

# Modifications to Size Limit for Gulf Lane Snapper



## Final Framework Action under the Fishery Management Plan for the Reef Fish Resources of the Gulf

Including Environmental Assessment, Regulatory Impact Review and  
Regulatory Flexibility Act Analysis

August 2025



*This is a publication of the Gulf Council Pursuant to National Oceanic and Atmospheric Administration Award No. NA20NMF4410007.*

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## Type of Action

Administrative                       Legislative  
 Draft                                         Final

## ABBREVIATIONS USED IN THIS DOCUMENT

ABC	Acceptable Biological Catch
ACL	Annual Catch Limit
ACT	Annual Catch Target
AM	Accountability Measures
BiOp	biological opinion
BSIA	Best Scientific Information Available
Council	Gulf Fishery Management Council
CFpA	Cash flow per angler
CS	Consumer surplus
CZMA	Coastal Zone Management Act
DPS	distinct population segment
EA	Environnemental assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environnemental impact statement
E.O.	Executive Order
ESA	Endangered Species Act
FES	Fishing Effort Survey
FL	fork length
FMP	Fishery Management Program
GDP	Gross Domestic Product
Gulf	Gulf of America
HAPC	Habitat Area of Particular Concern
IFQ	Individual fishing quota
IRFA	Initial Regulatory Flexibility Analysis
LA Creel	Louisiana Department of Wildlife and Fisheries' recreational creel survey
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MPA	Marine Protected Area
MRIP	Marine Recreational Information Program
MRFSS	Marine Recreational Fishery Statistics Survey
NMFS	National Marine Fisheries Service
OFL	overfishing limit
OMB	Office of Management and Budget
PS	Producer surplus
PW	Product weight
Reef Fish FMP	Fishery Management Plan for the Reef Fish Resources of the Gulf
RFA	Regulatory flexibility analysis
RIR	Regulatory impact review
RQ	Regional Quotient
Secretary	Secretary of Commerce
SEDAR	Southeast Data, Assessment, and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office

SOI	Segments of interest
SRHS	Southeast Region Headboat Survey
TIP	Trip interview program
TL	Total length
TNR	trip net revenue
TWPD	Texas Parks and Wildlife Department's Marine Sport-Harvest
WTP	Willingness to pay
ww	whole weight

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# CHAPTER 1. INTRODUCTION

## 1.1 Background

Gulf of America<sup>1</sup>(Gulf) lane snapper is managed under the Gulf Council’s (Council) Fishery Management Plan (FMP) for the Reef Fish Resources of the Gulf (Reef Fish FMP), and an annual catch limit (ACL) is set for the stock, with no allocation between the commercial and recreational sectors. The National Marine Fisheries Service (NMFS) manages the lane snapper stock ACL by monitoring the commercial and recreational landings and preventing further harvest when the stock ACL is projected to be met. In 2021, NMFS implemented a framework action that modified the lane snapper overfishing limit (OFL), acceptable biological catch (ABC), and stock ACL, and modified the accountability measure (AM) provision to require a prohibition on harvest for the remainder of the fishing year if lane snapper landings meet or are projected to meet the stock ACL (GMFMC 2021a). Prior to this change in the AM, if the stock ACL was exceeded in a given year, NMFS prohibited harvest in the subsequent year when landings met or were projected to meet the stock ACL. The lane snapper stock ACL was exceeded in all but one year between 2016 and 2023 (2021). In October 2024, NMFS implemented another framework action to increase the lane snapper OFL, ABC, and stock ACL in response to the 2023 Southeast Data, Assessment, and Review (SEDAR) 49 interim analysis for lane snapper (GMFMC 2024). Although the lane snapper stock ACL was increased in 2024, the stock ACL was still projected to be harvested early and lane snapper was closed to harvest for the remainder of the fishing year on November 26, 2024.

This framework action considers modifications to the lane snapper minimum size limit in an effort to slow harvest of the stock ACL, extend the fishing season by reducing the likelihood of a closure, and reduce the likelihood of exceeding the stock ACL and the OFL. The current size limit for lane snapper is 8 inches total length (TL).

Lane snapper landings for the commercial and recreational sectors from 2003 through 2023 in both pounds (lb) whole weight (ww), and as a percentage of the total landings, are shown in Table 1.1.1. Recreational landings were monitored in Marine Recreational Fishery Statistics Survey (MRFSS) units prior to 2021 and Marine Recreational Information Program (MRIP) Fishing Effort Survey (FES) units from 2021 to present<sup>2</sup>. In terms of poundage, the commercial sector’s landings have shown a slight decreasing trend since 2003; whereas, the recreational sector’s landings have shown an increase beginning in 2016, with some fluctuations (Figure 1.1.1). The stock experienced closures in 2019 (December 13), 2021 (closed October 18 and reopened December 23<sup>3</sup>), 2022 (November 15), and 2024 (November 26).

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<sup>1</sup> The Gulf of Mexico was renamed the Gulf of America pursuant to Executive Order 14172, and Secretary of the Interior Order No. 3423.

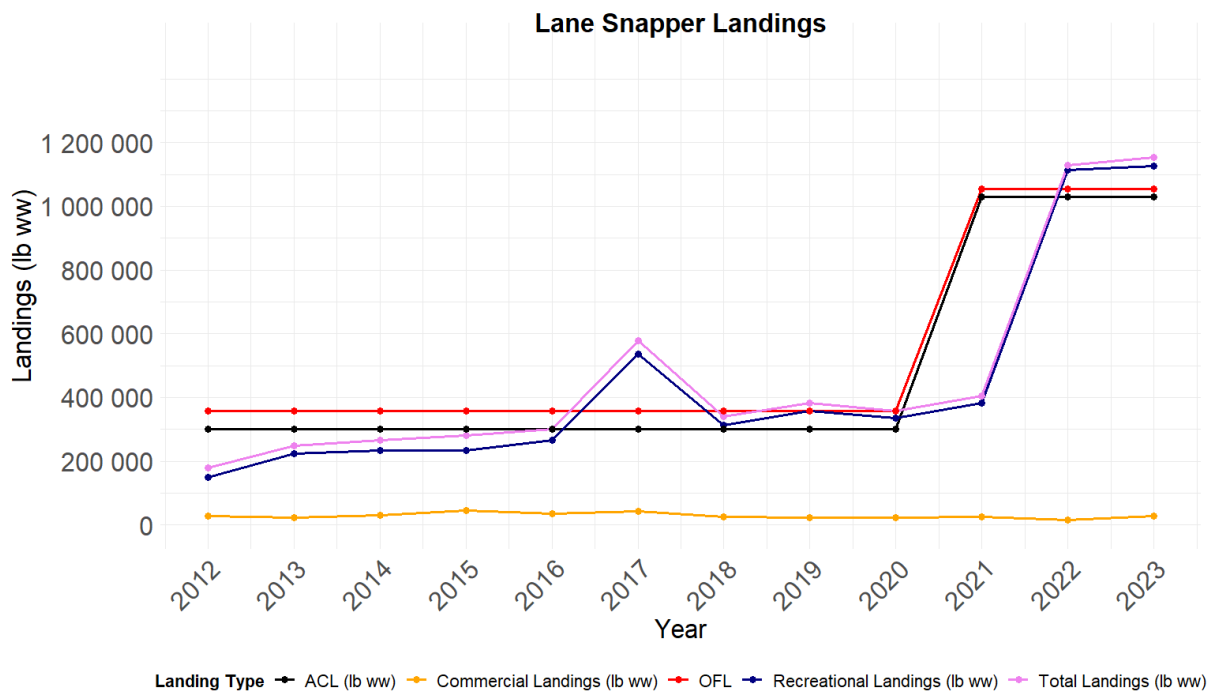
<sup>2</sup> Although both MRFSS and MRIP-FES generate estimates measured in pounds of fish, these estimates are not directly comparable because FES generates larger estimates than MRFSS. The references to “MRFSS units” and “MRIP-FES units” signify that the estimates use different scales.

<sup>3</sup> In 2021, the fishery reopened on December 23 upon implementation of a higher ACL.

**Table 1.1.1.** Landings of lane snapper (lb ww) by sector from 2012-2023, by weight (lb ww), and ACL values. Prior to 2021, recreational landings were monitored in MRFSS units.

<b>Year</b>	<b>Recreational Landings (lb ww)</b>	<b>Commercial Landings (lb ww)</b>	<b>Total Landings</b>	<b>ACL MRFSS (lb ww)</b>	<b>ACL FES (lb ww)</b>
<b>2012</b>	149,233	28,928	178,161	301,000	
<b>2013</b>	223,136	23,189	249,325	301,000	
<b>2014</b>	234,729	30,164	264,893	301,000	
<b>2015</b>	233,702	46,016	279,718	301,000	
<b>2016*</b>	266,733	34,678	301,411	301,000	
<b>2017*</b>	536,396	42,617	579,013	301,000	
<b>2018*</b>	312,882	26,435	339,317	301,000	
<b>2019*</b>	358,682	24,058	382,740	301,000	
<b>2020*</b>	334,938	23,700	358,638	301,000	
<b>2021</b>	381,360	24,352	405,712		1,028,973
<b>2022*</b>	1,113,580	16,180	1,129,760		1,028,973
<b>2023*</b>	1,125,173	28,217	1,153,390		1,028,973

\*Denotes years with landings exceeding ACL



**Figure 1.1.1.** Recreational, commercial, and total landings in lb ww of lane snapper from 2012 to 2023. Values are in MRFSS units from 2012-2020 and in FES units from 2021-2023.

## 1.2 Purpose and Need

The purpose of this framework action is to modify the lane snapper size limit to better constrain harvest to the stock ACL. Additionally, this framework action is intended to prevent in-season closures by reducing lane snapper landings.

The need is to decrease the likelihood of overfishing the lane snapper stock consistent with National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

## 1.3 History of Management

The following summary describes management actions that affect the management of lane snapper in the Gulf. More information on the Reef Fish FMP can be obtained from the Council.<sup>4</sup>

The original **Reef Fish FMP** was designed to rebuild declining reef fish stocks (GMFMC 1981). It included prohibitions on the use of fish traps, roller trawls, and powerhead-equipped spear guns within an inshore stressed area, and data reporting requirements.

<sup>4</sup> [http://www.gulfcouncil.org/fishery\\_management\\_plans/index.php](http://www.gulfcouncil.org/fishery_management_plans/index.php).

**Amendment 1 to the Reef Fish FMP**, including an environmental assessment (EA), regulatory impact review (RIR), and regulatory flexibility analysis (RFA), set objectives to stabilize long-term population levels of all reef fish species by establishing a survival rate of biomass into the stock of spawning age fish to achieve at least 20% spawning stock biomass per recruit by January 1, 2000 (GMFMC 1989). It also set a 10-snapper recreational bag limit on snappers in aggregate, excluding red, lane, and vermilion snapper; allowed a two-day possession limit for charter vessels and headboats on trips that extend beyond 24 hours; established a commercial reef fish vessel permit, set size limits for some reef fish species, including an 8-inch TL minimum size for lane snapper, and implemented several other measures related to the commercial reef fish fishery.

**Generic Amendment to Establish Annual Catch Limit and Accountability Measures (GMFMC 2011a)**, including Environmental Impact Statement (EIS), RIR and Initial Regulatory Flexibility Analysis (IRFA), established a lane snapper OFL (358,000 lb), ABC (301,000 lb), and stock ACL (equal to the ABC) based on the Council’s ACL/Annual Catch Target (ACT) Control Rule. It also established the post-season AM that required NMFS to monitor landings the year following an overage of the stock ACL and prohibited harvest when landings met or were projected to meet the stock ACL.

A **2021 Framework Action (GMFMC 2021a)**, including EA, RIR, and RFA, increased the lane snapper OFL to 1,053,834 lb, and the ABC and stock ACL to 1,028,973 lb. These increases were based on the results of the SEDAR 49 Update (2020), which showed an increase in stock abundance and used MRIP-FES estimates for recreational landings. The AM was modified to require an in-season closure in any year upon NMFS’ projection that the stock ACL has been met.

