# Final Amendment

# to the FMPs for:

# Reef Fish (Amendment 25)
# and
# Coastal Migratory Pelagics (Amendment 17)

# for Extending the

# Charter Vessel/Headboat Permit Moratorium
# (Including SEIS/RIR/IRFA)


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**Acronyms/Abbreviations Used in this Document**

| | |
|---|---|
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| CMP | Coastal Migratory Pelagic (fishery) |
| COI | Certificate of Inspection issued by USCG |
| Council | Gulf of Mexico Fishery Management Council |
| CZMA | Coastal Zone Management Act |
| EA | Environmental Assessment |
| EEZ | Exclusive Economic Zone |
| EHF | Essential Fisheries Habitat |
| EIS | Environmental Impact Statement |
| DSEIS | Draft Supplemental EIS |
| FEIS | Final EIS |
| FSEIS | Final Supplemental EIS |
| SEIS | Supplemental EIS |
| ESA | Endangered Species Act |
| FMP | Fishery Management Plan |
| FR | Federal Register |
| GMFMC | Gulf of Mexico Fishery Management Council |
| GOM | Gulf of Mexico |
| HAPC | Habitat Area of Particular Concern |
| IFQ | Individual Fishing Quota |
| MRFSS | Marine Recreational Fisheries Statistics Survey |
| M-SFCMA | Magnuson-Stevens Fishery Conservation and Management Act |
| MFMT | Maximum Fishing Mortality Threshold |
| MSST | Minimum Stock Size Threshold |
| MSY | Maximum Sustainable Yield |
| NMFS | NOAA's National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| OMB | Office of Management and Budget |
| OY | Optimum Yield |
| RF | Reef fish |
| RFA | Regulatory Flexibility Act |
| IRFA | Initial Regulatory Flexibility Analysis |
| RIR | Regulatory Impact Review |
| SEFSC | Southeast Fisheries Science Center |
| SSC | Scientific and Statistical Committee |
| USCG | U.S. Coast Guard |

**Draft Supplemental Environmental Impact Statement Cover Sheet**

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**Name of Action**

Amendment 25 to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico and Amendment 17 to the Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic.

**Type of Action**

(X) Administrative
( ) Draft

( ) Legislative
(X) Final

**Summary**

Amendments establishing the charter vessel/headboat permit moratorium for the CMP fishery (Amendment 14) and the reef fish fishery (Amendment 20) were approved by NOAA's National Marine Fisheries Service (NMFS) on May 6, 2003, and implemented on June 16, 2003 (68 FR 26280). The intended effect of these amendments was to cap the number of for-hire vessels operating in these two fisheries at the current level (as of March 29, 2001) while the Council evaluated whether limited access programs were needed to permanently constrain effort. The moratorium is set to expire June 16, 2006. In this amendment, the Council is considering whether to let the moratorium expire, extend the moratorium for a finite time period (5 or 10 years), or establish an indefinite limited access program. The Council has selected as their preferred alternative to establish an indefinite limited access program.

**Filing Dates with EPA**

Notice of Intent to prepare DSEIS published in Federal Register 4/07/05 (70 FR 17658).
Draft SEIS filed with EPA on: TBD
Comments on DSEIS must be received by: TBD

**Table of Contents for DSEIS**

The table of contents and sections that comprise the DSEIS are as follows:

**Executive Summary**

Charter vessel permits were initially required in the coastal migratory pelagic (CMP) fishery in 1987. The for-hire fishing sector (charter vessels and headboats) of the reef fish fishery was required to have permits starting in 1997. Amendments establishing the charter vessel/headboat permit moratorium for the CMP fishery (Amendment 14) and the reef fish fishery (Amendment 20) were approved by NOAA Fisheries on May 6, 2003, and implemented on June 16, 2003 (68 FR 26280). Prior to the moratorium several fishery problems were identified, necessitating the cap on the number of vessels. Those problems included a significant increase in the number of Gulf charter vessels between 1998 and 2003 and the overfished status of several major reef fish and CMP fisheries. The intended effect of these Amendments was to cap the number of for-hire vessels operating in these two fisheries at the current level (as of March 29, 2001) while the Council evaluated whether limited access programs were needed to constrain effort. The moratorium is set to expire on June 16, 2006. In this amendment, the Council is considering whether to let the moratorium expire, extend the moratorium for a finite time period (5 or 10 years), or establish an indefinite limited access program.

The potential impacts of each of the alternatives are illustrated in the following table and described below. A plus (+) indicates an overall benefit, a minus (-) an overall impact, and "na" represents none identified or not applicable. reference

| | Pref Alt. | Biol. Env. | Phys Env | Econ Env | Soc Env | Admin | Mitigate | Cum Effects | Unavoid adverse | Irreversible Irretrievable |
|---|---|---|---|---|---|---|---|---|---|---|
| Alt 1- No Action | | - | na | - | - | - | na | - | na | na |
| Alt 2- June 16, 2011 | | + | na | + | + | na | na | + | na | na |
| Alt 3- June 16, 2016 | | + | na | + | + | na | na | + | na | na |
| Alt 4- Limit access | x | + | na | + | + | na | na | + | na | na |

Allowing the fishery to revert to an open access management regime (Alternative 1) would allow an increase in the number of for-hire vessels and potentially would increase fishing effort, thereby directly affecting stocks targeted by the for-hire sector. An increase in fishing effort could force the need for additional regulations and directly jeopardize the Councils' ability to rebuild overfished fisheries and prevent overfishing in the short-term. Alternative 1 would have the smallest initial economic effects of any of the alternatives considered, but would likely reduce economic stability and performance in both the short- and long-term. Increases in fishing mortality could also negatively affect existing and future regulations in the short-term designed to rebuild stocks, which in turn could decrease the long-term viability of the for-hire business operations. If fish abundance worsens over time or regulations are made more restrictive, fishing costs may increase, which would reduce business prospects and deter anglers from fishing on for-hire vessels.

Alternatives 2-4 all would continue to cap the number of vessels participating in the for-hire fishery. Alternative 2 would continue the permit moratorium for an additional five years. Alternative 3 would continue the permit moratorium for an additional 10 years. Preferred Alternative 4 would establish an indefinite limited access system. In the short-term (< 5 years), the effects of each of these alternatives are expected to be similar. All of the alternatives would benefit the biological environment by limiting or preventing increases in fishing mortality. In the long-term, Alternatives 2 and 3 would have the greatest effects on the administrative environment because a new amendment would have to be developed to continue the moratorium after five or ten years. Because these alternatives would set a finite period for

continuing the moratorium, the Council could be faced with the same choices as at present, i.e., either let the moratorium expire, continue it for some period, or replace it with some other form of limited access. Preferred Alternative 4 would create a permanent limited access program for the for-hire fishery until such time as the Council determines that it is no longer needed or replaces it with some other form of limited access. They will review the effectiveness of the limited access program at least every ten years as part of that determination. Preferred Alternative 4 would result in greater profit losses, than Alternatives 2 and 3, respectively. However, economic impacts may be mitigated or possibly eliminated by an emergency rule that reopened the application process for persons who did not obtain a permit during the original moratorium. Additionally, since the transferability of permits under the moratorium would remain valid under any of these alternatives, new entrants could enter the fishery by purchasing existing permits.

**Fishery Impact Statement/Social Impact Analysis**

Regulations impose restrictions on fishery participants, which can result in adverse effects on fishermen and fishing communities. The proposed action would establish a limited entry system for recreational for-hire permits in the Reef Fish and CMP fisheries. This limited entry system is intended to continue the cap on participation in the fishery at current levels and provide for biological, social and economic stability in the Reef Fish and CMP for-hire fishery. The biological status of species in the Reef Fish and CMP fisheries is expected to be better under a moratorium or limited access system that prevents new vessels from entering the fishery and increasing fishing pressure.

The status quo would allow the recreational for-hire permit moratorium that was implemented on June 16, 2003 to expire, creating an open access fishery. It is estimated that approximately 850 or more for-hire vessels currently operating in GOM state waters may apply for a for-hire permit. Fishing effort would increase on Reef Fish and CMP species, many of which are already overfished or undergoing overfishing. Under open access, an increase in the number of vessels entering the fishery would likely increase short-term total revenues for the for-hire charter fishery but in the long-term could diminish the overall economic performance of individual vessels.

Under any of the action alternatives in this Amendment, permits would be capped at the March 29, 2001 level. This cap on permits should maintain the current social and economic structure of the for-hire industry while providing some room for change as allowed by open-market permit transferability. Alternatives 2 and 3 would set a finite time period for extension of the existing moratorium, five or ten years. The Preferred Alternative 4 would create a limited access system making permanent the moratorium on issuance of new permits unless the Council, through a required ten year review process, re-opened the permit application process.

Although there are expected short-term costs associated with the moratorium, the moratorium will support the continued socioeconomic benefits associated with stability in the fishery and avoidance of the adverse effects associated with increased resource pressure and deteriorating resource conditions. The longer the moratorium, as would occur under Preferred Alternative 4, the longer these benefits will be received. Additionally, it is expected that the longer the moratorium, the more the permitted vessels will be able to adapt their operations to increases in demand for recreational trips from both previously displaced anglers or improved U. S. economic conditions, as well as being able to benefit from improved resource conditions.

A more detailed analysis of the impacts to participants and their communities relative to the alternatives for open or limited access is found in Sections 5 and 8 herein.

# 1 INTRODUCTION

## 1.1 Description of Current Permit System

Under the current charter vessel/headboat moratorium, which expires on June 16, 2006, 1696 vessels hold valid Gulf of Mexico CMP or reef fish permits (NMFS' permit file as of 9/23/04). Reef fish and CMP permits were issued to 1,482 vessels, an additional 146 vessels were issued only CMP permits and the remaining 68 vessels were issued only reef fish permits. The NMFS database indicates that 1,426 vessels operated as charter vessels, 114 vessels operated as headboats, 29 operated as both a charter and headboat, 114 operated as commercial vessels and 9 were not identified. Six passenger (6-pack) permits were issued to 1,391 vessels, 290 vessels had a permitted capacity ranging from 9 to 237 passengers, and 15 permits had no identified capacity. The majority of permits were in Florida (1,039), followed by Texas (232), Alabama (147) Louisiana (127) and Mississippi (73). The home port state for the remaining 77 permits ranged from Georgia through Maine and there was one permit with no home port identified. Total capacity of permitted for-hire vessels is summarized in Table 1.1 by state for two classes of vessels, undocumented (6-Pack) and documented (COI ). Total carrying capacity (number of passengers) for undocumented vessels was 8,346 passengers; whereas, total carrying capacity for documented vessels was 13,380. By state, Florida had the highest capacity of each vessel type, followed by Texas, Alabama, Louisiana, and Mississippi. Those vessels whose homeports were in other states (all are along the Eastern Seaboard) likely do not fish in the Gulf. Along the East coast of Florida, seven of the 21 COI permitted vessels and 147 6-Pack vessels had homeports in the Florida Keys. It is possible that some of the Keys 6-Pack vessels fish at least part of the time in the GOM, however, this information is not available. Additionally, an unknown number of vessels registered with homeports in the GOM, particularly COI vessels, may not use their permits for fishing.

TABLE 1.1 Number and Capacity of Permitted, For-hire Vessels by State (as of 9/23/04)

| | 6-Pack | | COI vessels | | Total | |
|---|---|---|---|---|---|---|
| | Number | Capacity | Number | Capacity | Number | Capacity |
| Alabama | 102 | 612 | 44 | 1302 | 146 | 1,914 |
| Florida, East | 190 | 1140 | 21 | 1443 | 211 | 2,583 |
| Florida, West | 670 | 4,020 | 145 | 6,164 | 815 | 10,184 |
| Louisiana | 111 | 666 | 16 | 497 | 127 | 1,163 |
| Mississippi | 63 | 378 | 10 | 285 | 73 | 663 |
| Texas | 196 | 1,176 | 35 | 2,209 | 231 | 3,385 |
| Other States | 58 | 348 | 19 | 1,480 | 77 | 1,828 |
| Unknown State | 1 | 6 | | | 1 | 6 |
| Totals | 1391 | 8346 | 290 | 13,380 | 1,681 | 21,726 |

NOTE: 15 permits have state, but no capacity information; 14 are in Gulf states.

Permits are issued annually and expire on the birth month of the applicant. The permit is automatically renewed to the permit holder of record one year after an application is approved. At the end of the second annual cycle, a new, completed application must be submitted by the permit holder for renewal; once renewed, the two-year cycle starts again. From the expiration date of the second annual cycle, the

permittee has one year to renew the expired permit; during this time the permit is invalid for fishing. If an expired permit is not renewed within one year, it is permanently expired and will not be renewed while the moratorium remains in effect. Since implementation of the moratorium, only two reef fish and three CMP permits have permanently expired (as of September 23, 2004).

A permit may be transferred to another vessel or another owner at any time but there are conditions and requirements for that transfer. For a documented vessel, the owner must present a copy of a United States Coast Guard (USCG) valid operators license to carry passengers, a copy of the valid USCG vessel documentation or state registration for the new vessel, and a copy of the USCG COI for that vessel that is less than or equal to the original permitted passenger capacity. For an undocumented vessel, the COI is unnecessary. The permit transfer will be denied if the new vessel has a larger passenger capacity than the permit. If the new vessel has a passenger capacity lower than the original permit capacity, the permit will be issued at the lower capacity and the original larger capacity of the permit is maintained in the records as the baseline passenger capacity. A permit with a baseline passenger capacity greater than the actual capacity of the vessel it is currently assigned to may be transferred to another vessel which has a capacity up to the permit baseline passenger capacity. In this way, the overall intent of the Council to cap passenger capacity is maintained.

All transfers of permits and endorsements must be registered with NOAA Fisheries before the vessel can engage in fishing. Permits transferred to other persons may be sold with or without the vessel. Since the moratorium became effective, approximately ten percent of active permits have been transferred to new owners per year, 146 in 2003 and 186 in 2004. Over the two years, an additional 98 permits were transferred to different vessels, but with the same owner.

### 1.2 History of Management

This section only includes FMP plan amendments that relate to the management alternatives that are presented in Section 3.0. A complete history of management in the CMP and the reef fish fisheries can be found on the GMFMC's website; www.gulfcouncil.org .

Coastal Migratory Pelagic FMP

The coastal migratory pelagics FMP was approved in 1982 and implemented in February 1983. King mackerel, Spanish mackerel, and cobia were included in the CMP management unit. The FMP established allocations for the recreational and commercial sectors harvesting king and Spanish mackerel stocks. The FMP also established commercial allocations for net and hook-and-line fishermen.

**Amendment 2** (with its associated EA and RIR), implemented in July of 1987, required permits for charter vessels.

**Amendment 14** (with its associated EA and RIR) was submitted to NOAA Fisheries in June 2001 and approved in May 2002. The amendment provided for (1) a 3-year moratorium on the issuance of any additional charter vessel/headboat permits for vessels fishing the Gulf EEZ for reef fish or CMP fishes; (2) separate CMP charter vessel/headboat permits for the EEZs of the Gulf and South Atlantic; (3) permits (except those issued to historical captains) to be transferable to other persons; and (4) vessel captains or vessel owners to participate in data collection surveys as a permit condition. NOAA Fisheries promulgated the charter vessel/headboat moratorium regulations (67 FR 43558) on June 28, 2002.

NMFS, in response to a request from a recreational for-hire industry representative, reviewed the administrative record to determine if the initial eligibility requirements published in the final rule establishing a charter vessel/headboat permit moratorium were consistent with the actions approved by the Council. After reviewing the administrative record at the Council's September 9-12, 2002, meeting, NMFS determined that the amendment contained an error that did not correctly reflect the actions approved by the Council.

In order to ensure that no qualified participants in the fishery were wrongfully excluded under the moratorium and to fully comply with M-SFCMA requirements, NMFS prepared a corrected amendment to reflect the actions approved by the Council. This corrected amendment reopened the application process for obtaining Gulf charter vessel/headboat moratorium permits and extended the applicable deadlines; extended the expiration dates of valid or renewable open access permits for these fisheries; and extended the expiration date of the moratorium to account for the delay in implementation.

**Emergency Rule (67 FR 77193)**: The emergency rule: 1) deferred the date for having a "moratorium permit" aboard vessels operating in these fisheries until June 16, 2003; 2) automatically extended the expiration date of valid or renewable "open access" permits for these fisheries until June 16, 2003; 3) extended the deadline for issuance of "moratorium permits" to no later than June 6, 2003; and 4) extended the deadline for resolution of appeals to February 18, 2003, or 30 days after an oral hearing, if applicable. Additionally, the emergency rule allowed those persons who were ineligible under the promulgated regulations to receive their open access charter vessel/headboat permits until they could obtain a new permit under the revised moratorium eligibility criteria approved by the Council. Further, NOAA Fisheries issued limited access Gulf charter vessel/headboat permits to those who qualified under the existing final rule.

**Emergency Rule (70 FR 16754)** The emergency rule re-opened the application period to obtain a charter vessel/headboat moratorium permit for 120 days beginning April 1, 2005. It was determined as a result of communications with the public that some permit holders that were eligible for moratorium permits failed to obtain such permit by the June 16, 2003 deadline because of applicant confusion about the deadline. As a consequence, these permit holders have been prevented from legally operating in the EEZ and conducting their business operations in their normal and customary manner. To obtain a moratorium permit, the affected vessels must demonstrate eligibility based upon the original moratorium permit criteria and some dependence on charter/headboat fishing in the Gulf of Mexico (NMFS 2005a).

Reef Fish FMP

The Reef Fish FMP (with its associated EIS) was implemented on November 8, 1984. The FMP and its implementing regulations were designed to rebuild declining reef fish stocks. The original FMP included: 1) prohibitions on the use of reef fish traps, roller trawls, and power head-equipped spear guns within an inshore stressed area, 2) a minimum size limit of 13 inches total length (TL) for red snapper, with the exceptions that for-hire boats were exempt until May 8, 1987, and each angler could keep 5 undersize fish; and (3) the establishment of optimum yield (OY) for the snapper/grouper complex (49 FR 39548).

**Amendment 11** (with its associated EA and RIR) was partially approved by NOAA Fisheries and implemented in January 1996. In addition to several other provisions approved, the amendment established a charter vessel/headboat permit for reef fish.

**Amendment 20** (with its associated EA and RIR) was submitted to NOAA Fisheries in June 2001 and approved in May 2002. Please see Coastal Migratory Pelagics Amendment 14 discussion and Emergency Rule (67 FR 77193) discussion for details of provisions in Reef Fish Amendment 20.

Control Date Notices

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

November 18, 1998 - The Council published a notice indicating its intent to consider the need to impose additional management measures limiting entry into the recreational-for-hire (i.e., charter vessel and headboat) fisheries for reef fish and CMP fish in the EEZ of the Gulf of Mexico. Possible management measures included the establishment of a limited entry program to control participation or effort in the recreational-for-hire for reef fish and CMP fisheries. (63 FR 64031) (In the Charter/Headboat Moratorium Amendment, approved by the Council for submission to NOAA Fisheries in March 2001, a qualifying date of March 29, 2001 was adopted).

## 2 PURPOSE AND NEED FOR ACTION

The charter vessel/headboat permit moratorium was originally established on June 16, 2003. Prior to the moratorium the number of licensed for-hire vessels had increased significantly and several major fish stocks targeted by the recreational sector in federal waters were considered overfished, undergoing overfishing, or approaching an overfished state (GMFMC 2003). Because of these problems the Council implemented the moratorium to cap the number of for-hire vessels operating in the reef fish and CMP fisheries, while it evaluated the effects of the moratorium, the need for further action, and actions necessary to restore overfished reef fish and CMP stocks

Action is needed if the Council intends to extend the existing moratorium on the issuance of for-hire (charter vessel / headboat) permits for reef fish and CMP beyond June 16, 2006. If the Council chooses not to pursue an amendment to extend or replace the current for-hire charter vessel/headboat permit moratorium then the for-hire fishery will revert to an open access fishery. This would probably result in an influx of new permit holders, thus changing the present and more recent historical level of participation in the fishery. Reverting to an open access management regime would likely cause an increase in fishing effort, which could lead to increased fishing mortality and jeopardize the Council’s ability to rebuild overfished fisheries and prevent overfishing in the short-term. Maintaining the moratorium or replacing it with a limited access system would cap participation at current levels with some additions from the Emergency Rule (70 FR 16754) to re-open the application period for for-hire permits.

The purpose of this amendment is to provide for biological, social, and economic stability in the reef fish and CMP for-hire fishery. This would be accomplished by continuing to cap participation in the fishery at current levels. The cap on permits should maintain the current social and economic structure of the for-hire industry while providing some room for change as allowed by open-market permit transferability. The biological status of species in the reef fish and CMP fisheries is expected to be better under a moratorium that prevents new vessels from entering these fisheries and increasing fishing pressure than what would occur under an open access management regime. Thus, permit moratoria in both the for-hire and commercial sectors are an integral part of the overall management strategy to achieve OY and maximize the overall benefits of the reef fish and CMP fisheries in the Gulf of Mexico.

## 3 MANAGEMENT ALTERNATIVES

The Council must consider whether to allow the moratorium on CMP and reef fish charter vessel/headboat permits to expire or to extend the moratorium on the issuance of additional permits. Extending the moratorium indefinitely as a limited access program or for a finite period of time would prevent increases in fishing vessels or passenger capacity while the Council determines what management measures are necessary to stabilize or reduce for-hire fishing mortality for reef fish and CMP stocks that have rebuilding plans or are overfished or undergoing overfishing. All discussions of effects of management alternatives for this action are based on details contained in Sections 1, 5, 6, 7 and 8.

**Alternative 1: No action, do not extend the moratorium on for-hire reef fish and CMP permits.**

**Alternative 2: Extend the moratorium on for-hire reef fish and CMP permits by 5 years to June 16, 2011. Provisions for transferring and renewing permits will remain unchanged.**

**Alternative 3: Extend the moratorium on for-hire reef fish and CMP permits by 10 years to June 16, 2016. Provisions for transferring and renewing permits will remain unchanged.**

**Preferred Alternative 4: Establish a limited access system on for-hire reef fish and CMP permits. Permits will be renewable and transferable in the same manner as currently prescribed for such permits. The Council will have periodic reviews at least every 10 years on the effectiveness of the limited access system.**

Discussion: **Alternative 1**, the no action alternative would allow the current moratorium to expire on June 16, 2006. If the moratorium expired there would likely be some increase in fishing capacity and effort in the for-hire reef fish and CMP fisheries coming mostly from the charter vessel sector. The number of headboats operating in the fishery appears to have stabilized between 1998 and 2004 at about 77 active vessels, although some home ports may have shifted from Florida to the other Gulf States. On average, headboat trips operate at a little less than half capacity. Additionally, of the other 213 COI vessels with active moratorium permits; many appear to be operating as large capacity charter vessels, principally in the northern Gulf. Some of these vessels are apparently not being used, so there appears to be little incentive for additional headboat vessels to enter the fishery.

Charter vessels, however, have more than doubled between 1998 and 2004 from 1,045 along the Gulf Coast (Holland et al., 1999; Sutton et al., 1999) to 2,481 vessels currently in the MRFSS charter vessel frame for the Gulf (includes both vessels operating in federal waters and vessels operating only in state waters). The MRFSS data suggests charter vessels conduct an average of three trips per week and carry an average of 6.2 passengers per trip (includes those that are operating COI charter vessels). While not all of these vessels fish in federal waters (there are 1,391 6-Pack moratorium permits of which 1,142 have homeports in the GOM), they may participate in both reef fish and CMP fisheries in state waters and venture into federal water on occasion.

Moratorium permits can be transferred, which does not increase for-hire fishing capacity but will allow an increase in fishing effort as some owners upgrade vessels and some underutilized permits are sold to more enterprising owner/operators. Moratorium 6-Pack permits are being advertised for as much as $10,000 reflecting the present demand, and may be cost prohibitive for some fishermen. Reverting to an open

access fishery would reduce the cost of a permit to $50 and would allow new applicants and most likely more fishing effort if applicants intend to use the permit instead of speculating about future limited access programs. In either case, the capacity of the for-hire fishery would increase, making it more difficult in the long-term to control fishing effort, if necessary.

The charter fleet harvests approximately 14 percent of the primary target reef fish and CMP species. Four species are overfished or undergoing overfishing and are under rebuilding plans (red grouper, greater amberjack, red snapper and vermilion snapper), and two others are fully utilized (king mackerel and gag grouper). Currently, there are bag and size limits for all these species, as well as a recreational closed season for red snapper; however, these regulations do not prevent increases in numbers of trips or passengers per trip. Adding new charter vessels will increase effort in the short-term beyond what would be possible under the moratorium. As a result, harvest and bycatch will likely increase if the moratorium were to expire and potentially negatively affect the status of these species and possibly others. Such increases in the long-term would likely require new, more restrictive recreational fishing regulations for all the stocks in the reef fish and CMP fisheries.

Under open access, an increase in the number of vessels entering the fishery would likely increase short-term total revenues for the for-hire charter fishery but could diminish the overall economic performance of individuals vessels in that fishery in the long-term. An increase in the number of charter vessels could reduce the number of bookings per year per vessel due to increased competition, resulting in lower boat fees, reducing fleet profit margins, and possibly leading to overcapitalization.

The administrative costs of managing the for-hire sector would likely increase if the moratorium were allowed to expire. As many as 1,340 unlicensed charter vessels currently in the MRFSS charter sampling frame could apply for permits, many of which would probably be held for future personal use or speculation. This added administrative burden would be offset somewhat by eliminating the need to process approximately 150 –190 transfers annually. However, enforcement costs might rise in the long-term if there are more vessels to monitor and enforce.

**Alternative 2 and 3** would extend the moratorium for a finite period of time (**Alternative 2** for five years and **Alternative 3** for 10 years). The moratorium would automatically expire after that time unless the Council decided to either end the moratorium early or extend the moratorium again. The total number of permits would remain at 1,628 CMP permits and 1,550 reef fish permits, with the for-hire fleet capacity remaining at 21,726 permitted passengers. Transfers would still be allowed so the for-hire fishery would be able to adjust somewhat to changing economic conditions. Transfers would also allow an increase in the number of active vessels and possibly increased fishing effort in the reef fish or CMP fisheries through the purchase of underutilized permits if profit margins are expected to be reasonable. However, such increases in vessel utilization and fishing effort would still most likely be well below what is expected under **Alternative 1**. Profit margins should be higher and companies servicing the for-hire sector should remain more stable than would result from **Alternative 1**.

The biological condition of the stocks is likely to be better under **Alternatives 2 or 3** because fishing effort should not increase as rapidly or reach as high of a level as is likely under **Alternative 1**. Under the current moratorium and any alternatives that continue that moratorium, permit transfers could allow some increase in fishing effort as some owners upgrade vessels and some underutilized permits are sold to more enterprising owner/operators. The short-term administrative burden should be less for any alternative that continues the moratorium since no new licenses would have to be issued. The long-term administrative burden of **Alternative 2** could be greater than **Alternative 3** if another amendment were

needed to extend the moratorium in order for the Council to complete a comprehensive limited access amendment.

**Alternative 4** would create a limited access system for reef fish and CMP for-hire charter vessel and headboat permits. No new permits would be issued until the Council chooses to change this status by amendment. In addition, **Alternative 4** would require the Council to review the effectiveness of the for-hire limited access system at least every 10 years. The Council has the ability to end the limited access system at any time. The Council took the initial step to establish a moratorium in order to examine more comprehensive limited access systems for all sectors of the reef fish and CMP fisheries. The Council is developing an amendment to evaluate an individual fishing quota (IFQ) program for the commercial red snapper fishery. At it's July 2004 meeting, the Council discussed the need for a reef fish limited access system that included both commercial and recreational for-hire vessels. In October 2004, the Council set as a priority the development of an amendment that would consider implementing an IFQ program for the commercial grouper fishery. These actions reflect the Council's intention to move forward with comprehensive limited access systems for the GOM reef fish fisheries; however, such systems are complicated and require considerable time to implement. Permanently limiting the number of vessels is a relatively simple form of limited access and is the first requirement for any comprehensive shares-driven limited access system such as an IFQ or community development quota program or cooperative. An indefinite moratorium on for-hire permits would afford the Council the time to prioritize elements of these more extensive limited access systems for the reef fish and CMP fisheries and implement them without having to re-establish the base permit moratoria. All biological, social and economic conditions would be the same as described for **Alternatives 2 and 3**, but would be expected to continue for a longer amount of time since **Alternative 4** would maintain the same moratorium on the issuance of new permits, albeit for an indefinite period of time. The administrative burden of **Alternative 4** would be less than for **Alternatives 2 and 3** if the moratorium had to be extended for any reason.

## 4 MAGNUSON-STEVENS ACT PROVISIONS FOR LIMITED ACCESS SYSTEMS

Section 303(b)(6) provides that to establish a limited access system for a fishery in order to achieve OY, the Council and the Secretary should consider six issues. These issues are discussed in more detail in Sections 1, 3, and 5, and those discussions are incorporated here by reference. A short summary follows.

### A. Present participation in the fishery

There are 1,696 vessels with valid permits for Gulf CMP or reef fish moratorium permits (NOAA Fisheries' permit file as of 9/23/04). Reef fish and CMP permits were issued to 1,482 vessels, an additional 146 vessels were issued only CMP permits, and the remaining 68 vessels were issued only reef fish permits. There are 1,426 vessels that operate as charter vessels, 114 vessels operate as headboats, 29 operate as both a charter and headboat, 114 operate as commercial vessels and 9 are not identified. Six passenger permits (6-pack, undocumented) are issued to 1,391 vessels, 290 documented vessels have a permitted capacity ranging from 9 to 237 passengers, and 15 permits have no identified capacity. The majority of these permits are in Florida (1,039), followed by Texas (232), Alabama (147) Louisiana (127) and Mississippi (73). The home port state for the remaining 77 permits ranges from Georgia through Maine. Total carrying capacity (number of passengers) for undocumented vessels currently is 8,346 passengers; whereas, total carrying capacity for documented vessels is 13,380. **Alternative 1** (allow the moratorium to expire) would allow the number of permitted vessels to increase, primarily undocumented charter vessels that are currently fishing in state waters, which would change the demographics of participation. **Alternatives 2, 3, and 4** would not change these demographics. Demographics would only change as a result of the transfer of permits from existing permit holders to future fishery participants.

### B. Historical fishing practices in, and dependence on, the fishery

The for-hire fishery operates using rod and reel gear while anchored, drifting, or trolling. Charter vessels typically carry six passengers or less but some have the capability to carry parties of 20 or more; whereas, headboats typically carry about 30 passengers, but some have a capacity to carry over 100 passengers. Charter vessels and headboats target most of the species in the reef fish and CMP management units. Charter vessels typically charge by the trip regardless of the number of people in the party; whereas, headboats charge by the person. Both sectors will occasionally use the other payment method depending on the circumstances. All headboats operate on a full-time basis and most charter vessels operate on a full-time basis. The demographic characteristics (household income from fishing, years operating vessel out of homeport county, average age, etc.) of charter vessel and headboat operators are summarized in Sections 5.4.4.1 and 5.4.4.2. **Alternative 1** (allow the moratorium to expire) would most likely reduce the average age, experience, and full-time nature of the for-hire sector. **Alternatives 2, 3,** and **4** would not likely change demographics, although the transfer of permits could change fishing practices and fishing dependence. However, few permits are transferred each year (~ 10 percent).

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### C. Economics of the Fishery

Headboats carry approximately 220,000 anglers on approximately 9,100 trips per year. Headboats target about 120 unique species each year; 11 of the 15 species comprising a majority of the catch are either in the reef fish or CMP fishery. Based on Holland et al. (1999) and Sutton et al. (1999), individual headboats grossed an average of $404,000, with profits of approximately $340,000 per year. These profits do not take into account fixed costs, which can be large for headboats (Note: headboat profits do not account for fixed costs). Average Florida headboat fees were $29 for half-day and $45 for full day

trips. Average headboat base fees in Alabama through Texas were $41 for half-day trips, $64 for full-day trips, and $200 for overnight trips.

Charter vessels carry about 750,000 anglers on about 120,000 trips annually. Charter vessels target about 50 species or species groups as defined by the MRFSS, nine of the 15 species comprising the majority of the catch are either in the reef fish or CMP management unit. Based on Holland et al. (1999) and Sutton et al. (1999), individual charter vessels grossed an average of $77,000 with profits of approximately $37,000 per year. Average boat fees in Florida were $348 for half-day; $554 for full-day and $1,349 for overnight trips. Average boat fees in Alabama through Texas were $417 for half-day; $762 for full-day and $1,993 for overnight trips.

The economics of the for-hire fishery could change significantly if the current moratorium were allowed to expire (**Alternative 1)**. More vessels, primarily charter, would likely enter the reef fish and CMP fishery, forcing more competition and reducing the per vessel gross revenue. **Alternatives 2, 3, or 4** would not change the economic characteristics of the for-hire sector as described above.

### D. The capability of the fishing vessels used in the fishery to engage in other fisheries

Many of the vessels in the for-hire fleet are capable of switching to commercial fishing in the reef fish and CMP fisheries and many already have commercial licenses to operate in these fisheries or in fisheries in the South Atlantic. There are no alternatives in this amendment that would remove vessels from the for-hire fishery as it currently exists. **Alternatives 2, 3, and 4** would continue the moratorium on permits or limit access to the for-hire fishery to current permit holders. In either case, the vessels that currently have permits will be allowed to remain in the fishery. **Alternative 1** would allow the moratorium to expire and the number of permitted vessels to increase. The resulting increased competition could drive some existing moratorium permit holders out of the fishery but overall, the number of permits (and vessels) is likely to increase under an open access regime.

