

with which ever regulations are the more restrictive, fishermen will be more limited by regulations than they are now.

Table 2.13.1 Examples of federal Gulf reef fish regulations that apply regardless of where harvesting, landing, or operating.

Fishery	Regulation	Citation
Commercial Red Snapper	For a person aboard a vessel, for which a commercial vessel permit for Gulf reef fish has been issued, to fish for, possess, or land Gulf red snapper, regardless of where harvested or possessed, a Gulf red snapper IFQ vessel endorsement must have been issued to the vessel and must be on board. As a condition of the IFQ vessel endorsement issued under this paragraph (a)(2)(ix), a person aboard such vessel must comply with the requirements of § 622.16 regardless of where	50 CFR 622.4(a)(2)(ix)
Commercial Red Snapper	... In addition, the bag and possession limits for red snapper, when applicable, apply on board a vessel for which a commercial permit for Gulf reef fish has been issued, as required under § 622.4(a)(2)(v), without regard to where such red snapper were harvested.	50 CFR 622.43(a)(1)(i)(A)
Commercial Grouper	Seasonal closure of the commercial fishery for gag, red grouper, and black grouper. From February 15 to March 15, each year, no person aboard a vessel for which a valid Federal commercial permit for Gulf reef fish has been issued may possess gag, red grouper, or black grouper in the Gulf, regardless of where harvested.	50 CFR 622.34(o)
Commercial Greater Amberjack	During March, April, and May, each year, the possession of greater amberjack in or from the Gulf EEZ and in the Gulf on board a vessel for which a commercial permit for Gulf reef fish has been issued, as required under § 622.4(a)(2)(v), without regard to where such greater amberjack were harvested, is limited to the bag and possession limits, as specified in § 622.39(b)(1)(i) and (b)(2), respectively, ...	50 CFR 622.36(a)
Reef Fish - VMS	The VMS requirements of this paragraph (a)(2) apply throughout the Gulf of Mexico and adjacent states. (i) General VMS requirement. An owner or operator of a vessel that has been issued a commercial vessel permit for Gulf reef fish, including a charter vessel/headboat issued such a permit even when under charter, must ensure that such vessel has an operating VMS approved by NMFS for use in the Gulf reef fish fishery on board at all times whether or not the vessel is underway, ...	50 CFR 622.9(a)(2)

3 Description of the Fishery and Affected Environment

3.1 Description of Gear Types Used in the Commercial and Recreational Fisheries

The primary gear types used in the commercial grouper fishery are bottom longlines and bandit rigs. Recreational fishermen predominately use rod and reel. Spearfishing also constitutes a small part of both recreational and commercial grouper fishing. Fish traps were used in the commercial fishery until February 7, 2007, when their use became prohibited in the Gulf of Mexico EEZ. A brief description and potential environmental impacts of each of these gears that is currently used is provided below.

Longlines

Reef fish longlines were initially used in the late 1970s and early 1980s, and by 1982 longline gear was well established in the snapper-grouper fleet. Reef fish bottom longline gear used in the eastern Gulf of Mexico uses mainlines composed of cable or monofilament, with the test strength of the mainline ranging from 900 to 2,000 pounds. The amount of mainline set varied from 0.9 to 9.0 nm, with 2.4 nm the average. Gangion material was monofilament with length ranging from 0.46 to 1.92 m, and an average of 0.79 m. Barbed circle hooks were used for all sets, with both offset and straight hooks being used. Hooks averaged 2.2 inches in shaft length and 0.9 inches from the point to the shaft. The average number of hooks set at a location was 731.9 (\pm 378.0 s.d.), varying from 75 to 2,100 hooks. Prytherch (1983) reported that the spacing of the gangions varied; if a good catch was anticipated hooks would be set about 10-12 feet apart but if an unknown area was being sampled the hooks would be set from 20-50 feet apart. The average depth for the 311 sets was 26.6 m (\pm 14.9 s.d.), with a range of 10 to 70 m. Sets targeting red grouper averaged 18.6 m. Fishing time varied from 0.3 to 24.7 hours with 3.0 hours the average (\pm 2.7 s.d.). The majority of fishing occurred during daylight hours; however, lines were set at all hours. The majority of the sets occurred over rock bottom (41%), with shell (21%), coral (21%), unknown (14%), pothole depression (3%), and mud (<1%) comprising the remaining (NMFS 1995, 2005b).

Recent anecdotal gear information indicates longline fishers use mainlines consisting of 1/8, 7 by 7 (refers to wrapped strands of wire, 49 wires total) galvanized or stainless steel or 3.2 to 4.0 mm monofilament line (Dunzier, pers. comm. 2004; Bergmann, pers. comm. 2004). For frame of reference, the 3.5 mm monofilament is equivalent in size to the 1/8 cable. Some boats in the northwest GOM may occasionally fish with used larger cable (3/16 and 1/4) purchased cheaply from the oil industry (Bergmann, pers. comm. 2004). The leaders used are typically made of 200-lb to 400-lb test monofilament. For hooks, longline fishers use Mustad #39960, 13/0 and 14/0 circle hooks, with 100 to 200 hooks per mile (Dunzier, pers. comm. 2004). (NMFS 2005a)

Direct underwater observations of longline gear in the Pacific halibut fishery noted that the gear could sweep across the bottom, and its location could be affected by currents, snags, and even the efforts of hooked fish. While the gear was observed in contact with or snagged on a variety of objects including coral, sturdy flexible corals usually appeared unharmed while hard corals often had portions broken off (High 1998). However, another direct underwater observation study of longline gear in the Atlantic tilefish fishery found no evidence that the gear shifted significantly, even when set in currents. This was attributed to anchors set at either end of the longline as well as sash weights along the line to prevent movement (Grimes et al. 1982). Based on the direct observations, it is logical to assume that bottom longline gear would have a minor impact on sandy or muddy habitat areas. However, due to the vertical relief that hardbottom and coral reef habitats provide, it would be expected that bottom longline gear may become entangled, resulting in potential negative impacts to habitat (Barnette 2001).

Bandit Gear

Bandit gear is a vertical line with one or more hooks attached at the end (generally 3 to 20 hooks, but can be more, depending upon the species targeted). The line is deployed and retrieved from a large reel fixed to the side of a boat. The early bandit gear was hand-cranked, but nowadays electric or hydraulic reels are common. Bandit gear was first reported used in Fort Pierce, Florida in 1945. By 1950 it was in extensive use in both the Atlantic and the Gulf of Mexico, and was considered to out-fish handlines by a factor of about 3 to 1 (Siebenaler and Brady 1952). NMFS catch data indicates that for the period 1998-2000 bandit gear was 1.7 times as productive as handline gear.

Bandit rigs used for grouper fishing generally are rigged with fewer hooks than those used for snapper fishing. Schirripa et al. (1999) noted that the number of hooks per handline increased from about two in 1990 to reach nearly nine in 1994, and then declined to three in 1997.

Vertical gear fishers rely on finding concentrations of fish within the range of attraction of the few hooks on vertical gear. Concentrations of many managed reef fish species are higher on hard bottom areas than on sand or mud bottoms, thus fishing generally occurs over hard bottom areas (GMFMC 2004a). In their use, a weighted line is lowered to the bottom, and then the lead is raised slightly off the bottom (Siebenaler and Brady 1952). Thus, the gear is in direct contact with the bottom for only a short period of time. Barnette (2001) suggests that physical impacts may include entanglement and minor degradation of benthic species from line abrasion and the use of weights (sinkers).

Spear and Powerhead

Spearguns and slings are devices that use pneumatic pressure or rubber bands to hurl a spear shaft at the fish. Sometimes a spearfisherman will employ a shotgun or pistol shell known as a powerhead at the shaft tip, which efficiently delivers a lethal charge to their quarry. This method is commonly used to harvest large species such as amberjack (NMFS 2005a). Barnette (2001) cited a study by Gomez et al. (1987) that concluded that spearfishing on reef habitat may result in some coral breakage, but damage is probably negligible. In addition, there could be some impacts from divers touching coral with hands or from resuspension of sediment by fins (Barnette 2001). Such impacts should be negligible to non-existent for well-trained and experienced spearfishermen who stay in the water column and avoid contact with the bottom.

Recreational Rod and Reel

Recreational fishers (other than spearfishermen) typically use rod and reel gear. Anglers fishing in deep water typically use 30-lb test monofilament line with 10 to 15 feet long 40- to 60-lb test monofilament line leaders, and 7/0 hooks (e.g. Mustad #92677) (Poveromo 1998). Anglers fishing in more shallow water typically 20-lb test, with 4 to 8 feet long 30-lb test leaders and 4/0 hooks (e.g., Eagle Claw L256). Many anglers in recent years have switched from using J-hooks to circle hooks, and circle hooks (NMFS 2005a). Circle hooks became mandatory when fishing for reef fish effective June 1, 2008 under a provision in Amendment 27.

3.2 Description of Affected Physical Environment

The physical environment for reef fish, including gag and red grouper 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 has a total area of approximately 600,000 square miles (1.5 million km²), including state waters (Gore 1992). It is a semi-enclosed, oceanic basin connected to the Atlantic Ocean by the Straits of Florida and to the Caribbean Sea by the Yucatan Channel. Oceanic conditions are primarily affected by the Loop Current, the discharge of freshwater into the Northern Gulf, and a semi-permanent, anticyclonic gyre in the western Gulf. Gulf water temperatures range from 12° C to 29° C (54° F to 84° F) depending on time of year and depth of water.

Most harvests of recreational red grouper and other shallow-water grouper occur off of Florida over hard-bottom habitat. In the western Gulf, deep-water grouper are harvested over rocky ridges or flat bottom, near banks or 'lumps' (Cass-Calay and Bahnick 2002). Deep-water grouper also occur near the shelf-edge over sand, mud, and shell bottom (Cass-Calay and Bahnick 2002).

Environmental Sites of Special Interest Relevant to Red and Gag Grouper (Figure 3.1)

Longline/Buoy Gear Area Closure - Permanent closure to use of these gears for reef fish harvest inshore of 20 fathoms off the Florida shelf and inshore of 50 fathoms for the remainder of the Gulf (72,300 square nautical miles).

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

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

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

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

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

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

Alabama Special Management Zone (SMZ) - In the Alabama SMZ, fishing by a vessel operating as a charter vessel or headboat, a vessel that does not have a commercial permit for Gulf reef fish, or a vessel with such a permit fishing for Gulf reef fish, is limited to hook-and-line gear with no more than 3 hooks. Nonconforming gear is restricted to bag limits, or for reef fish without a bag limit, to 5 percent by weight of all fish aboard.

Additionally, Generic Amendment 3 for addressing EFH requirements (GMFMC 2005a) requires a weak link in the tickler chain of bottom trawls on all habitats throughout the Gulf EEZ. A weak link is defined as a length or section of the tickler chain that has a breaking strength less than the chain itself and is easily seen as such when visually inspected. Also, the amendment establishes an education program on the protection of coral reefs when using various fishing gears in coral reef areas for recreational and commercial fishermen.

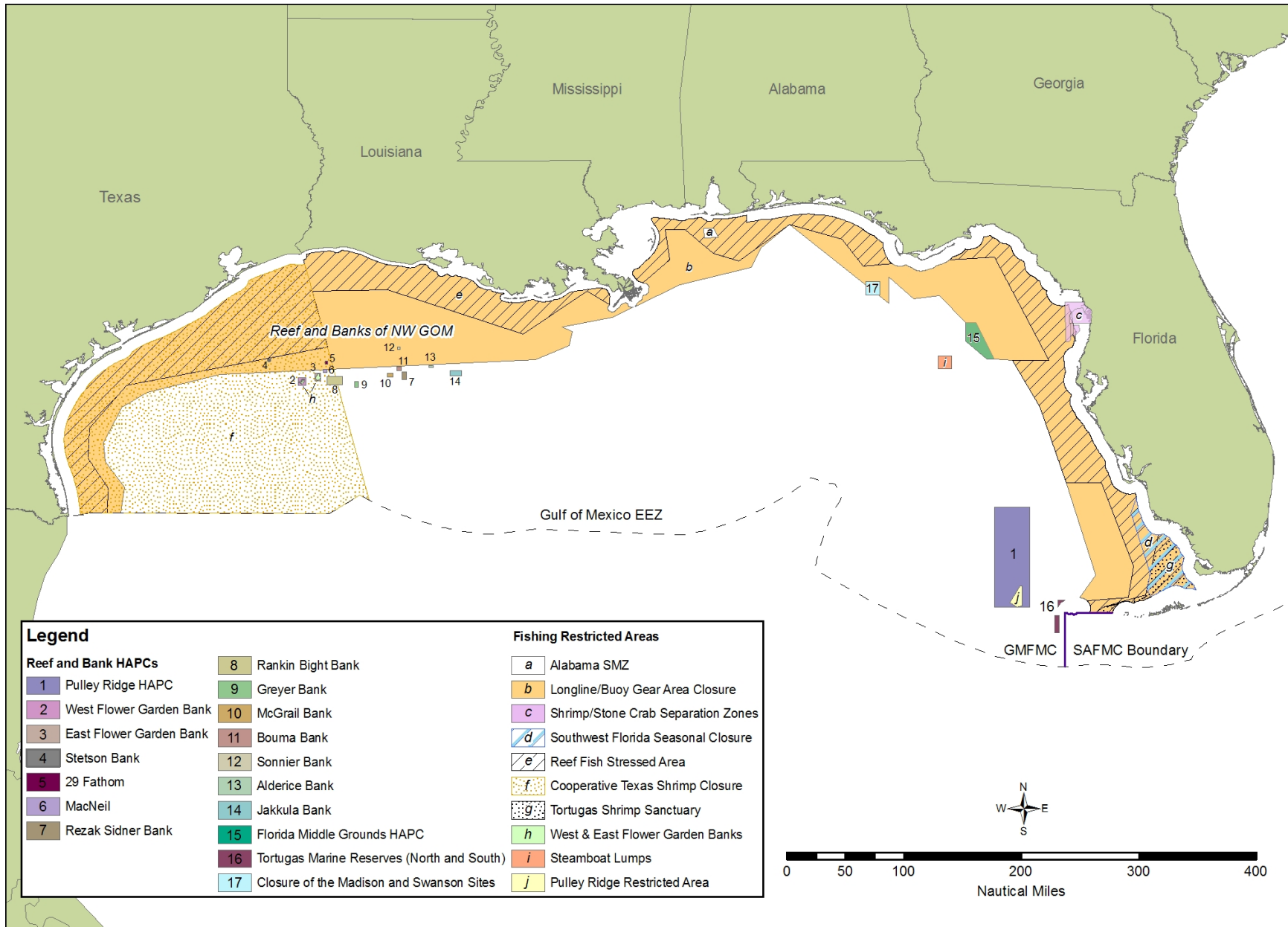


Figure 3.1 Map of most fishery management closed areas in the Gulf of Mexico

3.3 Description of Affected Biological Environment

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

Reef Fish Including Red and Gag Grouper

Red Grouper Life History and Biology

In the Gulf, red grouper are commonly caught from Panama City, Florida, to the Florida Keys along the inner to mid-continental shelf in depths ranging from 2 to over 120 m (Moe 1969). Based on reported commercial landings, the SEFSC's Headboat Survey, and MRFSS, red grouper are infrequently caught in the western Gulf. The species inhabits flat rock perforated with solution holes, caverns and crevices of limestone reef, and hard bottom areas (Moe 1969; Bullock and Smith 1991). Juveniles live in shallow-water nearshore reefs until reaching approximately 16 inches (40 cm), when they become sexually mature and move offshore (Moe 1969). Red grouper reach a maximum length and weight of 43 inches (110 cm TL) and 50.7 lbs. (23 kg) (Robins et al. 1986). Maximum age of red grouper in the Gulf of Mexico has been estimated at 25 years (SEDAR 12 2007). Clear determinations of size and age of maturity have been difficult for red grouper (Fitzhugh et al 2006a and references cited therein). Fitzhugh et al (2006a) determined the size and age at 50% maturity was approximately 11 inches (28 cm TL) at age 2. While previous estimates indicated that red grouper were 50% mature by 5 years of age and 15-20 inches TL (40-50 cm TL) (Moe 1969; Collins et al. 2002). Red grouper are protogynous hermaphrodites, transitioning from females to males at older ages, and form harems for spawning (Dormeier and Colin 1997). Age and size at sexual transition is approximately 10.5 years and 30 inches TL (76.5 cm TL) (Fitzhugh et al. 2006). Red grouper spawn from February until mid-July with peak spawning occurring in the eastern Gulf of Mexico during March through May (Fitzhugh et al. 2006b). Over the last 25-30 years, there has been little change in the sex ratio of red grouper, likely because they do not aggregate (Coleman et al. 1996).

Status of the Red Grouper Stock

See Section 1.2.

Gag Grouper Life History and Biology

Gag are primarily caught on the west coast of Florida from Tampa Bay to the northern extent of the state (Goodyear and Schirripa 1994). Newly settled juveniles are estuarine dependent, occurring in shallow seagrass beds during late spring and summer (Koenig and Coleman 1998; Strelcheck et al. 2003). At the onset of the first winter, juvenile gag migrate offshore, although some juvenile gag may remain in inshore waters during winter (Heinisch and Fable 1999). As gag mature, they move to deeper, offshore waters to spawn. Gag are protogynous hermaphrodites, transitioning from females to males at older ages. Age and size at 50% sexual transition is approximately 11 years and 42-43 inches TL (108.5 - 110 cm TL) (SEDAR 10

2006). Maximum age is 31 years (Lombardi-Carlson et al 2006b) and females are mature by 3.7 years of age and 23 inches TL (58.5 cm TL) (Fitzhugh et al 2006b). They form spawning aggregations at depths ranging from 160-400 feet (Coleman et al. 1996). In the eastern Gulf of Mexico the spawning season is estimated to extend from late January to mid-April (with a peak in March) (Fitzhugh et al 2006b). Often immature female gag are found with spawning aggregations (Coleman et al. 1996). Gag can reach a maximum length and weight of 54 inches (138 cm TL) and 68 lbs. (31 kg) (Lombardi et al 2006b).

Status of the Gag Grouper Stock

See Section 1.2.

General Information on Reef Fish Species

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

In general, reef fish are widely distributed in the Gulf, occupying both pelagic and benthic habitats during their life cycle. Habitat types and life history stages are summarized in Table 3.2.1 and can be found in more detail in GMFMC (2004c). 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. 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).

Table 3.3.1. Summary of habitat utilization by life history stage for species most species in the Reef Fish FMP. This table is adapted from Table 3.2.7 in the final draft of the EIS from the Council’s EFH generic amendment (GMFMC 2004a).