A **2024 Abbreviated Framework Action (GMFMC 2024)**, including RIR, and RFA, increased the OFL to 1,116,331 lb, and increased the ABC and stock ACL to 1,088,873 lb. This resulted in an overall increase in the allowable harvest of 59,900 lb. These increases in the catch limits were based on the results of the SEDAR 49 Interim Analysis.

## CHAPTER 2. MANAGEMENT ALTERNATIVES

### 2.1 Action - Modify the size limit for recreational and commercial lane snapper

**Alternative 1:** No Action. Maintain the current recreational and commercial size limit of 8-inch total length (TL) for lane snapper.

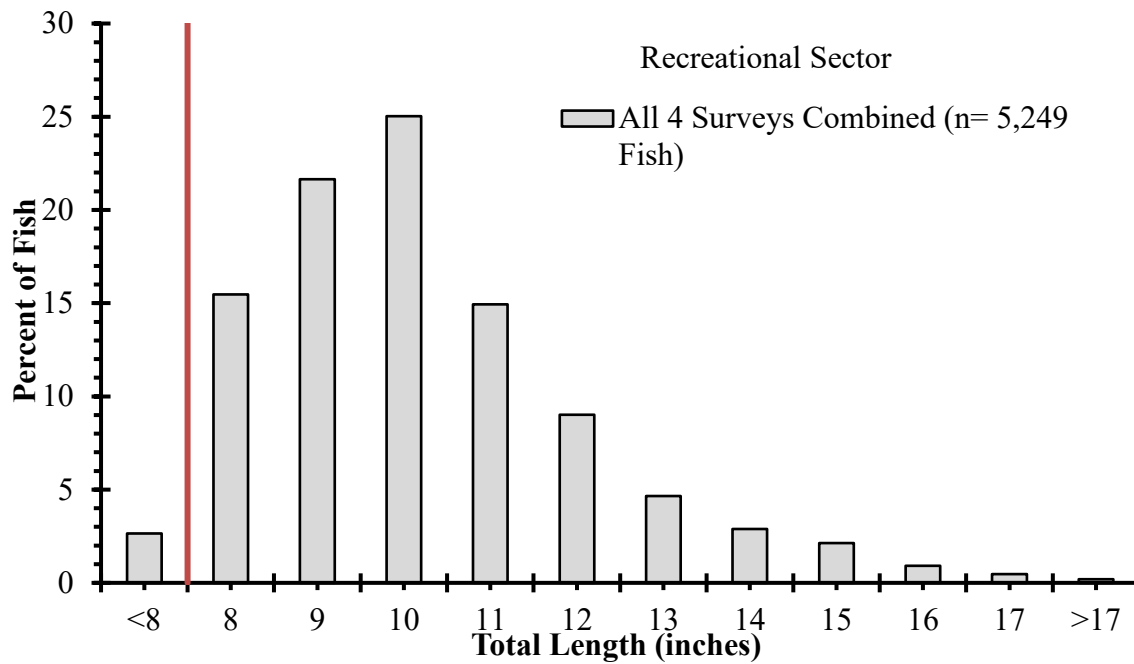
**Preferred Alternative 2:** Modify the recreational and commercial size limit to 10-inch TL for lane snapper.

**Alternative 3:** Modify the recreational and commercial size limit to 12-inch TL for lane snapper.

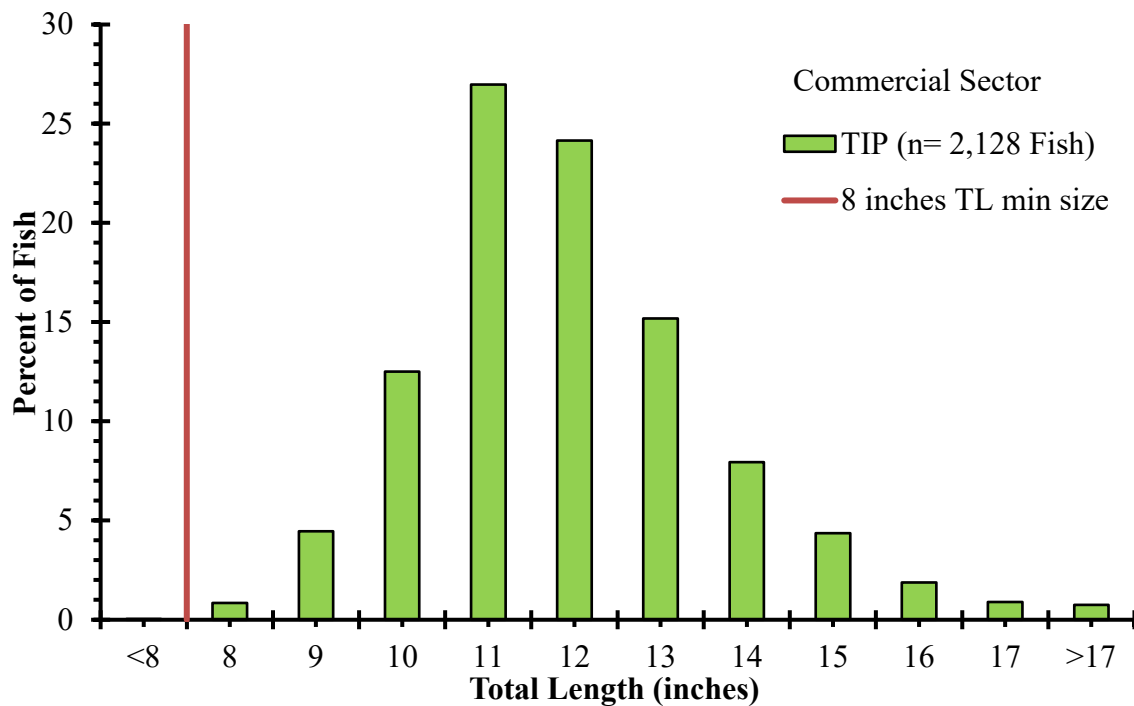
#### **Discussion:**

Landings of lane snapper exceeded the stock annual catch limit (ACL) in seven of the eight years between 2016 and 2023, and the overfishing limit (OFL) in 2017, 2019, 2022, and 2023. This action would modify the minimum size limit for lane snapper to reduce the likelihood of exceeding the stock ACL and the OFL. Stakeholders have expressed an interest in a year-round open season for lane snapper. An increase in the minimum size limit may achieve the Gulf Council's (Council) intended goal to slow the harvest rate and reduce the likelihood of in-season closures and exceedance of catch limits.

Data from 2021 through 2023 from the Texas Parks and Wildlife Department's Marine Sport-Harvest Monitoring Program (TPWD), Louisiana Department of Wildlife and Fisheries' recreational creel survey (LA Creel), National Marine Fisheries Service (NMFS) Southeast Region Headboat Survey (Headboat), and NMFS Marine Recreational Information Program (MRIP) were utilized (Appendix B) to analyze lane snapper landings by fish size. Across all Gulf states, recreational landings of lane snapper between 8- and 10-inches TL were highest; with lower percentages of catch above 12 inches (Figure 2.1.1). In contrast, lane snapper landed by the commercial sector are generally larger than the current minimum size limit of 8-inches TL. Approximately 5% of commercial landings from 2021 to 2023 were below 10 inches (Figure 2.1.2, Table 4.2.2).



**Figure 2.1.1.** Distribution of the lane snapper harvested by the recreational sector by size. Data come from the recreational intercept data from TPWD, LA Creel, Headboat, and MRIP from 2021 through 2023. The red line denotes the current minimum size limit of 8 inches TL.



**Figure 2.1.2.** Distribution of the Gulf commercial lane snapper harvested by size. Data come from the trip interview program (TIP) program from 2021 through 2023. The red line is the current minimum size limit of 8 inches TL.

**Alternative 1** would maintain the current 8-inch TL minimum size limit. The Southeast Data, Assessment, and Review 49 (SEDAR 49) assessment used 9.1 inches TL as the length at which 50% of females achieved sexual maturity based on Freitas et al. 2014. Recent literature estimated 50% of female lane snapper are mature at 27 cm or ~10.7 inches TL (Fernandes et al. 2022). **Preferred Alternative 2** (10-inch TL) and **Alternative 3** (12-inch TL) consider larger size limits that increase the age and likelihood of individuals reaching sexual maturity before allowable harvest by the fishery. Increasing the minimum size limit may also reduce the proportion of retained catch and thereby slow the harvest rate. However, any estimated reduction in retained catch assume that fishing effort for lane snapper would not change from the rate observed in 2021-2023, and that effort would not be shifted based on the new size limit (e.g., anglers fish longer to catch bigger fish to keep).

**Preferred Alternative 2** is likely to slightly reduce commercial landings given the small percentage of harvest under 10 inches TL (~5%; Figure 2.1.2). The recreational sector is likely to experience a larger percent reduction in landings under **Preferred Alternative 2**. In the recreational sector, ~15% of fish landed were between 8 and 9-inches TL, and ~22% of fish landed were between 9 and 10-inches TL from 2021 through 2023 (Figure 2.1.1). The reduction in landings for both the commercial and recreational sectors under **Preferred Alternative 2** is expected to reduce the likelihood of in-season closures and better constrain harvest to the stock ACL (Table 4.2.1 and Table 4.2.3). **Alternative 3** would result in a much larger reduction in landings for the recreational and commercial sectors (Table 4.2.2 and Table 4.2.3). The percent of landings and fish harvested over 12-inches TL for both the recreational and commercial sector are much lower than those in the 10-12 inch TL size range. **Alternative 3** would also meet the intended goal of reducing in-season closures and constraining harvest to the stock ACL.

An increase in the lane snapper minimum size limit under **Preferred Alternative 2** and **Alternative 3** would likely increase discards. However, lane snapper experiences a low discard mortality rate estimated between 5-15% because this species is generally caught in shallow water and therefore does not experience barotrauma (SEDAR 49 2016). The likelihood of increased discards under **Preferred Alternative 2** and **Alternative 3** is not anticipated to have a substantial impact to the stock given the depths at which they are generally caught and the low discard mortality rate.

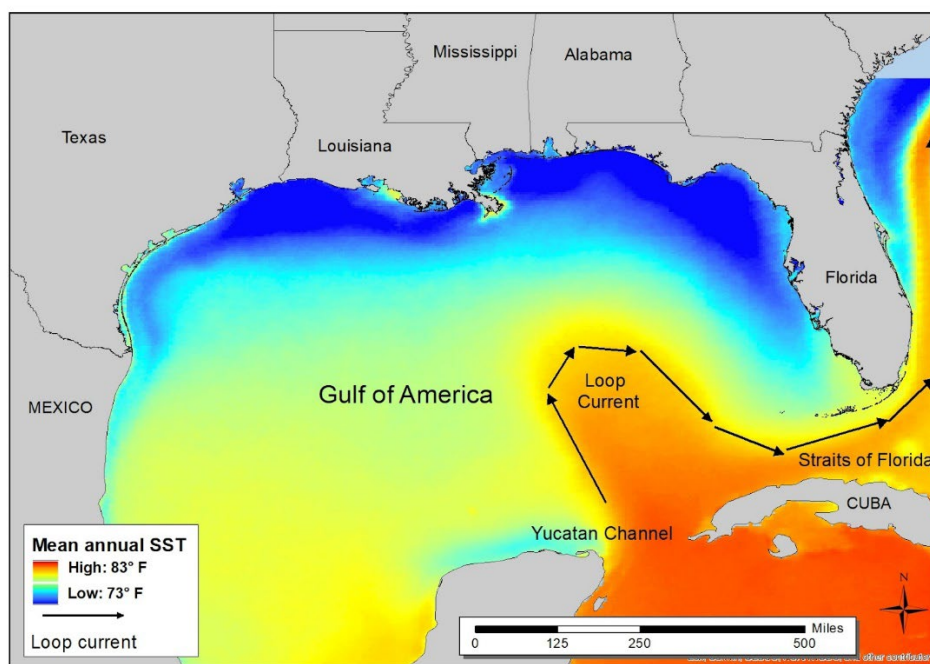
### **Council Conclusions**

The Council chose **Preferred Alternative 2** to modify the commercial and recreational minimum size limit for lane snapper to 10 inches TL. In recent years, lane snapper landings have regularly exceeded ACLs and commercial and recreational lane snapper fishing seasons have closed early. This has occurred despite two recent increases to allowable harvest. Increasing the size limit is expected to constrain landings to the annual catch limit and reduce likelihood of early season closures. **Preferred Alternative 2** was also widely supported by the public and recommended by the Reef Fish AP.

