper, if management of charter vessels is maintained separately from private anglers[6], vessels opting out of the LHV program would be managed with the charter vessels, including any management developed in Amendment 41.

Vessels could not be allowed to opt in and out every year with either an IFQ or PFQ program. Once shares are determined at implementation of the program, those shares by definition should not change, except as a result of transfers, if allowed. Each share represents a percentage of the quota, and all shares must add up to 100%. If vessels opt in and out every year, the shares would need to be recalculated each year, and would become meaningless. An allocation-based program could be developed without shares, but that type of program is not an alternative in Action 1 of this amendment.

## 2.4 Action 4. Landings History Vessel Endorsement or Permit

**Alternative 1.** No Action. Landings History Vessel (LHV) program participants are required to have a Gulf reef fish for-hire permit.

**Preferred Alternative 2.** Establish an endorsement for LHV. LHV program participants are required to have an LHV endorsement to their Gulf reef fish for-hire permit. Endorsements will be issued to qualifying LHV program participants at the time of implementation of this action. With a PFQ, the shares would be attached to the endorsement. An LHV endorsement holder may only fish off the LHV quota for the species selected in Action 2 throughout the year. LHV endorsements are transferrable to any vessel with a Gulf reef fish for-hire permit.

**Alternative 3.** Establish a Gulf reef fish LHV permit. LHV program participants are required to have a Gulf reef fish LHV permit. Gulf reef fish for-hire permits held by qualifying LHV program participants at the time of implementation of this action will be converted to Gulf reef fish LHV permits. A Gulf reef fish LHV permit holder may only fish off the LHV quota for the species selected in Action 2 throughout the year. Gulf reef fish LHV permits are fully transferrable.

**Discussion**

Currently, one federal permit covers charter vessels and headboats in the reef fish fishery. These permits do not distinguish between the two types of vessels. **Alternative 1** would continue the use of the single permit and rely on the definition in this amendment to distinguish LHV. This would be the simplest alternative to implement, but may create difficulties for enforcement in distinguishing which regulations a specific vessel should be following.

[6] The Council recently voted to maintain separate red snapper quotas for private angler and for-hire components through 2022.

An endorsement or permit could help distinguish which vessels are in the LHV program. This would help with administration and enforcement. However, if the Council chooses to establish an endorsement or permit, they should consider the interaction between the LHV program in this amendment and the charter vessel program being developed in Amendment 41, so that there are not two endorsements available for the same federal permit.

**Preferred Alternative 2** would establish an LHV endorsement to the Gulf reef fish for-hire permit for only those vessels that are in the LHV program developed through this amendment. This endorsement would help clarify who is eligible to participate in the LHV program. An endorsement would help with monitoring and enforcement of an IFQ or PFQ as only those vessels with the endorsement could fish off the LHV quota and not be subject to seasons and bag limits. A vessel owner would be able to transfer his endorsement but retain his permit. Endorsements may add an additional level of complexity to the permit process and the IFQ/PFQ system. Managing both permits and endorsements requires consideration of the interactions between them, including what the implications are if the permit expires or terminates but the endorsement does not. These issues could create an increasingly complex and unwieldy system, which would not only be onerous for NMFS to manage, but a likely source of confusion and frustration for constituents. The complexity increases if Amendment 41 establishes endorsements for charter vessels; the same federal permit would have two separate and distinct endorsements, which would further complicate permit transfer rules.

The transferability of the endorsement would provide a means for vessels that opted out of the program at the onset (Action 3) to change their mind and become participants. It would also allow new vessels to participate, as well as charter vessels, by purchasing an endorsement. However, currently permits are frequently transferred between vessels that participate in the SRHS and those that do not during the year. When that happens, the burden on NMFS and the permit holder would likely increase because both the endorsement and the permit it endorses will require separate administration and management. In addition, renewing an endorsement would cost an additional $10 to the permit holder each year.

**Alternative 3** would essentially split the Gulf for-hire reef fish permit into two mutually exclusive permits: one for LHV and one for other Gulf federally-permitted for-hire vessels. Like **Preferred Alternative 2**, this alternative would help clarify who is eligible to participate in the LHV program. Administratively, **Alternative 3** would require a more simple procedure because only the permit would be required, rather than a permit and an endorsement. However, the LHV program would only be for five species in the reef fish fishery. Therefore, the LHV permit would also need to cover other reef fish species not in the LHV program, so that each vessel would not need additional permits to harvest Gulf reef fish. The new LHV permits would be fully transferable, as are the current reef fish for-hire permits.

## 2.5 Action 5. Allocation of Annual Catch Limit to the Landings History Vessel Program

**Alternative 1**. No Action. Do not allocate a portion of the recreational ACL to the LHV Program.

**Alternative 2**. Allocate a portion of the recreational ACL for each species to the LHV Program based on average landings from 2011-2015, according to the Southeast Region Headboat Survey.

**Option a.** Use all years
**Option b.** Exclude 2014
**Option c.** Exclude 2014 and 2015

| | Option a | Option b | Option c |
|---|---|---|---|
| Red Snapper (% of for-hire*) | 37.9% | 30.5% | 31.7% |
| (% of total) | 8.7% | 8.3% | 7.9% |
| Greater Amberjack | 5.1% | 5.4% | 5.9% |
| Gray Triggerfish | 6.4% | 7.0% | 7.9% |
| Gag | 4.3% | 4.3% | 4.4% |
| Red Grouper | 3.6% | 3.9% | 4.4% |

*Allocation is percent of for-hire quota until 2022; afterwards, it is percent of total recreational quota. Note that total pounds would remain the same.

**Alternative 3**. Allocate a portion of the recreational ACL for each species to the LHV Program based on average landings from 2004-2015, according to the Southeast Region Headboat Survey.

**Option a.** Use all years
**Option b.** Exclude 2010
**Option c.** Exclude 2014
**Option d.** Exclude 2014 and 2015

| | Option a | Option b | Option c | Option d | Opt b&c | Opt b&d |
|---|---|---|---|---|---|---|
| Red Snapper (% of for-hire*) | 31.9% | 30.3% | 28.7% | 28.8% | 26.6% | 26.5% |
| (% of total) | 10.7% | 10.2% | 10.8% | 10.9% | 10.2% | 10.3% |
| Greater Amberjack | 4.8% | 4.9% | 4.9% | 5.0% | 5.1% | 5.2% |
| Gray Triggerfish | 9.4% | 9.5% | 9.9% | 10.5% | 10.1% | 10.7% |
| Gag | 3.7% | 3.6% | 3.6% | 3.5% | 3.5% | 3.4% |
| Red Grouper | 3.3% | 3.3% | 3.4% | 3.5% | 3.4% | 3.5% |

*Until 2022

**Alternative 4**. Allocate a portion of the recreational ACL for each species to the LHV Program based on 50% average landings from 2011-2015 and 50% average landings from 2004-2015, according to the Southeast Region Headboat Survey.

**Option a.** Use all years
**Option b.** Exclude 2010
**Option c.** Exclude 2014

**Option d.** Exclude 2014 and 2015

| | Option a | Option b | Option c | Option d | Opt b&c | Opt b&d |
|---|---|---|---|---|---|---|
| Red Snapper (% of for-hire*) | 30.3% | 29.5% | 28.8% | 27.7% | 27.7% | 26.5% |
| (% of total) | 10.7% | 10.5% | 10.8% | 10.5% | 10.5% | 10.2% |
| Greater Amberjack | 5.0% | 5.0% | 5.2% | 5.5% | 5.2% | 5.5% |
| Gray Triggerfish | 7.9% | 7.9% | 8.5% | 9.2% | 8.5% | 9.3% |
| Gag | 4.0% | 4.0% | 4.0% | 3.9% | 3.9% | 3.9% |
| Red Grouper | 3.5% | 3.5% | 3.7% | 3.9% | 3.7% | 4.0% |

*Until 2022

**Alternative 5**: For each species, allocate a portion of the recreational ACL to the LHV Program based on 50% average from 1986-2013 (2010 excluded) and 50% average landings from 2006-2013 (2010 excluded). (Preferred Alternative from Amendment 40).

| | |
|---|---|
| Red Snapper (% of for-hire*) | 31.3% |
| (% of total) | 16.5% |
| Greater Amberjack | 7.5% |
| Gray Triggerfish | 11.8% |
| Gag | 4.6% |
| Red Grouper | 3.6% |

*Until 2022

**Alternative 6.** The landings associated with any vessels opting out of the program (Action 3) will be subtracted from the LHV allocation. These landings will be calculated according to the formula chosen for initial distribution in Action 7.

**Discussion**

For each reef fish species included in this management plan, a portion of the corresponding recreational ACL must be allocated to the LHV component prior to the development of management measures tailored to the specific needs of LHV. Therefore, **Alternative 1** would not allow development of an IFQ or PFQ program for LHV.

**Alternatives 2-5** consider different time periods of landings to calculate the percent of the recreational ACL for each species that would be allocated to the LHV program and the time periods correspond with those under consideration in Action 3 of Amendment 41. Each species would have its own LHV quota that would be allotted to participants according to the formula determined in Action 7. Table 2.5.1 provides percentages of the recreational landings harvested by LHV since 2004 for greater amberjack, gray triggerfish, gag, and red grouper.

**Table 2.5.1.** Landings by LHV as a percentage of total landings.

| Year | Greater Amberjack | Gray Triggerfish | Gag Grouper | Red Grouper |
|---|---|---|---|---|
| 1986 | 12% | 8% | 9% | 4.7% |
| 1987 | 7% | 5% | 7% | 6.5% |
| 1988 | 7% | 6% | 3% | 3.7% |
| 1989 | 3% | 11% | 8% | 4.6% |
| 1990 | 8% | 7% | 10% | 7.2% |
| 1991 | 3% | 7% | 4% | 3.0% |
| 1992 | 10% | 12% | 5% | 1.6% |
| 1993 | 9% | 13% | 8% | 3.1% |
| 1994 | 11% | 16% | 7% | 2.4% |
| 1995 | 16% | 14% | 4% | 4.1% |
| 1996 | 9% | 21% | 4% | 7.9% |
| 1997 | 10% | 16% | 3% | 3.7% |
| 1998 | 13% | 17% | 6% | 2.7% |
| 1999 | 8% | 15% | 4% | 3.5% |
| 2000 | 10% | 13% | 4% | 1.9% |
| 2001 | 6% | 15% | 3% | 1.9% |
| 2002 | 7% | 13% | 2% | 1.2% |
| 2003 | 7% | 13% | 3% | 2.5% |
| 2004 | 4% | 11% | 3% | 1.7% |
| 2005 | 4% | 14% | 3% | 5.1% |
| 2006 | 4% | 13% | 2% | 1.9% |
| 2007 | 5% | 15% | 3% | 2.3% |
| 2008 | 4% | 12% | 2% | 4.2% |
| 2009 | 7% | 9% | 4% | 3.0% |
| 2010 | 4% | 9% | 4% | 3.2% |
| 2011 | 6% | 11% | 6% | 5.7% |
| 2012 | 7% | 7% | 4% | 4.6% |
| 2013 | 4% | 6% | 2% | 2.9% |
| 2014* | 4% | 4% | 4% | 2.5% |
| 2015* | 4% | 4% | 4% | 2.5% |

Source: SRHS, MRIP, MRFSS, LA Creel, TX Headboat Survey
*2014 and 2015 include LA Creel data.

Red snapper is unique among reef fish in that it is the only species with a recreational ACL that has been further divided into private angling and for-hire component ACLs. Because LHV are part of the for-hire component, the allocation to the LHV program would come from the for-hire ACL, and the percentage of the for-hire landings attributed to LHV would be used to determine the allocation of the for-hire ACL between charter and headboats (Table 2.5.2). However, the separate red snapper component quotas are scheduled to sunset after 2022[7]; i.e., the ACL would no longer be divided into private angling and for-hire ACLs. Unless the sunset provision is removed, the LHV ACL would be subtracted from the total recreational ACL after the sunset, as for the other species. Table 2.5.2 provides percentages of the for-hire and total recreational landings for red snapper harvested by LHV. While separate components are in place, the LHV

[7] Current regulations sunset the separate quotas in 2017; however, the Council has voted to extend the sunset date by five years. The Secretary of Commerce is reviewing this proposal.

ACL would be allocated from the for-hire ACL; if the separate component ACLs end after 2022, the LHV ACL would be allocated from the total recreational ACL.

**Table 2.5.2.** Percentage of the red snapper for-hire and total recreational landings harvested by LHV.

| Year | % of For-Hire Landings | % of Recreational Landings |
|---|---|---|
| 1986 | 16.5% | 11.8% |
| 1987 | 30.0% | 19.8% |
| 1988 | 37.3% | 19.6% |
| 1989 | 56.5% | 33.6% |
| 1990 | 38.7% | 23.4% |
| 1991 | 23.8% | 16.7% |
| 1992 | 43.6% | 20.9% |
| 1993 | 33.9% | 19.7% |
| 1994 | 42.7% | 25.3% |
| 1995 | 42.8% | 25.1% |
| 1996 | 40.1% | 26.6% |
| 1997 | 33.3% | 19.5% |
| 1998 | 33.8% | 23.3% |
| 1999 | 31.2% | 14.3% |
| 2000 | 29.4% | 16.2% |
| 2001 | 23.9% | 10.9% |
| 2002 | 23.7% | 12.6% |
| 2003 | 25.5% | 13.0% |
| 2004 | 21.3% | 10.7% |
| 2005 | 21.1% | 11.3% |
| 2006 | 23.6% | 13.9% |
| 2007 | 18.3% | 8.4% |
| 2008 | 23.2% | 10.1% |
| 2009 | 36.1% | 14.4% |
| 2010 | 49.8% | 16.2% |
| 2011 | 34.2% | 9.4% |
| 2012 | 32.3% | 9.6% |
| 2013 | 28.6% | 4.6% |
| 2014* | 67.4% | 10.0% |
| 2015* | 26.9% | 9.7% |

Source: SRHS, MRIP, MRFSS, LA Creel, TX Headboat Survey.
2014 and 2015 include LA Creel data, which has not been calibrated to MRIP data.

**Alternative 2** would use only the most recent five years of landings. Because some vessels move in and out of the survey, the recent years would capture landings by most of the vessels currently in the program. Of the 68 vessels selected to participate in the SRHS for 2016, 60 had landings every year during 2011-2015; all but one had at least one year of landings during that time period.

**Alternative 3** would use a 12-year time period, which includes all years with landings by vessel from SRHS. Although allocation to the LHV program is based on landings for the fishery

component as a whole, if the number of vessels per year varied, the average could be skewed. Table 2.5.3 shows the number of vessels with landings in the SRHS each year. With the exception of 2006, the total number of vessels was relatively stable, although these might not be the same vessels each year.

**Alternative 4** would calculate the percent of the recreational ACL to allocate to the LHV using 50% of landings from the recent time period (**Alternative 2**) and 50% of landings from the longer time period (**Alternative 3**). This would give a greater weight to the recent time period (because it is included in both time periods), but still include the longer time period.

The options under **Alternatives 2-4** allow the Council to choose certain years to exclude from the calculation of allocation for LHV. **Option a** would use all years in the time period. This may be the appropriate choice if the conditions in any year did not differentially affect headboats versus other recreational fishing. **Option b** of **Alternatives 3-4** would exclude 2010, when the Deepwater Horizon MC 252 oil spill affected fishing in the Gulf. **Alternatives 2-4** include options to exclude 2014 as well as 2014-2015. Some headboats operated under an exempted fishing permit in 2014-2015, which affected the relative landings of headboats with other components of the recreational fishing sector, and therefore would affect this division of quota between the two components. See the "Data Issues" section below for more details.

**Table 2.5.3.** Number of vessels in the SRHS with landings, 2004-2015.

| Year | Number of Vessels |
|---|---|
| 2004 | 64 |
| 2005 | 66 |
| 2006 | 59 |
| 2007 | 68 |
| 2008 | 67 |
| 2009 | 66 |
| 2010 | 69 |
| 2011 | 69 |
| 2012 | 68 |
| 2013 | 68 |
| 2014 | 67 |
| 2015 | 67 |

Source: SRHS

To apportion the for-hire quotas**, Alternative 5** would use the same time period chosen by the Council in Amendment 40, which established the separation of the for-hire and private angler components of the red snapper recreational quota. As discussed in previous sections, reef fish landings from LHV have been documented by the SRHS since 1986; however, landings before 2004 were not recorded by vessel. Without the number of vessels participating in the SRHS during earlier years, we cannot know how much the level of fishing changed. **Alternative 5** also only uses landings through 2013 and, therefore, ignores landings from the most recent two years. However, the Council could change the time periods in the alternative to extend to 2015.

**Alternative 6** addresses the possibility of some eligible vessels opting out of the LHV program, as outlined in Action 3. This alternative would calculate the share that each vessel would have received under the program, subtract the percent of that share from the LHV allocation, and include that percent in the remaining recreational ACL. This alternative complicates any analysis of the impacts of this action because the number of vessels opting out of the program cannot be predicted. Thus, the true LHV ACL could not be known before implementation of the IFQ or PFQ program. Also, the likelihood of unintended and potentially adverse effects becomes greater as more variability is introduced. Regardless of the alternative chosen, the ACLs for each species will be subject to the ACL/annual catch target (ACT) buffers currently in place. Therefore, the actual quota for each species distributed among PFQ/IFQ participants will be the LHV ACT, reduced from the LHV ACL by the buffer shown in Table 2.5.4. In the future, the Council may decide to revisit the LHV ACTs based on the performance of the LHV program.

**Table 2.5.4.** Buffers between the recreational ACL and ACT for each species.

| Species | ACL/ACT buffer |
|---|---|
| Red Snapper | 20% |
| Greater Amberjack | 13% |
| Gray Triggerfish | 10% |
| Gag | 10% |
| Red Grouper | 9% |

Data Issues

Recreational landings in the Gulf are obtained through multiple sources. SRHS started in 1986 and covers headboats in the Gulf and South Atlantic. The Marine Recreational Information Program (MRIP), implemented in 2012, provides private angler and charter vessel landings and effort data for Gulf states other than Texas. Texas Parks and Wildlife Department (TPWD) began its own sampling program in 1986 and provides recreational landings, except for headboat landings, from Texas. MRIP replaced the Marine Recreational Fishery Statistics Survey (MRFSS), which collected data beginning in 1979. MRFSS landings data from 2004-2011 were calibrated to MRIP landings. In 2013, MRIP implemented new angler catch survey procedures, which improved the sampling program. However, changes in methods require calibration of data collected with the old methods versus the new methods, and these calibrations have only been completed for red snapper; therefore, the landings provided in this amendment have not been calibrated for the 2013 change in MRIP methods. Also in 2013, Louisiana began a sampling program in tandem with MRIP, called LA Creel, to sample fish landed in that state. In 2014, MRIP was discontinued in Louisiana and only LA Creel surveyed recreational landings. In 2015, MRIP re-entered Louisiana, but did not collect all data for charter vessels. LA Creel has not yet been fully certified by MRIP.

The HBC pilot program, conducted under an exempted fishing permit, was in effect in 2014 and 2015. This pilot program worked much like the proposed IFQ/PFQ program in this amendment. The collaborative was granted a proportion of the recreational red snapper and gag quotas based on 2011 landings of those species by participating vessels. Landings data from HBC vessels were still collected through the SRHS. Because their quota was based on previous gag and red snapper landings, the landings in 2014 and 2015 should not have differed markedly from years before the pilot program. However, in 2014 the regular red snapper recreational fishing season

was reduced to only nine days, substantially reducing red snapper landings for charter vessels and non-HBC headboats (Table 2.5.5); HBC headboats were not constrained by this short season.

**Table 2.5.5.** Recreational red snapper landings (in pounds) harvested by the for-hire component of the recreational sector.

| Year | For-Hire Season Length (Days) | Charter Vessel | LHV | Total For-Hire | LHV % |
|---|---|---|---|---|---|
| **2011** | 48 | 1,212,177 | 630,562 | 1,842,739 | 34% |
| **2012** | 46 | 1,515,243 | 724,078 | 2,239,320 | 32% |
| **2013** | 42 | 1,111,709 | 445,276 | 1,556,985 | 29% |
| **2014** | 9 | 184,589 | 382,289 | 566,878 | 67% |
| **2015** | 44 | 1,573,451 | 580,226 | 2,153,677 | 27% |
| **2016** | 49 | 1,616,241 | 526,575 | 2,142,815 | 25% |

Source: mrcat_rsnap81_13_01Dec14_APAISadjustedRedSnapper.

## 2.6 Action 6. Units of Measure for Quota Distribution and Reporting

**Alternative 1**. No Action. The LHV quotas are distributed and reported in pounds.

**Alternative 2**. The LHV quotas are distributed and reported in numbers of fish.

**Alternative 3**. The LHV quotas are distributed in pounds and reported in numbers of fish.

**Discussion**

Quotas for all managed species are set in pounds. Recreational data collection programs such as MRIP and the SRHS estimate recreational harvests in number of fish caught and in pounds. For the management measures considered in this amendment, the distribution of the quota allotted to the LHV component and between vessels in the LHV component could be based on pounds or number of fish.

Quota distributions to individual vessels expressed in pounds (**Alternative 1**) may be challenging for headboats, as well as for managers, due to the multitude of anglers on the vessels. Reporting landings in pounds would be more burdensome to vessel operators because they would need to weigh each fish. **Alternative 1** would also be more burdensome to enforcement for the same reason. However, because ACLs and quotas are set in pounds, no conversion would be needed to compare landings to the quotas.

**Alternative 2** would require the conversion of the LHV portion of the quota from pounds to number of fish before distribution to participants. This would require an estimation of an average weight per fish, which can vary throughout the year and throughout the Gulf. The commercial programs in the Gulf distribute annual allocations in pounds of fish. However,

recreational anglers and for-hire operators are less concerned with weight of fish and more concerned with numbers because bag limits have historically been expressed in numbers of fish. In the HBC pilot program, port samplers and law enforcement agents found that numbers of fish were quick and easy to validate against the pre-landing notifications.

**Alternative 3** mimics the distribution and reporting methods for the HBC pilot program. The HBC pilot program distributed allocation in pounds of fish, but participants reported in numbers of fish (for full details, see NMFS 2015). Each HBC vessel's individual amount of allocation in pounds was calculated by taking the vessel's percentage of the HBC aggregate landings and applying this to the HBC quotas. The pounds for each species were then converted to numbers of fish within the vessel accounts by using the average pre-season regional weight as determined through SRHS for the area in which they were fishing. Because the average weight varied by region and time, the amount of fish resulting from a set poundage varied as well. For example, 10,000 lbs in region A that had an average fish weight of 5 lbs would result in 2,000 fish, while 10,000 lbs in region B that had an average fish weight of 8 lbs would result in 1,250 fish.

In the HBC pilot program, landings reported in numbers were converted back to pounds to compare against the quota using both pre-season average weights (used to originally convert pounds to fish) and in-season average weights (based on the most recent weights collected during the year). In-season weights were based on species-specific regional and monthly average values. During the first year of the program, the in-season and pre-season weights were similar for both species (<5% difference). In the second year of the program, the in-season weights were greater for both red snapper and gag (up to 23% difference). The difference in weights between years (Table 2.4.1), particularly with gag, suggests that in-season weights should be monitored closely if allocation and landings are in numbers of fish.

**Table 2.6.1**. Minimum and maximum monthly average in-season fish weights (in pounds) for the HBC pilot program.

| | Minimum fish weight | Maximum fish weight |
|---|---|---|
| Red Snapper 2014 | 2.16 | 9.91 |
| Red snapper 2015 | 2.67 | 9.46 |
| Gag 2014 | 6.14 | 14.57 |
| Gag 2015 | 6.47 | 23.69 |

Source: NMFS SERO Neptune database

Due to temporal and spatial fluctuations in average weights, weights might have to be monitored during the year. For example, in the HBC pilot program, NMFS compared the pre-season average weight to the actual average weight during the season and made adjustments if warranted. Port side sampling is crucial for these calculations and may need to be increased to accurately track average weights per region. Fish tags could also be used to validate landings in numbers.

## 2.7 Action 7. Initial Apportionment of Shares

### Action 7-1. Time Period of Landings to Determine Initial Apportionment of Shares

**Alternative 1**. No Action. Do not apportion shares to participants based on any landings period.

**Alternative 2.** Apportion initial shares among eligible participants based on average landings by vessel for each species during the most recent five years (2011-2015).

**Alternative 3.** Apportion initial shares among eligible participants based on average landings by vessel for each species during the most recent five years (2011-2015) omitting the year with the lowest landings.

**Preferred Alternative 4.** Apportion initial shares among eligible participants based on the year with the highest landings by vessel for each species during the most recent five years (2011-2015).

