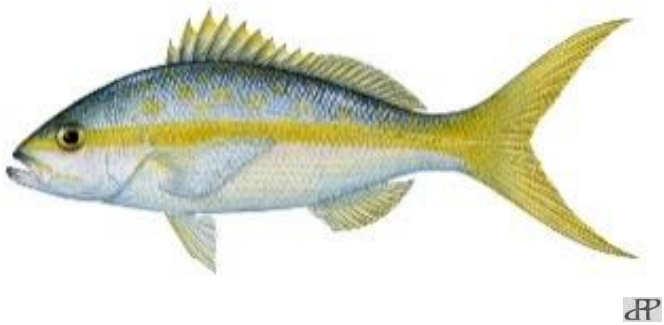
**Tab B, No. 6a**

# Modification to Gear Requirements for Yellowtail Snapper in the Gulf of Mexico



## Draft Framework Action to the Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico

**January 2016**

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# COVER SHEET

**Name of Action**

Draft Framework Action to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico to Modify Gear Restrictions for Yellowtail Snapper.

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# CHAPTER 1. INTRODUCTION

## 1.1 Background

Currently, some commercial fishing regulations differ between the Gulf of Mexico Fishery Management Council (Gulf Council), the South Atlantic Fishery Management Council (South Atlantic Council), and the State of Florida. This makes it burdensome for commercial fishermen to abide by different regulations in the applicable areas, particularly the Florida Keys, where commercial fishermen can fish in multiple jurisdictions on a single trip (Figure 1.1.1).

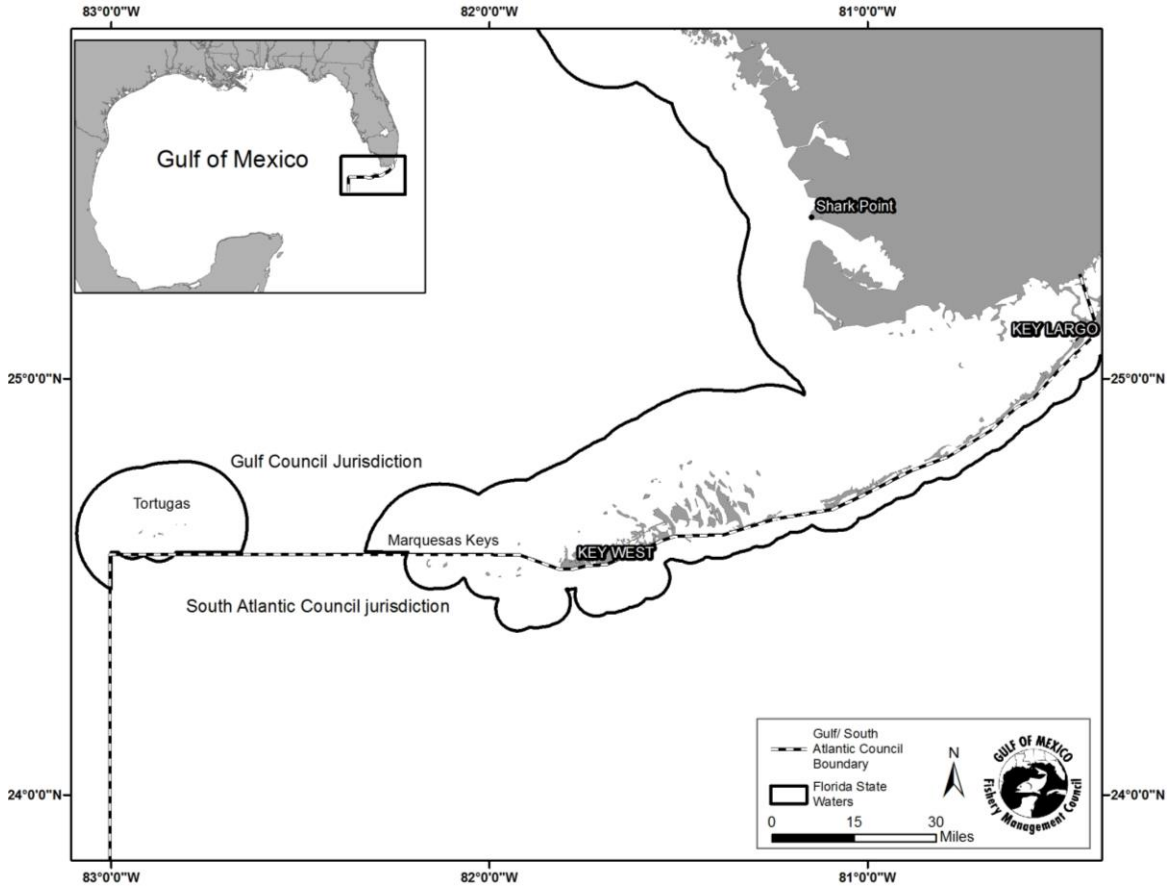



**Figure 1.1.1.** Inter-Council jurisdiction boundary in southern Florida, Florida Keys and Monroe County between the Gulf of Mexico and South Atlantic Councils. A full description of the inter-Council boundary can be found: 61 FR 32540, June 24, 1996, as amended at 63 FR 7075, February 12, 1998 or (CFR 600.105).

Commercial reef fish permit holders fishing for yellowtail snapper in the Gulf of Mexico (Gulf) are currently required to use circle hooks when fishing with natural bait (50 CFR 622.41). These regulations differ from those in the South Atlantic Council's jurisdiction, where snapper-grouper permit holders are not required to use circle hooks when fishing for any species within the snapper-grouper complex south of 28° 0' north latitude. Both the Gulf Council's Reef Fish

Fishery Management Plan (FMP) and the South Atlantic Council's Snapper-Grouper FMP include yellowtail snapper, which are primarily caught in and around the southern half of Florida, particularly in the Florida Keys.

Commercial yellowtail snapper fishermen indicate that they use chum bags on the surface to attract yellowtail snapper to the stern of the fishing vessel, and then use natural bait on small hooks to catch and land the fish. These commercial fishermen also indicate that their release tools allow them to release yellowtail snapper which have been caught with J-hooks more easily than those caught with circle hooks, resulting in decreased handling times for fish which are to be discarded. Decreased handling times due to quicker dehooking methods for retained fish may result in an increase in the efficiency with which the commercial yellowtail snapper fishery is prosecuted.

*Yellowtail Snapper*

Yellowtail snapper in the Gulf are managed with a stock annual catch limit (ACL). In the southeastern U.S., yellowtail snapper comprise a single stock. The South Atlantic and Gulf Council jurisdictions are combined for stock assessment purposes. The Generic ACL and Accountability Measures (AMs) Amendment (GMFMC 2011), established the jurisdictional apportionment of the yellowtail snapper acceptable biological catch (ABC) between the Gulf and South Atlantic Councils based on the Council jurisdictional boundary Florida Keys (Monroe County) using 50% of the catch history from 1993-2008 and 50% of the catch history from 2006-2008. This formula resulted in a jurisdictional apportionment of yellowtail snapper with 75% of the ABC to the South Atlantic Council and 25% of the ABC to the Gulf Council. This method places added emphasis on the more recent portion of the considered catch history.