## CHAPTER 3. AFFECTED ENVIRONMENT

### 3.1 Description of the Physical Environment

The Gulf of America (Gulf) has a total area of approximately 600,000 square miles (1.5 million km<sup>2</sup>), including state waters (Gore 1992). It is a semi-enclosed, oceanic basin connected to the Atlantic Ocean by the Straits of Florida and to the Caribbean Sea by the Yucatan Channel (Figure 3.1.1). Oceanographic conditions are affected by the Loop Current, discharge of freshwater into the northern Gulf, and a semi-permanent, anti-cyclonic gyre in the western Gulf. The Gulf includes both temperate and tropical waters (McEachran and Fechhelm 2005). Gulf surface water temperatures range from 54° F to 84° F (12° C to 29° C) depending on time of year and depth of water. Mean annual sea surface temperatures ranged from 73° F through 83° F (23-28° C) including bays and bayous (Figure 3.1.1) between 1982 and 2009, according to satellite-derived measurements (NODC 2011<sup>5</sup>). Daily mean temperatures in the Gulf ranged from approximately 70°-88° F from 1984 – 2023, with an average annual temperature ranging from approximately 79°-81° F with no discernable trend over the same time period (NOAA Physical Oceanography Division of the Atlantic Oceanographic and Meteorological Laboratory, data from June 13, 2023). In general, mean sea surface temperature increases from north to south with large seasonal variations in shallow waters.



**Figure 3.1.1.** Physical environment of the Gulf including major feature names and mean annual sea surface temperature as derived from the Advanced Very High-Resolution Radiometer Pathfinder Version 5 sea surface temperature data set <http://accession.nodc.noaa.gov/0072888>.

<sup>5</sup> <https://www.ncei.noaa.gov/access/metadata/landing-page/bin/iso?id=gov.noaa.nodc:0072888>

In general, reef fish species are widely distributed in the Gulf. Reef fish occupy both pelagic and benthic habitats during their life cycle. The planktonic larval stage for most reef fish species lives in the water column and feeds on zooplankton and phytoplankton (GMFMC 2004). Juvenile and adult reef fish are typically demersal and usually associated with bottom topographies on the continental shelf (less than 100 meters) that 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 reef fish are also found over sand and soft-bottom substrates.

There are several marine reserves, habitat areas of particular concern (HAPC), and restricted fishing gear areas in the Gulf. These are detailed in GMFMC (2005). Included in these are the Madison-Swanson and Steamboat Lumps (219 square nautical miles combined) marine protected areas (MPA), which are sited on gag spawning aggregation areas. The final rule for a 2021 framework action under the Fishery Management Plan for the Reef Fish Resources of the Gulf (Reef Fish FMP; GMFMC 2021b) prohibited all fishing year-round in these MPAs.

The Bureau of Ocean Energy Management lists historic shipwrecks that occur in the Gulf. Most of these sites are in state or deep (greater than 1,000 feet or 328 meters) waters. There is one site located in federal waters in less than 100 feet (30 meters) that could be affected by fishing for reef fish species. This is the *U.S.S. Hatteras*, located approximately 20 miles (32 kilometers) off Galveston, Texas.

There are environmental sites of special interest that are discussed in the Generic Essential Fish Habitat (EFH) Amendment (GMFMC 2004) that are relevant to reef fish management. These include the longline/buoy area closure, the Edges Marine Reserve, Tortugas North and South Marine Reserves, individual reef areas and bank HAPCs of the northwestern Gulf, the Florida Middle Grounds HAPC, the Pulley Ridge HAPC, and Alabama Special Management Zone. These areas are managed with gear restrictions to protect habitat and specific reef fish species. These restrictions are detailed in the Generic EFH Amendment (GMFMC 2004).

The *Deepwater Horizon* MC252<sup>6</sup> oil spill in 2010 affected at least one-third of the Gulf area from western Louisiana east to the Florida Panhandle and south to the Campeche Bank in Mexico. The impacts of the *Deepwater Horizon* MC252 oil spill on the physical environment are expected to be significant and may be long-term. Oil was dispersed on the surface, and because of the heavy use of dispersants (both at the surface and at the wellhead), oil was also documented as being suspended within the water column, some even deeper than the location of the broken well head. Floating and suspended oil washed ashore in several areas of the Gulf as did non-floating tar balls. Whereas suspended and floating oil degrades over time, tar balls are persistent in the environment and can be transported hundreds of miles.

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<sup>6</sup> <https://www.fisheries.noaa.gov/habitat-conservation/deepwater-horizon-moment-time-decades-restoration>

## 3.2 Description of the Biological/Ecological Environment

The biological/ecological environment of the Gulf, including that of lane snapper, is described in detail in the final environmental impact statement for the Generic EFH Amendment (GMFMC 2004) and is incorporated herein by reference.

### 3.2.1 Lane Snapper Life History and Biology

#### *Distribution*

Lane snapper occurs off the east coast of the United States from North Carolina down to the southern coast of Brazil and is found throughout the Caribbean and Gulf (Allen 1985). Lane snapper is common in a variety of habitats, ranging from coral reefs to brackish waters near shore. It typically frequents waters between 30 m and 120 m of depth (Thompson and Munro 1974). Juveniles are often found inshore near seagrass beds that they utilize as a nursery habitat. Adults utilize a variety of habitats including natural and artificial reefs both in coastal and offshore waters (Bortone and Williams 1986). Spawning occurs offshore from March through September, with a peak in activity from June through August (Manooch and Mason 1984). Females typically produce up to about one million pelagic eggs (Rodriguez-Pino 1962). Larvae are planktonic, and peak abundance is seen in July through September when water temperatures are the highest (D'Alessandro et al. 2010). Post-larval stage fish move into estuarine habitat and are commonly found over seagrass beds.

#### *Age/Growth*

Aiken (2001) estimated a maximum age of at least 12 years for lane snapper. However, regional differences in size and age structure have been observed (SEDAR 49 2016), and further studies have documented individuals reaching ages up to 19 years. A growth curve, based on fractional ages and observed fork lengths (FL) at capture, was modeled using the von Bertalanffy growth model for the SEDAR 49 stock assessment.

#### *Reproduction*

Lane snapper spawns from March through September (Manooch and Mason 1984 and D'Alessandro et al. 2010). Southeast Data, Assessment, and Review 49 (SEDAR 49 2016) used 9.1 inches total length (TL) as the length at which 50% of females achieved sexual maturity (L50) based on Freitas et al. 2014. Recent literature estimated 50% of females are mature at 27 cm or ~10.7 in TL (Fernandes et al. 2022).

#### *Status of the Lane Snapper Stock*

A review of the stock identification and delineation was conducted as part of the stock assessment (SEDAR 49 2016). There is evidence of two genetically distinct stocks in the northern Gulf based on microsatellite alleles: a western stock which includes individuals from the northwestern and northcentral Gulf and an eastern stock that includes individuals from the west coast of Florida, the Florida Keys, and the Atlantic coast of Florida (Karlsson et al. 2009). However, the authors observed no significant difference in stock structure for two closely

related lutjanids, Gulf red snapper (*L. campechanus*) (Pruett et al. 2005; Saillant and Gold 2006) and gray snapper (*L. griseus*) (Gold et al. 2009) and found no further compelling evidence indicating that Gulf stocks should be managed separately. SEDAR 49 (2016), did not make a definitive status determination for the stock, given the paucity of data. However, the SEDAR 49 Update (2020) indicated the stock had grown, and an ACL increase was warranted. Based on the Best Scientific Information Available (BSIA), it does not appear the stock is overfished, but has experienced overfishing in recent years.

### 3.2.2 General Information

#### ***Bycatch***

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, and excludes fish released alive under a recreational catch-and-release fishery management program (note that species managed in the Reef Fish FMP are not part of this program). 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. Bycatch practicability analyses have been completed for red snapper (GMFMC 2007, GMFMC 2014, GMFMC 2015), grouper (GMFMC 2008b, GMFMC 2011a, GMFMC 2011b), and greater amberjack and gray triggerfish (GMFMC 2008a). In addition, a bycatch practicability analysis was conducted for the Generic Annual Catch Limits/Accountability Measures Amendment (GMFMC 2011a) that covered the Reef Fish, Coastal Migratory Pelagics, Red Drum, and Coral FMPs. In general, these analyses found that reducing bycatch provides biological benefits to managed species as well as benefits to the reef fish fishery through less waste, higher yields, and less forgone yield. However, in some cases, actions are approved that can increase bycatch through regulatory discards such as increased minimum sizes and closed seasons. In these cases, there is some biological benefit to the managed species that outweighs any increases in discards. For lane snapper, SEDAR 49 (2016) did not estimate bycatch for vertical line and longline gears because of the low assumed discard mortality rate (5-15%).

#### ***Protected Species and Protected Species Bycatch***

Twenty-one species of cetaceans (i.e., whales and dolphins) and the West Indian manatee (*Trichechus manatus*) are known to routinely inhabit the US waters of the Gulf. All marine mammals in U.S. waters are protected under the Marine Mammal Protection Act. Two of the cetacean species, sperm and Rice's whales, are listed as endangered under the Endangered Species Act (ESA). Sperm whales are the largest toothed whale species in the world and are found in deep ocean waters far offshore (>200 m). Rice's whales are the only resident baleen whales in the Gulf and one of the rarest marine mammals in the world. Most sightings of Rice's whales have been concentrated in 100–400-meter water depths in the northeastern Gulf off Alabama and the west coast of Florida. Sightings have been documented less frequently in the western Gulf, offshore of Louisiana and Texas. Manatees, which are also listed as threatened under the ESA and the only marine mammal species in the Gulf managed by the U.S. Fish and Wildlife Service, prefer shallow coastal waters.

Sea turtles, fish, and corals that are listed as threatened or endangered under the ESA also occur in the Gulf. These include the following: five species of sea turtles (Kemp's ridley, loggerhead (Northwest Atlantic Ocean distinct population segments [DPS]), green (North Atlantic DPS), leatherback, and hawksbill); five species of fish (Gulf sturgeon, smalltooth sawfish, Nassau grouper, oceanic whitetip shark, and giant manta ray); and six species of coral (elkhorn, staghorn, lobed star, mountainous star, boulder star, and rough cactus). Critical habitats designated under the ESA for smalltooth sawfish, Gulf sturgeon, the Northwest Atlantic Ocean DPS of loggerhead sea turtles occur in the Gulf, though only loggerhead critical habitat occurs in federal waters. Proposed critical habitat for the green sea turtle North Atlantic DPS and Rice's whale also occurs in Gulf federal waters.