Common name	Eggs	Larvae	Post-larvae	Early Juveniles	Late juveniles	Adults	Spawning adults
Red snapper	Pelagic	Pelagic		Hard bottoms, Sand/ shell bottoms, Soft bottoms	Hard bottoms, Sand/ shell bottoms, Soft bottoms	Hard bottoms, Reefs	Sand/ shell bottoms
Queen snapper	Pelagic	Pelagic				Hard bottoms	
Mutton snapper	Reefs	Reefs	Reefs	Mangroves, Reefs, SAV, Emergent marshes	Mangroves, Reefs, SAV, Emergent marshes	Reefs, SAV	Shoals/ Banks, Shelf edge/slope
Schoolmaster	Pelagic	Pelagic		Mangroves, SAV	Hard bottoms, Mangroves, Reefs, SAV, Emergent marshes	Hard bottoms, Reefs, SAV	Reefs
Blackfin snapper	Pelagic			Hard bottoms	Hard bottoms	Hard bottoms, Shelf edge/slope	Hard bottoms, Shelf edge/slope
Cubera snapper	Pelagic			Mangroves, Emergent marshes, SAV	Mangroves, Emergent marshes, SAV	Mangroves, Reefs	Reefs
Gray (mangrove) snapper	Pelagic, Reefs	Pelagic, Reefs	SAV	Mangroves, Emergent marshes, Seagrasses	Mangroves, Emergent marshes, SAV	Emergent marshes, Hard bottoms, Reefs, Sand/ shell bottoms, Soft bottoms	
Dog snapper	Pelagic	Pelagic		SAV	Mangroves, SAV	Reefs, SAV	Reefs
Mahogany snapper	Pelagic	Pelagic		Reefs, Sand/ shell bottoms	Reefs, Sand/ shell bottoms	Hard bottoms, Reefs, Sand/ shell bottoms, SAV	
Lane snapper	Pelagic		Reefs, SAV	Mangroves, Reefs, Sand/ shell bottoms, SAV, Soft bottoms	Mangroves, Reefs, Sand/ shell bottoms, SAV, Soft bottoms	Reefs, Sand/ shell bottoms, Shoals/ Banks	Shelf edge/slope
Silk snapper						Shelf edge	

Common name	Eggs	Larvae	Post-larvae	Early Juveniles	Late juveniles	Adults	Spawning adults
Yellowtail snapper	Pelagic			Mangroves, SAV, Soft bottoms	Reefs	Hard bottoms, Reefs, Shoals/Banks	
Wenchman	Pelagic	Pelagic				Hard bottoms, Shelf edge/slope	Shelf edge/slope
Vermilion snapper	Pelagic			Hard bottoms, Reefs	Hard bottoms, Reefs	Hard bottoms, Reefs	
Gray triggerfish	Reefs	Drift algae	Drift algae	Drift algae, Mangroves	Drift algae, Mangroves, Reefs	Reefs, Sand/shell bottoms	Reefs, Sand/shell bottoms
Greater amberjack	Pelagic	Pelagic	Pelagic	Drift algae	Drift algae	Pelagic, Reefs	Pelagic
Lesser amberjack				Drift algae	Drift algae	Hard bottoms	Hard bottoms
Almaco jack	Pelagic			Drift algae	Drift algae	Pelagic	Pelagic
Banded rudderfish		Pelagic		Drift algae	Drift algae	Pelagic	Pelagic
Hogfish				SAV	SAV	Hard bottoms, Reefs	Reefs
Blueline tilefish	Pelagic	Pelagic				Hard bottoms, Sand/shell bottoms, Shelf edge/slope, Soft bottoms	
Tilefish	Pelagic, Shelf edge/slope	Pelagic		Hard bottoms, Shelf edge/slope, Soft bottoms	Hard bottoms, Shelf edge/slope, Soft bottoms	Hard bottoms, Shelf edge/slope, Soft bottoms	
Dwarf sand perch					Hard bottoms	Hard bottoms, Soft bottoms	
Sand perch						Reefs, SAV, Shoals/Banks, Soft bottoms	
Rock hind	Pelagic	Pelagic				Hard bottoms, Reefs	Hard bottoms, Reefs
Speckled hind	Pelagic	Pelagic				Hard bottoms, Reefs	Shelf edge/slope
Yellowedge grouper	Pelagic	Pelagic			Hard bottoms	Hard bottoms	
Red hind	Pelagic	Pelagic		Reefs	Reefs	Hard bottoms, Reefs, Sand/shell bottoms	Hard bottoms

Common name	Eggs	Larvae	Post-larvae	Early Juveniles	Late juveniles	Adults	Spawning adults
Goliath grouper	Pelagic	Pelagic	Mangroves	Mangroves, Reefs, SAV	Hard bottoms, Mangroves, Reefs, SAV	Hard bottoms, Shoals/ Banks, Reefs	Reefs, Hard bottoms
Red grouper	Pelagic	Pelagic		Hard bottoms, Reefs, SAV	Hard bottoms, Reefs	Hard bottoms, Reefs	
Misty grouper	Pelagic	Pelagic				Hard bottoms, Shelf edge/slope	Hard bottoms
Warsaw grouper	Pelagic	Pelagic			Reefs	Hard bottoms, Shelf edge/slope	
Snowy grouper	Pelagic	Pelagic		Reefs	Reefs	Hard bottoms, Reefs, Shelf edge/slope	
Nassau grouper		Pelagic		Reefs, SAV		Hard bottoms, Reefs, Sand/shell bottoms	Hard bottoms, Reefs, Sand/shell bottoms
Black grouper	Pelagic	Pelagic		SAV	Hard bottoms, Reefs	Hard bottoms, Mangroves, Reefs	
Yellowmouth grouper	Pelagic	Pelagic		Mangroves	Mangroves, Reefs	Hard bottoms, Reefs	
Gag	Pelagic	Pelagic		SAV	Hard bottoms, Reefs, SAV	Hard bottoms, Reefs	
Scamp	Pelagic	Pelagic		Hard bottoms, Mangroves, Reefs	Hard bottoms, Mangroves, Reefs	Hard bottoms, Reefs	Reefs, Shelf edge/slope
Yellowfin grouper				SAV	Hard bottoms, SAV	Hard bottoms, Reefs	Hard bottoms

Status of Reef Fish Stocks

The Reef Fish FMP currently encompasses 42 species (Table 3.3.2). Stock assessments have been conducted on 11 species: red snapper (SEDAR 7, 2005), vermilion snapper (Porch and Cass-Calay, 2001; SEDAR 9, 2006a), yellowtail snapper (Muller et al., 2003; SEDAR 3, 2003), gray triggerfish (Valle et al., 2001; SEDAR 9, 2006b), greater amberjack (Turner et al., 2000; SEDAR 9, 2006c), hogfish (Ault et al., 2003; SEDAR 6, 2004a), red grouper (NMFS, 2002a; SEDAR 12 2007), gag (Turner et al., 2001; SEDAR 10, 2006), yellowedge grouper (Cass-Calay and Bahnick, 2002), and goliath grouper (Porch et al., 2003; SEDAR 6, 2004b). A review of the Nassau grouper's stock status was conducted by Eklund (1994), and updated estimates of generation times were developed by Legault and Eklund (1998).

Of the 11 species for which stock assessments have been conducted, the second quarter report of the 2007 Status of U.S. Fisheries (<http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm>) classifies two as overfished (greater amberjack and red snapper), and four as undergoing overfishing (red snapper, gag, gray triggerfish and greater amberjack). The recent assessment for vermilion snapper (SEDAR 9, 2006a) indicates this species is not overfished or undergoing overfishing. Recent assessments for gray triggerfish and gag (SEDAR 9, 2006b and SEDAR 10, 2006, respectively) suggest these two species are experiencing overfishing, and stock recovery for greater amberjack is occurring slower than anticipated. This amendment addresses overfishing for gag grouper. Many of the stock assessments and stock assessment reviews can be found on the Council (www.gulfcouncil.org) and SEDAR (www.sefsc.noaa.gov/sedar) Websites.

Table 3.3.2 Species of the reef fish FMP. Species in bold have had stock assessments. *Deep-water groupers (Note: if the shallow-water grouper quota is filled, then scamp are considered a deep-water grouper) **Protected groupers

Common Name	Scientific Name	Stock Status
Balistidae--Triggerfishes		
Gray triggerfish	<i>Balistes capriscus</i>	Overfishing, overfished unknown
Carangidae--Jacks		
Greater amberjack	<i>Seriola dumerili</i>	Overfished overfishing
Lesser amberjack	<i>Seriola fasciata</i>	Unknown
Almaco jack	<i>Seriola rivoliana</i>	Unknown
Banded rudderfish	<i>Seriola zonata</i>	Unknown
Labridae--Wrasses		
Hogfish	<i>Lachnolaimus maximus</i>	Unknown
Lutjanidae--Snappers		
Queen snapper	<i>Etelis oculatus</i>	Unknown
Mutton snapper	<i>Lutjanus analis</i>	Unknown
Schoolmaster	<i>Lutjanus apodus</i>	Unknown
Blackfin snapper	<i>Lutjanus buccanella</i>	Unknown
Red snapper	<i>Lutjanus campechanus</i>	Overfished overfishing
Cubera snapper	<i>Lutjanus cyanopterus</i>	Unknown
Gray (mangrove) snapper	<i>Lutjanus griseus</i>	Unknown
Dog snapper	<i>Lutjanus jocu</i>	Unknown
Mahogany snapper	<i>Lutjanus mahogoni</i>	Unknown
Lane snapper	<i>Lutjanus synagris</i>	Unknown
Silk snapper	<i>Lutjanus vivanus</i>	Unknown
Yellowtail snapper	<i>Ocyurus chrysurus</i>	Not overfishing, not overfished
Wenchman	<i>Pristipomoides aquilonaris</i>	Unknown
Vermilion snapper	<i>Rhomboplites aurorubens</i>	Not overfished, not overfishing
Malacanthidae--Tilefishes		
Goldface tilefish	<i>Caulolatilus chrysops</i>	Unknown
Blackline tilefish	<i>Caulolatilus cyanops</i>	Unknown
Anchor tilefish	<i>Caulolatilus intermedius</i>	Unknown
Blueline tilefish	<i>Caulolatilus microps</i>	Unknown
(Golden) Tilefish	<i>Lopholatilus chamaeleonticeps</i>	Unknown
Serranidae--Groupers		
Dwarf sand perch	<i>Diplectrum bivittatum</i>	Unknown
Sand perch	<i>Diplectrum formosum</i>	Unknown
Rock hind	<i>Epinephelus adscensionis</i>	Unknown
Yellowfin grouper	<i>Mycteroperca venenosa</i>	Unknown
Scamp	<i>Mycteroperca phenax</i>	Unknown
Red hind	<i>Epinephelus guttatus</i>	Unknown
**Goliath grouper	<i>Epinephelus itajara</i>	Unknown not overfishing

**Nassau grouper	Epinephelus striatus	Unknown not overfishing
Red grouper	Epinephelus morio	Not overfished, not overfishing
Gag	Mycteroperca microlepis	Overfishing, overfished unknown
Yellowmouth grouper	Mycteroperca interstitialis	Unknown
Black grouper	Mycteroperca bonaci	Unknown
*Yellowedge grouper	Epinephelus flavolimbatus	Unknown
*Snowy grouper	Epinephelus niveatus	Unknown
*Warsaw grouper	Epinephelus nigritus	Unknown
*Misty grouper	Epinephelus mystacinus	Unknown
*Speckled hind	Epinephelus drummondhayi	Unknown

Protected Species

There are 28 different species of marine mammals that may occur in the Gulf. All 28 species are protected under the MMPA and six are also listed as endangered under the ESA (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). Other species protected under the ESA occurring in the Gulf include five sea turtle species (Kemp's Ridley, loggerhead, green, leatherback, and hawksbill); two fish species (Gulf sturgeon and smalltooth sawfish), and two Acropora coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]). Information on the distribution, biology, and abundance of these protected species in the Gulf is included in final EIS to the Council's Generic EFH amendment (GMFMC, 2004a), the February 2005 ESA biological opinion on the reef fish fishery (NMFS 2005a) and Acropora Status Review (Acropora Biological Review Team 2005). Marine Mammal Stock Assessment Reports and additional information are also available on the NMFS Office of Protected Species website: <http://www.nmfs.noaa.gov/pr/species/>.

The Gulf reef fish fishery is classified in the 2007 Marine Mammal Protection Act List of Fisheries as Category III fishery (71 FR 247). This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from any fishery is less than or equal to 1 percent of the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. Dolphins are the only species documented as interacting with this fishery. Bottlenose dolphins may predate and depredate on the bait, catch, and/or released discards of the reef fish fishery.

All five species of sea turtles are adversely affected by the Gulf reef fish fishery. Incidental captures are relatively infrequent, but occur in all commercial and recreational hook-and-line components of the reef fishery. Captured sea turtles can be released alive or can be found dead upon retrieval of the gear as a result of forced submergence. Sea turtles released alive may later succumb to injuries sustained at the time of capture or from exacerbated trauma from fishing hooks or lines that were ingested, entangling, or otherwise still attached when they were released. Sea turtle release gear and handling protocols are required to minimize post-release mortality.

Smalltooth sawfish are also affected by the Gulf reef fish fishery, but to a much lesser extent. Smalltooth sawfish primarily occur in the Gulf off peninsular Florida. Incidental captures in the commercial and recreational hook-and-line components of the reef fish fishery are rare events, with only eight smalltooth sawfish estimated to be incidentally caught annually, and none are expected to result in mortality (NMFS 2005a). Fishermen in this fishery are required to follow smalltooth sawfish safe handling guidelines. The long, toothed rostrum of the smalltooth sawfish causes this species to be particularly vulnerable to entanglement in fishing gear.

3.4 Description of the Economic and Social Environment

3.4.1 Commercial Sector

Introduction

This section describes the commercial and recreational sectors of the grouper fishery in the Gulf of Mexico. Both sectors are major participants in the fishery. The description of the commercial fishery focuses on the harvesters and dealers while that of the recreational fishery, on private anglers and the for-hire operations. There is some overlap in the commercial and for-hire operations in the sense that some vessels operate as commercial harvesters some parts of the years and as for-hire operations other parts of the year. Commercial operations of these dual-permitted vessels are included in the commercial fishery description while their for-hire operations are included in the recreational fishery description.

The major sources of data are the Federal Logbook System (FLS) and Accumulated Landings System for the commercial fishery and the Marine Recreational Fishery Statistics Survey and Headboat Logbook Survey for the recreational fishery. Specialized studies, either as add-ons to existing data collection programs or as periodic surveys, supplement information from the major data sources. Primarily because of the limitations of the FLS, the years 1993 through 2006 are chosen as the period for the descriptive analysis. The initial year is the first year FLS covered 100 percent of commercial reef fish vessels in the Gulf while the terminal year is the last year with complete FLS information. Basic data were provided by Waters (2007, pers. comm.) and Holiman (2007, pers. comm.) for the commercial and recreational fisheries, respectively.

In the following discussion, four groups of species are presented, namely, reef fish, shallow-water grouper, red grouper, and gag. The shallow-water grouper information includes red grouper and gag plus all other shallow-water grouper, and the one for reef fish includes information for shallow-water grouper plus all other reef fish. Gag and red grouper are presented separately because they are the major species this amendment focuses on.

Annual Landings, Ex-vessel Values, and Effort

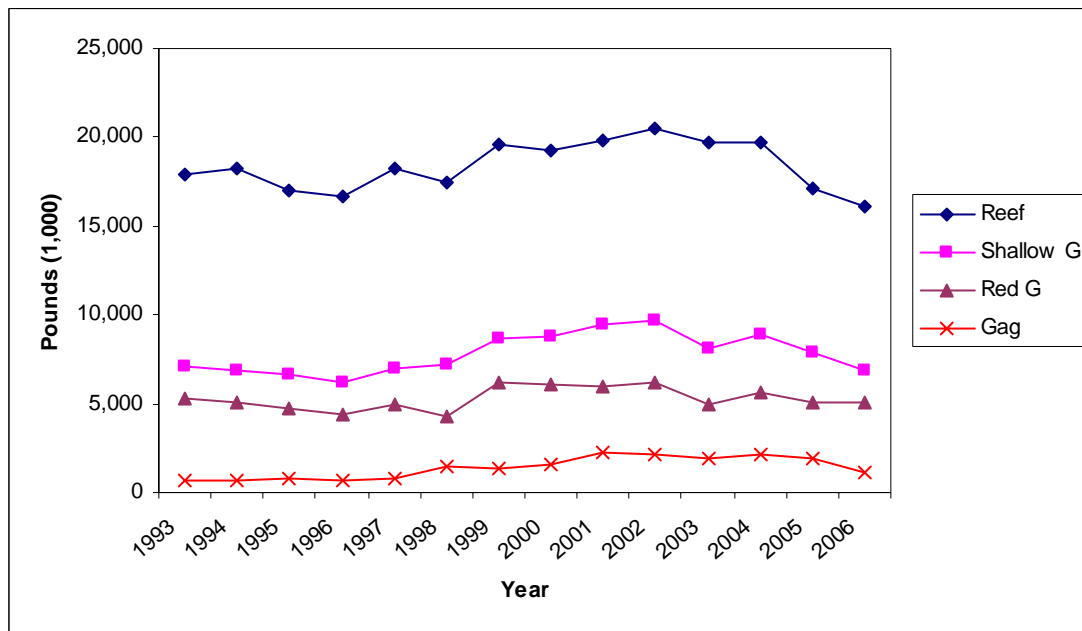
The commercial reef fish fishing fleet in the Gulf of Mexico is composed of vessels using different gear types and catching a variety of species. A license limitation program has now been in place in the reef fish fishery, and to harvest commercial amounts of reef fish a vessel is required to have an active permit on board. Commercial reef fish permits are renewable every

year, although an owner is granted a grace period of one year to renew his permit. Non-renewal of a permit within this grace period results in permanent loss of that particular permit. Currently, there are 1,118 active permits and 91 which may be renewed within a year.

Over the period 1993-2006, landings of all reef fish averaged 18.4 million pounds (MP) annually, with an average ex-vessel value of \$40.3 million in current terms or \$45.8 million after adjusting for inflation. The shallow-water grouper fishery has accounted for 43 percent of all reef fish landings and 47 percent of ex-vessel values for all reef fish. Red grouper and gag are the two major components of the shallow-water grouper fishery accounting for 85 percent of shallow-water grouper landings and 84 percent of corresponding ex-vessel values.

Landing configurations of reef fish, shallow-water grouper, red grouper and gag during 1993-2006 are depicted in Figure 3.4.1.1. Reef fish landings show a slight down trend from 1993 through 1996, a slight upward trend in the next three years, remain relatively flat thereafter until 2004, and fell in the last two years. About similar pattern can be observed for shallow-water grouper, red grouper, and gag landings, with two possible exceptions. First, the 2006 reef landings are below the range of prior landings, and second, gag does not show a downward trend in the early years. Peak landings occurred in 2002 for all reef fish and shallow-water groupers; they occurred in 1999 for red grouper and 2001 for gag.

Figure 3.4.1.1. Landings of selected species, 1993-2006.



The corresponding ex-vessel values are depicted in the next two figures. Figure 3.4.1.2 refers to ex-vessel values in current terms while Figure 3.4.1.3 refers to ex-vessel values after adjusting for inflation. Ex-vessel values in current terms show an upward trend during 1993-2006 (Figure 3.4.1.2), and this is particularly visible for reef fish as a whole. The landings decline in the last two years is quite visible for shallow-water groupers and gag, but not for reef fish and red grouper. Ex-vessel values for red grouper ex-vessel in fact rose in the last two years and those

for reef fish, in the last year. Both shallow-water grouper and gag show declines in ex-vessel values in the last two years, although they remain above the levels set in the 1990's. Peak ex-vessel values occurred in 2004 for reef fish, 2001 for shallow-water grouper and gag, and 2006 for red grouper.

When adjusted for inflation, ex-vessel values follow a relatively similar pattern earlier shown for landings, except that ex-vessel values for reef fish and red grouper either remain flat or slightly increase in the last two years. The general similarity of landings and real-vessel values trend suggest the relatively important effect of inflation on ex-vessel values.

Figure 3.4.1.2. Current ex-vessel values for selected species, 1993-2006.