### E. Cultural and Social framework

The Generic Essential Fish Habitat Amendment (GMFMC, 2004a) provides extensive characterization of fishing communities throughout the Gulf coast. In all, 5 communities were identified in Alabama, 37 in Florida, 11 in Louisiana, 4 in Mississippi, and 12 in Texas. All are located in and around bays and inlets with centers of concentration in West-central Florida and Northwest Florida through Alabama.

Based on Holland et al. (1999) and Sutton et al. (1999), the mean age of charter boat operators in the Alabama through Texas area was 47 years with an average of 14 years of education. Most (91%) operated on a full-time basis, and about 50 percent reported that all of their household income was from the charter business. About 78 percent lived in their home port, and on average they had lived near their home port for 24 years and had operated their boat out of their home port county for an average of 14 years. The mean age of headboat operators was 49 years with 81 percent having at least 12 years of experience. All operated on a full-time basis and about 78 percent reported that all of their household income was from their headboat business. Ninety-one percent lived near their home port for 26 years and had operated a headboat out of the port for 13 years.

Based on Holland et al. (1999) and Sutton et al. (1999), the mean age of Florida charter boat operators was 46 and they had an average of 13 years of education. About 98 percent of the operators were male. Most (90%) operated on a full-time basis and about 61 percent reported that all of their household income

was from the charter business. Eighty percent lived in their home port county for more than 10 years and had operated their boat out of their home port county for an average of 15 years. The mean age of Florida headboat operators was 48 years with an average of 13 years of education. About 86 percent of the operators were male. All operated on a full-time basis and about 92 percent reported that all of their household income was from their headboat business. Ninety-four percent had lived in their homeport county for more than 10 years and had operated their boat out of their homeport county for an average of 19 years

If the for-hire permit moratorium expired (**Alternative 1**), new vessels would enter the reef fish and CMP fisheries and likely reduce the fishery-wide expertise, reduce the value of a charter vessel or headboat, and increase the proportion of the for-hire industry working part-time as opposed to full-time. **Alternatives 2, 3, or 4** would not alter the cultural or social framework of the for-hire sector as described above.

### F. Any Other Relevant Considerations

The for-hire permit moratorium was first implemented on June 28, 2002. To obtain an initial moratorium permit, an applicant had to have a valid charter vessel/headboat permit as of March 29, 2001, the month that the Council approved Amendments 14 and 20 for the CMP and reef fish FMPs. Thus, everyone who was legally in the for-hire CMP or reef fish fishery as of March 29, 2001, was eligible for a permit. It was later determined that the final rule implementing the permit moratorium was not consistent with actions approved by the Council, and the permit application period was extended but the original control date for having a valid for-hire permit remained March 29, 2001. The final for-hire permit moratorium was implemented on June 16, 2003. At that time, there were still 588 eligible CMP permits and 112 eligible reef fish permits that were not converted to moratorium permits because the permit holders did not respond to announcements about the impending deadlines for obtaining such permits. Since then, there have been numerous eligible license holders who claim they were not adequately notified of the June 6, 2003 deadline and should be allowed to obtain a moratorium permit. With the Council's concurrence (October 11 – 14, 2004 Council motion), NOAA Fisheries re-opened the application period for those permit holders who can document they were eligible based on the original criteria for application and have some current dependence on charter/headboat fishing in the Gulf (70 FR 16754). This rule will ensure that any charter vessel or headboat that depends on the reef fish or CMP fishery and complied with all previous permit regulations will not be disenfranchised by the permit moratorium.

# 5 REGULATORY IMPACT REVIEW

## 5.1 Introduction

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

The RIR also serves as the basis for determining whether the proposed regulation is a "significant regulatory action" under certain criteria provided in Executive Order 12866, and provides the general basis for determining whether the proposed regulation will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act of 1980 (RFA).

This RIR analyzes the potential impacts the alternatives in this plan amendment to the reef fish and Coastal Migratory Pelagics FMPs would have on participants in these fisheries.

## 5.2 Problems and issues in the fishery

The specific problems addressed in this proposed plan amendment are enumerated and discussed in Section 3 and are incorporated here by reference. The major issue identified for this plan amendment is the extension of the moratorium on the issuance of additional charter vessel/headboat permits.

## 5.3 Objectives

Section 2 discusses the specific need for this plan amendment and is incorporated here by reference.

## 5.4 Description of the fishery

### 5.4.1. Harvest characteristics

The recreational fishery in the Gulf includes private anglers fishing from shore or private or rental boats and charterboats and headboats (party boats), collectively known as for-hire vessels. The recreational sector is a very important component of the overall reef fish and CMP fisheries in the Gulf.

Reef fish and CMP harvests have been recorded through the MRFSS since 1979; however, data collected prior to 1981 is generally not used as these data appear to be less reliable than data from later effort (for example see Porch and Cass-Calay, 2001). In addition, headboats have not been sampled by MRFSS since 1985 when the NOAA Fisheries Headboat Survey began sampling this segment of the fishery. The Texas Parks and Wildlife Department has conducted their own recreational survey since 1983, so MRFSS was discontinued in this state.

#### 5.4.1.1 Headboat sector

Harvests from the for-hire headboat sector are obtained by the SEFSC's Headboat Survey. All vessels

known to be operating in the Gulf of Mexico as headboats (fees charged on a per passenger basis) and with a carrying capacity of 15 or more are part of this survey. Captains are required to fill out logbooks for each trip; data include date of trip, duration of trip, number of passengers, area fished, and harvest by species.

The SEFSC's Headboat Survey contained 77 headboat vessels fishing in the GOM as of November 22, 2004 Headboat vessels were matched to the reef fish and CMP permits file by name and home port to obtain vessels characteristics recorded on the permits such as length and vessel carrying capacity. Seventy-three vessels had matches to the vessel permit file. Four others could not be matched to the permit. Seventy-one vessels had effort data within the 2000 to 2003 period in the Headboat Survey database. Based on permit files, the 73 vessels range in length from 37 ft. to 80 ft., had carrying capacities from 20 to 150 passengers, and had a total capacity of 4,763 passengers. The 71 headboat vessels with effort data averaged 112 trips per year and carried an average of 31 passengers per trip, operating at about 46 percent of capacity. Total capacity of the 77 vessels in the Headboat Survey database is estimated to be 5,024 passengers.

TABLE 5.1: For-Hire Headboat Landings from 2000 through 2003. Source data - SEFSC Headboat Survey database.

| | Year | | | | % Landings | |
|---|---|---|---|---|---|---|
| Species | 2000 | 2001 | 2002 | 2003 | Average | Cumulative |
| Red Snapper | 763,294 | 573,491 | 824,809 | 791,904 | 30.5% | 30.5% |
| White Grunt | 450,185 | 418,770 | 290,276 | 291,679 | 15.0% | 45.5% |
| Vermilion Snapper | 175,222 | 181,223 | 208,596 | 295,489 | 8.9% | 54.4% |
| King Mackerel | 141,614 | 142,758 | 119,580 | 183,541 | 6.1% | 60.5% |
| Greater Amberjack | 100,733 | 89,436 | 160,638 | 199,348 | 5.7% | 66.2% |
| Gag | 199,995 | 116,648 | 79,847 | 109,769 | 5.2% | 71.4% |
| Sharpnose Shark | 131,624 | 76,222 | 71,758 | 109,842 | 4.0% | 75.4% |
| Gray Triggerfish | 61,996 | 67,529 | 90,952 | 104,410 | 3.4% | 78.8% |
| Blackfin Tuna | 77,650 | 22,341 | 65,726 | 131,888 | 3.1% | 81.9% |
| Gray Snapper | 50,901 | 72,174 | 60,484 | 56,445 | 2.5% | 84.3% |
| Tomtate | 31,561 | 32,005 | 50,412 | 42,451 | 1.6% | 86.0% |
| Red Grouper | 51,056 | 31,630 | 24,636 | 40,337 | 1.5% | 87.5% |
| Red Porgy | 25,044 | 37,876 | 35,612 | 45,890 | 1.5% | 89.0% |
| Lane Snapper | 28,937 | 26,814 | 32,496 | 33,096 | 1.3% | 90.2% |
| Cobia | 32,998 | 27,541 | 29,301 | 28,630 | 1.2% | 91.5% |
| Yellowfin Tuna | 15,476 | 5,870 | 25,772 | 34,877 | 0.8% | 92.3% |
| Atlantic Spadefish | 46,396 | 10,583 | 6,744 | 10,783 | 0.8% | 93.1% |
| Little Tunny | 21,166 | 10,198 | 17,313 | 11,662 | 0.6% | 93.7% |
| Banded Rudderfish | 10,780 | 10,865 | 23,878 | 11,809 | 0.6% | 94.3% |
| Black Grouper | 4,753 | 23,473 | 7,698 | 4,360 | 0.4% | 94.7% |

Headboats land about 120 unique species each year; however, the top eight species harvested account for 79 percent of total annual landings (Table 5.1). Six of the top eight species are in either the reef fish or CMP FMP management unit, and three of those species (red snapper, vermilion snapper, greater

amberjack) are overfished while two others (king mackerel and gag) are fully utilized. Red snapper was the most frequently caught species accounting for 30.5 percent of the total average annual harvest between 2000 and 2003. White grunt, the second most frequently caught species at 15 percent of the total average annual harvest, is caught mainly along the West Florida shelf in both state and federal waters. An assessment of white grunt was conducted by the Florida Fish and Wildlife Conservation Commission in 1999 and determined the stock was healthy.

From 2000 through 2002, annual total estimated number of trips declined from 9,540 to 8,194 before increasing to 9,207 in 2003 (Table 5.2). Angler days declined slightly from 222,700 in 2000 to 215,000 in 2002, and then increased to 225,300 in 2003.

Table 5.2. Headboat Effort Estimates, 2000 - 2003

| | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|
| **Reported trips** | 6,421 | 6,230 | 6,420 | 6,339 |
| **Estimated Total Trips*** | 9,540 | 9,309 | 8,194 | 9,207 |
| **Anglers per trip** | 30.20 | 31.01 | 32.20 | 31.74 |
| **Angler Days** | 222,678 | 218,826 | 215,004 | 225,279 |

* Personal Communication from Bob Dixon, 12/17/04

#### 5.4.1.2 Charterboat sector

All for-hire vessels not in the SEFSC's Headboat Survey directory, including those vessels that fish only in state waters, are considered charter vessels and are sampled through the MRFSS. Prior to 2000, MRFSS estimated charter vessel trips through telephone calls to coastal households where fishers were asked to specify the mode of fishing for each trip taken during a two-month period. From 2000 on, MRFSS estimated charter trips using a weekly call to a ten percent random sample of all known charter vessel operators (2,481 in 2003). Vessels in the weekly sample are asked to provide information for each fishing trip taken during the week, including mode of trip (charter, head or other), duration of the trip, whether the trip occurred in state or federal waters, and the number of passengers who fished. In addition, the MRFSS stratified random dockside interviews and telephone survey of households provide total landings information by region, location of fishing (state or federal waters), and mode of fishing (charter, private, shore). These two data files were used to summarize landings, effort, number of anglers-per-trip, and vessel participation in the for-hire charter vessel fishery.

Charter vessels land about 50 species or species groups as defined by the MRFSS survey (Table 5.3). Thirteen of the top 16 species / species groups landed in the 2000 to 2003 period were predominantly taken offshore and accounted for about 68 percent of the total average annual charter vessel harvest. Nine of these 13 species (red snapper, gag, king mackerel, greater amberjack, red grouper, Spanish mackerel, gray snapper, gray triggerfish, and vermilion snapper) are in the reef fish or CMP fishery management unit. Of these, four (red snapper, greater amberjack, red grouper and vermilion snapper) are overfished or undergoing overfishing and two (king mackerel and gag grouper) are fully utilized. These six species, with the exception of red grouper, are the most important species landed by headboats.

TABLE 5.3. For-hire charter vessel landings (lbs total weight) from the Gulf of Mexico during 2000 through 2003. Source - NMFS, MRFSS website. Texas data are not included. Shaded species are primarily caught in state waters.

| | Year | | | | % Landings | |
|---|---|---|---|---|---|---|
| Species | 2000 | 2001 | 2002 | 2003 | Average | Cumulative |
| RED SNAPPER | 1,449,447 | 1,447,529 | 2,073,894 | 1,795,570 | 14.22% | 14.22% |
| RED DRUM | 1,469,234 | 1,414,291 | 1,723,640 | 1,770,752 | 13.40% | 27.63% |
| DOLPHINS | 1,214,031 | 1,636,655 | 1,648,115 | 1,271,318 | 12.13% | 39.75% |
| SPOTTED SEATROUT | 1,766,550 | 1,424,172 | 737,267 | 849,388 | 10.04% | 49.79% |
| GAG | 1,174,368 | 977,312 | 736,098 | 681,825 | 7.50% | 57.30% |
| KING MACKEREL | 963,494 | 853,822 | 1,017,139 | 718,982 | 7.47% | 64.76% |
| GREATER AMBERJACK | 632,396 | 566,099 | 1,219,686 | 1,065,518 | 7.32% | 72.09% |
| OTHER TUNAS/MACKERELS | 285,401 | 537,863 | 567,499 | 783,211 | 4.57% | 76.65% |
| RED GROUPER | 732,368 | 368,142 | 311,726 | 273,141 | 3.54% | 80.20% |
| SPANISH MACKEREL | 366,096 | 278,357 | 254,486 | 302,771 | 2.53% | 82.72% |
| LITTLE TUNNY/ATL. BONITO | 288,767 | 198,524 | 337,864 | 211,948 | 2.18% | 84.90% |
| GRAY SNAPPER | 181,379 | 158,268 | 261,391 | 315,529 | 1.93% | 86.83% |
| GRAY TRIGGERFISH | 161,987 | 217,585 | 278,243 | 241,238 | 1.89% | 88.72% |
| BLACK DRUM | 81,965 | 215,925 | 340,648 | 247,175 | 1.86% | 90.58% |
| WHITE GRUNT | 203,526 | 312,617 | 138,943 | 103,819 | 1.59% | 92.17% |
| VERMILION SNAPPER | 110,878 | 181,694 | 109,774 | 123,087 | 1.10% | 93.28% |

Charter vessel effort as measured by total estimated number of trips declined from 2000 through 2003 (Table 5.4). Estimated trips that caught reef fish vary without trend. Estimated trips that caught CMP decline. Anglers-per-trip are estimated from the weekly calls for the years 2000 through 2003. Total vessel trips per year are estimated using the total charter vessel angler trips and anglers per trip.

Table 5.4. Charter vessel effort estimates, 2000 – 2003

| | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|
| Charter vessel total angler trips | 811,634 | 742,386 | 764,222 | 691,362 |
| Reef fish angler catch trips | 367,983 | 338,221 | 417,120 | 375,650 |
| CMP angler catch trips | 199,337 | 158,401 | 164,960 | 125,035 |
| Anglers/trip | 5.84 | 5.98 | 6.23 | 6.68 |
| Total charter vessel trips | 138,978 | 124,145 | 122,668 | 103,497 |

### 5.4.1.3 Comparison of Headboat and Charter Vessel Characteristics

Five species in the management unit for reef fish (red snapper, gag, red grouper, greater amberjack and vermilion snapper) and king mackerel in the management unit for CMP were used to compare headboats and charter vessels. These species are heavily targeted and are dominant in the landings by each for-hire sector (Tables 5.1 and 5.3). Over the period from 2000 to 2003, the for-hire fishery harvested 41 percent of the greater amberjack, 25 percent of red snapper, 21 percent of king mackerel, 14 percent of vermilion snapper and gag, and 5 percent of the red grouper resource (Figure 1). Charter vessels account for a majority of the for-hire fishery landings, from more than 85 percent of the king mackerel, red grouper, gag and greater amberjack resources, to 70 percent of the red snapper resource and 37 percent of the vermilion snapper resource (Figure 2).

**Figure 1. Average Annual Landings by Fishing Sector based on 2000-2003 data**

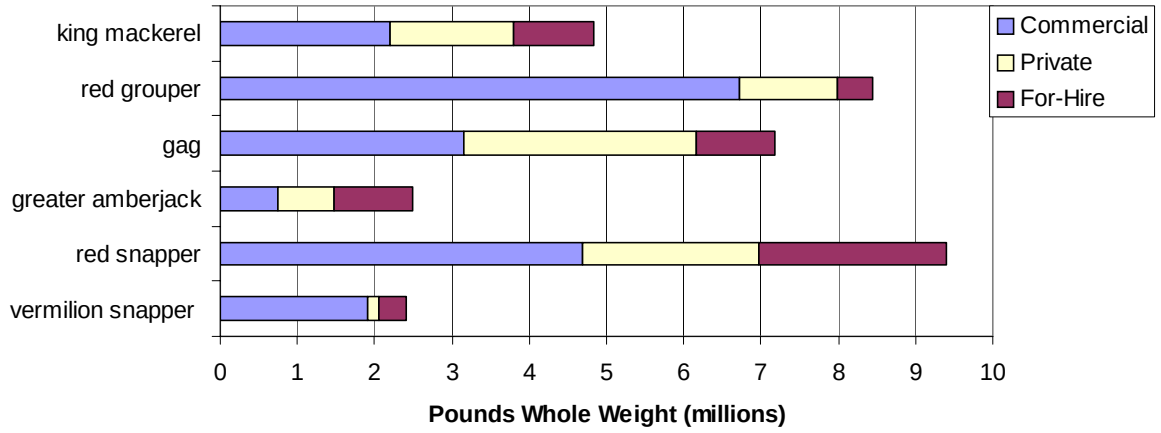
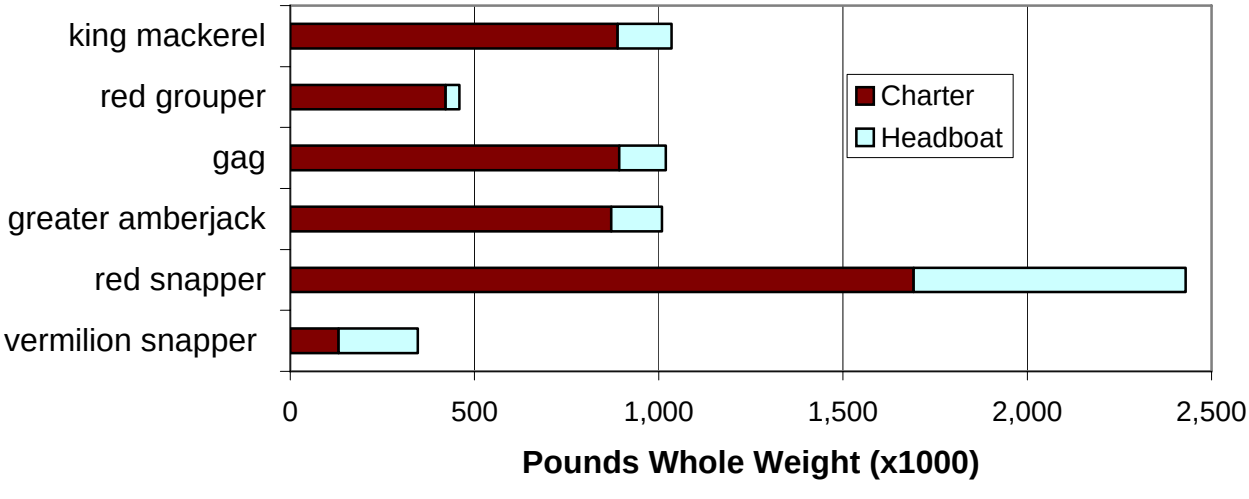



**Figure 2. Average annual landings by for-hire sector based on 2000-2003 data.**



### 5.4.2. Number of vessels and vessel characteristics

The federal for-hire vessel permits for CMP and reef fish have been in effect since 1987 and 1996, respectively. A moratorium on the issuance of new for-hire vessel permits for CMP and reef fish took effect on June 16, 2003. The current 3-year moratorium is set to expire on June 16, 2006.

Table 5.5 lists the number of for-hire vessels with valid permits as of July 1 of each year. There is a steady increase in the number of permitted for-hire vessels over time, right up to the year before the permit moratorium was implemented (2003). The number of permitted vessels more than doubled from 1996 to 2003. The significant decline in the number of vessels in 2004 may be attributed, for the most part, to the moratorium. An Emergency Rule, which took effect on April 1, 2005, allows wrongly excluded vessels to re-enter the for-hire reef fish and CMP fisheries (NMFS 2005a). One other feature observable from the table is the increase in the number of vessels with both reef fish and CMP permits. With an additional permit costing less than half (now at $20) that of the first permit (now at $50), holding or purchasing both reef fish and CMP permits provides the vessel more operational flexibility at a relatively lower cost. Some fishermen recognized this bargain, and opted to secure both the reef fish and CMP permits instead of just one permit.

Table 5.5. Number of vessel with valid permits as of July 1 of each year.

| Year | Reef fish Only | Coastal Pelagics Only | Both RF and CP | Total |
|---|---|---|---|---|
| 1996 | 29 | 957 | 434 | 1420 |
| 1997 | 55 | 753 | 650 | 1458 |
| 1998 | 58 | 773 | 753 | 1584 |
| 1999 | 70 | 834 | 934 | 1838 |
| 2000 | 103 | 827 | 1368 | 2298 |
| 2001 | 123 | 775 | 1739 | 2637 |
| 2002 | 137 | 785 | 1834 | 2756 |
| 2003 | 120 | 573 | 1782 | 2475 |
| 2004 | 62 | 146 | 1491 | 1699 |

Source of basic data: permit file provided by Bob Sadler. Note: the number of permits in 2004 is greater than Table 1.1, likely because of when data were summarized.

Increases and decreases in permitted vessels have not affected vessel characteristics over time. From information presented in Table 5.6, it appears that while the number of vessels belonging to each length category increased (at least through 2003), there is no perceptible change in the proportion of vessels belonging to each vessel length category. Every year throughout the 1996-2004 period, most vessels fall within the 21 feet through 60 feet length categories, indicating that over time vessels have not become longer or smaller. In addition, the vessel reduction that occurred at the start of the moratorium affected all length categories, although the 41 to 50 feet and 51 to 60 feet categories showed a decline in the number of vessels from the 1996 level.

Table 5.6. Length of vessels with valid permits as of July 1 of each year.

| Length (feet) | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|
| < 20 | 37 | 38 | 42 | 55 | 84 | 126 | 126 | 106 | 96 |
| 21 - 30 | 368 | 385 | 450 | 554 | 763 | 948 | 989 | 887 | 586 |
| 31 - 40 | 496 | 492 | 530 | 594 | 743 | 822 | 892 | 806 | 560 |
| 41 - 50 | 334 | 342 | 350 | 386 | 425 | 434 | 433 | 398 | 265 |
| 51 - 60 | 112 | 116 | 130 | 160 | 171 | 169 | 187 | 151 | 91 |
| 61 - 70 | 43 | 47 | 41 | 48 | 59 | 72 | 66 | 68 | 57 |
| >70 | 30 | 38 | 41 | 41 | 52 | 65 | 62 | 59 | 44 |
| Unknown | | | | | 1 | 1 | 1 | | |

Source of basic data: Permit files provided by Bob Sadler.

Most vessels fall within the 101 to 600 engine horsepower ranges, with the 201 to 500 horsepower ranges being more dominant than others (Table 5.7). The trend in engine horsepower appears to be similar to that of vessel length. The number of vessels increased for each horsepower range but the relative ranking has remained the same. Despite the dominance of the lower horsepower categories, a fair number of vessels have more than a 1,000 horsepower engine.

Table 5.7. Horsepower of vessels with valid permits as of July 1 of each year.

| HP | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|
| <100 | 22 | 18 | 26 | 32 | 49 | 75 | 72 | 57 | 69 |
| 101-200 | 128 | 138 | 146 | 188 | 272 | 335 | 349 | 290 | 181 |
| 201-300 | 282 | 299 | 327 | 399 | 533 | 635 | 637 | 570 | 384 |
| 301-400 | 187 | 184 | 220 | 253 | 334 | 392 | 423 | 404 | 238 |
| 401-500 | 154 | 178 | 201 | 229 | 274 | 327 | 373 | 358 | 280 |
| 501-600 | 109 | 111 | 124 | 140 | 171 | 179 | 184 | 163 | 121 |
| 601-700 | 91 | 97 | 103 | 112 | 149 | 145 | 163 | 156 | 114 |
| 701-800 | 59 | 63 | 74 | 83 | 92 | 107 | 114 | 109 | 78 |
| 801-900 | 64 | 72 | 77 | 93 | 94 | 95 | 102 | 112 | 84 |
| 9001-1000 | 23 | 26 | 22 | 26 | 27 | 36 | 39 | 26 | 12 |
| >1000 | 76 | 89 | 101 | 126 | 160 | 187 | 190 | 181 | 120 |
| Unknown | 225 | 183 | 163 | 157 | 143 | 124 | 110 | 49 | 18 |

Source of basic data: Permit files provided by Bob Sadler.

From 1996 to the present, for-hire vessel operation has been predominately an individual proprietorship type (Table 5.8). Approximately one-third of permits are owned by corporations. The number of leases has been low relative to the other types of ownership.

Table 5.8. Type of ownership of for-hire vessel operation.

| Ownership | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|
| Corporate | 400 | 429 | 473 | 557 | 675 | 724 | 769 | 687 | 490 |
| Individual | 998 | 1,008 | 1,094 | 1,262 | 1,588 | 1,864 | 1,930 | 1,741 | 1,152 |
| Lease | 22 | 21 | 17 | 19 | 35 | 48 | 56 | 47 | 56 |
| Unknown | | | | | | 1 | 1 | | 1 |

Source of basic data: Permit files provided by Bob Sadler.

The distribution of vessels by homeport state is shown in Table 5.9. Only the Gulf states are shown separately. The non-Gulf states are grouped together under the "Others" category. Florida is the homeport state of most vessels, followed by Texas, and then by the rest of the Gulf states. North Carolina (not shown) is the homeport of most vessels in the "Others" category. As with the other vessel characteristics, the number of vessels increased at each homeport state before the implementation of the moratorium, but the relative ranking has remained the same. Florida experienced the largest reduction in vessels after the implementation of the moratorium. Non-Gulf states also experienced reductions in vessels apparently because they generally fish outside the Gulf EEZ and so either did not qualify or did not apply for permits. However, as mentioned previously some of the excluded vessels may reenter the fishery under the Emergency Rule.

Table 5.9. Homeport state of vessels with valid permits as of July 1 of each year.

| State | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|
| AL | 61 | 71 | 84 | 104 | 136 | 156 | 175 | 178 | 146 |
| FL | 730 | 743 | 803 | 892 | 1186 | 1458 | 1535 | 1423 | 1043 |
| LA | 53 | 59 | 56 | 82 | 102 | 158 | 174 | 160 | 126 |
| MS | 22 | 30 | 39 | 58 | 85 | 91 | 97 | 94 | 74 |
| TX | 162 | 175 | 188 | 210 | 278 | 289 | 310 | 286 | 231 |
| Others | 392 | 380 | 414 | 492 | 511 | 485 | 465 | 334 | 79 |

Source of basic data: Permit files provided by Bob Sadler.

The foregoing vessel characteristics are based on the list of vessels with active permits as of July 1 of each year. It is expected that a different set of vessels would be counted if a date other than July 1 is used, although some vessels would be included in those other sets. However, the trend over time as discussed above is deemed to be invariant to the date chosen for generating the number of vessels with valid permits.

As noted earlier in the discussion pertaining to Table 5.5, the moratorium is one major reason for the decrease in the number of for-hire vessels that can legally fish for reef fish and/or CMP in the Gulf EEZ. For the initial distribution of moratorium permits, one had to qualify under any of the three major eligibility requirements: (1) permit history, (2) historical captain, and (3) vessel construction. Based on permit records and other relevant information, NMFS issued permit eligibilities to individuals. Individuals have to file permit applications to obtain the for-hire permit.

Presented in Table 5.10 is a summary of initial eligibilities and number of permits issued according to the three eligibility requirements. Of the 2,303 eligibilities granted for CMP, 1,715 resulted in the issuance of for-hire permits, and of the 1,737 eligibilities granted for reef fish, 1,625 resulted in permit issuance. Permit numbers can change on a daily basis due to a variety of reasons, such as permit expiration, renewal, or transfer. It is for this reason that the number of permits shown in Table 5.10 (permits issued at the start of the moratorium) differs from that in Table 5.5 (permits valid as of July 1 of each year). Unused eligibilities (588 for CMP and 112 for reef fish) are simply the difference between eligibilities granted and permits issued. Remaining eligibilities are unused eligibilities that can still result in the issuance of permits. In the table, there are no remaining eligibilities under permit history, because those persons that possessed them should have already obtained permits had they filed permit applications. The deadline for permit application was September 15, 2003, so those who applied and qualified should have permits by now. There are 74 and 4 remaining eligibilities for historical captains and vessel construction, respectively. Historical captains were issued letters of eligibility which are valid throughout the moratorium. So far 62 historical captains have been issued for-hire vessel permits. Those who qualified under the vessel construction eligibility were also issued letters of eligibility which are valid throughout the moratorium, and so far 126 permits have been issued for CMP and 125 for reef fish. With the exception of those who would qualify under the emergency re-opening of the charter permit application process, the only addition to the existing for-hire permits during the moratorium would be from the remaining eligibilities for historical captains and vessel construction.

Table 5.10. For-hire moratorium eligibilities granted and permits issued.

| | Eligibility/Permit Basis | Coastal Migratory Pelagics | Reef fish |
|---|---|---|---|
| **Eligibilities Granted** | Permit history | 2037 | 1472 |
| | Historical captain | 136 | 136 |
| | Vessel construction | 130 | 129 |
| | Total | 2303 | 1737 |
| **Permits Issued** | Permit history | 1527 | 1438 |
| | Historical captain | 62 | 62 |
| | Vessel construction | 126 | 125 |
| | Total | 1715 | 1625 |
| **Unused Eligibilities** | Permit history | 510 | 34 |
| | Historical captain | 74 | 74 |
| | Vessel construction | 4 | 4 |
| | Total | 588 | 112 |
| **Remaining Eligibilities** | Permit history | 0 | 0 |
| | Historical captain | 74 | 74 |
| | Vessel construction | 4 | 4 |
| | Total | 78 | 78 |

Source of basic data: Sramek, 2004, pers. comm.

An eligibility can result in no more than one permit, and a permit can be associated with no more than one vessel at a time. The number of permitted vessels then cannot be more than the sum of permits issued for CMP and reef fish (3,340). Because an individual may own several permits, the number of for-hire vessels initially permitted to fish for reef fish or CMP in the EEZ is lower than the maximum. An examination of permit files reveals that all the 3,340 permits are associated with 1,779 unique vessels (Table 5.11). Of these vessels, 1,561 have both reef fish and CMP permits, 64 have only reef fish permits, and 154 have only CMP permits. All vessels associated with historical captain permits have both reef fish and CMP permits and are thus included in the 1,561 vessel total. There is no information regarding the number of vessels that qualified for permits under the vessel construction requirement, but it can be inferred from Table 5.10 that 125 to 251 vessels under construction could qualify. The historical captain situation suggests it is highly likely the number of vessels that qualified for permits under the construction category is closer to 125, implying that most of them have both reef fish and coastal migratory permits.

Table 5.11. Vessels initially issued for-hire vessel permits under the moratorium.

| Type of Permit | Number of Vessels | Percent |
|---|---|---|
| Both reef fish and coastal pelagics | 1561 | 87.7 |
| Only coastal pelagics | 154 | 8.7 |
| Only reef fish | 64 | 3.6 |
| Total | 1779 | 100.0 |

Source of basic data: Permit files provided by Bob Sadler.

Shown in the next three tables are the physical characteristics of for-hire vessels that initially qualified under the moratorium. Passenger capacity is an informational requirement on permit applicants which has been added with the implementation of the moratorium.

Table 5.12. Passenger capacity of for-hire vessels initially permitted under the moratorium.

| Passengers | Number of Vessels | Percent |
|---|---|---|
| Less than or equal to 6 | 1,404 | 78.9 |
| 7 – 12 | 11 | 0.6 |
| 13 – 20 | 69 | 3.9 |
| 21 – 30 | 58 | 3.3 |
| 31 – 40 | 18 | 1.0 |
| 41 - 50 | 56 | 3.2 |
| 51 - 60 | 9 | 0.5 |
| Greater than 60 | 67 | 3.8 |
| Unknown | 87 | 4.9 |

Source of basic data: Permit files provided by Bob Sadler.

Reported in Table 5.12 is the maximum passenger capacity of initially permitted for-hire vessels. About 79 percent of for-hire vessels (1,404) have maximum capacity of 6 or fewer passengers. The rest are relatively well apportioned among the other passenger capacity classes. It should be noted that this

information is about the reported maximum capacity and not necessarily the number of passengers for-hire vessels generally take on any given fishing trip. Although passenger capacity information is required to be supplied by permit applicants, the various permit files used to generate Table 5.12 contain missing capacity information on 87 vessels.

Most of the vessels are in the 21 to 50 feet length categories (Table 5.13). This characteristic closely adheres to the historical lengths of for-hire vessels as earlier depicted in Table 5.6. This may imply that most for-hire vessels that initially qualified for the moratorium have been in operation since the start of, at least, the reef fish for-hire vessel permit in 1996.