The most recent biological opinion (BiOp) for the Reef Fish FMP was completed on September 30, 2011. The BiOp determined the operation of the Gulf reef fish fishery as managed under the Reef Fish FMP is not likely to adversely affect ESA-listed marine mammals or *Acropora* corals, and was not likely to jeopardize the continued existence of sea turtles (loggerhead, Kemp's ridley, green, hawksbill, and leatherback) or smalltooth sawfish. Since issuing the opinion, in memoranda dated September 16, 2014, and October 7, 2014, the National Marine Fisheries Service (NMFS) concluded that the activities associated with the Reef Fish FMP are not likely to adversely affect critical habitat for the Northwest Atlantic Ocean loggerhead sea turtle DPS and four species of corals (lobed star, mountainous star, boulder star, and rough cactus). Additional species that have been listed and may be affected by the operation of the Reef Fish FMP include the green sea turtle North Atlantic DPS (81 FR 20057; Apr. 6, 2016),<sup>7</sup> Nassau grouper (81 FR 42268; June 29, 2016), giant manta ray (83 FR 2916; Jan. 22, 2018), oceanic whitetip shark (83 FR 4153; Jan. 30, 2018), and Rice's whale (Apr. 15, 2019).<sup>8</sup> NMFS has reinitiated consultation on the Reef Fish FMP to address these additional listings and determined that fishing under the Reef Fish FMP during the ongoing re-initiation period is not likely to jeopardize the continued existence of any of these species.

There is no information to indicate marine mammals and birds rely on lane snapper for food, or that marine mammals and birds are routinely caught by fishermen harvesting lane snapper. The primary gear in the Gulf reef fish fishery used to harvest lane snapper is hook-and-line, and lane snapper may be occasionally captured on bottom longlines and with spearfishing gear. These gear types are classified in the 2025 Marine Mammal Protection Act Proposed List of Fisheries as a Category III fishery (89 FR 77789; Sept. 24, 2024), meaning the annual mortality and serious injury of a marine mammal resulting from the fishery is less than or equal to 1% of the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. Additionally, there is no evidence that the lane snapper portion of the reef fish fishery as a whole is adversely affecting seabirds. Dolphins are the only species documented as

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<sup>7</sup> Limited information previously indicated that benthic juveniles from both the North Atlantic and South Atlantic DPSs may be found in waters off the mainland United States. However, additional research indicates that juveniles from the South Atlantic DPS are not likely to occur in these waters, including the Gulf.

<sup>8</sup> The Rice's whale (*Balaenoptera ricei*) was previously classified as the Gulf of Mexico Bryde's whale but was later identified as morphologically and genetically distinct from other whales under the Bryde's whale complex, warranting classification as a new species of baleen whale living in the Gulf. NMFS revised enumeration of endangered marine and anadromous species to reflect the scientifically accepted taxonomy and nomenclature of this species (86 FR 47022; Aug. 23, 201).

interacting with the reef fish fishery. Bottlenose dolphin prey upon bait, catch, and/or discarded fish from the reef fish fishery.

### 3.3 Description of the Economic Environment

Details on the economic environment of the recreational and commercial sectors of the reef fish fishery are provided in Amendment 48 to the Fishery Management Plan for the Reef Fish Resources of the Gulf (Reef Fish FMP) and Amendment 5 to the FMP for the Red Drum Fishery of the Gulf (GMFMC 2021c). Additional details on the economic environment of the recreational and commercial sectors of the lane snapper component of the Gulf reef fish fishery are provided in the Modification of the Lane Snapper Catch Limits and Accountability Measures Framework Action (GMFMC 2021a).

Sections 3.3.1 and 3.3.2 contain additional information on the economic environment of the commercial sector and the for-hire and private recreational components of the recreational sector in the Gulf reef fish fishery, with a specific focus on the lane snapper portion of the fishery. This framework action contains management measures that would indirectly affect lane snapper dealers, and thus additional details on the economic environment of that component of the commercial sector are also provided.

#### 3.3.1 Commercial Sector

Any fishing vessel that harvests and sells lane snapper from the Gulf exclusive economic zone (EEZ) must have a valid Gulf reef fish commercial permit. Commercial Gulf reef fish permits are a limited access permit. After a permit expires, it can be renewed or transferred up to one year after the date of expiration. As of August 26, 2021, there were 814 valid or renewable commercial Gulf reef fish permits. As shown in Table 3.3.1.1, the number of permits that were valid at any point in a given year decreased steadily from 2016-2020. There were approximately 2% fewer valid permits in 2020 relative to 2016.

**Table 3.3.1.1.** Number of valid Gulf commercial permits for reef fish, 2016-2020.

Year	Number of Permits
2016	852
2017	850
2018	845
2019	842
2020	837

Source: NMFS SERO Sustainable Fisheries (SF) Access permits database (accessed 05/17/22).

## Vessels

Not all holders of Gulf commercial permits for reef fish are active each year. The information in Tables 3.3.1.2 and 3.3.1.3 describe the landings and revenue for vessels, which, during the 2019-2023 timeframe, possessed a valid or renewable commercial Gulf reef fish permit and were actively fishing. Tables 3.3.1.2 and 3.3.1.3 show the landings and revenue from all reef fish and other species. Additionally, landings and revenue from species harvested in the South Atlantic by these vessels are shown to provide a full accounting of the commercial fishing activity of commercial Gulf reef fish permitted vessels.

The number of permitted commercial Gulf reef fish vessels actively fishing each year has declined overall from 2019-2023, with a 16% decline in active vessels in 2023, relative to 2019. Total landings of reef fish species also declined during this time period, by 5% in 2023 relative to 2019. Landings of jointly caught species on reef fish trips (i.e., trips that harvested any reef fish species) declined by 33% in 2023 relative to 2019. Total landings of all species by permitted commercial Gulf reef fish vessels declined by 8% in 2023, relative to 2019. On average from 2019-2023, reef fish species accounted for 91% of total landings by permitted commercial Gulf reef fish vessels.

**Table 3.3.1.2.** Number of vessels and landings (lb whole weight [ww]), by year for permitted commercial Gulf reef fish vessels.

Year	Number of Vessels	Gulf Reef Fish Species Landings (ww)	Other jointly caught Species	Other Gulf Landings	South Atlantic Landings	Total Landings
2019	517	12,798,571	402,224	639,916	398,620	14,239,331
2020	496	12,188,977	291,988	598,071	220,187	13,299,223
2021	466	12,920,310	323,100	636,864	453,436	14,333,710
2022	439	12,222,101	475,696	517,741	353,830	13,569,368
2023	433	12,146,605	271,428	474,239	264,900	13,157,172
<b>AVG</b>	<b>470</b>	<b>12,455,313</b>	<b>352,887</b>	<b>573,366</b>	<b>338,195</b>	<b>13,719,761</b>

**Source:** Southeast Fisheries Science Center (SEFSC) Social Science Research Group (SSRG) Socioeconomic Panel (Oct 2024 version).

\*Landings on trips taken by commercial Gulf reef fish vessels in South Atlantic Fishery Management Council jurisdictional waters.

Overall dockside revenue of reef fish species landed by permitted commercial Gulf reef fish vessels increased slightly during this time period, but by less than a percent in 2023 relative to 2019. Revenue from jointly caught species on Gulf reef fish trips decreased by 27% in 2023, relative to 2019. Revenue from other Gulf species not caught on reef fish trips declined by 5%

in 2023, relative to 2019. Total gross revenue by permitted commercial Gulf reef fish vessels decreased by 15% overall during this time period. The maximum total revenue earned by a single vessel from all landings during this time period was approximately \$3.76 million. On average from 2019-2023, reef fish species accounted for 95% of the total revenue by permitted commercial Gulf reef fish vessels.

**Table 3.3.1.3.** Number of vessels and revenues (2023\$) by year for permitted commercial Gulf reef fish vessels.

<b>Year</b>	<b>Number of Vessels</b>	<b>Reef Fish Revenue</b>	<b>Other jointly caught species w/ Reef Fish Revenue</b>	<b>Other Gulf Revenue</b>	<b>South Atlantic Revenue</b>	<b>Total Gross Revenue</b>
<b>2019</b>	517	\$69,177,049	\$895,720	\$1,457,549	\$1,556,397	\$85,921,581
<b>2020</b>	496	\$63,454,497	\$651,539	\$1,401,527	\$872,277	\$77,020,166
<b>2021</b>	466	\$68,131,145	\$764,797	\$1,650,027	\$1,642,908	\$80,088,108
<b>2022</b>	439	\$68,102,753	\$808,690	\$1,220,755	\$1,563,938	\$74,309,390
<b>2023</b>	433	\$69,382,401	\$654,656	\$1,384,482	\$1,234,563	\$72,656,102
<b>AVG</b>	<b>470</b>	<b>\$67,649,569</b>	<b>\$755,080</b>	<b>\$1,422,868</b>	<b>\$1,374,017</b>	<b>\$77,999,069</b>

Source: SEFSC SSRG Socioeconomic Panel (Oct 2024 version).

\*Revenue calculated from landings on trips taken by commercial Gulf reef fish vessels in South Atlantic Fishery Management Council jurisdictional waters.

The information in Tables 3.3.1.4 and 3.3.1.5 describe the landings and revenue for vessels that harvested lane snapper in each year from 2019 through 2023, and their revenue from other species. Vessel participation declined 10% from 2019-2023. Total landings of lane snapper, however, increased during this time period by 2%. Landings of other species caught on lane snapper trips increased by 17% in 2023 relative to 2019. Landings of other species not caught on lane snapper trips decreased by 3% in 2023 relative to 2019. Lane snapper accounted for less than one percent of total landings by commercial vessels harvesting lane snapper.

**Table 3.3.1.4.** Number of vessels and landings (lb ww), by year for lane snapper vessels.

<b>Year</b>	<b>Number of Vessels</b>	<b>Gulf Lane Snapper Species Landings (ww)</b>	<b>Other jointly caught Species</b>	<b>Other Gulf Landings</b>	<b>South Atlantic Landings</b>	<b>Total Landings</b>
<b>2019</b>	296	20,481	3,606,280	5,936,622	83,514	9,646,897
<b>2020</b>	297	20,277	3,964,543	5,738,860	31,909	9,755,589
<b>2021</b>	274	18,994	3,653,167	6,921,517	108,061	10,701,739
<b>2022</b>	228	13,391	3,195,442	6,177,917	107,392	9,494,142
<b>2023</b>	265	20,794	4,217,441	5,739,390	137,942	10,115,567
<b>AVG</b>	<b>272</b>	<b>18,787</b>	<b>3,727,375</b>	<b>6,102,861</b>	<b>93,764</b>	<b>9,942,787</b>

Source: SEFSC SSRG Socioeconomic Panel (Oct 2024 version).

\*Landings on trips taken by commercial Gulf reef fish vessels in South Atlantic Fishery Management Council jurisdictional waters.

Dockside revenue of lane snapper increased by 7% from 2019-2023. Revenue from other species caught on lane snapper trips increased 24% between 2019 and 2023. Revenue from other Gulf species not caught on lane snapper trips increased during this time period by 2%. Revenue from South Atlantic species landings by lane snapper vessels decreased by 60% during this time period. The maximum total revenue for a vessel that harvested lane snapper during this time period was approximately \$3.76 million (2023\$). On average from 2019-2023, lane snapper accounted for less than a percent of the total revenue by commercial vessels harvesting lane snapper, suggesting there is little financial dependency specifically on lane snapper landings.

**Table 3.3.1.5.** Number of vessels and revenues (2023\$) by year for lane snapper vessels.

Year	Number of Vessels	Lane Snapper Revenue	Other jointly caught species w/ Lane Snapper Revenue	Other Gulf Revenue	South Atlantic Revenue	Total Gross Revenue
2019	296	\$71,116	\$19,681,104	\$30,754,682	\$756,165	\$51,263,067
2020	297	\$67,694	\$21,060,801	\$28,570,820	\$834,157	\$50,533,473
2021	274	\$62,030	\$19,627,751	\$35,244,861	\$630,738	\$55,565,381
2022	228	\$48,551	\$17,963,703	\$33,312,229	\$461,508	\$51,785,992
2023	265	\$75,835	\$24,351,070	\$31,313,480	\$303,493	\$56,043,878
<b>AVG</b>	<b>272</b>	<b>\$65,045</b>	<b>\$20,536,886</b>	<b>\$31,839,215</b>	<b>\$597,212</b>	<b>\$53,038,358</b>

Source: SEFSC SSRG Socioeconomic Panel (Oct 2024 version).