**Discussion**

For an IFQ or PFQ program, shares are distributed to participants for each species at the start of the program. Shares are a percentage of the quota for each species and do not change for each participant, unless share transfers are allowed under an IFQ program.
The Council began development of this amendment for LHV because those vessels have landings histories through the SRHS. However, **Alternative 1** would not use landings to determine the initial apportionment of shares. This alternative would only be appropriate if shares were distributed 100% equally among all vessels or 100% by auction. However, the Council requested an amendment specific to vessels with landings histories, so those types of distribution should not occur in Amendment 42.

**Alternatives 2-4** would establish the time interval used to determine landings for each eligible participant. As an example, Tables 2.7.1 to 2.7.5 provide preliminary estimates of the number of vessels in each share category for each species using data from 2015 only.

**Table 2.7.1.** Preliminary frequency distribution of red snapper shares (percent of the total LHV landings) by vessel based on 2015 landings.

| Share Category – Red Snapper | Number of Vessels | Cumulative Frequency |
|---|---|---|
| 0 | 13 | 13 |
| 0.01-0.10 | 8 | 21 |
| 0.11-0.99 | 15 | 36 |
| 1.00-1.99 | 16 | 52 |
| 2.00-3.99 | 9 | 61 |
| 4.00-9.20 | 7 | 68 |

Source: SRHS database, MRIP, LA Creel, TX HBS.

**Table 2.7.2.** Preliminary frequency distribution of greater amberjack shares (percent of the total LHV landings) by vessel based on 2015 landings.

| Share Category – Greater Amberjack | Number of Vessels | Cumulative Frequency |
|---|---|---|
| 0 | 25 | 25 |
| 0.01-0.10 | 4 | 29 |
| 0.11-0.99 | 23 | 52 |
| 1.00-1.99 | 6 | 58 |
| 2.00-9.99 | 6 | 64 |
| 10.00-18.50 | 4 | 68 |

Source: SRHS database, MRIP, LA Creel, TX HBS.

**Table 2.7.3.** Preliminary frequency distribution of gray triggerfish shares (percent of the total LHV landings) by vessel based on 2015 landings.

| Share Category – Gray Triggerfish | Number of Vessels | Cumulative Frequency |
|---|---|---|
| 0 | 38 | 38 |
| 0.01-0.10 | 3 | 41 |
| 0.11-0.99 | 11 | 52 |
| 1.00-1.99 | 5 | 57 |
| 2.00-9.99 | 7 | 64 |
| 10.00-16.55 | 4 | 68 |

Source: SRHS database, MRIP, LA Creel, TX HBS.

**Table 2.7.4.** Preliminary frequency distribution of gag shares (percent of the total LHV landings) by vessel based on 2015 landings.

| Share Category – Gag | Number of Vessels | Cumulative Frequency |
|---|---|---|
| 0 | 22 | 22 |
| 0.01-0.10 | 14 | 36 |
| 0.11-0.99 | 16 | 52 |
| 1.00-1.99 | 8 | 60 |
| 2.00-9.99 | 3 | 63 |
| 10.00-15.50 | 5 | 68 |

Source: SRHS database, MRIP, LA Creel, TX HBS.

**Table 2.7.5.** Preliminary frequency distribution of red grouper shares (percent of the total LHV landings) by vessel based on 2015 landings.

| Share Category – Red Grouper | Number of Vessels | Cumulative Frequency |
|---|---|---|
| 0 | 29 | 29 |
| 0.01-0.10 | 4 | 33 |
| 0.11-0.99 | 19 | 52 |
| 1.00-1.99 | 3 | 55 |
| 2.00-7.99 | 9 | 64 |
| 8.00-20.65 | 4 | 68 |

Source: SRHS database, MRIP, LA Creel, TX HBS.

**Alternative 2** would use a five-year time period of landings. Of the 67 vessels selected to participate in the SRHS for 2016, 60 had landings every year during 2011-2015. For the seven vessels without landings every year, averages including zero landing years could result in low amounts of shares distributed. These vessels may have landed fish, but were not selected for the SRHS; therefore, their landings would not be recorded by vessel.

**Alternative 3** would account for the fact that a vessel may have a year without any landings by allowing the vessel to drop the lowest year of landings during the five-year period. However, five vessels had more than one year without landings.

**Preferred Alternative 4** would use only one year of landings, but it would be the highest year for each vessel during the five-year period. All vessels currently in the SRHS and that are eligible for the program based on the Council's control date of December 31, 2015, had at least one year of landings during 2011-2015. One vessel was selected for the SRHS in 2016 that will not be eligible; more vessels may be selected in the future that would not be eligible either. In addition, eight vessels previously selected for the SRHS had at least one year of landings during 2011-2015, but are no longer in the SRHS. Whether those vessels still have reef fish for-hire permits has not been determined at this time.

## Action 7-2. Distribution of Initial Shares

**Alternative 1**. No Action. Do not distribute shares to participants.

**Preferred Alternative 2.** Distribute a percentage of initial shares for each species proportionally based on average landings per permit during the time interval selected in Action 7-1 and distribute the remaining percentage of the initial shares equally among LHV permit holders participating in the program. Percentages distributed proportionally and equally are as follows:

| Option | Distribution of Initial Shares | |
|---|---|---|
| | Proportional | Equal |
| **Preferred 2a** | 100 | 0 |
| **2b** | 75 | 25 |
| **2c** | 50 | 50 |
| **2d** | 25 | 75 |

**Alternative 3**. Distribute all or some initial shares for each species through an auction system. All LHV permit holders participating in the program are allowed to place bids.

| Option | Distribution of Initial Shares | |
|---|---|---|
| | By Alternative 2 | By Auction |
| **3a** | 0 | 100 |
| **3b** | 25 | 75 |
| **3c** | 50 | 50 |
| **3d** | 75 | 25 |

**Discussion**

The quota for the LHV program will be determined in Action 5. For an IFQ or PFQ program to be developed, shares of the LHV quota would need to be distributed to participants at the beginning of the program. Therefore, **Alternative 1** would not allow development of these programs.

**Preferred Alternative 2** (**Options 2a to 2d**) would distribute a portion of the quota equally among participants and the remaining percentage proportionally, e.g., **Option 2b** would distribute 25% of the initial shares equally and 75% proportionally (based on landings histories). Landings used for calculating initial shares for each species would come from the SRHS database during the time period chosen in Action 7-1. **Preferred Option 2a** would distribute all shares proportionally; this is how initial shares were distributed for the commercial IFQ programs.

**Alternative 3** would distribute shares through an auction facilitated by NMFS. The Magnuson-Stevens Act states that a Council must consider an auction system or other program to collect royalties for the initial, or any subsequent, distribution of allocations in a LAPP. Although the Council has considered auctions, none of the LAPPs in the Southeast Region utilized this option. **Option 3a** would distribute the entire quota by auction, which could allow LHV owners to choose not to participate by not placing bids. **Options 3b-3d** would distribute a portion of the quota by auction and a portion of the quota by the means selected in **Alternative 2**. Shares distributed by auction would go to the highest bidder.

Appeals

In accordance with Section 303A(c)(I) of the Magnuson-Stevens Act, an appeals process will be established to provide a procedure for resolving disputes regarding initial distribution of shares. A small percentage of the quota will be set aside at the beginning of the program to cover potential successful appeals. Items subject to appeal are eligibility to participate, the accuracy of the landings, and the correct assignment of landings to the permit owner. Appeals based on hardship factors will not be considered.

Landings data for appeals would be based on logbooks submitted to and received by the Southeast Fisheries Science Center by a date to be determined, for the years chosen in the preferred alternative and option in Action 7-1. In addition, NMFS records of federal reef fish charter/headboat permits constitute the sole basis for determining ownership of such permits.

Appeals will be processed by the NMFS National Appeals Office and will be governed by the regulations and policy of the National Appeals Office at 15 CFR Part 906. Appeals must be submitted to the National Appeals Office no later than 90 days after the date the initial determination is issued. Appeals must contain documentation supporting the basis for the appeal. The Regional Administrator will review, evaluate, and render final decision on appeals. NMFS will notify potential participants of the appeals dates and process when initial distribution is determined.

## 2.8 Action 8. Transferability of Shares (IFQ only)

*Note: A PFQ program attaches shares to a permit. Therefore, if a permit is moved from one owner to another, the shares automatically move with the permit and are not considered "transferred."*

**Alternative 1.** No Action. Do not allow transfer of shares.

**Preferred Alternative 2.** Require a valid reef fish for-hire permit with LHV endorsement or a reef fish LHV permit (whichever is established in Action 4) to receive shares through transfer. Shares can only be transferred to US citizens or permanent resident aliens.

**Alternative 3.** Shares can be transferred to any US citizen or permanent resident alien.

**Discussion**

The Magnuson-Stevens Act prohibits any person from participating in a LAPP that is not a U.S. citizen, corporation, partnership, or other entity established under the laws of the U.S. or any state, or a permanent resident alien. **Alternative 1** would be the most restrictive of the alternatives. Shares would be distributed at the beginning of the program, and no transfers would be allowed. Therefore, no participant could adjust the amount of shares (s)he owns and no one could get into the program by obtaining shares. If a permit expires or is transferred, the shares would stay with the individual. This could allow shares to be held by individuals who no longer participate in the fishery. The lack of transferability would limit the efficiency of the program because the shares would not flow to their highest value use. In addition, **Alternative 1** would not allow program participants to adjust and react following temporal fluctuations or long term regional variations in species abundance across the Gulf. Furthermore, not allowing share transfers may work against the goals and objectives of the program. **Alternative 1** would be appropriate if the Council chooses a PFQ program to manage landings history vessels.

**Preferred Alternative 2** would require a reef fish charter/headboat permit and LHV endorsement or reef fish headboat permit (whichever is established in Action 4) to receive shares through transfer. Eligibility criteria to qualify for a LHV endorsement or permit and thereby eligibility to receive shares are discussed in Action 4. **Preferred Alternative 2** would ensure that all shares stay with participants eligible to harvest reef fish species included in this program.

**Alternative 3** would allow any US citizen or permanent resident alien to set up an account and acquire transferred shares. **Alternative 3** is comparable to the current transferability provisions in the red snapper and grouper-tilefish commercial IFQ programs. Although a federal commercial reef fish permit was needed to receive initial shares, the commercial IFQ programs do not currently have permit requirements for acquiring shares. During the first five years of each commercial program, shares could only be transferred to permit holders, but now (as of 2012 for red snapper and 2015 for grouper/tilefish) anyone meeting the citizenship requirement can open an IFQ account and receive transferred shares.

## 2.9 Action 9. Maintenance of Shares

**Alternative 1.** No Action. Shares can be held by any US citizen or permanent resident alien.

**Preferred Alternative 2.** Require a reef fish charter/headboat permit with LHV endorsement or a reef fish LHV (whichever is established in Action 4) to hold shares. Shares can only be held by US citizens or permanent resident aliens. For an IFQ program, if a participant transfers their permit/endorsement or the permit/endorsement expires, the owner must divest of their shares. For a PFQ program, if a permit/endorsement is transferred, the shares automatically transfer with it; if a permit/endorsement terminates, NMFS will redistribute the shares proportionally to the current participants.

**Alternative 3.** Require either a reef fish for-hire permit (with or without endorsement) or a reef fish LHV permit to hold shares. Shares can only be held by US citizens or permanent resident aliens. For an IFQ program, if a participant transfers their permit/endorsement or the permit/endorsement expires, the owner must divest of their shares. For a PFQ program, if a permit/endorsement is transferred, the shares automatically transfer with it; if a permit/endorsement terminates, NMFS will redistribute the shares proportionally to the current participants.

**Discussion**

**Alternative 1** would be the same as for the commercial IFQ programs. A person is an individual, corporation, partnership, or other entity established under the laws of the United States or any state, or a permanent resident alien. A person who was in the program initially and received shares could continue to hold those shares after transferring the permit. This would allow shares to be held by individuals who do not participate in the type of fishing the program was designed to manage. These individuals' involvement in the program would be limited to trading shares and annual allocation.

**Preferred Alternative 2** would require shares to remain with participants in the LHV program. With an IFQ program, individuals would be required to divest their shares once notified by NMFS if they no longer participate in the LHV program. With a PFQ program, if the permit is no longer associated with the LHV program, those shares would automatically revert to NMFS and be redistributed to current participants.

With **Alternative 3**, any Gulf reef fish for-hire permit would be eligible to hold shares and receive allocation each year. Gulf reef fish for-hire permit holders that are not associated with the LHV program (i.e., no endorsement or LHV permit) would not be allowed to harvest their annual allocation but could transfer annual allocation on a yearly basis.

Under an IFQ program, the shares belong to the account holder and are not tied to the permit after initial distribution. **Alternatives 2** and **3** would require a participant to divest of their IFQ shares if they no longer possess the appropriate permit/endorsement. Under **Alternative 3**, if the account holder transfers the permit, he would be required to transfer his shares to another account with a valid for-hire permit once notified by NMFS. If the permit expires but is renewable, the account holder would have one year to renew the permit or transfer his shares to

another account with a valid charter/headboat permit. If the account holder did not divest their shares as required by NMFS, NMFS would redistribute the shares to current shareholders.

Under a PFQ program, **Alternatives 2** and **3** would automatically be in effect because when a permit is transferred, the shares would stay with the permit. Also under a PFQ program, if a permit expires, the shares would no longer be available to the account holder. These shares would revert to NMFS and would be redistributed to remaining program participants.

## 2.10 Action 10. Transferability of Annual Allocation

**Alternative 1.** No Action. Do not allow transfer of LHV annual allocation.

**Alternative 2.** Require a valid reef fish charter/headboat permit with LHV endorsement or a valid reef fish headboat permit (whichever is established in Action 4) to receive annual allocation through transfer. Annual allocation can only be transferred to US citizens or permanent resident aliens.

**Alternative 3.** Annual allocation can be transferred to any US citizen or permanent resident alien.

**Alternative 4**. Annual allocation may be transferred by surrendering it to a NMFS allocation bank from which other program participants may obtain the allocation by:

**Option 4a**: lottery.
**Option 4b**: auction.

**Discussion**

**Alternative 1** would be the most restrictive of the alternatives. Allocation would be distributed at the beginning of the year to shareholders, and no transfer would be allowed. Therefore, no one could obtain additional allocation. Obtaining extra allocation during the year is often desirable if a participant uses all of their allocation before the end of the year. If IFQ/PFQ species were caught incidental to fishing for other species, allocation could not be obtained and those species would need to be discarded. **Alternative 1** would not promote the efficient use of annual allocation because it would prevent annual allocation from flowing to their highest valued uses. **Alternative 1** would not offer program participants the flexibility to adjust their catch composition to reflect changes in the relative abundance of the species in the program or to adjust to temporary increases (or decreases) in demand for a given species or group of species in a particular region.

**Alternative 2** would keep annual allocation within the LHV program. For **Alternative 2**, only those who are eligible to harvest species included in the LHV program would be allowed to receive annual allocation through transfer.

With **Alternative 3**, any US citizen or permanent resident alien could hold allocation even without a vessel in the LHV or without a permit. However, persons holding allocation without a permit could not fish the allocation. Those individuals would only be able to receive allocation

through transfer. The commercial IFQ programs do not currently have permit or participation requirements for holding allocation. During the first five years of each commercial program, allocation could only be transferred to permit holders, but now (as of 2012 for red snapper and 2015 for grouper/tilefish) anyone meeting the citizenship requirement can have an IFQ account and receive transferred allocation.

**Alternative 4** would allow program participants that do not intend to use all or a portion of their annual allocation to surrender it to NMFS. The surrendered allocation would be held in a NMFS allocation bank, and two options for redistribution are considered. Other program participants could obtain the allocation by lottery (**Option 4a**) or auction (**Option 4b**). Participation in the lottery (**Option 4a**) or auction (**Option 4b**) would be restricted to participants with a valid or renewable Charter/Headboat permit for Reef Fish. Following the typical timeframe for distribution of annual allocation, the redistribution could occur at the beginning of the calendar year. Aspects of the redistribution that would need to be addressed include maximum amounts that can be acquired by an entity and, in the case of multiple distributions, how often would redistribution occur. Revenues from either lottery (**Option 4a**) or auction (**Option 4b**) would not constitute cost recovery fees and thus would not offset additional administrative costs for this redistribution program.

In wildlife management, lotteries (**Option 4a**) have been used to distribute hunting tags when the demand for the resource exceeds sustainable harvest. Johnston et al. (2007) suggest that some hunting lotteries use "limited harvest with enhanced lottery rationing" to enhance the likelihood that repeat applicants who may have been unsuccessful in prior lotteries could participate in the future. For example, some states that use lottery systems for wildlife management set up a point system for lottery applicants. While this literature pertains to hunting tags, the concepts are relevant to ITQ and PFQ programs.

Auctions (**Option 4b**) typically represent market or price-based sales based on the highest bidder's willingness to pay. Johnston et al. (2007) state auctioning of hunting rights in wildlife management typically helps states generate revenue. If the Council moves forward with **Option 4b** for redistributing surrendered allocation, only a portion of all allocation available in the program (i.e., only the surrendered allocation) would be auctioned thereby avoiding the equity concerns from auctioning the entire quota.

## 2.11 Action 11. Share Caps

**Alternative 1.** No Action. Do not constrain the amount of shares that one person can hold.

**Preferred Alternative 2.** In each share category, no person shall hold more shares than the maximum percentage issued to the recipient of the largest shares at the time of the initial apportionment of shares.

**Alternative 3.** Across all share categories, no person shall hold more shares than the maximum percentage issued to the recipient of the largest aggregate share at the time of the initial apportionment of shares.

**Discussion**
A person is an individual, corporation, partnership, or other entity established under the laws of the United States or any state, or a permanent resident alien. Each person's total holdings are the sum of the shares assigned to each vessel that a person owns plus their portion of the shares for each vessel the person has an interest in (e.g., someone who owns part of a corporation). The Magnuson-Stevens Act requires NMFS to ensure that no limited access privilege holder acquires an excessive share of the total privileges in the program. Thus, **Alternative 1** would not meet the requirements of the Magnuson-Stevens Act.

For each species (share category), **Preferred Alternative 2** would cap the maximum share a participant can hold to the percentage issued to the recipient of the largest shares at the time of the initial apportionment. **Preferred Alternative 2** could result in a different maximum percentage for each share category in the program, depending on the amount of share initially distributed to the largest shareholder. For a given species, **Preferred Alternative 2** would allow all participants, except the one who received the greatest amount of shares, to increase their holdings by acquiring additional shares. The commercial IFQ programs follow **Preferred Alternative 2**, although the commercial red snapper IFQ program only has one species.

**Alternative 3** would set an aggregate share cap across all species (share categories). For example if a participant received 1% of 100,000-lb quota for species A and 2.5% of a 200,000-lb quota for species B, the aggregate shareholding would be 2.0% of a 300,000-lb total. By setting an aggregate cap, **Alternative 3** would likely prevent a single entity from holding the largest percentage in each share category. **Alternatives 2** and **3** could be implemented jointly, thereby setting species-specific caps as well as an aggregate cap.

## 2.12 Action 12. Allocation Caps

**Alternative 1.** No Action. Do not constrain the amount of allocation that one person can hold.

**Alternative 2.** At any point in time, a person's total holdings (from all accounts) cannot be more than the maximum holdings attributed to a person (as determined in Action 11) in **each species category**.

**Alternative 3.** At any point in time, a person's total holdings (from all accounts) cannot be more than the aggregate maximum holdings attributed to a person (as determined in Action 11) **across all species categories**.

**Discussion**
A person is an individual, corporation, partnership, or other entity established under the laws of the United States or any state, or a permanent resident alien. Each person's total holdings are the sum of the allocation assigned to each vessel that a person owns plus their portion of the allocation for each vessel the person has an interest in (e.g., a shareholder in a corporation). The Magnuson-Stevens Act requires NMFS to ensure that no limited access privilege holder holds, acquires, or uses an excessive share of the total privileges in the program. Therefore, **Alternative 1** would not meet the requirements of the Magnuson-Stevens Act.

**Alternative 2** sets a cap for each species on the amount of allocation a person can hold at any one point in time during the fishing year. If a person reaches the allocation cap, and uses or transfers a portion of their allocation, more allocation could subsequently be acquired during the calendar year. The commercial grouper/tilefish IFQ program follows **Alternative 2**. The commercial red snapper IFQ program does not have a cap on allocation because the version of the Magnuson-Stevens Act in effect at the time of the program's implementation did not require one. To avoid requiring a participant to decrease their annual allocation, the cap would be set at the level of the total holdings by the participant with the maximum allocation amount. **Alternative 2** could set a separate cap for each species in the program because the participant with the maximum annual allocation holdings would likely be different for each category.

**Alternative 3** sets a cap on the total amount of allocation a person can hold across all species categories at any point in time. Because it is unlikely that a given person receives the highest annual allocation for each of the species included in the LHV program, **Alternative 3** would prevent a given participant from holding the greatest amount of annual allocation in all species categories. To mitigate the amount of control a single participant could have on the resources allocated to the LHV program, **Alternatives 2** and **3** could be implemented jointly, setting a species-specific cap as well as an aggregate maximum.

## 2.13 Action 13. Retaining Annual Allocation before a Quota Reduction

**Alternative 1**. No Action. Distribute 100% of annual allocation to IFQ shareholders on January 1 of each year.

**Alternative 2**. If the quota for a species is anticipated to decrease after January 1, the Regional Administrator has the authority to retain the anticipated amount of decrease during distribution of allocation for that species at the beginning of the year. If the decrease does not occur by a set date, the amount retained will be distributed as soon as possible.

**Option 2a:** June 1
**Option 2b:** August 1

**Discussion**

This action addresses a decrease in the LHV ACL and quota that may happen after the first of the year. After allocation is distributed to shareholders on January 1, taking any back would be impossible if participants have landed all or some of their allocation or have transferred allocation to another participant. Only two alternatives are presented for this action because the decision is to either retain the anticipated reduction or not. Under **Alternative 1**, NMFS would not be able to implement a quota decrease for the recreational sector until the following fishing year, unless the Council determines to withhold annual allocation through a framework action and there is sufficient time to implement the action.

A similar problem was encountered with the commercial red snapper IFQ program, and the solution was to hold back some of the quota at the beginning of the year to cover the anticipated decrease in the commercial quota[8]. Under **Alternative 2**, NMFS would hold back the anticipated amount that may be subtracted from the total LHV quota before distributing allocation to each shareholder at the beginning of the year. If the anticipated decrease did not occur or was less than expected, NMFS would distribute the hold back amount proportionally to shareholders. Should IFQ shares be transferred between participants during a year in which some portion of annual allocation was withheld and later distributed, the holdback amount will be distributed according to the current shareholder at the time the holdback amount is released. NMFS would only exercise this authority if the Council has approved an action that would decrease the quota, but the rule implementing the action could not be in place until after the start of the year.

If the Council selects **Alternative 2**, and an expected ACL reduction does not occur, **Option a** and **Option b** would provide a date by which any withheld allocation would be distributed to shareholders if the effective date of the final rule implementing the ACL reduction has not occurred. An earlier release date (**Option 2a**) would provide IFQ program participants more time to utilize the quota and would be less disruptive to their business, while selecting a later release date (**Option 2b**) would provide NMFS with additional time to complete the regulatory process, should an issue or delay arise.

Regardless of the option selected, or if no option is selected, the Regional Administrator would retain the authority to distribute withheld quota at any time it becomes known that an expected ACL reduction is not going to occur during the year in which allocation was withheld. Should shares be transferred between participants during a year in which some portion of annual allocation was withheld and later distributed, the allocation would be distributed according to the shareholder at the time the allocation is released.

## 2.14. Action 14. Cost Recovery Fees

**Alternative 1.** No Action. Cost recovery fees will not be collected.

**Alternative 2**. For each participant, cost recovery fees will be based on the total value obtained by multiplying a **standard price** per pound (or per fish) of a given species by the number of pounds (or of fish) of that species harvested by the participant during the specified time period. The cost recovery fee will be up to 3% of the total value. The **standard price** will be equal to **(AP Preferred):**

**Option a:** the average commercial ex-vessel price from the previous year
**Option b:** the average price of annual allocation in this program

[8] The hold back of commercial red snapper allocation for 2016 only was implemented through a framework action. An action to give authority to the Regional Administrator to hold back commercial allocation for IFQ species in the future is being considered in Reef Fish Amendment 36A.

**Alternative 3.** Cost recovery fees will be calculated as follows: Total fees paid per trip and total pounds (or number of fish) of all species harvested must be reported. The total fees will be divided by the total pounds (or number of fish) of all species harvested to achieve a price per pound (or per fish). The price per pound (or per fish) will be multiplied by the pounds (or number of fish) of covered species (species in the program) **harvested** to achieve the total value. The cost recovery fee will be up to 3% of the total value.