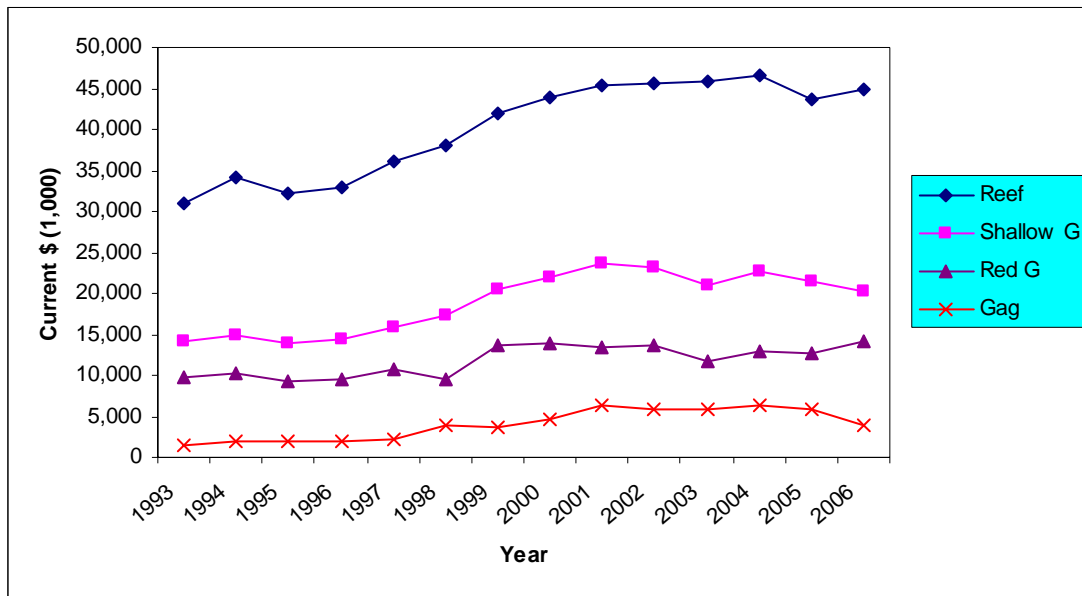
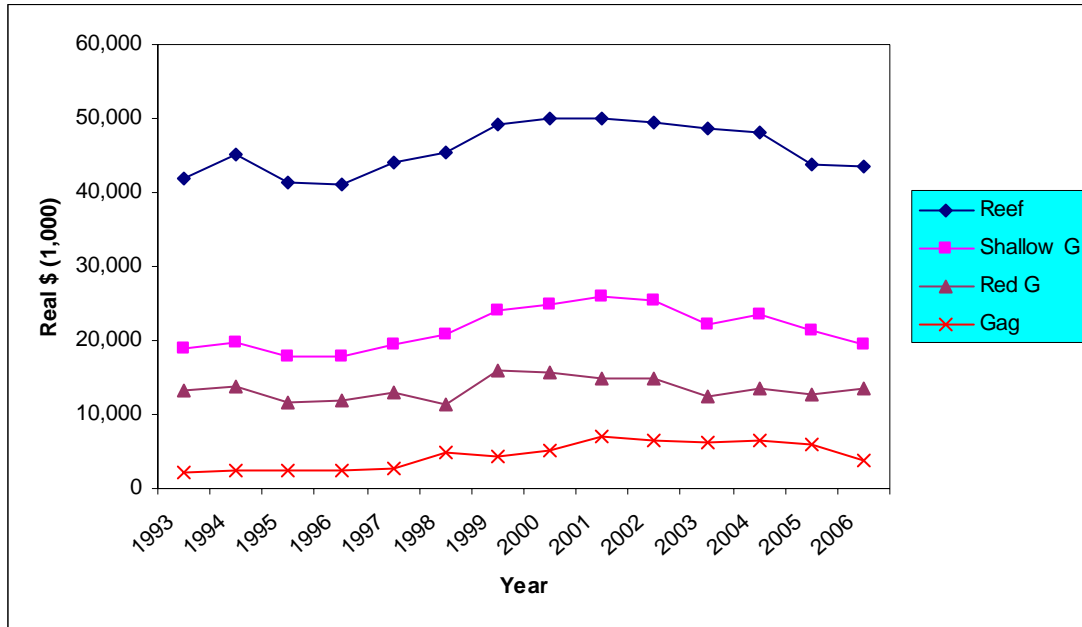
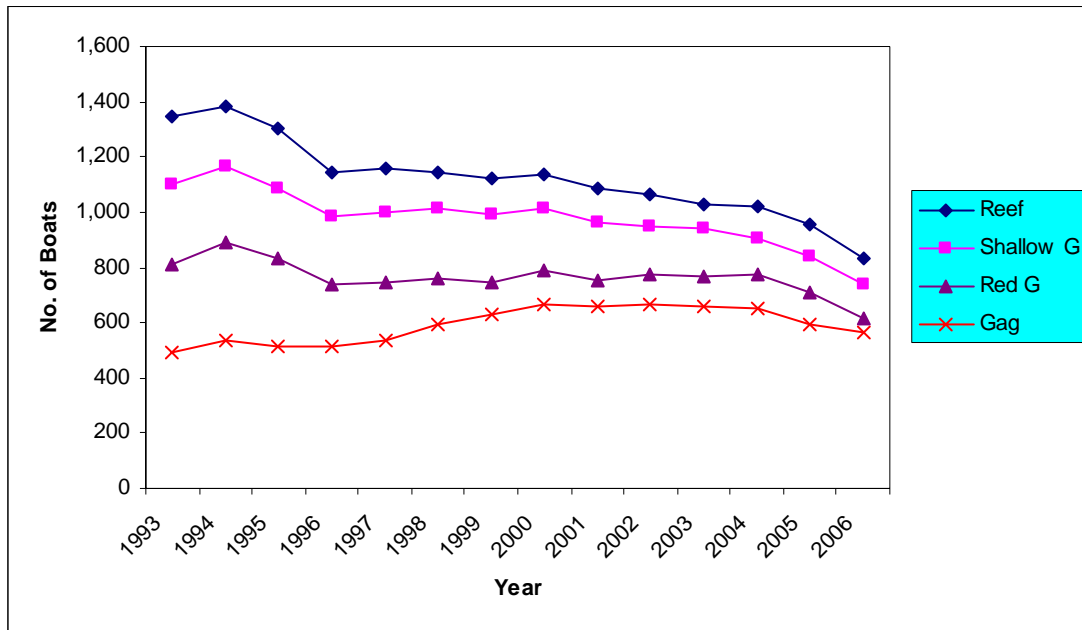


Figure 3.4.1.3. Real ex-vessel values for selected species, 1993-2006.



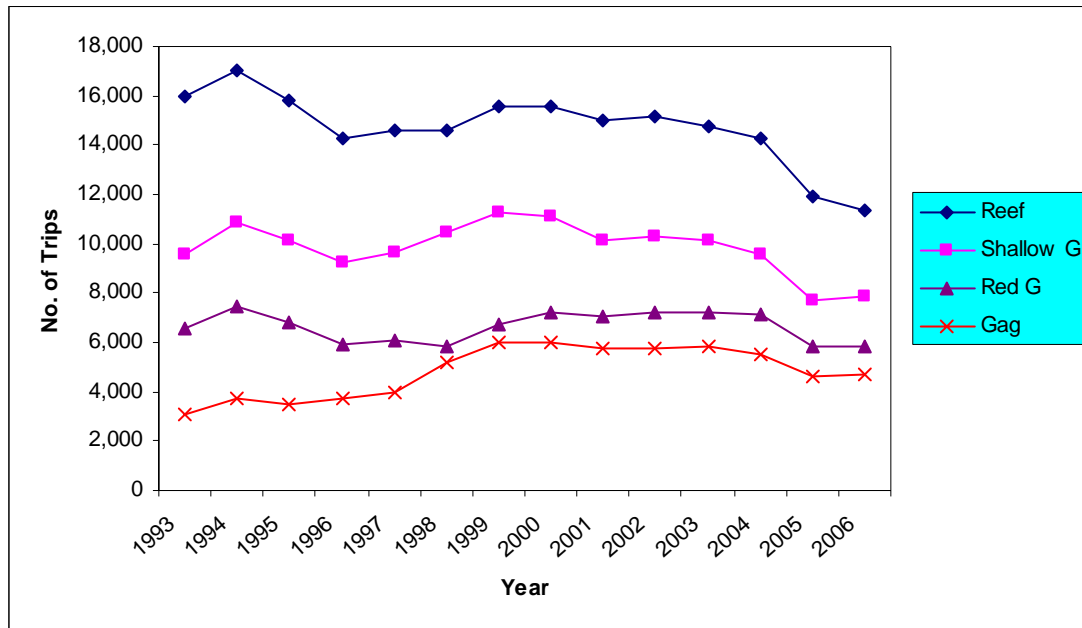
While landings in the reef fish fishery have shown patterns of increases and decreases, the number of boats actively participating in the fishery (except for gag) shows a pattern of decline over time. This pattern is depicted in Figure 3.4.1.4. Each curve refers to the number of boats landing at least one pound of reef fish, shallow-water grouper, red grouper, or gag in a given year. For reef fish as a whole, the number of boats in the fishery fell from high of 1,386 in 1994 to its lowest of 830 in 2006. The years 1994 and 2006 were also the highest and lowest points for shallow-water grouper and red grouper. For shallow-water grouper, the number of boats fell from 1,164 to 740 and for red grouper, from 889 to 619. Only in the gag fishery did the number of participating boats steadily increase over time, although it did fall in the last two years. Although the number of boats actively participating in the reef fish fishery has declined to a low of 830 in 2006, the number of permits at present is higher. This has led to the issue of latent permits where permits exist but not actively employed in the fishery. These are permits which may be used in the event noticeable improvements in the fishery arise.

Figure 3.4.1.4. Number of boats landing at least one pound of selected species, 1993-2006.



The downward trend in the number of boats landing reef fish is partly reflected in the number of trips taken by the remaining boats, but the decline in trips is not as dramatic as that for boats (see Figure 3.4.1.5). Many exiting trips may have come from boats with relatively little participation in the fishery. Trips landing any reef fish averaged 14,698 annually and ranged from 11,358 to 17,003; trips with any shallow-water grouper averaged 9,860 and ranged from 7,691 to 11,308; trips with red grouper averaged 6,627 and ranged from 5,803 to 7,485; and, trips with gag averaged 4,825 and ranged from 3,118 to 6,025. The highest and lowest trips, respectively, occurred in 1994 and 2006 for reef fish, 1999 and 2005 for shallow-water grouper, 1994 and 2006 for red grouper, and 2000 and 1993 for gag. General patterns observable from Figure 3.4.1.5 are the decline in trips for reef fish and shallow-water grouper, relatively flat to slight decline in trips for red grouper, and slightly steady increase in trips for gag.

Figure 3.4.1.5. Number of trips by boats landing at least one pound of selected species, 1993-2006.



Days away from port may be considered another indicator of fishing effort in the fishery. This indicator, however, may not exactly reflect the time spent for fishing since boats have to travel to fishing areas before they actually fish. This is true even with vessels that move around while fishing, such as those employing longline and troll gear types. At any rate, the general pattern over time can provide some broad indications of the movement of fishing days over time.

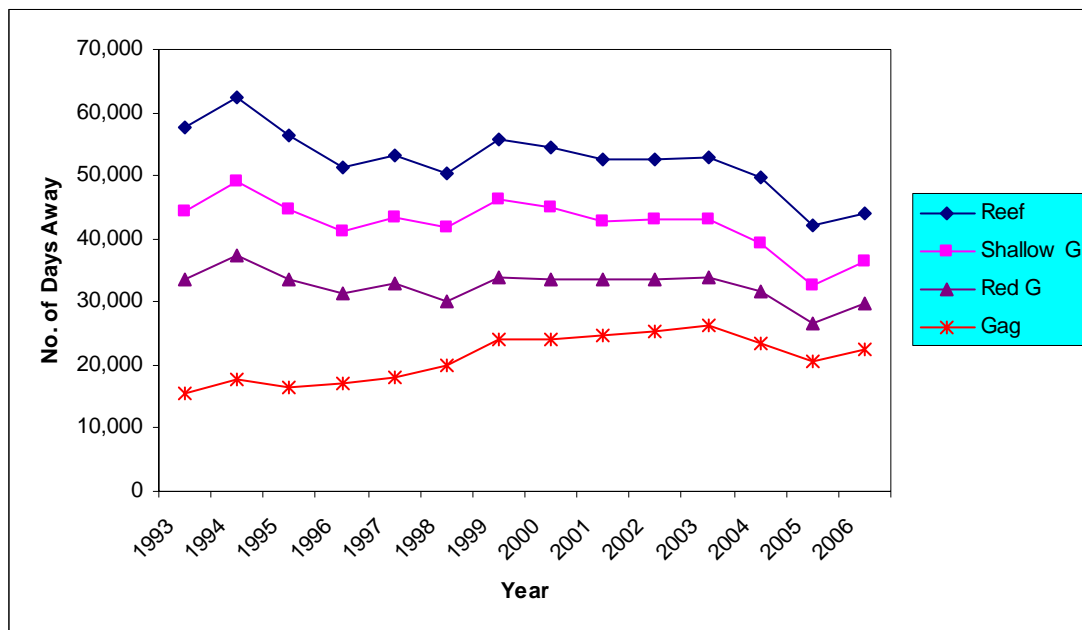
Shown in Figure 3.4.1.6 is the trend in days away from port for vessels landing at least one pound of selected species. While the correspondence is not perfect, the pattern over time of days away from port mimics that of trips. What can be gleaned from Figure 3.4.1.6 are patterns of general decline of days away from port for reef fish and shallow-water grouper, a flat to slight decline for red grouper, and a slight increase for gag. Days away from port reached their highest in 1994 and lowest in 2005 for reef fish, shallow-water grouper and red grouper. The peak for gag occurred in 2003 while the trough occurred in 1993. For the period 1993-2006, the annual average days away from port were 52,498 for reef fish, 42,333 for shallow-water grouper, 32,531 for red grouper, and 21,133 for gag.

One conclusion that can be drawn from the three indicators of fishing effort pertains to the kind of effort movement over time. With certain limitations, the general conclusion is that effort declined for reef fish and shallow-water grouper. Within the shallow-water grouper complex, effort remained flat or slightly declined for red grouper and slightly increased for gag. Effort shifting between species is a possibility but it cannot be inferred from the given information.

There are several potential reasons for the decline in effort for reef fish, shallow-water grouper, and red grouper. Such for example as the increase in fishing cost, increase in harvesting efficiency, more restrictive regulations particularly for the grouper fishery, and even improvements in the stock status of certain species may contribute to the decline in fishing effort.

However, more research is needed to determine which factors did contribute to such decline in fishing effort for reef fish, shallow-water grouper, and red grouper. Further research is also needed to determine the apparent increase in fishing effort for gag.

Figure 3.4.1.6. Days away from port for boats landing at least one pound of selected species, 1993-2006.



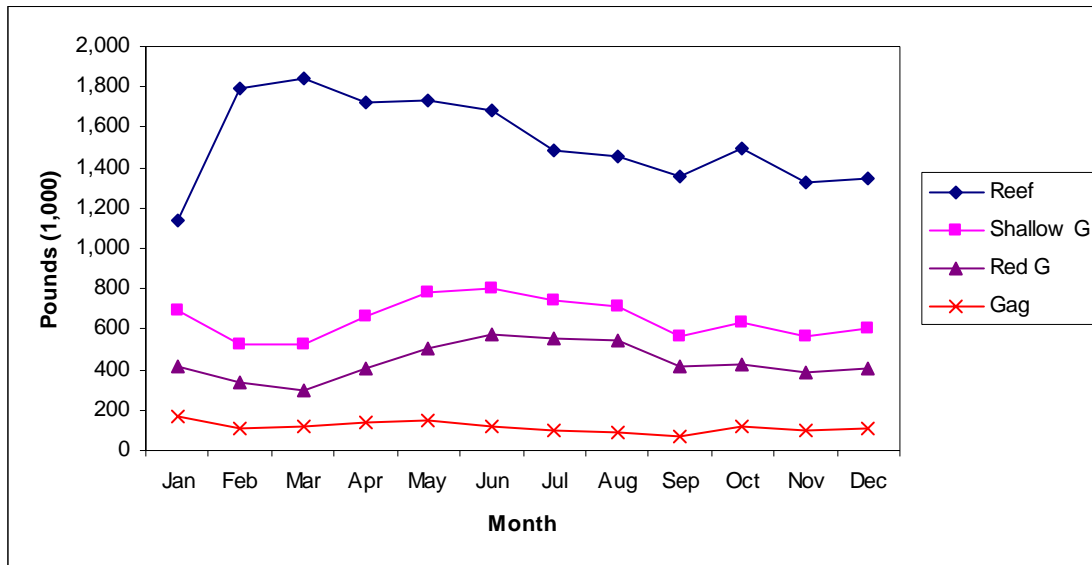
Seasonal Characteristics

Fish stock, market, and harvesting conditions in addition to the regulatory regime are some of the factors that shape the seasonal characteristics of the reef fish fishery in general and grouper fishery in particular. How these factors affect seasonal behavior of the fishery will not be explored here.

The pattern for monthly landings of reef fish as a whole is rather straightforward: landings increase in February and March, then fall in a steady fashion the rest of the year. The monthly patterns for shallow-water grouper and red grouper are about the same: landings fall from January through March, rise and fall like a flat inverted cup the next two quarters, and remain relatively flat in the last three months. Gag landings are relatively high in January, slowly decline thereafter, but rise a little in October and remain flat thereafter the entire last quarter. For all groups, there is a perceptible landings uptick in October.

For the period 1993-2006, reef landings averaged 1.5 million pounds a month and ranged from 1.1 million pounds to 1.8 million pounds. Shallow-water grouper landings averaged 652 thousand pounds and ranged from 520 thousand pounds to 800 thousand pounds. Red grouper landings averaged 440 thousand pounds, with a range of 301 to 572 thousand pounds. The average for gag was 116 thousand pounds, with a range of 73 to 170 thousand pounds.

Figure 3.4.1.7. Average monthly landings (thousand pounds) of selected species, 1993-2006.

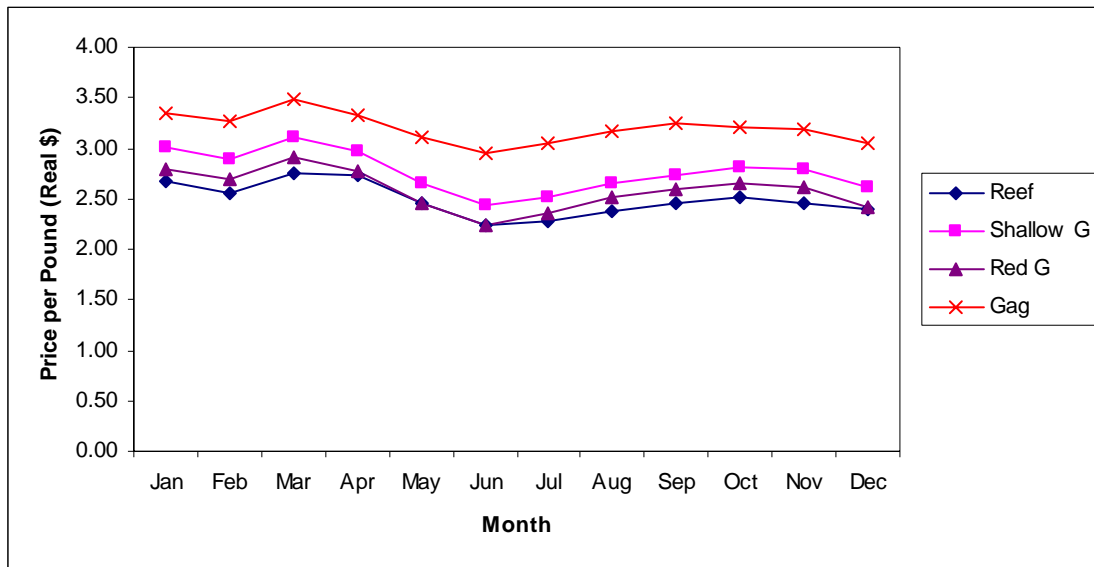


Monthly real prices (i.e., after adjusting for inflation) for reef fish, shallow-water grouper, red grouper, and gag follow a similar pattern (see Figure 3.4.1.8). They reached a peak in March, steadily fell until their trough in June, and then gradually rose but only to fall off slightly in the last two months of the year. Gag commanded the highest prices in all months, followed by shallow-water grouper, and then by red grouper and reef fish. The clear difference in prices for gag and red grouper could indicate certain level of product differentiation between the two species.

As can be expected, prices for shallow-water grouper fell in between the high gag prices and low red grouper prices. The landings dominance of red grouper in the shallow-water grouper complex brought down the prices for shallow-water grouper nearer to the red grouper prices than to those of gag. Lower prices for other reef fish also brought down the prices for reef fish further below the red grouper prices.

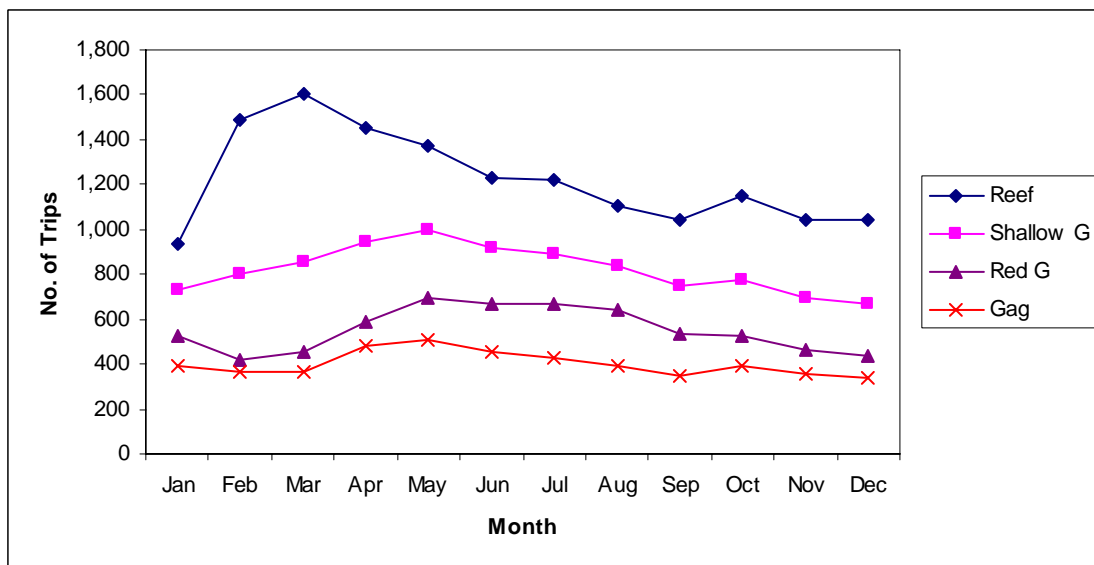
Monthly prices for gag averaged at \$3.20 a pound and ranged from \$2.96 to \$3.49 a pound. Red grouper monthly prices averaged at \$2.58 a pound and ranged from \$2.25 to \$2.90 a pound. For the shallow-water grouper complex, monthly prices averaged at \$2.77 a pound and ranged from \$2.44 to \$3.11 a pound. Prices for all reef fish averaged at \$2.49 a pound and ranged from \$2.23 to \$2.76 a pound.

Figure 3.4.1.8. Average monthly price per pound (real) of selected species, 1993-2006.