In 2012, the Florida Fish and Wildlife Research Institute (FWRI) conducted a yellowtail snapper benchmark stock assessment (SEDAR 27 2012). Fishery-dependent data included commercial logbooks, recreational catch and effort surveys, and the headboat survey. Fishery-independent data came from the National Marine Fisheries Service (NMFS)/University of Miami Reef Visual Census. Results from the assessment indicated that, as of 2010, the yellowtail snapper stock is neither overfished nor experiencing overfishing.

The yellowtail snapper stock straddles the jurisdictions of the Gulf and South Atlantic Councils. Therefore, the assessment was reviewed in October 2012 by a joint meeting of the South Atlantic Council's Scientific and Statistical Committee (SSC) and the Gulf Council's Standing and Special Reef Fish SSC. The SSCs thought that setting the overfishing limit (OFL) at the equilibrium yield level for $F_{MSY}$ would be a sustainable and risk neutral approach. Consequently, the SSCs established OFL at the equilibrium MSY yield is 4.61 million pounds (mp) whole weight (ww) total removals (landings plus dead discards), or 4.51 mp ww in landings. The Gulf and South Atlantic Councils agreed to use P* (risk of overfishing) equal to 0.40 to set the ABC. When this P* was applied to a probability distribution function prepared by FWRI, the resulting ABC was 4.13 mp ww total removals, or 4.05 mp ww in landings. When the ABC was apportioned between the South Atlantic and Gulf jurisdictions, the resulting regional ABCs in terms of landings were 3.0375 mp ww to the South Atlantic and 1.0125 mp ww to the Gulf.

## 1.2 Description of the Fishery

The Gulf of Mexico (Gulf) reef fish fishery is composed of 31 species: 11 snappers, 11 groupers, four jacks, three tilefishes, one triggerfish, and one wrasse. Commercial and recreational fishing for these species occur in state and federal waters off the Florida Keys to those off Texas.

***Gulf Reef Fish Permits Holders (Commercial Fishing Entities)***

A commercial vessel permit for Gulf reef fish must have been issued to a vessel and be on-board for a person to be eligible for an exemption from the bag limits, to fish under a quota, or to sell reef fish in or from the Gulf Exclusive Economic Zone ( EEZ). As of October 15, 2015, there were 853 valid or renewable Gulf commercial reef fish vessel permits.

Over 98% of permit holders have addresses in one of the Gulf States (Table 1.2.1). Almost 80% of the permits are issued to individuals residing in Florida. Each permit corresponds to a specific fishing vessel.

**Table 1.2.1**. Valid Gulf of Mexico reef fish permits as of October 15, 2015, by permit holder's state of residence.

| State | Permits | % Total |
|---|---|---|
| **AL** | 40 | 4.7% |
| **FL** | 684 | 79.7% |
| **LA** | 36 | 5.1% |
| **MS** | 8 | 1.2% |
| **TX** | 72 | 7.5% |
| **All Gulf** | 840 | 98.7% |
| | | |
| **GA** | 5 | 0.6% |
| **SC** | 3 | 0.3% |
| **NY** | 2 | 0.1% |
| **MD** | 1 | 0.1% |
| **OH** | 1 | 0.1% |
| **OR** | 1 | 0.1% |
| **All Non-Gulf** | 13 | 1.4% |
| | | |
| **Total** | 853 | 100% |

Source: SERO list of current permit holders

***Yellowtail Snapper***

Yellowtail snapper in the southeastern United States are harvested by both recreational and commercial fishermen, with all landings coming almost exclusively from waters adjacent to the

State of Florida. Very small amounts of yellowtail snapper are landed in Texas. Landings of yellowtail snapper in the Gulf are dominated by the commercial sector, which lands, on average, over 97% of the yellowtail snapper caught in the Gulf (see Section 1.2).

Commercial fishermen in the Gulf harvest yellowtail snapper exclusively off the southwestern coast of Florida and west and northwest of the Florida Keys (Figure 1.2.2.2). The most common fishing practice is hook-and-line fishing behind the vessel, using a chum slick (a large amount of natural chum drifting away from the stern of the fishing vessel). The chum slick draws the fish to the surface, where they feed directly behind the stern of the fishing vessel. Fishermen use small hooks with natural bait and "cane poles" (rods with ~15' of monofilament fishing line tied to the tip) or spinning reels to catch yellowtail snapper. Landed fish are then quickly dehooked and dropped into a hold with ice. The operation is similar in the South Atlantic, where circle hooks are not required to land reef fish when using natural bait south of 28° 0' north latitude. Fishermen in the South Atlantic have developed special dehooking boxes to quickly remove J-hooks from caught yellowtail snapper. Since a majority of the fishing occurs at the stern of the vessel in sight of the schooling fish, fishermen can proactively prevent unwanted fish (e.g., wrong species) from taking a bait. Further, anecdotal information suggests that since the fish are feeding at the surface and can take very little line off a fishing reel after being hooked, the probability of a fish being hooked anywhere besides the mouth is minimal.

Recreational fishermen in the Gulf also harvest yellowtail snapper almost exclusively off the southwestern coast of Florida and in the Florida Keys (Figure 1.2.2.1). Common fishing practices include hook-and-line fishing with natural bait or jigs and, to a lesser extent, spearfishing. Gulf recreational fishermen are permitted to retain 10 yellowtail snapper per person per day, with a minimum size limit of 12" total length (TL). Contrary to commercial fishing practices, the multi-species nature of most recreational fishing trips, combined with the aforementioned bag limit, reduces the necessity of increasing the efficiency of recreational fishing effort for yellowtail snapper.

Recreational anglers may also create chum slicks when fishing for reef fish species over structure (e.g., artificial and natural reefs). The paramount difference in angler behavior is that typically commercial fishermen actively target certain species for a variety of reasons (e.g., fishing seasons, market value, local abundance), while recreational fishermen typically fish for many species when fishing over bottom structure. This results in the increased probability of a recreational angler catching and retaining species other than yellowtail snapper, which could have adverse effects on other species if hooks other than circle hooks are permitted for use.

### 1.2.1 Stock Status of Yellowtail Snapper

A benchmark yellowtail snapper assessment was conducted in 2012 by the Florida Fish and Wildlife Research Institute (FWRI) (SEDAR 27 2012). This assessment was submitted to a joint meeting of the South Atlantic Fishery Management Council's (South Atlantic Council) Scientific and Statistical Committee (SSC) and Gulf of Mexico Fishery Management Council's (Gulf Council) Standing and Special Reef Fish SSC for review in October 2012. Whereas the previous yellowtail snapper assessment in 2003 (SEDAR 3) used a release mortality estimate of 30%, this assessment used a lower bound for release mortality of 10% for the recreational sector, and

11.5% for the commercial sector, based on observer data. The assessment was conducted with a statistical catch-at-age model (ASAP2). Fishery-dependent data included commercial logbooks, Marine Recreational Fisheries Statistics Survey (MRFSS), and the Southeast Region Headboat Survey (SRHS). Fishery-independent data came from the NMFS/University of Miami Reef Visual Census. Results from the assessment indicated that, as of 2010, the yellowtail snapper stock is neither overfished nor experiencing overfishing. Using $F_{30\% SPR}$ as a proxy for $F_{MSY}$, the ratio $F_{2010}/F_{30\%SPR} = 0.153$ (not overfishing), and the ratio $SSB_{2010}/SSB_{F30\% SPR} = 3.357$ (not overfished).