Table 5.13. Length of for-hire vessels initially permitted under the moratorium.

| Vessel Length (feet) | Number of Vessels | Percent |
|---|---|---|
| Equal to or less than 20 | 110 | 6.2 |
| 21 - 30 | 637 | 35.8 |
| 31 - 40 | 556 | 31.2 |
| 41 - 50 | 274 | 15.4 |
| 51 - 60 | 92 | 5.2 |
| 61 - 70 | 62 | 3.4 |
| Greater than 70 | 47 | 2.6 |
| Unknown | 1 | 0.1 |

Source of basic data: Permit files provided by Bob Sadler.

Table 5.14. Engine horsepower of for-hire vessels initially permitted under the moratorium.

| Horsepower | Number of Vessels | Percent |
|---|---|---|
| Equal to or less than 100 | 90 | 5.1 |
| 101 - 200 | 222 | 12.4 |
| 201 - 300 | 404 | 22.7 |
| 301 - 400 | 254 | 14.3 |
| 401 - 500 | 258 | 14.5 |
| 501 - 600 | 114 | 6.4 |
| 601 - 700 | 104 | 5.9 |
| 701 - 800 | 74 | 4.2 |
| 801 - 900 | 70 | 3.9 |
| 901 - 1000 | 13 | 0.7 |
| Greater than 1000 | 114 | 6.4 |
| Unknown | 62 | 3.5 |

Source of basic data: Permit files provided by Bob Sadler.

Most vessels fall within the 101 to 600 engine horsepower ranges, with the 201 to 300 horsepower range having more vessels than other horsepower classes (Table 5.14). As with vessel length, engine horsepower of vessels which initially qualified in the moratorium closely adheres to the historical engine horsepower of for-hire vessels as depicted in Table 5.7.

Individual ownership of vessels that initially qualified for the moratorium is the dominant form of ownership (Table 5.15). A little less than a third of vessels are corporate-owned. Leases are a little higher than the historical numbers.

Table 5.15. Type of ownership of for-hire vessels initially permitted under the moratorium.

| Ownership | Number of Vessels | Percent |
|---|---|---|
| Corporate | 487 | 27.4 |
| Individual | 1,231 | 69.2 |
| Lease | 60 | 3.3 |
| Unknown | 1 | 0.1 |

Source of basic data: Permit files provided by Bob Sadler.

Homeport states of for-hire vessels that initially qualified for the moratorium permits closely track the historical distribution of vessels by state (Table 5.16). Florida is the homeport of 61 percent of all vessels, followed by Texas (13.4%), Alabama (8.4%), Louisiana (7.6%), and Mississippi (4.3%). About 5 percent of all vessels are homeported in non-Gulf states, with North Carolina being the dominant homeport among the non-Gulf states.

Table 5.16. Homeport state of for-hire vessels initially permitted under the moratorium.

| State | Number of Vessels | Percent |
|---|---|---|
| Alabama | 149 | 8.4 |
| Florida | 1,086 | 61.0 |
| Louisiana | 135 | 7.6 |
| Mississippi | 77 | 4.3 |
| Texas | 238 | 13.4 |
| Others | 94 | 5.3 |

Source of basic data: Permit files provided by Bob Sadler.

As can be seen from Table 5.17, initial recipients of the for-hire moratorium permits engage in many activities. Some operate only as charterboats, some only as headboats and others in various combinations as charterboats, headboats and commercial operations. The “others” category includes what probably are coding errors or incomplete responses from permit applicants. Some vessels (102) are coded as commercial operations only. There are also vessels with missing information regarding their type of operation. Therefore, obtaining a for-hire vessel permit does not require a vessel to operate solely as a charterboat or as a headboat, although the moratorium for-hire vessel permit does require a vessel not to carry passengers exceeding the maximum contained in a permit while fishing.

Table 5.17. Type of operation of for-hire vessels initially permitted under the moratorium.

| Type of Operation | Number of Vessels | Percent |
|---|---|---|
| Charterboat | 1186 | 66.7 |
| Headboat | 109 | 6.1 |
| Charter/headboat | 29 | 1.6 |
| Charter/commercial | 120 | 6.7 |
| Headboat/commercial | 2 | 0.0 |
| Others | 105 | 5.9 |
| Missing | 228 | 12.8 |

Source of basic data: permit files provided by Bob Sadler. Note: data summarized here differs from section 1.0 due to differences in when the data were summarized. Additionally, data summarized in Section 1.0 assumes many vessels not reporting a primary mode of operation typically operate as charter vessels based on passenger capacity data.

### 5.4.3 Socioeconomic characteristics of recreational anglers

In the Gulf States, about 3.3 million resident anglers took almost 23 million trips and caught over 167 million fish in 2003. This tally of anglers and trips does not include anglers and trips taken solely in Texas for all fishing modes or solely through headboats for all Gulf states[1]. More than 70 percent of anglers were from Florida, with the rest coming from Louisiana, Alabama and Mississippi, in that order. Florida accounted for a large percentage (70%) of the trips, followed in order by Louisiana, Alabama, and Mississippi. The most commonly caught non-bait species were spotted seatrout, red drum, gray snapper, white grunt, sand seatrout, sheepshead, red snapper, king mackerel, and Spanish mackerel. (NMFS, 2004).

A historical perspective of the number of anglers and angler trips/days for the Gulf of Mexico is presented in Table 5.18. The number of anglers fishing in the Gulf of Mexico increased from about 1.7 million in 1990 to 3.3 million in 2003. Although fluctuations from year to year are observable, the general trend for the number of anglers is increasing. A similar upward trend in the total number of trips taken by anglers is also observable, again with yearly fluctuations. The number of trips rose from about 13.3 million in 1990 to 23 million in 2003. Considering that from 1990 to 2003 the increase in the number of anglers is about 94 percent and that for trips is 73 percent, it appears that the increase in the number of trips is driven more by the increase in the number of anglers rather by the increase in average trips per angler. Angler trips through the charterboat mode sharply increased from a low of 387 thousand trips in 1990 to a peak of 975 thousand in 1997, but subsequently declined thereafter to 691 thousand in 2003. Headboat angler days increased in the early 1990s but showed an overall declining trend between 1990 and 2003.

[1]From Table 5.6 above, there appears to be an additional 292 thousand anglers fishing through headboats.

Social and economic characteristics of private anglers are collected periodically as an add-on survey to the MRFSS. The add–on survey does not sample anglers in Texas or anglers fishing through headboats. The socioeconomic data for the add-on survey conducted during 1997-1998 have been reported in Holiman (1999) and Holiman (2000). Table 5.19 summarizes some of the major findings of the reports.

The typical angler in the Gulf region was 44 years old, male (80%), white (90%), employed full time (92%), with a mean annual household income of $42,700. The mean number of years fished in the state

Table 5.18. Number of anglers, charter angler trips, headboat angler days in the Gulf of Mexico, 1990-2003.

| Year | Number of Angler (thousands) | Total Angler Trips (thousands) | Charter Angler Trips (thousands) | Headboat Angler Days (thousands) |
|---|---|---|---|---|
| 1990 | 1,696 | 13,310 | 387 | 279 |
| 1991 | 1,897 | 18,173 | 445 | 241 |
| 1992 | 1,927 | 18,079 | 441 | 271 |
| 1993 | 1,876 | 17,431 | 747 | 300 |
| 1994 | 1,931 | 17,503 | 826 | 318 |
| 1995 | 2,045 | 17,390 | 894 | 283 |
| 1996 | 1,899 | 17,032 | 881 | 258 |
| 1997 | 2,082 | 18,593 | 975 | 241 |
| 1998 | 2,006 | 16,703 | 903 | 271 |
| 1999 | 1,984 | 15,893 | 877 | 242 |
| 2000 | 2,730 | 21,017 | 812 | 223 |
| 2001 | 3,125 | 22,889 | 742 | 219 |
| 2002 | 2,700 | 19,665 | 764 | 215 |
| 2003 | 3,294 | 22,956 | 691 | 225 |

Source: NMFS website.

was 16 years for GOM anglers. The average number of fishing trips taken in the 12 months preceding the interview was about 38 and these were mostly (75%) one-day trips where expenditures on average were less than $50. Seventy-five percent reported that they held saltwater licenses, and 59% of them owned boats used for recreational saltwater fishing. Those anglers who did not own their own boat spent an average of $269 per day on boat fees when fishing on a party/charter or rental boat. About 76% were employed or self-employed and about 23% were unemployed, mostly due to retirement.

Using the 1997-1998 socioeconomic data, Haab et al. (2001) estimated three types of economic values: 1) Value of access to sites for individual anglers; 2) value of access to species for individual anglers; and, 3) value associated with various changes in the ability of anglers to catch fish. Shown in the next two tables are the estimated economic values for the private/rental fishing mode (Table 5.20) and for all fishing modes (Table 5.21). Dollar figures have been converted from 1997 to 2004 using the consumer price index for all urban consumers (base=1982-84). No estimate has been provided for the economic value of species access for all fishing modes. These values reflect the anglers' valuation of the trip or species above and beyond their expenditures.

The value for site access is generally interpreted as a lost value when a fishing site is closed to fishing. Considering a state or area as a fishing site indicates the aggregation of all sites for that state or area. In Table 5.20, for example, if West Florida[1] were closed to recreational fishing (private rental mode in the present case), about $72 would be lost on a per trip basis. An analogous interpretation holds for the species access value. If, for example, snapper/grouper in West Florida were closed to recreational fishing, about $5.24 of economic value would be lost on a per trip basis. The value of a unit increase in

[1] West Florida and East Florida, respectively, refer to the Gulf coast and Atlantic coast of Florida per MRFSS designation.

species

Table 5.19. Socioeconomic characteristics of recreational anglers.

| | Charter | Private/Rental | Shore |
|---|---|---|---|
| **Average Age** | | | |
| Alabama | 42.17 | 42.49 | 47.59 |
| Florida East | 43.60 | 42.41 | 44.39 |
| Florida West | 43.85 | 44.03 | 44.18 |
| Louisiana | 44.99 | 44.35 | 41.39 |
| Mississippi | 43.70 | 41.51 | 41.74 |
| **Average Income** | | | |
| Alabama | 57,980 | 54,090 | 42,110 |
| Florida East | 94,590 | 56,250 | 44,100 |
| Florida West | 78,430 | 51,370 | 42,590 |
| Louisiana | 86,340 | 55,180 | 40,870 |
| Mississippi | 61,730 | 48,500 | 31,300 |
| **Average Number of Fishing Trips** | | | |
| Alabama | 3.64 | 31.99 | 34.92 |
| Florida East | 12.16 | 53.26 | 56.94 |
| Florida West | 10.83 | 47.07 | 50.56 |
| Louisiana | 11.73 | 30.50 | 31.78 |
| Mississippi | 15.09 | 43.34 | 69.63 |
| **Average Years of Fishing Experience** | | | |
| Alabama | 13.07 | 21.56 | 20.76 |
| Florida East | 18.37 | 22.20 | 21.18 |
| Florida West | 17.77 | 21.51 | 19.37 |
| Louisiana | 22.94 | 24.08 | 18.24 |
| Mississippi | 12.62 | 21.83 | 21.33 |
| **Average Years of Fishing Experience in the State** | | | |
| Alabama | 7.81 | 19.75 | 14.54 |
| Florida East | 10.61 | 18.07 | 15.04 |
| Florida West | 11.65 | 16.70 | 13.14 |
| Louisiana | 16.17 | 22.21 | 15.97 |
| Mississippi | 7.18 | 18.59 | 16.46 |
| **Average Total Trip Expenditures** | | | |
| Alabama | 479.17 | 53.55 | 150.25 |
| Florida East | 380.32 | 52.10 | 82.91 |
| Florida West | 622.29 | 127.44 | 98.88 |
| Louisiana | 326.26 | 39.35 | 57.56 |
| Mississippi | 296.91 | 27.04 | 28.27 |

Source: Holiman (2000)

caught and kept refers to the angler's valuation of the worth of an extra fish he/she catches and keeps above and beyond expenditures. In Table 5.20, for example, a one-fish increase in the catch of CMP would be worth about $14 per angler in West Florida.

Economic loss per trip from closing a fishing site ranges from $1.44 in Alabama to $71.84 in West Florida. The loss is also relatively high in East Florida and Louisiana. Economic loss per trip from unavailability of CMP ranges from $0.30 in Alabama to $4.11 in West Florida. For snapper-grouper, the range is $0.30 in Alabama to $5.24 in West Florida. The economic value from a unit increase in the catch of CMP ranges from $1.19 in Alabama to $14.03 in West Florida. The corresponding range for snapper-grouper is $0.27 in Alabama to $4.15 in West Florida.

Table 5.20. Economic value of site access per trip, species access per trip, and unit increase in catch and keep for private/rental fishing mode (2004 dollars).

| | Alabama | East Florida | West Florida | Louisiana | Mississippi |
|---|---|---|---|---|---|
| **Site Access** | | | | | |
| All Species | 1.44 | 24.64 | 71.84 | 23.45 | 2.01 |
| **Species Access** | | | | | |
| Red Drum | 0.20 | 1.51 | 3.71 | 3.94 | 0.33 |
| Spotted Seatrout | 0.11 | 1.56 | 3.55 | 2.04 | 0.39 |
| Coastal Mig. Pel. | 0.30 | 2.55 | 4.11 | 1.07 | 0.31 |
| Snapper-Grouper | 0.30 | 1.89 | 5.24 | 1.27 | 0.37 |
| **Unit Increase in Catch and Keep** | | | | | |
| Red Drum | 0.26 | 1.77 | 4.05 | 3.49 | 0.50 |
| Spotted Seatrout | 0.02 | 0.25 | 0.54 | 0.32 | 0.07 |
| Coastal Mig. Pel. | 1.19 | 7.69 | 14.03 | 4.87 | 1.88 |
| Snapper-Grouper | 0.27 | 1.66 | 4.15 | 1.23 | 0.41 |

Source: Haab et al. (2001).

Information in Table 5.21 is interpreted in a similar fashion as that in Table 5.20 but with a special note that Table 5.21 includes all fishing modes (i.e., shore, private/rental, and charter) and that species aggregations differ. But even with these differences, the relative amounts of economic values have remained the same. West Florida still dominates in terms of magnitude of economic loss or gain. However, one major feature of the values shown in Table 5.21 is that for each species aggregation, the economic value from a unit increase in catch/keep does not substantially differ among the various fishing sites. In the "small game" group, which includes king mackerel, the economic value ranges from $17.15 per trip in Alabama to $17.72 per trip in West Florida, and in the case of the "bottom fish" group, which includes reef fish, the value ranges from $26.28 in Alabama to $27.44 in West Florida.

In 1999 and early 2000, an expenditures survey was conducted in the southeast as an add-on to the MRFSS (Gentner et al., 2001). The add-on survey's results on average trip expenditures of resident and non-resident anglers by fishing mode for the Gulf states are summarized in Table 5.22. Dollar figures have been converted from 2000 to 2004 using consumer price index for all urban consumers (base=1982-84). Since this survey was an add-on to MRFSS, Texas anglers and those in headboats were not sampled.

Table 5.21. Economic value of site access per trip and unit increase in catch and keep for all fishing modes (2004 dollars).

| | Alabama | East Florida | West Florida | Louisiana | Mississippi |
|---|---|---|---|---|---|
| **Site Access** | | | | | |
| All Species | 1.84 | 14.17 | 54.14 | 13.78 | 4.28 |
| **Unit Increase in Catch and Keep** | | | | | |
| Big Game | 17.15 | 17.26 | 17.72 | 17.44 | 17.59 |
| Small Game | 7.72 | 7.79 | 8.04 | 7.76 | 7.91 |
| Bottom Fish | 3.47 | 3.55 | 3.65 | 3.52 | 3.6 |
| Flat Fish | 26.28 | 26.51 | 27.44 | 27.06 | 27.16 |

Source: Haab et al. (2001).

Trip expenditures include expenses for private transportation, food, lodging, public transportation, boat fuel, charter fees, access/boat launching, equipment rental, bait, and ice. With few exceptions, non-resident anglers spend more than their resident counterparts regardless of the mode of fishing. Expenditures markedly differ by fishing mode, with the highest expenditures being for the charter mode, followed by private/rental mode and shore mode.

Table 5.22. Average angler trip expenditures (2004 dollars).

| State/ Region | Residents | | | Non-residents | | |
|---|---|---|---|---|---|---|
| | Charter | Private | Shore | Charter | Private | Shore |
| Florida West | 144.63 | 55.99 | 20.69 | 191.75 | 106.69 | 34.66 |
| Florida East | 105.72 | 73.25 | 40.59 | 215.78 | 103.57 | 155.43 |
| Louisiana | 189.66 | 64.46 | 45.49 | 137.76 | 61.94 | 97.74 |
| Alabama | 140.25 | 104.51 | 36.88 | 149.62 | 64.03 | 55.86 |
| Mississippi | 175.45 | 37.55 | 12.75 | 125.82 | 91.84 | 61.85 |

Source of basic data: Gentner et al. (2001).

### 5.4.4. Socioeconomic characteristics of the for-hire fishery

#### 5.4.4.1. For-hire fishery in Florida

The following discussion is mainly based data collected by Holland et al. (1999) during 1998.

The average charter boat in Florida was 37 feet in length and carried a maximum of 6 passengers. Most (88 %) had fiberglass hulls, were diesel fueled (76%) with single (41%) or dual engines (59%). Most offered half-day trips and full-day trips. Only 15 percent offered overnight trips. Average boat fees were $348 for half-day; $554 for full-day and $1,349 for overnight trips. Forty-seven percent of Florida trips were half-day, 50 percent were full day and 3 percent were overnight trips. Almost all charter trips (98%) were made to federal waters.

The average headboat in Florida was 62 feet in length and carried a maximum of 61 passengers. About 51 percent had fiberglass hulls and are diesel fueled (97%) with single (8%) or dual (92%) engines. Most (86%) offered half-day trips and full-day (64 %) trips but one in the survey offered overnight trips. Average Florida headboat fees were $29 for half-day and $45 for full day trips. Of the total number of trips, 80 percent were half-day and 20 percent were full day. About two-thirds of these trips were in federal waters offshore and 36 percent of the headboats took 100 percent of their trips in federal waters.

About one-third of Florida charter boats targeted three or less species, two-thirds targeted five or less species and 90 percent targeted nine or less species. About 40 percent of these charter boats did not target particular species. The species targeted by the largest proportion of Florida charter boats were king mackerel (46%), grouper (29%), snapper (27%), dolphin (26%), and billfish (23%). In the Florida GOM, the species receiving the most effort were grouper, king mackerel and snapper. About one-fourth of Florida headboats targeted three or less species, three-fourths targeted four or less species and 80 percent targeted five or less species. About 60 percent of headboats did not target any particular species. The species targeted by the largest proportion of Florida headboats are snapper and other reef fish (35%), red grouper (29%), gag grouper (23%), and black grouper (16%). In Florida Gulf, the species receiving the most effort were snapper, gag and red grouper.

The mean age of Florida charter boat operators was 46 years with 82 percent between 31 and 60 years. Sixty-three percent were married and 15 percent were divorced. Florida charter boat operators had an average of 13 years of education, with 95 percent having at least 12 years of education and 34 percent with 16 years or more. About 98 percent of the operators were male. Most (90%) operated on a full-time basis and about 61 percent reported that all of their household income was from the charter business. Eighty percent had lived in their home port county for more than 10 years and had operated their boat out of their home port county for an average of 15 years. Twenty-four percent of them belonged to their local chamber of commerce, and 34 percent belonged to their local charter boat association.

The mean age of Florida headboat operators was 48 years with 84 percent between the ages of 31-60. Seventy-eight percent were married and 11 percent were divorced. Florida headboat operators had an average of 13 years of education, with 100 percent having at least 12 years of education and 22 percent with 16 years or more. About 86 percent of the operators were male. All operated on a full-time basis and about 92 percent reported that all of their household income was from their headboat business. Ninety-four percent had lived in their homeport county for more than 10 years and had operated their boat out of their homeport county for an average of 19 years. Eighty-one percent of them were members of their local chamber of commerce and 44 percent were members of a local headboat association.

Between 1987 and 1997, several major changes occurred in the Florida charter and headboat industry. The number of charter boats on Florida's west coast increased by about 16 percent to 615 vessels and the number of charter boats in the Florida Keys increased about 12 percent to 230 vessels. Most of this growth occurred along the Florida peninsula coast; in contrast, the number of charter boats in the Panhandle region decreased by 8 percent. The number of headboats in the Florida Gulf increased about 20 percent, primarily along the southwest Florida coast. In contrast, the number of headboats in the Florida Keys decreased 11 percent. Charter passenger trips remained stable at about 848,458 passengers on 180,523 trips in 1997 while headboat passenger trips increased to 1,137,362 passengers on 44,655 trips in 1997.

#### 5.4.4.2. For-hire fishery in Alabama, Mississippi, Louisiana and Texas

The following discussion is mainly based data collected by Sutton et al. (1999) during 1998. The average charter boat was 39 feet long, with a total passenger capacity of 12 people. Alabama had the largest charter boats at an average length of 46 feet and an average capacity of 15 passengers while Texas had the smallest charter boats at an average length of 35 feet and an average capacity of 9 passengers. Most had fiberglass hulls (81 %), were diesel fueled (72 %) with single (27 %) or dual engines (73 %). Most offered half-day trips (63 %) and full-day trips (98 %). About 48 percent offered overnight trips. Average boat base fees were $417 for half-day; $762 for full-day and $1,993 for overnight trips. Of the total number of trips taken by operators, 16 percent were half-day, 78 percent were full day and 6 percent were overnight trips.

The average headboat was 72 feet long, with a total passenger capacity of 60 people. Most boats had an aluminum hull (67 %) and were diesel fueled (100 %) with dual (100 %) engines. All boats offered half-day trips, 81 percent offered full-day, and 57 percent offered overnight trips. Average headboat base fees were $41 for half-day trips, $64 for full-day trips and $200 for overnight trips. Of the total number of trips, 25 percent were half-day, 67 percent full-day and 8 percent overnight trips.

The majority of charter boats in the four-state area reported targeting snapper (91%), king mackerel (89%), cobia (76%), tuna (55%), and amberjack. The species receiving the largest percentage of effort by charter boats in the four-state area were snapper (49%), king mackerel (10%), red drum (6%), cobia (6%), tuna (5%), and speckled trout (5%). The majority of headboat/party boat operators reported targeting snapper (100%), king mackerel (85%), shark (65%), tuna (55%), and amberjack (50%). The species receiving the largest percentage of total effort by headboats/party boats in the four-state area were snapper (70%), king mackerel (12%), amberjack (5%), and shark (5%).

The mean age of charter boat operators in the four-state area was 47 years, with 86 percent between the ages of 31 and 60. Eighty-two percent were married and 8 percent were divorced. Charter boat operators had an average of 14 years of education, with 95 percent having at least 12 years of education and 26 percent with 16 years or more. Most (91%) operated on a full-time basis, and about 50 percent reported that all of their household income was from the charter business. About 78 percent had lived in their home port, and on average they had lived near their home port for 24 years and had operated their boat out of their home port county for an average of 14 years. Forty percent of them belonged to their local chamber of commerce, 60 percent belonged to their local charter boat association, and 61 percent were members of some other fishing-related association.

The mean age of headboat operators in the four-state area was 49 years, with 67 percent between the ages of 31and 60. Eighty-one percent were married and none were divorced. Headboat operators had an average of 12 years of education, with 81 percent having at least 12 years of education and 10 percent with 16 years or more. All operated on a full-time basis and about 78 percent reported that all of their household income was from their headboat business. Ninety-one percent had lived near their home port, and on average they had lived near their home port for 26 years and had operated a headboat out of the port for 13 years. Eighty-one percent of them were members of their local chamber of commerce, 52 percent were members of a local headboat association, and 44 percent were members of some other fishing-related association.

Of the charter boat operators sampled in 1998, 85.4 percent held Gulf reef fish charter permits, 83.3 percent held CMP permits, 5.2 percent held South Atlantic snapper/grouper permits, 4.2 percent held swordfish permits, 6.3 percent held shark commercial permits, 6.3 percent held king and Spanish mackerel commercial permits, 2.1 percent held South Atlantic snapper/grouper commercial permits, 14.6

percent held red snapper commercial permits, and 11.5 percent held commercial Gulf reef fish permits. Of the headboat operators sampled, 100 percent held Gulf reef fish charter permits, 95.2 percent held CMP charter permits, 9.5 percent held Gulf reef fish commercial permits, none held South Atlantic snapper/grouper permits, swordfish commercial permits, shark commercial permits, king and Spanish mackerel commercial permits, South Atlantic snapper/grouper commercial permits, or red snapper commercial permits.

Between 1987 and 1997, a number of changes also occurred in the charter and headboat industry in Alabama, Mississippi, Louisiana and Texas. The number of charter boats increased about 105 percent to 430 vessels, with the increase occurring primarily in Alabama, Mississippi and Texas. In contrast, the number of headboats decreased 12 percent to 23 vessels. The number of passenger trips taken on both charter and headboats increased threefold. In 1997, there were 318,716 charter boat passenger trips and 117,990 headboat passenger trips.

#### 5.4.4.3. Financial characteristics of for-hire vessels

Financial information on the for-hire vessels in the Gulf is not routinely collected. In fact, the latest data available are from two MARFIN-funded studies. Results of these studies are reported in Holland et al. (1999) for Florida and Sutton et al. (1999) for the rest of the Gulf states. These studies evaluated vessel costs and returns data, as well as information on for-hire vessel structure and operations and for-hire vessel captains' views on the industry and regulations affecting their industry. The two reports contain summaries of the financial conditions of for-hire vessels. Revenues and costs were estimated using direct responses to questions on gross revenues and various cost items. Partly in response to industry criticisms, Holland et al (1999) provided alternate revenue figures using information on fees, number of trips and passenger per trip. The other study did not provide any alternative approach to estimating gross revenues. Carter (2004) estimated revenues and profits of for-hire vessels using some of the results of these two studies. He used average fees, number of trips and passenger per trip to arrive at revenue figures. He subsequently subtracted average trip cost but not fixed costs to derive for-hire vessel profits.

For the current purpose, revenues and trip costs are estimated using vessel-level information available in the Holland et al. (1999) and Sutton et al. (1999) databases. This approach allows calculation of vessel revenues, costs and profits by vessel classes. To partly aid in determining the economic impacts of some of the measures in this amendment, vessels are categorized by maximum passenger capacity. Other vessel categorizations will be developed as the need arises. One downside of the current approach to estimate revenues, costs and profits is the use of a smaller number of vessels because not all vessels in the sample have the necessary information to estimate revenues and costs. Holland et al. (1999) sampled 303 charterboats and 37 headboats while Sutton et al. (1999) sampled 96 charterboats and 21 headboats. The current approach uses information from 181 charterboats and 20 headboats from the Holland et al. (1999) study, and 43 charterboats and 9 headboats from the Sutton et al. (1999) study. Although Holland et al. (1999) distinguished the Florida vessels by regions (Atlantic, Keys, Gulf), all Florida vessels which have the necessary information are combined for the purpose of estimating revenues, costs and profits.

Basic economic characteristics of for-hire vessels are presented in the next several tables. In addition to revenues, costs and profits, information on other vessel characteristics are also presented. Revenues are calculated as follows:

Charterboat: $R = (fh * th) + (ff * tf) + (fo * to)$

where: R= revenue
fh = base fee for half-day trips
th = number of half-day trips
ff = base fee for full-day trips
tf = number of full-day trips
fo = base fee for overnight trips
to = number of overnight trips

Headboat: $R = (fh * th * ah) + (ff * tf * af) + (fo * to * ao)$

where: ah = average number of passengers for half-day trips
af = average number of passengers for full-day trips
ao = average number of passengers for overnight trips
all others are similarly defined as above

Costs do not account for capital expenses, other fixed costs and returns to owners/operators. The following are the specific items included in the calculation of costs: bookkeeping services, advertising and promotion, fuel and oil, bait expenses, docking fees, food/drink for customers and crew, ice expenses, insurance expenses, maintenance expenses, permits and licenses, and wage/salary expense. Final numbers for revenues and costs are adjusted to 2004 dollars using the producer price index for all commodities, with 1982 as the base year.

Table 5.23 was generated by pooling the Holland et al. (1999) and Sutton et al. (1999) data. As expected, headboats earn substantially higher revenues than charterboats. An average charterboat generates $76,960 in annual revenues and $36,758 in annual profits. An average headboat, on the other hand, generates $404,172 in annual revenues and $338,209 in profits. On average, both types of operations are profitable, with the headboat operation showing a relatively large profit figure. As mentioned above, the calculation of costs does not take into account fixed costs, which could be much larger for headboats. This partly explains the relatively high profitability of headboats relative to charterboats. For both charterboats and headboats, the number of passengers per trip is about half of the maximum passenger capacity. In essence, an average for-hire vessel is running at about half its full passenger capacity.

Also reported in Table 5.23 is information according to the maximum passenger capacity of vessels. For charterboats, there are entries for vessels up to a maximum passenger capacity of 60 persons. This information appears not to match exactly with the definition of a charterboat per current regulations as contained in 50 CFR Part 622. Per regulations, a charterboat is defined in such a way that its maximum passenger capacity does not exceed 6 persons. This apparent discrepancy is probably a product of two factors. First, Holland et al. (1999) and Sutton et al. (1999) define a for-hire vessel as a charterboat or headboat based on how a base fee is charged. A charterboat charges a base fee on a group basis while a headboat does it on a per-person basis. Second, some vessels do operate as charterboat or headboat at some time during a given year (see Table 5.17). As such, these vessels would have a maximum passenger capacity greater than 6 and would also actually carry more than 6 passengers at some time during the year. To the extent that they operated mostly as charterboats they would be classified as charterboats but would be associated with some characteristics of a headboat, such as carrying more than 6 passengers on a trip.

Table 5.23. Economic characteristics of charterboats and headboats.

| Characteristic | Charterboats | Headboats |
|---|---|---|
| **All Vessel Classes** | | |
| Revenues ($) | 76,960 | 404,172 |
| Costs ($) | 40,200 | 65,962 |
| Profits ($) | 36,758 | 338,209 |
| Ave. passenger | 5 | 30 |
| Max. passenger | 8 | 60 |
| Length (feet) | 37 | 65 |
| Horsepower | 493 | 786 |
| **6 or less maximum passenger capacity** | | |
| Revenues | 70,491 | |
| Costs | 35,540 | |
| Profits | 34,949 | |
| Ave. passenger | 4 | |
| Length | 35 | |
| Horsepower | 475 | |
| **7 to 12 maximum passenger capacity** | | |
| Revenues | 129,813 | |
| Costs | 43,311 | |
| Profits | 86,502 | |
| Ave. passenger | 6 | |
| Length | 41 | |
| Horsepower | 546 | |
| **13 to 30 maximum passenger capacity** | | |
| Revenues | 113,266 | 298,812 |
| Costs | 73,887 | 35,750 |
| Profits | 39,379 | 263,062 |
| Ave. passenger | 9 | 17 |
| Length | 44 | 43 |
| Horsepower | 617 | 726 |
| **31 to 60 maximum passenger capacity** | | |
| Revenues | 149,905 | 327,615 |
| Costs | 116,099 | 46,602 |
| Profits | 33,806 | 281,013 |
| Ave. passenger | 21 | 27 |
| Length | 60 | 64 |
| Horsepower | 750 | 735 |
| **61 or greater maximum passenger capacity** | | |
| Revenues | | 570,376 |
| Costs | | 109,616 |
| Profits | | 460,760 |
| Ave. passenger | | 40 |
| Length | | 76 |
| Horsepower | | 903 |

Source of basic data: Databases from Holland et al. (1999) and Sutton et al. (1999).