**Discussion**

**Alternative 1** would not conform to Magnuson-Stevens Act cost recovery provisions. The Magnuson-Stevens Act requires that LAPPs include provisions to recover the incremental costs of management, monitoring, data collection and analysis, and enforcement. This includes the cost of computer systems necessary to manage the disbursement and tracking of annual harvest privileges, as well as observer and enforcement programs. The Magnuson-Stevens Act limits cost recovery fees to 3% of the value of the fish harvested under the program. Fees collected must be in addition to any other fees charged under the Magnuson-Stevens Act and must be deposited in the Limited Access System Administration Fund established under Section 305(h)(5)(B) of the Magnuson-Stevens Act. In the commercial IFQ programs, the fees are calculated during sale, deducted from the seller's check, and submitted by the dealer to NMFS on a quarterly basis. Because headboats do not sell fish, the program participants would be responsible for submitting the fees directly to NMFS.

**Alternative 2** would require the specification of standard prices. NMFS would publish, at regular intervals, standard prices (per pound or per fish) by species to be used for cost recovery purposes. These standard prices would be determined based on average commercial ex-vessel prices from the previous year (**Option a)** or average prices of annual allocations (**Option b**). For **Option b**, if annual allocation prices for species categories in the LHV program are not available, an average annual allocation price derived from commercial IFQ programs could be used as a temporary proxy. Because of the small number of vessels that would initially participate in the LHV program (approximately 70), the number of transactions to be used to compute the average allocation prices may be limited. For each species included in the LHV program, cost recovery fees to be submitted by a participant cannot exceed 3% of the total dollar amount calculated by multiplying the standard price by the pounds (or numbers) of fish harvested by the participant's vessel(s) during the specified time interval. The exact percentage to collect will be determined by NMFS based on reasonable estimates of costs incurred to administer the program. The percentage withheld would be adjusted as the costs estimates are refined.

**Alternative 3** would require program participants to report total fees collected for each trip. The percentage to be recovered, up to a maximum of 3%, will be determined by NMFS based on estimates of costs incurred to administer the LHV program. **Alternative 3** would use the actual fees paid by passengers and the amount of fish harvested as the price basis. The fees for each trip would need to be reported, as well as the amount of all fish caught of all species. For **Alternative 3**, actual weights or the number of fish harvested would be needed. Dividing the total fees by the total number or weight of all retained fish would give a price per unit (pound or fish). These prices would be based on all fish harvested, even if they are not species in the LHV program, because those fish have value to the fishermen as well. However, the 3% cost recovery

fee would only be assessed on species in the LHV program. Compared to Alternative 2, Alternative 3 may lead some vessel operators to underreport the passenger fees collected to minimize their cost recovery burden. Numerical examples illustrating **Alternative 3** (for pounds and number of fish) are provided below.

**Alternative 3** Example (pounds of fish):

Total passenger fees = $5,000
Total pounds of all species harvested= 1,000 lb
Price per pound = $5,000/1,000lb = $5/lb
Total pounds of LHV Program Species harvested = 500 lb
Value of LHV Program Species = $5/lb x 500 lb = $2,500
Cost Recovery Fee = $2,500 x 0.03 = $75

**Alternative 3** Example (number of fish):

Total passenger fees = $5,000
Total number of all species harvested = 100 fish
Price per fish = $5,000/100 fish = $50/fish
Total LHV Program Species harvested = 50 fish
Value of LHV Program Species = $50/fish x 50 fish = $2,500
Cost Recovery Fee = $2,500 x 0.03 = $75

## 2.15. Action 15. New Entrants

**Alternative 1.** No Action. No additional endorsements to the reef fish for-hire permit or reef fish LHV permits (whichever is established in Action 4) will be issued. To participate in the LHV program, a vessel owner must obtain an endorsement to the reef fish for-hire permit or a reef fish LHV permit (whichever is established in Action 4) from a current participant.

**Alternative 2.** At the beginning of each calendar year, vessels with valid federal Gulf for-hire reef fish permits that are not participating in the LHV program may be issued an endorsement to the reef fish for-hire permit or a reef fish LHV permit (whichever is established in Action 4). To be able to start participating in the LHV program at the beginning of the year, potential new entrants would have to apply for an endorsement or permit before the beginning of the year. The amount of lead time required will be determined by NMFS permit office. Receiving an endorsement or a reef fish headboat permit (whichever is established in Action 4) does not grant shares or annual allocation to the recipient. Furthermore, as all participants in the LHV program, these recipients have can only fish on the LVH quotas.

**Alternative 3.** At any time of the year, vessels with valid federal Gulf for-hire reef fish permits that are not participating in the LHV program may be issued an endorsement to the reef fish for-hire permit or a reef fish LHV permit (whichever is established in Action 4). However, the endorsement or LHV permit will not be effective until the beginning of the next fishing year. Receiving an endorsement or a reef fish LHV permit (whichever is established in Action 4) does not grant shares or annual allocation to the recipient.

**Preferred Alternative 4**. At the beginning of each calendar year, vessels with valid federal Gulf for-hire reef fish permits that are not participating in the LHV program are eligible to apply for an endorsement to the reef fish for-hire permit or for a reef fish headboat permit (whichever is established in Action 4) if the vessels are selected to participate in the Southeast Region Headboat Survey. *This would be limited to vessels that carry over 49 passengers*. Receiving an endorsement or a reef fish LHV permit (whichever is established in Action 4) does not grant shares or annual allocation to the recipient.

**Discussion**

**Alternative 1** would not allow entries into the LHV program outside of endorsement/permit transfers. Therefore, **Alternative 1** would cap the total number of participants in the LHV program at the number set of participants identified during the implementation phase of the program.

**Alternatives 2-3** and **Preferred Alternative 4** would allow the number of participants in the LHV program to expand over time by allowing new entrants other than those who elected to join the program by acquiring LHV endorsements or permits through transfer. **Alternative 2** would let prospective participants in the LHV program apply for an endorsement at the beginning of each calendar year. Depending on the number of applicants, **Alternative 2** could result in delays in the issuance of LHV endorsements or permits. Although the LHV endorsements or permits would only be valid starting January 1 of the calendar year following the year of application, **Alternative 3** would allow applicants to request an endorsement or permit at any time during a year. Therefore, **Alternative 3** would allow NMFS to issue LHV endorsements or permits on a more manageable timetable and could mitigate delays in processing applications that could result from **Alternative 2**. **Preferred Alternative 4** would restrict the eligibility to apply for an endorsement or a reef fish LHV permit (whichever is established in Action 4) to vessel that carry over 49 passengers and limit application period to the beginning of each year.

**Alternatives 2-3** and **Preferred Alternative 4** would not grant shares or annual allocation to new entrants. Once a prospective applicant receives a LHV endorsement or permit, she would be responsible for acquiring shares or annual allocation to be able to harvest reef fish species included in the LHV. It is also noted that once a new entrant receives an LHV endorsement or permit, he would de facto forego opportunities to harvest LHV-managed species as a for-hire operator. To prevent new entrants from fishing as members of the for-hire component and as participants in the LVH program during the same calendar year, newly issued endorsements to the reef fish for-hire permit or reef fish LHV permits (whichever is established in Action 4) would not be valid until the first of the year.

## 2.16. Action 16. Set-Aside for New Entrants

## Action 16-1. Amount of LHV Quota to Set Aside

**Alternative 1.** No Action. Do not set the portion of the LHV quota to set aside for new entrants.

**Alternative 2**. Establish a set-aside program and, for each species, set the percentage of the corresponding LHV quota to set aside at:

**Option a:** 1%
**Option b:** 2%
**Option c:** 5%

**Discussion**

**Alternative 1** would not determine the percentage of the LHV quota to be set aside for new entrants. Therefore, **Alternative 1** would not establish of a set-aside program for new entrants. **Alternative 2** would establish a set-aside program for new entrants. For each reef fish species included in the LHV program, the amount of LHV quota to set aside would be equal to 1% (**Option a**), 2% (**Option b**), or 3% (**Option c**). In addition to the percentage of the LHV set aside, the number of pounds available for distribution to new entrants will be determined by the allocation alternative selected in Action 5 (Allocation of Annual Catch Limit to the Landings History Vessel Program). For example, amounts that would be allotted to new entrants based on Action 5-Alternative 4, which was recommended by the Headboat AP as a preferred, are provided in Table 2.16.1.

**Table 2.16.1** Recreational ACLs, percentage and pounds allocated to the LHV program and set aside amounts by species. LHV program allocations are based on Action 5 – Alternative 4.

| | Recreational ACL | LHV Program | | Set aside (pounds) | | |
|---|---|---|---|---|---|---|
| | | Percent | Pounds | Option a | Option b | Option c |
| Red Snapper* | 2,848,000 | 31.30% | 891,424 | 8,914.24 | 17,828.48 | 44,571.20 |
| Greater Amberjack | 548,641 | 7.50% | 41,148 | 411.48 | 822.96 | 2,057.40 |
| Gray Triggerfish | 49,759 | 11.80% | 5,872 | 58.72 | 117.43 | 293.58 |
| Gag | 1,903,000 | 4.60% | 87,538 | 875.38 | 1,750.76 | 4,376.90 |
| Red Grouper | 2,580,000 | 3.60% | 92,880 | 928.80 | 1,857.60 | 4,644.00 |

*For red snapper, a percentage of the for-hire ACL is allocated to the LHV program.

## Action 16-2. Eligibility to Receive Set Aside Shares

**Alternative 1.** No Action. Do not define eligibility criteria for receiving set aside shares.

**Alternative 2.** Set aside shares would be distributed to those who become eligible as new entrants by the time of apportionment of set aside shares.

**Discussion**

**Alternative 1** would not define eligibility criteria for receiving set aside LHV shares. Therefore, **Alternative 1** would preclude new entrants from receiving set aside shares by failing to identify eligible recipients.

**Alternative 2** would distribute set aside shares to operators who become eligible as new entrants in the LHV program by the time of apportionment of set aside shares. The time of apportionment of set aside shares has yet to be determined. In setting a date (or time interval) for the final determination of new entrants, the Council should account for the amount of time necessary to apply for and receive a LHV endorsement or permit (whichever is established by the LHV program).

## Action 16-3. Distribution of the Set Aside to New Entrants

**Alternative 1.** No Action. Do not distribute set aside shares.

**Alternative 2.** Distribute set aside shares equally among eligible new entrants

**Alternative 3.** For each share category, no new entrant may receive more shares than the minimum distributed during initial apportionment to an individual recipient.

**Discussion**

**Alternative 1** would not distribute set aside shares to new entrants. **Alternative 1** would not be consistent with the establishment of a set-aside for the purpose of improving new entrants' access to LHV shares.

**Alternative 2** would distribute set aside shares equally among new entrants. Based on the preferred alternative in Action 15 (new entrants) up to 25 new entrants could be eligible to receive set aside shares (J. Stephen, NMFS-SERO pers. comm. January 4, 2018). For a fixed number of LHV shares, the amount received by each new entrant would decline as the number of new entrants increases.

**Alternative 3** would not grant to a new entrants more shares than the minimum distributed during initial apportionment to an individual recipient. **Alternative 3** would preclude new entrants for receiving relatively substantial numbers of shares if the percentages of LHV quota set aside are large, e.g., 5% and the number of new entrants is small.

# CHAPTER 3. AFFECTED ENVIRONMENT

## 3.1 Description of the Fishery

Detailed descriptions of the reef fish fishery have been provided in many management actions and many focus on fishing for particular species, such as Amendment 31 (GMFMC 2009), Amendment 32 (GMFMC 2011), Amendment 35 (GMFMC 2012), Amendment 38 (GMFMC 2012), and Amendment 46 (GMFMC 2017), and are incorporated here by reference. Additionally, Sections 3.4 and 3.5 also provide information on the respective economic and social environments of the fishery.

Management of the commercial and recreational sectors fishing for reef fish in federal waters began in 1984 with the implementation of the Fishery Management Plan (FMP) for the Reef Fish Resources in the Gulf of Mexico. This FMP has been continuously amended through plan amendments and framework actions (also known as regulatory amendments). Resultant regulatory measures are codified at 50 CFR 622. A summary of reef fish management actions can be found on the Council's web page.[9] Presently, the reef fish fishery management unit contains 31 species.

Each of the species included in this amendment has separate annual catch limits (ACL) for the commercial and recreational sectors based on allocations determined by the Gulf of Mexico Fishery Management Council (Council) based on historical landings (Table 3.1.1). Further, the red snapper recreational ACL is allocated 57.7% to private anglers and 42.3% to for-hire vessels.

**Table 3.1.1.** Allocations of five species of reef fish between sectors.

| Stock | Recreational Allocation | Commercial Allocation |
|---|---|---|
| Gag | 61% | 39% |
| Red grouper | 24% | 76% |
| Red snapper | 49% | 51% |
| Gray triggerfish | 79% | 21% |
| Greater amberjack | 73% | 27% |

### 3.1.1 Commercial Sector

The commercial sector fishing for reef fish in the Gulf of Mexico (Gulf) is managed through, but not limited to, ACLs, annual catch targets (ACT), accountability measures (AM), size limits, trip limits, individual fishing quota (IFQ) programs, seasonal closures, time and area/gear restrictions, and gear requirements. Table 3.1.1.1 summarizes the current minimum size limits, trip limits, and seasons for the five species addressed by this amendment. Gag, red grouper, and red snapper are managed under IFQ programs administered through the Southeast Regional Office of the National Marine Fisheries Service (NMFS). Primary commercial gear types in the fishery are vertical lines (handlines and bandit gear) and bottom longlines.

[9] http://gulfcouncil.org/fishery-management/

**Table 3.1.1.1.** Commercial minimum size limits (total length [TL] or fork length [FL]), trip limits, and closed seasons for five species of reef fish in the Gulf.

| Stock | Minimum size | Trip limit | Fixed Closed Season |
|---|---|---|---|
| Gag | 22 inches TL | Managed under IFQ | None* |
| Red grouper | 18 inches TL | Managed under IFQ | None* |
| Red snapper | 13 inches TL | Managed under IFQ | None* |
| Gray triggerfish | 14 inches FL | 12 fish | June 1-July 31** |
| Greater amberjack | 36 inches FL | None | March 1-May 31** |

*These species are managed under an IFQ program. Thus, the season is open as long as a vessel has allocation available for harvesting gag, red grouper, or red snapper.
**In addition, an in-season closure can occur prior to December 31 if a species' ACL is caught or is projected to be caught.

With regard to commercial operators harvesting reef fish from the Gulf exclusive economic zone (EEZ), their fishing vessels must have a Gulf reef fish permit, which is a limited access permit. As of November 13, 2017, a total of 844 vessels have the permit. Only vessels with a valid Gulf reef fish permit can harvest reef fish in the Gulf EEZ, and those that use bottom longline gear in the Gulf EEZ east of 85º30'W. long must also have a valid eastern Gulf longline endorsement. As of November 13, 2017, 62 of the permit holders have the longline endorsement, and all but one of the endorsement holders have a mailing address in Florida. In addition to these restrictions, operators of reef fish fishing vessels who want to harvest red snapper or grouper and tilefish species, must participate in the red snapper or grouper-tilefish IFQ programs. To harvest IFQ species, a vessel permit must be linked to an IFQ account and possess sufficient allocation for the species to be harvested. 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 program participants.

This amendment is restricted to the recreational sector; therefore, no additional description of the commercial sector is included.

### 3.1.2 Recreational Sector

The recreational sector is currently managed through, but not limited to, ACLs, ACTs, AMs, size limits, bag limits, seasonal closures, time and area/gear restrictions, and gear requirements. Table 3.1.2.1 summarizes the management measures for the five species considered in this amendment. State regulations are different than federal regulations in some cases. In those circumstances (e.g., red snapper seasons), fishermen must obey the regulations for the waters they are fishing in. For federal waters, if landings meet or are projected to meet the species' annual catch limit, then the season will be closed. The primary gear type in the fishery is vertical line gear (rod-and-reel).

**Table 3.1.2.1.** Recreational minimum size limits, bag limits, and seasons for five species of reef fish in the Gulf. Season closures can occur prior to the end of the fishing season if a species' quota is caught or is projected to be caught.

| Stock | Minimum size | Daily bag limit | Season |
|---|---|---|---|
| Gag | 24 inches TL | 2 per person within 4 grouper aggregate bag limit | June 1-December 31 |
| Red grouper | 20 inches TL | 2 per person within 4 grouper aggregate bag limit | February 1-March 31 when fishing beyond 20 fathom break |
| Red snapper | 16 inches TL | 2 per person | Open June 1, close when ACT is projected to be met |
| Gray triggerfish | 14 inches FL | 2 per person within 20 reef fish aggregate bag limit | January 1-July 31 |
| Greater amberjack | 34 inches FL | 1 per person | June 1-July 31* |

* The Gulf Council has approved a framework action that would change the fishing season to August 1-July 31.

Private recreational fishing vessels are not required to have a federal permit to harvest individual species or species complexes in the reef fish fishery from the Gulf EEZ. However, anglers aboard these vessels must either be federally registered or licensed in states that have a system to provide complete information on the states' saltwater anglers to the national registry.
Any for-hire fishing vessel that takes anglers into the Gulf EEZ where anglers harvest species or complexes in the reef fish fishery must have a limited-access charter vessel/headboat (for-hire) permit for reef fish that is specifically assigned to that vessel. As of November 13, 2017, there were 1,278 vessels with a for-hire permit and another 32 with a historical captain for-hire permit. Approximately 58% of the for-hire vessel reef fish permits have mailing recipients in Florida. Texas recipients hold the second highest number of permits, with 17% (see Table 1.1.1). Since 2003, there has been a moratorium on the issuance of new federal reef fish for-hire permits. This means that participation in the federal for-hire component is capped; no additional federal permits are available.

**Headboat Landings**
Savolainen et al. (2012) surveyed the charter and headboat fleets in the Gulf. They that most headboats target offshore species and fish in federal waters (81% of trips), largely due to vessel size and consumer demand. On average, 84% of trips targeted rig-reef species, while only 10 % targeted inshore species and 6% pelagic species. Holland et al. (1999) reported approximately 40% of headboats did not target any particular species. The species groups targeted by the largest proportion of Gulf coast Florida headboats were snapper (60%), grouper (60%) and sharks (20%) with species receiving the largest percentage of effort being red grouper (46%), gag 33%), black grouper (20%), and red snapper (7%). For the other Gulf States, Sutton et al. (1999) reported that the majority of headboats targeted snapper (100%), king mackerel (85%), shark (65%), tuna (55%), and amberjack (50%). The species receiving the largest percentage of total effort by headboats in the four-state area were snapper (70%), king mackerel (12%), amberjack (5%), and shark (5%). Long-term recreational landings for the five reef fish species considered in this amendment can be found in Section 2.2. Table 3.1.4 shows recent headboat landings for each species.

**Table 3.1.4.** Recent headboat landings (in pounds) for five species of reef fish.

| Species | Year | Landings | Species | Year | Landings |
|---|---|---|---|---|---|
| Red Snapper | 2012 | 724,078 | Gag | 2012 | 44,249 |
| | 2013 | 445,276 | | 2013 | 34,117 |
| | 2014 | 382,289 | | 2014 | 40,728 |
| | 2015 | 580,226 | | 2015 | 35,546 |
| | 2016 | 526,575 | | 2016 | 23,246 |
| Greater Amberjack | 2012 | 99,680 | Red Grouper | 2012 | 83,324 |
| | 2013 | 73,246 | | 2013 | 77,542 |
| | 2014 | 46,435 | | 2014 | 45,107 |
| | 2015 | 58,513 | | 2015 | 50,621 |
| | 2016 | 20,210 | | 2016 | 56,851 |
| Gray Triggerfish | 2012 | 18,706 | | | |
| | 2013 | 27,119 | | | |
| | 2014 | 8,693 | | | |
| | 2015 | 4,112 | | | |
| | 2016 | 29,576 | | | |

Source: SEFSC Recreational ACL Data (2013-2016; accessed Nov 2017. Headboat landings include expansions for missing trips.

Red snapper landings decreased substantially in 2014 because the federal recreational fishing season was only 9 days (Table 3.1.5). In 2015, the for-hire component was given a separate quota from the private angling component (GMFMC 2014a); consequently, the length of the for-hire fishing season increased in 2015 and 2016 similar to the length of the fishing seasons during 2011-2013.

**Table 3.1.5.** Length of state and federal red snapper recreational seasons in days. Separate seasons were set for private angling and federal for-hire vessels beginning in 2015.

| | State Seasons | | | | | Federal Season | | |
|---|---|---|---|---|---|---|---|---|
| Year | FL | AL | MS | LA | TX | Rec | Private | For-hire |
| 2012 | 46 | 46 | 46 | 46 | 365 | 46 | 46 | 46 |
| 2013 | 58 | 42 | 42 | 113 | 365 | 42 | 42 | 42 |
| 2014 | 52 | 21 | 36 | 286 | 365 | 9 | 9 | 9 |
| 2015 | 70 | 41 | 118 | 215 | 365 | | 10 | 44 |
| 2016 | 85 | 66 | 102 | 279 | 365 | | 11 | 46 |

Fluctuations in greater amberjack ACLs are the result of AMs. In 2013, landings exceeded the ACL; therefore, the 2014 ACL was reduced by the amount of the overage. In 2015, the ACL went back to the original amount, and once again landings exceeded the ACL requiring an ACL reduction in 2016.

In 2013, an overage adjustment for gray triggerfish was implemented. This contributed to decreasing quotas for subsequent years as quota overages were deducted from the following year's ACL, leading to lowered quotas and thus, decreasing landings. The overage in 2016 was

large enough to keep triggerfish recreational fishing closed for all of 2017 in federal waters. Gag landings have decreased in recent years and have reached 50% or less of the recreational ACL for the past 3 years. A stock assessment update in 2016 indicated the Gulf gag stock is not overfished (SEDAR cite).

Red grouper landings have fluctuated in the past 5 years; however, landings have remained at or below the ACL, and no overage adjustment has been necessary during that time.

## 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 3.1.1) between 1982 and 2009, according to satellite-derived measurements[10]. 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 final environmental impact statements (EIS) for the Generic Essential Fish Habitat (EFH) Amendment, the Generic ACL/AM Amendment, and Reef Fish Amendment 40 (refer to GMFMC 2004; GMFMC 2011; 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 2004). Juvenile and adult reef fish are typically demersal and usually associated with bottom topographies on the continental shelf (less than 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. For example, juvenile red snapper are common on mud bottoms in the northern Gulf, particularly off Texas through Alabama. Also, some grouper (e.g., goliath, 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 in the Gulf between 1625 and 1951; thousands more have sunk closer to shore in state waters during the

[10] (NODC 2011: http://accession.nodc.noaa.gov/0072888)

same period. Only a handful of these have been scientifically excavated by archaeologists for the benefit of generations to come.[11]

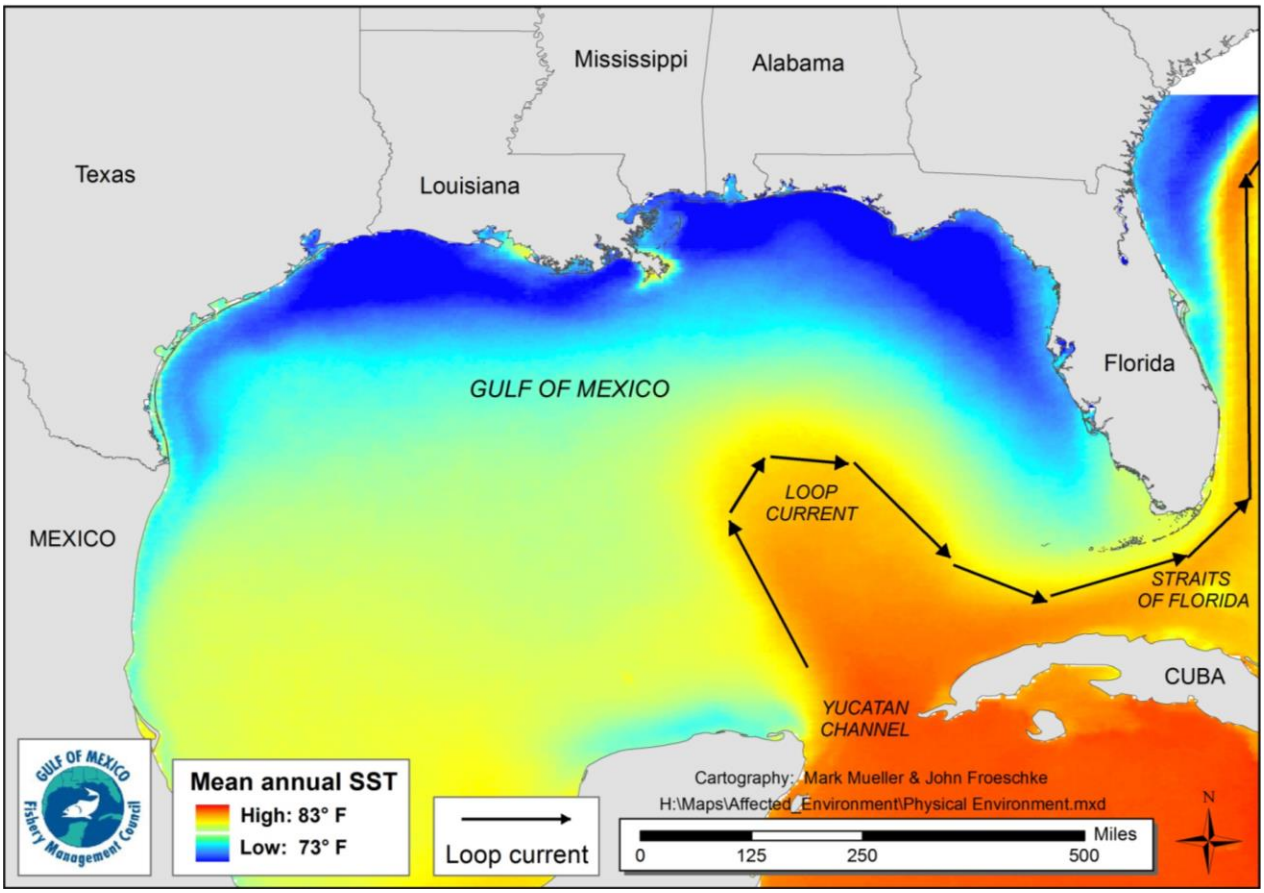


**Figure 3.2.1.** Physical environment of the Gulf, including major feature names and mean annual sea surface temperature as derived from the Advanced Very High Resolution Radiometer Pathfinder Version 5 sea surface temperature data set (http://accession.nodc.noaa.gov/0072888)

## 3.3 Description of the Biological Environment

### General Information on Reef Fish Species

Reef fish are widely distributed in the Gulf, occupying both pelagic and benthic habitats during their life cycle. Habitat types and life history stages can be found in more detail in Amendment 23 (GMFMC 2004c). In general, both eggs and larval stages are planktonic. Larval fish feed on zooplankton and phytoplankton. Gray triggerfish and gray snapper are exceptions, to this generalization as gray triggerfish lay their eggs in nests on the sandy bottom (Simmons and Szedlmayer 2012) and gray snapper larvae are found around submerged aquatic vegetation. Juvenile and adult reef fish are typically demersal, and are usually associated with bottom

[11] Further information can be found at: http://www.boem.gov/Environmental-Stewardship/Archaeology/Shipwrecks.aspx.

topographies on the continental shelf (less than 328 feet; less than 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 2011a). The NMFS Office of Sustainable Fisheries updates its Status of U.S. Fisheries Report to Congress[12] on a quarterly basis utilizing the most current stock assessment information. Stock assessments and status determinations have been conducted and designated for 12 stocks and can be found on the Council[13] and SEDAR[14] websites (Table 3.3.2). Of the 12 stocks for which stock assessments have been conducted, the third quarter report of the 2017 Status of U.S. Fisheries classifies three as overfished (greater amberjack, gray triggerfish, and red snapper), and the only one as undergoing overfishing (greater amberjack).