Because the stock biomass was well above the level needed to sustain maximum sustainable yield (MSY), a joint Gulf and South Atlantic SSC provided management advice based on the equilibrium levels of MSY. Consequently, the joint SSC established overfishing limit (OFL) at the equilibrium MSY yield is 4.61 million pounds (mp) whole weight (ww) total removals (landings plus dead discards), or 4.51 mp ww in landings.

To set acceptable biological catch (ABC), the Gulf and South Atlantic Councils have separate ABC control rules for establishing the appropriate P* (acceptable risk of overfishing). Using the South Atlantic ABC control rule resulted in a P* value of 0.40. Using Tier 1 of the Gulf Council's ABC control rule resulted in a P* of 0.416. Since the results were very close, the joint SSC agreed to use P* = 0.40 to set the ABC. When this P* was applied to a probability distribution function prepared by FWRI, the resulting ABC was 4.13 mp ww total removals, or 4.05 mp ww in landings. When apportioned between the South Atlantic and Gulf jurisdictions, the resulting regional ABCs in terms of landings were 3.0375 mp ww to the South Atlantic Council, and 1.0125 mp ww to the Gulf Council.

## 1.2.2 Landings History for Yellowtail Snapper

Because the ABCs set for yellowtail snapper are based on equilibrium yields, they do not fluctuate from year to year, but remain constant until adjusted by a future assessment. In the Gulf, the ACL is set equal to the ABC, and there are no established sector allocations. Table 1.2.2.1 shows the annual landings of yellowtail snapper from 1986 – 2013 by Council and fishing sector. Table 1.2.2.2 shows the annual percentages of landings by sector for yellowtail snapper from 1986 – 2013 by Council. Table 1.2.2.3 shows yellowtail snapper landings by statistical collection zone for each Council by sector for 2008-2013. Commercial landings are assigned to sub-region (Gulf of Mexico or South Atlantic) based on fisher-reported catch area. For example, landings reported north of U.S. 1 are considered to be within the Gulf Council's jurisdiction and south of U.S. 1 landings are considered to be within the South Atlantic Council's jurisdiction. Headboats based from Texas to Gulf-based Monroe County are within the Gulf Council's jurisdiction, and headboats from North Carolina to the Florida Keys are within the South Atlantic Council's jurisdiction. The MRFSS data was post-stratified to break the Florida Keys out from the Gulf landings. The MRFSS landings from the Florida Keys were re-assigned to the South Atlantic Council's jurisdiction, because most legal-sized yellowtail snapper are likely caught in South Atlantic waters (GMFMC ACL/AM Amendment 2011).

**Table 1.2.2.1**. Yellowtail snapper landings from 1986 through 2014 in the Gulf of Mexico and South Atlantic in pounds whole weight.

| | Gulf of Mexico | | | South Atlantic | | | |
|---|---|---|---|---|---|---|---|
| **Year** | Commercial | Recreational | Gulf Total | Commercial | Recreational | SA Total | Grand Total |
| 1986 | 506,144 | 7,622 | 513,766 | 612,676 | 776,238 | 1,388,914 | 1,902,680 |
| 1987 | 1,275,194 | 9,743 | 1,284,937 | 88,876 | 723,364 | 812,240 | 2,097,177 |
| 1988 | 638,412 | 9,460 | 647,872 | 774,164 | 1,103,823 | 1,877,987 | 2,525,859 |
| 1989 | 1,020,640 | 10,581 | 1,031,221 | 830,896 | 1,692,498 | 2,523,394 | 3,554,615 |
| 1990 | 906,233 | 11,532 | 917,765 | 849,380 | 1,342,553 | 2,191,933 | 3,109,698 |
| 1991 | 787,663 | 13,180 | 800,843 | 1,073,979 | 2,299,879 | 3,373,858 | 4,174,701 |
| 1992 | 831,013 | 36,986 | 867,999 | 1,024,653 | 1,067,445 | 2,092,098 | 2,960,097 |
| 1993 | 1,067,452 | 51,015 | 1,118,467 | 1,311,367 | 1,189,637 | 2,501,004 | 3,619,471 |
| 1994 | 1,344,942 | 11,762 | 1,356,704 | 860,543 | 880,763 | 1,741,306 | 3,098,010 |
| 1995 | 591,074 | 3,434 | 594,508 | 1,265,856 | 660,358 | 1,926,214 | 2,520,722 |
| 1996 | 485,120 | 2,854 | 487,974 | 973,815 | 554,130 | 1,527,945 | 2,015,919 |
| 1997 | 218,384 | 2,008 | 220,392 | 1,455,496 | 702,997 | 2,158,493 | 2,378,885 |
| 1998 | 341,479 | 4,965 | 346,444 | 1,183,074 | 487,063 | 1,670,137 | 2,016,581 |
| 1999 | 601,027 | 39,260 | 640,287 | 1,245,345 | 288,951 | 1,534,296 | 2,174,583 |
| 2000 | 388,984 | 4,781 | 393,765 | 1,203,154 | 395,845 | 1,598,999 | 1,992,764 |
| 2001 | 246,849 | 7,045 | 253,894 | 1,174,008 | 328,458 | 1,502,466 | 1,756,360 |
| 2002 | 341,823 | 7,782 | 349,605 | 1,069,057 | 407,848 | 1,476,905 | 1,826,510 |
| 2003 | 463,743 | 11,472 | 475,215 | 948,886 | 510,314 | 1,459,200 | 1,934,415 |
| 2004 | 478,221 | 17,937 | 496,158 | 1,002,309 | 698,058 | 1,700,367 | 2,196,525 |
| 2005 | 510,437 | 31,176 | 541,613 | 814,899 | 576,247 | 1,391,146 | 1,932,759 |
| 2006 | 542,237 | 21,477 | 563,714 | 694,958 | 560,320 | 1,255,278 | 1,818,992 |
| 2007 | 350,079 | 19,726 | 369,805 | 628,608 | 786,399 | 1,415,007 | 1,784,812 |
| 2008 | 460,569 | 6,056 | 466,625 | 910,323 | 746,313 | 1,656,636 | 2,123,261 |
| 2009 | 891,925 | 19,250 | 911,175 | 1,085,281 | 348,536 | 1,433,817 | 2,344,992 |
| 2010 | 569,275 | 8,783 | 578,058 | 1,126,231 | 434,259 | 1,560,490 | 2,138,548 |
| 2011 | 769,730 | 25,560 | 795,290 | 1,125,220 | 390,998 | 1,516,218 | 2,311,508 |
| 2012 | 630,984 | 5,087 | 636,071 | 1,439,586 | 493,409 | 1,932,995 | 2,569,066 |
| 2013 | 728,387 | 6,991 | 735,378 | 1,305,002 | 666,026 | 1,971,028 | 2,706,406 |
| 2014 | 760,395 | 21,536 | 781,931 | 1,209,592 | 933,279 | 2,142,871 | 2,924,802 |
| **Mean** | 646,497 | 14,795 | 661,292 | 1,009,905 | 760,207 | 1,770,112 | 2,431,404 |

Source: SERO ALS Database (commercial landings) and MRIP (recreational landings).