\*Revenue calculated from landings on trips taken by commercial Gulf reef fish vessels in South Atlantic Fishery Management Council jurisdictional waters.

### Economic Value

Changes in commercial lane snapper landings may result in economic effects because of potential changes in ex-vessel prices due to less (or more) domestic lane snapper being available in markets. In turn, if the ex-vessel price is expected to change, gross revenue and thus consumer surplus (CS) would also be expected to change. The potential effects on ex-vessel price, gross revenue, and CS can be estimated utilizing the work by Asche (2020). According to the results of the inverse almost ideal demand system, Asche (2020) estimated a Marshallian own-price flexibility for “other snappers,” inclusive of lane snapper, of -0.340. The own-price flexibility is the percentage change in a product’s price relative to the percentage change of a product’s quantity sold, and thus estimates the responsiveness of a product’s price to the quantity being sold. The own-price flexibility estimate in Asche (2020) is not compensated for income. An income-compensated estimate would likely be lower, which would in turn yield smaller changes in the ex-vessel price and thus smaller changes in gross revenue and producer surplus (PS)<sup>9</sup>. Thus, any estimates based on their analysis should be considered maximum expected changes in ex-vessel price, gross revenue, and CS in the commercial sector.

Estimates of economic returns are not directly available for the lane snapper commercial sector in the Gulf. The most recent analysis, which calculated estimates of economic returns for Gulf commercial fishing vessels was performed by Liese (2023). Liese (2023) calculated economic returns for commercial Gulf reef fish vessels and other segments of interest (SOI). In most cases, these SOIs are at the species or species group and/or at the gear-level, such as lane snapper

<sup>9</sup> Producer surplus is the difference between total annual revenue and variable costs.

or longline trips. Liese (2023) produced estimates for a Gulf Reef Fish<sup>10</sup> SOI, which can be used as a proxy for lane snapper estimates. These estimates are specific to economic performance in 2014-2018. The analysis also provides average estimates of economic returns across 2014-2018, which are the most useful for this purpose. Estimates in the analysis are based on a combination of Southeast Coastal Logbook data, a supplemental economic add-on survey to the logbooks, and an annual economic survey at the vessel level. The economic surveys collect data on gross revenue, variable costs, fixed costs, and some auxiliary economic variables (e.g., market value of the vessel). The analysis provides estimates of critical economic variables for the commercial sector in the Gulf reef fish fishery. In addition, estimates are provided at the trip level and the annual vessel level, of which the latter are most important for this purpose. Findings from the analysis are summarized below.

Table 3.3.1.6 illustrates the economic “margins” generated on Gulf reef fish trips, i.e., trip net cash flow and trip net revenue as a percentage of trip revenue. As shown in this table, 16% and 33.3% (or 49.3% in total) of the average revenues generated on Gulf reef fish trips were used to pay for fuel/supplies costs and crew labor costs, while the remaining 38% was net cash flow back to the owner(s). The margin associated with trip net revenue is about 51%. Thus, trip cash flow and trip net revenue were both positive on average from 2014 through 2018, generally indicating that Gulf reef fish trips were profitable during this time.

From an economic returns perspective, the two most critical results at the trip level are the estimates of trip net cash flow and trip net revenue. Trip net cash flow is trip revenue minus the costs for fuel, bait, ice, groceries, miscellaneous, hired crew, and purchases of annual allocation from other allocation holders. Thus, this estimate represents the amount of cash generated by a typical Gulf reef fish trip over and above the cash cost of taking the trip (i.e., variable costs of the trip). Trip net revenue is trip revenue minus the costs for fuel, bait, ice, groceries, miscellaneous, hired crew, and the opportunity cost of the owner's time as captain. By including opportunity cost of the owner's time and excluding purchases of annual allocation, trip net revenue is a measure of the commercial fishing trip's economic profit.

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<sup>10</sup> Per Liese (2023) the Reef Fish SOI “consists of all logbook trips by permitted vessels where at least one pound of a reef fish species managed by the Gulf Reef Fish FMP was landed.”

**Table 3.3.1.6.** Economic characteristics of Gulf Reef Fish trips 2014-2018 (2023\$).

	2014	2015	2016	2017	2018	Average
<b>Number of Observations</b>	1,237	1,787	1,955	1,943	1,448	
<b>Response Rate (%)</b>	78%	85%	94%	95%	94%	
<i>Trips</i>						
<b>Owner-Operated</b>	73%	65%	68%	61%	70%	67.4%
<b>Fuel Used per Day at Sea (gallons/day)</b>	46	46	40	49	46	45
<b>Total Revenue</b>	100%	100%	100%	100%	100%	100%
<i>Costs (% of Revenue)</i>						
<b>Fuel</b>	6.8%	4.9%	4.3%	5.1%	5.8%	5.4%
<b>Bait</b>	3.1%	3.4%	3.6%	4.1%	3.9%	3.6%
<b>Ice</b>	1.4%	1.5%	1.7%	1.6%	1.6%	2%
<b>Groceries</b>	2.4%	2.4%	3.1%	3.2%	2.7%	2.8%
<b>Miscellaneous</b>	2.5%	2.4%	3.0%	2.5%	2.5%	2.6%
<b>Hired Crew</b>	28.2%	25.9%	27.0%	27.6%	23.8%	26.5%
<b>IFQ Purchase</b>	15%	27%	19%	19%	20%	20%
<b>Owner-Captain Time</b>	6.5%	6.2%	7.4%	6.4%	7.1%	6.7%
<b>Trip Net Cash Flow</b>	41%	33.0%	38.8%	36.8%	39.5%	38%
<b>Trip Net Revenue</b>	49%	53.2%	49.8%	49.5%	52%	51%
<b>Labor - Hired &amp; Owner</b>	35%	32.1%	34.4%	33.9%	30.9%	33.3%
<b>Fuel &amp; Supplies</b>	16%	14.7%	15.7%	16.6%	16.6%	16%
<i>Input Prices</i>						
<b>Fuel Price (per gallon)</b>	\$4.66	\$3.33	\$2.65	\$2.86	\$3.20	\$3.35
<b>Hire Crew Wage (per crew-day)</b>	\$436	\$367	\$325	\$364	\$291	\$357
<i>Productivity Measures</i>						
<b>Landings/Fuel Use (lb/gallon)</b>	13.3	12.6	11.4	10.7	10.5	12
<b>Landings/Labor Use (lbs/crew-day)</b>	221	204	169	196	176	193

Source: Liese (2023).

Table 3.3.1.7 provides estimates of the important economic variables at the annual level for all vessels that had Gulf reef fish landings from 2014 through 2018. Similar to the trip level, the three most important estimates of economic returns from a financial perspective are net cash flow, net revenue from operations, and economic return on asset value. Of these measures, net revenue from operations most closely represents economic profits to the owner(s). Net cash flow is total annual revenue minus the costs for fuel, other supplies, hired crew, vessel repair and maintenance, insurance, overhead, loan payments, and purchases of annual allocation. Net revenue from operations is total annual revenue minus the costs for fuel, other supplies, hired crew, vessel repair and maintenance, insurance, overhead, and the opportunity cost of an owner's time as captain, and the vessel's depreciation. Economic return on asset value is calculated by dividing the net revenue from operations by the vessel value.

Net cash flow and net revenue from operations at the annual vessel level were both positive from 2014-2018, generally indicating that commercial Gulf reef fish vessels were profitable during this time. Specifically, net cash flow and net revenue from operations averaged 26% and 32%, respectively.

In general, PS is the difference between total annual revenue and variable costs. PS is a measure of net economic benefits to producers. Liese (2023) states the following about individual fishing quota (IFQ) allocation: "sale of IFQ allocation or shares is also not accounted for, as these transactions cannot be associated with a vessel." If revenue from the sale of allocation is not accounted for, then the cost of buying allocation should also not be considered in the calculation of PS. Although lane snapper are not part of an IFQ program, many vessels that participate in the commercial sector of the lane snapper component of the reef fish fishery also participate in the Gulf IFQ programs. Therefore, a more accurate estimate of PS in percentage terms would be 51.0% of gross revenue based on estimates of variable costs in Table 3.3.1.7<sup>11</sup>.

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<sup>11</sup> PS = 100% - (Labor% + Fuel&Supplies%)

**Table 3.3.1.7.** Economic characteristics of Gulf Reef Fish vessels from 2016-2018 (2023\$).

	2014	2015	2016	2017	2018	Average
<b>Number of Observations</b>	84	105	121	132	110	
<b>Response Rate (%)</b>	62%	75%	82%	78%	79%	
<b>Vessels</b>						
<b>Owner-Operated</b>	78%	69%	78%	65%	70%	72%
<b>For-Hire Active</b>	9%	17%	16%	22%	15%	16%
<b>Vessel Value</b>	\$159,721	\$134,395	\$111,461	\$139,132	\$128,297	\$134,601
<b>Total Revenue</b>	100%	100%	100%	100%	100%	100%
<b>Costs (% of Revenue)</b>						
<b>Fuel</b>	8.4%	6.1%	6.7%	6.8%	8.1%	7.2%
<b>Other Supplies</b>	9.6%	9.4%	10.8%	11.0%	11.8%	10.5%
<b>Hired Crew</b>	26.9%	25.3%	24.5%	25.3%	23.4%	25.1%
<b>Vessel Repair &amp; Maintenance</b>	7.7%	6.9%	8.5%	11.2%	10.6%	9.0%
<b>Insurance</b>	1.1%	0.8%	1.0%	1.2%	1.1%	1.0%
<b>Overhead</b>	5.6%	5.5%	5.1%	6.5%	4.8%	5.5%
<b>Loan Payment</b>	1.0%	1.4%	1.3%	1.3%	1.4%	1.3%
<b>IFQ Purchase</b>	11.1%	24.1%	14.0%	10.6%	15.0%	15.0%
<b>Owner-Captain Time</b>	5.6%	5.4%	6.6%	5.5%	6.6%	5.9%
<b>Net Cash Flow</b>	29.0%	20.6%	28.1%	26.0%	23.8%	26.0%
<b>Net Revenue for Operations</b>	31.0%	37.6%	33.5%	28.4%	29.3%	32.0%
<b>Depreciation</b>	3.7%	3.1%	3.2%	4.0%	4.4%	3.7%
<b>Fixed Costs</b>	14.0%	13.2%	14.7%	18.9%	16.6%	15.0%
<b>Labor - Hired &amp; Owner</b>	33.0%	30.7%	31.1%	30.9%	29.9%	31.0%
<b>Fuel &amp; Supplies</b>	18.0%	15.4%	17.5%	17.9%	19.8%	18.0%
<b>Economic Return (on asset value)</b>	42.1%	60.2%	51.8%	35.8%	33.5%	44.7%

Source: Liese (2023).

## Dealers

The information in Table 3.3.1.8 illustrates the purchasing activities of dealers that bought lane snapper from vessels 2019 through 2023. Additionally, the purchasing activities from species harvested in the South Atlantic by these dealers is shown to provide a full accounting of the purchasing of dealers that bought lane snapper. The total number of dealers purchasing lane snapper declined each year from 2019-2023 and averaged 79 dealers per year. In 2023, the total number of dealers purchasing lane snapper was approximately 20% fewer relative to 2019. Total annual lane snapper purchases by dealers varied during this time period, with a decrease of 39% in 2023 relative to 2019. Purchases of lane snapper per dealer were approximately \$795 (2023\$) during this time frame. Purchases of lane snapper per dealer decreased by 12% in 2023, relative to 2019.

The value of other species purchased decreased by 5% in 2023, relative to 2019. Total purchases for all species by dealers purchasing lane snapper averaged approximately \$116.4 million (2023\$) from 2019-2023. Lane snapper made up approximately less than 1% of total purchases by lane snapper dealers, indicating that there is a very low financial dependency on lane snapper landings. Additionally, because of federal dealers' ability to switch to purchasing other species, changes to those values as a result of the management measures considered in this framework action are likely to be relatively small. Similarly, any additional PS and profit generated from lane snapper sales further up the distribution chain to wholesalers/distributors, grocers, and restaurants is likely minimal, given the vast number of seafood and other products they handle and their even greater ability to shift to purchasing other products.