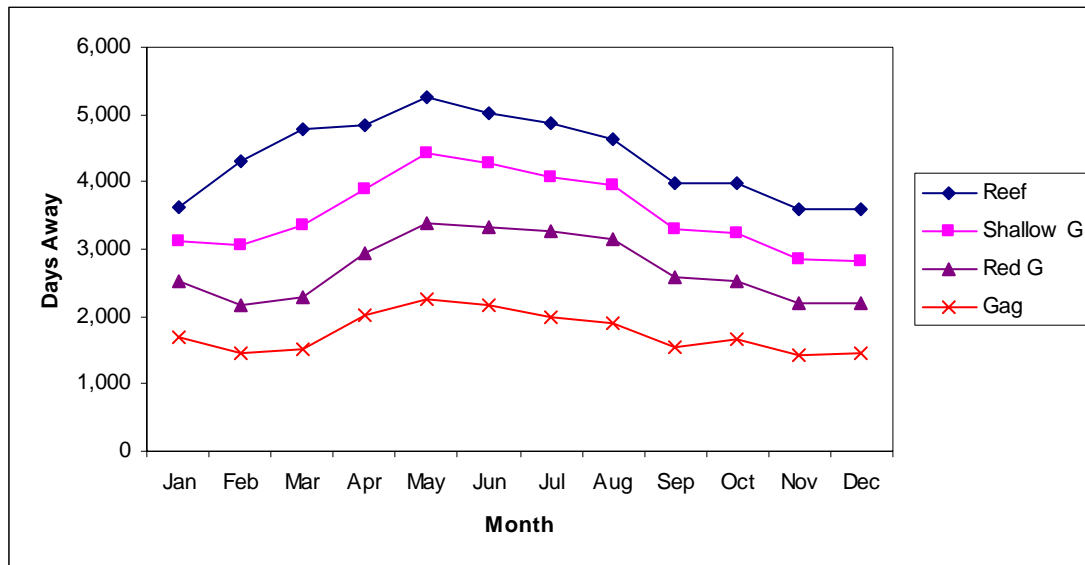
The number of trips taken by boats landing at least one pound of reef fish, shallow-water grouper, red grouper, or gag also followed a seasonal pattern as shown in Figure 3.4.1.9. All trips generally rose in the first few months and then gradually taper off throughout the remainder of the year. All species, except reef fish as a whole, reached their peak trips in May. For reef fish, the peak month for trips was March. The average trips per month were 1,045 for reef fish, 669 for shallow-water grouper, 440 for red grouper, and 342 for gag.

Figure 3.4.1.9. Average monthly trips by boats landing at least one pound of selected species, 1993-2006.



Seasonality also characterizes the number of days spent by boats away from port. They all rose in the first few months, peaked in May, and gradually fall off throughout the remainder of the year. For gag, red grouper, and shallow-water grouper, seasonality in the number of days away from port closely followed that of the number of trips. For reef fish as a whole, the number of trips peaked earlier (March) than the number of days away from port (May). The average days away from port were 4,375 days, 3,528 days, 2,711 days, and 1,761 days for reef fish, shallow-water grouper, red grouper, and gag, respectively.

Figure 3.4.1.10. Average days away from port of boats landing at least one pound of selected species, 1993-2006.



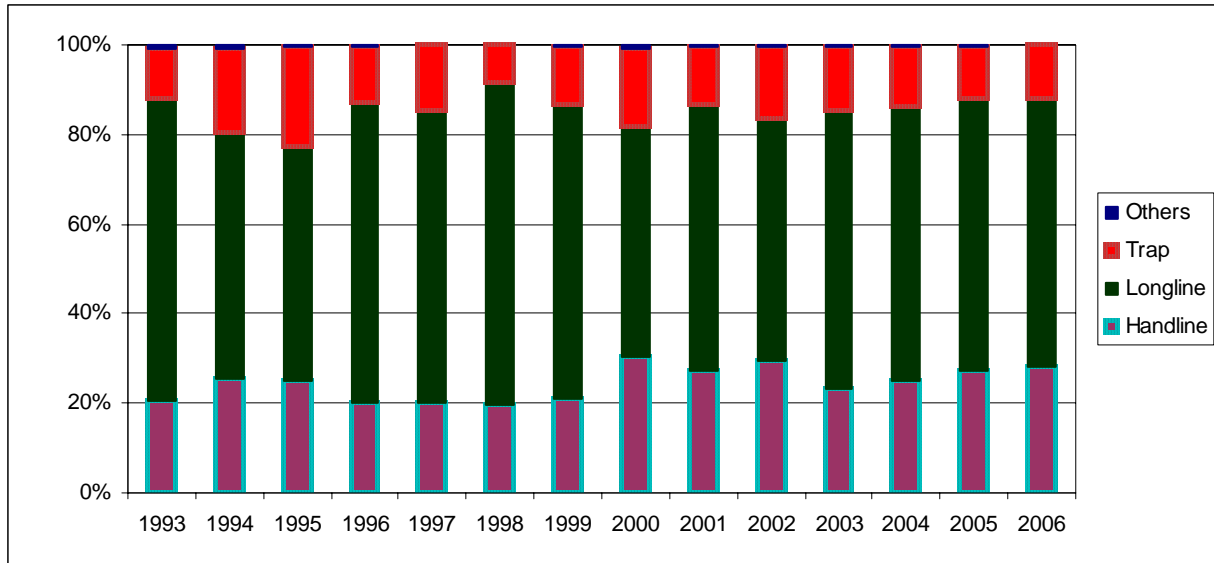
Distribution by Gear Type

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

As can be gleaned from Figure 3.4.1.11, longlines caught a majority of red grouper landings each year for the period 1993-2006. On average, longlines accounted for 60.7 percent of red grouper landings, handlines caught 24.6 percent, traps caught 14.3 percent, and other gear types such as trolling and diving caught the rest (0.4 percent and not visible in the graph). The longline share of landings ranged from 51.3 percent in 2000 to 72 percent in 1998; handline share ranged from 19.7 percent in 1998 to 30.2 percent in 2000. While the landings share of traps remained low, it

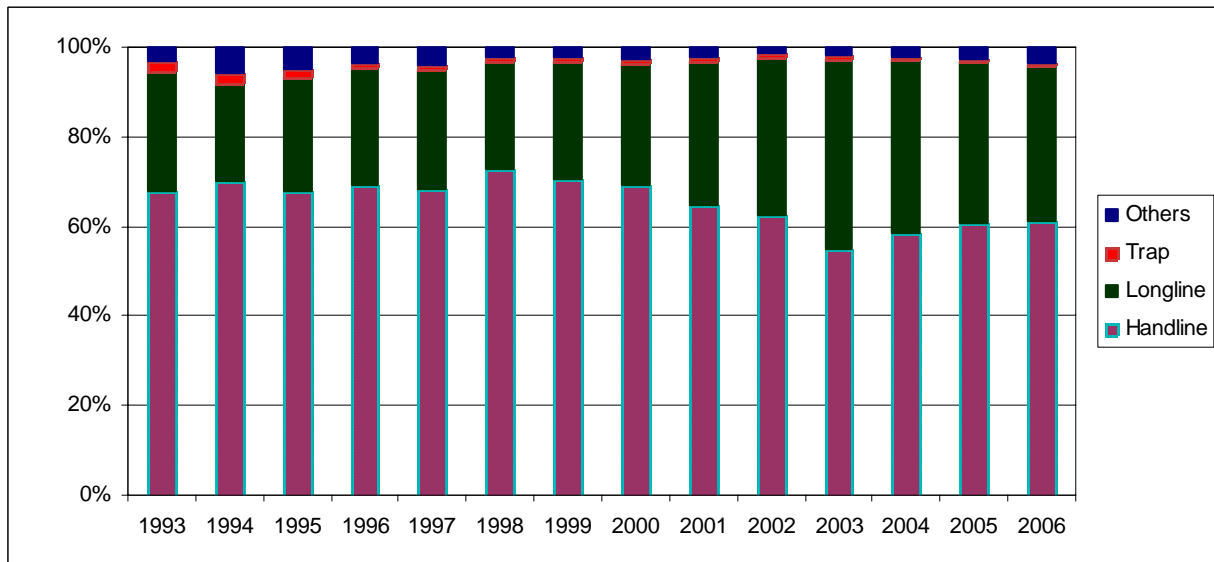
actually reached a peak of 22.5 percent in 1995. These ranges indicate share fluctuations from year to year.

Figure 3.4.1.11. Percent distribution of red grouper landings by gear type, 1993-2006.



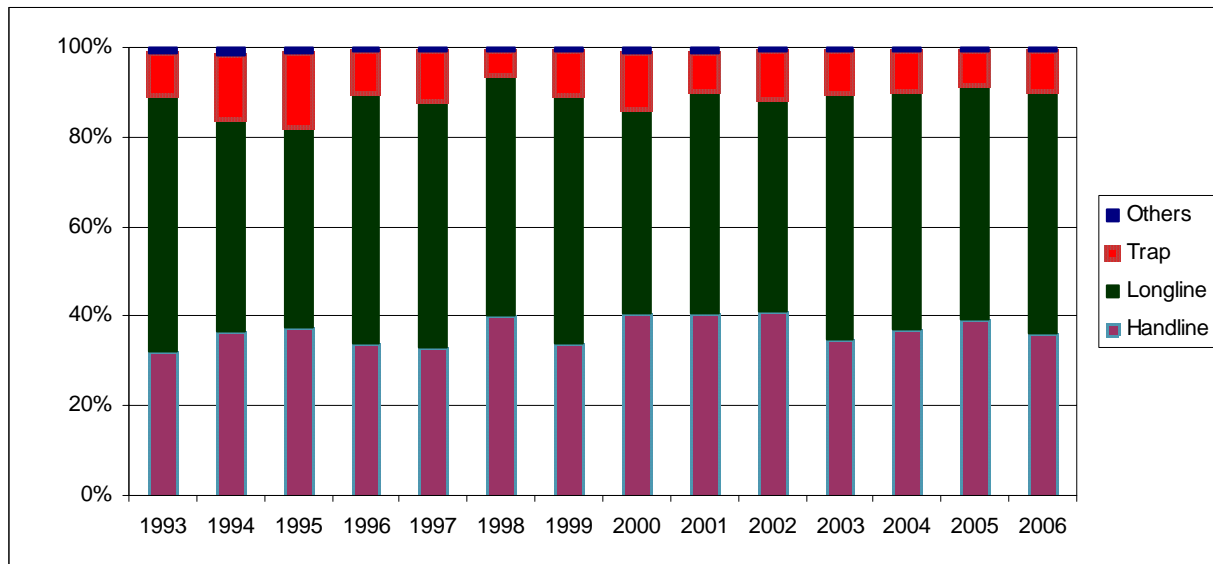
In the gag fishery, handlines accounted for the largest share, with an annual average of 64.3 percent (see Figure 3.4.1.12). Longlines accounted for an average of 32.2 percent and traps, 0.8 percent. As in the red grouper fishery, gag landings share by each gear type fluctuated from year to year. The ranges are 54.8 to 72.8 percent for handlines, 22 to 42.6 percent for longlines, and 0.4 to 2.2 percent for traps. Unlike in the red grouper fishery, traps played a relatively minor role in the gag fishery.

Figure 3.4.1.12. Percent distribution of gag landings by gear type, 1993-2006.



Since red grouper landings accounted for most of the shallow-water grouper landings, it is not surprising that longlines accounted for the largest share of shallow-water grouper landings (see Figure 3.4.1.13). On average, longlines accounted for 51.7 percent of all shallow-water landings, handlines 37.2 percent, traps 10.2 percent, and other gear types 1.0 percent. The peak share for longlines occurred in 1993 at 57.3 percent, indicating that the gear type's share has fallen down over the period 1993-2006. The peak share for handlines occurred in 2002 at 41.1 percent. After 2002, the share fluctuated around a downward trend. With the shares of traps and other gear types remaining at relatively low levels, the downtrend in the handline sector means the longline sector started to recoup shares it lost in the past 10 years.

Figure 3.4.1.13. Percent distribution of shallow-water grouper landings by gear types, 1993-2006.

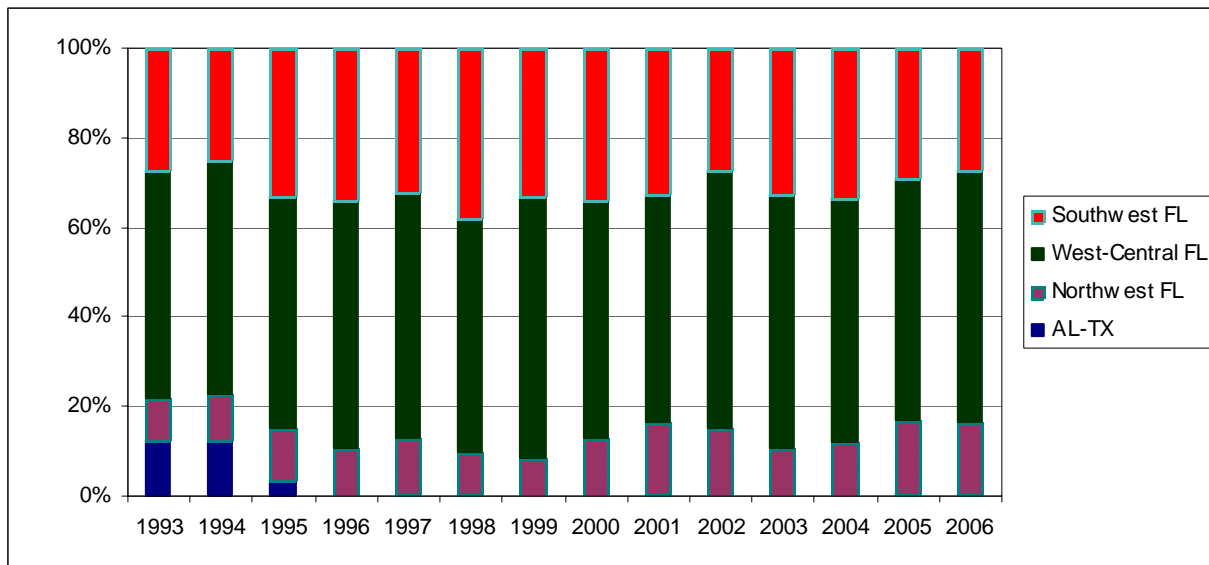


Distribution by Area

Since groupers caught in the Gulf are landed mostly in Florida, distribution of landings by area is presented by combining Alabama through Texas (areas 11-21) as one area and separating Florida into three areas—Southwest FL (areas 1-4), West-Central FL (areas 5-6), and Northwest FL (areas 7-10). Gulf grouper landings in areas outside the Gulf are inconsequential.

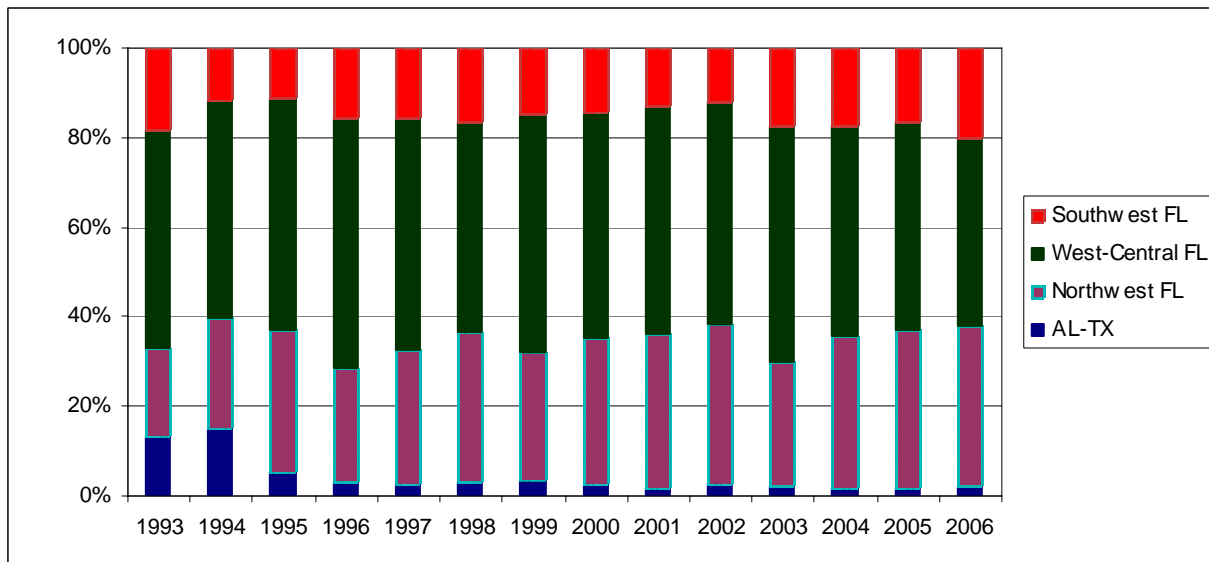
For the period 1993-2006, Florida accounted for 97.8 percent of all red grouper landings (see Figure 3.4.1.14). Within Florida, the West-Central region accounted for most of the landings. This region landed an annual average of 54.3 percent of all (not just Florida) red grouper landings, followed by Southwest FL at 31.3 percent, and by Northwest FL at 12.3 percent. Peak shares occurred in 1998 at 37.8 percent for Southwest FL, in 1999 at 58.3 percent for West-Central FL, in 2001 at 16.1 percent for Northwest FL, and in 1994 at 12.5 percent for the rest of the Gulf. Shares of various areas fluctuated over the entire period.

Figure 3.4.1.14. Percent distribution of red grouper landings by area, 1993-2006.



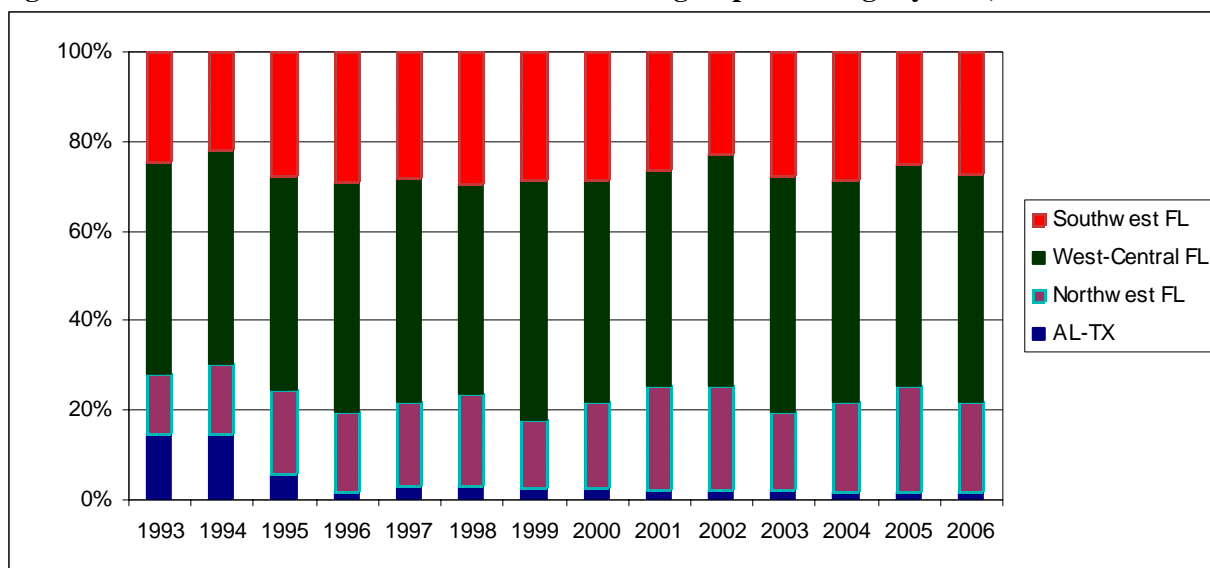
The share distribution of gag landings almost mimicked that of red grouper. On average, Florida accounted for 96.7 percent of all gag landings (see Figure 3.3.1.15). West-Central FL is the top region, accounting for an average of 49.4 percent, followed by Northwest FL at 31.9 percent, and then by Southwest FL at 15.4 percent. Peak shares occurred in 2005 for Southwest FL at 19.9 percent, in 1996 for West-Central FL at 55.6 percent, in 2002 for Northwest FL at 35.7 percent, and in 1994 for the rest of the Gulf at 15.4 percent. Again, share distributions of each area fluctuated throughout the entire period.

Figure 3.4.1.15. Percent distribution of gag landings by area, 1993-2006.



For all shallow-water grouper, 95.9 percent of all landings went to Florida, again with West-Central FL as the dominant region in Florida and throughout the Gulf (see Figure 3.3.1.16). Peak shares occurred in 1998 for Southwest FL at 29.6 percent, in 1999 for West-Central FL at 53.7 percent, in 2001 in Northwest FL at 23.5 percent, and in 1993-1994 for the rest of Gulf at 14.9 percent.

Figure 3.4.1.16. Percent distribution of shallow-water grouper landings by area, 1993-2006.



Species Composition

As a multi-species fishery, a fishing trip in the reef fish fishery in general and grouper fishery in particular catches a variety of species. The next two tables present species composition of trips that landed at least one pound of either red grouper or gag for the period 2001-2006.

As shown in Table 3.4.1.1, trips that caught at least one pound of red grouper also caught many other species, such as other shallow-water groupers, deepwater groupers, tilefishes, snappers, and jacks, etc. The number of trips catching red grouper ranged from 5,803 in 2006 to 7,214 in 2002. In these trips, shallow-water groupers were the dominant species, and within the shallow-water grouper complex, red grouper came in first. Shallow-water grouper accounted for as low as 69 percent in 2003 and as high as 80 percent in 2001. Red grouper comprised as low as 44.7 percent in 2003 and as high as 53 percent in 2006 of all the species caught in these trips.