A stock assessment for Atlantic goliath grouper has been conducted, but upon review by the Scientific and Statistical Committee (SSC), the assessment was deemed not suitable for stock status and management advice (Table 3.3.3). Stock assessments were conducted for seven stocks using the Data Limited Methods Toolkit (DLMToolkit) although only lane snapper was able to have overfishing limit (OFL) and annual biological catch (ABC) limits set based on the limited data (Table 3.3.4).

The status of both assessed and unassessed stocks, as of the writing of this report is provided in Table 3.3.1. However, it should be noted that greater amberjack, gray triggerfish, and red snapper are under rebuilding plans. Reef fish Amendment 44 (GMFMC 2017a), implemented December 21, 2017 modified the minimum stock size threshold for seven species in the Reef Fish FMP. After the next Status of U.S. Fisheries Report to Congress is completed, red snapper and gray triggerfish will be listed as not overfished but rebuilding, because the biomass for the stock is currently estimated to be greater than 50% of $B_{MSY}$. The greater amberjack stock will remain classified as overfished.

[12] http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/status_updates.html
[13] www.gulfcouncil.org
[14] www.sedarweb.org

**Table 3.3.1.** Status of species in 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 if overfished, no overfishing |
| almaco jack | *Seriola rivoliana* | Unknown if overfished, no overfishing |
| 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* | Unknown if overfished, no overfishing |
| snowy grouper | ***Hyporthodus niveatus* | Unknown if overfished, no overfishing |
| speckled hind | *Epinephelus drummondhayi* | Unknown if overfished, no overfishing |
| yellowmouth grouper | *Mycteroperca interstitialis* | Unknown if overfished, no overfishing |
| yellowfin grouper | *Mycteroperca venenosa* | Unknown |
| warsaw grouper | ***Hyporthodus nigritus* | Unknown if overfished, no overfishing |
| ***Atlantic goliath grouper | *Epinephelus itajara* | Unknown if overfished, no overfishing |
| **Family Lutjanidae – Snappers** | | |
| queen snapper | *Etelis oculatus* | Unknown if overfished, no overfishing |
| mutton snapper | *Lutjanus analis* | Not overfished, no overfishing |
| blackfin snapper | *Lutjanus buccanella* | Unknown if overfished, no overfishing |
| red snapper | *Lutjanus campechanus* | Overfished, no overfishing |
| cubera snapper | *Lutjanus cyanopterus* | Unknown if overfished, no overfishing |
| gray snapper | *Lutjanus griseus* | Unknown if overfished, no overfishing |
| lane snapper | *Lutjanus synagris* | Unknown if overfished, 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 if overfished, no overfishing |

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).

**Table 3.3.2.** Reef fish stock that have assessments and accepted status determinations.

| Stock | Stock Status | | Most Recent SSC Determination | Most Recent Stock Assessment |
|---|---|---|---|---|
| | Overfishing | Overfished | | |
| black grouper | N | N | Mar 2010 | SEDAR 19 2010 |
| yellowedge grouper | N | N | May 2011 | SEDAR 22 2011b |
| tilefish (golden) | N | N | May 2011 | SEDAR 22 2011a |
| yellowtail snapper | N | N | Oct 2012 | SEDAR 27A 2012 |
| red snapper | N | Y | Jan 2015 | SEDAR 31 Update 2015 |
| hogfish | N | N | Oct 2014 | SEDAR 37 2013 |
| mutton snapper | N | N | May 2015 | SEDAR 15A Update 2015 |
| gray triggerfish | N | Y | Jan 2016 | SEDAR 43 2015 |
| red grouper | N | N | Jan 2016 | SEDAR 42 2015 |
| vermilion snapper | N | N | Jun 2016 | SEDAR 45 2016 |
| gag | N | N | Jan 2017 | SEDAR 33 Update 2016b |
| greater amberjack | Y | Y | Mar 2017 | SEDAR 33 Update 2016a |

A stock assessment has been conducted for Atlantic Goliath grouper (Table 3.3.3). The SSC accepted the assessment's general findings that the stock was not overfished nor experiencing overfishing. The Atlantic Goliath grouper assessment was deemed not suitable for stock status and management advice but was determined to not be experiencing overfishing based on annual harvest remaining below the OFL. There has been no assessment-based status determination.

**Table 3.3.3.** Reef fish stocks deemed unsuitable by the SSC for stock status and management advice.

| Stock | Stock Status | | Most Recent SSC Determination | Most Recent Stock Assessment |
|---|---|---|---|---|
| | Overfishing | Overfished | | |
| Atlantic goliath grouper | N | unknown | Sep 2016 | SEDAR 47 2016 |

For SEDAR 49, data limited methods were attempted for seven reef fish stocks listed in Table 3.3.4. This method allows the setting of OFL and ABC based on limited data and life history information, but does not provide assessment-based status determinations. Data were requested for the following stocks but it was determined not enough information was available to complete an assessment even using the DLMToolkit. These stocks are not experiencing overfishing based on annual harvest remaining below the OFL, but no overfished status determination has been made (Table 3.3.4). Lane snapper was the only stock with adequate data to be assessed using the DLMToolkit methods resulting in OFL and ABC recommendations by the SSC.

**Table 3.3.4.** Reef fish stocks were data limited assessments were attempted but without stock status determinations.

| Stock | Stock Status | | Most Recent SSC Determination | Most Recent SSC Workshop |
|---|---|---|---|---|
| | Overfishing | Overfished | | |
| lane snapper | N | unknown | Mar 2017 | SEDAR 49 2016 |
| wenchman | N | unknown | Mar 2017 | SEDAR 49 2016 |
| almaco jack | N | unknown | Mar 2017 | SEDAR 49 2016 |
| lesser amberjack | N | unknown | Mar 2017 | SEDAR 49 2016 |
| speckled hind | N | unknown | Mar 2017 | SEDAR 49 2016 |
| snowy grouper | N | unknown | Mar 2017 | SEDAR 49 2016 |
| yellowmouth grouper | N | unknown | Mar 2017 | SEDAR 49 2016 |

**Red Snapper Life History and Biology**

Red snapper demonstrate the typical reef fish life history pattern. Eggs and larvae are pelagic while juveniles are found associated with bottom features or over barren bottom. Spawning occurs over firm sand bottom with little relief away from reefs during the summer and fall. Females mature as early as 2 years and most are mature by 4 years (Schirripa and Legault 1999). Red snapper have been aged up to 57 years. Until 2013, most red snapper caught by the directed fishery were 2 to 4 years old, but the Southeast Data Assessment and Review (SEDAR) 31 benchmark stock assessment suggested that the age and size of red snapper in the directed fishery has increased (SEDAR 31 2013). A more complete description of red snapper life history can be found in the Generic EFH Amendment (GMFMC 2004).

**Status of the Red Snapper Stock**

*SEDAR 31 Benchmark Stock Assessment*

Commercial harvest of red snapper from the Gulf began in the mid-1800s (Shipp and Bortone 2009). In the 1930s, party boats built exclusively for recreational fishing began to appear (Chester 2001). The first stock assessment conducted by NMFS in 1986 suggested that the stock was in decline (Parrack and McLellan 1986) and since 1988, the stock biomass has been below threshold levels (Goodyear 1988).

The most recent benchmark red snapper stock assessment was completed in 2013 (SEDAR 31 2013). The primary assessment model selected for the Gulf red snapper stock assessment was Stock Synthesis (Methot 2010). Stock Synthesis is an integrated statistical catch-at-age model which is widely used for stock assessments in the United States and throughout the world. Commercial landings data included commercial handline and longline landings from the accumulated landings system (ALS) from 1964 through 2011. For landings between 1880 and 1963, previously constructed historical landings were used. Total annual landings from the commercial IFQ program for years 2007-2011 were used to reapportion 2007-2011 ALS data across strata. Recreational landings data included the Marine Recreational Information Program (MRIP)/Marine Recreational Fishery Statistics Survey from 1981-2011, Southeast Region

Headboat Survey (SRHS) for 1981-2011, and Texas Parks and Wildlife Department survey. For the years 2004-2011, MRIP landings are available. For earlier years, Marine Recreational Fishery Statistics Survey data were calibrated to MRIP estimates using a standardized approach for calculating average weight that accounts for species, region, year, state, mode, wave, and area.

Standardized indices of relative abundance from both fishery dependent and independent data sources were included in the model. The fishery dependent indices came from the commercial handline fleet, recreational headboats, and recreational private angling/federal for-hire components. Fishery independent indices came from the Southeast Area Monitoring and Assessment Program (SEAMAP) bottom trawl survey, SEAMAP reef fish video survey, NMFS bottom longline survey, and the SEAMAP plankton survey.

Red snapper discards in the Gulf were calculated from data collected by the self-reported commercial logbook data and the NMFS Gulf reef fish observer program. In addition to these directed fisheries discards, estimates of red snapper bycatch from the commercial shrimp fleet were also included.

The results of the SEDAR 31 assessment, including an assessment addendum that was prepared after a review of the SEDAR Assessment Panel Report by the SEDAR Review Panel, was presented to the SSC in May 2013. Under the base model, it was estimated that the red snapper stock has been overfished since the 1960s.

Recent stock status was estimated relative to two possible proxies for $F_{MSY}$: $F_{SPR26\%}$ (i.e., the fishing mortality rate that would produce an equilibrium spawning potential ratio [SPR] of 26%) and $F_{MAX}$, which corresponded to $F_{SPR20.4\%}$ (i.e., the fishing mortality rate that would produce an equilibrium SPR 20.4%). A proxy of $F_{SPR26\%}$ was previously used as the overfishing and $F_{MSY}$ proxy in SEDAR 7 (2005) and the SEDAR 7 update assessment (2009). $F_{MAX}$ was evaluated as an alternative proxy because at spawner-recruit steepness values near 1.0, such as the value of 0.99 fixed in the red snapper assessment, $F_{MAX}$ approximates the actual estimate of $F_{MSY}$. However, the actual estimate of $F_{MSY}$ is sensitive to the parameters of the spawner-recruit relationship. The SSC did not have confidence in using the direct $F_{MSY}$ estimate because the spawner-recruit function is poorly estimated and data exist for a very limited range of potential spawning stock biomass (SSB) values for the stock. In addition, the SSC felt that the equivalent SPR for $F_{MAX}$ (20.4%) was inappropriately low for species with life history parameters similar to red snapper. The SSC felt that the $F_{SPR26\%}$ proxy, while still somewhat low for species with life history parameters similar to red snapper, was more realistic than the 20.4% SPR associated with $F_{MAX}$. Furthermore, the $F_{SPR26\%}$ proxy is consistent with the current fishery management plan (FMP) and rebuilding plan for red snapper.

SSB was estimated to remain below both the minimum stock size threshold (MSST) and the spawning stock size associated with maximum sustainable yield ($SSB_{MSY\ proxy}$) using either proxy described above. Therefore, the SSC concluded that the stock remains overfished. With respect to overfishing, the current fishing mortality rate (geometric mean of 2009-2011) was

estimated to be below both $F_{MSY}$ proxies. Therefore, the SSC estimated the stock was not experiencing overfishing as of 2011.

*SEDAR 31 Update Assessment*

In January 2015, NMFS presented an update of the SEDAR 31 assessment to the SSC (GMFMC 2015c). The methods used were the same as SEDAR 31, except for instances when the assessment team was responding to specific terms of reference from the Council. The SEDAR 31 red snapper base model was used with data updated through 2013. Recreational catch data was adjusted using methods from the September 2014 MRIP Calibration workshop and the rescaled MRIP landings were used. A selectivity block (2011-2013) was applied on all recreational fleets to accommodate recent changes in fishing behavior that indicated a shift in selectivity to older (heavier) fish in recent years. The revised recreational landings were generally 10% to 20% higher than in SEDAR 31, but the revised discards also showed proportionately higher rates than in SEDAR 31. The results of the update assessment indicated that Gulf-wide, the stock biomass estimates are continuing to increase, but remain below the management target of 26% SPR. Stock biomass is continuing to increase in the western Gulf, but in the eastern Gulf, stock biomass estimates have shown a slight downward trend in recent years, which resulted from strong year-classes exiting the stock, as well as recent low recruitment estimates.

The combined east and west stock biomass estimates, while increasing, remain below the MSST, indicating that the stock remains in an overfished condition. However, estimated fishing mortality remains below the maximum fishing mortality threshold, indicating that overfishing was not occurring as of 2013.

**Greater Amberjack Life History and Biology**

*Seasonal Aspects of Reproduction*

Studies conducted in the Gulf have estimated that peak spawning occurs during the months of March and April (Wells and Rooker 2002; Murie and Parkyn 2008). There is also evidence for separate and limited connectivity of the greater amberjack population structure within the Gulf, where the northern Gulf population does not appear to mix often with the Florida Keys population (Gold and Richardson 1998, Murie et al. 2011).

Early studies on greater amberjack conducted in south Florida indicated that maximum gonad development occurred in the spring months (Burch 1979) although larvae and small juveniles were reported year round in the entire Gulf (Aprieto 1974). Harris et al. (2007) provided information on reproduction in the southeastern U.S. Atlantic using fishery-dependent and fishery-independent samples from 2000 - 2004. Greater amberjack in spawning condition were captured from North Carolina to the Florida Keys; however, spawning was concentrated in areas off south Florida and the Florida Keys. Harris et al. (2007) documented evidence of spawning from January - June with peak spawning during April and May within this area. They estimated a spawning season of approximately 73 days off south Florida, with a spawning period of 5 days,

and that an individual female could spawn as frequently as 14 times during the season. Wells and Rooker (2002) conducted studies in the northwestern Gulf on larval and juvenile fish associated with floating *Sargassum* spp. Based on the size and season when larvae and juvenile greater amberjack were captured, they suggested peak spawning season occurred in March and April although they did find that peak spawning began as early as February off Texas. Murie and Parkyn (2008) provided updated information on reproduction of greater amberjack throughout the Gulf using fishery-dependent as well as fishery-independent data from 1989-2008 (it is important to note that fishery-dependent sampling has not been year round). They reported peak spawning occurring during March and April, and by May, they documented low gonad weights indicating spawning was ending.

**Status of the Greater Amberjack Stock**

Secretarial Amendment 2 (GMFMC 2002) to the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP) established a rebuilding plan for Gulf of Mexico (Gulf) greater amberjack (*Seriola dumerili*) based on a stock assessment conducted in 2000 (Turner et al. 2000). The Turner et al. (2000) assessment determined the greater amberjack stock to be overfished and undergoing overfishing as of 1998. Management measures were implemented in January 1997 to reduce the recreational bag limit from three fish to one fish per person per day. In January 1998, a March through May commercial season closure was implemented; however, this closure was not incorporated into the 2000 stock assessment. The projected effects of these management measures were expected to eliminate overfishing; therefore, no new management measures to further restrict effort were implemented. This rebuilding plan was implemented in 2002, and the management measures were expected to rebuild the greater amberjack stock within 7 years (by 2009), well within the maximum time frame of 10 years (by 2012) as specified by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

In 2006, a Southeast Data, Assessment, and Review (SEDAR) update stock assessment was completed that determined the greater amberjack stock was not recovering at the rate previously projected. The stock continued to be overfished and was experiencing overfishing (SEDAR 9 2006). The Gulf of Mexico Fishery Management Council (Council) and National Marine Fisheries Service (NMFS) developed and implemented Amendment 30A in 2008 in response to the stock assessment results and the requirement to end overfishing and rebuild the stock by 2012 (GMFMC 2008a). The minimum reduction required to rebuild the stock by 2012 was 40% of current fishing mortality. The total allowable catch (TAC) implemented by the final rule for Amendment 30A was 1,871,000 lbs whole weight (ww) for 2008 through 2010 (GMFMC 2008a). Amendment 30A also established quotas for the recreational and commercial sectors equal to 1,368,000 and 503,000 lbs ww, respectively. Amendment 30A also required sector-specific accountability measures (AMs) such that if either sector exceeded its allocated portion of the TAC, the Regional Administrator (RA) would close that sector for the remainder of the year. Additionally, if a sector's landings exceed that sector's share of the TAC, the RA would reduce the fishing season by the amount of time necessary to account for the overage in the following fishing year.

A 2010 update stock assessment also determined that the stock remained overfished and was continuing to experience overfishing. In December 2012, Amendment 35 (GMFMC 2012) set the annual catch limits (ACLs) equal to the acceptable biological catch (ABC) and reduced the commercial ACLs, (previously called the TAC), to 1,780,000 lbs ww in an effort to end overfishing and rebuild the stock. The recreational ACL was set at 1,299,000 lbs ww, and a commercial ACL was set at 481,000 lbs ww, based on the sector allocation (73% recreational, 27% commercial) established in Amendment 30A (GMFMC 2008a). Annual catch targets (ACTs) (equivalent to quotas for greater amberjack) were established at 1,130,000 lbs ww for the recreational sector and 409,000 lbs ww for the commercial sector.

A greater amberjack stock assessment (SEDAR 33 2014) was completed and reviewed by the Council's Scientific and Statistical Committee (SSC) at its June 2014 meeting. The SSC used the ABC Control Rule to recommend the following ABCs for a time period of four years, beginning in 2015, equivalent to 75% of maximum fishing mortality threshold (MFMT), to end overfishing and rebuild the stock.

In 2015, the Council developed a framework action to reduce the ACL from 1,780,000 lbs ww to the SSC's ABC recommendation of 1,720,000 lbs ww, from 2015 through 2018. These new catch levels were implemented in a final rule that was effective on January 4, 2016. However, the most recent ABC recommendation from the SSC exceeds the current overfishing limit (OFL) established in the 2016 framework action and requires modification to end overfishing and rebuild the stock.

In 2016, the greater amberjack stock assessment update to SEDAR 33 was completed and reviewed by the SSC at its March 2017 meeting. The SSC accepted the greater amberjack update assessment as the best scientific information available and concluded that greater amberjack was still overfished and undergoing overfishing and the stock would not be rebuilt by 2019 as previously projected. The SSC provided new annual OFLs and ABCs for a period of three years, beginning in 2018, equivalent to yield at 75% of the maximum fishing mortality threshold (MFMT), based on the results of the update assessment. The results also indicated that Gulf greater amberjack had been overfished in all years since 1987 and has been undergoing overfishing since 1985. These results are generally consistent with the SEDAR 33 benchmark assessment. However, the update assessment produced lower estimates of spawning stock biomass and higher estimates of fishing mortality in the most recent years.

**Gray Triggerfish Life History and Biology**

There have been relatively few age and growth studies on gray triggerfish; however, this species is estimated to live up to 11 years, with 16 being the maximum age recorded (Hood and Johnson 1997; Wilson et al. 1995; Ingram 2001; Panama City National Marine Fisheries Service (NMFS) Database, accessed 2012). Gray triggerfish is estimated to grow rapidly within the first year of life then growth slows for both sexes combined (Hood and Johnson 1997; Ingram 2001; Wilson et al. 1995; SEDAR 9 2006a). The maximum length of gray triggerfish recorded was 27-28 inches fork length (697-725 mm FL) by Hood and Johnson (1997) and samples processed from 2003 through 2010 at the Panama City Laboratory from both fishery-dependent and fishery-independent samples in the Gulf. The maximum weight documented from the Panama City

NMFS Database, accessed in 2012, was 13.8 lbs gutted weight (6.26 kg gw). Male gray triggerfish reach significantly larger sizes than females (Hood and Johnson 1997; Ingram 2001; Simmons and Szedlmayer 2012).

Gray triggerfish spawn as early as May and as late as August, with peak spawning in June and July in the Gulf and South Atlantic Bight (Wilson et al. 1995; Hood and Johnson 1997; Ingram 2001; Moore 2001; Simmons and Szedlmayer 2012). Both sexes are reproductively mature by age-2, 10 inches FL (250 mm FL). At this size (~10-inches FL), some males are age-1 and all females are age-2 (Wilson et al. 1995; Ingram 2001). Male and female gray triggerfish have a combination of atypical spawning behaviors compared to most marine fishes (i.e., pelagic broadcast spawners) managed by the Council. Male gray triggerfish establish territories, build demersal nests, and form harems (one male and several females) during the spawning season (Simmons and Szedlmayer 2012). Gray triggerfish form harems 50% of the time at sites with active nests, a mean sex ratio of 1:4.2 male to females on the reef, while at other reefs without spawning (lack of active nests) the mean sex ratio is 1:1.3 male to females. After fertilization of the eggs, female gray triggerfish provide parental care of the eggs (Figure 3.1.1), while the male defends his territory and courts other female gray triggerfish on the reef (Simmons and Szedlmayer 2012).

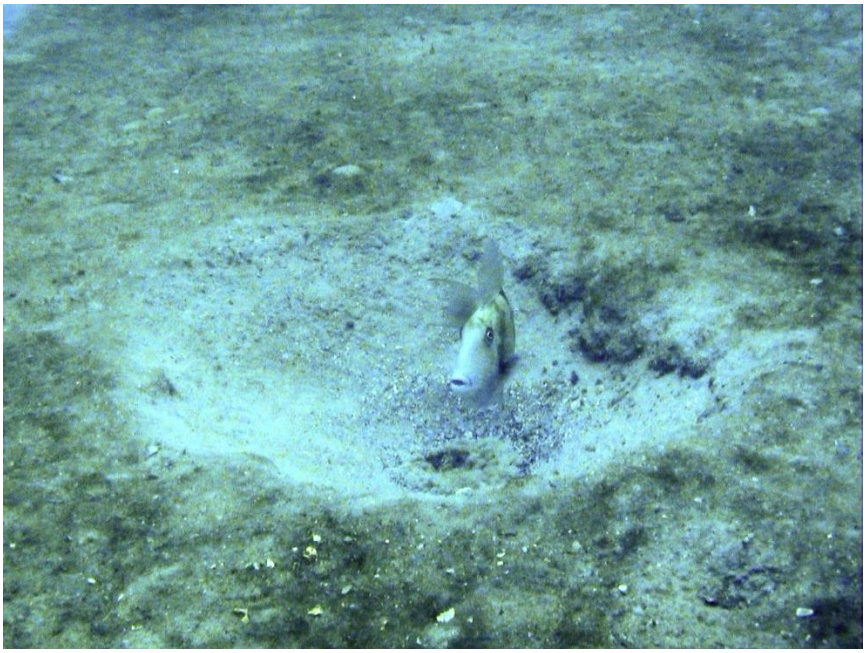

**Figure 3.3.1.** Underwater photograph of a female gray triggerfish guarding eggs in a nest in the northern Gulf of Mexico.
Source: Simmons and Szedlmayer 2012.