Estimates on the mark-ups between the ex-vessel price and dealer sales price of lane snapper are unavailable. Keithly and Wang (2018) estimated the most recent mark-ups between the ex-vessel price and dealer sales price. However, those estimates only apply to grouper and tilefish. Further, these are insufficient to estimate PS or profit for lane snapper dealers, or changes to such as a result of regulatory changes, in part because costs other than the raw fish costs (which are equivalent to the ex-vessel value) are not considered. NMFS does not have estimates of those other costs for lane snapper dealers or seafood dealers more broadly, and thus does not have estimates of net cash flow or net revenue from operations for lane snapper dealers comparable to those in the commercial harvesting sector. Thus, while it is likely that the harvest of lane snapper generates some PS and profit for lane snapper dealers, NMFS does not possess the data to estimate PS and profit.

**Table 3.3.1.8.** Statistics for dealers that purchased lane snapper by year, 2019-2023. All dollar estimates are in 2023\$.

Year	Number Dealers	Statistic	Lane Snapper Purchases	Other Gulf Species Purchases	Other SA Species Purchases	Total Purchases
2019	92	Maximum	\$8,016	\$11,774,272	\$4,252,869	\$11,774,768
		Mean	\$794	\$1,090,063	\$122,726	\$1,213,583
		Total	\$73,043	\$100,285,788	\$11,290,828	\$111,649,659
2020	88	Maximum	\$9,269	\$10,541,741	\$4,711,230	\$10,542,526
		Mean	\$791	\$1,084,470	\$164,253	\$1,249,514
		Total	\$69,626	\$95,433,398	\$14,454,225	\$109,957,249
2021	75	Maximum	\$6,723	\$11,876,694	\$5,136,897	\$11,876,760
		Mean	\$857	\$1,528,789	\$183,871	\$1,713,517
		Total	\$64,252	\$114,659,188	\$13,790,348	\$128,513,788
2022	66	Maximum	\$6,512	\$11,503,713	\$4,975,576	\$11,503,778
		Mean	\$830	\$1,480,778	\$178,097	\$1,659,705
		Total	\$62,235	\$111,058,384	\$13,357,270	\$124,477,889
2023	74	Maximum	\$6,658	\$11,293,996	\$7,976,816	\$14,022,692
		Mean	\$702	\$1,514,732	\$187,176	\$1,702,610
		Total	\$44,248	\$95,428,108	\$11,792,095	\$107,264,451

Source: SEFSC Fishing Communities Web Query Tool, Version 1. Accessed 02/10/2025.

## Imports

Imports of foreign seafood products compete in the domestic seafood market and have dominated many segments of the domestic seafood market. Imports aid in determining the price for domestic seafood products and tend to set the price in the market segments in which they dominate. Seafood imports can have downstream effects on the local fish market. At the harvest level, imports can affect ex-vessel prices fishermen receive for landings. As substitutes to domestic production, imports tend to cushion the adverse economic effects on consumers resulting from a reduction in domestic landings. Imports that directly compete with domestic snapper grouper including lane snapper are described in this section.

## Snappers

Imports of fresh and frozen snapper products, which directly compete with domestic harvest of snapper species are described in this section. As shown in Table 3.3.1.9, imports of fresh snapper products were 32.8 million lb product weight (pw) in 2019. They peaked at 36.0 million lb pw in 2021. Total revenue from snapper imports increased to a five-year high of \$164.9 million in 2021 (2023\$). The average price per pound for fresh snapper products was \$4.39 from 2019-2023 and was increasing, but declined by 9% in 2023, relative to 2021 and 2022. Imports of fresh snapper products primarily originated in Mexico, Nicaragua, or Panama, entering the U.S. through the port of Miami.

**Table 3.3.1.9.** Annual pounds and value of fresh snapper imports and share of imports by country, 2019-2023. All monetary estimates are in 2023\$.

	2019	2020	2021	2022	2023
<b>Pounds of fresh Snapper imports (product weight, million pounds)</b>	32.8	32.4	36.0	32.2	32.1
<b>Value of fresh Snapper imports (millions \$, 2023\$)</b>	128.3	126.2	164.9	147.4	139.2
<b>Average price per lb (2023\$)</b>	\$4.06	\$4.04	\$4.75	\$4.75	\$4.34
<b>Share of Imports by Country</b>					
<b>Mexico</b>	34.9	40.4	32.8	31.2	32.3
<b>Nicaragua</b>	13.9	15.1	13.3	14.9	14.4
<b>Panama</b>	14.6	11.0	14.0	10.6	10.3
<b>All others</b>	36.6	33.5	39.9	43.4	42.8

Source: NOAA Foreign Trade Query Tool, accessed 10/20/24.

As shown in Table 3.3.1.10, total revenue from imports of frozen snapper increased from \$40.8 million (2023\$) in 2019 to a five-year high of \$73.9 million in 2021 (2023\$) followed by a 44% decrease in 2023. The average price per pound for frozen snapper products was \$3.84, down nearly \$1.00 per lb from 2021-2022. Frozen snapper product imports primarily originated in Brazil or Suriname and entered through the port of Miami.

**Table 3.3.1.10** Annual pounds and value of frozen snapper imports and share of imports by country, 2019-2023.

	2019	2020	2021	2022	2023
<b>Pounds of frozen Snapper imports (product weight, million pounds)</b>	11.4	15.9	18.2	16.9	11.7
<b>Value of frozen Snapper imports (millions \$, 2023\$)</b>	40.8	53.8	73.9	69.2	41.5
<b>Average price per lb (2023\$)</b>	\$3.71	\$3.51	\$4.20	\$4.23	\$3.55
<b>Share of Imports by Country</b>					
<b>Brazil</b>	54.6	55.4	58.6	64.1	60.6
<b>Suriname</b>	13.5	10.3	10.5	5.5	12.3
<b>Indonesia</b>	6.8	5.4	3.9	8.0	7.0
<b>All others</b>	25.0	28.9	27.0	22.4	20.1

Source: NOAA Foreign Trade Query Tool, accessed 10/20/24.

### Groupers

According to NMFS' foreign trade data<sup>12</sup>, grouper are not exported. Imports of fresh and frozen grouper products, which also directly compete with domestic harvest of snapper grouper species are described in this section. As shown in Table 3.3.1.11, imports of fresh grouper products peaked in 2023. Total value of fresh grouper imports has been increasing in recent years, and averaged \$60.0 million annually. The average price per pound for fresh grouper products was \$5.27 from 2019-2023 and these products primarily originated from Mexico, Panama, and Brazil.

<sup>12</sup> <https://www.fisheries.noaa.gov/foss/>

**Table 3.3.1.11.** Annual pounds and value of fresh grouper imports and share of imports by country, 2019-2023.

	2019	2020	2021	2022	2023
<b>Pounds of fresh Grouper imports (product weight, million pounds)</b>	11.3	10.4	12.2	11.7	12.6
<b>Value of fresh Grouper imports (millions \$, 2023\$)</b>	59.0	45.2	63.8	65.4	66.6
<b>Average price per lb (2023\$)</b>	\$5.40	\$4.49	\$5.40	\$5.79	\$5.29
<b>Share of Imports by Country</b>					
<b>Mexico</b>	57.9	67.6	54.4	44.0	45.0
<b>Brazil</b>	16.9	12.3	18.1	23.9	19.8
<b>Panama</b>	8.1	8.0	10.9	13.4	12.7
<b>All others</b>	17.0	12.2	16.6	18.7	22.4

Source: NOAA Foreign Trade Query Tool, accessed 10/20/24.

As shown in Table 3.3.1.12, imports of frozen grouper products peaked at 3.5 million lb product weight (pw) in 2019 declining to a low of 0.8 million lb. pw in 2020. Total revenue from frozen grouper decreased from 2019 to 2020, but increased to \$2.51 million in 2021. The average price per pound for frozen grouper products was \$2.04 from 2019-2023. Imports of frozen grouper products primarily originated in Brazil, Suriname, and Indonesia.

**Table 3.3.1.12.** Annual pounds and value of frozen grouper imports and share of imports by country, 2019-2023.

	2019	2020	2021	2022	2023
<b>Pounds of frozen Grouper imports (product weight, million pounds)</b>	3.5	0.8	2.2	1.3	1.2
<b>Value of frozen Grouper imports (millions \$, 2023\$)</b>	4.7	1.5	5.3	2.9	2.6
<b>Average price per lb (2023\$)</b>	\$1.40	\$1.91	\$2.51	\$2.22	\$2.17
<b>Share of Imports by Country</b>					
<b>Brazil</b>	79.2	33.7	23.5	26.2	14.0
<b>Suriname</b>	11.2	25.9	30.6	16.2	0.0
<b>Indonesia</b>	3.0	1.1	22.2	5.9	0.0
<b>All others</b>	6.5	39.3	23.7	51.7	86.0

Source: NOAA Foreign Trade Query Tool, accessed 10/20/24.

### Economic Impacts

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

Economic impact models can be used to determine the sources of the impacts. Each impact can be broken down into direct, indirect, and induced economic impacts. “Direct” economic impacts are the results of the money initially spent in the study area (e.g., country, region, state, or community) by the fishery or industry being studied. This includes money spent to pay for labor, supplies, raw materials, and operating expenses. The direct economic impacts from the initial spending create additional activity in the local economy, i.e., “indirect” economic impacts. Indirect economic impacts are the results of business-to-business transactions indirectly caused by the direct impacts. For example, businesses initially benefiting from the direct impacts will subsequently increase spending at other local businesses. The indirect economic impact is a measure of this increase in business-to-business activity, excluding the initial round of spending which is included in the estimate of direct impacts. “Induced” economic impacts are the results of increased personal income caused by the direct and indirect economic impacts. For example, businesses experiencing increased revenue from the direct and indirect impacts will subsequently

increase spending on labor by hiring more employees, increasing work hours, raising salaries/wage rates, etc. In turn, households will increase spending at local businesses. The induced impact is a measure of this increase in household-to-business activity.

Estimates of the U.S. average annual business activity associated with the commercial harvest of all Gulf reef fish species and lane snapper specifically were derived using the model developed for and applied in NMFS (2024)<sup>13</sup> and are provided in Tables 3.3.1.13 and 3.3.1.14.

Specifically, these impact estimates reflect the expected impacts from average annual gross revenues generated by landings of all Gulf reef fish species and lane snapper from 2019 through 2023. This business activity is characterized as jobs (full- and part-time equivalents), income impacts (wages, salaries, and self-employed income), value-added impacts (the difference between the value of goods and the cost of materials or supplies), and output impacts (gross business sales). Income impacts should not be added to output (sales) impacts because this would result in double counting.

The results provided should be interpreted with caution. These results are based on average relationships developed through the analysis of many fishing operations that harvest many different species. Separate models specific to individual species such as lane snapper are not available.

Between 2019 and 2023, landings of all Gulf reef fish species resulted in approximately \$67.7 million (2023\$) in gross revenue on average. In turn, this revenue generated employment, income, value-added, and output impacts of 7,300 jobs, \$246.4 million, \$348.1 million, and \$670.9 million per year, respectively, on average (Table 3.3.1.13).

**Table 3.3.1.13.** Average annual economic impacts from the commercial harvest of snappers and groupers in the Gulf. All monetary estimates are in thousands of 2023\$, and employment is measured in full-time equivalent jobs.

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<sup>13</sup> A detailed description of the input/output model is provided in NMFS (2011).