Table 3.4.1.1. Species composition of trips with at least one pound of red grouper (1,000 lbs).

	2001		2002		2003		2004		2005		2006	
	lbs	%	lbs	%	lbs	%	lbs	%	lbs	%	lbs	%
Shallow-water Groupers	9,024	80.1	9,303	78.8	7,735	69.3	8,597	74.7	7,678	75.7	6,617	69.5
Red	5,922	52.6	6,245	52.9	4,990	44.7	5,627	48.9	5,106	50.3	5,042	53.0
Gag	2,026	18.0	1,941	16.4	1,800	16.1	1,989	17.3	1,788	17.6	1,059	11.1
Black	833	7.4	893	7.6	699	6.3	729	6.3	530	5.2	351	3.7
Scamp	215	1.9	204	1.7	234	2.1	239	2.1	242	2.4	155	1.6
Deepwater Groupers	340	3.0	265	2.2	389	3.5	328	2.9	244	2.4	192	2.0
Tilefishes	78	0.7	70	0.6	74	0.7	64	0.6	66	0.6	65	0.7
Shallow-water Snappers	412	3.7	445	3.8	381	3.4	449	3.9	322	3.2	461	4.8
Mid-shelf Snappers	321	2.8	554	4.7	1,147	10.3	982	8.5	943	9.3	1,084	11.4
Triggerfish	47	0.4	79	0.7	131	1.2	93	0.8	73	0.7	46	0.5
Jacks	210	1.9	257	2.2	294	2.6	236	2.1	238	2.3	243	2.6
Grunts/porgies	300	2.7	326	2.8	468	4.2	351	3.1	253	2.5	255	2.7
Sea Bass	43	0.4	21	0.2	22	0.2	21	0.2	5	0.0	0	0.0
Coastal Pelagics	111	1.0	104	0.9	85	0.8	75	0.6	49	0.5	92	1.0
Sharks	338	3.0	346	2.9	394	3.5	292	2.5	257	2.5	438	4.6
Tunas	7	0.1	5	0.0	3	0.0	2	0.0	3	0.0	2	0.0
Other Species	33	0.3	33	0.3	32	0.3	19	0.2	17	0.2	19	0.2
No. of Trips	7,029		7,214		7,185		7,096		5,845		5,803	

On trips landing at least one pound of gag, shallow-water groupers were also the dominant species (see Table 3.4.1.2). And even in these trips, red grouper still comprised most of the shallow-water grouper catches. It should be pointed out, however, that these trips do not reflect trips that primarily targeted gag. The trips considered here include many of the trips also included in the previous table which showed that trips catching red grouper also caught gag.

Table 3.4.1.2. Species composition of trips with at least one pound of gag (1,000 lbs).

	2001		2002		2003		2004		2005		2006	
	lbs	%	lbs	%	lbs	%	lbs	%	lbs	%	lbs	%
Shallow-water Groupers	6,460	70.8	6,694	67.4	5,681	61.7	6,261	69.5	5,952	72.6	4,980	64.6
Red	3,986	43.7	4,288	43.2	3,434	37.3	3,819	42.4	3,780	46.1	3,608	46.8
Gag	2,208	24.2	2,118	21.3	1,937	21.0	2,134	23.7	1,890	23.1	1,160	15.0
Black	71	0.8	79	0.8	91	1.0	83	0.9	41	0.5	53	0.7
Scamp	184	2.0	194	1.9	211	2.3	215	2.4	222	2.7	150	1.9
Deepwater Groupers	363	4.0	414	4.2	584	6.3	401	4.5	331	4.0	340	4.4
Tilefishes	71	0.8	75	0.8	85	0.9	74	0.8	52	0.6	80	1.0
Shallow-water Snappers	204	2.2	220	2.2	205	2.2	240	2.7	177	2.2	229	3.0
Mid-shelf Snappers	1,122	12.3	1,466	14.8	1,497	16.2	1,117	12.4	947	11.6	1,225	15.9
Triggerfish	60	0.7	92	0.9	95	1.0	71	0.8	62	0.8	38	0.5
Jacks	352	3.9	390	3.9	366	4.0	293	3.2	263	3.2	281	3.6
Grunts/porgies	215	2.4	249	2.5	355	3.9	265	2.9	198	2.4	190	2.5
Sea Bass	27	0.3	13	0.1	20	0.2	18	0.2	4	0.0	0	0.0
Coastal Pelagics	82	0.9	96	1.0	70	0.8	68	0.8	75	0.9	87	1.1
Sharks	129	1.4	178	1.8	218	2.4	174	1.9	119	1.5	236	3.1
Tunas	11	0.1	7	0.1	4	0.0	3	0.0	3	0.0	4	0.0
Other Species	30	0.3	32	0.3	33	0.4	27	0.3	15	0.2	17	0.2
No. of Trips	5,762		5,785		5,839		5,486		4,649		4,679	

Vessels by Landing Categories

Vessels in the reef fish fishery caught not only several species but also varying amounts of the species. Table 3.4.1.3 presents landing categories of vessels landing gag, red grouper, shallow-water grouper, or reef fish. On average from 2001 to 2006, most vessels landing gag were concentrated on the lower end of the distribution; slightly more than half of all vessels landing gag had 1,000 pounds or less of gag, and more than 80 percent landed 5,000 pounds or less of gag. There were over 100 vessels landing more than 5,000 pounds but less than 50,000 pounds. Some vessels did land more than 50,000 pounds of gag, but were too few to warrant inclusion in the table.

There were more vessels landing red grouper than gag which probably would be the expectation since the commercial fishery has historically been the major participant in the red grouper than in the gag fishery. A fairly good number of vessels would appear to populate the entire landings distribution. There were on average 69 vessels landing between 5,000 and 10,000 pounds or red grouper, 129 vessels landing more than 10,000 pounds but less than 50,000 pounds of red grouper, and 23 vessels landing more than 50,000 pounds of red grouper. Despite the relatively more even distribution (relative to gag vessels), close to 70 percent of all vessels landing red grouper averaged 5,000 pounds or less red grouper.

As would be expected, there were more vessels landing any species of shallow-water grouper than either gag or red grouper. However, the distribution of vessels across the landing categories would appear to follow the pattern observed for vessels landing red grouper. A fair number of vessels populated the entire distribution, but a majority (about 65%) of vessels still belonged to the 5,000 pounds or less category.

For vessels landing any reef fish species, the distribution by landing category would look more evenly spread than those for gag, red grouper, and shallow-water grouper. Vessels landing more than 5,000 pounds outnumbered those landing 5,000 pounds or less (520 vs. 477 vessels). A relatively good number of vessels (126) landed more than 50,000 pounds. Some of these would be those landing red grouper or shallow-water grouper, but many were also landing other species of reef fish than shallow-water grouper.

Table 3.4.1.3. Number of boats by pounds of selected species landed, 2001-2006.

Pounds	2001	2002	2003	2004	2005	2006	Average
Number of vessels landing gag							
1 --100	104	124	132	108	114	116	116
101 -- 1,000	229	217	233	229	177	216	217
1,001 -- 5,000	196	207	184	196	192	166	190
5,001 – 10,000	63	65	55	62	57	39	57
10,001 – 50,000	64	55	53	53	55	24	51
> 50,000	0	0	0	0	0	0	0
Number of vessels landing red grouper							
1 --100	147	149	169	136	128	99	138
101 -- 1,000	211	214	208	232	192	181	206
1,001 -- 5,000	153	177	179	173	183	135	167
5,001 – 10,000	71	54	83	71	74	63	69
10,001 – 50,000	144	154	105	137	114	121	129
> 50,000	27	29	20	23	21	20	23
Number of vessels landing any species of shallow-water grouper							
1 --100	139	126	125	107	95	89	114
101 -- 1,000	245	234	250	229	228	203	232
1,001 -- 5,000	244	248	239	233	216	196	229
5,001 – 10,000	79	88	104	105	92	62	88
10,001 – 50,000	206	205	167	188	173	156	183
> 50,000	50	48	39	42	37	34	42
Number of vessels landing any species of reef fish							
1 --100	50	43	55	50	58	33	48
101 -- 1,000	182	191	180	179	149	141	170
1,001 -- 5,000	308	283	253	245	254	211	259
5,001 – 10,000	106	110	124	126	119	88	112
10,001 – 50,000	305	305	287	284	265	243	282
> 50,000	133	132	130	135	114	114	126

Fish Dealers

There are currently 178 Gulf reef fish dealers with active permits, but since the reef fish dealer permitting system in the Gulf is an open access program, the number of dealers can vary from

year to year. As part of the commercial reef fish logbook program, reporting vessels identify the dealers who receive their landed fish. Commercial reef fish vessels with federal permits are required to sell their harvest only to permitted dealers. Based on vessel logbook records for 2004 to 2006, an average of 156 reef fish dealers were actively buying and selling gag. These dealers were distributed around the Gulf as follows: 138 in Florida, 7 in Alabama and Mississippi, and 10 in Louisiana. One dealer was identified to have a homeport outside the Gulf. Dealers in Florida purchased about \$6.27 million worth of gag, followed by dealers in Louisiana with purchases of \$50.6 thousand and dealers in other Gulf states with purchases of \$14.3 thousand. For the period 2004-2006, an average of 172 reef fish dealers were actively buying and selling red grouper. They were distributed around the Gulf as follows: 160 in Florida and 11 all in all for Alabama, Mississippi and Louisiana. Dealers in Florida purchased about \$13.7 million of red grouper while the rest of the Gulf states purchased \$29.4 thousand of red grouper.

The dominance of Florida in terms of the number of grouper dealers and vessels implies that most of the direct and indirect effects of regulatory changes for grouper would fall on fishery participants in Florida. As such, rippling effects of those regulations would be felt in communities and support industries in the area.

Imports

Seafood imports are in general the major source of seafood products in the U.S, and this is also true in the reef fish fishery. Table 3.3.1.4 summarizes imports of snappers and groupers into the U.S. As can be gleaned from the table, imports steadily increased over the 1993-2006 period, from a low of 22 million pounds in 1994 to a high of 49.7 million pounds in 2005, with a slight drop in 2006. This is in contrast to domestic production of all reef fish in the Gulf which, although averaging at 18.4 million pounds annually, had been declining since its peak in 2002 (see Figure 3.4.1.1). In addition, the lowest import level of 22 million pounds in 1994 is higher than the highest reef fish production of 20.5 million pounds in 2002. Although the levels of domestic production and imports are not totally comparable for a variety of reasons, such as fresh versus frozen, the difference in magnitude still indicates the dominance of imports in the reef fish market.

The value of imports also rose steadily over the years, from a low of \$42.3 million (after adjusting for inflation) to its highest level of \$101.7 million in 2006. The value of domestic production, on the other hand, rose slightly in the first years but declined after reaching its peak of \$50.1 million in 2001. In 2006, the value of domestic reef fish production stood at \$43.5 million, which is less than half of that of imports. Again, it should be noted that the two values are not strictly comparable, but the difference in magnitude still signifies the large market share of imports in the domestic market for reef fish.

Table 3.4.1.4. U.S. imports of snapper and grouper, combined fresh and frozen
(Q=Quantity in million pounds, product weight)
(V=Value in million dollars, f.a.s., foreign port)
(VR=Real value in millions of 2006 dollars, f.a.s., foreign port)

Year	Q	V	VR
1993	24.1	32.9	45.5
1994	22.0	30.9	42.3
1995	28.2	38.5	50.8
1996	33.0	47.5	61.3
1997	40.3	58.0	74.9
1998	38.8	58.5	77.4
1999	35.4	53.9	70.8
2000	38.7	63.0	78.2
2001	39.5	62.3	76.4
2002	42.6	69.5	87.3
2003	44.5	73.3	87.4
2004	43.1	75.6	84.9
2005	49.7	93.1	97.5
2006	48.6	101.7	101.7

3.4.2 Recreational Sector

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

Anglers

In 2005, more than 3.3 million in-state anglers (anglers who fished within their state of residence) took 23 million trips (inclusive of visitor trips) and caught over 154 million fish. These totals do not include activity occurring solely in Texas (all modes) or in the headboat sector (all Gulf states). More than 70 percent of these anglers fished in Florida, followed by, in decreasing order, Louisiana, Alabama, and Mississippi. Similarly, Florida accounted for a large percentage of the trips (70 percent), 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.

The level and pattern of change in recreational effort, in terms of number of trips, for the period 1993-2006 are presented in Tables 3.4.2.1 to 3.4.2.6. Total recreational effort for all species from Florida through Louisiana averaged at 19.5 million trips annually. This effort remained about flat from 1993 through 1996, increased in 1997, but subsequently fell to its lowest level of 15.9 in 1999. It then registered a relatively fast growth in the 2000s.

Summary characteristics for red grouper target effort are presented in Tables 3.4.2.1 to 3.4.2.3. Target effort for red grouper averaged at 115,855 trips annually (Table 3.4.2.1). This effort

followed a seesaw pattern throughout the period. It fell from 1993 through 1998, increased from 1999 through 2001; fell again in the next two years but only to increase again in the last two years. Relative to total recreational effort, target effort for red grouper ranged from 0.3 percent (1998) to 0.95 percent (1993), or averaged at 0.59 percent annually.

Florida accounted for most of red grouper target trips (see Table 3.4.2.2). In fact target trips for red grouper in other states, except Alabama in the last few years, were practically non-existent. Due to the dominance of Florida in red grouper target trips, the seesaw pattern of all red grouper target trips described earlier was mainly influenced by the same seesaw pattern of red grouper target trips in Florida. Except in the last three years when red grouper target trips started appearing in Alabama, the overall red grouper target trips were practically Florida trips.

Private and charter fishing modes accounted for most of target trips, with the charter mode far outweighing the private mode (see Table 3.4.2.3). Shore mode target trips for red grouper only showed up in the early years, but were practically non-existent in the last 8 years. Private mode target trips remained low but increasing especially in the last few years. The pattern of red grouper target trips by the charter mode followed a similar seesaw pattern as that of total red grouper target trips.

What the foregoing discussions imply is that the pattern of overall target trips for red grouper in 1993-2005 was primarily determined by the pattern of red grouper target trips in Florida taken by the charter mode.

Red grouper catch trips are another factor which may be used to describe the effort in the recreational red grouper fishery. Summary characteristics for red grouper catch effort are presented in Tables 3.4.2.4 to 3.4.2.6. Catch effort for red grouper averaged at 463,167 trips annually (Table 3.4.2.4). This about 4 times the size of red grouper target trips, indicating a majority of trips which did not target red grouper actually ended up catching one. After a steady decline in the early years, catch effort for red grouper picked up in 1998 and rose rapidly thereafter until its decline in 2005. Relative to total recreational effort, catch effort for red grouper ranged from 1.62 percent (1997) to 3.37 percent (2004), or averaged at 2.34 percent annually.

Florida is clearly the dominant state in terms of catch effort (Table 3.4.2.5). Among other states in the Gulf, only Alabama registered some red grouper catch trips although it did so mainly in the last few years. This dominance of Florida also translated to determining the pattern of change in overall red grouper catch trips. As with overall red grouper catch trips, Florida catch trips for red grouper fell in the early years, picked up in 1998 and rose rather steeply thereafter until its fall in the last year. Red grouper catch effort in Florida averaged at 458,808 trips and ranged from 300,490 trips in 1997 to 807,217 trips in 2004.

All fishing modes registered a fair amount of red grouper catch trips, but clearly the charter mode dominated all other fishing modes (Table 3.4.2.6). Throughout the whole period, shore mode catch trips remained rather flat. The private mode, on the other hand, registered increasing red grouper catch trips, with rather steep increases in the last few years except the last. This

fishing mode started to challenge the dominance of the charter mode in the last few years. Catch trips for the charter mode declined in the early years, picked up in 1998 and steeply rose thereafter until 2004. This exactly the same pattern characterizing the movement of overall red grouper catch trips. Catch effort for the charter mode averaged at 383,446 trips and ranged from 240,215 trips in 1997 to 672,288 trips in 2004.

As with target effort, red grouper catch trips by Florida charterboats determined the pattern of movement of overall red grouper catch trips.

Summary characteristics for gag target effort are presented in Tables 3.4.2.7 to 3.4.2.9. Target effort for gag averaged at 297,189 trips annually and ranged from 144,785 trips in 1994 to 580,424 trips in 2005 (Table 3.4.2.7). This effort increased in the early years, and although it fell in 1998 it did recover in subsequent years, with rather steep increases in the last few years. Relative to total recreational effort, target effort for gag ranged from 0.83 percent (1994) to 2.57 percent (2005), or averaged at 1.50 percent annually.

Florida accounted for most of gag target trips (Table 3.4.2.8). In fact target trips for gag in other states, except Alabama, were practically non-existent. Due to the dominance of Florida in gag target trips, the pattern of movement for all gag target trips described earlier was mainly influenced by the same pattern of gag target trips in Florida. It is worth noting, though, that gag target trips in Alabama rose over time although still way below those of Florida.

Although the charter mode is the dominant mode in terms of gag target trips, the shore and private modes also registered a fair amount of gag target trips (Table 3.4.2.9). Both the shore and private modes registered a rather flat movement of gag target trips over time. They also registered about the same number of gag target trips, except in the last year when private mode target trips for gag almost tripled. Gag target trips by the charter mode increased over time and exactly mimicked that of overall gag target trips.

As in the red grouper case, the performance of the Florida charter mode determined the pattern of movement in the overall gag target trips.

Summary characteristics for gag catch effort are presented in Tables 3.4.2.10 to 3.4.2.12. Catch effort for gag averaged at 830,016 trips annually (Table 3.4.2.10). This is close to 4 times the size of gag target trips, indicating a majority of trips which did not target gag actually ended up catching one. After a slight decline in the early years, catch effort for gag picked up in 1998 and rose rapidly thereafter. Unlike target effort, gag catch effort continued to increase in 2005. Relative to total recreational effort, catch effort for gag ranged from 2.75 percent (1993) to 5.91 percent (2005), or averaged at 4.18 percent annually.

Gag catch trips mostly came from Florida, which accounted for 96 percent of all gag catch trips (Table 3.4.2.11). Alabama came in second, followed by Louisiana and Mississippi in that order. This dominance of Florida also translated to determining the pattern of change in overall gag catch trips. As with overall gag catch trips, Florida catch trips for gag fell slightly in the early years, picked up in 1998 and rose rather steeply thereafter. They did taper off in the last two

years. Gag catch effort in Florida averaged at 796,579 trips and ranged from 467,749 trips in 1993 to 1,256,016 trips in 2005.

All fishing modes registered some amount of gag catch trips, but clearly the charter mode dominated all other fishing modes (Table 3.4.2.12). Throughout the whole period, shore mode catch trips steadily rose but only slightly. The private mode gag catch trips rose steadily in the early years, fell sharply in 2000, recovered in subsequent years and rose sharply in the last year. Catch trips for the charter mode declined in the early years, picked up in 1998 and steeply rose thereafter but fell sharply in 2005. This is exactly the same pattern characterizing the movement of overall gag catch trips. Catch effort for the charter mode averaged at 624,866 trips and ranged from 359,892 trips in 1993 to 1,039,212 trips in 2004.

The Headboat data do not support the estimation of target effort. Nevertheless, Table 3.4.2.13 provides estimates of the number of headboat angler days from 1987 through 2005, and for the current purpose these angler days are taken to represent headboat angler effort. This effort has averaged at 244,387 days annually, with a range of 190,090 days in 2005 to 317,991 days in 1994. It has slowly declined over the years, with occasional increases in certain years. The West Florida/Alabama region has accounted for most of the effort and has been the major force in slightly downward trend of overall effort. Angler days in Louisiana and Texas have remained relatively flat through the years. Louisiana has the lowest number of headboat angler days.

Social and economic characteristics of recreational anglers are collected periodically as an add-on survey to the MRFSS. Holiman (1999) and Holiman (2000) summarize the data from the 1997-1998 survey. Table 3.4.14 contains some of the major findings of this survey.

The typical Gulf marine recreational angler was 44 years old, male (80%), white (90%), employed full time (92%), and had an average annual household income of \$42,700. The average number of years fished in the state was 16. The average number of fishing trips taken in the 12 months preceding the interview was approximately 38 and these trips were mostly (75%) one-day trips. The average expenditure on the intercepted trip was less than \$50. Seventy-five percent of the surveyed anglers reported they held saltwater licenses, and 59 percent 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 percent of the surveyed anglers were employed or self-employed and the majority of those unemployed were retired.

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 changes in the ability of anglers to catch fish. The value for site access is generally interpreted as the value lost when a fishing site is closed to fishing. An analogous interpretation holds for the species access value; that is, it is the value associated with a prohibition for fishing for a specific fish species. The value of a unit increase in species caught and kept refers to the angler's valuation of the worth of an extra fish caught and kept above expenditures.