**Table 1.2.2.2**. Yellowtail snapper sector landings percentages from 1986 through 2014 in the Gulf of Mexico and South Atlantic.

| | Gulf of Mexico | | South Atlantic | |
|---|---|---|---|---|
| **Year** | % Comm | % Rec | % Comm | % Rec |
| 1986 | 98.5% | 1.5% | 44.1% | 55.9% |
| 1987 | 99.2% | 0.8% | 10.9% | 89.1% |
| 1988 | 98.5% | 1.5% | 41.2% | 58.8% |
| 1989 | 99.0% | 1.0% | 32.9% | 67.1% |
| 1990 | 98.7% | 1.3% | 38.8% | 61.2% |
| 1991 | 98.4% | 1.6% | 31.8% | 68.2% |
| 1992 | 95.7% | 4.3% | 49.0% | 51.0% |
| 1993 | 95.4% | 4.6% | 52.4% | 47.6% |
| 1994 | 99.1% | 0.9% | 49.4% | 50.6% |
| 1995 | 99.4% | 0.6% | 65.7% | 34.3% |
| 1996 | 99.4% | 0.6% | 63.7% | 36.3% |
| 1997 | 99.1% | 0.9% | 67.4% | 32.6% |
| 1998 | 98.6% | 1.4% | 70.8% | 29.2% |
| 1999 | 93.9% | 6.1% | 81.2% | 18.8% |
| 2000 | 98.8% | 1.2% | 75.2% | 24.8% |
| 2001 | 97.2% | 2.8% | 78.1% | 21.9% |
| 2002 | 97.8% | 2.2% | 72.4% | 27.6% |
| 2003 | 97.6% | 2.4% | 65.0% | 35.0% |
| 2004 | 96.4% | 3.6% | 58.9% | 41.1% |
| 2005 | 94.2% | 5.8% | 58.6% | 41.4% |
| 2006 | 96.2% | 3.8% | 55.4% | 44.6% |
| 2007 | 94.7% | 5.3% | 44.4% | 55.6% |
| 2008 | 98.7% | 1.3% | 55.0% | 45.0% |
| 2009 | 97.9% | 2.1% | 75.7% | 24.3% |
| 2010 | 98.5% | 1.5% | 72.2% | 27.8% |
| 2011 | 96.8% | 3.2% | 74.2% | 25.8% |
| 2012 | 99.2% | 0.8% | 74.5% | 25.5% |
| 2013 | 99.0% | 1.0% | 66.2% | 33.8% |
| 2014 | 97.2% | 2.8% | 56.4% | 43.6% |
| **Mean** | 97.7% | 2.3% | 58.0% | 42.0% |

Source: SERO ALS Database (commercial landings) and MRIP (recreational landings).

**Table 1.2.2.3.** Yellowtail snapper landings by statistical collection area for the Gulf of Mexico and South Atlantic Council jurisdictions for waters adjacent to the State of Florida. Landings are separated by sector and are displayed in pounds whole weight.

| Recreational Sector | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Council | Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | Mean | % of Mean |
| South Atlantic | NE | 134 | 605 | 1,640 | 0 | 0 | 145 | 193 | 388 | 0.0% |
| | SE | 581,279 | 520,470 | 333,846 | 210,358 | 286,013 | 623,573 | 356,127 | 415,952 | 31.2% |
| | K | 1,583,584 | 570,257 | 623,266 | 497,448 | 623,304 | 2,017,435 | 460,654 | 910,850 | 68.2% |
| Gulf | WC | 12,664 | 17,852 | 5,675 | 6,667 | 2,140 | 3,855 | 3,565 | 7,488 | 0.6% |
| | NW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Commercial Sector | | | | | | | | | | |
| Council | Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | Mean | % of Mean |
| South Atlantic | East | 26,245 | 28,879 | 30,135 | 91,858 | 28,423 | 25,065 | 26,655 | 36,751 | 1.96% |
| Both | South | 1,341,755 | 1,942,968 | 1,662,667 | 1,797,833 | 2,066,160 | 1,998,411 | 2,005,003 | 1,830,685 | 97.63% |
| Gulf | West | 1,326 | 3,157 | 1,116 | 3,811 | 12,642 | 20,708 | 11,397 | 7,737 | 0.41% |

Note: Statistical collection zones for recreational landings as reported by the Florida Fish and Wildlife Conservation Commission (FWC) include the Northeast (Nassau to Brevard County), Southeast (Indian River to Dade County), the Florida Keys (Monroe County), Southwest (Collier to Levy County), and Northwest (Dixie to Escambia County). Statistical collection zones for commercial landings include the East (Nassau to Broward County), South (Dade and Monroe County), and West (Collier to Escambia County). Commercial data were aggregated in this way due to restrictions on data confidentiality.

Virtually all yellowtail snapper landed in the Gulf of Mexico are landed in Florida (> 99.9%, 2008-2013, SERO-ALS and MRIP databases). Recreational and commercial landings by statistical collection zone are shown in Figures 1.2.2.1 and 1.2.2.2, respectively.