Harvesters	Direct	Indirect	Induced	Total
Employment impacts	1,273	198	262	1,732
Income impacts	\$36,524	\$6,781	\$16,398	\$59,704
Total value-added impacts	\$38,933	\$24,414	\$28,057	\$91,404
Output Impacts	\$67,650	\$55,039	\$54,468	\$177,156
Primary dealers/processors	Direct	Indirect	Induced	Total
Employment impacts	265	106	184	555
Income impacts	\$11,917	\$10,983	\$10,388	\$33,288
Total value-added impacts	\$12,703	\$14,014	\$19,557	\$46,274
Output impacts	\$38,357	\$28,891	\$38,229	\$105,477
Secondary wholesalers/ distributors	Direct	Indirect	Induced	Total
Employment impacts	123	27	119	269
Income impacts	\$7,100	\$2,112	\$7,467	\$16,678
Total value-added impacts	\$7,568	\$3,542	\$12,754	\$23,864
Output impacts	\$19,016	\$6,933	\$24,804	\$50,754
Grocers	Direct	Indirect	Induced	Total
Employment impacts	527	60	117	704
Income impacts	\$14,604	\$4,853	\$7,330	\$26,787
Total value-added impacts	\$15,567	\$7,819	\$12,410	\$35,797
Output impacts	\$24,960	\$12,700	\$24,364	\$62,024
Restaurants	Direct	Indirect	Induced	Total
Employment impacts	3,284	219	536	4,039
Income impacts	\$58,584	\$17,768	\$33,557	\$109,909
Total value-added impacts	\$62,448	\$31,760	\$56,540	\$150,748
Output impacts	\$114,187	\$49,700	\$111,570	\$275,458

Harvesters and seafood industry	Direct	Indirect	Induced	Total
Employment impacts	5,472	609	1,219	7,300
Income impacts	\$128,730	\$42,496	\$75,140	\$246,366
Total value-added impacts	\$137,220	\$81,549	\$129,318	\$348,087
Output impacts	\$264,171	\$153,263	\$253,434	\$670,868

Between 2019 and 2023, landings of lane snapper resulted in approximately \$65,045 (2023\$) in annual gross revenue on average. In turn, this revenue generated employment, income, value-added, and output impacts of 7 jobs, \$237,000, \$335,000, and \$645,000 per year, respectively, on average, as seen in Table 3.3.1.14.

**Table 3.3.1.14.** Average annual economic impacts from the commercial harvest of lane snapper in the Gulf. All monetary estimates are in thousands of 2023\$, and employment is measured in full-time equivalent jobs.

Harvesters	Direct	Indirect	Induced	Total
Employment impacts	1	0	0	2
Income impacts	\$35	\$7	\$16	\$57
Total value-added impacts	\$37	\$23	\$27	\$88
Output Impacts	\$65	\$53	\$52	\$170
Primary dealers/processors	Direct	Indirect	Induced	Total
Employment impacts	0	0	0	1
Income impacts	\$11	\$11	\$10	\$32
Total value-added impacts	\$12	\$13	\$19	\$44
Output impacts	\$37	\$28	\$37	\$101
Secondary wholesalers/ distributors	Direct	Indirect	Induced	Total
Employment impacts	0	0	0	0
Income impacts	\$7	\$2	\$7	\$16
Total value-added impacts	\$7	\$3	\$12	\$23
Output impacts	\$18	\$7	\$24	\$49
Grocers	Direct	Indirect	Induced	Total
Employment impacts	1	0	0	1
Income impacts	\$14	\$5	\$7	\$26
Total value-added impacts	\$15	\$8	\$12	\$34
Output impacts	\$24	\$12	\$23	\$60
Restaurants	Direct	Indirect	Induced	Total
Employment impacts	3	0	1	4
Income impacts	\$56	\$17	\$32	\$106
Total value-added impacts	\$60	\$31	\$54	\$145

Output impacts	\$110	\$48	\$107	\$265
Harvesters and seafood industry	Direct	Indirect	Induced	Total
Employment impacts	5	1	1	7
Income impacts	\$124	\$41	\$72	\$237
Total value-added impacts	\$132	\$78	\$124	\$335
Output impacts	\$254	\$147	\$244	\$645

### 3.3.2 Recreational Sector

The recreational sector is composed of the private and for-hire modes. The private mode includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire mode is composed of charter vessels and headboats (also called party boats). Charter vessels generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person. The type of service, from a vessel- or passenger-size perspective, affects the flexibility to search different fishing locations during the course of a trip and target different species since larger concentrations of fish are required to satisfy larger groups of anglers.

#### Landings

This section contains landings data from the SEFSC Marine Recreational Information Program (MRIP) annual catch limit (ACL) monitoring data set, and landings estimates provided by the Louisiana Department of Wildlife and Fisheries, and the Texas Parks and Wildlife Department.

Recreational lane snapper landings have been highly variable from 2019-2023 (Table 3.3.2.1). Total recreational landings of lane snapper averaged approximately 937,000 lb ww. Landings remained relatively constant from 2022 to 2023. Private vessels on average from 2019-2023 accounted for 69% of lane snapper landings, charter vessels 22%, and headboats and shore mode making up the remaining 5% and 4%, respectively. The majority of landings on average occurred in Florida (98%) (Table 3.3.2.2). Waves 3 and 4, which includes the months May through August, accounted for the majority of landings on average from 2019-2023 (Table 3.3.2.3).

#### Angler Effort

Recreational effort derived from the MRIP database can be characterized in terms of the number of angler trips as follows:

- Target effort - The number of individual angler trips, regardless of duration, where the intercepted angler indicated that the species or a species in the species group was targeted

as either the first or the second primary target for the trip. The species did not have to be caught.

- Catch effort - The number of individual angler trips, regardless of duration and target intent, where the individual species or a species in the species group was caught. The fish did not have to be kept.
- Total recreational trips - The total estimated number of recreational trips in the Gulf, regardless of target intent or catch success.

Other measures of effort are possible, such as directed trips (the number of individual angler trips that either targeted or caught a particular species). Estimates of lane snapper target or catch effort for additional years, and other measures of directed effort, are available.<sup>14</sup>

**Table 3.3.2.1.** Recreational landings (lb whole weight [ww]) and percent distribution of lane snapper across all states by mode for 2019-2023.

	Landings (pounds ww)					Percent Distribution			
	Charter vessel	Headboat	Private	Shore	Total	Charter vessel	Headboat	Private	Shore
<b>2019</b>	83,873	26,003	757,103	169,302	1,036,281	8%	3%	73%	16%
<b>2020</b>	228,711	21,209	602,810	0	852,730	27%	2%	71%	0%
<b>2021</b>	183,732	69,946	294,545	6,689	554,911	33%	13%	53%	1%
<b>2022</b>	215,712	46,883	814,594	36,391	1,113,580	19%	4%	73%	3%
<b>2023</b>	252,928	38,517	833,728	0	1,125,173	22%	3%	74%	0%
<b>AVG</b>	<b>192,991</b>	<b>40,512</b>	<b>660,556</b>	<b>42,477</b>	<b>936,535</b>	<b>22%</b>	<b>5%</b>	<b>69%</b>	<b>4%</b>

Source: MRIP FES ACL dataset (Dec24 version).

**Table 3.3.2.2.** Recreational landings (lb ww) and percent distribution of lane snapper by state\* for 2019-2023.

	Landings (pounds ww)					Percent Distribution			
	AL	FL	LA/MS	TX	Total	AL	FL	LA/MS	TX
<b>2019</b>	7,510	1,018,692	7,391	2,688	1,036,281	1%	98%	1%	0%
<b>2020</b>	10,077	839,102	583	2,968	852,730	1%	98%	0%	0%
<b>2021</b>	4,582	541,721	4,937	3,671	554,911	1%	98%	1%	1%
<b>2022</b>	15,775	1,092,582	3,057	2,167	1,113,580	1%	98%	0%	0%
<b>2023</b>	9,782	1,111,532	1,086	2,772	1,125,173	1%	99%	0%	0%
<b>AVG</b>	<b>9,545</b>	<b>920,726</b>	<b>3,411</b>	<b>2,853</b>	<b>936,535</b>	<b>1%</b>	<b>98%</b>	<b>0%</b>	<b>0%</b>

Source: MRIP FES ACL dataset (Dec 2024 version).

\*Louisiana and Mississippi's landings are reported together for confidentiality purposes.

<sup>14</sup> <https://www.fisheries.noaa.gov/data-tools/recreational-fisheries-statistics-queries>

**Table 3.3.2.3.** Recreational landings (lb ww) and percent distribution of lane snapper by MRIP wave for 2019-2023.

<b>Landings (pounds ww)</b>						
	<b>Wave 1</b>	<b>Wave 2</b>	<b>Wave 3</b>	<b>Wave 4</b>	<b>Wave 5</b>	<b>Wave 6</b>
<b>2019</b>	155,568	99,363	246,327	352,523	123,050	59,450
<b>2020</b>	175,826	109,477	174,309	146,015	157,453	89,650
<b>2021</b>	113,792	55,617	164,824	157,726	34,318	28,634
<b>2022</b>	151,296	199,847	270,523	403,897	54,812	33,205
<b>2023</b>	177,511	245,251	165,425	151,789	75,127	310,070
<b>AVG</b>	<b>154,799</b>	<b>141,911</b>	<b>204,282</b>	<b>242,390</b>	<b>88,952</b>	<b>104,202</b>
<b>Percent Distribution</b>						
	<b>Wave 1</b>	<b>Wave 2</b>	<b>Wave 3</b>	<b>Wave 4</b>	<b>Wave 5</b>	<b>Wave 6</b>
<b>2019</b>	15%	10%	24%	34%	12%	6%
<b>2020</b>	21%	13%	20%	17%	18%	11%
<b>2021</b>	21%	10%	30%	28%	6%	5%
<b>2022</b>	14%	18%	24%	36%	5%	3%
<b>2023</b>	16%	22%	15%	13%	7%	28%
<b>AVG</b>	<b>17%</b>	<b>14%</b>	<b>23%</b>	<b>26%</b>	<b>10%</b>	<b>10%</b>

Source: MRIP FES ACL dataset (Dec 2024 version).

Tables 3.3.2.4 – 3.3.2.5 describe the recreational target and catch trips for lane snapper in the Gulf from 2019-2023. There are no recorded target trips in Texas or Mississippi for lane snapper in the Gulf. Private vessels represent 66% of target effort in the recreational sector. The majority of target effort occurs in Florida (98%) by the private vessel mode. Target effort for lane snapper from the shore mode was only recorded in Florida from 2019-2023. Target effort for lane snapper decreased by 85% in 2023, relative to 2019.

Private vessels are also responsible for the majority of catch effort for lane snapper (58%). However, unlike target effort, the shore mode was responsible for an average of 29% of overall catch effort during this time period. Catch effort by charter vessels represents about 16% of the total catch effort. Private vessels in Florida account for the majority of catch effort for lane snapper. The trends in catch effort mimic the trends in landings, with the peaks occurring in 2022 and 2023.

**Table 3.3.2.4.** Lane snapper recreational target trips, by mode and state,\* 2019-2023.

<b>Year</b>	<b>Alabama</b>	<b>Florida</b>	<b>Louisiana</b>	<b>Total</b>
<b>Charter</b>				
2019	0	0	263	263
2020	0	0	31	31

2021	0	7,735	0	7,735
2022	135	8,301	291	8,727
2023	0	16,138	0	16,138
Average	27	6,435	117	6,579
<b>Private</b>				
2019	6,616	597,702	7,492	611,810
2020	14,278	376,059	2,063	392,400
2021	5,620	308,355	8,546	322,521
2022	17,630	618,086	6,194	641,910
2023	5,413	86,678	0	92,091
Average	9,911	397,376	4,859	412,146
<b>Shore</b>				
2019	0	171,497	0	171,497
2020	0	294,358	0	294,358
2021	0	295,507	0	295,507
2022	0	270,979	0	270,979
2023	0	12,286	0	12,286
Average	0	208,925	0	208,925
<b>All</b>				
2019	6,616	769,199	7,755	783,570
2020	14,278	670,417	2,094	686,789
2021	5,620	611,597	8,546	625,763
2022	17,765	897,366	6,485	921,616
2023	5,413	115,102	0	120,515
Average	9,938	612,736	4,976	627,651

Sources: MRIP Survey Data available at <https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-downloads>. Louisiana recreational effort estimates came from the Louisiana Department of Wildlife and Fisheries Recreational Creel Survey.