Haab et al. (2001) estimated the following values associated with the private/rental fishing mode. The economic loss per trip from closing a fishing site ranged from \$1.44 in Alabama to \$71.84 in West (Gulf) Florida. The loss was also estimated to be relatively high in Louisiana. The economic loss per trip from unavailability (closure) of snapper-grouper ranged from \$0.30 in Alabama to \$5.24 in West Florida, whereas the value of a unit increase in the catch of snapper-grouper ranged from \$0.27 in Alabama to \$4.15 in West Florida. For all fishing modes, the economic loss per trip from closing a fishing site ranged from \$1.84 in Alabama to \$54.14 in West Florida, whereas the economic value from a unit increase in the catch of bottom fish (which include other reef fish species) ranged from \$3.47 in Alabama to \$3.65 in West Florida.

Table 3.4.2.1. GULF OF MEXICO RED GROUPER TARGET EFFORT TRIPS, MRFSS DATA.

YEAR	TOTAL		
	TARGET EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL
1993	165,442	0.95	17,431,009
1994	112,655	0.64	17,503,737
1995	163,294	0.94	17,390,316
1996	86,561	0.51	17,032,778
1997	56,854	0.31	18,593,084
1998	50,052	0.30	16,703,364
1999	57,461	0.36	15,893,729
2000	135,417	0.64	21,017,783
2001	155,316	0.68	22,889,697
2002	106,967	0.54	19,665,578
2003	62,858	0.27	22,956,673
2004	155,688	0.64	24,355,357
2005	184,311	0.84	21,906,426
2006	141,860	0.59	23,862,890

Table 3.4.2.2. GULF OF MEXICO RED GROUPER TARGET EFFORT TRIPS, BY STATE, MRFSS DATA.

YEAR	STATE												TOTAL		
	ALABAMA			FLORIDA			LOUISIANA			MISSISSIPPI					
	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL
1993	0	0.00	933,061	165,442	1.28	12,928,092	0	0.00	2,703,754	0	0.00	866,103	165,442	0.95	17,431,009
1994	0	0.00	886,949	112,655	0.86	13,166,982	0	0.00	2,485,308	0	0.00	964,498	112,655	0.64	17,503,737
1995	0	0.00	998,539	163,294	1.32	12,396,870	0	0.00	2,941,473	0	0.00	1,053,434	163,294	0.94	17,390,316
1996	0	0.00	931,884	86,561	0.70	12,331,873	0	0.00	2,823,868	0	0.00	945,154	86,561	0.51	17,032,778
1997	0	0.00	1,024,177	56,854	0.42	13,384,436	0	0.00	3,185,378	0	0.00	999,093	56,854	0.31	18,593,084
1998	0	0.00	968,485	50,052	0.41	12,234,580	0	0.00	2,672,764	0	0.00	827,536	50,052	0.30	16,703,364
1999	0	0.00	1,169,914	57,461	0.51	11,296,851	0	0.00	2,621,446	0	0.00	805,518	57,461	0.36	15,893,729
2000	0	0.00	1,086,818	135,417	0.90	15,086,213	0	0.00	3,751,609	0	0.00	1,093,144	135,417	0.64	21,017,783
2001	0	0.00	1,635,798	155,316	0.95	16,388,611	0	0.00	3,615,244	0	0.00	1,250,045	155,316	0.68	22,889,697
2002	866	0.07	1,190,004	106,100	0.74	14,418,275	0	0.00	3,018,946	0	0.00	1,038,353	106,967	0.54	19,665,578
2003	202	0.01	1,499,989	62,656	0.39	16,008,974	0	0.00	4,270,921	0	0.00	1,176,788	62,858	0.27	22,956,673
2004	602	0.03	2,040,041	155,087	0.94	16,431,321	0	0.00	4,795,033	0	0.00	1,088,962	155,688	0.64	24,355,357
2005	2,312	0.15	1,566,072	181,999	1.18	15,488,773	0	0.00	3,926,076	0	0.00	925,504	184,311	0.84	21,906,426
2006	0	0.00	2,143,425	141,860	0.87	16,230,274	0	0.00	4,491,280	0	0.00	997,911	141,860	0.59	23,862,890

Table 3.4.2.3. GULF OF MEXICO RED GROUPER TARGET EFFORT TRIPS, BY MODE, MRFSS DATA.

	MODE											
	SHORE			PARTY/CHARTER			PRIVATE/RENTAL			TOTAL		
	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL
1993	8,726	0.11	7,642,451	0	0.00	747,252	156,716	1.73	9,041,306	165,442	0.95	17,431,009
1994	0	0.00	7,293,305	11,280	1.37	825,632	101,374	1.08	9,384,801	112,655	0.64	17,503,737
1995	3,290	0.05	6,925,453	5,577	0.62	893,967	154,427	1.61	9,570,896	163,294	0.94	17,390,316
1996	0	0.00	6,800,513	6,444	0.73	881,248	80,116	0.86	9,351,017	86,561	0.51	17,032,778
1997	1,534	0.02	7,423,022	3,496	0.36	974,979	51,824	0.51	10,195,083	56,854	0.31	18,593,084
1998	0	0.00	6,861,289	301	0.03	903,170	49,752	0.56	8,938,905	50,052	0.30	16,703,364
1999	0	0.00	5,918,885	10,042	1.15	877,041	47,419	0.52	9,097,803	57,461	0.36	15,893,729
2000	0	0.00	8,477,685	4,407	0.54	811,634	131,010	1.12	11,728,464	135,417	0.64	21,017,783
2001	0	0.00	9,776,174	9,283	1.25	742,386	146,033	1.18	12,371,138	155,316	0.68	22,889,697
2002	0	0.00	7,266,262	7,016	0.92	764,222	99,951	0.86	11,635,095	106,967	0.54	19,665,578
2003	0	0.00	8,155,304	7,215	1.04	691,362	55,643	0.39	14,110,007	62,858	0.27	22,956,673
2004	0	0.00	9,430,325	17,263	2.11	818,147	138,425	0.98	14,106,865	155,688	0.64	24,355,357
2005	0	0.00	8,542,648	14,221	2.00	712,417	170,089	1.34	12,651,361	184,311	0.84	21,906,426
2006	2,444	0.03	9,205,661	7,268	0.89	820,483	132,149	0.96	13,836,746	141,860	0.59	23,862,890

Table 3.4.2.4. GULF OF MEXICO RED GROUPER CATCH EFFORT TRIPS, MRFSS DATA.

YEAR	TOTAL		
	CATCH EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL
1993	421,165	2.42	17,431,009
1994	439,130	2.51	17,503,737
1995	408,641	2.35	17,390,316
1996	342,052	2.01	17,032,778
1997	300,493	1.62	18,593,084
1998	320,497	1.92	16,703,364
1999	403,272	2.54	15,893,729
2000	403,393	1.92	21,017,783
2001	471,798	2.06	22,889,697
2002	466,325	2.37	19,665,578
2003	557,209	2.43	22,956,673
2004	829,491	3.41	24,355,357
2005	541,018	2.47	21,906,426
2006	297,903	1.25	23,862,890

Table 3.4.2.5. GULF OF MEXICO RED GROUPER CATCH EFFORT TRIPS, BY STATE, MRFSS DATA.

YEAR	STATE												TOTAL		
	ALABAMA			FLORIDA			LOUISIANA			MISSISSIPPI			TOTAL		
	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL
1993	0	0.00	933,061	421,165	3.26	12,928,092	0	0.00	2,703,754	0	0.00	866,103	421,165	2.42	17,431,009
1994	0	0.00	886,949	439,130	3.34	13,166,982	0	0.00	2,485,308	0	0.00	964,498	439,130	2.51	17,503,737
1995	314	0.03	998,539	408,327	3.29	12,396,870	0	0.00	2,941,473	0	0.00	1,053,434	408,641	2.35	17,390,316
1996	465	0.05	931,884	341,587	2.77	12,331,873	0	0.00	2,823,868	0	0.00	945,154	342,052	2.01	17,032,778
1997	0	0.00	1,024,177	300,493	2.25	13,384,436	0	0.00	3,185,378	0	0.00	999,093	300,493	1.62	18,593,084
1998	0	0.00	968,485	320,497	2.62	12,234,580	0	0.00	2,672,764	0	0.00	827,536	320,497	1.92	16,703,364
1999	165	0.01	1,169,914	403,107	3.57	11,296,851	0	0.00	2,621,446	0	0.00	805,518	403,272	2.54	15,893,729
2000	35	0.00	1,086,818	403,357	2.67	15,086,213	0	0.00	3,751,609	0	0.00	1,093,144	403,393	1.92	21,017,783
2001	75	0.00	1,635,798	471,723	2.88	16,388,611	0	0.00	3,615,244	0	0.00	1,250,045	471,798	2.06	22,889,697
2002	7,856	0.66	1,190,004	457,825	3.18	14,418,275	0	0.00	3,018,946	644	0.06	1,038,353	466,325	2.37	19,665,578
2003	16,000	1.07	1,499,989	540,892	3.38	16,008,974	0	0.00	4,270,921	316	0.03	1,176,788	557,209	2.43	22,956,673
2004	16,052	0.79	2,040,041	812,526	4.94	16,431,321	0	0.00	4,795,033	912	0.08	1,088,962	829,491	3.41	24,355,357
2005	11,916	0.76	1,566,072	529,102	3.42	15,488,773	0	0.00	3,926,076	0	0.00	925,504	541,018	2.47	21,906,426
2006	4,831	0.23	2,143,425	293,072	1.81	16,230,274	0	0.00	4,491,280	0	0.00	997,911	297,903	1.25	23,862,890

Table 3.4.2.6. GULF OF MEXICO RED GROUPER CATCH EFFORT TRIPS, BY MODE, MRFSS DATA.

YEAR	MODE											TOTAL	
	SHORE			PARTY/CHARTER			PRIVATE/RENTAL			TOTAL			
	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	
	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	
1993	10,175	0.13	7,642,451	29,119	3.90	747,252	381,871	4.22	9,041,306	421,165	2.42	17,431,009	
1994	13,342	0.18	7,293,305	42,948	5.20	825,632	382,840	4.08	9,384,801	439,130	2.51	17,503,737	
1995	6,663	0.10	6,925,453	77,901	8.71	893,967	324,077	3.39	9,570,896	408,641	2.35	17,390,316	
1996	13,190	0.19	6,800,513	28,274	3.21	881,248	300,589	3.21	9,351,017	342,052	2.01	17,032,778	
1997	9,102	0.12	7,423,022	51,176	5.25	974,979	240,215	2.36	10,195,083	300,493	1.62	18,593,084	
1998	5,484	0.08	6,861,289	37,576	4.16	903,170	277,436	3.10	8,938,905	320,497	1.92	16,703,364	
1999	3,957	0.07	5,918,885	49,256	5.62	877,041	350,059	3.85	9,097,803	403,272	2.54	15,893,729	
2000	6,421	0.08	8,477,685	31,981	3.94	811,634	364,990	3.11	11,728,464	403,393	1.92	21,017,783	
2001	3,220	0.03	9,776,174	42,772	5.76	742,386	425,805	3.44	12,371,138	471,798	2.06	22,889,697	
2002	0	0.00	7,266,262	63,442	8.30	764,222	402,883	3.46	11,635,095	466,325	2.37	19,665,578	
2003	914	0.01	8,155,304	98,535	14.25	691,362	457,760	3.24	14,110,007	557,209	2.43	22,956,673	
2004	3,915	0.04	9,430,325	154,780	18.92	818,147	670,796	4.76	14,106,885	829,491	3.41	24,355,357	
2005	2,362	0.03	8,542,648	133,144	18.69	712,417	405,512	3.21	12,651,361	541,018	2.47	21,906,426	
2006	0	0.00	9,205,661	74,507	9.08	820,483	223,396	1.61	13,836,746	297,903	1.25	23,862,890	

Table 3.4.2.7. GULF OF MEXICO GAG TARGET EFFORT TRIPS, MRFSS DATA.

YEAR	TOTAL		
	TARGET EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL
1993	172,114	0.99	17,431,009
1994	144,785	0.83	17,503,737
1995	321,017	1.85	17,390,316
1996	288,406	1.69	17,032,778
1997	339,951	1.83	18,593,084
1998	213,096	1.28	16,703,364
1999	221,259	1.39	15,893,729
2000	303,671	1.44	21,017,783
2001	312,471	1.37	22,889,697
2002	276,644	1.41	19,665,578
2003	311,864	1.36	22,956,673
2004	378,398	1.55	24,355,357
2005	545,491	2.49	21,906,426
2006	469,625	1.97	23,862,890

Table 3.4.2.8. GULF OF MEXICO GAG TARGET EFFORT TRIPS, BY STATE, MRFSS DATA.

YEAR	STATE												TOTAL		
	ALABAMA			FLORIDA			LOUISIANA			MISSISSIPPI			TOTAL		
	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL
1986	4,450	0.51	866,722	18,000	0.13	14,367,176	0	0.00	3,029,420	0	0.00	776,626	22,450	0.12	19,039,944
1987	0	0.00	622,080	42,204	0.34	12,321,111	0	0.00	2,370,674	0	0.00	775,582	42,204	0.26	16,089,446
1988	0	0.00	1,182,515	67,236	0.46	14,730,478	0	0.00	2,922,611	0	0.00	907,695	67,236	0.34	19,743,299
1989	0	0.00	622,719	108,769	0.90	12,031,576	0	0.00	2,263,719	0	0.00	704,496	108,769	0.70	15,622,510
1990	0	0.00	722,805	75,307	0.76	9,922,602	0	0.00	1,978,380	0	0.00	686,439	75,307	0.57	13,310,226
1991	55	0.01	648,774	192,323	1.35	14,261,115	0	0.00	2,419,805	0	0.00	843,905	192,378	1.06	18,173,598
1992	326	0.04	763,018	181,426	1.32	13,763,989	1,421	0.06	2,550,806	0	0.00	1,001,436	183,173	1.01	18,079,250
1993	2,547	0.27	933,061	169,567	1.31	12,928,092	0	0.00	2,703,754	0	0.00	866,103	172,114	0.99	17,431,009
1994	0	0.00	886,949	144,785	1.10	13,166,982	0	0.00	2,485,308	0	0.00	964,498	144,785	0.83	17,503,737
1995	2,181	0.22	998,539	316,275	2.55	12,396,870	2,561	0.09	2,941,473	0	0.00	1,053,434	321,017	1.85	17,390,316
1996	1,903	0.20	931,884	280,236	2.27	12,331,873	4,546	0.16	2,823,868	1,722	0.18	945,154	288,406	1.69	17,032,778
1997	1,025	0.10	1,024,177	338,925	2.53	13,384,436	0	0.00	3,185,378	0	0.00	999,093	339,951	1.83	18,593,084
1998	2,030	0.21	968,485	210,907	1.72	12,234,580	0	0.00	2,672,764	158	0.02	827,536	213,096	1.28	16,703,364
1999	13,324	1.14	1,169,914	207,569	1.84	11,296,851	0	0.00	2,621,446	365	0.05	805,518	221,259	1.39	15,893,729
2000	18,392	1.69	1,086,818	283,626	1.88	15,086,213	0	0.00	3,751,609	1,652	0.15	1,093,144	303,671	1.44	21,017,783
2001	11,409	0.70	1,635,798	301,063	1.84	16,388,611	0	0.00	3,615,244	0	0.00	1,250,045	312,471	1.37	22,889,697
2002	29,013	2.44	1,190,004	245,366	1.70	14,418,275	0	0.00	3,018,946	2,265	0.22	1,038,353	276,644	1.41	19,665,578
2003	9,719	0.65	1,499,989	302,145	1.89	16,008,974	0	0.00	4,270,921	0	0.00	1,176,788	311,864	1.36	22,956,673
2004	18,515	0.91	2,040,041	358,502	2.18	16,431,321	1,353	0.03	4,795,033	0	0.00	1,088,962	378,398	1.55	24,355,357
2005	20,394	1.30	1,566,072	525,097	3.39	15,488,773	0	0.00	3,926,076	0	0.00	925,504	545,491	2.49	21,906,426
2006	3,608	0.17	2,143,425	466,017	2.87	16,230,274	0	0.00	4,491,280	0	0.00	997,911	469,625	1.97	23,862,890

Table 3.4.2.9. GULF OF MEXICO GAG TARGET EFFORT TRIPS, BY MODE, MRFSS DATA.

YEAR	MODE											
	SHORE			PARTY/CHARTER			PRIVATE/RENTAL			TOTAL		
	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS	TARGET EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL
1993	4,357	0.06	7,642,451	4,244	0.57	747,252	163,513	1.81	9,041,306	172,114	0.99	17,431,009
1994	7,860	0.11	7,293,305	13,640	1.65	825,632	123,285	1.31	9,384,801	144,785	0.83	17,503,737
1995	14,150	0.20	6,925,453	19,147	2.14	893,967	287,720	3.01	9,570,896	321,017	1.85	17,390,316
1996	8,349	0.12	6,800,513	8,475	0.96	881,248	271,582	2.90	9,351,017	288,406	1.69	17,032,778
1997	25,699	0.35	7,423,022	11,283	1.16	974,979	302,969	2.97	10,195,083	339,951	1.83	18,593,084
1998	21,864	0.32	6,861,289	15,596	1.73	903,170	175,635	1.96	8,938,905	213,096	1.28	16,703,364
1999	11,057	0.19	5,918,885	32,651	3.72	877,041	177,552	1.95	9,097,803	221,259	1.39	15,893,729
2000	10,419	0.12	8,477,685	19,175	2.36	811,634	274,076	2.34	11,728,464	303,671	1.44	21,017,783
2001	19,968	0.20	9,776,174	20,583	2.77	742,386	271,921	2.20	12,371,138	312,471	1.37	22,889,697
2002	13,106	0.18	7,266,262	28,411	3.72	764,222	235,127	2.02	11,635,095	276,644	1.41	19,665,578
2003	14,438	0.18	8,155,304	22,291	3.22	691,362	275,135	1.95	14,110,007	311,864	1.36	22,956,673
2004	20,613	0.22	9,430,325	28,371	3.47	818,147	329,414	2.34	14,106,885	378,398	1.55	24,355,357
2005	22,872	0.27	8,542,648	34,141	4.79	712,417	488,478	3.86	12,651,361	545,491	2.49	21,906,426
2006	44,024	0.48	9,205,661	17,046	2.08	820,483	408,555	2.95	13,836,746	469,625	1.97	23,862,890

Table 3.4.2.10. GULF OF MEXICO GAG CATCH EFFORT TRIPS, MRFSS DATA.

YEAR	TOTAL		
	CATCH EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL
1993	479,270	2.75	17,431,009
1994	691,218	3.95	17,503,737
1995	677,076	3.89	17,390,316
1996	593,945	3.49	17,032,778
1997	660,004	3.55	18,593,084
1998	627,553	3.76	16,703,364
1999	765,178	4.81	15,893,729
2000	768,196	3.65	21,017,783
2001	794,281	3.47	22,889,697
2002	939,298	4.78	19,665,578
2003	1,168,782	5.09	22,956,673
2004	1,297,609	5.33	24,355,357
2005	1,132,599	5.17	21,906,426
2006	821,487	3.44	23,862,890

Tab13 3.4.2.11. GULF OF MEXICO GAG CATCH EFFORT TRIPS, BY STATE, MRFSS DATA.

YEAR	STATE												TOTAL		
	ALABAMA			FLORIDA			LOUISIANA			MISSISSIPPI			TOTAL		
	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS
	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL
1993	5,232	0.56	933,061	467,749	3.62	12,928,092	4,071	0.15	2,703,754	2,218	0.26	866,103	479,270	2.75	17,431,009
1994	6,555	0.74	886,949	677,232	5.14	13,166,982	3,874	0.16	2,485,308	3,556	0.37	964,498	691,218	3.95	17,503,737
1995	13,520	1.35	998,539	660,286	5.33	12,396,870	1,287	0.04	2,941,473	1,982	0.19	1,053,434	677,076	3.89	17,390,316
1996	24,875	2.67	931,884	555,623	4.51	12,331,873	8,002	0.28	2,823,868	5,444	0.58	945,154	593,945	3.49	17,032,778
1997	12,855	1.26	1,024,177	642,612	4.80	13,384,436	2,716	0.09	3,185,378	1,822	0.18	999,093	660,004	3.55	18,593,084
1998	15,948	1.65	968,485	606,002	4.95	12,234,580	2,778	0.10	2,672,764	2,825	0.34	827,536	627,553	3.76	16,703,364
1999	55,106	4.71	1,169,914	697,094	6.17	11,296,851	9,640	0.37	2,621,446	3,338	0.41	805,518	765,178	4.81	15,893,729
2000	33,503	3.08	1,086,818	727,730	4.82	15,086,213	3,856	0.10	3,751,609	3,106	0.28	1,093,144	768,196	3.65	21,017,783
2001	16,430	1.00	1,635,798	770,459	4.70	16,388,611	6,706	0.19	3,615,244	686	0.05	1,250,045	794,281	3.47	22,889,697
2002	21,258	1.79	1,190,004	902,920	6.26	14,418,275	4,648	0.15	3,018,946	10,471	1.01	1,038,353	939,298	4.78	19,665,578
2003	24,310	1.62	1,499,989	1,137,746	7.11	16,008,974	6,649	0.16	4,270,921	77	0.01	1,176,788	1,168,782	5.09	22,956,673
2004	24,986	1.22	2,040,041	1,258,174	7.66	16,431,321	13,525	0.28	4,795,033	924	0.08	1,088,962	1,297,609	5.33	24,355,357
2005	53,195	3.40	1,566,072	1,064,772	6.87	15,488,773	14,632	0.37	3,926,076	0	0.00	925,504	1,132,599	5.17	21,906,426
2006	16,527	0.77	2,143,425	794,493	4.90	16,230,274	10,467	0.23	4,491,280	0	0.00	997,911	821,487	3.44	23,862,890

Table 3.4.2.12. GULF OF MEXICO GAG CATCH EFFORT TRIPS, BY MODE, MRFSS DATA.