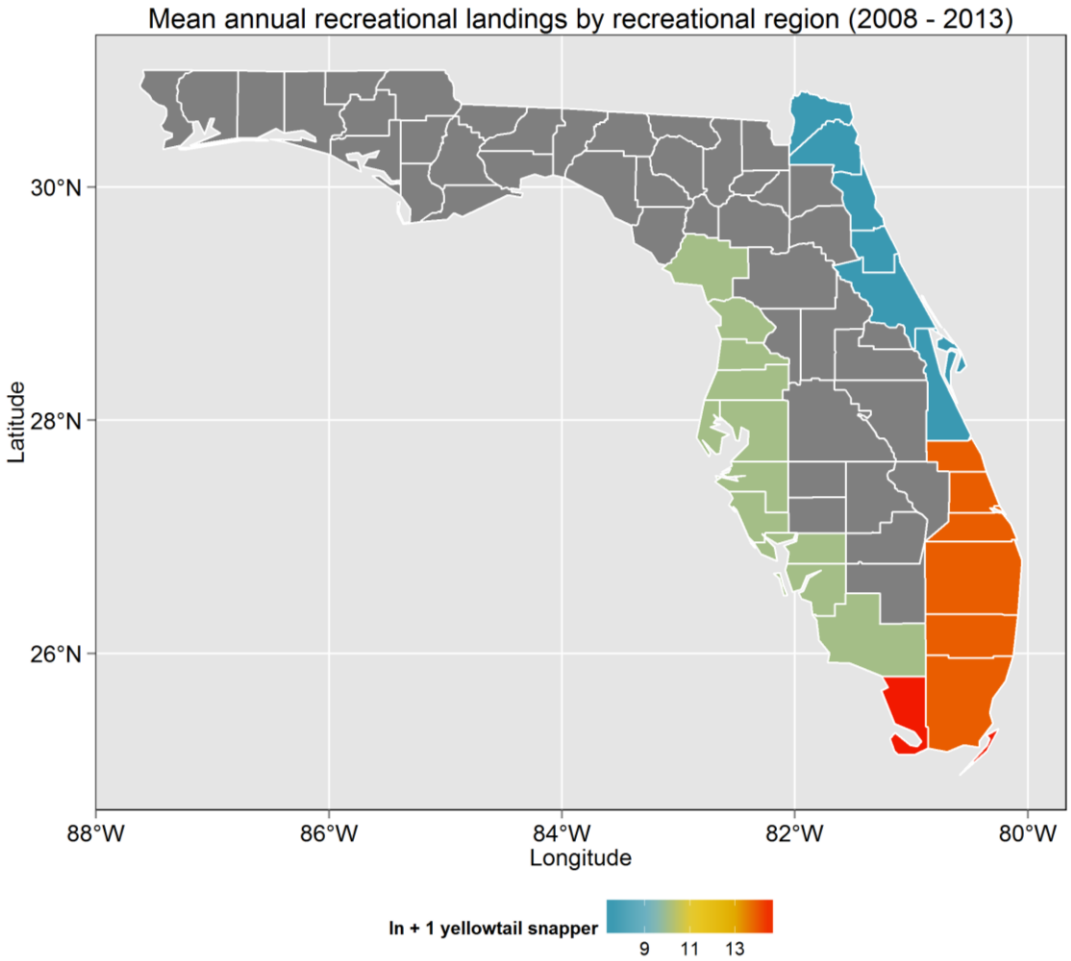



**Figure 1.2.2.1**. Mean annual recreational landings by statistical collection region for yellowtail snapper in Florida for 2008-2013. Landings are averaged across years and log-transformed for homogeneity. Blue colors indicate areas of low landings, red colors indicate areas with high landings, and counties shaded in gray have no landings.

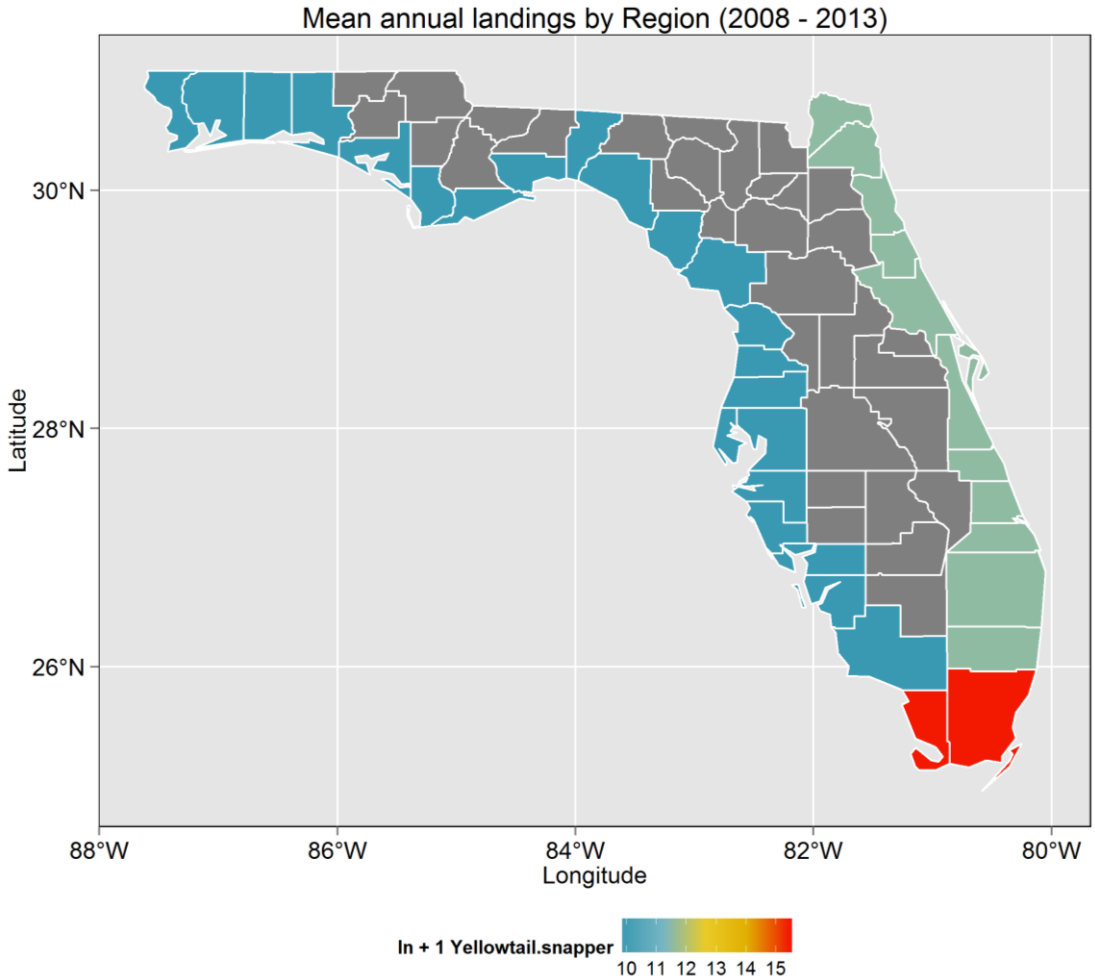



**Figure 1.2.2.2**. Mean annual commercial landings by region for yellowtail snapper in Florida for 2008-2013. Landings are averaged across years and log-transformed for homogeneity. Blue colors indicate areas of low landings, red colors indicate areas with high landings, and counties shaded in gray have no landings.

## 1.3 History of Management

Yellowtail snapper were included in the 33 species (15 snappers, 15 groupers, and 3 sea basses) that comprised the original fishery management unit for the Reef Fish FMP (GMFMC 1984). The first reef fish regulations, implemented in November 1984, included 1) prohibitions on the use of fish traps, roller trawls, and powerheads within an inshore stressed area; 2) construction requirements, maximum size, and numerical limits for fish traps; and 3) permit requirements for fish trap operators. In addition, reporting requirements were implemented for fish traps, commercial vessel owners and operators, and dealers and processors.

**Amendment 1** (GMFMC 1989) to the Reef Fish Fishery Management Plan, implemented in 1990, implemented a 12-inch total length minimum size limit on yellowtail snapper. A 10 snapper aggregate recreational bag limit was also created, which included yellowtail snapper. The stressed area was expanded to run along the entire Gulf coastline, and a commercial vessel permit was established for the harvest and sale of reef fish. Amendment 1 also established an optimum yield goal for all reef fish of 20% spawning stock biomass per recruit (SSBR) relative to the SSBR that would occur with no fishing, and an overfished stock was defined as a stock biomass below 20% SSBR. Overfishing was defined, for a stock that is not overfished, as fishing at a rate that would not allow harvest of optimum yield on a continuing basis, and for a stock that is overfished, as fishing at a rate that is not consistent with rebuilding the stock to 20% SSBR. The spawning stock biomass per recruit terminology was later replaced with spawning potential ratio (SPR).