The eggs are small average size (0.62 mm) and laid in a gelatinous matrix in the bottom of the nest. Eggs hatch 24 to 48 hours after fertilization and gray triggerfish larvae move up into the water column (Simmons and Szedlmayer 2013). Large numbers of larval and juvenile gray triggerfish are found associated with *Sargassum* spp. mats in late summer and fall (Dooley 1972; Fahay 1975; Bortone et al. 1977; Wells and Rooker 2004). After 4 to 7 months in the pelagic

zone, juvenile gray triggerfish recruit to benthic substrate (Simmons and Szedlmayer 2011). Adult gray triggerfish are closely associated with both natural and artificial reefs (Johnson and Saloman 1984; Frazer and Lindberg 1994; Vose and Nelson 1994; Kurz 1995; Ingram 2001; Lingo and Szedlmayer 2006; Simmons and Szedlmayer 2011). Diet studies on juvenile and adult gray triggerfish, after recruitment to benthic structure, determined they consume a wide variety of invertebrates such as: barnacles, bivalves, polychaetes, crustaceans, echinoderms, and isopods (Vose and Nelson 1994; Kurz 1995). Adult gray triggerfish (mean size tagged = 13.6 inches FL (347 mm FL)) are estimated to have high site fidelity (Ingram and Patterson 2001). In a mark-recapture study completed in the northern Gulf, 28 out of the 42 recaptures were made at the site of release (n = 206 tagged gray triggerfish; Ingram and Patterson 2001). Herbig and Szedlmayer (2016) recently completed an internal transmitter tagging paper on gray triggerfish and found that adult gray triggerfish have 64% site fidelity, staying close to the reef ((35.9 m (108 ft); n=13)) and have high reef residency (greater than 57 weeks). Core area movements were reduced in the winter (January through May) and increase in June at the start of the spawning season; however, the greatest movement was documented during the months after spawning from September through November (Herbig and Szedlmayer 2016). This daytime movement may be due to foraging and then resting at night in the reef, potentially for protection from predators. (Herbig and Szedlmayer 2016). This behavior has been documented for other species of Balistidae.

**Stock Status Gray Triggerfish**

A standard assessment (Southeast Data Assessment and Review 43 2015) of Gulf gray triggerfish was completed and reviewed by the Scientific and Statistical Committee (SSC) in October 2015. The assessment indicated that gray triggerfish was no longer undergoing overfishing, but remains overfished. On November 2, 2015, National Marine Fisheries Service (NMFS) notified the Council that the gray triggerfish stock was not making adequate progress toward rebuilding. Within 2 years of this notification, the Council must prepare and implement a plan amendment or proposed regulations for a plan to rebuild the stock as quickly as possible, but not to exceed 10 years. The Council developed a rebuilding plan in 2017 and it is slated for implementation in January 16, 2018.

A benchmark stock assessment was conducted in October 2006 for the Gulf gray triggerfish stock (SEDAR 9 2006a). The assessment used the two scenarios of a Stock Production Model Incorporating Covariates and the State-Space Age-Structured Production Model (SSASPM). The assessment results indicated the stock was both overfished and experiencing overfishing (SEDAR 9 2006a). In October 2006, NMFS notified the Council that the gray triggerfish stock was overfished and experiencing overfishing. This required that the Council take action to end overfishing and develop a rebuilding plan.

In response, the Council submitted Reef Fish Amendment 30A (GMFMC 2008) that established a stock rebuilding plan beginning in 2008 as required by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

An update stock assessment was conducted for Gulf gray triggerfish in 2011 (SEDAR 9 Update 2011b). The same assessment model (SSASPM) from the 2006 gray triggerfish benchmark assessment (SEDAR 9 2006a) was applied and three scenarios were explored: 1) re-run the same model but with updated landings, catch-per-unit-effort series including 2010, and updated indices of abundance; 2) additional updated age-length information; and 3) updated shrimp trawl bycatch and effort data.

The Council's SSC reviewed the 2011 update assessment and accepted the second and third model scenarios listed above that used the updated age and length data, and the shrimp trawl bycatch and effort data. At that time the status determination criteria and the estimated rebuilding timeframes were based on future recruitment adhering to the maximum sustainable yield (MSY) proxy. The MSY proxy is defined as the fishing mortality rate at 30% spawning potential ratio ($F_{30\% SPR}$). Future yields are normally based on recruitment projections that depend in part on the spawner-recruit curve developed in the assessment. At the time the update assessment was completed, gray triggerfish recruitment had been at low levels relative to the spawner-recruit curve (SEDAR 9 Update 2011b). The reason for low recruitment was unknown. Further, it was unknown whether recruitment in the near future will remain at these low levels or revert back to the levels projected by the spawner-recruit curve. At that time, the SSC set the ABC based on a low recruitment time period (i.e., 2005 through 2009) for 2012 and 2013 of 305,300 lbs ww (http://gulfcouncil.org/resources/SSC_Reports.php). The corresponding OFL defined by the SSC was the yield at $F_{30\%SPR}$, equal to 401,600 lbs ww for these years. Results from the update assessment showed that the gray triggerfish stock was continuing to experience overfishing and the stock was overfished. In a March 2012 letter, NMFS informed the Council that the gray triggerfish stock was continuing to experience overfishing and was not making adequate progress to recover within the specified rebuilding period (NMFS 2012).In response to this letter, the Council requested an interim rule for gray triggerfish be prepared for its April 2012 meeting that would reduce the recreational ACL to 241,200 lbs ww and the recreational ACT to 217,100 lbs ww. The commercial ACL was reduced to 64,100 lbs ww and the commercial ACT (quota) was reduced to 60,900 lbs ww. The interim rule also established in-season closure authority for the recreational sector based on the ACT. Therefore, if the recreational gray triggerfish ACT is reached or projected to be reached within a fishing year, the Assistant Administrator for Fisheries can close the recreational sector from harvesting gray triggerfish for the rest of the year (78 FR 27084). Amendment 30A (GMFMC 2008) had already established in-season closure authority for the commercial sector based on the ACT (quota). Following implementation of the interim rule in May 2012, the recreational sector was closed on June 11 and the commercial sector was closed on July 1. The interim rule reduced fishing levels until long-term management measures were implemented through Amendment 37. On June 10, 2013, NMFS implemented Amendment 37 (GMFMC 2012).

**Red Grouper Life History and Biology**

In the Gulf, red grouper are commonly caught from Panama City, Florida, to the Florida Keys along the inner to mid-continental shelf in depths ranging from 2 to over 120 m (Moe 1969). Based on reported commercial landings, the Southeast Fishery Science Center's (SEFSC) Headboat Survey, and the Marine Recreational Fisheries Statistics Survey (MRFSS), red grouper

are infrequently caught in the western Gulf. The species inhabits flat rock perforated with solution holes, caverns and crevices of limestone reef, and hard bottom areas (Moe 1969; Bullock and Smith 1991). Juveniles live in shallow water nearshore reefs until reaching approximately 16 inches (40 cm), when they become sexually mature and move offshore (Moe 1969). Red grouper reach a maximum length and weight of 43 inches (110 cm total length) and 50.7 pounds. (23 kg) (Robins et al. 1986). Maximum age of red grouper in the Gulf of Mexico has been estimated at 25 years (SEDAR 12 2007). Clear determinations of size and age of maturity have been difficult for red grouper (Fitzhugh et al. 2006 and references cited therein). Fitzhugh et al. (2006) determined the size and age where 50% of individuals attained maturity was approximately 11 inches (28 cm total length) at age 2. Although previous estimates indicated that 50% of red grouper were mature by 5 years of age and 15-20 inches total length (40-50 cm total length) (Moe 1969; Collins et al. 2002). Red grouper are protogynous hermaphrodites, transitioning from females to males at older ages, and form harems for spawning (Dormeier and Colin 1997). Age and size at sexual transition is approximately 10.5 years and 30 inches total length (76.5 cm total length) (Fitzhugh et al. 2006). Red grouper spawn from February until mid-July with peak spawning occurring in the eastern Gulf of Mexico during March through May (Fitzhugh et al. 2006). Over the last 25-30 years, there has been little change in the sex ratio of red grouper, likely because they do not aggregate (Coleman et al. 1996).

**Status of the Red Grouper Stock**

The most recent benchmark stock assessment for red grouper (SEDAR 12 2007) was completed in early February 2007. The assessment used an age-structured assessment model called ASAP (Legault and Restrepo 1999) that was the basis for the 2002 assessment and included data from 1986 through 2005. Approximately 99% of the landings were from the west coast of Florida and the rest were from Alabama. The minimum stock size threshold and maximum fishing mortality threshold were defined for red grouper in Secretarial Amendment 1 as (1-M)*$SS_{MSY}$ and $F_{MSY}$, respectively. The red grouper stock assessment concluded that spawning stock size exceeded $SS_{MSY}$ starting in 1999. This compares reasonably well with the results of the 2002 assessment which estimated the stock would be rebuilt by 2003 using a stock–recruit steepness relationship of 0.8, which is similar to the 0.84 estimated by the 2007 assessment. Recovery of the red grouper stock accelerated between 2001 and 2005 as a result of another very strong recruitment year class that occurred in 2000. Additionally, changes in the treatment of natural mortality during the SEDAR 12 assessment resulted in slightly more optimistic results when compared to the 2002 stock assessment. Fishing mortality on red grouper declined below maximum fishing mortality threshold starting in 1995 and has fluctuated but remained below maximum fishing mortality threshold with little trend through 2005. In 2005, fishing mortality was just below the target fishing mortality level of $F_{OY.}$

The 2009 update stock assessment of the red grouper stock in the Gulf of Mexico (SEDAR 2009a) was conducted using the same model as the 2007 assessment, but with catch data and indices of abundance updated through 2008. After reviewing several model runs with varied parameter inputs, the SSC accepted the model run titled "Red Tide Model with Constant Catchability". This model run allowed the natural mortality rate for 2005, a year when there was

an extensive red tide event along the West Florida Shelf, to adjust above the base natural mortality rate. The best-fit result indicated that an additional mortality for red grouper corresponding to approximately 20% of the stock occurred in 2005.[15] The stock was found to be neither overfished or undergoing overfishing. However, the stock has declined since 2005, much of which was attributed to an episodic mortality event in 2005 (most likely associated with red tide). The 2010 overfishing limit (OFL) or the yield associated with $F_{MSY}$ for this model was estimated at 6.43 million pounds and the optimum yield (OY), calculated from the Council's default definition as the yield at 75% of $F_{MSY}$, was estimated at 4.913 for 2010.

The SSC reviewed the 2009 assessment update in June 2009. The model projection used actual catches through 2008, and assumed that the entire total allowable catch (TAC) would be filled in 2009. However, given that the TAC had not been filled in recent years, and that a longline emergency rule that restricted bottom longlines in order to protect sea turtles was in effect in 2009, the SSC felt that it was unlikely that the TAC would be filled in 2009. As a result, the SSC asked that projections of the red grouper and gag yield streams be rerun using updated landings estimates for 2009. These reruns were presented to the SSC in March 2010. The requested red grouper scenarios used the "Red Tide Model with Constant Catchability", used updated landings estimates for 2009 data, and either set the 2010 harvest level equal to the current TAC or equal to 2009 estimated landings (NMFS 2010). For red grouper, projections were provided for fishing at $F_{MSY}$ and $F_{OY}$. Given that the 2010 landings, to date, appeared to better match 2009 harvest levels than in previous years, the SSC selected the model runs where the 2010 projected harvest was equal to the estimated 2009 harvest. Thus, the SSC recommended the 2011 overfishing level be set consistent with the Councils current definition of the yield associated with fishing at $F_{MSY}$, or 7.42 MP GW. Because the revised projections (NMFS 2010) did not provide probabilities of overfishing based on the different landing projection scenarios, the SSC selected a 2011 acceptable biological catch of 6.31 MP GW. This level is equal to 85% of the yield at $F_{MSY}$ and was felt by the SSC to reduce the probability that overfishing might occur in 2011.

The yield projections were again rerun in late 2010 to incorporate new information on red grouper harvest, with the results presented to the SSC in January 2011 and again in March 2011. This new rerun used revised estimates of historical discards in the commercial sector that were based on newly available observer estimates from 2006 through 2008. Previous discard estimates were based on logbook records of bycatch, area fished, and fishery independent catch-at-depth mortality analyses. The new rerun also accounted for a reduction in the commercial minimum size limit from 20 inches to 18 inches that was implemented in 2009 (Walter 2011). Give these changes, the January 2011 projection rerun indicated that the total allowable catch in the near term could be increased substantially. Based on the January rerun, the SSC recommended that the overfishing limit for red grouper be set at 7.93 million pounds gutted

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

weight (the equilibrium yield at the fishing mortality rate associated with harvesting at the equilibrium maximum sustainable yield, and the acceptable biological catch be set at 7.93 million pounds gutted weight (the equilibrium yield at the fishing mortality rate associated with harvesting at the equilibrium optimum sustainable yield). Since the red grouper stock is not overfished, these equilibrium harvest levels are in effect for all years, until a new stock assessment is conducted.

In October 2015, the SEDAR 42 stock assessment for red grouper was completed using the Stock Synthesis model. SEDAR 42 found the red grouper stock was not undergoing overfishing and was not overfished. In order to develop ABC projections, the SSC determined P* using the ABC control rule Tier 1 spreadsheet. The P* analysis for red grouper resulted in a P* of 0.427, which the SSC rounded off to 0.43. Given that the red grouper stock is neither overfished nor experiencing overfishing (as of 2013), SSC members felt it was appropriate to provide OFL and ABC recommendations for a 5-year period beginning in 2016. However, a decision was needed on how to handle landings for the years 2014-2015, which are not in the assessment. For 2014, final landings are available and will be used. For 2015 the SSC recommended that the assessment group use landings estimates based on the current quotas and annual catch limits (ACLs).

**Gag Life History and Biology**

Gag is primarily caught on the west coast of Florida from Tampa Bay to the northern extent of the state (Schirripa and Goodyear 1994). Newly settled juveniles are estuarine-dependent, occurring in shallow seagrass beds during late spring and summer (Koenig and Coleman 1998; Strelcheck et al. 2003). At the onset of the first winter, juvenile gag migrate offshore, although some juvenile gag may remain in inshore waters during winter (Heinisch and Fable 1999). As gag mature, they move to deeper, offshore waters to spawn. Gag is a protogynous hermaphrodite, transitioning from females to males at older ages. Age and size at 50% sexual transition is approximately 11 years and 42-43 inches (108.5 - 110 cm) total length (SEDAR 10 2006). Maximum age is 31 years (Lombardi-Carlson et al 2006) and females are mature by 3.7 years of age and 23 inches (58.5 cm) total length (Fitzhugh et al 2006b). They form spawning aggregations at depths ranging from 160-400 feet (Coleman et al. 1996). In the eastern Gulf the spawning season is estimated to extend from late January to mid-April (with a peak in March) (Fitzhugh et al 2006b). Often immature female gag are found with spawning aggregations (Coleman et al. 1996). Gag can reach a maximum length of 54 inches (138 cm) total length and weight of 68 pounds (31 kg) (Lombardi et al 2006).

Oil from the Deepwater Horizon MC252 incident has affected at least one-third of the Gulf area at its maximum extent from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. However, at this point the affected areas are outside west Florida Shelf where gag are primarily found. Some surface oil may have occurred over the west Florida shelf in offshore waters, however, juvenile and adults are demersal and so likely were not affected. In addition, the oil would not have been present during the January to April spawning period when pelagic eggs and larvae could be susceptible to oil at the surface. Therefore, the effects of the oil on gag populations and gag essential fish habitat would likely be minimal.

**Status of the Gag Stock**

In 2009, a gag update assessment under the Southeast Data, Assessment and Review program (SEDAR 10 Update 2009) indicated the gag stock size had declined since 2005. A large part of the decline was attributed to an episodic mortality event in 2005 (most likely associated with red tide) that resulted in 18% of the gag stock being killed in addition to the normal natural and fishing mortalities. The update assessment indicated the Gulf gag stock was both overfished and undergoing overfishing, and the Council was informed of this status determination in August 2009. In response, an interim rule was implemented on January 1, 2009 to reduce overfishing of gag, followed by permanent rules under Amendment 30B (GMFMC 2008b). Amendment 32 (GMFMC 2011b) subsequently established a formal rebuilding plan for gag not to exceed 10 years.

A benchmark assessment for gag completed in 2014 (SEDAR 33 2014a) indicated that the gag stock was no longer overfished or undergoing overfishing, and had rebuilt to above its maximum sustainable yield level. However, in 2014 a major red tide event occurred off of the Florida west coast in the region of greatest gag abundance. Due to uncertainty about the impact of this red tide event on the gag stock, the Scientific and Statistical Committee (SSC) recommended an acceptable biological catch (ABC) that assumed the 2014 red tide event would have the same impact on the gag stock as the 2005 event. The Council requested that the SSC reevaluate its ABC recommendation, and in January 2015 the SSC received an analysis of the red tide event from the Florida Fish and Wildlife Research Institute which indicated that the impact of the 2014 red tide event was only 4% to 7% of the 2005 event. With this new information, the SSC revised its recommended ABCs based on a projection scenario that assumed no significant impact from the 2014 red tide event.

**Bycatch**

Many of the reef fish species co-occur and can be incidentally caught when fishermen target certain species. In some cases, these fish may be discarded for regulatory reasons and thus are considered bycatch. Bycatch practicability analyses have been completed for red snapper (GMFMC 2004b, GMFMC 2007, GMFMC 2014, GMFMC 2015), grouper (GMFMC 2008a, GMFMC 2010, GMFMC 2011b, GMFMC 2012c), vermilion snapper (GMFMC 2004c), greater amberjack (GMFMC 2008b, GMFMC 2012a, GMFMC 2017), gray triggerfish (GMFMC 2012b), and hogfish (GMFMC 2016). These analyses examined the effects of fishing on these species. In general, these analyses have found that reducing bycatch provides biological benefits to managed species as well as benefits to the fishery through less waste, higher yields, and less forgone yield. However, in some cases, actions are approved that can increase bycatch through regulatory discards such as increased minimum sizes and closed seasons. Under these circumstances, there is some biological benefit to the managed species that outweigh any increases in discards from the action.

**Protected Species**

The Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) provides special protections to some species that occur in the Gulf. A very brief summary of these two laws and more information is available on NMFS Office of Protected Resources website.[4] 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 that occur in the Gulf include sea turtles (Kemp's ridley, loggerhead (Northwest Atlantic Ocean distinct population segment [DPS]), green (South Atlantic and North Atlantic DPSs), leatherback, and hawksbill), three fish (Gulf sturgeon, smalltooth sawfish, and Nassau grouper), and seven corals (elkhorn, staghorn, pillar, 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 DPS of loggerhead sea turtles also occur in the Gulf, though only loggerhead critical habitat occurs in federal waters.

The most recent biological opinion (Bi Op) on the Reef Fish FMP was completed on September 30, 2011. The Bi Op determined the continued authorization of the Gulf reef fish fishery managed under the Reef Fish FMP is not likely to affect ESA-listed marine mammals or corals, and is not likely to jeopardize the continued existence of sea turtles (loggerhead, Kemp's ridley, green, hawksbill, and leatherback), or smalltooth sawfish. An incidental take statement was provided. Since issuing the Bi Op, in memoranda dated September 16, 2014, and October 7, 2014, NMFS concluded that the activities associated with the Reef Fish FMP are not likely to adversely affect four species of newly listed corals (rough cactus, lobed star, mountainous star, and boulder star) or critical habitat for the Northwest Atlantic Ocean loggerhead sea turtle DPS.

On April 6, 2016, NMFS and the U.S. Fish and Wildlife Service published a final rule (81 FR 2007) removing the range-wide and breeding population ESA listings of the green sea turtle and listing eight DPSs as threatened and three DPSs as endangered, effective May 6, 2016. Two of the green sea turtle DPSs, the North Atlantic DPS and the South Atlantic DPS, occur in the Gulf and are listed as threatened. In addition, on June 29, 2016, NMFS published a final rule (81 FR 42268) listing Nassau grouper as threatened under the ESA. NMFS has reinitiated consultation on the Reef Fish FMP to address the listing of green sea turtle DPSs and Nassau grouper and determined that allowing fishing under the Reef Fish FMP to continue during the reinitiation period is not likely to jeopardize the continued existence of these DPSs or Nassau grouper[16].

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 jurisdiction, and 21 cetacean species (dolphins and whales), all under NMFS' jurisdiction. Manatees primarily inhabit rivers, bays, canals, estuaries,

[16] http://www.nmfs.noaa.gov/pr/laws/

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 (depth greater than or equal to 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 (greater than 200 m) 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 DPS. 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 published a proposed rule to list the Gulf Bryde's whale as endangered under the ESA (81 FR 88639). NMFS solicited public comments on the proposed rule and is developing a final rule.

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 identified 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[17].

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 can be found on the website for the List of Fisheries and the classification process[18].

[17] http://www.nmfs.noaa.gov/pr/sspecies/
[18] http://www.nmfs.noaa.gov/pr/interactions/fisheries/lof.html

NMFS classifies reef fish bottom longline/hook-and-line gear in the MMPA proposed 2018 List of Fisheries as a Category III fishery (82 FR 47424). 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 bait, catch, and/or released discards of fish from the reef fish fishery.

*Sea Turtles*

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

**Green** sea turtles are the largest of the hardshell marine turtles, growing to a weight of 350 lbs (159 kg) with a straight carapace length of greater than 3.3 ft (1 m). Hatchlings are thought to occupy pelagic areas of the open ocean and are often associated with Sargassum rafts (Carr 1987; Walker 1994). At approximately 20 to 25 cm carapace length, juveniles migrate from pelagic habitats to benthic foraging areas in nearshore tropical and subtropical waters (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 depth 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).

**Hawksbill** sea turtles are small- to medium-sized (99-150 lbs on average [45-68 kg]) although females nesting in the Caribbean are known to weigh up to 176 lbs (80 kg) (Pritchard et al. 1983). Hatchlings have a pelagic stage that lasts from the time they leave the nesting beach 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. Hawksbill sea turtles have a circumtropical distribution and usually occur between latitudes 30°N and 30°S in the Atlantic, Pacific, and Indian Oceans. In the western Atlantic, hawksbills are widely distributed and can be found off the coasts of Florida and Texas in the continental U.S. Little is known about the diet of pelagic stage hawksbills. Adult foraging typically occurs over coral reefs, although other hardbottom 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** are the smallest of all sea turtles. Adults generally weigh less than 100 lbs (45 kg) and have a carapace length of around 2.1 ft (65 cm). The primary range of Kemp's ridley sea turtles is within the Gulf basin, though they also occur in coastal and offshore waters of the U.S. Atlantic Ocean. Hatchlings are 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 50 m) benthic foraging habitat over unconsolidated substrates (Márquez-M. 1994). They have also been observed transiting long distances between foraging habitats (Ogren 1989). Kemp's ridley sea turtles feeding in these nearshore areas primarily prey on crabs, though they are also known to ingest mollusks, fish, jellyfish, marine vegetation, and shrimp (Shaver 1991). The fish and shrimp Kemp's ridley sea turtles 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 preference for shallower water, Kemp's ridley sea turtles 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 ridley sea turtles 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 ridley sea turtles may also spend as much as 96% of their time underwater (Soma 1985; Byles 1988).

**Leatherbacks** are the largest, most pelagic, and most vulnerable to entanglement in fishing gear of all ESA-listed sea turtles. They 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 (Heppell et al. 2003). Curved carapace length often exceeds 5 ft (150 cm) and front flippers that can span almost 9 ft (270 cm) (NMFS and USFWS 1998). Mature males and females can reach lengths of over 6 ft (2 m) and weigh close to 2,000 lbs (900 kg). 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 a half-mile (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** sea turtles inhabit continental shelf and estuarine environments throughout the U.S. Atlantic, Gulf, and Caribbean Sea. (Dodd Jr. 1988). 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 carapace length (SCL), 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 for crabs, mollusks, jellyfish, and vegetation (Carr 1986; Dodd Jr. 1988). Adults in the southeast U.S. average about 3 ft (92 cm) long SCL and weigh approximately 255 lbs (116 kg) (Ehrhart and Yoder 1978). Adult 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 (692-764 ft.) (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 gear types are believed to all be released alive due to shorter gear soak times. 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 sector and charter/headboat component of the reef fish fisheries to minimize post-release mortality.