From the given information in Table 5.23, the most profitable category for a charterboat is that of 7 to 12 maximum capacity class and carrying an average of 6 passengers. Both a lower maximum and average

Table 5.24. Economic characteristics of charterboats and headboats by geographical area.

| Characteristic | Charterboats | | Headboats | |
|---|---|---|---|---|
| | Florida | Rest of Gulf | Florida | Rest of Gulf |
| **All Vessel Classes** | | | | |
| Revenues ($) | 68,233 | 106,118 | 318,512 | 630,046 |
| Costs ($) | 37,984 | 62,624 | 69,410 | 87,621 |
| Profits ($) | 30,249 | 43,494 | 249,103 | 542,425 |
| Ave. passenger | 4 | 8 | 25 | 41 |
| Max. passenger | 6 | 14 | 56 | 71 |
| Length (feet) | 35 | 41 | 60 | 74 |
| Horsepower | 465 | 615 | 795 | 732 |
| **6 or less maximum passenger capacity** | | | | |
| Revenues | 68,620 | 69,748 | | |
| Costs | 37,962 | 34,417 | | |
| Profits | 30,656 | 35,330 | | |
| Ave. passenger | 4 | 4 | | |
| Length | 35 | 35 | | |
| Horsepower | 467 | 553 | | |
| **7 to 12 maximum passenger capacity** | | | | |
| Revenues | 67,760 | 186,793 | | |
| Costs | 30,116 | 70,944 | | |
| Profits | 37,643 | 115,848 | | |
| Ave. passenger | 5 | 8 | | |
| Length | 31 | 48 | | |
| Horsepower | 303 | 706 | | |
| **13 to 30 maximum passenger capacity** | | | | |
| Revenues | 55,124 | 141,134 | 352,515 | 84,000 |
| Costs | 43,407 | 94,458 | 30,296 | 57,568 |
| Profits | 11,716 | 46,676 | 322,219 | 26,432 |
| Ave. passenger | 6 | 11 | 18 | 10 |
| Length | 39 | 47 | 40 | 52 |
| Horsepower | 492 | 687 | 757 | 600 |
| **31 to 60 maximum passenger capacity** | | | | |
| Revenues | | 176,629 | 227,996 | 556,080 |
| Costs | | 145,124 | 58,459 | 37,296 |
| Profits | | 31,505 | 169,535 | 518,784 |
| Ave. passenger | | 23 | 24 | 36 |
| Length | | 59 | 61 | 70 |
| Horsepower | | 738 | 704 | 875 |
| **61 or greater maximum passenger capacity** | | | | |
| Revenues | | | 490,448 | 840,524 |
| Costs | | | 124,790 | 145,460 |
| Profits | | | 365,657 | 695,064 |
| Ave. passenger | | | 32 | 53 |
| Length | | | 73 | 83 |
| Horsepower | | | 1,083 | 624 |

Source of basic data: Databases from Holland et al. (1999) and Sutton et al. (1999).

passenger capacity and a higher maximum and average passenger capacity show lower profitability. The case for headboats appears to be that profitability increases with the increase in maximum and average passenger capacity. Except with the 6 or less maximum passenger capacity class, headboats have a higher passenger capacity utilization than charterboats. On average, though, charterboats have 5 passengers per trip out of a maximum passenger capacity of 8 while headboats have 30 passengers per trip out of a maximum passenger capacity of 60. Thus, the for-hire vessel passenger capacity utilization is about half of maximum passenger capacity.

Table 5.24 provides information similar to Table 5.23, but this time information by geographical areas is shown. Apparent in Table 5.24 is the earnings difference between for-hire vessels in Florida and those of the rest of the Gulf. Earnings of Florida vessels are generally lower than those of the rest of the Gulf vessels. This difference may be due partly to the difference in the size of charterboat or headboat operation, as can be gleaned from the last four rows of Table 5.24 under each vessel category. On average, Florida vessels are smaller in size, have smaller horsepower, have lower maximum passenger capacity and take fewer passengers per trip. Another potential reason for the difference, although not apparent in the information provided so far, is the presence of more intense competition among Florida vessels. As shown in Table 5.9 and Table 5.16, Florida is the homeport of most for-hire vessels so the possibility of stronger competition among vessel operations in Florida is very likely.

### 5.4.5 Fishing communities

A "fishing community" is defined in the MSFCMA, as amended in 1996, as "a community which is substantially dependent on or substantially engaged in the harvesting or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community" (Magnuson-Stevens Act section 3(16)). The National Standard guidelines (May 1, 1998; 63 FR 24211) define a fishing community as a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries-dependent service and industries (for example, boatyards, ice suppliers, tackle shops).

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

1) Economics, including percent employment in fishery-related industries, and unemployment levels, and income;
2) Fisheries characteristics, including landings by species by various sectors;
3) Fishing-related businesses, for example numbers of marinas, rentals, snorkel and dive shops, boat dockage and repair facilities, tackle and bait shops, fish houses, and lodgings related to recreational fisheries industry;
4) Fishing-related activities, such as seafood festivals;

5) Presence of organizations, such as commercial fishing associations
6) Numbers of dealers/ processors
7) Isolation or integration of the fishery into alternative economic sectors (Do the fishers represent a political-economic enclave or are they integrated into the community?);
8) Percent of population in fishery or fishery-related industry;
9) Percentage of income derived from fishing;
10) Time commitment (number of months per year, and number of years of experience, etc.);
11) Flexibility index (number of species able to fish, gears/vessels, etc.);
12) Number of different kinds of vessels;
13) Relationship to the seafood marketing/processing sector;
14) Vessel sizes and sizes of crew by port/ dockage site;
15) Diversity of species targeted, gear, type and size and vessel by port/ dockage site;

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

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

Many studies have identified fishing communities and assessed various methods for identifying an area or city as a fishing community (Dyer and Griffith 1996; Griffith 1996; Wilson et al. 1998; Jacob et al. 2001). However, very little information is available for fishing communities in the GOM. Current data describing GOM reef fish fishing communities is limited to information from fishery permits, reported landings, and a few socioeconomic studies. Additional research is needed to determine localities as fishing communities, particularly communities dependent on for-hire vessel activities and recreational fishing opportunities.

For-hire vessels were found to be clustered in the following areas: Apalachicola, Biloxi, Carrabelle, Chauvin, Clearwater, Destin, Freeport, Galveston, Houston, Marathon, Naples, Orange Beach, Panama City Beach, Pensacola, Port Aransas, Sarasota/Nokomis/Englewood (GMFMC, 2003a). In general, these areas have small populations, many with less than 7,000 persons (Apalachicola, Carrabelle). Several of these areas have an unusually high rate of less than high school graduation, some as high as 50 percent. With exceptions (Carrabelle, 13.6% and Cedar Key, 12.2%) many of the areas have relatively low percentages, 2-3 percent, counted as employed in agriculture, forestry and fishing. These types of demographic statistics provide an idea of the background and labor market conditions within which the various fishing activities operate. Small, isolated areas with low educational attainment among the labor force indicate relatively few alternatives for the labor force. In these cases, losing fishing as a labor choice would impact the area relatively more than an equally situated areas with a more educated workforce.

Holland et al. (1999) identified the following areas as major activity centers for charterboats in Florida: Miami, Fort Lauderdale, Key West, Marathon, Islamorada, Naples, Ft. Myers, Ft. Myers Beach, Panama City, Panama City Beach, Destin and Pensacola. They also identified the following as major activity centers for headboats in Florida: Miami, Key West, Marathon, Islamorada, Ft. Myers, Ft. Myers Beach, Clearwater, Destin, Panama City and Panama City Beach. Sutton et al. (1999) identified the following areas as major activity centers for charterboats in the rest of the Gulf: South Padre Island, Port Aransas, and Galveston-Freeport in Texas; Grand Isle-Empire-Venice in Louisiana; Gulfport-Biloxi in Mississippi; and, Orange Beach-Gulf Shores in Alabama. They also identified the following areas as major activity centers for headboats in the rest of the Gulf: South Padre Island, Port Aransas, and Galveston-Freeport in Texas and Orange Beach-Gulf Shores in Alabama.

Jacob et al. (2001) developed a protocol for defining and identifying fishing dependent communities by employing central place theory to locate fishing communities in Florida. A central place is where services, goods and other needs are met for the residents in the central place, as well as surrounding hinterlands. Using their protocol, the authors initially determined 5 communities as commercially fishing dependent (Steinhatchee, Apalachicola, Panama City, Ochopee/Everglades City, Panacea) and 7 recreationally fishing dependent communities (Horseshoe Beach, Steinhatchee, Ochopee, Punta Gorda, Placida, Bokeelia, Carabelle). Upon further analysis, the authors expressed more confidence in their determination of commercial fishing communities than of recreational fishing communities.

The Generic Essential Fish Habitat Amendment (GMFMC, 2004) provides more extensive characterization of fishing communities throughout the Gulf coasts. The fishing communities included in the characterizations are: (1) Alabama: Fairhope, Gulf Shores, Orange Beach, Bayou La Batre, and Dauphin Island; (2) Florida: Pensacola, Gulf Breeze, Ft. Walton Beach, Destin, Panama City, Panama City Beach, Port St. Joseph, Apalachicola, Eastpoint, Carabelle, St. Marks, Horseshoe Beach, Cedar Key, Yankeetown, Inglis, Crystal River, Homosassa, New Port Richey, Tarpon Springs, Clearwater, Madeira Beach, St. Petersburg, Tampa, Cortez, Matlacha, Bokeelia, Ft. Myers Beach, Naples, Marco Island, Everglages, Key Largo, Islamorada, Marathon, Big Pine Key-Summerland Key, and Key West; (3) Louisiana: Venice, Empire, Grand Isle, Golden Meadow, Cutoff, Chauvin, Dulac, Houma, Delcambre, Morgan City, and Cameron; (4) Mississippi: Pascagoula, Gautier, Biloxi, and Gulfport; and, (5) Texas: Port Arthur, Galveston, Freeport, Palacios, Port Lavaca, Seadrift, Rockport, Port Aransas, Aransas Pass, Brownsville, Port Isabel, and South Padre Island. These areas identified as fishing communities include practically all fishing communities associated with the for-hire sector in the reef fish and CMP fisheries.

### 5.5 Impacts of management alternatives

A cost/benefit analysis was undertaken to assess the impacts of management alternatives. Available data only allow the quantification of costs, so a qualitative approach was used in determining the benefits and net effects of each alternative. The analysis focuses on determining the impacts of each alternative for the duration of the moratorium. These impacts were expected to be negated if the moratorium is terminated. For example, if a moratorium alternative results in net benefits, its termination will result in net losses.

There are four alternatives considered for the extension of the for-hire permit moratorium. Alternative 1 (no action) would allow the current moratorium to expire on June 16, 2006. If adopted, new for-hire vessel permits would be issued to applicants at the usual administrative cost, which is currently $50 for the first permit and $20 for each additional permit. Alternative 2 would extend the moratorium by 5 years to June 16, 2011, while Alternative 3 would extend it by 10 years to June 16, 2016. Alternative 4 would

establish an indefinite limited access system on for-hire vessel permits. Under Alternatives 2, 3, and 4, current restrictions on transfer and permit renewal would be applicable throughout the extended period.

The moratorium was designed to limit the number of for-hire vessels fishing for reef fish and/or CMP in the Gulf EEZ to those persons holding federal for-hire vessel permits as of the control date of March 29, 2001, plus those that would qualify under the historical captain or vessel construction criteria. For purposes of assessing the socioeconomic impacts of the various alternatives for extending the moratorium, including the status quo, it is necessary to determine how many vessels were excluded from the moratorium and how many would likely secure for-hire permits if there were no permit moratorium.

Initial estimates of the number of vessels qualifying for a moratorium permit ranged from 1,650 to 3,220 (GMFMC 2003b). The larger estimate includes vessels that fished solely or mainly in state waters while the smaller estimate is based on an August 2000 NMFS permit file. At the time of submission of the moratorium amendment, it was estimated that 3,071 vessels would qualify for the moratorium plus an unknown number of those that would qualify under the historical captain or vessel construction criteria. Upon further examination of permit files and permit applications under the historical captain and vessel construction criteria, NMFS granted 2,303 eligibilities for CMP permits and 1,737 eligibilities for reef fish permits, or a total of 4,040 eligibilities inclusive of those qualifying under the historical captain or vessel construction criteria (see Table 5.10). These eligibilities resulted in the issuance of 1,715 CMP moratorium permits and 1,625 reef fish moratorium permits, or a total of 3,340 moratorium permits. The 3,340 permits are associated with 1,779 unique vessels, indicating many vessels have both reef fish and CMP permits. Of the 588 CMP and 112 reef fish eligibilities that did not result in permits, only 78 CMP and 78 reef fish permits are likely to be issued, since these are based on historical captain (74) or vessel construction (4) criteria. All other eligibilities (510 CMP and 34 reef fish), which are based on permit history, would no longer be issued moratorium permits, unless they qualify for permit issuance under the emergency rule (NMFS 2005a). These remaining eligibilities could be associated with as many as 510-544 for-hire vessels.

On the basis of eligibilities granted and permits issued, it can be concluded that 510 for-hire vessels were excluded from the present for-hire vessel permit moratorium. Based on the number of for-hire vessels in the reef fish and CMP fisheries during 2002 (2,756 vessels, Table 5.5), another 389 vessels could have been potentially excluded from the moratorium. This last calculation assumes that all 78 reef fish and 78 CMP eligibilities would result in permits being associated with exactly 78 vessels. It appears then, that the for-hire vessel moratorium has excluded 510 to 899 for-hire vessels from continued participation in the for-hire reef fish and CMP fisheries. Considering the relatively high turnover rate in the for-hire fishery in some parts of the Gulf (Ditton and Vize, 1987; Ditton and Loomis, 1985), some unknown portion of these vessels would have exited the fishery even without the moratorium. On the other hand, there is also an unknown number of vessels which have no history of participation in the fishery that may have obtained for-hire vessel permits (without buying one from a permit holder) if there were no moratorium.

It is very important to note that there is currently an emergency re-opening of the charter permit application process (50 CFR 622.4 (r); NMFS 2005a). It is likely that many of those initially excluded from the moratorium will obtain new charter permits without having to buy them from existing permit holders. As a result, extending the moratorium may directly affect fewer vessels than estimated above. At this time, the number of vessels that may qualify under the re-opening of the charter permit process is not known, so the following analyses assume 510 to 899 vessels would be directly affected by the moratorium.

The characteristics of vessels excluded by the moratorium are not precisely known but are assumed to be similar to those which initially received moratorium permits. For this purpose, the distribution of vessels by maximum passenger capacity, by homeport, and by boat type (charter vs. headboat) is patterned after that of Tables 5.12, 5.16, and 5.17, respectively. Some modifications, however, are in order. Based on Table 5.17, headboats comprise 6.1 percent of all vessels, and so it is assumed the rest are charterboats. The distribution of vessels by maximum capacity, as shown in Table 5.12, is modified according to the distribution of charterboats and headboats per Table 5.23. The distribution of vessels by homeport in Table 5.16 is used for both charterboats and headboats.

The baseline impacts of the various moratorium alternatives on vessel revenues and profits are summarized in Table 5.25. These effects on vessel revenues and profits are one-year effects on vessels that have been excluded from the moratorium. Empty cells indicate the absence of revenue and profit information due to either unavailability of data or the absence of charterboats or headboats in the subject vessel categories. A range of effects on total revenues and profits is shown corresponding to the range of

Table 5.25. Baseline economic impacts of the permit moratorium on for-hire vessels.

| Characteristics | Charterboats | | Headboats | |
|---|---|---|---|---|
| | No. of Vessels | Impacts (million $) | No. of Vessels | Impacts ($) |
| **6 or less maximum passenger capacity** | | | | |
| Revenues | 412 to 726 | 29.04 – 51.18 | | |
| Profits | 412 to 726 | 14.40 – 25.37 | | |
| **7 to 12 maximum passenger capacity** | | | | |
| Revenues | 5 to 8 | 0.65 – 1.04 | | |
| Profits | 5 to 8 | 0.43 – 0.69 | | |
| **13 to 30 maximum passenger capacity** | | | | |
| Revenues | 38 to 68 | 4.30 – 7.70 | 14 to 25 | 4.18 – 7.47 |
| Profits | 38 to 68 | 1.50 – 2.68 | 14 to 25 | 3.68 – 6.58 |
| **31 to 60 maximum passenger capacity** | | | | |
| Revenues | 24 to 42 | 3.60 – 6.30 | 9 to 17 | 2.95 – 5.57 |
| Profits | 24 to 42 | 0.81 – 1.42 | 9 to 17 | 2.53 – 4.78 |
| **61 or greater maximum passenger capacity** | | | | |
| Revenues | | | 7 to 13 | 3.99 – 7.41 |
| Profits | | | 7 to 13 | 3.23 – 5.99 |
| **TOTAL** | | | | |
| Revenues | 479 to 844 | 37.59 – 66.22 | 31 to 55 | 11.12 – 20.45 |
| Profits | 479 to 844 | 17.14 – 30.16 | 31 to 55 | 9.44 – 17.35 |

Source of basic data: Data bases from Holland et al. (1999) and Sutton et al. (1999); permit files provided by Bob Sadler.

vessels excluded by the moratorium. Although there are differences in revenues and profits by vessel category, the total effects by vessel category are mainly driven by the number of vessels in each vessel category. For example, in the case of charterboats, the largest total effects in terms of revenues and profits are for vessels with maximum passenger capacity of 6 persons or less, although an average vessel in the 31 to 60 maximum passenger capacity generated the largest revenues while an average vessel in the in the 7 to 12 maximum passenger capacity generated the largest profits.

A reduction in the number of for-hire vessels may also be interpreted as a reduction in the fishing platform. If angler trips are canceled due to this reduction in fishing platform, then anglers will experience reductions in consumer surplus (benefits received less the cost of fishing). For the purpose of current analysis, this reduction in fishing platform is interpreted to mean partial closure of a fishing site.

Table 5.26. Baseline impacts on consumer surplus of anglers fishing through for-hire vessels.

| Area/ Vessel Type | (1)Consumer Surplus per Trip ($) (1) | (2)Ratio of Trips to Total Trips (2) | (3)Consumer Surplus Per Angler Trip (3) | (4)Number of Vessels (4) | (5)Average Trips per Year (5) | (6)Average Passenger per Trip (6) | (7)Total Consumer Surplus (million $) (7) |
|---|---|---|---|---|---|---|---|
| Gulfwide | 97.02 | | | | | | |
| Charter | | 0.03 | 2.91 | 479-844 | 106 | 5 | 0.74-1.30 |
| Headboat | | 0.01 | 0.97 | 31-55 | 208 | 30 | 0.19-0.33 |

Table 5.26 provides estimates of consumer surplus for charter vessels and headboats. The total consumer surplus forgone by the fishery as a result of the moratorium ranges from 0.74 to 1.30 million dollars for charterboats and 0.19 to 0.33 million dollars for headboats. Using the baseline values of Table 5.25 and consumer surplus from Table 5.26, the economic impacts of the various moratorium alternatives are estimated and presented in Table 5.27. Impacts in Table 5.27 refer to economic losses incurred by vessels that would be excluded from continued participation in the for-hire fishery. These numbers are based on a constant stream of revenues and profits forgone by the excluded vessels for the duration of the moratorium. Impacts for Alternative 1 are calculated for a 3-year period to serve as baseline for estimating the impacts of the other alternatives. Impacts for the other alternatives are net of the impacts of Alternative 1.

The relative magnitude of impacts is mainly determined by the length of the moratorium; that is, the longer the moratorium, the larger the impacts on vessel revenues and profits. This is as expected since the impacts refer to the revenues and profits forgone by vessels excluded from the moratorium. A five-year moratorium (Alternative 2) would result in profit losses of $57 to $101 million for charterboats and $31 to $58 million for headboats. A ten-year moratorium (Alternative 3) would result in profit losses of $98 to $173 million for charterboats and $54 to $99 million for headboats. Alternative 4 would result in the greatest profit losses. Profit losses would range from $200 million to $352 million for charterboats and $110 million to $202 million for headboats. The corresponding losses in consumer surplus would also be greatest for Alternative 4, followed by Altenatives 3 and 2, respectively.

It should be noted that these impacts do not take into account the effects of the emergency re-opening of the permit application process (NMFS 2005a). This emergency action will likely reduce the impacts of the various alternatives in this amendment, although the magnitude of such reduction is unknown.

Table 5.27. Economic impacts of the various moratorium alternatives on for-hire vessels using a 7% discount rate.

| Characteristics | Charterboats | | Headboats | |
|---|---|---|---|---|
| | No. of Vessels | Impacts (million $) | No. of Vessels | Impacts (million $) |
| **Alternative 1: no action** | | | | |
| Revenues | 479 to 844 | 98.7 – 173.8 | 31 to 55 | 29.2 – 53.7 |
| Profits | 479 to 844 | 45.0 – 79.1 | 31 to 55 | 24.8 – 45.5 |
| Consumer Surplus | 479 to 844 | 1.9 – 3.4 | 31 to 55 | 0.5 – 0.9 |
| **Alternative 2: 5-year moratorium** | | | | |
| Revenues | 479 to 844 | 125.9 – 221.6 | 31 to 55 | 37.2 – 68.4 |
| Profits | 479 to 844 | 57.3 – 101.0 | 31 to 55 | 31.6 – 58.1 |
| Consumer Surplus | 479 to 844 | 2.5 –4.4 | 31 to 55 | 0.6 –1.1 |
| **Alternative 3: 10-year moratorium** | | | | |
| Revenues | 479 to 844 | 215.6 – 379.6 | 31 to 55 | 63.7– 117.2 |
| Profits | 479 to 844 | 98.3 – 173.0 | 31 to 55 | 54.1 – 99.5 |
| Consumer Surplus | 479 to 844 | 4.3 – 7.5 | 31 to 55 | 1.1 –1.9 |
| **Alternative 4: indefinite limited entry** | | | | |
| Revenues | 479 to 844 | 438.4 – 772.2 | 31 to 55 | 129.7 – 238.4 |
| Profits | 479 to 844 | 199.9 – 351.8 | 31 to 55 | 110.1 –202.4 |
| Consumer Surplus | 479 to 844 | 8.7 –15.2 | 31 to 55 | 2.2 –3.8 |

Sources of basic data: Data bases from Holland et al. (1999) and Sutton et al. (1999); permit files provided by Bob Sadler; Haab et al. (2001); MRFSS and Headboat data.

There are at least four issues worth exploring regarding the impacts presented in Table 5.27. First, the estimated impacts on for-hire vessels are forgone revenues and profits to vessels excluded from the moratorium. Due to the relatively high turnover rate in the for-hire fishery, as noted earlier, some of the vessels would have left the fishery even if there were no moratorium. Thus, their revenue and profit losses cannot be solely attributed to the moratorium. The immediate implication here is that estimates in Table 5.27 overstate the total negative impacts of the moratorium. Second, vessels excluded from the moratorium may be engaged in other fishing operations, either as for-hire vessels operating in state waters or as commercial fishing vessels. Only their for-hire operation in the EEZ is affected by the moratorium. If their for-hire operation in the EEZ is not a major source of income, then they could remain in the fishery, although at a lower operating level. Third, vessels that did not initially qualify for a moratorium permit could still reenter the fishery by purchasing a permit from those that have non-historical captain moratorium permits. Permits obtained on the basis of historical captain criteria are non-transferable to other individuals. If these vessels were operating profitably before the moratorium, they are likely to operate profitably under the moratorium because competition would be lower. Their profitability, however, would be reduced by the amortized purchase cost of permits. Unpublished NMFS data indicate permit prices range from $0 to $10,000 (NMFS 2005a), and there is always the possibility for permit prices to go up with a longer moratorium. Finally, the estimated losses in consumer surplus fit well with the concept of consumer surplus for accessing a site. Because the moratorium would exclude only a subset of for-hire vessels, the for-hire vessel platform is not entirely eliminated and anglers could still continue to fish through for-hire vessels that possess moratorium permits. To the extent that the estimation of a loss in consumer surplus relies on the assumption of continued fishing through some other

for-hire vessels, the estimated losses would remain as losses even if anglers can still continue to fish through some permitted for-hire vessels.

While the costs of the moratorium would be borne by vessels excluded from the fishery, benefits would accrue to those vessels remaining in the fishery. The net results are not readily apparent but are contingent on certain factors as discussed below.

For-hire vessels in the Gulf generally operate at 37 to 50 percent below their maximum passenger capacity. Thus, the remaining vessels may be able to absorb at least part of the passenger trips forgone by the exiting vessels whether or not they increase their trips. Given this condition, there are at least three possibilities regarding the performance of the remaining vessels under any of the four management alternatives. First, if the remaining vessels fully absorbed the angler trips forgone by exiting vessels, then the losses discussed above would not translate into losses for the for-hire vessel sector. There would simply be a redistribution of profits from one class of vessels to another. A possibility even exists that total profits in the for-hire sector may increase if the remaining vessels serve new customers with no additional trips or fewer additional trips than the totality of trips of exiting vessels. With less than proportionate increase in trips, cost increases are unlikely to negate the increases in revenues. Profits in the for-hire vessel sector may also increase if the remaining vessels fully compensate for the number of trips forgone by exiting vessels and if they are able to increase trip prices. Second, if the remaining vessels only partially absorbed the passenger trips of exiting vessels, then it is possible that some of the losses incurred by exiting vessels would translate to losses for the entire for-hire vessel sector. Some, if not all, of the remaining vessels may still experience profit increases, but such increases may be less than the total profits forgone by exiting vessels. Third, there are regional variations in the availability of services by for-hire vessels. Vessels in some areas may already be operating at or near their maximum passenger and trip capacity, so they would not be able to readily absorb passenger trips given up by exiting vessels in the same areas. If the remaining vessels decided to increase their number of trips, they would likely be doing so at relatively higher costs. In this event, their profit increases would not fully compensate for the profit losses of exiting vessels, and thus some of the profit losses presented in Table 5.27 may translate into losses for the entire for-hire vessel sector. In some areas where most vessels operate at much lower passenger capacity per trip, the remaining vessels may carry increased customers without taking additional trips and incurring additional costs. The likelihood for these vessels' profits to increase is high.

The three scenarios described above are true under any of the alternatives, and the ranking of those various alternatives depends on which scenario becomes dominant. If the remaining vessels fully absorb the trips forgone by exiting vessels, as in the first scenario, a longer moratorium would be the more desirable option. In this case, the alternatives may be ranked in descending order as follows: Alternative 4, Alternative 3, Alternative 2, and Alternative 1. Under a situation where the remaining vessels only partially absorb the trips given up by exiting vessels, as in the second or third scenario, thus resulting in profit reductions to the entire for-hire industry, a shorter moratorium would be the desirable alternative. In this case, the alternatives may be ranked in descending order as follows: Alternative 1, Alternative 2, Alternative 3, and Alternative 4. In the event, however, that future adjustments by the remaining vessels result in these vessels being able to accommodate most, if not all, of the forgone trips by exiting vessels, then a longer moratorium may be considered better than the shorter ones. With a longer moratorium, the remaining vessels would have better opportunity of adapting their operations to an increase in demand for recreational trips. Alternative 4, then, would provide the greatest chances of mitigating, if not fully offsetting, profit losses of the exiting vessels. However, because the magnitude and extent of such benefits cannot be determined, it is not possible to make a determination that Alternative 4 would result in

overall net benefit when compared to other alternatives with shorter duration. Some additional factors, discussed below in conjunction with the discussion on the moratorium's effects on consumer surplus, have to be considered to rank the various alternatives.

The three scenarios described above regarding the performance of the remaining vessels have varying implications on the moratorium's effects on consumer surplus. In the first scenario where the remaining vessels are able to accommodate additional demand for recreational trips, anglers may be able to still derive some benefits from recreational fishing by using the services of the permitted vessels. The loss in consumer surplus presented in Table 5.27 for each of the moratorium alternatives would still be incurred because the calculation of those losses assumes that the displaced anglers would still be able to fish through some other means. These losses increase with the length of the moratorium. Under the second scenario where only some anglers are able to use the services of for-hire vessels, their losses in consumer surplus would tend to be higher than shown in the mentioned table. The third scenario would give rise to varying impacts across fishing areas, with some areas exhibiting larger losses in consumer surplus than others. Although, as noted above, losses in consumer surplus positively correlate with the length of the moratorium, there is a good chance that the remaining vessels can adjust their operations to meet an increase in demand and thus would partially mitigate the larger losses in consumer surplus that would accrue under a longer moratorium. From the standpoint of anglers, it appears that losses in consumer surplus would increase the longer the moratorium. In this case, the various alternatives may be ranked in descending order as follows: Alternative 1, Alternative 2, Alternative 3, and Alternative 4.

Because the impacts on vessel profits dominate those on consumer surplus, the overall ranking of alternatives would mainly be driven by the impacts on vessel profits. Considering the various scenarios (as described above) that may occur in the for-hire fishery under a moratorium, it appears that profits in the for-hire fishery would be higher when the remaining vessels are provided the best chance of absorbing most of the trips forgone by exiting vessels. In this case, the overall ranking of alternatives in descending order would be: Alternative 4, Alternative 3, Alternative 2, and Alternative 1.

One major factor, so far unaccounted for, that potentially changes the ranking of alternatives is the fish species caught by anglers of for-hire vessel trips. Many of these species are currently overfished or undergoing overfishing. Part of the success of the moratorium would have to be measured against its impacts on the various fish species. Rebuilding overfished stocks would definitely play a major role in keeping a viable for-hire fishery sustainable. From this standpoint, moratorium alternatives that reduce fishing mortality or at least prevent fishing mortality from increasing would be most desirable. The reduction in the number of for-hire vessels brought about by the current moratorium means a reduction in access to the for-hire vessel fishing sites, which in turn means a reduction in angler trips through the for-hire vessels. Such reduction in angler trips would likely translate to a reduction in fishing mortality, particularly for species mainly accessible by vessels. This condition gives rise to a relatively strong argument that more beneficial effects would ensue from a longer moratorium if the remaining vessels partially or fully absorb angler trips forgone by exiting vessels. Thus, the alternatives may be ranked in descending order as follows: Alternative 4, Alternative 3, Alternative 2, and Alternative 1.
.
The moratorium's impacts on the fish stocks appear to be in stark contrast with its impacts on vessel profitability and consumer surplus. That is, in a situation where the remaining vessels partially absorb angler trips forgone by exiting vessels, fishing mortality would decrease (positive effect) but for-hire vessel profitability and consumer surplus would also decrease (negative effect). In case the remaining vessels fully absorbed angler trips forgone by exiting vessels, fishing mortality may not decrease but for-hire vessel profitability may increase, although consumer surplus would still decrease. These contrasting

effects present problems regarding the overall ranking of the various alternatives, because the moratorium alternatives positively correlate with the baseline impacts of the moratorium; that is, a positive (negative) baseline impact would become more positive (negative) the longer the duration of the moratorium. One way to resolve this conundrum is to determine the net stock and profit/consumer surplus effects of the moratorium alternatives. Since the more likely outcome of a moratorium, whether forgone trips are fully or partially absorbed by the remaining vessels, is not to increase fishing mortality, the determining factor would be the moratorium's effects on profitability and consumer surplus with the given assumption on the effects on fish stocks.

As concluded above, the ranking of alternatives from the standpoint of profit/consumer surplus is, in descending order: Alternative 4, Alternative 3, Alternative 2, and Alternative 1. This ranking is premised on the argument that the longer the moratorium, the more the remaining vessels will be able to adapt their operations to increases in demand for recreational trips primarily from displaced anglers. Such adaptation would involve generating more revenues at less than proportionate increases in costs. Underlying such argument was the implicit assumption that discounted profit increases would outweigh the cost of each moratorium alternative as presented in Table 5.27. This assumption would likely hold true if the remaining vessels absorbed most of the angler trips forgone by exiting vessels in a relatively short period of time with only moderate increases in costs. This can happen if the remaining vessels are able to immediately tap their full passenger capacity on most vessel trips. If it takes more time for the remaining vessels to adapt, noting of course the restriction on upgrading the passenger capacity of a vessel operation under each moratorium alternative, the mentioned assumption may not hold true. However, a compensating effect may be introduced by the moratorium's impacts on fish stocks. Since a longer moratorium provides a better chance of at least not increasing fishing mortality from for-hire vessel fishing, a slower adjustment process undertaken by the remaining vessels can eventually provide a better long-term profit situation for the for-hire fishery. This can also result in an increase in consumer surplus as an improving stock would translate to higher fishing success. What this condition presents is the likelihood for the for-hire vessel profits and consumer surplus to decrease over time as fishing mortality for most species caught or targeted by for-hire vessel anglers increases with the lifting of the moratorium. Since the ranking of alternatives from the fishing mortality standpoint coincide with that from profitability standpoint, the overall ranking of alternatives would be: Alternative 4, Alternative 3, Alternative 2, and Alternative 1.

## 5.6 Private and public costs

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

| | |
|---|---|
| Council costs of document preparation, meetings, public hearings, and information dissemination | $45,000 |
| NOAA Fisheries administrative costs of document preparation, meetings and review | $65,000 |
| Industry cost of permit and reporting program | none |
| NOAA Fisheries cost of permit and reporting program | none |
| Enforcement cost | none |

The Council and NOAA Fisheries costs of document preparation are based on staff time, work outsourcing, travel, printing and any other relevant items where funds were expended directly for this specific action. No additional permits or reporting requirements are proposed in this amendment, so there are no corresponding costs. Since the management measures proposed in this amendment are essentially extensions of existing management measures on reef fish and CMP, enforcement of measures proposed in this amendment would be conducted as part of the routine or special effort to enforce existing rules on reef fish and other managed species. Under a fixed budget, however, adoption of this amendment would require a redirection of resources to enforce the new measures.

### 5.7 Determination of a significant regulatory action

Pursuant to E.O. 12866, a regulation is considered a "significant regulatory action" if it is likely to result in a rule that may: a) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments and communities; b) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; c) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or d) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

The measures in this amendment are designed to address the duration of the current moratorium on the issuance of new for-hire vessel permit. The no action alternative would allow this moratorium to expire on June 16, 2006. The other three alternatives would extend the moratorium for another 5 years, 10 years or indefinitely. The original moratorium was determined not to be a significant regulatory action. A similar conclusion may be made of the measures in this amendment that would extend the duration of the moratorium. The following discussion provides the rationale for this conclusion.

As with the original establishment of the for-hire vessel permit moratorium, excluded vessels would experience reductions in revenues and profits for additional number of years. A range of 510 to 899 vessels is estimated to remain excluded from continued participation in the for-hire fishery. Their total annual revenues are estimated to range from $29 million to $51 million. These revenue losses, which may be fully or partially re-distributed to the remaining vessels, fall below the $100 million threshold.