YEAR	MODE											TOTAL	
	SHORE			PARTY/CHARTER			PRIVATE/RENTAL			TOTAL			
	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	CATCH EFFORT TRIPS		TOTAL TRIPS	
	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	TOTAL	%	TOTAL	
1993	52,279	0.68	7,642,451	67,099	8.98	747,252	359,892	3.98	9,041,306	479,270	2.75	17,431,009	
1994	49,408	0.68	7,293,305	61,061	7.40	825,632	580,749	6.19	9,384,801	691,218	3.95	17,503,737	
1995	67,367	0.97	6,925,453	118,182	13.22	893,967	491,527	5.14	9,570,896	677,076	3.89	17,390,316	
1996	35,988	0.53	6,800,513	116,639	13.24	881,248	441,318	4.72	9,351,017	593,945	3.49	17,032,778	
1997	39,492	0.53	7,423,022	124,930	12.81	974,979	495,582	4.86	10,195,083	660,004	3.55	18,593,084	
1998	45,748	0.67	6,861,289	155,790	17.25	903,170	426,014	4.77	8,938,905	627,553	3.76	16,703,364	
1999	44,696	0.76	5,918,885	187,242	21.35	877,041	533,240	5.86	9,097,803	765,178	4.81	15,893,729	
2000	46,415	0.55	8,477,685	86,816	10.70	811,634	634,965	5.41	11,728,464	768,196	3.65	21,017,783	
2001	52,270	0.53	9,776,174	79,963	10.77	742,386	662,048	5.35	12,371,138	794,281	3.47	22,889,697	
2002	99,654	1.37	7,266,262	106,611	13.95	764,222	733,033	6.30	11,635,095	939,298	4.78	19,665,578	
2003	105,057	1.29	8,155,304	132,189	19.12	691,362	931,536	6.60	14,110,007	1,168,782	5.09	22,956,673	
2004	81,451	0.86	9,430,325	180,367	22.05	818,147	1,035,790	7.34	14,106,885	1,297,609	5.33	24,355,357	
2005	126,162	1.48	8,542,648	213,992	30.04	712,417	792,446	6.26	12,651,361	1,132,599	5.17	21,906,426	
2006	82,499	0.90	9,205,661	108,963	13.28	820,483	630,025	4.55	13,836,746	821,487	3.44	23,862,890	

Table 3.4.2.13. Headboat angler days, NMFS Headboat Survey.

	STATE			TOTAL
	LOUISIANA	TEXAS	WFLORIDA/ ALABAMA	
	Sum	Sum	Sum	
	TOTAL #	TOTAL #	TOTAL #	
YEAR				
1993	11,256	80,904	207,898	300,058
1994	12,651	100,778	204,562	317,991
1995	10,498	90,464	182,410	283,372
1996	10,988	91,852	154,913	257,753
1997	9,008	82,207	149,442	240,657
1998	7,854	77,650	185,331	270,835
1999	8,026	58,235	176,117	242,378
2000
2001	.	.	6,260	6,260
2002	6,222	66,951	141,831	215,004
2003	6,636	74,432	144,211	225,279
2004	.	64,990	158,430	223,420
2005	.	59,857	130,233	190,090

Table 3.4.2.14. Socio-economic Characteristics of Recreational Anglers

	<u>Charter</u>	<u>Private/Rental</u>	<u>Shore</u>
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)

For-hire Vessels

A federal for-hire vessel permit has been required for reef fish since 1996 and the sector currently operates under a limited access system (GMFMC 2005c). Prior to the implementation of the current moratorium, NMFS had issued 3,340 permits associated with 1,779 unique vessels. Of these vessels, 1,625 had reef fish permits (GMFMC 2005c).

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

In support of the development of the current limited access system, permits data were evaluated to identify summary characteristics of the fleet (GMFMC 2005c). This evaluation revealed that approximately 79 percent of the fleet had a maximum capacity of 6 or fewer passengers, 82 percent were in the 21-50 foot length range, and 70 percent had engines ranging from 101-600 horsepower. Sixty-one vessels had passenger capacity greater than 60 passengers. Individual ownership is the dominant form of ownership type (69 percent), with less than a third of vessels corporate-owned. Florida was the homeport of 61 percent of all federally permitted for-hire vessels, followed by Texas (13 percent), Alabama (8 percent), Louisiana (8 percent), and Mississippi (4 percent).

Financial information on the for-hire vessels in the Gulf is not routinely collected. Data presented below are from two studies conducted in 1998-1999 and summarized in Holland et al. (1999) and Sutton et al. (1999). Selected financial statistics from these studies are summarized in Tables 3.4.15 and 3.4.16. Included in the cost estimates are 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. The cost calculations do not account for capital expenses, other fixed costs, and returns to owners/operators. The 1999 figures have been adjusted to 2004 dollars using the producer price index for all commodities, with 1982-1984 as the base year.

As expected, since they carry larger passenger loads, headboats earn substantially higher revenues than charterboats. The average charterboat is estimated to generate \$76,960 in annual revenues and \$36,758 in annual profits, whereas the appropriate values for the

Table 3.4.2.15. 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
Avg. fees per angler per trip (\$)	146	61
Avg. trips per vessel	108	209
Avg. 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	
Avg. fees per angler per trip (\$)	152	
Avg. trips per vessel	105	
Avg. passenger	4	
Length	35	
Horsepower	475	
7 to 12 maximum passenger capacity		
Revenues	129,813	
Costs	43,311	
Profits	86,502	
Avg. fees per angler per trip (\$)	128	
Avg. trips per vessel	146	
Avg. 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
Avg. fees per angler per trip (\$)	94	70
Avg. trips per vessel	115	201
Avg. 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
Avg. fees per angler per trip (\$)	64	55
Avg. trips per vessel	152	208
Avg. passenger	21	27
Length	60	64
Horsepower	750	735
61 or greater maximum passenger capacity		
Revenues		570,376
Costs		109,616
Profits		460,760
Avg. fees per angler per trip (\$)		67
Avg. trips per vessel		213
Avg. passenger		40
Length		76
Horsepower		903

Notes: (1) Trips are calculated as the sum of half-day, full-day, and overnight trips after converting all classes of trips to full-day trips. (2) Revenues do not necessarily equal the product of average fees, trips and passengers because of the way trips are calculated and because all averages are calculated independently on a per vessel basis. **Source:** Holland et al. (1999) and Sutton et al. (1999).

average headboat are \$404,172 and \$338,209, respectively. On average, both types of operations are profitable, with headboat operations showing a relatively large profit figure. As mentioned above, however, the calculation of costs does not take into account fixed costs, which would be expected to be much larger for headboats. For both charterboats and headboats, the number of passengers carried per trip is about half of the maximum passenger capacity. Therefore, substantial excess capacity exists in the sector.

Table 3.4.2.16 compares for-hire characteristics for the Florida west-coast sector with that of the rest of the Gulf of Mexico. Florida vessels, on average, earn less than those in the rest of the Gulf. This difference may be due partly to the difference in the size of charterboat or headboat operation. On average, Florida vessels are smaller, have smaller horsepower, have lower maximum passenger capacity, and take fewer passengers per trip. The difference, although not apparent from the information provided, may also be influenced by the increased competition created by the larger number of vessels in the state.

Table 3.4.2.16. 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
Avg. fees per angler per trip (\$)	149	133	59	70
Avg. trips per vessel	104	110	205	209
Avg. 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		
Avg. fees per angler per trip (\$)	151	159		
Avg. trips per vessel	104	86		
Avg. 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		
Avg. fees per angler per trip (\$)	105	158		
Avg. trips per vessel	137	149		
Avg. 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
Avg. fees per angler per trip (\$)	108	90	73	56
Avg. trips per vessel	81	128	214	151
Avg. 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
Avg. fees per angler per trip (\$)		61	50	69
Avg. trips per vessel		178	182	219
Avg. 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
Avg. fees per angler per trip (\$)			67	75
Avg. trips per vessel			248	213
Avg. passenger			32	53
Length			73	83
Horsepower			1,083	624

Notes: (1)Trips are calculated as the sum of half-day, full-day, and overnight trips after converting all classes of trips to full-day trips. (2) Revenues do not necessarily equal the product of average fees, trips and passengers because of the way trips are calculated and because all averages are calculated independently on a per vessel basis. Source of basic data: Databases from Holland et al. (1999) and Sutton et al. (1999).

3.4.3 Affected Environment, Social

As described in the social impact statement, there is little data to adequately describe the affected environment for communities dependent on the gag and red grouper fisheries. However, a combination of secondary data including landings data, federal permits data, and census data can be analyzed as a starting point to identify some of the communities that may be affected by changes in federal fishing regulations. Data from the 1990 and 2000 US Census was used for the descriptions of Madeira Beach, St. Petersburg, and Panama City, Florida so that it is possible to see changes in the communities in those ten years. The demographics tables are from a report prepared by Impact Assessment, Inc. (2005a)

Fishing communities were ranked according to the dealer reported number of pounds and value for gag and red grouper, using data for 2004, 2005, and 2006 to get an idea of which communities are dependent on the commercial gag and red grouper fisheries. Permits data was also taken into consideration. Specific communities that are substantially involved in the recreational gag and red grouper fisheries were not described because the recreational landings data describes landings at the regional level, not at the community level. Overall, the majority of the gag and red grouper is landed off of west Florida. The major area for gag grouper is from Tampa to Apalachicola and for red grouper the major area is Crystal River to Ft. Myers.

A problem with the exclusive use of secondary data is that there is not enough information to know the social impacts of changes in regulations on any one community. Landings data may be inconclusive. If we look at the permits data, the homeport of a vessel may be in a different community than where the owner and/or operator live. A boat that is home-ported in one location may not necessarily unload its catch at that location.

An analysis of the mailing addresses of licenses holders may not identify which community a vessel is docked in or unloaded in because the owner may reside in another community. The data may list the mailing address of a processor that actually has a processing business in another community, making it difficult to ascribe processing to a certain community. Fishermen, dockside workers, and processors may work in one community and live in another. As the price of water front property continues to rise, it is becoming more common for fishermen and others working in fishing dependent businesses to live inland, away from the water. In some areas, commercial fishermen who used to live in the same community they docked their boats in, may now be dispersed in several outlying communities with more affordable housing. This compounds the problem of trying to identify fishing communities as a specific location where people dependent on marine resources live and work.

The census data offers its own set of problems when trying to identify the number of people who are dependent on fishing resources in a given community. First, a complete census is only conducted every ten years. In the span of ten years much can

change in a coastal community due to changes in the population or the increasing pressure to develop waterfront property for uses other than for support of the fishing industry. Second, people who work seasonally in fishing dependent areas may or may not be counted in a particular community that is dependent on fishing, depending if they are residing in that community at the time of the census. A third problem is that in the census fishing is lumped together with farming and forestry occupations under the occupation category and with agriculture, forestry, and hunting under the industry category. Therefore, it is impossible to discern how many people are actually dependent of fishing from the other occupations fishing is lumped with. Further, people who rely on other supplemental work outside of fishing related occupations, such as construction, may report their occupation under another category besides fishing.

By analyzing the demographic data from the U.S. Census, we can start to develop an idea of the how the community ranks on data points such as income, home ownership, educational levels, etc. The census data gives the percentages for race and ethnicity but, this information cannot be extrapolated to be used to fully describe the race and ethnicity of those that are involved in the fishing industry. Like landings and permit data, the Census data is used with caution as a starting point to understand the dynamics of a particular community.

Several of the species in the reef fish complex are under restrictions because they are undergoing overfishing or are overfished. It is becoming more difficult for fishermen to switch to targeting other species of fin fish due to regulations in place. Collectively, fishermen may be able to fish for enough reef fish to make a trip worthwhile. Even small changes in federal fishing regulations, that limit the amount of a species that can be caught, the minimum size of keeper fish, the seasons when a particular species can be caught, the number of fishing trips in a given time frame, and place restrictions on gear used, have the potential to impact communities that depend on these fisheries.

The recreational sector is also restricted by regulations that limit sizes, total catches, bag limits, and seasons. With many species under management plans it is becoming more difficult to target other species if the one originally targeted is put under further restrictions. Collectively, more restrictive management measures make it more difficult for recreational fishermen to find species to target in a way that makes the fishing experience worth the money invested. Gag and red grouper are targeted species for private and for-hire recreational fishermen. As with the commercial sector, any changes in regulations that aim to reduce landings may have an impact on how many trips recreational fishermen take within a given year. A reduction in the number of trips will have an impact on businesses and communities that support the recreational sector. If there are closed seasons for a particular preferred species, that discourage people from fishing in certain months, businesses such as hotels, bait and tackle shops, marinas, etc., that cater to the recreational fishermen may negatively impacted by a reduction in recreational fishermen coming to the area. At this time, it is not possible to fully analyze the impacts of these proposed changes in regulations

for fishermen, businesses, and communities dependent on the red or gag grouper fisheries.

As illustrated above, more time and money need to be invested in conducting community research if we are to really begin to understand the dynamics of fishing dependency within individual communities and be able to competently describe the social impacts of any changes in federal fishing regulations. As more community profiles are developed in the future, it may be possible to better describe specific social impacts of fishing regulations on some communities. Until that time, secondary data will be used as a starting point.

The rankings for communities based on secondary data can change from year to year. The state of their fisheries has surely changed due to the hurricanes that have hit the communities in the Gulf of Mexico in recent years. Therefore, the communities chosen are communities that may be affected by new regulations but would not necessarily be ranked the same year to year according to landings.

Communities Substantially Involved in the Gag and Red Grouper Fisheries

After analyzing secondary data relating to the commercial red and gag grouper fisheries, for the purpose of this amendment, three communities that are dependent on these fisheries were chosen as representative communities that could be impacted by new regulations. These include Madeira Beach, Panama City, and St. Petersburg, Florida.

3.4.4 Madeira Beach, Florida (incorporated, pop. 4,511)

Location and Overview. Madeira Beach is located on a barrier island just west of St. Petersburg and north of John's Pass on Florida's central west coast. The town is one of several beachfront communities in the area with both a well-established population of year-round inhabitants, and a range of services and attractions suitable for tourists and seasonal residents.

History. Madeira Beach was incorporated in 1947. According to Wilson and McCay (1998) offshore fishing in Madeira Beach began as bandit reel fishing for grouper in the 1960's. There were two fish houses supported primarily by charter fishing and a small commercial operation. It was during the early 1970's that two vessels began experimenting with long line fishing, but were initially unsuccessful. Later, several vessels began using long lines successfully for swordfish, but as swordfish stocks began to diminish in the Gulf, they were forced to expand their fishing territory to the eastern seaboard. It was on return trips that these vessels began to experiment with long lines in deeper water, thereby discovering an abundance of tilefish and yellow edge grouper. Reportedly, 95 percent of the fishing fleet in Madeira Beach was using long lines (Wilson & McCay 1998). There were four fish houses in Madeira Beach at

the time, dealing primarily in grouper, but also swordfish, shark, and other species. Approximately 100 vessels were working from there during the latter part of the 20th century (Impact Assessment, Inc. 2005).

Current Conditions. The year 2000 census enumerated 4,511 persons, up from 4,225 in 1990. The community is undergoing change, as waterfront property values increase and condominium development ensues. There are three fish houses in Madeira Beach and approximately 70 commercial vessels moor in the area. The town is sometimes referred to as the “Grouper Capital of the World” as the majority of snapper-grouper in the U.S. is landed here. The fish is an important recreational catch as well. Lucas (2001) reported an estimated 87 long line and 48 bandit reel vessels call Madeira their homeport. Moreover, she found that most captains and crew lived nearby, with over 40 captains living in Madeira, and the rest within 30 minutes away. Overall direct employment, related to vessels and fish houses, was approximately 441 persons in 2000. These numbers are likely less today than in the past, as the number of fish houses and vessels have decreased.

With regard to recreational fishing, there are four marinas, including a public marina with over 90 slips. Many residents own their own boat and fish in the Gulf. Support industries do exist, as there are several bait and tackle shops, recreational boat yards, and other related businesses. The community continues to hold a Seafood Festival in October.

In 2005, there were 298,153 pounds of gag grouper landed in Madeira Beach, Florida with a value of \$750,185. In 2006, landings for gag dropped to 197,328 pounds with a value of 546,874. During 2005, there were 1,006,150 pounds of red grouper landed with a value of \$2,084,928. In 2006, landings for red grouper increased to 1,138,116 pounds with a value of \$2,633,002.

In the 2000 census, 0.7 percent of the population listed their occupation under the category for farming, fishing, and forestry, a decrease from the 1.4 percent who were in this category in 1990. In 200, 0.0 percent listed their occupation under the agriculture, forestry, fishing, and hunting category also a decrease from the 1.4 percent listed in 1990.

Following the demographic table are four tables that help to describe the presence of fishing in Madeira Beach in 2003 including a table of infrastructure that was observed in the community and primary fishing-related businesses that were listed in the phone books when Impact Assessment, Inc. conducted research for the Southeast Regional Office (Impact Assessment, Inc. 2005a). There is also a table that shows the amount of commercial landings and another one that shows the number of permits in the community (Impact Assessment, Inc. 2005a).

Madeira Beach Demographics for 1990 and 2000

Factor	1990	2000
Total population	4,225	4,511
Gender Ratio M/F (Number)	2,156/2,069	2,376/2,135
Age (Percent of total population)		
Under 18 years of age	8.7	8.2
18 to 64 years of age	65.7	69.8
65 years and over	25.6	22.0
Ethnicity or Race (Number)		
White	4,160	4,378
Black or African American	10	12
American Indian and Alaskan Native	7	14
Asian	32	26
Native Hawaiian and other Pacific Islander	--	2
Some other race	16	30
Two or more races	--	49
Hispanic or Latino (any race)	105	107
Educational Attainment (Population 25 and over)		
Percent with less than 9th grade	4.2	2.6
Percent high school graduate or higher	83.8	87.3
Percent with a Bachelor's degree or higher	19.5	22.2
Language Spoken at Home (Population 5 years and over)		
Percent who speak a language other than English at home	4.5	6.8
Percent who speak English less than very well	1.5	2.0
Household income (Median \$)	24,748	36,671
Poverty Status (Percent of population with income below poverty line)	8.4	9.8
Percent female headed household	5.3	5.3
Home Ownership (Number)		
Owner occupied	1,290	1,454
Renter occupied	940	1,074
Value Owner-occupied Housing (Median \$)	111,400	171,000
Monthly Contract Rent (Median \$)	392	555
Employment Status (Population 16 yrs and over)		
Percent in the labor force	58.5	61.5
Percent of civilian labor force unemployed	2.7	4.4
Occupation** (Percent in workforce)		
Management, professional, and related occupations	--	30.4
Service occupations	--	22.1
Sales and office occupations	--	28.9
Farming, fishing, and forestry occupations	1.4	0.7
Construction, extraction, and maintenance occupations	--	10.6
Production, transportation, and material moving occupations	--	7.2
Industry** (Percent in workforce)		
Agriculture, forestry, fishing and hunting	1.4	0.0†
Manufacturing	7.5	7.0
Percent government workers	8.2	4.5
Commuting to Work (Workers 16 yrs and over)		
Percent in carpools	8.7	14.7
Percent using public transportation	2.2	1.6
Mean travel time to work (minutes)	--	23.1
Percent worked outside of county of residence	10.6	16.0

**Differences in the types of data the U.S. Census Bureau used to generate Occupation and Industry percentages in 1990 and 2000 preclude valid comparisons between those census years.

†Year 2000 figures include mining in this group; 1990 figures do not. Mining includes the offshore oil industry workforce.

Fishing Infrastructure and Services Observed in Madeira Beach in 2003

This information was obtained in 2003 during preliminary research conducted by Impact Assessment, Inc. under a contract for NMFS for the preliminary identification of fishing communities. The research team drove through the community and made notes of what fishing infrastructure and businesses were observed. This methodology serves as a starting point for describing fishing related infrastructure and businesses, but is not an all inclusive account of what exists in the community.