**Amendment 5**, implemented in February 1994, established a fish trap endorsement for vessel permits of permittees who had logbook landings of reef fish from fish traps in 1991 or 1992 through November 19, 1992, and established a three-year moratorium during which those endorsements would be non-transferable. The amendment also required that traps must be returned to shore at the end of each fishing trip; that each trap must be individually buoyed, or if fished in a trawl (several traps connected by a submerged line) a floating buoy is required at each end of the trawl; and prohibited the possession of magnesium pop-up devices. The amendment also created a special management zone with gear restrictions off the Alabama coast, created a framework procedure for establishing future special management zones, required that all finfish except for oceanic migratory species be landed with head and fins attached, and closed the region of Riley's Hump (near Dry Tortugas, Florida) to all fishing during May and June to protect mutton snapper spawning aggregations.

**Amendment 11** (GMFMC 1995a) was partially approved by NMFS and implemented in January 1996. It established a permit requirement for reef fish charter vessels and headboats, and modified the transferability provisions of reef fish trap endorsements.

**Amendment 12** (GMFMC 1995b) was implemented in January 1997. It established an exclusive economic zone (EEZ) aggregate recreational daily bag (possession) limit of 20-reef fish per angler for all reef fish not having a bag limit. Yellowtail snapper remained in the separate 10-snapper aggregate bag limit for snappers other than red, lane and vermilion.

**Amendment 14**, implemented in March and April 1997, provided for a ten-year phase-out for the fish trap fishery; allowed transfer of fish trap endorsements for the first two years and thereafter only upon death or disability of the endorsement holder, to another vessel owned by the same entity, or to any of the 56 individuals who were fishing traps after November 19, 1992 and were excluded by the moratorium; and prohibited the use of fish traps west of Cape San Blas, Florida. The amendment also provided the Regional Administrator (RA) of NMFS with authority to reopen a fishery prematurely closed before the allocation was reached, and modified the provisions for transfer of commercial reef fish vessel permits. In addition, the amendment prohibited the harvest or possession of Nassau grouper in the Gulf Exclusive Economic Zone (EEZ), consistent with similar prohibitions in Florida state waters, the south Atlantic EEZ, and the Caribbean EEZ.

A **regulatory amendment** implemented in August 1999 (GMFMC 1999a) closed two areas (i.e., created two marine reserves), known as Steamboat Lumps and Madison-Swanson (104 and 115 square nautical miles respectively), and implemented year-round closure to all fishing under the jurisdiction of the Gulf Council with a four-year sunset.

**Amendment 23** (GMFMC 2004a), implemented in July 2005, established the MFMT as the fishing rate associated with $F_{MSY}$, and the MSST as a biomass level equal to (1-M)*$B_{MSY}$ (or $B_{MSY}$ proxy), where M is the natural morality rate, estimated to be 0.25.

**Amendment 27** (GMFMC 2007b), implemented in June 2008, required the use of non-stainless steel circle hooks when using natural baits to fish for Gulf reef fish, and required the use of venting tools and dehooking devices when participating in the commercial or recreational reef fish fisheries.

The **Generic Annual Catch Limits/Accountability Measures Amendment** (GMFMC 2011a), implemented in January 2012, established annual catch limits, optional annual catch targets, and accountability measures for all stocks under Gulf Council management that required such parameters and did not already have them. For yellowtail snapper, the amendment established an apportionment of ABC, with 75% apportioned to the South Atlantic jurisdiction and 25% to the Gulf jurisdiction. For the Gulf apportionment, the amendment established a yellowtail snapper stock ACL of 0.725 million pounds whole weight, and a stock ACT of 0.645 million pounds whole weight.

A **framework action**, effective September 3, 2013, increased the Gulf yellowtail snapper ACL from 725,000 lb round weight to 901,125 lb round weight, and removed the requirement to have onboard and use venting tools when releasing reef fish.

## 1.4 Purpose and Need

The purpose for this framework action is to address inconsistencies between Gulf and South Atlantic Councils' circle hook requirements for yellowtail snapper commercial fishing in Gulf waters, and to increase the operational efficiency of the commercial yellowtail snapper fishery.

The need for this framework action is achieve optimum yield and to decrease the burden of compliance with differing regulations based on separate regulatory agencies across adjacent bodies of water (i.e., Gulf, South Atlantic, and State of Florida waters).

# CHAPTER 2. DRAFT MANAGEMENT ALTERNATIVES

## 2.1 Action 1. Changes to Hook Requirements for Commercially Harvested Yellowtail Snapper in the Gulf of Mexico

**Alternative 1:** No action – Do not change the current hook requirements for commercially harvested yellowtail snapper in the Gulf of Mexico. Circle hooks will continue to be required when fishing with natural bait for yellowtail snapper in the exclusive economic zone of the Gulf of Mexico.

**Alternative 2**: Remove the requirement to use circle hooks when commercial fishing with natural bait for yellowtail snapper throughout the exclusive economic zone of the Gulf of Mexico.

**Alternative 3**: Remove the requirement to use circle hooks when commercial fishing with natural bait for yellowtail snapper south of 28° 00' north latitude in the exclusive economic zone of the Gulf of Mexico (Clearwater Beach).

**Alternative 4**: Remove the requirement to use circle hooks when commercial fishing with natural bait for yellowtail snapper south of 25° 23' north latitude on the west coast of Monroe County, Florida ("Shark Point") south to the Gulf Council jurisdictional boundary. **(Gulf Reef Fish AP Preferred)**

**Alternative 5**: Remove the requirement to use circle hooks when commercial fishing with natural bait for yellowtail snapper south of 25° 09' north latitude on the west coast of Monroe County, Florida (Cape Sable) south to the Gulf Council jurisdictional boundary.

**Discussion:**

In 2008, the Gulf of Mexico Fishery Management Council (Gulf Council) adopted a preferred management alternative in Amendment 27 to the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP) (GMFMC 2008), which required anglers fishing in federal waters to use non–stainless steel circle hooks when catching reef fishes with natural bait (50 CFR 622.30). Circle hooks are defined by regulation as "a fishing hook designed and manufactured so that the point is turned perpendicularly back to the shank to form a generally circular, or oval, shape." Florida matched federal regulations, with the added specification that a circle hook must have zero degrees of offset (Florida Administrative Code §68B-14.005).

In 2010, the South Atlantic Fishery Management Council (South Atlantic Council) approved Amendment 17A to the Fishery Management Plan for Snapper and Grouper of the South Atlantic Region (Snapper-Grouper FMP) (SAFMC 2010a), which required recreational and commercial anglers fishing in federal waters to use non-stainless steel circle hooks (offset or non-offset)

when fishing for all species in the snapper-grouper complex when using hook-and-line-gear with natural baits in waters north of 28° 0' north latitude. The South Atlantic Council allows both recreational and commercial anglers to use J-hooks when fishing with natural bait for yellowtail snapper and other species in the snapper-grouper complex. This requirement was effective March 3, 2011.