*Protected Fish*

The **Nassau grouper's** confirmed distribution currently includes Bermuda and Florida (USA), throughout the Bahamas and Caribbean Sea (Heemstra and Randall 1993). The Nassau grouper has been documented in the Gulf at Arrecife Alacranes (north of Progreso) to the northwest off the Yucatan Peninsula, Mexico (Hildebrand et al. 1964). Nassau grouper is generally replaced ecologically in the eastern Gulf by red grouper (*E. morio*) in areas north of Key West or the Tortugas (Smith 1971). They are considered a rare or transient species off Texas in the northwestern Gulf (Gunter and Knapp 1951 in Hoese and Moore 1998).

The Nassau grouper is primarily a shallow-water, insular fish species that has long been valued as a major fish 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 (Colin 1992; Eggleston 1995). Juvenile Nassau grouper (12-15 centimeters TL) are relatively solitary and remain in specific areas associated with macroalgae, and both natural and artificial reef structure) for months (Bardach 1958). 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 (3.7-16.5m) 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).

The most serious threats to the status of Nassau grouper today are fishing of spawning aggregations and inadequate law enforcement protecting spawning aggregations in many foreign nations. These threats are currently affecting the status of Nassau grouper, putting it at a heightened risk of extinction.

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 m (Bigelow and Schroeder 1953; Adams and Wilson 1995), while mature animals occur in waters in excess of 100 m. 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 at 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 3 years in the entire reef fish fishery, and none of these captures are expected to result in mortality (NMFS 2011). Fishermen in this fishery are required to follow smalltooth sawfish safe handling and release guidelines.

**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 to the running average for over the past five 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 hypothesized that the hypoxic zone could have an indirect positive effect on red snapper populations in the western Gulf. They posit 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 stocks 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[19]). 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 bring about temperature changes in coastal and marine ecosystems that, in turn, can influence organism metabolism; alter ecological processes, such as productivity and species interactions; change precipitation patterns and cause a rise in sea level that could change the water balance of coastal ecosystems; alter 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. National Oceanic and Atmospheric Administration's (NOAA) Climate Change Web Portal[20] indicates that 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 that climate change could cause shifts in spawning seasons, changes in migration patterns, and changes to basic life history parameters such as growth rates. The OceanAdapt model[21] shows distributional trends both in latitude and depth over the time period 1985-1013. For some 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. Finally, for other 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

[19] http://www.ipcc.ch/
[20] http://www.esrl.noaa.gov/psd/ipcc/ocn/
[21] http://oceanadapt.rutgers.edu/regional_data/

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[8] has indicated greenhouse gas emissions are among the most important drivers of recent changes in climate. Wilson et al. (2017) inventoried the sources of 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 3.3.6 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 (2.04% and 1.67%, respectively).

**Table 3.3.6.** Total Gulf greenhouse gas 2014 emissions estimates (tons per year [tpy]) 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 | $CO_2$ | Greenhouse $CH_4$ | Gas $N_2O$ | Total $CO_{2e}$** |
|---|---|---|---|---|
| **Oil platform** | 5,940,330 | 225,667 | 98 | 11,611,272 |
| **Non-platform** | 14,017,962 | 1,999 | 2,646 | 14,856,307 |
| **Total** | **19,958,292** | **227,665** | **2,743** | **26,467,578** |
| **Commercial fishing** | 531,190 | 3 | 25 | 538,842 |
| **Recreational fishing** | 435,327 | 3 | 21 | 441,559 |
| **Percent commercial fishing** | 2.66% | >0.01% | 0.91% | 2.04% |
| **Percent recreational fishing** | 2.18% | >0.01% | 0.77% | 1.67% |

*Compiled from Tables 6-11, 6-12, and 6-13 in Wilson et al. (2017). **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

*General Impacts on Fishery Resources*

The presence of polyaromatic hydrocarbons (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 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 (greater than 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. Marine fish species typically concentrate PAHs in the digestive tract, making stomach bile an appropriate testing medium. A study by Synder et al. (2015) assessed bile samples from golden tilefish (*Lopholatilus chamaeleonticeps*), king snake eel (*Ophichthus rex*), and red snapper for PAH accumulation over time and reported concentrations were highest in golden tilefish during the same time period when compared to king snake eel and red snapper. These results suggest that the more highly associated an organism is with the sediment in an oil spill area, the higher the likelihood of toxic PAH accumulation. Twenty-first century dispersant applications are thought to be less harmful than their predecessors. However, the combination of oil and dispersants has 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.

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 (Figure 3.3.2). 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 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 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.[22]

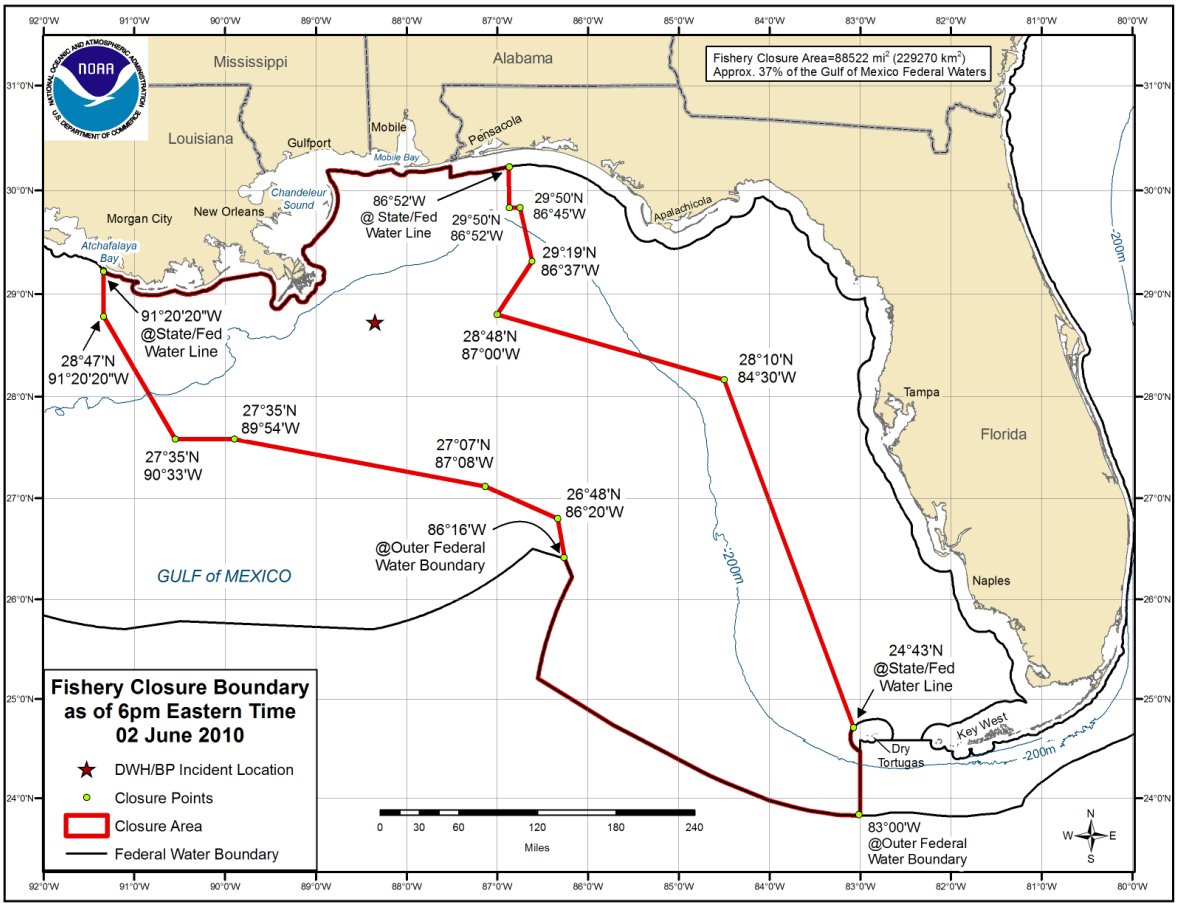


**Figure 3.3.2.** Fishery closure at the height of the *Deepwater Horizon MC252* oil spill.

*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

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

existence of green, hawksbill, Kemp's ridley, leatherback, or loggerhead sea turtles, nor the continued existence of smalltooth sawfish (NMFS 2011).[23]

## 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 Section 1.1. Additional details on the economic environment of the recreational and commercial sectors of the Gulf reef fish fishery, or components thereof, are provided in Reef Fish Amendment 36A (GMFMC 2017), Red Grouper Allowable Harvest Framework Action (GMFMC 2016a), Modifications to Gag Minimum Size Limits, Recreational Season and Black Grouper Minimum Size Limits Framework Action (GMFMC 2016b), Reef Fish Amendment 28 (GMFMC 2015a), Modifications to Greater Amberjack Allowable Harvest and Management Measures Framework Action (GMFMC 2015b), 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 (GMFMC 2013a).

### 3.4.1 Commercial Sector

This proposed action would only apply to a portion of the recreational sector (headboat survey vessels). As a result, a description of the economic environment for the commercial sector is not provided.

### 3.4.2 Recreational Sector

This proposed action would only apply to headboat survey vessels. As a result, a description of the economic environment specifically for the charter vessel and private angler portions of the recreational sector is not provided.

Recreational effort derived from the Marine Recreational Information Program (MRIP) database can be characterized in terms of the number of target trips, catch trips, and directed trips taken by anglers in the private recreational sector and by charter vessels. Similar analysis of recreational effort is not possible for the headboat mode because headboats are not included in MRIP, and headboat logbook data does not collect data at the angler level. Estimates of effort by headboats are typically provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats. The stationary "fishing for demersal (bottom-dwelling) species" nature of headboat fishing, as opposed to trolling, suggests that most, if not all, headboat trips and, hence, angler days, are demersal or reef fish trips by intent.

[23] For additional information on the *Deepwater Horizon MC252* oil spill and associated closures, see: http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm.

The distribution of headboat effort (angler days) by geographic area is presented in Table 3.4.2.1. For purposes of data collection, the headboat data collection program divides the Gulf into several areas. On average, from 2012 through 2016, the area from the Dry Tortugas through the Florida Middle Grounds accounted for 41.2% of total headboat angler days in the Gulf, followed by northwest Florida through Alabama (35.1%), Texas (22.3%), and Mississippi through Louisiana (1.4%). Western Florida experienced a steady increase over that time period to a five-year high in 2016.

**Table 3.4.2.1.** Headboat angler days and percent distribution, by state, 2012-2016.

| | Angler Days | | | | Percent Distribution | | | |
|---|---|---|---|---|---|---|---|---|
| **Year** | **FLW** | **NWFL-AL*** | **MS-LA**** | **TX** | **FLW** | **FL-AL** | **MS-LA** | **TX** |
| 2012 | 84,205 | 77,770 | 3,680 | 51,776 | 38.73% | 35.77% | 1.69% | 23.81% |
| 2013 | 94,752 | 80,048 | 3,406 | 55,749 | 40.50% | 34.22% | 1.46% | 23.83% |
| 2014 | 102,841 | 88,524 | 3,257 | 51,231 | 41.83% | 36.01% | 1.32% | 20.84% |
| 2015 | 107,910 | 86,473 | 3,587 | 55,135 | 42.63% | 34.16% | 1.42% | 21.78% |
| 2016 | 109,101 | 90,877 | 2,955 | 54,083 | 42.45% | 35.36% | 1.15% | 21.04% |
| **Average** | 99,762 | 84,738 | 3,377 | 53,595 | 41.23% | 35.10% | 1.41% | 22.26% |

Source: NMFS Southeast Region Headboat Survey (SRHS).
*Beginning in 2013, HBS data was reported separately for NW Florida and Alabama, but has been combined here for consistency with previous years.
**Headboat data from Mississippi and Louisiana are combined for confidentiality purposes.

**Permits**

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

A federal charter/headboat (for-hire) vessel permit is required for fishing in federal waters for Gulf reef fish. Gulf reef fish for-hire permits are limited access permits. From a historical perspective, the number of permits that were valid in a given year has continually decreased over the past several years. Specifically, from 2008 to 2016, the number of valid permits in each year were 1458, 1417, 1385, 1353, 1336, 1323, 1310, 1294, and 1282, respectively. As of November 14, 2017, there were 1,278 valid or renewable for-hire reef fish permits, 1,175 of which were valid. A renewable permit is an expired limited access permit that cannot be actively fished, but is renewable for up to one year after expiration.

Although the for-hire permit application collects information on the primary method of operation, the permit itself does not identify the permitted vessel as either a headboat or a charter vessel and vessels may operate in both capacities. However, if a vessel meets the selection criteria used by the Southeast Region Headboat Survey (SRHS) and is selected to report by the

Science Research Director (SRD) of the SEFSC, it is determined to operate primarily as a headboat and is required to submit harvest and effort information to the SRHS.

**Economic Performance**

Information on Gulf headboat operating characteristics is included in Savolainen et al. (2012) and is incorporated herein by reference though some key findings are included here. These findings are based on survey data not headboat logbook data. According to this data, headboats average 54.7 feet in length and 891 horsepower. The percentage of part-time operators in the headboat sector has historically been low. On average, only 10 percent of Gulf headboats typically operate on a part-time basis. Headboats typically target offshore species and fish in federal waters, largely due to vessel size and consumer demand. An average of 84 percent of headboat trips in the Gulf targeted reef fish species, while only 10 percent targeted inshore species and 6 percent pelagic species. Overall, 81 percent of these annual trips were taken in the EEZ.

According to the headboat logbook data, the number of active federally permitted Gulf headboats in the SRHS was 68 from 2012 through 2015 and 69 in 2011 and 2016 (K. Fitzpatrick, NMFS SEFSC, pers. comm.). Thus, the fleet size remained stable from 2011 through 2016. However, the fleet as a whole and on average has become more active over time. Total trips per year by all Gulf headboats and the average (mean) annual number of trips per vessel increased by almost 20% from 2011 through 2016. Also, the average (mean) annual number of trips per vessel is consistently much higher than the median value. This suggests the distribution of trips across boats in a year is highly skewed, i.e., there are a relatively small number of boats that take many more trips than the average (mean), while many boats take fewer trips than the average (mean).

**Table 3.4.2.2.** Total Gulf Headboat trips and average trips per headboat by trip type and year, 2011-2016. Trips include reported and estimated trips.

| Year | Number of Vessels | Statistic | ½ Day Trips | ¾ Day Trips | Full Day Trips | Full Day+ Trips | All Trips |
|---|---|---|---|---|---|---|---|
| 2011 | 69 | Total | 3,129 | 4,082 | 1,024 | 211 | 8,446 |
| | | Median | 10 | 21 | 2 | 0 | 98 |
| | | Mean | 45 | 59 | 15 | 3 | 122 |
| | | | | | | | |
| 2012 | 68 | Total | 3,200 | 4,032 | 1,219 | 234 | 8,685 |
| | | Median | 11 | 25 | 3 | 0 | 116 |
| | | Mean | 47 | 59 | 18 | 3 | 128 |
| | | | | | | | |
| 2013 | 68 | Total | 2,902 | 2,363 | 3,316 | 243 | 8,824 |
| | | Median | 10 | 11 | 25 | 0 | 112 |
| | | Mean | 43 | 35 | 49 | 4 | 130 |
| | | | | | | | |
| 2014 | 68 | Total | 3,281 | 2,260 | 3,343 | 275 | 9,159 |
| | | Median | 14 | 5 | 26 | 0 | 129 |
| | | Mean | 48 | 33 | 49 | 4 | 135 |
| | | | | | | | |
| 2015 | 68 | Total | 3,649 | 2,265 | 3,499 | 313 | 9,726 |
| | | Median | 11 | 7 | 29 | 0 | 125 |
| | | Mean | 54 | 33 | 51 | 5 | 143 |
| | | | | | | | |
| 2016 | 69 | Total | 3,757 | 2,483 | 3,544 | 298 | 10,082 |
| | | Median | 11 | 6 | 27 | 0 | 118 |
| | | Mean | 54 | 36 | 51 | 4 | 146 |

During this time, there has also been a significant increase in the number of full day trips, and the percentage of total trips accounted for by full-day trips. Conversely, the number of ¾ day trips and the percentage of total trips they represent has decreased during this time. These particular trends began in 2013.

With respect to economic characteristics of Gulf headboat operations, **t**he most current estimate of average annual gross revenue per headboat is also provided in Savolainen, et al. (2012). In 2016 dollars, the average annual gross revenue for a Gulf headboat is $256,134.

A headboat's gross revenues are based on the fees charged per angler/trip as well as the number of trips taken. Recent information on average fee per angler charged on Gulf headboat trips was provided for 2012 and 2013 in Carter (2015) and for 2014 and 2015 in Carter (2016). Trip fee per angler varies by trip duration, i.e., customers pay higher fees for longer trips. This information is summarized in Table 3.4.2.3. Estimates have been converted into 2016 dollars.

**Table 3.4.2.3.** Average Fee per Angler/Trip by Trip Duration for Gulf Headboats, 2012-2015. (2016 dollars)

| Duration | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|
| ½ day | $53 | $55 | $56 | $63 |
| ¾ day | $72 | $72 | $76 | $78 |
| Full day | $82 | $84 | $85 | $88 |
| >Full day | $95 | $99 | $115 | $115 |

Gross revenues overstate the economic value generated by trips taken by headboats. Economic value for for-hire vessels can be measured by producer surplus (PS) per passenger trip. In general, producer surplus is the amount of money that a vessel owner earns in excess of the cost of providing the trip. Estimates of the PS per for-hire passenger trip are not available. Instead, net operating revenue (NOR), which is the return used to pay all labor wages, returns to capital, and owner profits, is used as a proxy for PS. The estimated NOR value per angler trip for headboats is approximately $55 (2016 dollars) (C. Liese, NMFS SEFSC, pers. comm.).

Additional data on headboat trips in the Gulf was collected in 2015 regarding the number of crew, the number of non-fishing passengers, the gallons of fuel used per trip, and the price paid per gallon of fuel (D. Carter, NMFS SEFSC, pers. comm.). According to this data, in 2015, each headboat used about 109 gallons of fuel and carried approximately 34 anglers, 35 passengers,[24] and 2.4 crew members on average per trip, while the average price per gallon of fuel was $2.69 (2016 dollars).

However, just as fees vary by trip duration, these trip characteristics also vary considerably by trip duration. These differences are illustrated in Table 3.4.2.4. Longer trips use more fuel per hour on average, with fuel use per trip on ¾ and full day trips being nearly double the usage on half-day trips and trips longer than a full day using nearly double the amount used on ¾ and full day trips. In general, the other trip characteristics also increase with duration. However, the differences across trips of different durations are not as large.

**Table 3.4.2.4.** Headboat Trip Characteristics by Trip Duration, 2015. (2016 dollars)

| Duration | Fuel (gallons) | Fuel price ($/gallon) | Number of Anglers | Number of Passengers | Number of Crew |
|---|---|---|---|---|---|
| ½ day | 58.74 | $2.69 | 34.01 | 34.66 | 2.32 |
| ¾ day | 115.94 | $2.88 | 35.36 | 36.43 | 2.49 |
| Full day | 115.00 | $2.65 | 31.54 | 31.70 | 2.21 |
| >Full day | 265.26 | $2.38 | 40.42 | 40.80 | 3.00 |

Additional information regarding the expected operations and performance of headboats under the type of program(s) being considered in this Amendment can be discerned from research conducted in association with the experimental Headboat Cooperative program for that was in place during 2014 and 2015 for red snapper and gag harvests (Abbott, 2016). The collaborative

[24] The number of passengers accounts for paying customers who do not fish on the trip.

was a type of catch share program. The most important findings of the research in this regard are as follows.

First, most headboats chose to spread their allocations across a much larger number of trips over the course of the season. In turn, this operational change provided their customers with the opportunity to catch red snapper and gag outside their typical seasons. As such, access to gag and red snapper was spread across a larger and more heterogeneous pool of anglers than would have case during the traditional seasons.

Second, landings of red snapper and gag per angler decreased due to the combination of a fixed annual allocation and a longer season. While some headboat operators chose to limit the number of trips utilizing quota for red snapper or gag while allowing anglers to retain their legal bag limit, about half of the headboat operators increased the number of trips offering access to red snapper or gag by reducing the number of fish each angler could retain on these trips. In turn, this increased the number of anglers and trips with access to these particular species. Although headboat operators have always had the ability to limit what anglers can retain below the legal bag limit, the economic incentive to do so did not exist prior to and outside of this program.

Third, although Abbott concludes some increases in customer demand, revenues, and profits would have likely occurred without the program, due to other factors, at least some of the increase in anglers per trip in 2014 and increases in trips in 2015 were caused by more attractive fishing opportunities for anglers which in turn were the direct result of the program. Further, the shift of customers to longer trips which commanded higher prices and earned greater profit margins was created by the opportunity to offer trips to harvest red snapper or gag outside the typical season.[25] Higher profit margins were also attained as a result of reduced fuel costs. Fuel costs for the program vessels were less because they could fish for red snapper rather than spend time looking for other legally retainable species.

Finally, a catch share program would be expected to allow each headboat operation to adapt its trip offerings, pricing, and marketing approach to match the preference of its customer base. Because customer preferences and each business' customer base will vary for many reasons, the end result is likely to be a more differentiated headboat market that will better meet the different preferences of its customers. As such, not only are headboat operators likely to realize greater revenues and profits, the welfare of anglers is likely to increase (as measured by consumer surplus) as a result of the greater diversity in when trips can be offered and the types of trips that can be offered. In short, consumers benefit when there is a broader menu from which to use.

**Economic Impacts**

The desire for recreational fishing generates economic activity as consumers spend their income on various goods and services needed for recreational fishing. This spurs economic activity in the region where recreational fishing occurs. In the absence of the opportunity to fish, the

[25] Some operators charged a premium price for trips that targeted red snapper or gag. However, it is unlikely this would continue if a program was implemented for the entire headboat sector due to the high level of competition.

income would likely be spent on other goods and services and these expenditures would similarly generate economic activity in the region where the expenditure occurs.

Recreational fishing generates economic impacts (business activity). Business activity is typically characterized in the form of jobs (full- and part-time), income impacts (wages, salaries, and self-employed income), value-added impacts (the difference between the value of goods and the cost of materials or supplies), and output impacts (gross business sales). Target species data is not collected on the headboat logbooks. Therefore, estimates of the average target effort for headboats are not currently available, and the economic impacts associated with headboat trips targeting the species being considered in this Amendment cannot be determined at this time.

## 3.5 Social Environment

This amendment would affect the recreational management of several reef fish species in the Gulf and specifically, the harvest of those species by vessels that participate in the SRHS and the anglers who fish from these vessels. To provide information on the geographic distribution of fishing involvement, the top recreational fishing communities based on recreational engagement are identified, followed by the number of federal reef fish for-hire permits broken down by state, the top ranking communities by number of for-hire permits, and location of LHVs around the Gulf. The LHV landings by state for each of the five species and the percent of LHV landings for each species out of all recreational landings are provided.

Community level data are presented to meet the requirements of National Standard 8 of the Magnuson-Stevens Act, which requires the consideration of the importance of fishery resources to human communities when changes to fishing regulations are considered. Lastly, social vulnerability data are presented to assess the potential for environmental justice concerns. This amendment does not affect commercial fishing, thus the commercial sector is not discussed further.

### 3.5.1 Recreational Fishing Communities

Reef fish landings by species for the recreational sector as a whole are not available at the community level, making it difficult to identify communities as dependent on recreational fishing for any of the subject species of this amendment. Because limited data are available concerning how recreational fishing communities are engaged and reliant on specific species, indices were created using secondary data from permit and infrastructure information for the southeast recreational fishing sector at the community level (Jepson and Colburn 2013; Jacob et al. 2013). Recreational fishing engagement is represented by the number of recreational permits and vessels designated as "recreational" by homeport and owners' address. Fishing reliance includes the same variables as fishing engagement, divided by population. Factor scores of both engagement and reliance were plotted.

Figure 3.5.1.1 identifies the top Gulf communities that are engaged and reliant upon recreational fishing in general. Two thresholds of one and one-half standard deviation above the mean were plotted to help determine a threshold for significance. Communities are presented in ranked

order by fishing engagement and all 20 included communities demonstrate high levels of recreational fishing engagement, although this is not specific to any species. Because the analysis used discrete geo-political boundaries, Panama City and Panama City Beach, Florida had separate values for the associated variables. Calculated independently, each still ranked high enough to appear in the top 20 list suggesting a greater importance for recreational fishing in that area.