Infrastructure or Service	Quantity
Air fill stations (diving)	2
Boat yards/ Boat builders (recreational/commercial)	3
Churches with maritime theme	1
Docking facilities (commercial)	4
Fishing Gear, Electronics, Welding, and other repair	4 (2com/2 rec)
Fishing associations (recreational/commercial)	1 (com)
Fish processors, Wholesale Fish House	5
Fisheries research laboratories	0
Fishing monuments/ festivals	1
Fishing pier	0
Hotels/Inns (docksides)	Many
Marine railways/haul out facilities	0
Museums—fishing/marine-related	0
Net makers	0
NMFS or state fisheries office (port agent, etc.)	0
Public boat ramps	2
Recreational docks/marinas	4
Bait & Tackle/fishing supplies	5
Recreational Fishing Tournaments	0
Sea Grant Extension office	0
Seafood restaurants	Many
Seafood retail markets	2
Trucking operations	1
Site-seeing/pleasure tours	7+
Charter/Head Boats	3+
Commercial Boats	40

Primary Fishing-related Businesses Listed for Madeira Beach in 2003

This information was obtained in 2003 during preliminary research conducted by Impact Assessment, Inc. under a contract for NMFS for the preliminary identification of fishing communities. The research team used the local yellow pages in each community to determine which businesses were listed.

Type of Business	Frequency
Boat Builder/Broker	3
Boat Rentals & Pier	10
Boat Rentals & Pier; Marina	1
Marina	3

Processor; Wholesale Seafood Dealer	1
Retail/Wholesale Seafood Dealer	1
Total	19

Madeira Beach Commercial Landings and Value Summary: 2002 (based on all address fields)

Species	Pounds Reported	Ex-Vessel Value (\$)
Total Combined	935,201	1,686,739

Madeira Beach License/Permit Summary: 2000

Commercial (based on physical address data only)		Recreational (based on all address fields)
State License Holders	Federal Permit Holders	State Saltwater License Holders
15	26	125
Total = 41		
% Households Holding Comm. Permit or License: 41/2,528 = 1.6		Average Number of Licenses per Household: 125/2,528 = 0.05

Please reference Table 3.19-5 above for the total number of commercial permit and license holders attributable to this community as based on both street *and* post office box address data.

3.4.5 Panama City, Florida (incorporated, pop. 36,417)

Location and Overview. Panama City is located on St. Andrews Bay just inland from the Gulf in the central Panhandle region. The city is typically accessed by U.S. Highway 98 and State Highway 22. Tallahassee is nearly 100 miles to the southwest. Local and visiting fishing vessels access the Gulf through the channel at St. Andrew Bay, roughly two miles from the waterfront.

History. The town was named in 1906 under the leadership of developer G.M. West, and incorporated in 1909. Development focused on the waterfront, where numerous piers, a post office, and the city jail were built. In 1908, the Atlanta and St. Andrew Bay Railroad connected Panama City with cities to the north. In 1913, Panama City became the seat of Bay County.

Current Conditions and Trends. The year 2000 census enumerated 36, 417 persons in Panama City, up from 34,378 in 1990. More than 6,700 residents are employed at neighboring Tyndal Air Force Base. The U.S. Navy maintains a 648-acre Coastal Systems Station in the area, and employs approximately 2,200 persons, many of whom reside in Panama City. Many residents are employed in positions associated with regional commerce and government.

There are numerous commercial and recreational fishing businesses in Panama City. At least 100 commercial and charter vessels moor at various harbors. Several wholesale fish houses handle a wide variety of finfish and shellfish, and there are numerous bait and tackle shops, ship stores, boat builders and dealers, fishing piers, and marinas where charter fishing is offered. There were nine active processors in 2000, employing a total of 55 persons on average that year. In short, there is considerable infrastructure for both commercial and recreational fishing.

In 2005, there were 551,041 pounds of gag grouper landed in Panama City, Florida with a value of \$1,504,045. In 2006, landings for gag dropped to 249,340 pounds with a value of \$751,055. During 2005, there were 770,466 pounds of red grouper landed with a value of \$1,600,415. In 2006, landings for red grouper decreased to 522,758 pounds with a value of \$1,257,892.

In the 2000 census, 0.4 percent of the population listed their occupation under the category for farming, fishing, and forestry, a decrease from the 1.5 percent who were in this category in 1990. In 2000, 0.5 percent listed their occupation under the agriculture, forestry, fishing, and hunting category also a decrease from the 1.5 percent listed in 1990.

Following the demographic table are four tables that help to describe the presence of fishing in Panama City in 2003 including a table of infrastructure that was observed in the community and primary fishing-related businesses that were listed in the phone books when Impact Assessment, Inc. conducted research for the Southeast Regional Office (Impact Assessment, Inc. 2005a). There is also a table that shows the amount of commercial landings and another one that shows the number of permits in the community (Impact Assessment, Inc. 2005a).

Panama City Demographics for 1990 and 2000

Factor	1990	2000
Total population	34,378	36,417
Gender Ratio M/F (Number)	16,094/18,284	17,683/18,734
Age (Percent of total population)		
Under 18 years of age	24.5	23.0
18 to 64 years of age	58.5	61.1
65 years and over	17.0	15.9
Ethnicity or Race (Number)		
White	25,954	26,819
Black or African American	7,500	7,813
American Indian and Alaskan Native	215	231
Asian	583	564
Native Hawaiian and other Pacific Islander	--	28
Some other race	126	274
Two or more races	--	688
Hispanic or Latino (any race)	460	1,060
Educational Attainment (Population 25 and over)		
Percent with less than 9th grade	12.1	6.7
Percent high school graduate or higher	70.3	79.2
Percent with a Bachelor's degree or higher	16.7	18.9
Language Spoken at Home (Population 5 years and over)		
Percent who speak a language other than English at home	5.3	7.2
Percent who speak English less than very well	1.9	2.0
Household income (Median \$)	26,629	31,572
Poverty Status (Percent of population with income below poverty line)	19.6	17.2
Percent female headed household	23.0	15.4
Home Ownership (Number)		
Owner occupied	8,193	8,565
Renter occupied	5,860	6,254
Value Owner-occupied Housing (Median \$)	49,800	75,800
Monthly Contract Rent (Median \$)	279	526
Employment Status (Population 16 yrs and over)		

Percent in the labor force	58.6	56.4
Percent of civilian labor force unemployed	8.0	5.8
Occupation** (Percent in workforce)		
Management, professional, and related occupations	--	32.2
Service occupations	--	20.8
Sales and office occupations	--	27.7
Farming, fishing, and forestry occupations	1.5	0.4
Construction, extraction, and maintenance occupations	--	8.6
Production, transportation, and material moving occupations	--	10.4
Industry** (Percent in workforce)		
Agriculture, forestry, fishing and hunting	1.5	0.5†
Manufacturing	7.7	7.0
Percent government workers	20.4	18.6
Commuting to Work (Workers 16 yrs and over)		
Percent in carpools	12.5	13.7
Percent using public transportation	0.2	0.7
Mean travel time to work (minutes)	--	18.6
Percent worked outside of county of residence	1.8	3.3

**Differences in the types of data the U.S. Census Bureau used to generate Occupation and Industry percentages in 1990 and 2000 preclude valid comparisons between those census years.

†Year 2000 figures include mining in this group; 1990 figures do not. Mining includes the offshore oil industry workforce.

Fishing Infrastructure in Panama City, Florida as of January 2008.

This chart was updated by the NMFS' port agent in January 2008 to reflect current infrastructure that is in Panama City.

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

Recreational Fishing Tournaments	Several
Sea Grant Extension office	0
Seafood restaurants	100+
Seafood retail markets	20+
Trucking operations	0
Site-seeing/pleasure tours	12
Charter/Head Boats	100+
Commercial Boats	100+

Primary Fishing-related Businesses Listed for Panama City in 2003

This information was obtained in 2003 during preliminary research conducted by Impact Assessment, Inc. under a contract for NMFS for the preliminary identification of fishing communities. The research team used the local yellow pages in each community to determine which businesses were listed.

Type of Business	Frequency
Boat Builder/Broker	44
Boat Builder/Broker; Boat Rentals & Pier	1
Boat Builder/Broker; Diving & Fishing Equipment	1
Boat Builder/Broker; Marina	13
Boat Rentals & Pier	15
Boat Rentals & Pier; Marina	1
Marina	17
Retail Seafood Dealer	19
Retail/Wholesale Seafood Dealer	2
Wholesale Seafood Dealer	4
Total	117

Panama City Commercial Landings and Value Summary: 2002 (based on all address fields)

Species	Pounds Reported	Ex-Vessel Value (\$)
Total Combined	1,972,052	3,869,807

Panama City License/Permit Summary: 2000

Commercial (based on physical address data only)		Recreational (based on all address fields)
State License Holders	Federal Permit Holders	State Saltwater License Holders
125	139	1,352
Total = 264		
% Households Holding Commercial Permit or License: 264/14,819 = 1.8		Average Number of Licenses per Household: 1,352/14,819 = 0.1

Please reference Table 3.5-5 above for the total number of commercial permit and license holders attributable to this community as based on both street *and* post office box address data.

Mining (includes the offshore oil/gas industry workforce)	11.4	12.0
Manufacturing	4.5	8.0
Percent government workers	10.9	12.8
Commuting to Work (Workers 16 yrs and over)		
Mean travel time to work (minutes)	N/A	30.9

Percent worked outside of county of residence	9.8	13.3
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**Differences in the types of data the U.S. Census Bureau used to generate Occupation and Industry percentages in 1990 and 2000 preclude valid comparisons for those census years.

3.4.6 St. Petersburg, Florida (incorporated, pop. 248,232)

Location and overview. Situated just west of Tampa on the Pinellas Peninsula, St. Petersburg is part of a large metropolitan area within Pinellas County. With over 234 miles of coastline along Tampa Bay, the Gulf of Mexico, and the Intracoastal Waterway, St. Petersburg has the largest municipal marina in the Southeast, with 610 boat slips. Continued growth has occurred over the last decade, and county officials estimate that approximately 80 percent of Pinellas County’s developable land area is now developed.

History. St. Petersburg, like most of Florida’s Gulf coast, was first explored by Juan Ponce de Leon and Hernando De Soto in the 1500s. However, it was not until the 1800s that pioneers began to arrive and settle the area. The town was named after the birthplace of one influential Russian immigrant–railroad magnate Peter Demens– who brought the Orange Belt railroad to the area in 1888. Demens’ railroad was instrumental in the development of St. Petersburg as a center for railway shipping. By the 1890s, St. Petersburg annually shipped approximately three million pounds of mackerel, snapper, and other fish along the eastern seaboard via the Orange Belt railroad. St. Petersburg incorporated in 1892.

Current Conditions and Trends. St. Petersburg had a year 2000 population of 248,232; an increase of 9,603 persons from 1990. Unemployment and poverty rates in St. Petersburg have changed little over the last decade. There are now four major seafood processors in St. Petersburg (BAMA, Save on Seafood, Sigma, and United Seafood), down from six in 2000. One processor serves as a fish house with dockages reserved for five to six independent Vietnamese grouper fishermen and five or six shrimpers. The others are situated in landlocked areas and receive products trucked from fish houses or independent fishermen in adjacent communities like Madeira Beach and Tarpon Springs. While mullet was the primary catch prior to the 1994 gill net ban, processors are now primarily interested in domestic shrimp and grouper– the bulk of which is harvested between Texas and the Florida Keys. Due to a decrease in locally available product, however, these processors now import much of their tuna, grouper, crab, shrimp, and squid from Asia and South America (Impact Assessment, Inc. 2005).

One of the largest frozen bait distributors in Florida is located here, supplying almost all of the bait shops in the area. Mullet was among their best selling products, but cleaned and frozen bait is now the principal product.

Unlike Tampa, the City of St. Petersburg has not assigned an industrial area (like the Port of Tampa) to enhance commercial fishing operations. Presently, the total available commercial fishing dockage supports less than 15 spaces; much of the waterfront area is now occupied by hotels, homes, marinas, and tourist attractions. The municipal marina is largely occupied by sailboats. There are approximately ten public boat ramps, mostly located in the western part of St. Petersburg. The St. Petersburg pier was originally built to serve recreational fishermen, but has become more of a sight-seeing and entertainment spot. Marina staff

estimate that only 40 to 50 percent of clientele are interested in fishing. Indeed, local anglers tend to favor Gandy Bridge, Weedon Island fishing pier, Skyway Piers, and the Fort De Soto beaches. Some local fishery participants express concern that increased waterfront development will damage water quality, even though this expansion increases their business. The local fleet is extensive and productive (Impact Assessment, Inc. 2005).

In 2005, there were 191,255 pounds of gag grouper landed in St. Petersburg, Florida with a value of \$498,748. In 2006, landings for gag dropped to 98,004 pounds with a value of \$280,409. During 2005, there were 737,463 pounds of red grouper landed with a value of \$1,583,436. In 2006, landings for red grouper decreased to 530,413 pounds with a value of \$1,252,409.

In the 2000 census, 0.1 percent of the population listed their occupation under the category for farming, fishing, and forestry, a decrease from the 1.3 percent who were in this category in 1990. In 2000, 0.1 percent listed their occupation under the agriculture, forestry, fishing, and hunting category also an increase from the 1.5 percent listed in 1990.

Following the demographic table are four tables that help to describe the presence of fishing in St. Petersburg, Florida in 2003 including a table of infrastructure that was observed in the community and primary fishing-related businesses that were listed in the phone books when Impact Assessment, Inc. conducted research for the Southeast Regional Office (Impact Assessment, Inc. 2005a). There is also a table that shows the amount of commercial landings and another one that shows the number of permits in the community (Impact Assessment, Inc. 2005a).

St. Petersburg Demographics for 1990 and 2000

Factor	1990	2000
Total population	238,629	248,232
Gender Ratio M/F (Number)	110,824/127,805	118,411/129,821
Age (Percent of total population)		
Under 18 years of age	19.8	21.5
18 to 64 years of age	58.0	61.1
65 years and over	22.2	17.4
Ethnicity or Race (Number)		
White	186,125	177,133
Black or African American	46,726	55,502
American Indian and Alaskan Native	596	769
Asian	3,967	6,640
Native Hawaiian and other Pacific Islander	--	130
Some other race	1,215	2,661
Two or more races	--	5,397
Hispanic or Latino (any race)	6,255	10,502
Educational Attainment (Population 25 and over)		
Percent with less than 9th grade	8.2	4.9
Percent high school graduate or higher	75.1	81.9
Percent with a Bachelor's degree or higher	18.6	22.8
Language Spoken at Home (Population 5 years and over)		
Percent who speak a language other than English at home	8.8	11.7
Percent who speak English less than very well	3.2	4.9

Household income (Median \$)	23,577	34,597
Poverty Status (Percent of population with income below poverty line)	13.5	13.3
Percent female headed household	21.3	13.8
Home Ownership (Number)		
Owner occupied	105,703	69,626
Renter occupied	66,577	40,037
Value Owner-occupied Housing (Median \$)	63,000	81,000
Monthly Contract Rent (Median \$)	353	567
Employment Status (Population 16 yrs and over)		
Percent in the labor force	59.2	62.4
Percent of civilian labor force unemployed	5.2	5.2
Occupation** (Percent in workforce)		
Management, professional, and related occupations	--	34.0
Service occupations	--	16.7
Sales and office occupations	--	28.3
Farming, fishing, and forestry occupations	1.3	0.1
Construction, extraction, and maintenance occupations	--	8.2
Production, transportation, and material moving occupations	--	12.7
Industry** (Percent in workforce)		
Agriculture, forestry, fishing and hunting	1.5	0.1†
Manufacturing	12.8	10.1
Percent government workers	12.7	12.1
Commuting to Work (Workers 16 yrs and Over)		
Percent in carpools	13.2	11.8
Percent using public transportation	3.0	2.9
Mean travel time to work (minutes)	--	22.9
Percent worked outside of county of residence	10.2	13.4

**Differences in the types of data the U.S. Census Bureau used to generate Occupation and Industry percentages in 1990 and 2000 preclude valid comparisons between those census years.

†Year 2000 figures include mining in this group; 1990 figures do not. Mining includes the offshore oil industry workforce.

Fishing Infrastructure and Services Observed in St. Petersburg in 2003

This information was obtained in 2003 during preliminary research conducted by Impact Assessment, Inc. under a contract for NMFS for the preliminary identification of fishing communities. The research team drove through the community and made notes of what fishing infrastructure and businesses were observed. This methodology serves as a starting point for describing fishing related infrastructure and businesses, but is not an all inclusive account of what exists in the community.

Infrastructure or Service	Quantity
Air fill stations (diving)	0
Boat yards/ Boat builders (recreational/commercial)	3 (builders)
Churches with maritime theme	0
Docking facilities (commercial)	1
Fishing Gear, Electronics, Welding, and other repair	3 (rec)
Fishing associations (recreational/commercial)	0
Fish processors, Wholesale Fish House	4
Fisheries research laboratories	2
Fishing monuments/ festivals	0
Fishing pier	1
Hotels/Inns (dockside)	10

Marine railways/haul out facilities	0
Museums—fishing/marine-related	0
Net makers	0
NMFS or state fisheries office (port agent, etc.)	1
Public boat ramps	7
Recreational docks/marinas	10
Bait & Tackle/fishing supplies	6
Recreational Fishing Tournaments	0
Sea Grant Extension office	0
Seafood restaurants	Many
Seafood retail markets	5
Trucking operations	0
Site-seeing/pleasure tours	0
Charter/Head Boats	5
Commercial Boats	12

Primary Fishing-related Businesses Listed for St. Petersburg in 2003

This information was obtained in 2003 during preliminary research conducted by Impact Assessment, Inc. under a contract for NMFS for the preliminary identification of fishing communities. The research team used the local yellow pages in each community to determine which businesses were listed.

Type of Business	Frequency
Boat Builder/Broker	92
Boat Builder/Broker; Boat Rentals & Pier	1
Boat Builder/Broker; Diving & Fishing Equipment	1
Boat Builder/Broker; Marina	17
Boat Rentals & Pier	22
Boat Rentals & Pier; Marina	2
Marina	39
Processor; Wholesale Seafood Dealer	4
Retail Seafood Dealer	24
Retail/Wholesale Seafood Dealer	1
Wholesale Seafood Dealer	10
Total	213

St. Petersburg Commercial Landings and Value Summary: 2002 (based on all address fields)

Species	Pounds Reported	Ex-Vessel Value (\$)
Total Combined	2,223,277	5,863,162

St. Petersburg License/Permit Summary: 2000

Commercial (based on physical address data only)		Recreational (based on all address fields)
State License Holders	Federal Permit Holders	State Saltwater License Holders
123	69	10,368
Total = 191		

% Households Holding Comm. Permit or License: 191/109,663 = 0.2	Average Number of Licenses per Household: 10,368/109,663 = 0.1
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Please reference Table 3.19-5 above for the total number of commercial permit and license holders attributable to this community as based on both street *and* post office box address data.

3.5 Administrative Environment

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 Secretary and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for promulgating regulations to implement proposed plans and amendments after ensuring management measures are consistent with the MSFCMA and with other applicable laws summarized in Section 10. In most cases, the Secretary has delegated this authority to NMFS.

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

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

Regulations contained within FMPs are enforced through actions of the 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 Magnuson-Stevens Act. 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 have developed a 5-year “Gulf Cooperative Law Enforcement Strategic Plan - 2006-2011.”

State Fishery Management

The purpose of state representation at the council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters. The state governments of Texas, Louisiana, Mississippi, Alabama, and Florida have the authority to manage their respective state fisheries. Each of the five Gulf States exercises legislative and regulatory authority over their states' natural resources through discrete administrative units. Although each agency is the primary administrative body with respect to the states natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources. A more detailed description of each state's primary regulatory agency for marine resources is provided in Amendment 22 (GMFMC 2004a).

4 BYCATCH PRACTICABILITY ANALYSES

Background/Overview

Bycatch is defined as fish harvested in a fishery, but not sold or retained for personal use. This definition includes both economic and regulatory discards, but excludes fish released alive. Economic discards are generally undesirable from a market perspective because of their species, size, sex, and/or other characteristics. Regulatory discards are fish required by regulation to be discarded, but also include fish that may be retained but not sold.

Guidance provided at 50 CFR 600.350(d)(3) identifies ten factors to consider in determining whether a management measure minimizes bycatch or bycatch mortality to the extent practicable. These are:

1. Population effects for the bycatch species.
2. Ecological effects due to changes in the bycatch of that species (effects on other species in the ecosystem).
3. Changes in the bycatch of other species of fish and the resulting population and ecosystem effects.
4. Effects on marine mammals and birds.
5. Changes in fishing, processing, disposal, and marketing costs.
6. Changes in fishing practices and behavior of fishermen.
7. Changes in research, administration, and enforcement costs and management effectiveness.
8. Changes in the economic, social, or cultural value of fishing activities and non-consumptive uses of fishery resources.
9. Changes in the distribution of benefits and costs.
10. Social effects.

The Councils are encouraged to adhere to the precautionary approach outlined in Article 6.5 of the Food and Agriculture Organization (FAO) of the United Nations Code of Conduct for Responsible Fisheries when uncertain about these factors.

The shallow-water grouper fishery is currently regulated through measures such as quotas, size limits, bag limits, and seasonal closures. These measures are intended to protect grouper during spawning and limit fishing mortality, the size of fish targeted, the number of targeted fishing