Multiple reef fish species managed by the Gulf Council occur in waters south of 28° 0' north latitude. A recent stock assessment on red snapper recognized and incorporated reduced discard mortality as a result of the requirement to use circle hooks when fishing with natural bait (SEDAR 31 2013). Sauls and Ayala (2012) observed red snapper caught with circle hooks and J-hooks within the recreational sector and reported a 63.5% reduction in potentially lethal hooking injuries for red snapper caught with circle hooks (6.3% potentially lethal injuries, versus 17.1% with J-hooks) (SEDAR 31 2013). Conversely, SEDAR 33 (2014a, b) examined the effects of hook type on gag and greater amberjack and determined that the generally low level of recreational discard mortality for both species (both prior to and after the 2008 circle hook requirement) negated the realization of benefits from using circle hooks (Sauls and Ayala 2012; Sauls and Cermak 2013; Murie and Parkyn 2013). Studies have described lower incidences of gut-hooking red grouper when using circle hooks as opposed to J-hooks (Bacheler and Buckel 2004; Cooke and Suski 2004; Burns and Froeschke 2012; SEDAR 42 2015).

**Alternative 1** would retain the current circle hook requirements in the Gulf exclusive economic zone, requiring commercial anglers fishing in to use circle hooks when fishing for yellowtail snapper with natural bait. Biological impacts from this alternative are not expected to change from present conditions. Any biological benefit(s) to the current circle hook requirement would be expected to persist. In general, fishing behavior may differ when fishermen use circle hooks compared to J-hooks. Anglers using a circle hook may wait for their fishing line to become taught, which is indicative of a fish taking the bait, and *then* reel in the fishing line, often hooking the fish in the mouth. Conversely, fishermen using J-hooks typically jerk the rod upward when they feel the fish take the bait to hook the fish, with the likelihood of gut-hooking the fish often being greater than when the angler uses circle hooks. Currently, no literature is available with respect to the post-release mortality of yellowtail snapper when using circle hooks versus J-hooks.

**Alternative 2** would remove the requirement to use circle hooks when fishing commercially with natural bait for yellowtail snapper throughout the exclusive economic zone of the Gulf of Mexico (Figure 2.1.1: http://portal.gulfcouncil.org/YSGRM/YSGRM.html#7/26.711/-88.198). Some commercial fishermen have informed resource managers of an increased propensity for gut-hooking yellowtail snapper when fishing with circle hooks due to the small size of hook needed to successfully hook yellowtail snapper. These fishermen indicate that the smaller circle hooks (especially those which feature a hook tip which is offset from the shank of the hook) are swallowed completely into the stomach, increasing the likelihood of the hook snagging somewhere in the fish's digestive tract. Circle hooks are designed to be swallowed by the fish, coming back up the fish's esophagus as the fish swims away, and finally hooking the fish in the mouth. This practice requires anglers to allow the fish to swim off with the bait to become hooked. Commercial yellowtail snapper fishing practices do not accommodate allowing a fish to swim off with the bait, thereby preventing circle hooks from being used as designed. If J-hooks

are permitted for use, fishermen argue, they will be able to hook yellowtail snapper in the mouth more frequently due to the morphology of the fish's mouth.

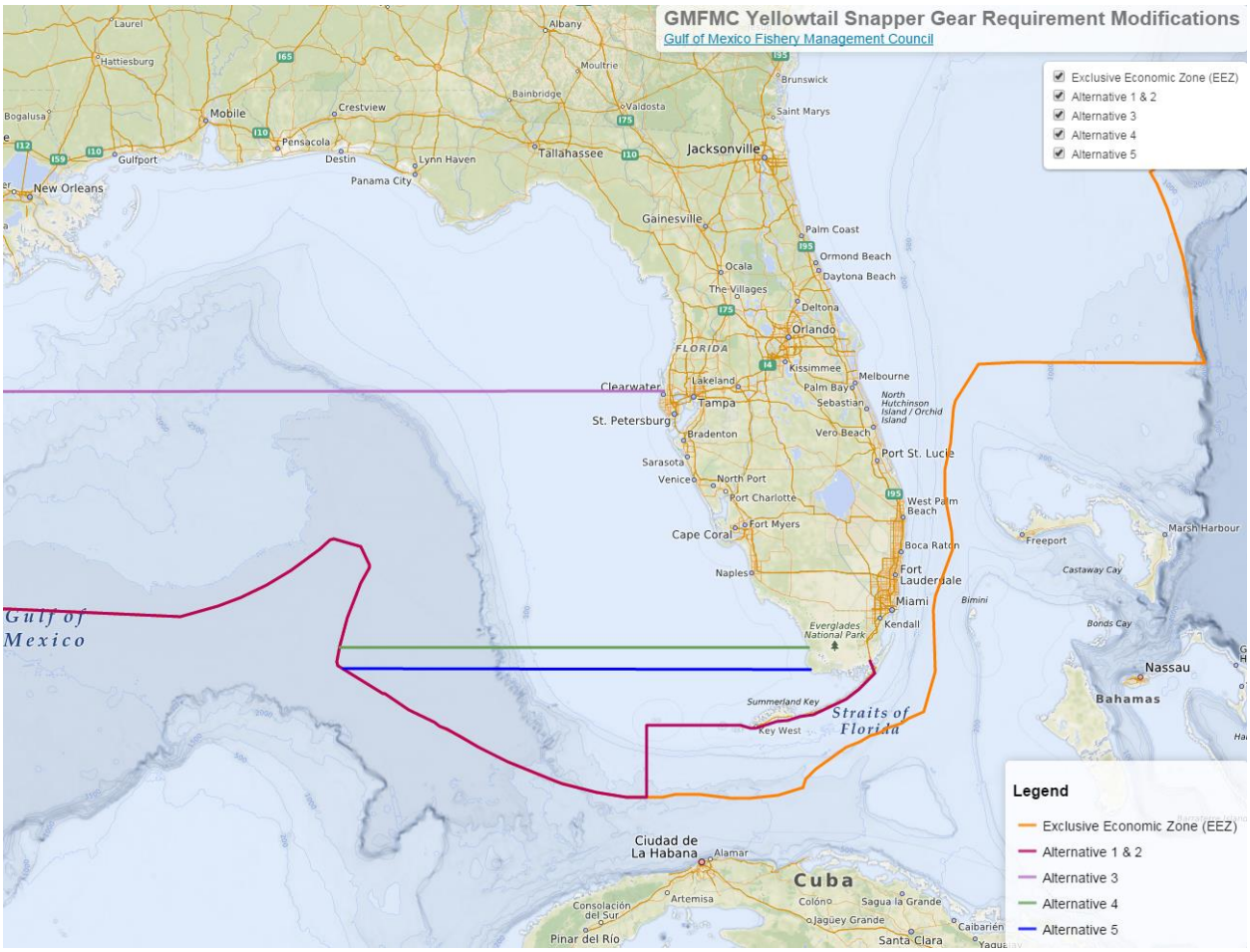



**Figure 2.1.1**. Spatial representation of the alternatives presented in Action 1. See: http://portal.gulfcouncil.org/YSGRM/YSGRM.html#7/26.711/-88.198

**Alternative 3** would remove the requirement to use circle hooks when fishing with natural bait for yellowtail snapper south of 28° 0' north latitude in the exclusive economic zone of the Gulf of Mexico. This includes all areas of the west coast of Florida to just north of Tampa Bay. The primary harvest areas for yellowtail snapper in the Gulf for both the recreational and commercial sectors exist in waters adjacent to southwestern Florida and the Florida Keys (Figure 2.1.1).