A continuation of the moratorium would tend to ease competition in the for-hire vessel business particularly in areas earlier mentioned as activity centers. The remaining vessels are expected to experience higher profitability and long-term viability particularly if the moratorium continues to effect a reduction in fishing mortality. Initially, some labor would be displaced as some vessels exit the for-hire fishery. It should be noted, though, that these vessels can still re-enter the fishery by purchasing permits from permit holders. They can also continue to operate as for-hire vessels in state waters or as commercial vessels in state or federal waters. Over time, the remaining vessels may have to adjust their operations to an expected increase in demand for recreational trips, and this adjustment would likely involve increasing labor employment. Continuation of the moratorium is expected to reduce fishing activities at least in the short run, and thus would provide some level of protection to the fish species that are overfished or experiencing overfishing. The reduction in fishing platform results in the reduction of recreational fishing experience as measured by consumer surplus. Over time under the moratorium, the recreational fishing environment may be enhanced by increasing the likelihood of a viable for-hire fishery through the protection of certain species targeted by for-hire vessels. Although the net result in this case cannot be quantified, it appears that a viable for-hire fishery through which anglers can continue fishing

would tend to offset short-run reductions in consumer surplus. Imbedded in the reduction of consumer surplus is the increase in cost to anglers due to the reduction in competition among the remaining for-hire vessels. While it is likely that, in some areas, the remaining for-hire vessels may be able to increase their fees, such fee increase may not be substantial in the short-run as vessels use up their excess passenger capacity. Over time, price increases could be substantial, but as long as the fishing experience improves, consumer surplus could still increase.

None of the alternatives interfere or create inconsistency with any action of another agency, including state fishing agencies. Any extension of the current moratorium would apply only to fisheries in federal waters, although the various states may be requested to make their rules consistent with the provisions in this amendment.

The moratorium as well as any of the alternatives to extend the moratorium has no bearing on existing grants or loan programs affecting the for-hire fishery, because there currently are no such grants or loan programs for the for-hire fishery. With respect to entitlements, those currently in the moratorium would be able to continue their operations in the for-hire fishery under any of the alternatives to extend the moratorium. The only user fee they may have to incur is the cost of the permits (currently at $50 for first permit and $20 per additional permit). Those for-hire vessels without moratorium permits would have to purchase permits from permit holders. The reported cost of permit ranges from $0 to $10,000.

None of alternatives present novel legal or policy issues. The moratorium and its extension, as a fishery management tool, has been extensively used in the Gulf and South Atlantic Councils' areas of jurisdiction. Extending the moratorium on the for-hire vessel permit could be controversial, but many management actions in the Gulf and South Atlantic are controversial.

# 6 INITIAL REGULATORY FLEXIBILITY ANALYSIS

## 6.1 Introduction

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

With certain exceptions, the RFA requires agencies to conduct an Initial Regulatory Flexibility Analysis (IRFA) for each proposed rule. The IRFA is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. An IRFA is conducted to primarily determine whether the proposed action would have a "significant economic impact on a substantial number of small entities." In addition to analyses conducted for the Regulatory Impact Review (RIR), the IRFA provides: (1) a description of the reasons why action by the agency is being considered; (2) a succinct statement of the objectives of, and legal basis for, the proposed rule; (3) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; (4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; and, (5) an identification, to the extent practicable, of all relevant federal rules, which may duplicate, overlap, or conflict with the proposed rule.

## 6.2 Description of the reasons why action by the agency is being considered

The current moratorium will expire on June 16, 2006, and the Council has to address the issue of extending the moratorium or letting it expire by the said date. The moratorium was established to cap the number of vessels in the for-hire fleet while the Council considers whether to implement a more comprehensive limited access system.

## 6.3 Statement of the objectives of, and legal basis for, the proposed rule

Section 2 of this document contains the purpose and need of this amendment and it is incorporated here by reference. The MSFCMA, as amended, provides the legal basis for the rule.

## 6.4 Description and estimate of the number of small entities to which the proposed rule will apply

The Small Business Administration (SBA) defines a small business as one that is independently owned and operated and not dominant in its field of operation, and has annual receipts not in excess of $3.5 million in the case of commercial harvesting entities or $6 million in the case of for-hire entities, or has fewer than 500 employees in the case of fish processors, or fewer than 100 employees in the case of fish dealers.

Permitting of for-hire vessels in the Gulf EEZ has been required since 1987 for CMP (CMP) and 1996 for

reef fish. NMFS permit files indicate that, for the period 1996-2004, total permitted for-hire vessels have ranged from a low of 1,420 in 1996 to a peak of 2,756 in 2002. As part of the process of issuing moratorium permits, NMFS issued to various individuals 2,303 eligibilities for CMP permits and 1,737 eligibilities for reef fish permits, indicating their eligibility to obtain moratorium permits. Recipients of these eligibilities had to apply within a certain time period and their applications were reviewed before they were granted moratorium permits. These eligibilities resulted in the issuance of 1,715 CMP permits and 1,625 reef fish permits, or a total of 3,340 permits. These 3,340 permits are associated with 1,779 unique vessels. In addition 78 CMP and reef fish eligibilities, which were issued on the basis of historical captain or vessel construction criteria, are expected to result in permits that would be associated with 78 additional unique vessels. Based on the number of eligibilities issued and the historical number of permitted for-hire vessels, 510 to 899 vessels are estimated to have been initially excluded from continued participation in the for-hire vessel fishery in the Gulf. Hence, a total of 1,857 vessels with moratorium permits and 510 to 899 vessels without moratorium permits comprise the universe of vessels affected by the moratorium. In the absence of information, such as vessel entry and exit, that can aid in estimating over time the net entry of vessels into the for-hire fishery, these vessels may also be considered to comprise the universe of vessels affected by any of the alternatives to extend the moratorium.

For-hire vessels with initial moratorium permits operate in several ways, namely, as charterboats only, headboats only, or charterboat/headboat combination. Some for-hire vessels also operate as commercial fishing vessels. However, most (66.7%) operate as charterboats only, and consistent with this operation, about 79 percent have a maximum passenger capacity of 6 persons or less. A great majority of these vessels (87.7%) have both CMP and reef fish permits. About 69 percent of these vessels are individually owned and operated, 27 percent have corporate ownership, and the rest in some other form of ownership. Most of these vessels are 50 feet or less in length (89%) and have 600 or less engine horsepower (75%). Homeport states of these vessels are as follows: Florida (61%), Texas (13.4%), Alabama (8.4%), Louisiana (7.6%), and other states (5.3%). In the absence of relevant information, vessels excluded from the moratorium are deemed to have the same characteristics as those that obtained permits.

For-hire vessel costs and revenues are not routinely collected in the Gulf. For the current purpose, data from two previous studies (Holland et al., 1999; Sutton et al., 1999) were pooled to generate some information regarding the financial performance of for-hire vessels. These two studies classify the for-hire vessels into charterboats and headboats depending on how a base fee is charged. Charterboats charge their fees on a group basis while headboats do it on a per person (head) basis. On average, a charterboat generates $76,960 in annual revenues and $36,758 in annual operating profits. An average headboat, on the other hand, generates $404,172 in annual revenues and $338,209 in annual operating profits. Both types of for-hire operations are profitable, although it should be noted that the calculation of costs does not include fixed and other non-operating expenses. These items generally tend to be higher for headboats. On average, both charterboats and headboats operate at about 50 percent of their passenger capacity per trip.

The financial performance of charterboats and headboats vary according to the size of operation where for the current purpose size of operation is defined as maximum passenger capacity. For headboats, both revenues and profits increase with the size of operation. Revenues range from $298,812 for headboats with 13 to 30 maximum passenger capacity to $570,376 for headboats with 61 or greater maximum passenger capacity. The corresponding profit range is $263,062 to $460,760. Charterboat revenues and profits differ from that of headboats in the sense that revenues and profits do not necessarily increase with the size of operation. Revenues increase from $70,491 for charterboats with 6 or fewer maximum passenger capacity to $129,813 for those with 7 to 12 maximum passenger capacity, then fall to $113,266

for those with 13 to 30 maximum passenger capacity, and subsequently increase to $149,905 for those with 31 to 60 maximum passenger capacity. Profits increase from $34,949 for the 6 and under maximum passenger capacity vessels to $86,502 for the 7-12 maximum passenger capacity vessels, but then decline for the next two vessel classes, first to $39,379 and then to $33,806.

Variations in the financial performance of for-hire vessels also vary by geographical areas. Charterboats in Florida generate an average of $68,233 in annual revenues and $30,249 in annual profits while their counterpart in the rest of the Gulf earn $106,118 in annual revenues and $43,494 in annual profits. Headboats in Florida generate an average of $318,512 in annual revenues and $249,103 in annual profits while their counterparts in the rest of the Gulf earn an average of $630,046 in annual revenues and $542,425 in annual profits. In general then, for-hire vessels in Florida earn lower revenues and profits than those in the rest of the Gulf.

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

None of the alternatives considered in this amendment would impose any additional record-keeping or reporting requirements. All the compliance requirements currently in place would still be in place under any of the moratorium alternatives.

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

The current moratorium applies only to the operations of for-hire vessels fishing in the Gulf EEZ. Permitting, certifications, and other requirements by other federal agencies still apply and are in no way affected by the moratorium. Extending the moratorium under the alternatives considered in this amendment would not change any of the requirements under the moratorium. Thus, such extension would not in any way conflict or be duplicative of any relevant federal rules.

### 6.7 Significance of economic impacts on small entities

Substantial number criterion

The measures in this amendment are expected to affect 1,857 vessels that have been initially issued moratorium permits and an additional 510 to 899 vessels estimated to have been excluded from the for-hire fishery by the moratorium. These vessels are estimated to earn revenues and profits, as described in Section 6.4, which are well below the $5 million threshold. Hence, all these entities affected by the measures in this amendment fall within the definition of small entities. It is clear then that a substantial number of small entities would be affected by measures in this amendment.

Significant economic impacts

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

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

All the for-hire vessel operations affected by measures in this amendment are considered small entities so that the issue of disproportionality does not arise in the present case. It may only be noted that in general headboat operations are larger than charterboat operations in terms of revenues and costs as well as vessel, crew and passenger sizes. Also within the charterboat and headboat classes, there are variations in the size of operations. At any rate, the issue of disproportionality does not apply in the present case.

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

There are two types of effects on profitability depending on whether a vessel is included or excluded in the for-hire fishery during the moratorium. Those excluded would lose all their for-hire profits from operations in the EEZ, although they may still retain profits in state water operations or commercial fishing operations. For those that mainly depend on fishing trips in the EEZ, their profits would be substantially reduced. For those that can still operate as commercial fishing vessels or for-hire vessels in state waters, the reduction in profits may be deemed to be proportionate to their operations in the EEZ. There is a good chance that profits from EEZ operations are either a major component of these vessels total profits or are crucial profit components to remain viable business operations. It may be concluded then that the measures of this amendment would significantly reduce the profits of for-hire vessels excluded by the moratorium. There are 510 to 899 of these vessels, and they comprise about 33 percent of all small entities affected. Hence, measures in this amendment would significantly reduce profits for a substantial number of small entities. However, there are three issues that are worth noting here. First, the emergency rule to re-open the charter permit process is expected to allow the re-entry of many vessels previously excluded by the moratorium. It is possible that only a few vessels may turn out to be adversely affected by any alternative to extend the moratorium. Second, vessels that remain in the for-hire fishery would be in a better position to experience profit increases. Whether or not such profit increases would totally compensate for profit losses from exiting vessels cannot be determined. Third, future entrants into the fishery would have to expend an additional fixed cost in the form of purchase cost of the charter permit. This cost would have to be explicitly considered by new entrants as an integral part of their decision to invest in the for-hire fishery.

### 6.8 Description of significant alternatives to the proposed rule and discussion of how the alternatives attempt to minimize economic impacts on small entities

[This sub-section will be completed once the Council has made a final decision on the proposed alternative]

# 7 AFFECTED ENVIRONMENT

Section 1502.15 of the CEQ regulations states "environmental impact statements shall succinctly describe the area(s) to be affected or created by the alternatives under consideration." The following is a description of the physical, biological, social, economic, and administrative environments affected by this action. Section 7.1 describes habitat use by reef fish and CMP species; Section 7.2 describes the life history, biology, and stock status of reef fish, CMP, and protected species targeted, caught as bycatch, or incidentally caught by the for-hire fishery; Section 7.3 describes the social and economic characteristics of the for-hire fleet; and, Section 7.4 describes state and federal management agencies affected by this action. The direct and indirect effects of the alternatives on each of these environments are evaluated in the following section (Section 8.0 Environmental Consequences) and compared and summarized in Section 3.0 (Management Alternatives).

## 7.1 Physical Environment

### 7.1.1 Geological Features

The physical environment of reef fish has been described in detail in the EIS for the Generic Essential Fish Habitat amendment and is incorporated here by reference (GMFMC, 2004a). The Gulf of Mexico is bounded by Cuba, Mexico, and the United States, and has a total area of 564,000 $km^2$. Continental shelves occupy about 35% of the total Gulf area and the west Florida shelf (about 150,000 $km^2$) is the second largest shelf in the United States after Alaska.

The Gulf 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. The Mississippi and Atchafalaya rivers account for over half of the freshwater discharge into the Gulf. The remaining fresh water comes from many small rivers dumping into embayments, which in turn provide most of the estuarine ecosystems in the Gulf. Approximately 450 million metric tons of sediment are deposited annually in the Gulf of Mexico by the Mississippi River, and this river produces more sediment than the combined deposition of all other regional rivers by an order of magnitude.

Coarse sediments make up the very shallow nearshore bottoms from the Texas/Mexican border to off central Louisiana, from the shore to the central third of the shelf. Beyond 80 meters (m), fine sediments are also strongly represented. Fine sediments are limited to the northern shelf under the influence of the Mississippi and Atchafalaya rivers. The west Florida shelf provides a large area of hard bottom habitat. It is comprised of low relief hard bottoms that are relict reefs or erosional structures. Some high relief can be found along the shelf edge in waters 130 to 300 m deep. Hard bottom provides extensive areas where reef biota such as corals can become established, subsequently attracting benthic and pelagic fish species.

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

Banks and reefs also occur on the shelf. Rezak et al. (1985) defined banks as those that rise from depths of 80 m of less and have a relief of 4 to 50 m) and are made of relatively bare, bedded Tertiary limestones, sandstones, claystones, and siltstones. Relict reefs rise from water depths of 14 to 40 m, have

a relief of 1 to 22 m and are made of relict carbonate shelf.

### 7.1.2 Oceanographic Features

Oceanic temperature regimes have been extensively mapped by Darnell et al. (1983), Darnell and Kleypas (1987), NOAA (1985), MMS (1997), and Donaldson et al. (1997). Water temperatures range from 12 C to 29 C depending on time of year and depth of water. The greatest difference is found in nearshore waters where temperatures can be 10 to 15º C warmer in the summer compared to the winter. In the summertime, coastal surface and bottom waters are warmer than offshore waters; however, this trend is reversed in the winter.

Salinity varies seasonally and is dependent on the amount of freshwater input. During months of low freshwater input, coastal salinities generally range between 29 and 32 parts per thousand (ppt) (MMS, 1997). At times of high freshwater input, salinities can decrease to less than 20 ppt. In the open Gulf, salinities are less variable than coastal waters and are generally around 36 ppt (MMS, 1997).

Dissolved oxygen in the Gulf averages about 6.5 parts per million (ppm) (Barnard and Froelich, 1981). During warmer months, localized hypoxic events (<2.0 ppm) occur in such places as Mobile Bay, Alabama and Tampa Bay, Florida. Hypoxic events are usually caused by two factors - stratification of marine waters and decomposition of organic matter. A major hypoxic event occurs each year over a large area of the Louisiana continental shelf with seasonally-depleted oxygen levels (< 2 ppm). The oxygen depletion begins in late spring, reaches a maximum in midsummer, and disappears in the fall. The event is caused by nutrient over-enrichment from anthropogenic sources.

Turbidity levels in the western and northern Gulf are higher than the eastern Gulf because of more sources of freshwater input. Surface turbidity is limited to areas of riverine inputs. During low freshwater input periods, the amount of sediment in suspension averages 0.260 grams per liter (g/l). The amount of suspended sediment increases to 0.640 g/l during high freshwater periods.

Currents vary with locality and may in some areas exceed 2 meters per second. Circulation patterns in the Gulf are dominated by the Loop Current that enters the Gulf through the Yucatan Straits and exits through the Straits of Florida after looping through the North and Eastern Gulf. During most years, the Loop Current penetrates north into the eastern Gulf. The boundary of the Loop Current and its associated eddies is a dynamic zone with both strong convergences and divergences that can concentrate planktonic organisms, including fish eggs and larvae.

### 7.1.3 Habitat Use by Managed Species

#### 7.1.3.1 Reef fishes

Reef fish are widely distributed in the Gulf, occupying both pelagic and benthic habitats during their life cycle. Habitat types utilized by reef fish species' life history stages can be found in detail in GMFMC (2004a). In general, both eggs and larval stages are planktonic. Larvae feed on zooplankton and phytoplankton. Exceptions to these generalizations include the gray triggerfish that lay their eggs in depressions in the sandy bottom, and gray snapper whose larvae are found around submerged aquatic vegetation (SAV). Juvenile and adult reef fish are typically demersal, and are usually associated with bottom topographies on the continental shelf (<100 m) which have high relief, i.e., coral reefs, artificial reefs, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings. However, several species are found over sand and soft-bottom substrates. For example,

juvenile red snapper are common on mud bottoms in the northern Gulf, particularly off Texas through Alabama. Also, some juvenile snappers (e.g. mutton, gray, red, dog, lane, and yellowtail snappers) and groupers (e.g. goliath grouper, red, gag, and yellowfin groupers) have been documented in inshore seagrass beds, mangrove estuaries, lagoons, and larger bay systems (GMFMC, 1981). More detail on hard bottom substrate and coral can be found in the FMP for Corals and Coral Reefs (GMFMC and SAFMC, 1982). A list of high-relief reef fish habitat sites identified by Dr. Chris Koenig and Chris Gledhill for areas off the Florida west coast are described in the FEIS for the Generic EFH Amendment (GMFMC 2004a) and Amendment 22 to the Reef Fish FMP (GMFMC 2004b).

#### 7.1.3.2 Coastal Migratory Pelagic Fishes

Adult king mackerel are known to spawn in areas of low turbidity, with salinity and temperatures of approximately 30 parts per thousand (ppt) and 27°C, respectively. Eggs and larvae are pelagic over depths of 30 to 180 m, and larvae may descend to mid depths during the day. Spawning occurs along the mid-to-outer continental shelf (Finucane et al. 1986). Juveniles are generally found closer to shore at inshore to mid shelf depths (to < 9 m) and occasionally in estuaries. Adults are migratory, and the CMP FMP recognizes two migratory groups (Gulf and Atlantic). Typically, adult king mackerel are found in near-shore waters of the southern climates (south Florida and extreme south Texas/Mexico) in the winter and in near-shore waters of the northern Gulf in the summer.

Spanish mackerel is also a pelagic species, occurring over depths to 75 m throughout the coastal zones of the western Atlantic from southern New England to the Florida Keys and throughout the Gulf of Mexico (Collette and Russo 1979). Adults usually are found in neritic waters and along coastal areas. They will inhabit estuarine areas, especially the higher salinity areas, during seasonal migrations, but are considered rare and infrequent in many Gulf estuaries. Spawning occurs along the inner continental shelf (Powell 1975). Eggs and larvae occur most frequently offshore over the inner continental shelf at temperatures between 20°C to 32°C and salinities between 28 ppt and 37 ppt. Although they occur in waters of varying salinity, juveniles appear to prefer marine salinity levels and generally are not considered estuarine dependent. Like king mackerel, adult Spanish mackerel are migratory, generally moving from wintering areas of south Florida and Mexico to more northern latitudes in spring and summer.

Adult cobia occur at depths of up to 70 meters (230 feet) and spawn in continental shelf waters (GMFMC 2004a). Cobia migrate northward from the Florida Keys during spring and occupy inshore and nearshore waters from northwest Florida to Texas during March through October (Biesiot et al. 1994; Franks et al. 1999). Dolphin are pelagic fishes that occur in tropical and subtropical waters (Palko et al. 1982). They migrate to Florida and the Gulf of Mexico from Caribbean waters during late spring and summer. Dolphin larvae are pelagic and associate with drift algae (GMFMC 2004a). Little tunny are schooling species that occur in tropical and subtropical waters. They are common offshore, but can be found in inshore waters over reefs (Robins et al. 1986). Little tunny larvae are often found in nearshore and offshore waters near shoals and banks (GMFMC 2004a). Cero mackerel primarily occur in the Caribbean although some are caught in South Florida (Collette and Russo 1979). Bluefish occur in the Gulf of Mexico primarily from northwestern Florida to northeastern Texas (Heinemann 2002). Larvae have been collected in the Gulf of Mexico in waters less than 100 meters deep (Ditty and Shaw 1995).

### 7.1.4 Environmental Sites of Importance to Reef Fish or CMP Species

The following is a list of important sites for reef fish and CMP species:

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

Madison/Swanson and Steamboat Lumps Marine Reserves - No-take marine reserves sited on gag spawning aggregation areas where all fishing, except seasonal trolling for highly migratory and coastal pelagic species is prohibited (219 square nautical miles).

Stressed Area - Permanent closure Gulf-wide of the nearshore waters to use of fish traps, power heads, and roller trawls (i.e., "rock hopper trawls") (48,400 square nautical miles).

Flower Garden Banks HAPC - Pristine coral area protected from use of any gear that interacts with the bottom. Subsequently, this area was made a marine sanctuary by NOS (41 square nautical miles).

Tortugas North and South Marine Reserves - No-take marine reserves cooperatively implemented by the state of Florida, NOS, the Council, and the National Park Service (185 square nautical miles).

Amendment 3 to the FMP for Essential Fish Habitat will also implement an HAPC in the eastern Gulf (Pulley's Ridge) and several HAPC sites near the Flower Garden Banks in the western Gulf.

## 7.2 Biological Environment

Detailed information on these species are described in the FEIS for the Generic EFH Amendment and in Amendment 22 to the Reef Fish FMP (GMFMC, 2004a; 2004b). This information is summarized below and is incorporated here by reference.

### 7.2.1 Reef Fish Life History and Stock Status

Life History: The following life history characteristics are summarized in Appendix A. Reef fish species managed in the EEZ are moderate- to long-lived with maximum known ages generally greater than 15 years. Yellowedge grouper have the greatest estimated longevity of any managed reef fish species and are estimated to live as long as 85 years. The sizes of reef fish species are variable with some weighing less than 2 kg as adults (e.g., mahogany snapper and henchman), while others can achieve weights greater than 100 kg (e.g., warsaw and goliath grouper).

Managed reef fish species fall into two reproductive categories, protogynist and gonochoristic. Protogyny is a form of sequential hermaphroditism where an individual transforms from female to male. Gonochoristic refers to species where sexes are always separate. Most groupers and the hogfish are protogynist, while snappers, jacks, triggerfish, and tilefish are gonochoristic. Spawning seasons vary among reef fish species. Some species spawn year-round or for extended periods with peaks in spawning such as the yellowmouth or yellowfin groupers. Others spawn at specific times and at specific locations, such as the Nassau grouper, which times its spawning to the lunar cycle over a three month period. Many of the species form spawning aggregations in deeper waters along shelf breaks.

Managed reef fish species are upper level predators feeding on fishes and benthic and pelagic invertebrates. Summaries of trophic relationships for these species can be found in Appendix C of GMFMC (2004a).

Stock Status: To evaluate the status of stocks and fisheries, the MSFCMA requires that each FMP define reference points in the form of MSY and OY, and specify objective and measurable criteria for identifying when a fishery is overfished or undergoing overfishing. These status determination criteria are defined by 50 CFR §600.310 and include a Minimum Stock Size Threshold (MSST), i.e., the overfished criterion, and a Maximum Fishing Mortality Threshold (MFMT), i.e, the overfishing criterion. A stock with a biomass below the MSST (e.g., $B_{CURR}$ < MSST) would be considered to be overfished. Once this designation is made, a rebuilding plan would need to be put in place to rebuild the stock to $B_{MSY}$. A fishery experiencing a fishing mortality rate that exceeds the MFMT (e.g., $F_{CURR}$ > MFMT) would be considered to be undergoing overfishing.

The Reef Fish FMP applies to 42 species. Of these, 10 have had stock assessments performed by either NOAA Fisheries (red grouper, gag, goliath grouper, yellowedge grouper, red snapper, vermilion snapper, greater amberjack, and gray triggerfish) or the Florida Fish and Wildlife Conservation Commission (yellowtail snapper and hogfish). Of the 10 reef fish species for which stock assessments have been completed and reviewed, four are classified as overfished (red snapper, greater amberjack, vermilion snapper, and goliath grouper) and three are classified as undergoing overfishing (red snapper, red grouper, and vermilion snapper) (NOAA Fisheries 2004). Rebuilding plans for greater amberjack, vermilion snapper, and red snapper have been implemented. While no formal rebuilding plan has been implemented for goliath grouper, current regulations prohibit the harvest of this species, and an assessment conducted in 2004 suggests that the stock is rebuilding.

Other stock assessments have indicated species are either considered not overfished or are in an unknown condition. Red grouper is no longer considered overfished because the stock size is estimated to be above MSST; however, it is still under a rebuilding plan because the stock size has not reached biomass at MSY ($B_{MSY}$). Gag grouper were recently reclassified from not overfished but approaching an overfished condition to neither overfished nor undergoing overfishing. An assessment of yellowtail snapper indicated the stock was not overfished or undergoing overfishing. Stock assessments were not able to resolve the status of the gray triggerfish, hogfish, and yellowedge grouper stocks; therefore, the status of these stocks remain unknown.

The remaining reef fish species have not been assessed and are classified as unknown. While no assessment was conducted on Nassau grouper due to insufficient data, landings from 1979 to 1992 showed a progressive trend from being abundant to being a rarity (GMFMC, 1996). Therefore, this stock is considered overfished and harvest has been prohibited to protect the stock.

Many of the reef fish stock assessments and reviews can be found online at the Council's website (www.gulfcouncil.org). In addition, Southeast Data Assessment and Review (SEDAR) workshop products can be viewed on the SEFSC's website (www.sefsc.noaa.gov). More complete descriptions of the stock status for some of these species are provided in GMFMC (2004a), and Amendment 22 to the Reef Fish FMP (GMFMC, 2004b).

Four reef fish species have been listed by NOAA Fisheries as species of concern. Goliath grouper and Nassau grouper were listed in 1991, and warsaw grouper and speckled hind were listed in 1997. Recognizing the uncertainty about these stocks, the Council and NOAA Fisheries have acted to protect their populations. For goliath and Nassau grouper, the Council has prohibited the harvest of these species by any sector of the fishery (Amendments 2 and 14, respectively). For warsaw grouper and speckled hind, the Council reduced the recreational bag limit to one each per vessel (not per person) through Amendment 16b. This action was intended to discourage targeting of these species by recreational

fishermen, but also to avoid wasting fish that might be caught inadvertently while targeting other species. Additionally, the deep-water grouper commercial quota was recently reduced to 1.02 mp gutted weight by Secretarial Amendment 1 and so provides added protection for these species.

### 7.2.2 Coastal Migratory Pelagic Species Life History and Stock Status

Life History: King mackerel are found throughout the Gulf of Mexico and Caribbean Sea and along the western Atlantic from the Gulf of Maine to Brazil and from the shore to 200 m depths. There are major spawning areas off Louisiana and Texas in the Gulf (McEachran and Finucane 1979); and off the Carolinas, Cape Canaveral, and Miami in the western Atlantic (Wollam 1970; Schekter 1971; Mayo 1973). Spawning occurs generally from May through October with peak spawning in September (McEachran and Finucane 1979). King mackerel mature at approximately age 2 to 3 and have longevities of 24 to 26 years for females and 23 years for males (GMFMC/SAFMC 1985; MSAP 1996; Brooks and Ortiz 2004). King mackerel primarily eat other fish species (herring, sardines, and menhaden) and to a lesser extent squid at all life stages (larvae to adult). In turn, they are eaten primarily by larger pelagic predators, e.g., sharks (GMFMC/SAFMC 1985).

Spanish mackerel occur over throughout the coastal zones of the western Atlantic from southern New England to the Florida Keys and throughout the Gulf of Mexico (Collette and Russo 1979). Spawning occurs from April to September (Powell 1975). Spanish mackerel generally mature at age 1 to 2 and have a maximum age of approximately 11 years (Powell 1975). Like king mackerel, Spanish mackerel primarily eat other fish species (herring, sardines, and menhaden) and to a lesser extent crustaceans and squid at all life stages (larvae to adult). They are eaten primarily by larger pelagic predators, e.g., sharks, tunas, and bottlenose dolphin.

Cobia, bluefish, cero mackerel, dolphin, and little tunny are also included in the CMP FMP. These species account for a relatively small amount of the total CMP harvest when compared to king and Spanish mackerel. Cobia, in addition to king and Spanish mackerel, are the only CMP species included in the management unit and subject to regulations. Cobia growth is very rapid during the first few years of life, after which it slows. Females grow larger than males. Maximum age is 10-12 years (Burns et al. 1998; Franks et al. 1999). Spawning occurs from April to September (Biesiot et al. 1994). Female cobia mature at approximately 80 cm FL and 2-3 years of age (Brown-Peterson et al. 2001).

Stock Status: King mackerel are not considered overfished or undergoing overfishing. The most recent stock assessment (Ortiz 2004) indicated that the biomass (B) has not fully recovered to $B_{MSY}$. $B_{2001/2002}$ is 93% of $B_{MSY}$. Projecting forward, there is only an 18% probability that $B_{2003}$ was less than MSST, where MSST = 1-M($B_{MSY}$) and M=0.2. Fishing mortality (F) continues to be below $F_{MSY}$ and $F_{OY}$ ($F_{2001/2002}$ was 59% of $F_{MSY}$), and projecting forward, there was only a 17% probability that $F_{2002/2003}$ was greater than MFMT ($F_{MSY}$). These low fishing mortalities are allowing the stock to continue to recover under the current management regime.

Spanish mackerel are also not considered to be overfished or undergoing overfishing (NMFS 2003). The current biomass for 2003 was estimated to be 1.34 times the biomass required to produce MSY ($B_{MSY}$), and there was only a 3% probability that $B_{2003}$ was less than MSST, where MSST = 1-M($B_{MSY}$) and M=0.3. Current fishing mortality ($F_{2002/2003}$) was estimated to be 53% of $F_{MSY}$, and there was only a 9% probability that $F_{2002/03}$ was greater than MFMT ($F_{MSY}$).

The status of cobia was assessed in 2001 (Williams 2001). The assessment was inconclusive in determining the status of the Gulf cobia stock. The natural mortality rate for cobia is unknown, and the choice of natural mortality rate greatly affected the outcome of the assessment. Despite this shortcoming, the assessment was able to conclude with some certainty that the cobia population had increased in abundance since the 1980s (Williams 2001).

The status of other CMP species is either unknown or considered preliminary. A preliminary assessment of bluefish suggested Gulf bluefish might have been overfished since the 1980s (Heinemann 2002). Cero mackerel catch and indices of abundance have shown no significant declines suggesting fishing is not depleting the stock (Turner and Brooks 2002). Assessment of little tunny suggested landings in recent years could be supported by the stock, compared to landings during the early part of the 1990s (Brooks 2002). An exploratory assessment of dolphin indicated the status of dolphin in the Gulf of Mexico was unknown (Prager 2000).

### 7.2.3 Protected Species Under the ESA and MMPA

There are 28 cetacean, one sirenian, and one non-native pinneped (California sea lion) species that have confirmed occurrences in the Gulf (Davis and Fargion, 1996). All of these species are protected under the MMPA. Additionally, six of these species (blue, fin, humpback, right, sei, and sperm whales) are listed as endangered species under the ESA. There are five species of sea turtles found in the Gulf (Kemp's ridley, loggerhead, green, leatherback, and hawksbill); all are protected under the Endangered Species Act (ESA). The endangered smalltooth sawfish is the only marine fish species listed under the ESA that is known to occur in federal Gulf waters. Information on the biology and status of all of these protected species is provided in GMFMC (2004a).

Endangered whales are not known to be adversely affected by reef fish or CMP fisheries because they are extremely unlikely to overlap geographically. Sperm whales are the most abundant large cetacean in the Gulf and are found throughout the Gulf year-round, but in waters greater than 200 m (Schmidley 1981, Hansen et al. 1996, Davis et al. 2002, Mullin and Fulling 2003), beyond where these fisheries occur. Other endangered whales ( blue, fin, humpback, right whale, and sei whales) are either uncommon or rare in the GOM. Individuals observed have likely been inexperienced juveniles straying from the normal range of these stocks or occasional transients (Mullin et al. 1994, Würsig et al. 2000). There are no documented interactions between these fisheries and any marine mammals.

Sea turtles are infrequently taken by recreational anglers. Loggerhead, leatherback, Kemp’s ridley and green sea turtles are known to bite baited hooks, and loggerheads and Kemp’s ridleys frequently ingest these hooks (NMFS 2005b). During 2001-2003, it was estimated that recreational anglers spent 35.7 million hook-hours fishing for reef fish, during which an estimated 111 hard-shell sea turtles were caught; 40 of which died (NMFS 2005b). The Council is currently evaluating a range of sea turtle bycatch mortality mitigation measures in Amendment 18A to the Reef Fish FMP.