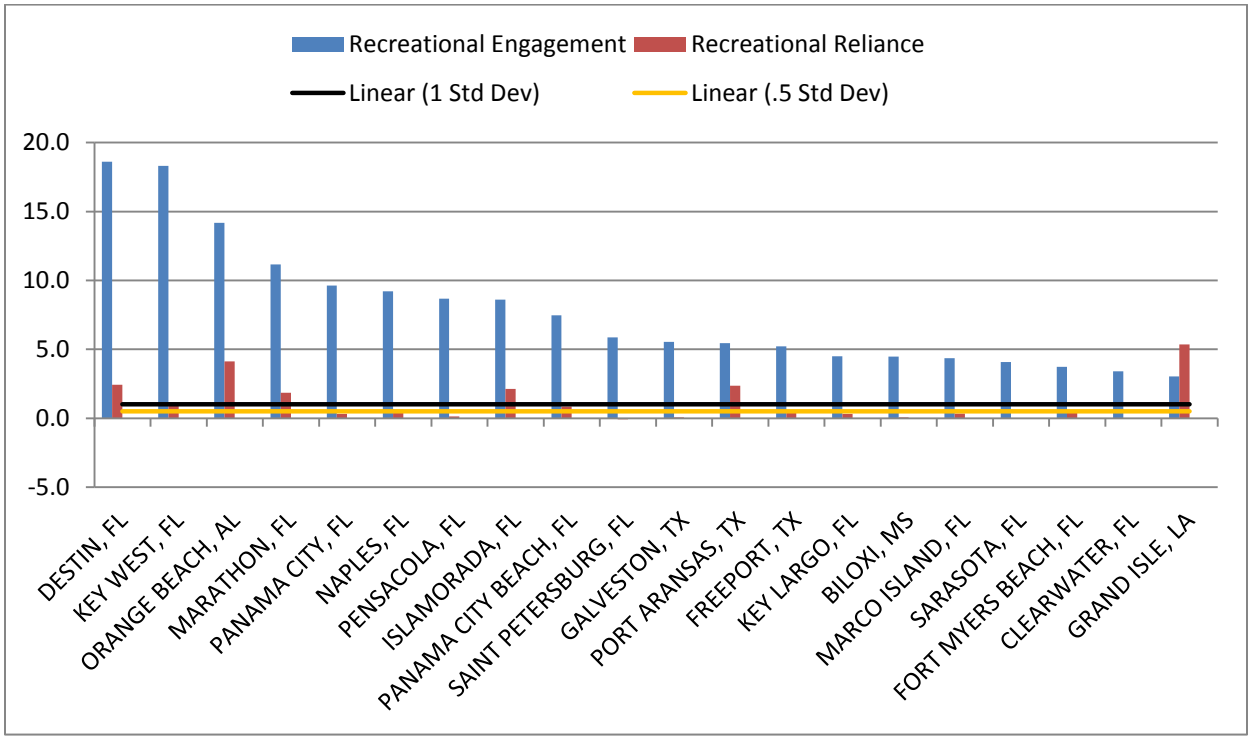


**Figure 3.5.1.1.** Top 20 recreational fishing communities' engagement and reliance.
Source: SERO, Community Social Vulnerability Indicators Database 2014 (American Community Survey 2010-2014).

### Federal Reef Fish For-hire Vessels by Community

Both charter vessels and headboats that are engaged in recreational reef fish fishing in federal waters must have a valid federal reef fish for-hire permit. These permits are limited access and may be transferred, except for historical captain permits which are not transferable and must be fished by the permit holder. Although the number is unknown, it is assumed that many reef fish for-hire permits are latent and are not currently being used for reef fish fishing.

The majority of federal reef fish for-hire permits are held by operators in Florida (59% in 2016), followed by Texas (17.6%), Alabama (10.2%), Louisiana (9%), Mississippi (2.7%), and other states (1.4%; Table 3.5.1.1). The distribution of permits by state has followed a similar pattern throughout the last 5 years. These data may vary from the numbers included elsewhere in this document because of the date on which data were gathered. Data included in Table 3.5.1.1 are based on the number of permits throughout the year, rather than from a specific date, and include

permits that were valid or renewable sometime during the year. In the event a permit was sold during the year, the most recent permit location is identified.

**Table 3.5.1.1.** Number of federal reef fish for-hire permits including historical captain permits, by state and by year.

| State | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|
| **AL** | 157 | 159 | 153 | 143 | 134 |
| **FL** | 812 | 803 | 787 | 778 | 776 |
| **LA** | 123 | 120 | 117 | 121 | 119 |
| **MS** | 48 | 47 | 42 | 38 | 35 |
| **TX** | 221 | 219 | 230 | 232 | 232 |
| **Other** | 17 | 15 | 16 | 16 | 19 |
| **Total** | 1,378 | 1,363 | 1,345 | 1,328 | 1,315 |

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

Federal for-hire permits are associated with mailing addresses in a total of 348 communities located in 21 states. Based on mailing address, the communities with the most reef fish for-hire permits are provided in Table 3.5.1.2.

**Table 3.5.1.2.** Communities with the greatest number of federal reef fish for-hire permits, including historical captain permits, in descending order.

| State | Community | For Hire Permits |
|---|---|---|
| FL | Destin | 108 |
| AL | Orange Beach | 98 |
| FL | Key West | 53 |
| FL | Panama City | 52 |
| TX | Galveston | 49 |
| LA | Venice | 47 |
| FL | Naples | 44 |
| TX | Freeport | 41 |
| FL | Panama City Beach | 34 |
| TX | Port Aransas | 30 |
| TX | Corpus Christi | 26 |
| FL | Clearwater | 25 |
| FL | Pensacola | 25 |
| FL | Saint Petersburg | 23 |
| MS | Biloxi | 23 |
| FL | Sarasota | 20 |
| FL | Marco Island | 19 |
| FL | Madeira Beach | 18 |
| FL | Tarpon Springs | 18 |
| FL | Fort Myers Beach | 17 |

Source: NMFS SERO permit office, September 20, 2016.

**Landings History Vessels (LHVs)**

When vessels with a Gulf reef fish for-hire permit are separated into charter vessels or headboats, the majority are charter vessels (95% of for-hire vessels as of September 20, 2016) and a smaller proportion are headboats (approximately 5%, NMFS SERO permit office). This amendment affects headboats that participate in the SRHS, also called LHVs. Vessels with a federal reef fish for-hire permit that do not participate in the SRHS (i.e., charter vessels) are addressed in Amendment 41. Because the actions of this amendment affect LHVs, further information specific to charter vessels is not included here but is incorporated by reference from Amendment 41.[26]

Figure 3.5.1.2 shows the spatial distribution of LHVs around the Gulf. The pattern of abundance for LHVs is evident with large clusters in Florida, including communities in Bay and Okaloosa Counties, as well as several central peninsula communities in and around Pinellas County.

[26] http://gulfcouncil.org/wp-content/uploads/Draft-RF-Amendment-41_Sep-2017.pdf

Larger clusters of LHVs are also located in Baldwin County, Alabama and Nueces County, Texas (Figure 3.5.1.2).

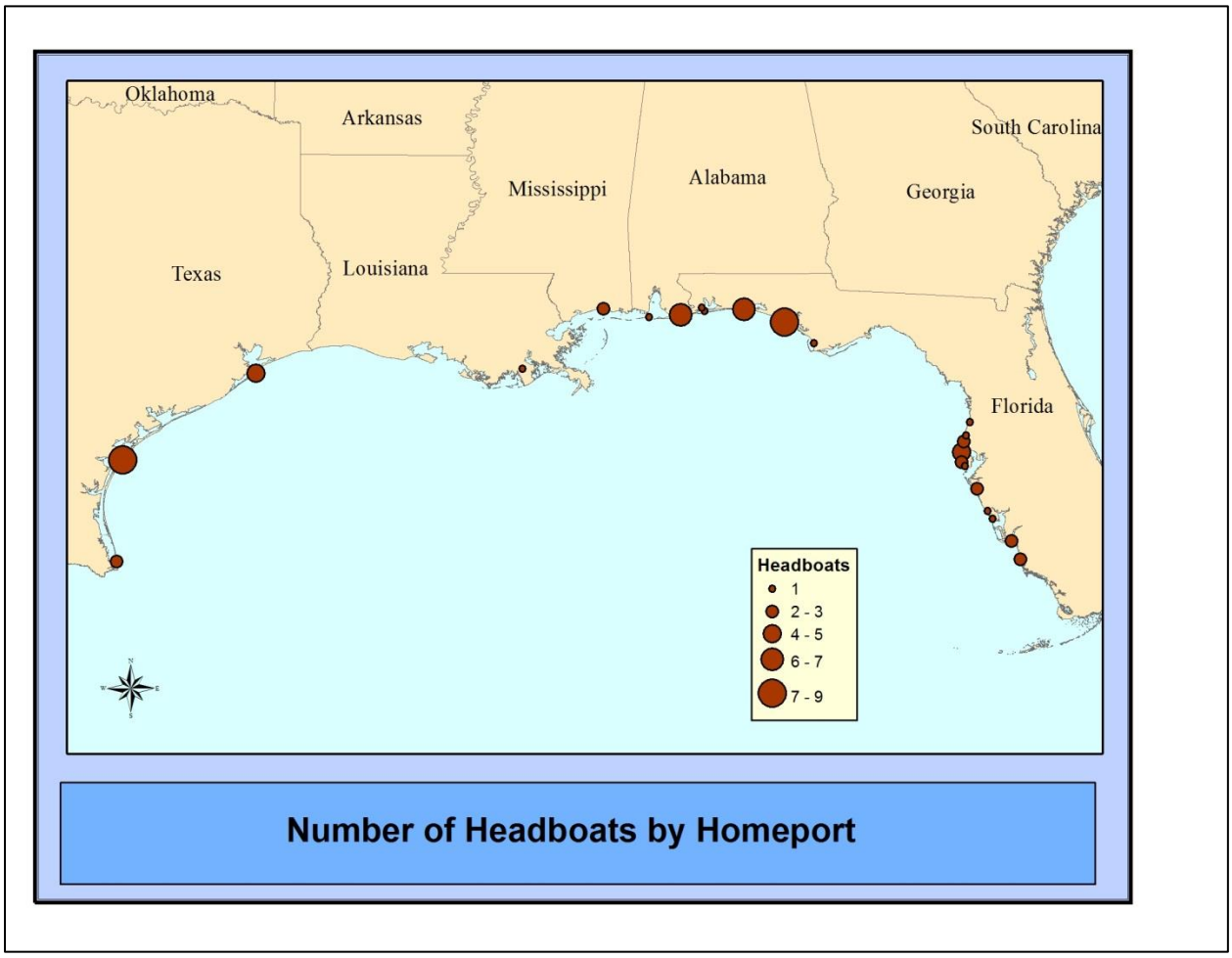


**Figure 3.5.1.2.** Distribution of headboats with federal for-hire permits for Gulf reef fish in Gulf states, by community.
Source: NMFS SERO permit office, September 20, 2016.

Depending on the species selected for inclusion in the LHV management program (Action 2), this amendment may affect the harvest of the following reef fish species: red snapper, greater amberjack, gray triggerfish, gag, and red grouper. These five species are harvested by LHVs in all five Gulf states, although the distribution of landings for these species varies by state and year. Tables 2.2.1 – 2.2.5 provide the LHV landings for each of the five species by state or region for the years 2011 – 2015 and the percent of LHV landings for each species out of all recreational landings.

Gulf-wide for the years 2011 – 2015, LHVs averaged 11% of all recreational red snapper landings, with a range of 5% – 15%. For red snapper landings by LHVs from 2011 – 2015, Texas averaged 52% of the landings, followed by LHVs in northwest Florida landing 27%, 13%

by Alabama LHVs, and the remaining 4% landed by LHVs in Mississippi, Louisiana, and southwest Florida (Table 2.2.1). In 2016, 57 of the 69 LHVs landed red snapper, including 28 LHVs homeported in Florida and 15 in Texas (SEFSC SRHS).

Gulf-wide for the years 2011 – 2015, LHVs averaged 7% of all recreational gray triggerfish landings, with a range of 4% – 11%. For gray triggerfish landings by LHVs from 2011 – 2015, northwest Florida averaged 73% of the landings, followed by LHVs in Alabama, Mississippi, and Louisiana, combined, which averaged 18%. The remaining 8% was landed by LHVs in Texas and southwest Florida (Table 2.2.2). In 2016, 52 LHVs landed gray triggerfish, including 32 LHVs in Florida (SEFSC SRHS).

Gulf-wide for the years 2011 – 2015, LHVs averaged only 6% of all recreational greater amberjack landings, with a range of 5% – 7%. For greater amberjack landings by LHVs from 2011 – 2015, Florida averaged 51% of the landings with the remaining landings distributed among the other four states (Table 2.2.3). In 2016, 35 LHVs landed greater amberjack, including 17 LHVs in Florida and 11 LHVs in Texas (SEFSC SRHS).

Gulf-wide for the years 2011 – 2015, LHVs averaged only 4% of all recreational landings of gag, with a range of 2% – 7%. For landings of gag by LHVs from 2011 – 2015, Florida averaged 98% of the landings (89% in southwest Florida and 9% in northwest Florida), with the remaining four states landing less than 2% (Table 2.2.4). In 2016, 44 LHVs landed gag, including 31 LHVs in Florida (SEFSC SRHS).

Gulf-wide for the years 2011 – 2015, LHVs averaged only 4% of all red grouper recreational landings, with a range of 3% – 6%. For landings of red grouper by LHVs from 2011 – 2015, Florida averaged 99% of the landings (86% in southwest Florida and 13% in northwest Florida), with the remaining red grouper landings occurring in the rest of the Gulf (Table 2.2.5). In 2016, 40 LHVs landed red grouper, with nearly all (37 LHVs) located in Florida.

### 3.5.2 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).

Recreational fishermen, headboat operators and crew, and associated businesses could be affected by the proposed actions. However, information on the race and income status for groups at the different participation levels is not available. Although information is available

concerning communities' overall status with regard to minorities and poverty (e.g., census data), such information is not available specific to fishermen and those involved in the businesses and activities, themselves. To help assess whether any EJ concerns arise from the actions in this amendment, a suite of indices were created to examine the social vulnerability of coastal communities. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups, more single female-headed households and households with children under the age of five, disruptions such as higher separation rates, higher crime rates, and unemployment all are signs of populations experiencing vulnerabilities. Again, for those communities that exceed the threshold it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

Figures 3.5.2.1 and 3.5.2.2 provide the social vulnerability of the top recreational communities (Figure 3.5.1.1), top ranking communities based on the number of federal for-hire permits for Gulf reef fish (Table 3.5.1.2), and all Gulf communities with LHVs that also made landings of red snapper. This analysis will be expanded to reflect landings of the other four species addressed in this amendment when the data become available. One community exceeds the threshold of one standard deviation above the mean for all three indices, Freeport, Texas. Several communities exceed the threshold of one-half standard deviation above the mean for more than one index (Fort Myers Beach, Florida; New Port Richey, Florida; Panama City, Florida; Sarasota, Florida; Stock Island, Florida; Freeport, Texas; Galveston, Texas; and Houston, Texas). These communities would be the most likely to exhibit vulnerabilities to social or economic disruption due to regulatory change.

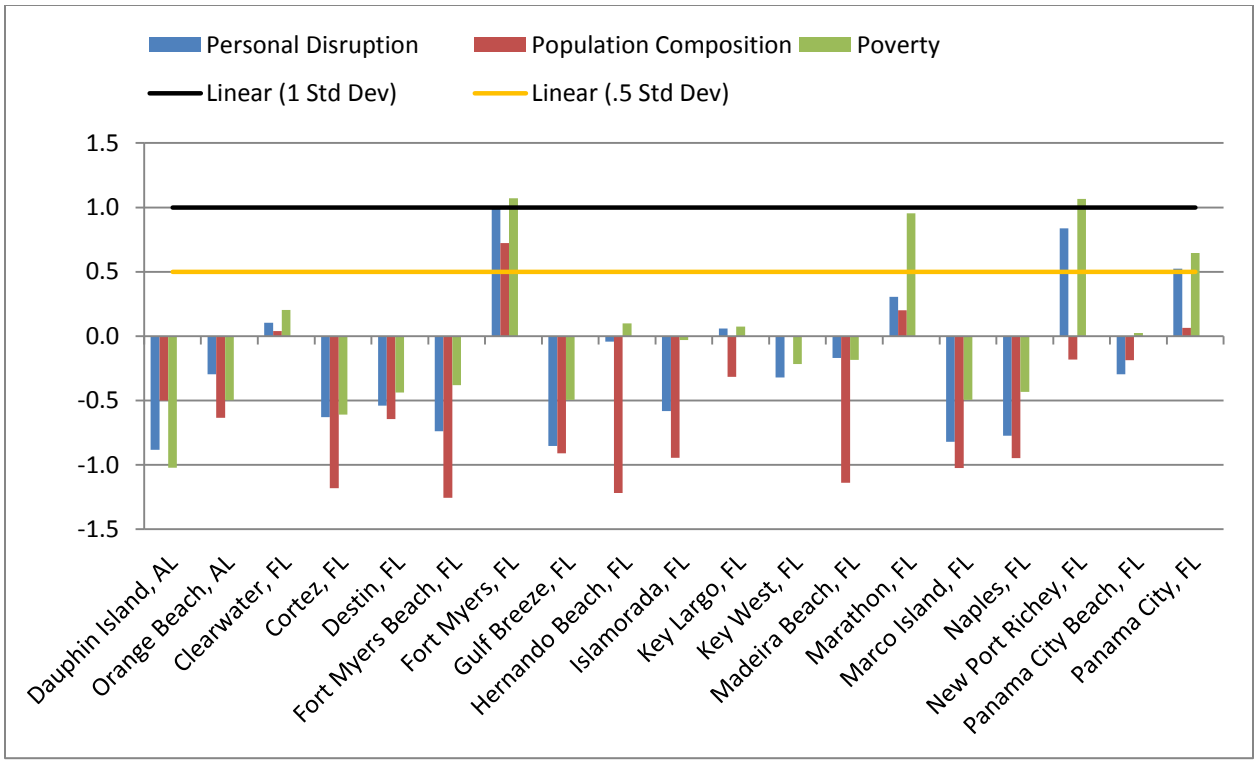


**Figure 3.5.2.1.** Social vulnerability indices for recreational fishing communities.
Source: SERO, Community Social Vulnerability Indicators Database 2014 (American Community Survey 2010-2014).

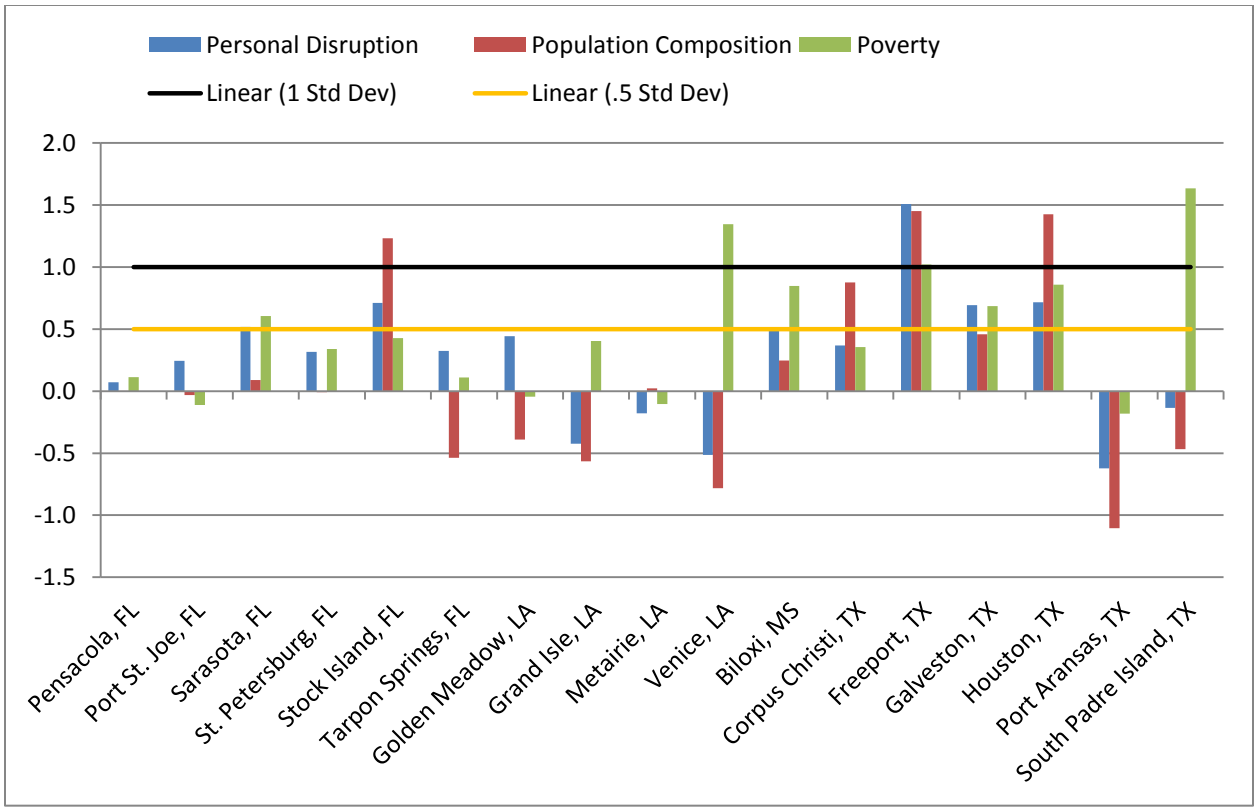


**Figure 3.5.2.2.** Social vulnerability indices for recreational fishing communities continued.
Source: SERO, Community Social Vulnerability Indicators Database 2014 (American Community Survey 2010-2014).

People in these communities may be affected by fishing regulations in two ways: participation and employment. Although these communities may have the greatest potential for EJ concerns, no data are available on the race and income status for those involved in the local fishing industry (employment), or for their dependence on reef fish, specifically (participation). However, the implementation of the proposed actions of this amendment would not discriminate against any group based on their race, ethnicity, or income status because the proposed actions would be applied to all participants in the fishery. Further, there is no known subsistence fishing for the reef fish species addressed in this amendment. Thus, the actions of this amendment are not expected to result in adverse or disproportionate environmental or public health impacts to EJ populations. Although no EJ issues have been identified, the absence of potential EJ concerns cannot be assumed.

## 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.[27]

Reef fish stocks are assessed through the Southeast Data Assessment and Review (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.

[27] www.gsmfc.org

### 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 3.6.1).

**Table 3.6.1** Gulf of Mexico 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/ |

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# APPENDIX A: OTHER APPLICABLE LAW

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.) provides the authority for 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 include the Endangered Species Act (Section 3.3.3), E.O. 12866 (Regulatory Planning and Review, Chapter 5) and E.O. 12898 (Environmental Justice, Section 3.5). Other applicable laws are summarized below.

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

**Coastal Zone Management Act**
Section 307(c)(1) of the federal Coastal Zone Management Act of 1972 (CZMA), as amended, requires federal activities that affect any land or water use or natural resource of a state's coastal zone be conducted in a manner consistent, to the maximum extent practicable, with approved state coastal management programs. The requirements for such a consistency determination are set forth in NOAA regulations at 15 CF.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. The 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 (DQA)**
The DQA (Public Law 106-443) effective October 1, 2002, requires the government to set standards for the quality of scientific information and statistics used and disseminated by federal agencies. Information includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical, cartographic, narrative, or audiovisual forms (includes web dissemination, but not hyperlinks to information that others disseminate; does not include clearly stated opinions).

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

Scientific information and data are key components of 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 Magnuson-Stevens 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 presented in this amendment has undergone quality control prior to being used by the agency and will be subject to a pre-dissemination review.

**National Historic Preservation Act (NHPA)**

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

Historical research indicates that over 2,000 ships have sunk on the Federal Outer Continental Shelf from 1625 to 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

The proposed action does not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places nor is it expected to cause loss or destruction of significant scientific, cultural, or historical resources. In the Gulf, the *U.S.S. Hatteras*, located in federal waters off Texas, is listed in the National Register of Historic Places. Fishing activity already occurs in the vicinity of this site, but the proposed action would have no additional adverse impacts on listed historic resources, nor would they alter any regulations intended to protect them.

**Executive Orders**

**E.O. 12630: Takings**

The Executive Order on Government Actions and Interference with Constitutionally Protected Property Rights that became effective March 18, 1988, requires each federal agency prepare a

Takings Implication Assessment for any of its administrative, regulatory, and legislative policies and actions that affect, or may affect, the use of any real or personal property. Clearance of a regulatory action must include a takings statement and, if appropriate, a Takings Implication Assessment. The NOAA Office of General Counsel will determine whether a Taking Implication Assessment is necessary for this amendment.

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

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

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

**E.O. 13132: Federalism**

The Executive Order on Federalism requires agencies in formulating and implementing policies, to be guided by the fundamental Federalism principles. The Order serves to guarantee the division of governmental responsibilities between the national government and the states that was intended by the framers of the Constitution. Federalism is rooted in the belief that issues not national in scope or significance are most appropriately addressed by the level of government closest to the people. This Order is relevant to FMPs and amendments given the overlapping authorities of NMFS, the states, and local authorities in managing coastal resources, including fisheries, and the need for a clear definition of responsibilities. It is important to recognize those components of the ecosystem over which fishery managers have no direct control and to develop strategies to address them in conjunction with appropriate state, tribes and local entities (international too). No Federalism issues have been identified relative to the action proposed in this amendment. Therefore, consultation with state officials under Executive Order 12612 is not necessary.