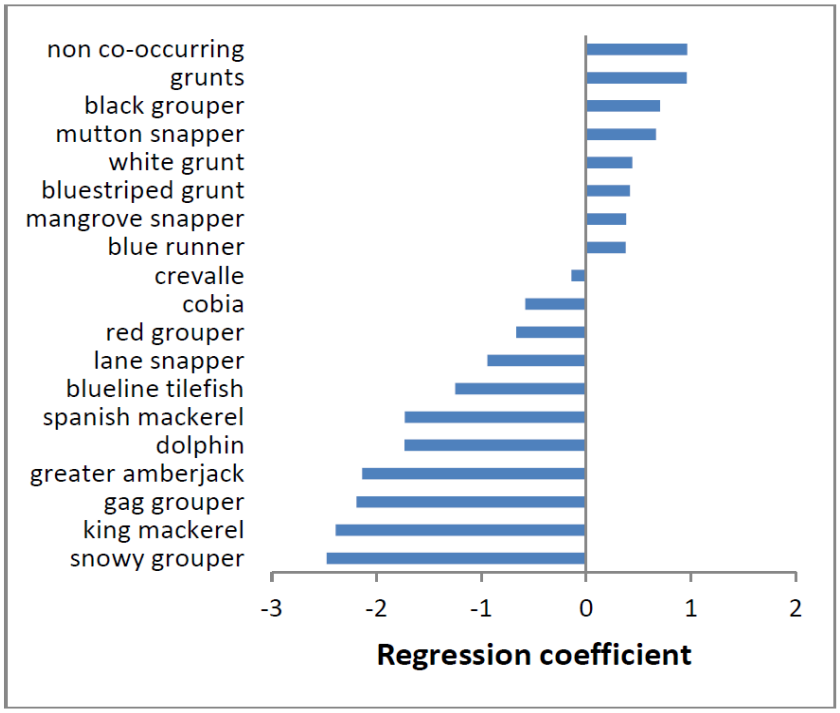
**Alternative 4** would remove the requirement to use circle hooks when fishing for yellowtail snapper south of 25° 23' north latitude on the west coast of Monroe County, Florida south to the Gulf Council jurisdictional boundary (Figure 2.1.1).

**Alternative 5** would remove the requirement to use circle hooks when fishing for yellowtail snapper south of 25° 9' north latitude on the west coast of Monroe County, Florida south to the Gulf Council jurisdictional boundary (Figure 2.1.1).

**Alternatives 2, 3, 4 and 5** all remove the requirement to use circle hooks when fishing commercially for yellowtail snapper with natural bait compared to Alternative 1. Yellowtail snapper are concentrated in South Florida. Removing the requirement to use circle hooks for commercial fishermen targeting yellowtail snapper is expected to provide flexibility and improve operational efficiency. Due to the inherent multi-species nature of recreational fishing activities, and no expressed need to increase operational efficiency in the recreational fishing sector, modifications to recreational gear requirements are not currently being considered in this document. Biological effects of removing the circle hook requirement are most likely to be negative for those species caught incidentally with J-hooks, which benefit from the current circle hook requirement with respect to its resulting decrease in post-release discard mortality. Prominent examples of species which exhibit lower discard mortality rates as a result of the circle hook requirement are red snapper and red grouper (SEDAR 31 2013; SEDAR 42 2015). Also, since species other than yellowtail snapper are not being considered in the proposed gear modification, retention of species in the Gulf Council's Reef Fish FMP other than yellowtail snapper on a commercial vessel fishing with j-hooks would be prohibited (50 CFR 622.30).

With respect to species which are landed along with yellowtail snapper on commercial fishing trips, such an analysis was completed in SEDAR 27 (2012). This analysis, based on the methods proffered in Stephens and MacCall (2004), analyzes trip-level landings data to determine which species aside from the target species (in this case, yellowtail snapper), are likely to be landed on trips where the target species is also landed. This analysis does not inherently include every trip taken, thereby excluding some trips where yellowtail snapper were caught exclusively and including others where no yellowtail snapper were landed. However, it does illustrate the likelihood of a species being landed with the target species. A positive regression coefficient indicates that a species is more likely to occur in the landings on a trip where yellowtail snapper were also landed, while a negative regression coefficient indicates that a species is less likely to occur in the landings on a trip where yellowtail snapper were also landed. This analysis, as provided in SEDAR 27 (2012), is shown in Figure 2.1.2. Panel "a" from Figure 2.1.2 shows the analysis from the South Florida region, and panel "b" shows the core area of commercial yellowtail snapper landings (>96.5%). Spatially, the area fished over which the south Florida index applies was limited to approximately Sarasota south to the Florida Keys, then north to Palm Bay on Florida's east coast. The "core area" index was more restricted spatially from the Dry Tortugas eastward and northward to Jupiter Inlet on Florida's east coast, where catch rates were slightly higher in some years.

a) South Florida subset




b) "core area" subset

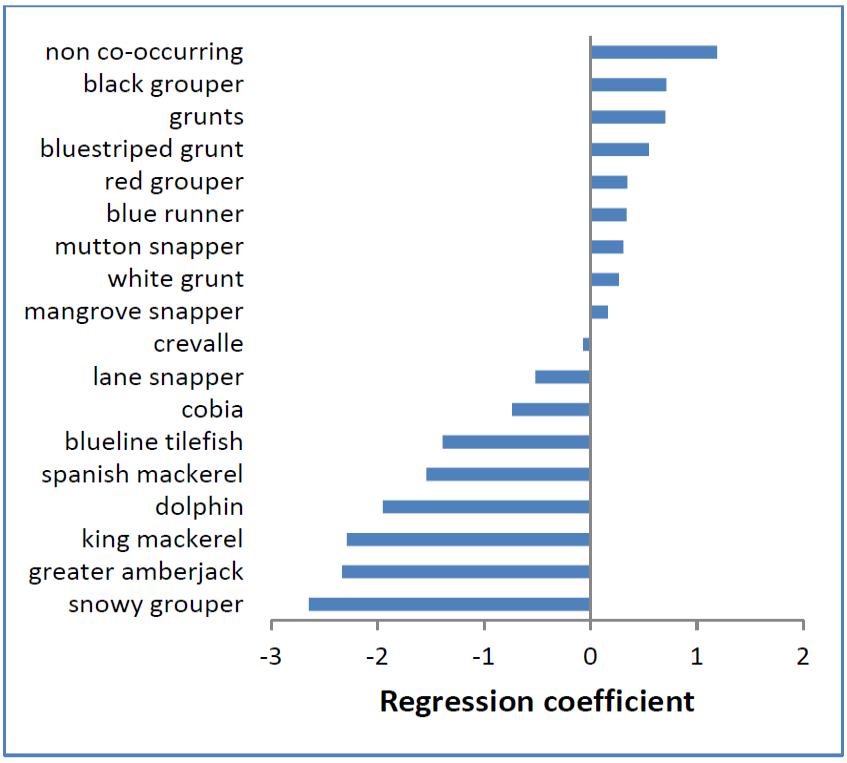



**Figure 2.1.2.** Stephens and MacCall analysis from SEDAR 27 (2012) from the south Florida and "core area" analyses. Positive coefficients mean that a species was more likely to occur in the landings on trips with yellowtail snapper, and negative coefficients mean that the species was less likely to occur. The "non co-occurring" is the intercept for the regression.

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