For the CMP fishery, a Section 7 consultation is currently being conducted to evaluate the effects of fishing activities on listed species. Sea turtles are unlikely to be caught during hook-and-line trolling for CMP because of the speed (4-10 kts) at which the bait is pulled through the water (NMFS 2005b). A

The decline in smalltooth sawfish abundance is attributed to bycatch in various commercial fisheries, compounded by habitat degradation. Historically, the U.S. population was common throughout the Gulf

from Texas to Florida, and along the east coast from Florida to Cape Hatteras. The current known distribution of smalltooth sawfish extends from the central Florida Panhandle to northern Georgia. The species is only found with any regularity in Gulf of Mexico state waters from Naples, Florida to Florida Bay, with reduced numbers occurring in areas outside this center of abundance (Simpfendorfer 2003). Small (young) animals are restricted to very shallow waters, thus do not overlap with the reef fish fishery. Large animals roam over a much larger depth range, with records of fish being captured in over 230 ft (70 m) of water depth (Simpfendorfer 2001). These larger animals may be vulnerable to capture when bottom fishing for reef fish but there is no supporting data.

## 7.3 Social and Economic Environment

Section 5, the Regulatory Impact Review, contains a detailed description of harvest and socioeconomic characteristics of the for-hire fishery and is incorporated here by reference. A short summary follows.

### 7.3.1 Economic Environment

The SEFSC's Headboat Survey contained 77 headboat vessels fishing in the GOM as of November 22, 2004. Headboats ranged in length from 37 ft. to 80 ft., have carrying capacities from 20 to more than 150 passengers and a total capacity of 4,763 passengers. Headboats averaged 112 trips per year and carried an average of 31 passengers per trip, or about 46 percent of capacity. Total capacity of the 77 vessels in the Headboat Survey database is estimated to be 5,024 passengers. Headboats carry approximately 220 thousand anglers on approximately 9,100 trips per year. Headboats target about 120 unique species each year; eleven of the top 15 species are either in the reef fish or CMP fishery. Based on Holland et al. (1999) and Sutton et al. (1999), headboats grossed an average of $404 thousand with profits of approximately $340 thousand per year (Note: headboat profits do not account for fixed costs). Average Florida headboat fees were $29 for half-day and $45 for full day trips. About two-thirds of these trips were in federal waters offshore and 36 percent of the headboats took 100 percent of their trips in federal waters. Average headboat fees in Alabama through Texas were $41 for half-day trips, $64 for full-day trips and $200 for overnight trips.

The MRFSS charter vessel survey currently has 2481 vessels in the 2003 survey frame. Vessels carried an average of 6.2 anglers per trip or about 80 percent of capacity. Annually, charter vessels carry about 750 thousand anglers on about 150 thousand trips. Charter vessels target about 50 species or species groups as defined by the MRFSS survey, nine of the top15 are either in the reef fish or CMP fishery. Based on Holland et al. (1999) and Sutton et al. (1999), charter vessels grossed an average of $77 thousand with profits of approximately $37 thousand per year. Average boat fees in Florida were $348 for half-day; $554 for full-day and $1,349 for overnight trips. Average boat fees in Alabama through Texas were $417 for half-day; $762 for full-day and $1,993 for overnight trips. Almost all charter trips were made to federal waters.

### 7.3.2 Social Environment

The Generic Essential Fish Habitat Amendment (GMFMC, 2003a) provides extensive characterization of fishing communities throughout the Gulf coast. In all, five communities were identified in Alabama, 37 in Florida, eleven in Louisiana, four in Mississippi, and twelve in Texas. All are located in and around bays and inlets with concentrations in West central Florida and Northwestern Florida through Alabama. A more detailed description of the social environment can be found in sections 5.4.4 and 5.5, herein.

## 7.4 Administrative Environment

### 7.4.1 Federal Fishery Management

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

Responsibility for federal fishery management decision-making is divided between the US Secretary of Commerce 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 of Commerce (Secretary) is responsible for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the MSFCMA, and with other applicable laws summarized in Section 9. In most cases, the Secretary has delegated this authority to NOAA Fisheries.

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

The Council consists of 17 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 NOAA Fisheries. The public is involved in the fishery management process through participation at public meetings, on advisory panels and through council meetings that, with few exceptions for discussing personnel matters, are open to the public. The regulatory process is in accordance with the Administrative Procedures Act, in the form of "notice and comment" rulemaking, which provides extensive opportunity for public scrutiny and comment, and requires consideration of and response to those comments.

Regulations contained within FMPs are enforced through actions of the NOAA's Office of Law Enforcement, the USCG, and various state authorities. To better coordinate enforcement activities, federal and state enforcement agencies have developed cooperative agreements to enforce the MSFCMA. These activities are being coordinated by the Council's Law Enforcement Advisory Panel and the Gulf States Marine Fisheries Commission's (GSMFC) Law Enforcement Committee, which have developed a 5-year "Gulf of Mexico Cooperative Law Enforcement Strategic Plan - 2005-2010."

### 7.4.2 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 including enforcement of fishing regulations. Each of the five Gulf states exercises legislative and regulatory authority over their states' natural resources

through discrete administrative units. Although each agency listed below 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. More information about these agencies can be found in GMFMC (2004b) and from the following webpages:

Texas Parks & Wildlife Department - http://www.tpwd.state.tx.us
Louisiana Department of Wildlife and Fisheries - http://www.wlf.state.la.us/
Mississippi Department of Marine Resources - http://www.dmr.state.ms.us/
Alabama Department of Conservation and Natural Resources - http://www.dcnr.state.al.us/
Florida Fish and Wildlife Conservation Commission - http://www.myfwc.com

# 8 ENVIRONMENTAL CONSEQUENCES

## 8.1 Direct and Indirect Effects on the Physical Environment

**Alternative 1** (status quo, no action) would allow the permit moratorium to expire and the for-hire fishery to revert to open access. Hook-and-line is the primary gear used by the for-hire sector. Hook-and-line gear can snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If lost or improperly disposed, hook-and-line gear may damage habitat by entangling marine life, such as corals (Hamilton 2000; Barnette 2001).

Allowing the for-hire fishery to revert to open access (**Alternative 1**) would directly affect the physical environment if the number of participants increases; causing fishing effort to increase. The degree to which hook-and-line gear would directly or indirectly affect bottom habitat is unknown, but would depend largely on the vulnerability of the affected habitat to disturbance (e.g., corals are more vulnerable to disturbance than hard bottom) and the rate that the habitat can recover from disturbance (Barnette 2001). Generally, hook-and-line gear is considered to have less damaging affects on habitat when compared to other forms of fishing gear.

CMP species are typically caught at the ocean surface and therefore hook-and-line gear does not come in contact with bottom habitat. **Alternative 1** would have no or minimal direct effects on CMP habitat. In contrast, reef fish associate with bottom structure where hook-and-line gear and weights can directly and indirectly damage habitat. Direct effects would include physical damage to habitat associated with tear-offs or abrasions. Indirect effects would result if hook-and-line gear were lost or not correctly removed and caused marine life to become entangled in the gear's remnants. In the short-term, the effects of **Alternative 1** are not likely to be different than current fishery conditions. In the long term, increased fishing effort and participation in the fishery would result in additional habitat-gear interactions that could negatively affect reef fish habitat. During 1998-2004, the number of charter vessels in the Gulf more than doubled from 1,045 (Holland et al. 1999; Sutton et al. 1999) to 2,481 vessels (includes vessels with federal permits, as well as vessels that operate only in state waters) in the MRFSS charter vessel frame for the Gulf.

**Alternatives 2** and **3** extend the for-hire permit moratorium for a finite period (5 or 10 years, respectively) and **Alternative 4** establishes a permanent limited access program for the fishery. All three alternatives would have beneficial direct and indirect effects on the physical environment when compared to the no action alternative (**Alternative 1**). **Alternatives 2-4** would continue to cap the number of vessels in the for-hire fishery at current levels and would not change the gears used for harvest. Each of these alternatives would reduce the long-term impacts on habitat associated with **Alternative 1**. If for-hire fishery participation does not increase over time, **Alternative 4** would have the greatest long-term habitat benefits, followed by **Alternatives 3** and **2**. Additional impacts to habitat could occur under **Alternatives 2-4** if fishing participation increases, but these impacts are expected to be less than what would occur if the fishery were allowed to revert to open access.

## 8.2 Direct and Indirect Effects on the Biological Environment

**Alternative 1** (status quo, no action) would allow the for-hire permit moratorium to expire and revert to an open access fishery. The original moratorium was implemented in June 2003 and was developed by the Council in cooperation with the for-hire industry to address increasing fishing effort and fishing mortality rates in the for-hire sector. Development and implementation of the moratorium was

supported by the continued expansion of the for-hire sector and overfished status of several major stocks targeted by the for-hire sector. A 75 percent increase in for-hire vessels with permits to harvest reef fish or CMP was observed between November 1998 and August 2000 (GMFMC 2003). Additionally, during the time period the Council was developing the moratorium, several fish species commonly targeted by the for-hire sector were overfished or undergoing overfishing, including: red snapper, vermilion snapper, red grouper, king mackerel, and gag.

Currently, red snapper and vermilion snapper are overfished and undergoing overfishing, greater amberjack is overfished, and red grouper is undergoing overfishing. All of these species have rebuilding plans. Two other stocks, gag and king mackerel, are fully utilized. **Alternative 1** would allow the fishery to revert to open access conditions. This would allow an increase in the number of vessels and potentially would increase fishing effort (on a regional and seasonal basis), thereby directly affecting stocks targeted by the for-hire sector. An increase in fishing effort could force the need for additional regulations and directly jeopardize the Councils' ability to rebuild overfished fisheries and prevent overfishing in the short-term.

The degree to which each reef fish stock would be affected depends largely on the level of increase in fishing effort and how commonly the species is targeted by the for-hire sector. During 2000-2003, the for-hire sector accounted for 41 percent of the total (commercial + recreational) landings for greater amberjack, 25 percent of the total landings for red snapper, and 21 percent of the total landings for king mackerel (Figure 1). For-hire fishery landings were less than 15 percent of the total landings for gag, vermilion snapper, and red grouper during this same time period (Figure 1). Increases in effort would have greater effects on red snapper, king mackerel, and greater amberjack in the short-term than other species, because these species are more frequently targeted and harvested by the for-hire sector and account for a greater portion of the total fishery landings.

Bycatch and bycatch mortality would also increase if fishing effort increases. Regulatory discards would likely be the greatest source of bycatch. Increases in bycatch could result in additional regulations and may jeopardize the Council's management objectives for rebuilding overfished fisheries and preventing overfishing. Because king mackerel and Spanish mackerel are caught near the surface and few species are incidentally caught while targeting these species, bycatch would likely be minimal. In contrast, bycatch of reef fishes could be significant depending on the degree effort is increased. Snappers and groupers often suffer high release mortality (~20 to 40 percent) due to expansion of their gas bladders as they are reeled to the surface (Schirripa and Legault 1999; Turner et al. 2001; SEFSC 2002; GMFMC 2004b).

**Alternatives 2 and 3** would extend the for-hire permit moratorium for 5 or 10 years and **Alternative 4** would implement a permanent limited access program. All of these alternatives would have beneficial direct and indirect effects on the biological environment when compared to **Alternative 1**. Each of the alternatives would maintain the existing cap on the number of permits in the fishery. The biological condition of the stocks could change due to harvest changes or increases in participation (number of passengers per trip), but these changes would be no different than what is possible under the current moratorium. If effort from the for-hire fishery does not increase, **Alternative 4** would provide the greatest long-term benefits to reef fish and CMP stocks, followed by **Alternatives 3** and **2,** respectively. Reef fish and CMP stocks could be negatively affected by increases in for-hire fishing participation, but these effects are expected to be less than if the fisheries revert to open access and the number of vessels participating in the fisheries is allowed to expand.

Continuing the cap on the number of vessels is not likely to result in increased bycatch of fishes or protected resources, unless fishing effort expands. However, maintaining the cap on participation could indirectly benefit bycatch, reef fishes, and coastal pelagics by reducing participation in the fishery through attrition. **Alternative 4**, which establishes a permanent moratorium, would provide the greatest long-term benefits in terms of reducing bycatch, followed by **Alternatives 3** and **2**. Such benefits, if any, would likely be small since permits would remain transferable. Only two reef fish and three CMP permits have permanently expired since implementation of the moratorium.

### 8.3 Direct and Indirect Effects on the Social/Economic Environment

**Alternative 1** would allow the current moratorium to expire. Vessels previously excluded from the fishery would be able to obtain permits for relative little cost ($50). The adverse economic impacts on vessels unable to obtain a moratorium permit would be eliminated. It is estimated that profit losses for these vessels during the current moratorium were 45-79 million dollars for the charterboat sector and 24-45 million dollars for the headboat sector (see Table 5.27).

**Alternative 1** would affect the stability and performance of the for-hire fishery, making it more variable in both the short- and long-term. Fishery stability and performance would be largely dependent on U.S. economic conditions. More participants during good economic times would likely draw new for-hire vessels; while poor economic conditions would force some out of business. This volatility is expected to trickle down to the supporting industries and communities that have strong ties with for-hire vessel operations and could have negative or positive effects depending on the prevailing economic environment.
If the fishery reverts to open access, **Alternative 1** could increase fishing mortality in the for-hire sector. This would likely have a negative affect on existing and future regulations in the short-term designed to rebuild stocks, which in turn could decrease the long-term viability of for-hire business operations. If fish abundance worsens over time or regulations are made more restrictive, fishing costs may increase, which would reduce business prospects and deter anglers from fishing on for-hire vessels.

**Alternatives 2-4** would tend to preserve the stability in performance of for-hire vessels in the fishery and allow those who have been in the fishery for a number of years to remain in the fishery if they desire to do so. On average, both charterboats and headboats are operating well below their maximum passenger capacity. With relatively the same number of participating vessels, increases in demand for recreational trips would be accommodated by further increases in passengers per trip. Thus, in the short- and long-term profit margins per vessel are expected to increase or at least remain stable, while total profits should increase. Under such conditions, operators are afforded a better planning horizon, which may involve increasing passenger capacity under the moratorium. **Alternative 4** would provide for-hire operators with the greatest ability to develop and execute business plans in the long-term, followed by **Alternatives 3** and **2**.

A longer moratorium would have more adverse effects on the operations of for-hire vessels not possessing federal moratorium permits. Profit losses increase as the duration of the moratorium/limited access program increases. **Alternative 4** would result in the greatest profit losses, followed by **Alternatives 3** and **2** (Table 5.27). However, since the transferability of permits under the moratorium would remain valid under any of these alternatives, new entrants could enter the fishery by purchasing existing permits.

**Alternatives 2-4** would maintain the cap on the number of vessels in the fishery and would therefore cap or potentially decrease fishing mortality. This would enhance existing and future regulations designed to rebuild stocks, which in turn would enhance the long-term viability of the for-hire business operations. If fish abundance improves over time, fishing costs may come down, or at least not increase, which would translate into more favorable business prospects. Anglers may also experience improved fishing experience and may continue to fish through the for-hire fishing mode.

### 8.4 Direct and Indirect Effects on the Administrative Environment

**Alternative 1** would return the reef fish and CMP fisheries to open access and allow anyone to purchase a for-hire permit for reef fish or CMP species. This alternative would increase the burden on the administrative environment because additional permits would have to be issued; however, permit sales would no longer occur, reducing the burden of transferring permits. The burden on enforcement would also increase if more vessels enter the for-hire fishery.

**Alternatives 2-4** would directly benefit the administrative environment in the short-term (5 years or less). The number of permits would be capped at current levels. No additional permits would need to be issued and the effectiveness of enforcement would not be reduced because the number of vessels in the fishery would remain the same. The only difference in the alternatives would be the duration of the permit moratorium: 5 years, 10 years, or indefinitely. In the long term (5 years or greater), **Alternatives 2** and **3** would have the greatest administrative burden because a new amendment would have to be developed to continue the moratorium after five or ten years. Because these alternatives would set a finite period for continuing the moratorium, the Council could be faced with the same choices as at present, i.e., either let the moratorium expire, continue it for some period, or replace it with some other form of limited access. Administrative activities and costs associated with amendment development would include: staff time, possible scoping meetings, public hearings, and reviews by the Council's Scientific and Statistical Committees (SSCs) and possibly Reef Fish and Mackerel APs.

**Alternative 4** would create a permanent limited access program for the for-hire fishery until such time as the Council determines that it is no longer needed or replaces it with some other form of limited access. **Alternative 4** would avoid potential administrative burdens that would be associated with developing an additional amendment to continue a cap on the number of permittees, as could result from the choice of **Alternatives 2** or **3**. **Alternative 4** would result in the greatest long-term benefits to the administrative environment, followed by **Alternatives 3** and **2**.

### 8.5 Mitigation Measures

The proposed action will adversely affect net revenues of for-hire vessels operating in the GOM that have been excluded under the existing moratorium. NOAA Fisheries implemented an emergency rule on April 1, 2005, to reopen the application process for moratorium permits for 120 days. This emergency rule is expected to reduce the adverse effects of extending the moratorium or establishing a limited access program by allowing previously qualified for-hire participants to obtain moratorium permits under the existing moratorium. Therefore, no mitigation measures are proposed for any of these alternatives.

### 8.6 Cumulative Effects

Section 1508.7 of the CEQ regulations defines cumulative impacts as impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Extension of the moratorium or implementation of a limited access program is expected to have beneficial effects on the biological environment when added to other past, present and future actions. The Council has implemented rebuilding plans for red snapper, red grouper, and greater amberjack, and a rebuilding plan is pending implementation for vermilion snapper. Additionally, the Council manages mackerels under commercial quotas and has established limited access programs for the commercial mackerel and reef fish fisheries. The Council is also working on an IFQ program for the commercial red snapper fishery. Extension of the permit moratorium, in addition to these other regulatory programs, are expected to benefit reef fish and CMP stocks by preventing or reducing the likelihood of overfishing and assisting in rebuilding overfished stocks.

Extension of the moratorium or implementation of a limited access program would continue the negative economic effects for those vessels excluded from participating in the fishery under the existing permit moratorium. Vessel operators unable to obtain a moratorium permit would continue to experience net losses in revenues and profits during the moratorium, unless they purchased a transferable permit from an existing permit holder. The alternatives proposed herein, with the exception of Alternative 1, will continue to result in profit and revenue losses for operators excluded by the moratorium; however, cumulative social and economic effects are expected to be beneficial to operators possessing moratorium permits because extension of the moratorium or a limited access program would increase economic stability and performance in the fishery.

### 8.7 Unavoidable Adverse Effects

Hook-and-line gear is the predominant gear used in the CMP and reef fish fisheries and can impact the physical environment both directly and indirectly. However, hook-and-line gear is considered less damaging than other gears, and therefore the effects on the physical environment, although unavoidable, are expected to be small when compared to other gears used to fish. Unavoidable adverse effects would occur if the fishery is allowed to revert to open access and fishing effort increases. Increases in fishing effort could have adverse effects on the status of reef fish and CMP stocks and increase gear interactions with habitat. Unavoidable adverse economic and social effects will also result from each of the alternatives. The current moratorium has resulted in net losses in profit and revenue for vessels excluded from the fishery. Net losses in revenue and profits would continue if the moratorium is extended or a limited access program is implemented. Adverse economic effects are greatest for Alternative 4, followed by Alternatives 3 and 2. These unavoidable adverse economic effects are expected to outweigh the unavoidable direct and indirect effects associated with reverting to an open access fishery.

### 8.8 Relationship between Short-Term and Long-Term Productivity

The relationship between short-term use and long-term productivity would be affected by this action if the Council allows the moratorium to expire and fishing effort increases. If fishing effort increases, the long-term productivity of some reef fish and CMP stocks could be affected. Increases in fishing effort and fishing mortality would negatively affect some stocks and could force the need for additional regulations and directly jeopardize the Councils' ability to rebuild overfished fisheries and prevent overfishing in the short-term.

### 8.9 Irreversible and Irretrievable Commitments of Resources

Irreversible commitments are defined as commitments that cannot be reversed, except perhaps in the extreme long term, whereas irretrievable commitments are lost for a period of time. The ability for for-hire operators to enter the fishery would be lost for a period of time if the moratorium is extended or a limited access program is implemented. The only way participants could enter the fishery would be to buy a transferable permit from an existing permit holder. Each of the alternatives would prevent increases in the number of permits in the short-term, but the Council could eliminate the moratorium or establish a different limited access program in the long-term to allow more permits and entrants to the fishery.

### 8.10 Any Other Disclosures

No additional disclosures are needed or known for this action.

# 9 OTHER APPLICABLE LAW

The MSFCMA (16 U.S.C. 1801 et seq.) provides the authority for U.S. fishery management. However, fishery management decision-making is also affected by a number of other federal statutes designed to protect the biological and human components of U.S. fisheries, as well as the ecosystems within which those fisheries are conducted. Amendment 17/25 is an integrated document that combines analyses necessary for the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act (RFA), and Executive Order 12866: Regulatory Planning and Review.

NEPA requires all federal actions such as the formulation of fishery management plans to be evaluated for potential environmental and human environment impacts, and for these impacts to be assessed and reported to the public. NEPA requires federal agencies to evaluate a range of alternatives. For this amendment, the Council conducted a Supplemental Environmental Impact Statement (see TOC for SEIS), which includes: 1) A detailed written statement on the environmental impact(s) of the proposed action; 2) a description of adverse environmental effects that cannot be avoided; 3) alternatives to the proposed action, 4) the relationship between short-term uses of man's environment and the maintenance and enhancement of long term productivity, and 5) any irreversible or irretrievable commitments of resources should the proposed action be implemented (Sec. 102 (2)(c) of the NEPA).

The RFA requires federal agencies to assess the impacts of regulatory actions implemented through notice and comment rulemaking procedures on small businesses, small organizations, and small governmental entities, with the goal of minimizing adverse impacts of burdensome regulations and record-keeping requirements on those entities. These analyses, which describe the type and number of small businesses affected, are provided in Section 4 and will be published in the *Federal Register* in full or in summary for public comment and submitted to the chief counsel for advocacy of the Small Business Administration.

To comply with E.O. 12866, NMFS prepares a Regulatory Impact Review (RIR) for all fishery regulatory actions that either implement a new fishery management plan or significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society associated with proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. These analyses can be found in Section 5 of this amendment.

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

## 9.1 Administrative Procedures Act

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

## 9.2 Coastal Zone Management Act

Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 (CZMA) encourages state and federal cooperation in the development of plans that manage the use of natural coastal habitats, as well as the fish and wildlife those habitats support. When proposing an action determined to directly affect

coastal resources managed under an approved CZM program, NMFS is required to provide the relevant state agency with a determination that the proposed action is consistent with the enforceable policies of the approved program to the maximum extent practicable at least 90 days before taking final action.

The proposed changes in federal regulations governing the charter vessel/headboat fishery in the EEZ of the GOM will make no changes in federal regulations that are inconsistent with the objectives of either existing or proposed state regulations. While it is the goal of the Council to have complementary management measures with those of the states, federal and state administrative procedures vary, and regulatory changes are unlikely to be fully instituted at the same time.

This plan amendment is consistent with the CZM programs of the states of Alabama, Florida, Louisiana, Mississippi, and Texas to the maximum extent possible. This determination will be submitted to the responsible state agencies under Section 307 of the CZMA.

### 9.3 Data Quality Act

The Data Quality Act (Public Law 106-443), which took effect 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).

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 issue agency-specific standards to 1) ensure Information Quality and develop a pre-dissemination review process; 2) establish administrative mechanisms allowing affected persons to seek and obtain correction of information; and 3) report periodically to OMB on the number and nature of complaints received.

Scientific information and data are key components of FMPs and amendments and the use of best available information is the second national standard under the MSFCMA. To be consistent with the Act, FMPs and amendments must be based on the best information available, properly reference all supporting materials and data, and should 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 should also undergo quality control prior to being used by the agency and a pre-dissemination review performed. A pre-dissemination review will be preformed and made available from the agency.

### 9.4 Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 U.S.C. Section 1531 et seq.) requires that federal agencies use their authorities to conserve endangered and threatened species and that they ensure actions they authorize, fund, or carry out are not likely to harm the continued existence of those species or the habitat designated to be critical to their survival and recovery. The ESA requires NMFS, when proposing a fishery action that "may affect" critical habitat or endangered or threatened species, to consult with the appropriate administrative agency (itself for most marine species, the U.S. Fish and Wildlife Service for all remaining species) to determine the potential impacts of the proposed action. Consultations are

concluded informally when proposed actions may affect but are not likely to adversely affect" endangered or threatened species or designated critical habitat. Formal consultations, including a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" endangered or threatened species or adversely modify designated critical habitat. If jeopardy or adverse modification is found, the consulting agency is required to suggest reasonable and prudent alternatives.

For the Reef Fish FMP, a February 15, 2005, biological opinion was conducted for proposed Amendment 23. It evaluated the effects of reef fish fishing activities in the Gulf EEZ and found that mortalities of endangered and threatened species are uncommon from the hook-and-line and bottom longline gear used in the reef fish fishery and were not likely to jeopardize the continued existence of threatened or endangered species. Assessments of the level of take were not then considered a high priority. However, the opinion did identify two reasonable and prudent measures. These were:

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

Amendment 18A is currently under development and will examine alternatives to minimize any stress to endangered species incidentally caught in the fishery. NMFS continues to improve data collection procedures needed for monitoring and reporting any taking of endangered species.

For the CMP FMP, an ESA Section 7 consultation was reinitiated on November 8, 2004, for Amendment 15. Consultation was reinitiated because of new information regarding the status and effects of various actions on listed species and because a new species has recently been listed, the smalltooth sawfish, that may be affected. A biological opinion has not yet been completed (as of April 25, 2005), but is expected to be complete by mid-2005.

Several endangered and threatened species in the Atlantic and Gulf of Mexico under the jurisdiction of NOAA's Fisheries Service (NMFS) may be affected by the CMP fishery. These species include six whale species (blue, fin, humpback, northern right, sei, and sperm), six species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, loggerhead, and olive ridley), and the smalltooth sawfish. Sea turtles and smalltooth sawfish are the only species likely to be adversely affected by hook-and-line gear. However, sea turtles are unlikely to be caught during hook-and-line trolling for CMP species, because of the speed (4-10 kts) at which the bait is pulled through the water. Similarly, it is unlikely smalltooth sawfish would interact with surface-oriented hook-and-line gears because they are a bottom-dwelling species.

## 9.5 Executive Orders

### 9.5.1 E.O. 13132: Federalism

The Executive Order on Federalism requires agencies in formulating and implementing policies that have federalism implications, 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 the level of

government closest to the people most appropriately addresses issues that are not national in scope or significance. This Order is relevant to FMPs and amendment 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, local entities, and international treaties.

No Federalism issues have been identified relative to the actions proposed in this amendment. Therefore, Federalism consultation under Executive Order 13132 is not necessary.

### 9.5.2 E.O. 12630: Takings

The Executive Order on Government Actions and Interference with Constitutionally Protected Property Rights, which became effective March 18, 1988, requires that each federal agency prepare a Takings Implication Assessment for any of its administrative, regulatory, and legislative policies and actions that affect, or may affect, the use of any real or personal property. Clearance of a regulatory action must include a takings statement and, if appropriate, a Takings Implication Assessment. There are no takings implications for the proposed action.

## 9.6 Marine Mammal Protection Act

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

Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted," and a conservation plan is developed to guide research and management actions to restore the population to healthy levels.

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

The MMPA requires commercial fisheries to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals in each fishery. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities. The GOM reef fish and CMP commercial hook-and-line fisheries are listed in Category III (68 FR 41725). Because the recreational fisheries for these fisheries use similar gear, there is likely a remote likelihood or no known risk of serious injury or mortality to marine mammals resulting from these recreational fisheries. The proposed actions should have no effect on marine mammal populations, because this amendment does not

change current fishing practices.

### 9.7 Paperwork Reduction Act

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

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

### 9.8 Small Business Act

The Small Business Act of 1953, as amended, Section 8(a), 15 U.S.C. 634(b)(6), 636(j), 637(a) and (d); Public Laws 95-507 and 99-661, Section 1207; Public Laws 100-656 and 101-37 is administered by the Small Business Administration. The objectives of the act are to foster business ownership by individuals who are both socially and economically disadvantaged; and to promote the competitive viability of such firms by providing business development assistance including, but not limited to, management and technical assistance, access to capital and other forms of financial assistance, business training and counseling, and access to sole source and limited competition federal contract opportunities, to help the firms to achieve competitive viability. Because most businesses associated with fishing are considered small businesses, NMFS, in implementing regulations, must make an assessment of how those regulations will affect small businesses. The effects on small businesses are discussed in Section 6.0.

### 9.9 Essential Fish Habitat

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

## 10 LIST OF PREPARERS

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## 11 LIST OF AGENCIES AND PERSONS CONSULTED

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

**Gulf of Mexico Fishery Management Council**:
Standing Scientific and Statistical Committee
Special Reef Fish SSC
Socioeconomic Panel
Ad Hoc Charter Vessel/Headboat Advisory Panel
Law Enforcement Advisory Panel

**National Marine Fisheries Service**:
Southeast Regional Office
Southeast Fisheries Science Center

**Coastal Zone Management Offices:**
Texas, Louisiana, Mississippi, Alabama, Florida

**Other Agencies, Organizations, and Persons:**
Alabama Cooperative Extension Service
Alabama Department of Conservation and Natural Resources, Marine Resources Division
Florida Department of Environmental Protection
Florida Fish and Wildlife Conservation Commission
Florida Sea Grant
Louisiana Cooperative Extension Service
Louisiana Department of Wildlife and Fisheries
Mississippi Cooperative Extension Service
Mississippi Department of Marine Resources
National Marine Fisheries Service Southeast Regional Office
National Marine Fisheries Service Southeast Fisheries Science Center
National Marine Fisheries Service Washington Office
National Marine Fisheries Service Law Enforcement
Texas Cooperative Extension Service
Texas Parks and Wildlife Department
United States Fish & Wildlife Service
United States Coast Guard

## 12 REFERENCES


Barnard, W.R. and P.N. Froelich, Jr. 1981. Nutrient geochemistry of the Gulf of Mexico. In: Proceedings of a symposium on environmental research needs in the Gulf of Mexico (GOMEX), Key Biscayne, FL, 30 September-5 October, 1979. Miami, FL: U.S. Dept. of Commerce, Atlantic Oceanographic and Meteorological Laboratories. Vol. 2A, pp. 128-135.

Barnette, M. C. 2001. A review of the fishing gear utilized within the Southeast Region and their potential impacts on essential fish habitat. NOAA Tech. Memo. NMFS-SEFSC-449. National Marine Fisheries Service, St. Petersburg, FL. 62 pp.

Biesiot, P.M., R.E. Caylor, and J.S. Franks. 1994. Biochemical and histological changes during ovarian development of cobia, *Rachycentron canadum*, from the northern Gulf of Mexico. Fish Bull. 92:686-696.

Brooks, E.N. 2002. Assessment of little tunny (*Euthynnus alletteratus*) in the Gulf of Mexico. NMFS-SEFSC, Miami, Florida. Sustainable Fisheries Division Contribution SFD-01/02-160. 39 p.

Brooks, E. N. and M. Ortiz. 2004. Estimated von Bertalanffy growth curves for king mackerel stocks in the Atlantic and Gulf of Mexico. SFD-2004-00#. National Marine Fisheries Service, Southeast Fisheries Science Center, Sustainable Fisheries Division, 75 Virginia Beach Drive, Miami, Florida 33149. 24 p.

Brown-Peterson, N.J., R.M. Overstreet, J.M. Lotz, J.S. Franks, and K.M. Burns. 2001. Reproductive biology of cobia, *Rachycentron canadum*, from coastal waters of the southern United States. Fish. Bull. 99: 15-28.

Burns, K.M., C. Neidig, J. Lotz, and R. Overstreet. 1998. Cobia (*Rachycentron canadum*) stock assessment study in the Gulf of Mexico and in the South Atlantic. Mote Marine Laboratory Technical Report No. 571, 108 p.

Carter, D. W. 2004. Economic analysis of management alternatives proposed for the recreational vermilion snapper fishery in the Gulf of Mexico. Working Paper Series SEFSC-SSRG-04, National Marine Fisheries Service, Southeast Fisheries Science Center, 75 Virginia Beach Drive, Miami, FL 33149. 27 p.

Collette, B.B., and J.L. Russo. 1979. An introduction to the Spanish mackerels, genus Scomberomorus. In: Nakamura and Bullis (eds.), Proceedings: Colloquium on the Spanish and king mackerel resources of the Gulf of Mexico. Gulf States Marine Fisheries Commission, No. 4. p. 3-16.

Darnell, R. M., R. E. Defenbaugh, and D. Moore. 1983. Northwestern Gulf shelf bio-atlas, a study of the distribution of demersal fishes and penaeid shrimp of soft bottoms of the continental shelf from the Rio Grande to the Mississippi River Delta. Open File Report 82-04. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Regional Office, New Orleans, LA.

Darnell, R. M., and J. A. Kleypas. 1987. Eastern Gulf shelf bio-atlas, a study of the distribution of demersal fishes and penaeid shrimp of soft bottom of the continental shelf from the Mississippi River

Delta to the Florida Keys. OCS Study MMS 86-0041. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Regional Office, New Orleans, LA.

Davis, R.W., J.G. Ortega-Ortiz, C.A. Ribie, W.E. Evans, D.C. Biggs, P.H. Ressler, R.B. Cady, R.L. Leben, K.D. Mullin, B. Wursig. 2002. Cetacean habitat in the northern Gulf of Mexico. Deep Sea Research. 49:121-142.