# APPENDIX B: HEADBOAT AP MEETING SUMMARIES

## Motions Report for the Ad Hoc Headboat Reef Fish Advisory Panel Tampa, FL

**May 3-4, 2016**

| Panel Members | Council and Staff | Attendance-Others |
|---|---|---|
| Pam Anderson | Pam Dana | Ken Anderson |
| Randy Boggs | Assane Diagne | Susan Gerhart |
| Clifton Cox | Ava Lasseter | Tim Hobbs |
| James Green | Charlotte Schiaffo | Britni LaVine |
| Chad Haggert | Carrie Simmons | Rich Malinowski |
| Mark Hubbard | | Jessica Stephen |
| Charles Paprocki | | Andy Strelcheck |
| Eric Schmidt | | Mike Travis |
| Skipper Thierry | | Daniel Willard |
| Dustin Trochesset | | |
| John Williams | | |

Recommendations provided by the Advisory Panel are detailed below. Failed or withdrawn motions are listed at the end of this report. In addition to the motions report, verbatim minutes are provided in **Tab B, No. 12(b)**.

**Motion:** The AP recommends that the headboat component be managed by establishing an IFQ program to be implemented by referendum vote of the Gulf headboats that participate in the SE headboat survey program with a 1-federal permit, 1-vote status.
**Motion passed 7-2, with 1 abstention.**

**Motion:** The AP moves to make Preferred Alternative 3 (In Action 2): *Include red snapper, gray triggerfish, greater amberjack, gag, and red grouper in the management program*, the alternative.
**Motion passed 9-1.**

**Motion:** The AP moves to make Alternative 1 (in Action 3) - No Action. *All HBSV as of December 31, 2015 must participate in the program*, the Preferred Alternative.
**Motion passed 7-1, with 2 abstentions.**

**Motion:** The AP moves to make Alternative 2, (in Action 4) - *Establish an endorsement for HBSV*, the Preferred Alternative.

**Motion passed unanimously.**

**Motion:** The AP moves to have Alternative 4, Option a (in Action 5) be the Preferred Alternative.
**Motion passed unanimously.**

**Motion:** The AP moves that in Action 6 a new Alternative, 3, be added that distributes pounds to the shareholder account and distributes fish for each vessel in accordance to the port average weight of each species.
**Motion passed unanimously.**

**Motion:** The AP moves to make Alternative 4 (In Action 7.1), *For each species, the apportionment is based on the most recent five years (2011-2015) omitting the year with the lowest landings*, as the Preferred Alternative.
**Motion passed 10-1.**

**Motion:** The AP moves that Alternative 3 in Action 7.2 be moved to considered, but rejected.
**Motion passed unanimously.**

**Motion:** The AP moves to reconsider the previous motion passed on Action 7.1.
**Motion passed 9-1, with 1 abstention.**

**Motion:** The AP moves that Alternative 5, *For each species, the apportionment is based on the year with the highest landings during the most recent five years (2011-2015)*, in Action 7.1, be the Preferred Alternative.
**Motion passed unanimously.**

**Motion:** The AP moves that Alternative 2, (Option b), *Distribute 25% of initial shares for each species equally among HBSV permit holders participating in the program and distribute75% of the initial shares proportionally,* in Action 7.2 be the Preferred Alternative.

**Substitute Motion:** The AP moves that Alternative 2, (Option a), *Distribute 0% of initial shares for each species equally among HBSV permit holders participating in the program and distribute 100% of the initial shares proportionally,* in Action 7.2 be the Preferred Alternative.
**Substitute Motion passed with 3 abstentions.**

**Motion:** The AP moves that Alternative 2, *Require a valid reef fish for-hire permit with HBSV endorsement, or a reef fish headboat permit (whichever is established in Action 4) to receive shares through transfer. Shares can only be transferred to US citizens or permanent resident aliens,* be the Preferred Alternative in Action 8.
**Motion passed unanimously.**

**Motion:** The AP moves to have Alternative 2, In Action 9, *To hold shares, require a reef fish for-hire permit with HBSV endorsement, or a reef fish headboat permit (whichever is established in Action 4). Shares can only be held by US citizens or permanent resident aliens. IFQ: If a*

*participant transfers their permit or the permit expires, the owner must divest of their shares. PFQ: If a permit is transferred, the shares automatically transfer with it; if a permit terminates, NMFS will redistribute the shares proportionally to the current participants,* be the Preferred Alternative.
**Motion passed unanimously.**

**Motion:** The AP moves to have Alternative 2 in Action 10, *Require a valid reef fish for-hire permit with HBSV endorsement or a valid reef fish headboat permit (whichever is established) to receive annual allocation through transfer. Transfers to US citizens or permanent resident aliens,* be the Preferred Alternative.
**Motion passed unanimously.**

**Motion:** The AP moves to have Alternative 2, in Action 11, *In each species category, no person shall own more shares than the maximum percentage issued to the recipient of the largest shares at the time of the initial apportionment of shares,* be the Preferred Alternative
**Motion passed unanimously.**

**Motion:** The AP moves to have Alternative 1 in Action 12, *No Action. Do not constrain the amount of allocation that one person can hold,* be the Preferred Alternative.

**Substitute Motion:** The AP moves to have Alternative 2 in Action 12, *Each person's total holdings (from all accounts) cannot be more than the maximum holdings attributed to a person (as determined in Action 11) in each species category at any point in time,* be the Preferred Alternative.
**Substitute Motion passed 6-5.**

**Motion:** The AP moves to request that Council make Alternative 2 (option a) in Action 13, *Only distribute allocation during the year in which a quota increases. If the quota for a species increases within a year, distribute the increased allocation to all participants holding shares for that species on or near the effective date of the increase, based on the option chosen.*

> *Option a. Distribute the allocation increase <u>proportionally</u> to all participants holding shares for that species based on shareholdings when the increase is effective,* be the Preferred Alternative.

**Motion passed unanimously.**

**Motion:** The AP moves that Alternative 5 in Action 13, *If the quota for a species is anticipated to decrease, the RA has the authority to hold back the anticipated amount of decrease during distribution of allocation for that species at the beginning of the year. If the decrease does not occur, the amount held back will be distributed as soon as possible,* be the Preferred Alternative.
**Motion passed 8-2, with 1 abstention.**

**Motion:** The AP moves to support cost recovery as required by the MSA. The AP would like the Council's input on the cost recovery to the extent required.

**Motion passed 9-2.**

**Motion:** The AP moves to add a new Action, with Alternative 3, as the Preferred Alternative, *to allow a provision for new entrants at the beginning of each calendar year, vessels with valid federal Gulf for-hire reef fish permits that are not participating in the HBSV program are eligible to apply for an endorsement to the reef fish for-hire permit or for a reef fish headboat permit (whichever is established in Action 4) if the vessels are selected to participate in the Southeast Region Headboat Survey*. This would be limited to vessels that carry over 49 passengers.
**Motion passed 10-1.**

**Motion:** That the Council reconvene this AP once they have a chance to go through this document.
**Motion passed unanimously.**

## FAILED or WITHDRAWN MOTIONS

**Motion:** The AP moves to make an additional alternative (in Action 1) for staff to analyze benefits and costs of an observer program for headboats as an additional type of recreational program.
**Motion failed 3-6.**

**Substitute Motion:** The AP recommends that the headboat component be managed by establishing an IFQ program to be implemented by referendum vote deemed necessary by the MSA and the Gulf Council with a 1-federal permit, 1-vote status.
**Substitute Motion failed 1- 8, with 2 abstentions.**

**Second Substitute Motion:** The AP moves to have Alternative 1 in Action 1 be the Preferred Alternative.
*No Action. Continue to manage the reef fish species included in the headboat management program using recreational seasons, size limits, and bag limits*.
**Second Substitute Motion failed 3-8.**

**Substitute Motion:** The AP moves to make Alternative 2 (in Action 3) the Preferred Alternative**.**
**Substitute Motion failed 2-8.**

**Substitute Motion:** The AP moves to make Alternative 1 in Action 2, *No Action. Do not define reef fish species to include in the management program*, the Preferred Alternative.
**Substitute Motion failed for lack of 2nd.**

**Substitute Motion:** The AP moves that in Amendment 42-endorsments will be transferable or eligible to any vessel that meets the headboat criteria.
**Substitute Motion withdrawn.**

**Substitute Motion:** The AP moves that the apportionment of each initial share among eligible participants be based on the average landings per vessel during 2011-2015. The AP recommends that Alternative 3 in Action 7.2 be moved to considered, but rejected.
**Substitute Motion withdrawn.**

**Substitute Motion**: The AP moves that a valid reef fish permit be required to receive shares through a transfer. Shares can only be transferred to those who own a headboat endorsement.
**Substitute Motion withdrawn.**

**Substitute Motion:** To move Action 12, Allocation Caps, to considered but rejected.
**Substitute Motion withdrawn.**

**Summary for the Ad Hoc**
**Headboat Reef Fish Advisory Panel**
**New Orleans, LA**
**May 19, 2015**

| **Panel Members** | **Panel Members cont'd** |
|---|---|
| Pam Anderson | Kelly Owens |
| Randy Boggs | Charles Paprocki |
| Clifton Cox | Tom Steber |
| Jim Green | Skipper Thierry |
| Chad Haggert | Dustin Trochesset |
| Mark Hubbard | John Williams |
| **Council and Staff** | **Attendance-Others** |
| Myron Fischer | Jeff Barger |
| Assane Diagne | Kristen McConnell |
| Ava Lasseter | Jessica Stephen |
| Karen Hoak | Shane Cantrell |
| | Ken Brennan |
| | J.P. Brooker |
| | Tim Hobbs |
| | Elbert Whorton |

The meeting was convened at 8:30 a.m. The AP elected Randy Boggs as Chair and Mark Hubbard as Vice-Chair. The Chair read the charge to the AP, which is to make recommendations to the Council relative to the design and implementation of flexible measures for the management of reef fish for the headboat component of the for-hire sector.

Ken Brennan gave a presentation on the geographical distribution of headboats participating in the Southeast survey and their reef fish landings. AP members discussed how to differentiate charter boats and headboats and staff added that for the purpose of a management plan, headboats would be defined as those participation in the Southeast Headboat Survey (HBS).

AP members discussed the species to include in a management plan for the headboat fleet. Staff noted the reef fish species for which sector allocations currently exist and the AP passed the following motion:

- **To investigate the possibility of managing all 6 major reef fish species in this management plan (red snapper, gag, red grouper, greater amberjack, gray triggerfish, and black grouper).**

AP members discussed whether headboats should be managed as a stand-alone component and the benefits and obstacles of different management approaches. Staff noted that headboats participating in the HBS had recorded landings histories, while charter boats do not. An AP member expressed concern with further dividing the recreational sector, stating the sector will be stronger if they do not separate into subgroups, which diminishes their collective voice. The AP member added that aiming toward a year-round fishery would require catch shares, but providing flexibility for different fishing seasons could be accomplished under regional management. Other AP members preferred to be managed separately, citing the increased access provided to passengers fishing under the headboat collaborative and the flexibility of the allocation-based headboat collaborative which allows operators to decide when to fish and use quota. The AP passed the following motions:

- **That headboats be acknowledged as a stand-alone component of the recreational sector. This would include all vessels with federal for-hire reef fish permits that participate in the Southeast Region Headboat Survey (Beaufort survey).**

- **To recommend to the Council to develop a management approach that provides year round fishing opportunities for headboat businesses and anglers, stability in business plans, safety at sea, improved data collection, reduced discards, and accountability to catch limits.**

- **To recommend to the Council that the headboat management plan be allocation based on reported landings by the Beaufort headboat survey (HBS).**

AP members discussed enforcement and validation tools, such as vessel monitoring systems (VMS) or fish tags. Those opposed to VMS felt it was expensive and unnecessary for hailing out and hailing in, especially for headboats which follow tight, predictable schedules, and that other options were available. Other AP members responded to those concerns, noting the reliability of the VMS units and flexibility to use other options for hailing in. The AP passed the following motion:

- **To recommend to Council that enforcement tools for monitoring are:**
  - **VMS used for hail-out/hail-in on all trips, landings notification on fishing trips**
  - **Tags used to improve enforcement**
  - **Electronic logbooks submitted to the Beaufort survey on the same day as each fishing trip.**

AP members discussed the transferability of allocation under an allocation-based management system. Concern was expressed that transferability could result in increased costs for passengers

to retain fish, and that allocated fish should not be purchasable by other vessels, but be returned and be redistributed fairly. Those in support of transferability argued it allowed for flexibility in the management plan. The AP also discussed management costs of a new headboat management plan. The AP passed the following motions:

- **The advisory panel supports transferability of headboat allocations among participants in the headboat component, consistent with MSA guidelines on transferability, but without inter-sector trading.**

- **To recommend to the Council to consider how management costs can be shared between the NMFS and the headboat component of the fishery.**

Staff noted that both the Ad Hoc Charter AP and this Ad Hoc Headboat AP passed motions recommending separate management of charter boats and headboats. To accomplish separate management, the for-hire component's quota would need to be divided between charter boats and headboats. Headboats that participate in the HBS have landings histories which could be used as the basis for allocating between the for-hire components and an AP member stated that headboats have accounted for 32 to 36% of red snapper landings. The AP passed the following motions:

- **To recommend to the Council that the headboat component become a subsector of the for-hire sector/component, and that allocation based fisheries be deemed from our historical Beaufort headboat survey data, using the formula from Amendment 40.**

- **To recommend to the Council that this panel reconvenes as soon as possible to continue advising on the headboat component for the reef fish fishery.**

Continuing to manage headboats with bag limits, size limits, and seasons was discussed, but those opposed stated that traditional management approaches have not worked. Additional discussion concerned identifying data needs and improving accountability for the fleet, with the goal of reducing uncertainty and removing the 20% buffer to the recreational quota. AP members asked headboat collaborative participants about the program, including customer perceptions, use of tags, and bag limits. An AP member noted that one of the challenges of the program was that more people could not participate. The AP passed the following motion:

- **To recommend to the Council that the key components of the headboat EFP be considered for allocation-based management of headboats.**

Following review of their recommendations, the AP meeting was adjourned at 3:30 pm.

**<u>All meeting motions including substitute and failed motions:</u>**

Motion: That red snapper and gag grouper be the primary species that this management plan encompasses.

Substitute motion: To investigate the possibility of managing all 6 major reef fish species in this management plan (red snapper, gag, red grouper, greater amberjack, gray triggerfish, and black grouper)
**Substitute Motion carried 8 to 3**

Motion: That headboats be acknowledged as a stand-alone component of the recreational sector. This would include all vessels with federal for-hire reef fish permits that participate in the Southeast Region Headboat Survey (Beaufort survey).
**Motion carried 11 to 1**

Motion: To recommend to the Council to develop a management approach that provides year round fishing opportunities for headboat businesses and anglers, stability in business plans, safety at sea, improved data collection, reduced discards, and accountability to catch limits.
**Motion carried 11 to 1**

Motion: To recommend to the Council that the headboat management plan be allocation based on reported landings by the Beaufort headboat survey (HBS).
**Motion carried 10 to 2**

Motion: To recommend to Council that enforcement tools for monitoring are:

- VMS used for hail-out/hail-in on all trips, landings notification on fishing trips
- Tags used to improve enforcement
- Electronic logbooks submitted to the Beaufort survey on the same day as each fishing trip

**Motion carried 8 to 4**

Substitute motion: To recommend to the Council that enforcement tools, an app, or a traditional logbooks be used, with a call-in/call-out component that do not require VMS.
Motion failed 4 to 7

Second substitute motion: To use an allocation based management system, that a VMS system will be required. With a traditional management system (size limits, bag limits, seasons, etc.) that VMS not be required.
Motion failed for lack of a second

Motion: The advisory panel supports transferability of headboat allocations among participants in the headboat component, consistent with MSA guidelines on transferability, but without inter-sector trading.
**Motion carried 11 to 1**

Substitute motion: That if the Council chooses to move towards an allocation based management system, that there will not be a monetary value assigned to the allocation for transferability.
Motion failed 10 to 2

Motion: To recommend to the Council to consider how management costs can be shared between the NMFS and the headboat component of the fishery.

**Motion carried 9 to 2**

Motion: To recommend to the Council that the headboat component become a subsector of the for-hire sector/component, and that allocation based fisheries be deemed from our historical Beaufort headboat survey data, using the formula from Amendment 40.
**Motion carried 11 to 1**

Motion: To recommend to the Council that this panel reconvenes as soon as possible to continue advising on the headboat component for the reef fish fishery.
**Motion carried with no opposition**

Motion: To recommend to the Council to manage the headboat fleet with seasons, bag limits, and size limits along with additional appropriate accountability measures, allowing scientists to determine what data they need, and applying that request of data to the current headboat survey.
Motion failed 2 to 9

Motion: To recommend to Council that a management plan for the headboat sector be designed closely mirroring the headboat EFP.
Motion carried 10 to 2

Motion: to reconsider prior motion
**Motion carried 7 to 3**

Substitute Motion: To recommend to the Council that the key components of the headboat EFP be considered for allocation-based management of headboats.
**Revised Substitute Motion carried 8 to 3**

# APPENDIX C: CONSIDERED BUT REJECTED ALTERNATIVES

## Action 13-1. Distribution of Quota Increases

**Alternative 1**. No Action. If the quota for a species increases after January 1, distribute the increased allocation proportionally to *all participants holding shares for that species*. The distribution will occur on the effective date of the increase or as soon as possible thereafter.

**Alternative 2**. If the quota for a species increases after January 1, distribute the increased allocation equally to *all participants holding shares for that species*. The distribution will occur on the effective date of the increase or as soon as possible thereafter.

**Alternative 3**. If the quota for a species increases after January 1, distribute the increased allocation equally to *participants who do not hold shares for that species* but hold an endorsement to the reef fish for-hire permit or a reef fish LHV permit (whichever is established in Action 4). The distribution will occur on the effective date of the increase or as soon as possible thereafter.

**Alternative 4.** If the quota for a species increases after January 1, distribute the increased allocation equally to *all participants* that hold an endorsement to the reef fish for-hire permit or a reef fish LHV permit (whichever is established in Action 4). The distribution will occur on the effective date of the increase or as soon as possible thereafter.

*Note: Under any of these alternatives, each participant's shares will not change. At the beginning of the next year and each year thereafter, the entire quota (including any in-season increase) will be distributed proportionally based on the current shareholdings.*

# APPENDIX D: AP PREFERRED ALTERNATIVES

**Action 1. Type of Recreational Management Program for Landings History Vessels**

**Alternative 2.** For landings history vessels, manage the reef fish species chosen in Action 2 by establishing an Individual Fishing Quota Program (IFQ).

**Action 2. Species to Include in the LHV Management Program**

**Preferred Alternative 2**: Include the following species in the management program:

**Preferred Option 2a**: Red snapper
**Preferred Option 2b**: Greater amberjack
**Preferred Option 2c**: Gray triggerfish
**Preferred Option 2d**: Gag
**Preferred Option 2e**: Red grouper

**Action 3. Participation at the Onset of the LHV Program**

**Alternative 1.** No Action. Any vessel that meets the control date, has a valid or renewable federal reef fish for-hire permit, and is still participating in the SRHS, must participate in the program selected in Action 1. **(AP Preferred)**

**Action 4. Landings History Vessel Endorsement or Permit**

**Preferred Alternative 2.** Establish an endorsement for LHV. LHV program participants are required to have an LHV endorsement to their Gulf reef fish for-hire permit. Endorsements will be issued to qualifying LHV program participants at the time of implementation of this action. With a PFQ, the shares would be attached to the endorsement. An LHV endorsement holder may only fish off the LHV quota for the species selected in Action 2 throughout the year. LHV endorsements are transferrable to any vessel with a Gulf reef fish for-hire permit. **(AP Preferred)**

**Action 5. Allocation of Annual Catch Limit to the Landings History Vessel Program**

**Alternative 5**: For each species, allocate a portion of the recreational ACL to the LHV Program based on 50% average from 1986-2013 (2010 excluded) and 50% average landings from 2006-2013 (2010 excluded). (Preferred Alternative from Amendment 40). **(AP Preferred)**

| | |
|---|---|
| Red Snapper (% of for-hire*)<br>(% of total) | 31.3%<br>16.5% |
| Greater Amberjack | 7.5% |
| Gray Triggerfish | 11.8% |
| Gag | 4.6% |
| Red Grouper | 3.6% |

*Until 2022

**Action 6. Units of Measure for Quota Distribution and Reporting**

**Alternative 3**. The LHV quotas are distributed in pounds and reported in numbers of fish. **(AP Preferred)**

**Action 7. Initial Apportionment of Shares**

**Action 7-1. Time Period of Landings to Determine Initial Apportionment of Shares**

**Preferred Alternative 4.** Apportion initial shares among eligible participants based on the year with the highest landings by vessel for each species during the most recent five years (2011-2015). **(AP Preferred)**

**Action 7-2. Distribution of Initial Shares**

**Preferred Alternative 2.** Distribute a percentage of initial shares for each species proportionally based on average landings per permit during the time interval selected in Action 7-1 and distribute the remaining percentage of the initial shares equally among LHV permit holders participating in the program. Percentages distributed proportionally and equally are as follows **(AP Preferred; with Option a)**:

| **Option** | **Distribution of Initial Shares** | |
|---|---|---|
| | **Proportional** | **Equal** |
| **Preferred 2a** | 100 | 0 |
| **2b** | 75 | 25 |
| **2c** | 50 | 50 |
| **2d** | 25 | 75 |

**Action 8. Transferability of Shares (IFQ only)**

**Preferred Alternative 2.** Require a valid reef fish for-hire permit with LHV endorsement or a reef fish LHV permit (whichever is established in Action 4) to receive shares through transfer. Shares can only be transferred to US citizens or permanent resident aliens. **(AP Preferred)**

**Action 9. Maintenance of Shares**

**Preferred Alternative 2.** Require a reef fish charter/headboat permit with LHV endorsement or a reef fish LHV (whichever is established in Action 4) to hold shares. Shares can only be held by US citizens or permanent resident aliens. For an IFQ program, if a participant transfers their permit/endorsement or the permit/endorsement expires, the owner must divest of their shares. For a PFQ program, if a permit/endorsement is transferred, the shares automatically transfer with it; if a permit/endorsement terminates, NMFS will redistribute the shares proportionally to the current participants. **(AP Preferred)**

**Action 10. Transferability of Annual Allocation**

**Alternative 2.** Require a valid reef fish charter/headboat permit with LHV endorsement or a valid reef fish headboat permit (whichever is established in Action 4) to receive annual allocation through transfer. Annual allocation can only be transferred to US citizens or permanent resident aliens. **(AP Preferred)**

**Action 11. Share Caps**

**Preferred Alternative 2.** In each share category, no person shall hold more shares than the maximum percentage issued to the recipient of the largest shares at the time of the initial apportionment of shares. **(AP Preferred)**

**Action 12. Allocation Caps**

**Alternative 2.** At any point in time, a person's total holdings (from all accounts) cannot be more than the maximum holdings attributed to a person (as determined in Action 11) in **each species category**. **(AP Preferred)**

**Action 13. Retaining Annual Allocation before a Quota Reduction**

**Alternative 2**. If the quota for a species is anticipated to decrease after January 1, the Regional Administrator has the authority to retain the anticipated amount of decrease during distribution of allocation for that species at the beginning of the year. If the decrease does not occur by a set date, the amount retained will be distributed as soon as possible. **(AP Preferred)**

**Option 2a:** June 1
**Option 2b:** August 1

**Action 14. Cost Recovery Fees**

**Alternative 2**. For each participant, cost recovery fees will be based on the total value obtained by multiplying a **standard price** per pound (or per fish) of a given species by the number of pounds (or of fish) of that species harvested by the participant during the specified time period. The cost recovery fee will be up to 3% of the total value. The **standard price** will be equal to **(AP Preferred):**

**Option a:** the average commercial ex-vessel price from the previous year **(AP Preferred)**

**Action 15. New Entrants**

**Preferred Alternative 4**. At the beginning of each calendar year, vessels with valid federal Gulf for-hire reef fish permits that are not participating in the LHV program are eligible to apply for an endorsement to the reef fish for-hire permit or for a reef fish headboat permit (whichever is established in Action 4) if the vessels are selected to participate in the Southeast Region Headboat Survey. *This would be limited to vessels that carry over 49 passengers*. Receiving an endorsement or a reef fish LHV permit (whichever is established in Action 4) does not grant shares or annual allocation to the recipient. **(AP Preferred)**