Ditton, R.B. and D.K. Loomis. 1985. Examining business turnover in the Texas charter fishing industry: 1975-80. Mar. Fish. Rev. 47(1):43-47.

Ditton, R.B. and J.D. Vize. 1987. Business turnover in the Texas charter fishing industry: 1975-85. Mar. Fish. Rev. 49(2):162-165.

Ditty, J.G. and R.F. Shaw. 1995. Seasonal occurrence, distribution, and abundance of larval bluefish, *Pomatomus saltatrix* (family: Pomatomidae) in the northern Gulf of Mexico. Bull. Mar. Sci. 56:592-601.

Donaldson, D. M., N. J. Sanders, P. A. Thompson, R. Minkler. 1997. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1995. Gulf States Marine Fisheries Commission. No. 41. 280p.

Dyer, C. and D. Griffith. 1996. An Appraisal of the Social and Cultural Aspects of the Multispecies Groundfish Fishery in the Northeast and the Mid-Atlantic Regions. A report submitted by Aguirre International to NOAA/NMFS contract number 50-GNF-5-00008.

Finucane, J.H., L.A. Collins, H.A. Brusher, and C. H. Saloman. 1986. Reproductive biology of king mackerel, *Scomberomorus cavalla*, from the southeastern United States. Fish. Bull. 84:841-850.

Franks, J.S., J.R. Warren, and M.V. Buchanan. 1999. Age and growth of cobia, *Rachycentron canadum*, from the northeastern Gulf of Mexico. Fish. Bull. 97:459-471.

Gentner, G., M. Price, and S. Steinback. 2001. Marine angler expenditures in the southeast region, 1999. NOAA Technical Memorandum NMFS-F/SPO-48. National Marine Fisheries Service. Silver Spring, Maryland 57 p.

GMFMC. 2003. Corrected amendment for a charter vessel/headboat permit moratorium amending the FMPs for: Reef Fish (Amendment 20) and Coastal Migratory Pelagics (Amendment 14) (Including EA/RIR/IRFA). GMFMC, Tampa, Florida. 160 p.

GMFMC. 2004a. Final Environmental Impact Statement for the Generic Essential Fish Habitat Amendment to the following fishery management plans of the Gulf of Mexico (GOM): Shrimp Fishery of the Gulf of Mexico, Red Drum Fishery of the Gulf of Mexico, Reef Fish Fishery of the Gulf of Mexico, Stone Crab Fishery of the Gulf of Mexico, Coral and Coral Reef fishery of the Gulf of Mexico, Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic, Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic. GMFMC, Tampa, Florida. 118 p.

GMFMC. 2004b. Final Amendment 22 to the Reef Fish Fishery Management Plan to set red snapper Sustainable Fisheries Act targets and thresholds, set a rebuilding plan, and establish bycatch reporting methodologies for the reef fish fishery. GMFMC, Tampa, FL. 221 p.

GMFMC. 2005. Final Amendment 24 to the Fishery Management Plan for reef fish resources in the Gulf of Mexico, including environmental assessment, regulatory impact review, and initial regulatory flexibility analysis. GMFMC, Tampa, FL. 104 p. + appendices

GMFMC and SAFMC. 1982. Fishery management plan for coral and coral reefs of the Gulf of Mexico and South Atlantic. Gulf of Mexico Fishery Management Council, Tampa FL and South Atlantic Fishery Management Council, Charleston SC.

GMFMC and SAFMC. 1985. Fishery management plan and environmental impact statement for coastal migratory pelagic resources (mackerels) in the Gulf of Mexico and South Atlantic region. Gulf of Mexico Fishery Management Council, 3018 U.S.Highway301 N., Suite 1000, Tampa, Florida 33619.

Griffith, D. 1996. Impacts of new regulations on North Carolina fishermen: a classificatory analysis final report to the North Carolina Fisheries Moratorium Committee. University of South Alabama, Mobile Alabama. UNC-SG-96-07. North Carolina Sea Grant Program.

Haab, T.C., J.C. Whitehead, and T. McConnell. 2001. The economic value of marine recreational fishing in the southeast United States, 1997 southeast economic data analysis. NOAA Technical Memorandum NMFS-SEFSC-466.

Hamilton, A. N., Jr. 2000. Gear impacts on essential fish habitat in the Southeastern Region. NMFS, SEFSC, Mississippi Laboratories Pascagoula Facility, 45 p.

Hansen, L.J., K.D. Mullin, T.J. Jefferson, and G.P. Scott. 1996. Visual surveys aboard ships and aircraft. Pages 55-132 in R.W. Davis and G.S. Farigion, eds. Distribution and abundance of cetaceans in the northcentral and western Gulf of Mexico. Final Report: Vol. II. Technical Report. OCS Study MMS 96-0027. Prepared by the Texas Institute of Oceanography and NMFS. U.S. Dept. of Interior, MMS, Gulf of Mexico OCS Region, New Orleans, LA.

Heinemann, D. 2002. Preliminary assessment of bluefish, Pomatomus saltatrix, in the Gulf of Mexico. NMFS-SEFSC, Miami, Florida. Sustainable Fisheries Division Contribution SFD-01/02-159.

Holiman, S. G. 1999. Economic summary of the Gulf of Mexico reef fish recreational fishery. October. SERO-ECON-00-02.

Holiman, S. G. 2000. Summary report of the methods and descriptive statistics for the 1997-98 southeast region marine recreational economics survey. April. SERO-ECON-00-11.

Holland, S.M., A.J. Fedler, and J.W. Milon. 1999 . The operations and economics of the charter and head boat fleets of the eastern Gulf of Mexico and South Atlantic coasts. Final report for MARFIN program grant number NA77FF0553.

Jacob, S., F.L. Farmer, M. Jepson, and C. Adams. 2001. Landing a definition of fishing dependent communities: Potential social science contributions to meeting National Standard 8. Fisheries. 26(10): 16-22.

Mayo, D.A. 1973. Rearing, growth, and development of the eggs and larvae of seven scombrid fishes from the Straits of Florida. Ph.D. Dissertaion, University of Miami, Coral Gables, Florida. 138 pp.

McEachran, J.D. and J.H. Finucane. 1979. Distribution, seasonality, and abundance of larval king and Spanish mackerel in the northwestern Gulf of Mexico. (abstract) GSMFC, pub.no. 4, p. 59.

McKay, B. J. 2000. "Defining community: A Fisheries Perspective" Presentation at the annual meeting of the American Anthropological Association. San Francisco. Nov. 15-19.

MMS. 1997. Gulf of Mexico OCS Lease Sales 169, 172, 175, 178, and 182, Central Planning Area, Final Environmental Impact Statement. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Regional Office, New Orleans, LA.

MSAP. 1996. 1996 report of the mackerel stock assessment panel. Gulf of Mexico Fishery Management Council, 3018 U.S. Highway 301, North, Suite 1000, Tampa, Florida 33619-2266.

Mullin, K.D. and G.L. Fulling. 2003. Unpublished report. Abundance of cetaceans in the oceanic northern Gulf of Mexico, 1996-2001. NMFS, SEFSC, Pascagoula, Mississippi. 35 pp.

Mullin, K.D., W. Hoggard, C.L. Roden, R.R. Lohoefener, C.M. Rogers, and B. Taggart. 1994. Cetaceans on the upper contential shelf slope in the north central Gulf of Mexico. Fish. Bull. 92: 773-786.

NMFS. 2005a. Economic consequences of an emergency rule to reopen the application process for the charter vessel and headboat permit moratorium in the Gulf of Mexico. Fisheries Social Science Branch. NMFS-SERO. 263 13th Avenue South, St. Petersburg, Florida. 48. p.

NMFS. 2005b. Endangered Species Act – Section 7 consultation for Amendment 23 to the Reef Fish FMP. NMFS-SERO. 263 13th Avenue South, St. Petersburg, Florida. 115. p.

NOAA. 1985. Gulf of Mexico coastal and ocean zones strategic assessment: Data Atlas. U.S. Department of Commerce. NOAA, NOS. December 1985.

Ortiz, M. 2004. Stock assessment analysis on Gulf of Mexico king mackerel. SFD-2004-04. National Marine Fisheries Service, Southeast Fisheries Science Center, Sustainable Fisheries Division, 75 Virginia Beach Drive, Miami, Florida 33149. 43 p.

Palko, B.J., G.L. Beardsley, and W.J. Richards. 1982. Synopsis of the biological data on dolphin-fishes, *Coryphaena hippurus* Linneaus and *Coryphaena equiselis* Linneaus. U.S. Dept. of Commerce, NOAA Technical Report NMFS Circular 443.

Porch, C.E. and S.L. Cass-Calay. 2001. Status of the vermilion snapper fishery in the Gulf of Mexico. Assessment 5.0. NOAA/NOAA Fisheries/SEFSC/ Sust. Fish. Div. Contrib. No. SFD-01/02-129. 42 p. + figures.

Powell, D. 1975. Age, growth and reproduction in Florida stocks of Spanish mackerel, *Scomberomus maculatus*. Fla. Mar. Res. Publ. 5. 21 pp.

Prager, M.H. 2000. Exploratory assessment of dolphinfish, *Coryphaena hippurus*, based on U.S. landings from the Atlantic Ocean and Gulf of Mexico. NMFS-SEFSC, Beaufort, North Carolina. 18 p.

Rezak, R., T. J. Bright, and D. W. McGrail. 1985. Reefs and banks of the northwestern Gulf of Mexico. Their geological, biological, and physical dynamics. John Wiley and Sons, New York. 259 pp.

Robins, C.R., G.C. Ray, and J. Douglass. 1986. Peterson field guides: Atlantic coast fishes. Houghton Mifflin Company, Boston. 354 p.

Scheltema, R.S. 1971. The dispersal of larvae of shoal-water benthic invertebrate species over long distances by ocean currents. Pages 7-28 *In*: D. Crisp (Editor), Fourth European Marine Biology Symposium. Cambridge University Press.

Schrippa, M.J. and C.M. Legault. 1999. Status of the red snapper in U.S. waters of the Gulf of Mexico: updated through 1998. SEFSC, Sustainable Fisheries Division Contribution No. SFD-99/00-75. 65 p.

SEFSC. 2002. Status of red grouper in United States waters of the Gulf of Mexico during 1986-2001. NMFS/SEFSC Miami, FL. Contribution SFD 01/02 - 175

Shideler, G. L. 1981. Development of the benthic nepheloid layer on the south Texas continental shelf, northwest Gulf of Mexico. Marine Geology. 26. p. 289-313.

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

Sutton, S.G., R.B. Ditton, J.R. Stoll, and J.W. Milon. 1999. A cross-sectional study and longitudinal perspective on the social and economic characteristics of the charter and party boat fishing industry of Alabama, Mississippi, Louisiana, and Texas. Texas A&M Univ., College Station, TX. Memo. Rpt. 198 p.

Turner, S.C., C.E. Porch, D. Heinemann, G.P. Scott, and M. Ortiz. 2001. Status of gag in the Gulf of Mexico, Assessment 3.0. SEFSC, Sustainable Fisheries Division Contribution No. SFD-01/02 -134. 33 p. + tables and figures.

Turner, S.C. and E. N. Brooks. 2002. An examination of catches and catch rates of cero, Scomberomorous regalis, in the south Florida and Gulf of Mexico regions using data through 2001. NMFS-SEFSC, Miami, Florida. Sustainable Fisheries Division Contribution SFD-01/02-157. 19 p.

Williams, E.H. 2001. Asessment of cobia, *Rachycentron canadum*, in the waters of the U.S. Gulf of Mexico. NMFS-SEFSC, Beaufort, North Carolina. NOAA Technical Memorandum NMFS-SEFSC-469. 55 p.

Wilson, D., B. J. McKay, D. Estler, M. Perez-Lugo, J. LaMarque, S. Seminski, and A. Tomczuk. 1998. A Social and Cultural Impact Assessment of the Highly Migratory Species Fisheries Management Plan and the Amendment to the Atlantic Billfish Fisheries Management Plan. The Ecopolicy Center for Agriculture, Environmental, and Resource Issues, Rutgers University, New Brunswick, N.J.

Wollam, M.G. 1970. Description and distribution of larvae and early juveniles of king mackerel, *Scomberomorus cavalla* (Cuvier), and Spanish mackerel, *Scomberomorus maculatus* (Mitchell);

(Pisces: Scombridae) in the western North Atlantic. Florida Department of Natural Resources, Marine Research Laboratory, Technical Series, No. 61. 35 p.

Wursig, B., T.A. Jefferson, and D.J. Schmidly. 2000. The marine mammals of the Gulf of Mexico. Texas A&M Univ. Press, College Station, Texas. 232 pp.

**APPENDIX A Summaries of public hearings**

Scoping hearings for the Amendment Extending the Charter Vessel/Headboat Permit Moratorium were held at the following locations and dates as listed below.

**Naples, Florida**
June 7, 2004
7:00 p.m.

**In Attendance**: 6 members of the public were in attendance
Karen Bell
Stu Kennedy
Kathy Conlon

**Mr. Kennedy** presented the Scoping Document for Extending the Charter Vessel/Headboat Permit Moratorium by Amending the FMPs for: Reef Fish (Amendment 25) and Coastal Migratory Pelagics (Amendment 17).

**Mr. Kennedy** clarified that the permit consolidation alternatives would keep the for-hire total capacity of the for-hire vessels the same.

**Captain Tom Robinson,** a deep sea charter fisherman from Naples, stated that there were only two marinas left in the Naples area and also that there were only two commercial fishermen in the area and that there was very little grouper in the area. He felt that charter fishing was declining rather than expanding. He added that he did not think that restricting charter boats in the Naples area would present problems to their specific region like it might in other areas of the state.

**Mr. Kennedy** reiterated that the Gulf Council had to consider the entire Gulf of Mexico when making decisions.

**Captain Steward Bakley**, a charter boat captain, stated that the charter boat fishermen are a minority and their landings do not compare to those of the recreational fishermen. He stated that extending the moratorium would only be an inconvenience to those wishing to enter the charter boat profession and added that it should end in 2006.

**Mr. Fred Lifton**, a Gulf of Mexico Fishery Management Council Ad Hoc Charter Vessel/Head Boat Advisory Panel member and Marco Island Charter Boat Commissioner, stated that he would like to see the moratorium end. He stated that he was against permit purchases. He said that the longest moratorium he could live with would be 5 years and that he was totally against the 7 or 10 year moratorium.

**Ms. Bell** asked Mr. Lifton his reason for supporting the moratorium initially.

**Mr. Lifton** responded that he supported the moratorium initially because he was told if the moratorium was not supported, there would be closures or size and/or limit restrictions, and the moratorium seemed easiest to live with at that time.

**Captain Eric Alexander**, a charter boat captain, stated that he preferred Alternative 1 - Status Quo. He

further stated that he did not see a need for an extension as charter boats do not have that many landings. He added that he was asked once in 15 years to show his permit to the Coast Guard.

Meeting adjourned at 8:00 p.m.

**Madeira Beach**
June 9, 2004
7:00 p.m.

**In attendance**: 5 members of the public were in attendance
Julie Morris
Stu Kennedy
Kathy Conlon

**Mr. Kennedy** presented the Scoping Document for Extending the Charter Vessel/Headboat Permit Moratorium by Amending the FMPs for: Reef Fish (Amendment 25) and Coastal Migratory Pelagics (Amendment 17).

**Ms. Connie Almeida**, who has a vested interest in a charter boat business but had been denied a headboat permit stated that she thought the moratorium was unconstitutional in that it prohibited her from running her business and that it has caused the cost of the permits to increase. She was adamant that she opposed the moratorium in whole and that she supported Alternative 1 - Status Quo.

**Mr. Ed Peters**, a charter boat captain who had missed the application deadline and had to purchase a 6-pack license to continue business, stated that he does not agree with the moratorium and supports Alternative 1 - Status Quo. Mr. Peters also noted that he does not support the combining of permits and that the moratorium has caused the cost of the permits to increase.

**Captain Michael Schwab**, a charter boat captain, asked why there was not a moratorium on recreational fishing and stated that he did not agree with NOAA's numbers, as shown in the presentation. He also inquired if NOAA could extend his 6 passenger permit to a 12 passenger permit if he was able to prove that he has been operating a 12 pack. He suggested that NOAA should sell the permits, which would control the costs of the permits and produce revenue for the government. He said that he traveled to Alabama to purchase 2 permits, at a cost of $6,000 each, from an individual that had never fished and that he would prefer paying a fine to NOAA for allowing his permits to expire, rather than pay an individual. He also inquired how the recreational data landings were amassed. Mr. Schwab stated that he supported Alternative 3, to extend the moratorium for 7 years. He also suggested that a limit be placed on the recreational catch in the federal waters.

**Mr. Kennedy** responded that the information and numbers in the presentation had come from NOAA, which is the MRFSS report (Marine Recreational Fishing Statistical Survey) and the MRFSS report numbers are compiled by gathering numbers from 20% of the charter boats through random trip surveys and phone calls.

**Ms. Morris** added that the State of Florida requires a recreational fishing license for state waters and that the federal government does not require a license for the private individual boat owner who fishes in the EEZ, and that there is no way to place a moratorium on something that does not require a license or permit. She added that there has been occasional discussion regarding a federal fishing permit in order to

track the recreational catch.

Meeting adjourned at 7:45 p.m.

**New Orleans**
June 21, 2004
7:00 p.m.

**In attendance**: 5 members of the public were in attendance
Myron Fischer
Wayne Swingle
Kathy Conlon

**Chairman Fischer** opened the hearing. Mr. Swingle presented a summary of the Scoping Document for Extending the Charter Vessel/Headboat Permit Moratorium by Amending the FMPs for: Reef Fish (Amendment 25) and Coastal Migratory Pelagics (Amendment 17).

**Captain Scott Avanzino**, Venice, Louisiana, indicated he had been operating 2 permitted six pack vessels since 1998. He supported extending the moratorium for 5 years. He felt that by extending the moratorium some of the overrfished stocks would be restored. He also indicated he would like the opportunity to increase the passenger capacity of his boats and, therefore, supported the alternatives allowing purchase of additional permits to increase the passenger capacity.

**Mr. Shane Pescay** of Toca, Louisiana, indicated that he had been involved in the fisheries for the past 28 years. Charter fishing was a sideline with him. He indicated he supported the alternatives that allowed combining permits for 2 six pack vessels to allow him to increase the vessel passenger capacity for one vessel.

Meeting adjourned at 8:15 p.m.

**Biloxi, Mississippi**
June 22, 2004
7:00 p.m.

**In attendance**: 9 members of the public were in attendance
Kay Williams
Wayne Swingle
Kathy Conlon

**Chairman Williams** opened the hearing. Mr. Swingle presented a summary of the Scoping Document for Extending the Charter Vessel/Headboat Permit Moratorium by Amending the FMPs for: Reef Fish (Amendment 25) and Coastal Migratory Pelagics (Amendment 17).

**Tom Becker** indicated he was vice president of the Mississippi Charter Boat Association and was not speaking for them since all members were not able to meet and discuss the issues prior to the hearing. However, the consensus of the members he was able to contact was that the overall harvest levels under the moratorium have decreased and enforcement of the permit possession has increased in Mississippi. Therefore, they would like to see an extension of the moratorium for an additional 5 years to see what

trends in the industry occurred in that period before they considered a longer extension. They supported alternatives under 5.2.1 to allow captains to purchase an additional permit to increase the passenger capacity of their boat. He supported Alternative 2 under 5.2.2 as the best alternative in that section.

**Captain Jim Twiggs** stated he owned 2 charter vessels and served as President of the Mississippi Charter Boat Association. He supported continuation of the permit moratorium for additional years. He indicated the economy had caused a decline in the number of charter vessel passengers. He pointed out as the economy increased in value, the number of fishermen increases but that he, personally, had not seen a downturn in passengers in recent years. He recommends the length of the moratorium be extended and personally favored a 5 to 7 year extension or even longer so that another amendment is not necessary to extend the period. He indicated that sales of recreational vessels is increasing each year and their presence in the fishery is increasing. He favored the alternativre allowing an owner to purchase another permit and increase the passenger capacity. He indicated that overall, this would reduce the number of persons fishing because owners with vessels of higher **USCG** certificate of inspection (COI) (for example 20) cannot fill that capacity on each trip, whereas a six-pack vessel is more easily filled to capacity. Therefore, the permit buyout would result in a decline in the number of vessels fishing as well as number of persons fishing and, thereby, a decline in overall effort and retention of fish per vessel. The concensus of members he talked to was for the extension of the moratorium and the permit transfers.

Meeting adjourned at 7:45 p.m.

**Orange Beach, Alabama**
June 23, 2004
7:00 p.m.

**In attendance**: 1 member of the public in attendance
Bobbi Walker
Wayne Swingle
Kathy Conlon

**David Walker**, indicated he held a Class 1 Red Snapper license and owned a six-pack charter boat. He supported an alternative to purchase 2 separate six-pack permits and exchange them for 1 permit with COI for 12 passengers. He supported extending the permit moratorium for an additional 10 years.

Meeting adjourned at 7:30 p.m.

**Destin, Florida**
June 24, 2004
7:00 p.m.

**In attendance**: 20 members of the public were in attendance
Roy Williams
Wayne Swingle
Kathy Conlon

**David Krebs** of Ariel Seafoods, indicated he owned 4 boats and served on the Ad Hoc Red Snapper AP. He felt the amendment was based on poor scientific data and analyses. NMFS scientists were principally looking at landings data and were equating a decline in landings as an overfished stock. He indicated the

proposed action to increase the size limit would only result in additional mortality. He indicated there were many fewer persons fishing for vermilion snapper now, than prior to the early 1990s. He indicated fishing for vermilion increased up through 1989 and began declining as the participants shifted to red snapper fishing in the early 1990s. He recommended the Council and NFMS do nothing until they get better data on the status of the stock. He opposed a trip limit of 2,000 pounds as too low to make the trip worthwhile. He did not think the stock was in trouble as the 10" size limit was working. He pointed out that before the 10 inch size limit, tons of fish 8 to 9 inches were being landed. He pointed out anyone wishing to target vermilion snapper could easily catch high yields. Vermilion snapper in most areas are a bycatch and not a targeted species.

**David Rojas** indicated he had been told he needed to purchase a permit for fishing for dolphin (fish) and wahoo in the Gulf. Mr. Williams indicated this was not true, but he would need such a permit for the Florida east coast.

**Mike Eller** indicated he was past president of the Destin Charter Boat Association and a member of the Board of Directors of the National Charter Boat Association. He indicated he saw no adverse affect by limiting the recreational sector to 11 inch fish. However, he no longer fished for vermilion snapper, although 15 years ago he targeted them. He agreed with David Krebs that there was no problem with the stock, although he had seen a decline in larger fish over time. He agreed that prior to the 10-inch size limit, smaller fish were killed by the thousands. He agreed everyone could live with the 10 inch size limit and the fishery was not in trouble. He felt an increase in the size limit would mainly result in increased mortality.

**Bob Zales II** indicated he was representing the Panama City Boatman's Association. He indicated the first SEDAR workshop he attended included discussion of the data for vermilion snapper. There was a problem with the data for the fishery being associated with the red snapper fishery. Historically, the recreational landings were stable, but the commercial landings increased when the red snapper season was closed. Similarly, as red snapper landings increased, vermilion snapper landings decreased. Also, some persons felt that vermilion snapper were a species preyed on by red snapper and as the stock of red snapper increased, it was natural to assume the stock of vermilion snapper would decline. Another problem was that NMFS was not observing the timelines of MSA for rebuilding vermilion. When we get a new stock assessment in 2005, we may find the stock classified as no longer overfished as we did for red grouper.

Second, he had a concern that the relative rate of rebuilding assigned to the recreational sector were not in conformance with the 33/67 percent ratio for recreational/commercial allocation set by Amendment 1. Under that provision, the recreational sector should not be affected by the rebuilding plan and the commercial sector should have its landings reduced. He indicated that Florida never adopted the 20-fish aggregate bag limit for its waters, but he did not feel the 10-fish aggregate bag limit would be a problem. Also, the 11-inch size limit is not a problem, but the recreational sector should be allowed to keep their 33% share of the allocation. He, therefore, supported the status quo - no action alternative for the recreational sector. He also felt the Council should discuss the impact of removing vermilion for the 20-fish aggregate bag limit on the other species included in that aggregate limit, i.e., lane snapper, gray triggerfish, the 5 tilefishes and almaco jack.

**George Eller**, charter captain, indicated that years ago he targeted lots of vermilion snapper, but no longer targets them. He sees no difference in the stock between years ago and now. He agreed with David Krebs that the science used by NMFS was shaky.

**Scott Robson**, President of Destin Charter Boat Association, indicated he also supported the position of David Krebs. He recommended that the Council keep status quo - no action for both recreational and commercial sectors. The stock is not in trouble, effort, has just changed to targeting red snapper, rather than vermilion snapper. If he wanted to, he could catch vermilion snapper whenever he wanted to, but he just does not target them anymore. Changing the bag limit to 10 will just result in more effort on other fisheries.

**Buster Niquet**, commercial fisherman, indicated he had fished party (or head) boats, during World War II when everyone was required to fish within 4 miles of the beach. At that time, he caught primarily vermilion snappers. At the war's end, he moved further offshore, but still caught primarily vermilion snapper from the party boat.

He indicated that now there was no shortage of vermilion. They can be caught abundantly in 45 to 50 fathoms of water from Destin to Desoto Canyon (off Pensacola). He further added that all an increased size limit will do is increase fishing mortality. He supports keeping the allocation between recreational and commercial sectors. He sees no need to regulate the recreational sector.

Meeting adjourned at 9:00 p.m.

**Port Isabel, TX**
June 28, 2004
7:00PM

**In Attendance:** 7 members of the public were present
Joe Hendrix
Stu Kennedy
Lela Gray

**Mr. Russell Stockton** represented Dolphin Docks in Port Isabel, Texas. He stated that allowing the Charter Boat Moratorium to expire in three years would only reverse the effects of the past ten years.

**Mr. Hendrix** responded that Mr. Kennedy would present the Charter Boat Moratorium Extension and that he thought Mr. Stockton would hear that it was not the Gulf Council's (Council) intention to reverse the past ten years of management.

**Mr. Kennedy** reviewed the Charter Boat Moratorium Extension Amendment. He explained that the Council was considering allowing 6-pack and headboats to buy other permits and consolidate them onto one boat.

**Mr. Patrick Murphy** represented Captain Murphy's Charters in Port Isabel, Texas. He stated that a 6-pack vessel was more likely to only fish for 3 to 4 months a year. He continued that a fishermen who buys several 6-pack licenses would be more likely to fish year around because they can carry more people. He contended that more effort would result from the consolidation of permits.

**Mr. Kennedy** questioned if Mr. Murphy thought the moratorium should be extended, and if so, how long.
**Mr. Murphy** replied that it should be extended indefinitely.

**Mr. Kennedy** questioned if the downturn in the United States economy had an effect on the for-hire industry because the industry seemed to decline when the economy took a downturn. **Mr. Murphy** replied that the downturn in the economy did effect the for-hire industry in Texas, but so did the winter closures for red snapper.

**Mr. Stockton** recommended that alternatives be developed to subsidize the fishermen, or implement a buy back program. He mentioned that there were plenty of permits for sale and that buying those permits back rather than allowing others to buy them would reduce effort in the fisheries.

Being no further business, the meeting was adjourned at 8:15 p.m.

**Port Aransas, TX**
June 29, 2004
7:00PM

**In Attendance:** 7 members of the public were present
Ed Hagen
Stu Kennedy
Lela Gray

**Mr. Ed Hagen**, Texas Parks and Wildlife, chaired the meeting in Mr Basco's absence. He noted that because Mr. Bob Sissell needed to leave, he gave his public testimony at the beginning of the meeting.

[presented earlier] **Mr. Bob Sissell** represented the Port Aransas Boatman's Association in Port Aransas, Texas. He read and provided written comments by Mike Nugent on the position of the Port Aransas Boatman's Association. He contended that although a permit moratorium was not necessary in Texas, Port Aransas Boatmen, Inc. continued to understand that other states needed to cap effort. Therefore, he stated that they would support extension of the Charter Boat Moratorium. He contended that the current moratorium was not being enforced and that many charter boats were operating without permits. He stated that enforcement would need to be increased before the moratorium would work. He requested that the Gulf Council send a notice to National Marine Fisheries Service (NMFS) that either enforcement be increased, or the Charter Boat Moratorium should be allowed to expire. He also mentioned that Port Aransas Boatman's Association supported the provision that a multi-passenger operator should be allowed to purchase numerous six pack permits in order to run an overload boat.

**Pam Baker** represented Environmental Defense. She stated that she did not see a problem with consolidating permits. She questioned why the Gulf Council did not have alternatives that would allow fishermen to break up a larger permit into smaller permits. She contended that if the Council's intention was to allow added flexibility by for hire owners, it would make sense to allow consolidation and splitting of larger capacity permits into several small capacity permits. She also stated that she supported extension of the moratorium.

Being no further business, the meeting was adjourned at 7:50 p.m.

**Galveston, TX**
June 30, 2004
7:00 PM

In Attendance: No members of the public were present
Robin Riechers
Stu Kennedy
Lela Gray

## APPENDIX B Alternatives considered but rejected

### 3.2 Action item for Changing the Number of Passengers Per Vessel Permit

The amendments establishing the charter vessel/headboat permit moratorium (CMP Amendment 14 and Reef Fish Amendment 20) provided that all permits/endorsements will be fully transferable, with or without the vessel, but without any change in the passenger capacity as established by the initial permit application. The intent was to prevent new vessels with larger passenger capacities from entering the Reef Fish or CMP fisheries and increasing the overall fleet effectiveness. However, the absence of any procedure to increase the passenger capacity on vessels to which permits are transferred adversely affects some business decisions. Under the current regulations, if an owner wanted to build a new headboat with increased capacity and fish in the EEZ for Reef Fish or CMP species, the owner would have to purchase a permit from another vessel with equal or greater capacity than the new vessel being built. While there are COI permits for sale, they are rare compared to 6-Pack charter vessel permits and finding a permit for sale with the correct capacity would be even more difficult.

The Council has been asked by some for-hire industry representatives to consider ways to allow changes in permit capacity to facilitate business decisions without increasing the overall capacity of the for-hire fleet. The Council is considering alternatives which would allow several permits to be purchased and then lumped into a single permit with the total capacity of the purchased permits. In order to facilitate movement of capacity in either direction, the Council is also considering allowing COI permits to be dis-aggregated (split) into smaller permits. In this case, all resulting permits would have a minimum capacity of six passengers, the same as current regulations.

**Alternative 1:** **Status Quo - No Action. Do Not Allow Lumping or Splitting of Coastal Migratory or Reef Fish Moratorium Permits to Change Passenger Capacity.**

**Alternative 2:** **Allow a Permit Applicant to increase passenger capacity using only Six-Pack permits up to a maximum of:**

**A: 12 passengers**
**B: 30 passengers**
**C: 60 passengers**
**D: Unlimited Passengers**

**Alternative 3:** **Allow a Permit Applicant to increase passenger capacity using Six-Pack or COI permits up to a maximum of:**

**A: 12 passengers**
**B: 30 passengers**
**C: 60 passengers**
**D: Unlimited Passengers**

**Alternative 4:** **Allow a Permit Applicant to split COI permits down to a minimum passenger capacity of 6 or increase passenger capacity using Six-Pack or COI permits up to a maximum of:**

**A: 12 passengers**

**B: 30 passengers**
**C: 60 passengers**
**D: Unlimited Passengers**

Discussion: **Alternative 1**, No Action, would maintain current regulations allowing no change in capacity of existing moratorium permits. The biological, social and economic conditions of the resources and the for-hire industry would not change. Business decisions would have to be made as they are now, based on the availability of single permits. This would allow some change to occur within the industry, but would not facilitate the best business decisions.

**Alternative 1** would have the least potential for causing negative biological impacts. Allowing lumping or splitting could increase the harvest of at least one Reef Fish FMP species (vermilion snapper) that is currently overfished and undergoing overfishing. Based on the operating characteristics of the charter and headboat fisheries and the amount of latent capacity apparently available in the headboat fishery, it appears that the charter vessel fishery is more likely to take advantage of the ability to lump or split licenses than the headboat fishery which could increase the harvest of three Reef Fish FMP species (greater Amberjack, red grouper and gag) that are currently overfished or undergoing overfishing.

The administrative burden would remain unchanged if lumping or splitting were not allowed. New database files and new software would have to be developed to manage lumping or splitting which might take several years. If lumping or splitting were allowed in the interim, maintaining a paper trail of transfers would be exceeding difficult. If transferred permits for Reef Fish and CMP fisheries were obtained and lumped or split at different times, tracking vessels permit capacity would be exceedingly complex or impossible. The ability to track permit transfers was necessary for this amendment and would be required to analyze the effects of any limited access amendment.

**Alternatives 2 and 3** would facilitate better business decisions by allowing smaller capacity permits to be lumped into one permit with a larger capacity up to a maximum selected by the Council. The ability to lump permits to increase capacity could make it easier for charter vessels and headboats to upgrade to larger vessels with high carrying capacity than if they had to purchase a single permit with the appropriate capacity. The only difference between the two alternatives is whether COI permits can be included in the mix. Multiple permits would be submitted to NOAA Fisheries for aggregation; the old permits would become expired and a new permit for the combined capacity of the old permits would be issued. Current requirements for transferring a permit would apply to aggregating permits. If the new vessel has a COI passenger capacity lower than the new permit capacity, the permit would be issued at the lower capacity and the original larger capacity of the permit would be maintained in the records as the baseline passenger capacity. A permit with a baseline could be transferred to a vessel up to the baseline passenger capacity. In this way, the overall intent of the Council to cap passenger capacity is maintained while the number of vessels is allowed to fluctuate based on social or economic conditions in the for-hire fishery. It is expected that total active passenger capacity will decline slightly as permits are consolidated and some excess capacity is bound up in the baseline values of lumped permits. However, this capacity is still available to the permittee or to someone who buys that permit. If the Council were to consider slowly reduce carrying capacity of the for-hire fleet during the transfer process, they could require that the new permit be issued based solely on the COI of the new vessel, thus eliminating the baseline permit value and the carrying capacity that represents.

The intent of selecting a maximum for aggregation during any one transaction would be to slow the rate of aggregation to larger vessels. Aggregation to a maximum of twelve passengers would only be feasible for small COI vessels most likely operating as larger charter vessels. Since there are only six vessels below a capacity of 40 in the Beaufort survey and the average capacity of headboats is approximately 65 passengers, establishing a maximum capacity below 60 would likely generate little interest in conversion to headboats or increasing the capacity of existing headboats.

Following current regulations for transfer of permits, there would be no limit to the number of times that a newly consolidated permit could be resubmitted with others for aggregation unless the Council chose to stipulate some minimum time before a permit could be resubmitted for changing capacity. In either case, an owner could transfer permits to small undocumented vessels until enough capacity was available to submit for aggregation. Currently, there are 89 6-Pack permits for vessels less than or equal to 20 ft. long (36 are below 16 ft.) representing a little over 6 percent of the undocumented fleet.

Shifting passenger capacity into COI vessels that would be used in the headboat fishery is likely to have a small positive biological effect on most of the target species in the Reef Fish and CMP fishery (Section 1.1.4). Harvest of red snapper, red grouper, gag, greater amberjack and king mackerel is expected to decline by four to five percent if headboat capacity is increased by ten percent at the expense of 6-Pack charter vessel permits (Table 6). Only vermilion snapper harvest is likely to increase with the transfer of 6-Pack charter vessel capacity to headboats. There appears to be considerable latent capacity in COI permits currently and active headboats are averaging only 46 percent of carrying capacity per trip, so currently, there may be little incentive for headboat operators to lump permits.

However, there may be incentive for some charter vessel operators to lump permits at low capacity to upgrade vessels. Charter vessels operate at about 80 percent capacity per trip and average about three trips per week. There may be little room for improvement using the existing fleet and the currently available number of 6-Pack permits. If only 6-Pack permits were allowed to be lumped (**Alternative 2**), then there would be no change in the overall capacity of charter vessels which may not change harvests. If COI permits were included (**Alternative 3**), then overall charter vessel capacity might be able to increase. There are 54 COI permits with a capacity less than 20. None of these are currently operating as a headboat based on SEFSC's Survey. It is unknown how many of these may already be operating as larger capacity charter vessels and how many may be latent.

The administrative burden of lumping permits would be significant. New computer programs are currently being developed to better manage the permits data files and to better track changes to owner/operator information, vessel information and transfers. With modifications, the new computer programs could manage the transfer and aggregation of permits but this would considerably slow the implementation of the new system and add developmental costs. If lumping were allowed in the interim, maintaining a paper trail of transfers would be exceeding difficult. If transferred permits for Reef Fish and CMP fisheries were obtained and lumped or split at different times, tracking vessel permit capacity would be exceedingly complex or impossible. Approximately ten percent of active permits were transferred in each of the last two years, indicating that the for-hire fishery is dynamic. If rules are passed that allow permits to be lumped, the number of administrative actions are likely to increase beyond that for one-for-one transfers.

**Alternative 4** would allow both lumping and slitting of permits. This alternative provides the most flexibility for the industry to decide the number and capacity of headboats and charter vessels based on individual business decisions as long as the total passenger carrying capacity of the fleet does not exceed

21,726 permitted passengers. The ability to split licenses could increase the value of headboat licenses if some were offered to multiple charter vessels and make it easier for headboat operators to downgrade their vessel to reduce operating costs in relation to the available passengers. All the requirements for lumping permits as described for Alternatives 2 and 3 would apply here. In addition, no permit could be issued for less than 6 passengers as is currently mandated. Therefore, no 6-Pack permit could be split and no permits that result from splitting a COI permit could be for less than 6 passengers. For example, splitting a 20 passenger COI permit would allow at most, three permits, two for six passengers and one for eight passengers. If these permits were to be issued to three undocumented vessels, one of the permits would have a baseline of eight.

The intent of selecting a maximum for aggregation during any one transaction would be to slow the rate of aggregation to larger vessels as discussed for amendments 2 and 3. Again, establishing a maximum capacity below 60 would likely generate little interest in conversion to headboats but possibly some interest for larger charter vessels.

If the overall effect of allowing changes to capacity were neutral, that is no overall shift of capacity to toward either headboats or charter vessels, the biological implications would also be neutral. If the direction of shift is toward increasing headboat capacity, then harvest of many of the Reef Fish and CMP species would be reduced, potentially improving the condition of those stocks. However, if the direction of shift is toward charter vessels (a more likely scenario), then harvest would be increased on many of the key Reef Fish and CMP species which could potentially slow the rebuilding of some of these species or require other regulations to compensate.

Allowing splitting as well as lumping of permits would exacerbate the administrative difficulties of managing the transfer of permits as stated for Alternatives 2 and 3. Additionally, tracking history for some future limited access system for the for-hire fishery would be nearly impossible. Under lumping only, two or more permits become one and the history of the new permit becomes the sum of the others. When splitting is also allowed, it is impossible to designate which permit has what share of the historical harvest from the original permit(s).

**APPENDIX C Life history characteristics of federally managed Gulf of Mexico reef fish species.**

| Species | Maximum length* | Maximum weight** | Maximum age | Age at maturity | Size at maturity |
|---|---|---|---|---|---|
| Black | 151 cm FL[1] | 82 kg[2] | 33 years[1] | 5.2 years 50% females mature[1] | 82.6 cm FL 50% females mature[1] |
| Gag | 121 cm TL[8] | 36.5 kg[9] | 26 years[8] | 4 years 70% females mature[10] | 65 cm TL 70% females mature[10] |
| Red | 110 cm TL[2] | 23 kg[2] | 28 years[8] | 5 years 50% females mature[12] | 40-50 cm TL 50% females mature[13] |
| Yellowfin | 90 cm TL[2] | 19.1 kg[9] | - | - | 70-80 cm TL most females mature[7] |
| Scamp | 89 cm TL[16] | 13.4 kg[9] | 21 years[16] | Most mature 3-5 years[3] | 35 cm SL all females mature[3] |
| Yellowmouth | 90 cm TL[2] | 6.2 kg[18] | 28 years[18] | 4 years 100% females mature[18] | 45 cm TL 100% females mature[18] |
| Rock Hind | 60 cm TL[19] | - | 12 years[20] | - | smallest 252 mm TL[3] |
| Red Hind | 72 cm TL[21] | 8.3 kg[21] | 22 years[21] | 3 years[22] | 22 cm FL 50% females mature[23] |
| Yellowedge | 117 cm TL[24] | 14 kg[19] | 85 years[24] | 8 years 50% females mature[25] | 56.9 cm TL 50% females mature[26] |
| Misty | 150 cm TL[2] | 55 kg[2] | - | - | - |
| Speckled Hind | 110 cm TL[29] | 23.8 kg[9] | 15 years[29] | - | - |
| Snowy | 118 cm TL[31] | 25.4 kg[31] | 29 years[32] | 5 years 50% females mature[32] | 54.1 cm TL 50% females mature[32] |
| Warsaw | 233 cm TL[33] | 190 kg[33] | 41 years[33] | - | - |
| Goliath | 250 cm TL[19] | 320 kg[32] | 37 years[35] | All mature > 8 years[35] | All mature > 1350[35] |
| Nassau | 122 cm TL[37] | 25 kg[2] | 17 years[37] | 4-7 years 50% females mature[38] | 40-45 cm SL 50% females mature[38] |

| Species | Reproductive strategy | Aggregations | Age at transition | Size at transition | Spawning season | Spawning peak |
|---|---|---|---|---|---|---|
| Black | protogynous[3] | Yes[4,5,6] | 15.6 years 50% males[1] | 121 cm FL 50% males[1] | Winter and spring[1,7] | Feb-Mar[1,7] |
| Gag | protogynous[10] | Yes[11] | 11 years 50% males[10] | 105 cm TL 50% males[10] | Dec-May[10] | Feb-Mar[10] |
| Red | protogynous[12] | Harems[14] | 13 years 50% males[13] | 80-90 cm TL 50% males[13] | Feb-Jun[13] | Mar-May[13] |
| Yellowfin | protogynous[7] | Yes[14] | - | most males>85 cm TL[9] | Winter and spring[9] | Apr-May[9] |
| Scamp | protogynous[16] | Yes[17] | - | - | Mar-May[3] | - |
| Yellowmouth | protogynous[18] | - | 10 years 64% males[18] | 60-65 cm TL 50% males[18] | Year-round[18] | Apr-May[18] |
| Rock Hind | protogynous[3] | Suspected[14] | | 28 cm TL smallest[3] | Jan-Jun[3] | - |
| Red Hind | protogynous[21] | Yes[21] | - | 30 cm SL 50% males[22] | Dec-Feb[23] | Dec-Feb[23] |
| Yellowedge | protogynous[26] | Suspected[27] | 23 years 50% males[25] | 81.7 cm TL 50% male[26] | Jan-Oct[26] | May-Sep[26] |
| Misty | - | - | - | - | Summer and Fall[28] | - |
| Speckled Hind | - | Suspected[30] | - | - | Summer[3] | - |
| Snowy | protogynous[32] | Suspected[30] | - | - | Apr-Sep[32] | - |
| Warsaw | - | Suspected[30] | - | - | Summer[3] | - |
| Goliath | no[35] | Yes[36] | - | - | Jun-Dec[35] | Jul-Sep[35] |
| Nassau | unknown[36] | Yes[5, 36] | 4-7 years 50% males[38] | 40-45 cm SL 50% males[38] | Dec-Feb[39] | - |

| Species | Maximum length* | Maximum weight** | Maximum age | Female age at maturity | Female size at maturity |
|---|---|---|---|---|---|
| Red | 100 cm TL[9] | 22.8 kg[9] | 57 years[40] | 85-90% mature by age 2[41] | 75% mature by 30cm FL eastern Gulf, 75% mature by 35 cm FL western Gulf[41] |
| Vermilion | 61 cm TL[43] | 3.26 kg[9] | 21 years[42] | 80% mature by age 1[43] | 90% mature by 20 cm TL[43] |
| Lane | 60 cm TL[9] | 3.53 kg[9] | 19 years[43] | - | 18 cm FL[45] |
| Gray | 89 cm TL[47] | 7.71 kg[9] | 24 years[48] | - | 23 cm FL[50] |
| Mutton | 88 cm TL[51] | 13.72 kg[9] | 29 years[51] | - | - |
| Yellowtail | 86.3 cm TL[53] | 4.62 kg[9] | 17 years[54] | 50% mature by age 1.7 years[55] | 50% mature by 20.9 cm TL[55] |
| Schoolmaster | 67.2 cm TL[53] | 6.02 kg[9] | - | - | Mean size of maturity 25 cm FL[45] |
| Cubera | 160 cm TL[53] | 55.11 kg[9] | - | - | - |
| Dog | 109 cm TL[57] | 10.90 kg[9] | - | - | Smallest mature observed 32.3 cm FL[45] |
| Mahogany | 38 cm TL[2] | 1.4 kg[2] | - | - | - |
| Queen | 100 cm TL[58] | 5.3 kg[58] | - | - | - |
| Blackfin | 75 cm TL[2] | 14.0 kg[2] | - | - | Reach maturity at 20 cm FL[60] |
| Silk | 83 cm TL[58] | 8.3 kg[58] | - | - | Reach maturity at 50 cm FL[60] |
| Wenchman | 30 cm TL[2] | 1.99 kg[9] | - | - | - |

| Species | Reproductive strategy | Aggregations | Male age at maturity | Male size at maturity | Spawning season | Spawning peak |
|---|---|---|---|---|---|---|
| Red | gonochoristic[41] | Possible[14] | | - | Apr-Oct[41] | Jun-Aug[41] |
| Vermilion | gonochoristic[43] | Unknown | 100% mature by age 1[43] | 100% mature by 20 cm TL[43] | May-Sep[43] | - |
| Lane | gonochoristic[46] | Yes[47] | - | - | May-Sep[43] | Jun-Aug[43] |
| Gray | gonochoristic[46] | Possible[14] | - | - | Summer-fall[50] | - |
| Mutton | gonochoristic[46] | Yes[53] | - | - | - | May-June[52] |
| Yellowtail | gonochoristic[46] | Yes[57] | - | - | Spring-summer[56] | May-July[56] |
| Schoolmaster | gonochoristic[46] | Unknown | - | Mean size of maturity 25 cm FL[45] | Feb-Jun, Aug-Nov[45] | - |
| Cubera | gonochoristic[46] | Yes[14] | - | - | - | - |
| Dog | gonochoristic[46] | Possible[4,14] | - | - | Feb-Mar[45] | - |
| Mahogany | gonochoristic[46] | Unknown | - | - | - | - |
| Queen | gonochoristic[59] | Unknown | - | - | Year round[60] | Spring and fall[60] |
| Blackfin | gonochoristic[46] | Unknown | - | Reach maturity at 38 cm FL[60] | Year round[45,60,61] | Spring and fall[45,60] |
| Silk | gonochoristic[46] | Unknown | - | Reach maturity at 38 cm FL[60] | Year round[60] | Spring and fall[45,60] |
| Wenchman | gonochoristic[46] | Unknown | - | - | - | - |

| Species | Maximum length* | Maximum weight** | Maximum age | Age at maturity | Size at maturity |
|---|---|---|---|---|---|
| Hogfish | 90.5 cm TL[62] | 9.9 kg[62] | 23 years[62] | 50% mature by age 6.5 years[63] | Size at first maturity 16.6 cm FL[63] |
| Gray triggerfish | 72.5 cm FL[66] | 6.15 kg[9] | 14 years[66] | 87.5% mature by age 1 years[66] | 90% mature by 25 cm FL[66] |
| Greater amberjack | 197 cm FL[67] | 70.64 kg[9] | 15 years[68] | - | - |
| Lesser amberjack | 67.5 cm TL | 4.6 kg[70] | - | - | - |
| Almaco jack | 80 cm TL[2] | 35.38 kg[9] | - | - | - |
| Tilefish | 125 cm TL[70] | - | 35 years[71] | Mature at 8-9 years[72] | Mature at 60-65 cm FL[72] |
| Anchor tilefish | 60 cm TL[2] | - | - | - | - |
| Blackline tilefish | 60 cm TL[2] | 11 kg[70] | - | - | - |
| Blueline tilefish | 77 cm TL[70] | 7 kg[70] | 15 years[73] | - | - |
| Goldface tilefish | 60 cm TL[2] | - | - | - | - |

| Species | Reproductive strategy | Aggregations | Age at male maturity/ sexual transition | Size at male maturity/ sexual transition | Spawning season | Spawning peak |
|---|---|---|---|---|---|---|
| Hogfish | protogynous[64] | Harems[65] | 10 years 50% males[64] | - | Sep-Apr[64] | Feb-Mar[64] |
| Gray triggerfish | gonochoristic[66] | Unknown | 100% mature by age 1 year[66] | Males mature > 11 cm FL[66] | Jun-Sep[66] | - |
| Greater amberjack | - | - | - | - | - | - |
| Lesser amberjack | - | - | - | - | - | - |
| Almaco jack | - | - | - | - | - | - |
| Tilefish | gonochoristic[72] | Unknown | Mature at 7-8 years[72] | Mature at 65-70 cm FL[72] | Mar-Nov[72] | May-Aug[72] |
| Anchor tilefish | - | - | - | - | - | - |
| Blackline tilefish | - | - | - | - | - | - |
| Blueline tilefish | - | - | - | - | - | - |
| Goldface tilefish | - | - | - | - | - | - |

*To convert centimeters (cm) to inches, divide the cm length by 2.54; TL is total length, FL is fork length, and SL is standard length.
**To convert kilograms (kg) to pounds, multiply the weight by 2.204

[1] Crabtree. R. E. and L. H. Bullock. 1998. Age, growth, and reproduction of black grouper, *Mycteroperca bonaci*, in Florida waters. Fish. Bull. 96(4):735-753.

[2] Robins, C. R., G. C. Rey, and J. Douglass. 1986. A field guide to Atlantic coast fishes. Houghton Mifflin Co., New York City, NY. 354 p.

[3] Bullock, L. H., and G. B. Smith. 1991. Seabasses (*Pisces Serranidae*). Mem. Hourglass Cruises, Vol. 8, part 2, 243 p.

[4] Carter, J., and D. Perrine. 1994. A spawning aggregation of dog snapper, *Lutjanus jocu* (Pisces:Lutjanidae) in Belize, Central America. Bulletin of Marine Science, 55 (1): 228-234..

[5] Carter, J., G. I. Marrow, and V. Pryor. 1994. Aspects of the ecology and reproduction of Nassau grouper, *Epinephelus striatus*, off the coast of Belize, Central America. Proceedings of the Gulf and Caribbean Fisheries Institute, no. 43: 65-111.

[6] Eklund, A. M., D. B. McClellan, and D. E. Harper. In press. Black grouper aggregations in relation to protected areas within the Florida Keys National Marine Sanctuary. Bull. Mar. Sci.

[7] García-Cagide, A. and T. García. 1994. Reproducción de *Mycteroperca bonaci* y *Mycteroperca venenosa* (Pisces: Serranidae) en la plataforma cubana. Rev. Biol. Trop., 44(2):771-780.

[8] Harris, P. J., and M. R. Collins. 2000. Age, growth, and age at maturity of gag, *Mycteroperca microlepis*, from the southeastern United States during 1994-1995. Bull. Mar. Sci. 66(1):105-117.

[9] IGFA. 2003. 2003 World record game fishes. IGFA, Dania Beach, FL 352 p.

[10] Hood, P. B. and R. A. Schlieder. 1992. Age, growth and reproduction of gag, *Mycteroperca microlepis* (Pisces: Serranidae), in the eastern Gulf of Mexico. Bull. Mar. Sci. 51(3):337-352.

[11] Lombardi-Carlson, L. A., G. R. Fitzhugh, and J.J. Mikulas. 2002. Red grouper (*Epinephelus morio*) age-length structure and description of growth from the eastern Gulf of Mexico: 1992-2001. NMFS SEFSC Panama City Lab Contrib. Ser 2002-06. 19p + 6 Tables + 10 Figs.

[12] Moe Jr., M. A. Dec. 1969. Biology of the red grouper *Epinephelus morio* (Valenciennes) from the eastern Gulf of Mexico. Florida Dept. of Natural Resources Marine Research Lab. 95p.

[13] Collins, L. A., G. R. Fitzhugh, L. A. Lombardi-Carlson, H. M. Lyon, W. T. Walling, and D. W. Oliver. 2002. Characterization of red grouper (Serranidae: *Epinephelus morio*) reproduction from the eastern Gulf of Mexico: 1992-2001. NMFS SEFSC Panama City Lab Contrib. Ser 2002-07. 10 p + 4 Tables + 6 Figs.

[14] Dormeier, M. L., and P. L. Colin. 1997. Tropical reef fish spawning aggregations: defined and reviewed. Bull. Mar. Sci. 60(3):698-726.

[15] Coleman, F. C., C. C. Koenig, and L. A. Collins. 1996. Reproductive styles of shallow-water groupers (Pisces: Serranidae) in the eastern Gulf of Mexico and the consequences of fishing spawning

aggregations. Env. Biol. Fish. 47:129-141.

[16] Matheson, III, R. H., G. R. Huntsman, and C. S. Manooch, III. 1986. Age, growth, mortality, food and reproduction of the scamp, *Mycteroperca phenax*, collected off North Carolina and South Carolina. Bull. Mar. Sci. 1986. 38(2): p 300-312.

[17] Gilmore, R. G. and R. S. Jones. 1992. Color variation and associated behavior in the Epinepheline groupers, *Mycteroperca microlepis* (Goode and Bean) and *M. phenax* (Jordan and Swain). Bull. Mar. Sci., 51(1):83-103.

[18] Bullock, L. H and M.D. Murphy. 1994. Aspects of the life history of the yellowmouth grouper, *Mycteroperca interstitialis*, in the eastern Gulf of Mexico. Bull. Mar. Sci., 55(1):30-45.

[19] Heemstra, P. C. and J. E. Randall. 1993. Groupers of the world. (Family *Serranidae,* Subfamily *Epinephelinae)*. An annotated and illustrated catalogue of the grouper, rockcod, hind, coral grouper and lyretail species known to date. FAO species catalogue, FAO Fish Synos. No. 125, Vol. 16.

[20] Potts, J. C. and C. S. Manooch, III. 1995. Age and growth of red hind and rock hind collected from North Carolina through the Dry Tortugas, Florida. Bull. Mar. Sci. 56(3):784-794.

[21] Luckhurst, B.E., J.A. Barnes, and Y. Sadovy. 1992. Record of an unusually large red hind, *Epinephelus guttatus (Pisces: Serranidae)* from Bermuda with comments on its age. Bull. Mar. Sci. 51(2):267-270.

[22] Burnett-Herkes, J. 1975. Contribution to the biology of the red hind, *Epinephelus guttatus*, a commercially important serranid fish from the tropical western Atlantic. Univ. of Miami: 154p.

[23] Sadovy, Y, A. Rosario, and A. Román. 1994. Reproduction in an aggregating grouper, the red hind, *Epinephlus guttatus*. Environ. Biol. of Fish. 41:269-286.

[24] Bahnick, M. and G. Fitzhugh. In progress. As cited in Cass-Calay and Bahnick (2002).

[25] Cass-Calay, S. L., and M. Bahnick. 2002. Status of the yellowedge grouper fishery in the Gulf of Mexico: Assessment 1.0. NMFS, SEFSC, Miami, FL SF Contrib. No. SFD-02/03-172 68 p.

[26] Bullock, L. H., M. F. Godcharles, and R. E. Crabtree. 1996. Reproduction of yellowedge grouper, *Epinephelus flavolimbatus*, from the eastern Gulf of Mexico. Bull. Mar. Sci. 59(1):216-224.

[27] Koenig, C. Personal communication. Florida State University, Tallahassee, Florida

[28] Thompson, R. and J. L. Munro. 1983. The biology, ecology, and bionomics of the hinds and groupers, Serranidae. *In* J. L. Munro (ed.) Carribean coral reef fishery resources. ICLARM Stud. Rev. 7, Manila. p. 59-81.

[29] Matheson III, R. H., and G. R. Huntsman. 1984. Growth, mortality, and yield-per-recruit models for speckled hind and snowy grouper from the United States South Atlantic Bight. Trans. Amer. Fish. Soc. 113: 607-616.

[30] Gilmore, R. G. Personal communication. Dynamac Corporation, Kennedy Space Center, Titusville, FL

[31] Moore, C. M. and R. F. Labisky. 1984. Population parameters of a relatively unexploited stock of snowy grouper in the lower Florida Keys. Trans. Amer. Fish. Soc. 113: 322-329.

[32] Wyanski, D. M., D. B. White, and C. A. Barans. 2000. Growth, population age structure, and aspects of the reproductive biology of snowy grouper, *Epinephelus niveatus*, off North Carolina and South Carolina. Fish. Bull. 98:199-218.

[33] Manooch, III, C. S. and D. L. Mason. 1987. Age and growth of the warsaw grouper and black grouper from the southeast region of the United States. Northeast Gulf Sci. 9(2): 65-75.

[34] Smith, C. L. 1971. A spawning aggregation of Nassau grouper, *Epinephelus striatus* (Bloch). Amer. Mus. Nat. Hist. p.257-261.

[34] Bullock, L. H, M. D. Murphy, M. F. Godcharles, and M. E. Mitchell. 1992. Age, growth, and reproduction of jewfish *Epinephelus itajara* in the eastern Gulf of Mexico. Fish. Bull. 90:243-249.

[36] Sadovy, Y., and A. Eklund. 1994. Status of the stocks of Nassau grouper, *Epinephelus striatus*, and jewfish, *Epinephelus itajara* - Final report. SEFSC, Miami Lab Contrib. No. MIA-94/95-15.

[37] Claro, R., A. Garcia-Cagide, L. M. Sierra, and J. P. Garcia-Arteaga. 1990. Características biológico-pesqueras de la cherna criolla, *Epinephelus striatus* (Bloch) *(Pisces: Serranidae)* en la plataforma cubana. Biol. Mar. 23:23-43.

[38] Sadovy, Y. and P. L. Colin. 1995. Sexual development and sexuality in the Nassau grouper. J. Fish. Biol. 46:961-976.

[39] Colin, P. L. 1992. Reproduction of the Nassau grouper, *Epinephelus striatus (Pisces: Serranidae)* and its relationship to environmental conditions. Env. Biol. Fish. 34:357-377.

[40] Allman, R.J., G.R. Fitzhugh and W.A. Fable, 2002. Report of red snapper otolith aging: 2002 data summary. NMFS Southeast Fisheries Science Center, Panama City Laboratory Contribution Series 02-02. 5 pp., tables and figs.

[41] Fitzhugh, G. R., M. S. Duncan, L. A. Collins, W. T. Walling, and D. W. Oliver. 2004. Characterization of red snapper (*Lutjanus campechanus*) reproduction: for the 2004 Gulf of Mexico red snapper. NMFS Southeast Fisheries Science Center, Panama City Laboratory Contribution Series 04-01. 29 pp.

[42] Allman, R. J., G. R. Fitzhugh, and W. A. Fable. 2001. Report of vermilion snapper otolith aging;1994-2000 data summary. National Marine Fisheries Service, Southeast Fisheries Science Center, Panama City Laboratory Contribution Series 01-1. 7pp.

[43] Hood, P. B., and A. K. Johnson. 1999. Age, growth, mortality, and reproduction of vermilion snapper

*Rhomboplites aurorubens*, from the Eastern Gulf of Mexico. Fish. Bull. 97 (4): 828-841.

[44] Luckhurst, B.E., J.M. Dean and M. Reichert, 2000. Age, growth and reproduction of the lane snapper *Lutjanus synagris* (Pisces: Lutjanidae) at Bermuda.. Mar. Ecol. Prog. Ser. 203:255-261.

[45] Thompson, R. and J.L. Munro, 1983. The biology, ecology and bionomics of Caribbean reef fishes: Lutjanidae (snappers). p. 94-109. In J.L. Munro (ed.) Caribbean coral reef fishery resources. ICLARM Stud. Rev 7.

[46] Grimes, C. B. 1987. Reproductive biology fo the Lutjanidae: A review. In: J. J. Polovina and S. Ralston eds. Tropical snappers and groupers: Biology and fisheries management. Westview Press, Inc., CO. p. 239-294.

[47] Allen, G.R., 1985. FAO species catalogue. Vol. 6. Snappers of the world. An annotated and illustrated catalogue of lutjanid species known to date.. FAO Fish. Synop. 6(125):208

[48] Burton. M. L. 2000. Age, growth, and mortality of gray snapper, *Lutjanus griseus*, from the east coast of Florida. Fish. Bull. 99:254-265.

[49] Starck, W.A. II, 1971. The biology of the grey snapper, *Lutjanus griseus* (Linnaeus), in the Florida Keys.. p. 11-150. In W.A. Starck, II and R.E. Schroeder. Investigations on the gray snapper, *Lutjanus griseus*. Studies in Tropical Oceanography No. 10, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami Press, Florida

[50] Rutherford, E. S., E. B. Thue, and D. G. Buker. 1983. Population structure, food habits, and spawning activity of gray snapper, *Lutjanus griseus*, in Everglades National Park. South Florida Research Center Report SFRC-83/02. 41 p.

[51] Burton, M.L., 2002. Age, growth and mortality of mutton snapper, *Lutjanus analis*, from the east coast of Florida, with a brief discussion of management implications. Fish. Res. 59(1-2):31-41.

[52] Watanabe, W. O. 2001. Species profile mutton snapper. Southern Regional Aquaculture Center Publication 725. 11p.

[53] Cervigón, F., 1993. Los peces marinos de Venezuela. Volume 2. Fundación Científica Los Roques, Caracas,Venezuela. 497 p.

[54] Manooch, C.S. III and C.L. Drennon. 1987. Age and growth of the yellowtail snapper and queen triggerfish collected from the U.S. Virgin Islands and Puerto Rico. Fish. Res. 6:53-68.

[55] Muller, R. G., M. D.Murphy, J. de Silva, and L. R. Barbieri. 2003. Final Report Submitted to the National Marine Fisheries Service, the Gulf of Mexico Fishery Management Council, and the South Atlantic Fishery Management Council as part of Southeast Data, Assessment, and Review (SEDAR) III. FWC-FMRI Report: IHR 2003-10. 217 p. + 2 appendices

[56] Barbieri, L. R. and J. A. Colvocoresses. 2003. Southeast Florida reef fish abundance and biology. Five-year performance report to the U.S. Department of Interior, U.S. Fish and Wildlife Service, Federal

Aid in Sport Fish Restoration, Grant F-73.

[57] García-Arteaga, R Claro, and S. Valle. 1997. Length-weight relationships of Cuban marine fishes. Naga. 20:38-43.

[58] Cummings, N. J. 2003. Information on the general biology of the silk and queen snapper in the Caribbean. Southeast Fisheries Science Center, Sustainable Fisheries Division Contribution No. SFD 2003-0024 17 p.

[59] Murray, P.A., L.E. Chinnery and E.A. Moore, 1992. The recruitment of the queen snapper, *Etelis oculatus* Val., into the St. Lucian fishery: recruitment of fish and recruitment of fishermen.. Proc. Gulf Caribb. Fish. Inst. 41:297-303.

[60] Boardman, C. and D. Weiler, 1980. Aspects of the life history of three deep water snappers around Puerto Rico. Proc. Gulf Caribb. Fish. Inst. 32:158-172.

[61] Munro, J. L., V. C. Gaut, R. Thompson, and P. H. Reeson. 1973. The spawning seasons of Caribbean reef fishes. J. Fish. Biol. 5:69-84.

[62] McBride, R. 2001. Age growth, and reproduction of hogfish, *Lachnolaimus maximus*. FMRI Final Report FO723-98-00-F.

[63] Ault, J. S., S. G. Smith, G. A. Diaz, and E. Franklin. 2003. Florida hogfish fishery stock assessment. Final Report to FL Fish Wildl. Com. Contract No. FFWCC S 7701 617573 89 p.

[64] Davis, J. C. 1976. Biology of the hogfish, *Lachnolaimus maximus* (Walbaum), in the Florida Keys. M.S. thesis, University of Miami, Coral Gables, FL. 86 p.

[65] Colin, P. L. 1982. Spawning and larval development of the hogfish, Lachnolaimus maximus (Pisces: Labridae). Fishe. Bull. 80(4):853-862.

[66] Hood, P. B., and A. K. Johnson. 1997. A study fo the age structure, growth, maturity schedules, and fecundity of gray triggerfish (*Balistes capriscus*), red porgy (*Pagrus pagrus*), and vermilion snapper (*Rhomboplites aurorubens*) from the eastern Gulf of Mexico. MARFIN Final Report FO499-95-F. 103 p.

[67] Cummings, N., and D.B. McClellan. 2000. Trends in the Gulf of Mexico greater amberjack fishery through 1998: commercial landings, recreational catches, observed length frequencies, estimates of landed and discarded catch at age, and selectivity at age. NMFS Sustainable Fisheries Division Contribution SFD-99/00-99. 151 p.

[68] Thompson, B. A., M. Beasley, and C. A. Wilson. 1998. Age distribution and growth of greater amberjack, *Seriola dumerili*, from the north-central Gulf of Mexico. Fish. Bull. 97:362-371.

[69] Smith-Vaniz, W. F. and F. H. Berry. 1981 Carangidae. In W. Fischer, G. Bianchi and W.B. Scott (eds.) FAO species identification sheets for fishery purposes. Eastern Central Atlantic (fishing areas 34, 47 (in part) . Vol. 1. FAO, Rome.

[70] Dooley, J. K. 1978. Branchiostegidae. In W. Fischer (ed.) FAO species identification sheets for fishery purposes. West Atlantic (Fishing Area 31). Vol. 1., FAO, Rome.

[71] Turner, S.C., C.B. Grimes, and K.W. Able. 1983. Growth, mortality, and age/size structure of the fisheries for tilefish, *Lopholatilus chamaelonticeps,* in the Middle Atlantic-Southern New England region. Fish. Bull. 81(4):751-763.

[72] Grimes, C.B., C.F. Idelberger, K.W. Able, and S.C. Turner. 1988. The reproductive biology of tilefish, *Lopholatilus chamaeleonticeps* Goode & Bean, from the United States Mid-Atlantic Bight, and the effects of fishing on the breeding system. Fish. Bull. 86(4):745-762.

[73] Ross, J.L. and G.R. Hunstman, 1982. Age, growth, and mortality of blueline tilefish from North Carolina and South Carolina.. Trans. Am. Fish. Soc. 111:585-59