\*No reported target trips for Texas or Mississippi.

**Table 3.3.2.5.** Lane snapper recreational catch trips, by mode and state, 2019-2023.

Year	Mississippi	Alabama	Florida	Louisiana	Texas	Total
<b>Charter</b>						
2019	0	7,285	106,821	1,202	215	115,523
2020	0	4,171	164,768	138	184	169,261
2021	0	5,996	146,208	957	694	153,855
2022	0	6,513	119,572	1,729	289	128,103
2023	0	1,223	83,329	0	0	84,552
Average	0	5,991	134,342	1,007	345	141,685
<b>Private</b>						
2019	0	6,616	597,702	7,492	1,202	613,012
2020	0	14,278	376,059	2,063	1,534	393,934
2021	4,029	5,620	308,355	8,546	1,429	327,979
2022	1,465	17,630	618,086	6,194	1,318	644,693
2023	0	12,802	586,884	255	0	599,941
Average	1,099	11,389	497,417	4,910	1,097	515,912
<b>Shore</b>						
2019	0	0	171,497	0	0	171,497
2020	0	0	294,358	0	0	294,358
2021	0	0	295,507	0	0	295,507
2022	0	0	270,979	0	0	270,979
2023	0	0	302,023	0	0	302,023
Average	0	0	258,085	0	0	258,085

All						
2019	0	13,901	876,020	8,694	1,417	900,032
2020	0	18,449	835,185	2,201	1,717	857,552
2021	4,029	11,616	750,070	9,503	2,123	777,341
2022	1,465	24,143	1,008,637	7,923	1,608	1,043,776
2023	0	14,025	972,236	255	0	986,516
Average	1,374	17,027	867,478	7,080	1,716	894,675

Sources: MRIP Survey Data available at <https://www.fisheries.noaa.gov/recreational-fishing-data-downloads>. Effort estimates for Texas are from the Texas Parks and Wildlife Department’s Marine Sport-Harvest Monitoring Program and assumed equivalent to MRIP-FES estimates. Louisiana recreational effort estimates came from the Louisiana Department of Wildlife and Fisheries Recreational Creel Survey.

Similar analysis of recreational effort is not possible for the headboat mode in the Gulf because headboat data are not collected at the angler level. Estimates of effort by the headboat mode are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats. The stationary “fishing for demersal (bottom-dwelling) species” nature of headboat fishing, as opposed to trolling, suggests that most, if not all, headboat trips and, hence, angler days, are demersal or reef fish trips by intent.

Headboat angler days have been variable across the Gulf states from 2019 through 2023, but increased by about 7.8% in 2023, relative to average number of angler days from 2019-2022 (Table 3.3.2.6). On average (2019 through 2023), Florida accounted for the majority of headboat angler days reported, followed by Texas and Alabama; Mississippi and Louisiana combined accounted for only a small percentage (Table 3.3.2.6).

**Table 3.3.2.6.** Gulf headboat angler days and percent distribution by state (2018 through 2023).

	Angler Days					Percent Distribution			
	FL	AL	MS-LA*	TX	Total	FL	AL	MS-LA	TX
<b>2019</b>	167,167	18,607	2,632	52,456	240,862	69.4%	7.7%	1.1%	21.8%
<b>2020</b>	126,794	13,091	1,728	51,498	193,111	65.7%	6.8%	0.9%	26.7%
<b>2021</b>	181,632	13,844	3,197	71,344	270,017	67.3%	5.1%	1.2%	26.4%
<b>2022</b>	149,368	14,588	3,675	62,705	230,336	64.9%	6.3%	1.6%	27.2%
<b>2023</b>	176,895	13,253	3,274	58,274	251,696	70.3%	5.3%	1.3%	23.2%
<b>Average</b>	160,371	14,677	2,901	59,255	237,204	67.5%	6.2%	1.2%	25.0%

Source: NMFS SRHS (2023).

\*headboat data from Mississippi and Louisiana are combined for confidentiality purposes.

### Permits

There are no specific federal permitting requirements for private recreational anglers to fish for or harvest lane snapper. The same is true of private recreational vessel owners. Instead, private anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or to be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions. As a result, it is not possible to identify with available data how many individual private anglers or private recreational vessels would be expected to be affected by the actions in this amendment.

Charter vessel/headboat vessels in the Gulf are required to have a limited access charter vessel/headboat for reef fish permit (Gulf Reef for-hire permit) to fish for or possess reef fish species. As of August 26, 2021, there were 1,273 valid or renewable charter vessel/headboat reef fish permits. The total number of valid or renewable Gulf Reef for-hire permits has been relatively stable with less than 1% change in valid or renewable Gulf Reef for-hire permits from year to year (Table 3.3.2.7).

Although the permit application collects information on the primary method of operation, the permit itself does not identify the permitted vessel as either a headboat or a charter vessel and vessels may operate in both capacities. However, if a vessel meets the selection criteria used by the Southeast Regional Headboat Survey (SRHS) and is selected to report by the Science Research Director of the SEFSC, it is determined to operate primarily as a headboat and is required to submit harvest and effort information to the SRHS. As of July 31, 2024, 68 Gulf headboats were registered in the SRHS (R. Cheshire, NMFS SEFSC, pers. comm. 2024), with 41 operating in Florida, where the majority of lane snapper landings and effort occur.

**Table 3.3.2.7.** Number of valid or renewable Gulf Reef for-hire permits, 2016-2020.

Year	Number of Permits
2016	1,282
2017	1,280
2018	1,279
2019	1,277
2020	1,289

**Source:** NMFS SERO Sustainable Fisheries (SF) Access permits database (accessed 05/17/22).

### **Economic Value**

Economic value can be measured in the form of CS per additional lane snapper kept on a trip for anglers (the amount of money that an angler would be willing to pay for a fish in excess of the cost to harvest the fish). There is no directly available estimate of CS for lane snapper, but other estimates can serve as close proxies. Haab et al. (2012) estimated the recreational CS for an additional snapper harvested on a trip using a mail survey of recreational anglers fishing in the Gulf. Their estimated CS for harvesting one additional snapper was \$15.13 (2023\$).

Economic value for the for-hire component of the recreational sector can be measured in many ways. According to Savolainen et al. (2012), the average charter vessel operating in the Gulf is estimated to receive approximately \$105,221 (2023\$) in gross revenue and \$29,147 (2023\$) in net income (gross revenue minus variable and fixed costs) annually. The average headboat is estimated to receive approximately \$317,662 (2023\$) in gross revenue and \$92,411 (2023\$) in net income annually. More recent estimates of average annual gross revenue for Gulf headboats are provided in Abbott and Willard (2017) and D. Carter, SEFSC, pers. comm. 2018. Abbott and Willard (2017) suggest that Savolainen, et al.'s estimate of average annual gross revenue for headboats may be an underestimate, as data in the former suggest that average gross revenue in 2009 for the vessels in their sample was about \$541,653 (2023\$). Further, their data suggest average annual gross revenue per vessel had increased to about \$678,064 (2023\$) by 2014. However, Abbott and Willard's estimates are based on a sample of 17 headboats that chose to participate in the headboat Collaborative Program in 2014, while the Savolainen, et al. estimates are based on a random sample of 20 headboats. The headboats that participated in the Collaborative may be economic highliners, in which case Abbott and Willard's estimates would overestimate average annual gross revenue for Gulf headboats. D. Carter, SEFSC, pers. comm. 2018 recently estimated that average annual gross revenue for Gulf headboats were approximately \$500,005 (2023\$) in 2017. This estimate is likely the best current estimate of annual gross revenue for Gulf headboats, as it is based on a relatively large sample of 63 boats, or more than 90% of the active fleet, and is more recent.

However, gross revenues overstate the annual economic value and profits generated by for-hire vessels. Economic value for for-hire vessels can be measured by PS per passenger trip (the

amount of money that a vessel owner earns in excess of the cost of providing the trip). Estimates of revenue, costs, and trip net revenue trips taken by headboats and charter vessels in 2017 are available from Souza and Liese (2019). They also provide estimates of trip net cash flow per angler trip, which approximate PS per angler trip. After accounting for transactions fees, supply costs, and labor costs, net revenue per trip was 42% of revenue for Gulf charter vessels and 54% of revenue for Southeast headboats<sup>15</sup>, or \$912 and \$2,119 (2023 dollars), respectively (Table 3.3.2.8). Trip net revenue (TNR) is the return used to pay all labor wages and returns to capital. When TNR is divided by the number of anglers on a trip, it represents cash flow per angler (CFpA). The estimated CFpA value for an average Gulf charter angler trip is \$166 (2023\$) and the estimated CFpA value for an average Gulf headboat angler trip is \$75 (2023\$) (Souza and Liese 2019). Estimates of CFpA for all individual Reef Fish species target trips, in particular, are not available.

**Table 3.3.2.8.** Trip economics for offshore trips by Gulf charter vessels and Southeast headboats in 2017 (2023\$).

	<b>Gulf Charter Vessels</b>	<b>Southeast Headboats</b>
<b>Revenue</b>	100%	100%
<b>Transaction Fees (% of revenue)</b>	3%	6%
<b>Supply Costs (% of revenue)</b>	27%	19%
<b>Labor Costs (% of revenue)</b>	27%	22%
<b>Net Revenue per trip including Labor costs (% of revenue)</b>	42%	54%
<b>Net Revenue per Trip</b>	\$912	\$2,119
<b>Average # of Anglers per Trip</b>	5.5	28.2
<b>Trip Net Cash Flow per Angler Trip</b>	\$166	\$75

Source: Souza and Liese (2019).

### **Business Activity**

The desire for recreational fishing generates economic activity as consumers spend their income on various goods and services needed for recreational fishing. This spurs economic activity in the region where recreational fishing occurs. It is noted that, in the absence of the opportunity to fish, the income would presumably be spent on other goods and services and these expenditures

<sup>15</sup> Southeast headboats include headboats operating either the Gulf or South Atlantic. Souza and Liese (2019) state “the sample size available for head boats is limited (n=30) and, hence, the results are presented at an overall SE aggregation.”

would similarly generate economic activity in the region where the expenditure occurs. As such, the analysis below represents a distributional analysis only.

Estimates of the business activity (economic impacts) associated with recreational angling for lane snapper were calculated using average trip-level impact coefficients derived from the 2022 Fisheries Economics of the U.S. report (NMFS 2024) and underlying data provided by the National Oceanic and Atmospheric Administration Office of Science and Technology. Economic impact estimates in 2022 dollars were adjusted to 2023 dollars using the annual, not seasonally adjusted, gross domestic product (GDP) implicit price deflator provided by the U.S. Bureau of Economic Analysis.

Business activity (economic impacts) for the recreational sector is characterized in the form of jobs (full- and part-time), income impacts (wages, salaries, and self-employed income), output impacts (gross business sales), and value-added impacts (contribution to the GDP in a state or region). Estimates of the average annual economic impacts (2019–2023) resulting from lane snapper charter, private vessel, and shore target trips are provided in Table 3.3.2.9. To calculate the multipliers from Table 3.3.2.9, simply divide the desired impact measure (sales impact, value-added impact, income impact or employment) associated with a given state by the number of target trips for that state.

The estimates provided in Table 3.3.2.9 only apply at the state-level. Addition of the state-level estimates to produce a regional (or national) total may underestimate the actual amount of total business activity, because state-level impact multipliers do not account for interstate and interregional trading. It is also important to note that these economic impacts estimates are based on trip expenditures only and do not account for durable expenditures. Durable expenditures cannot be reasonably apportioned to individual species. As such, the estimates provided in Table 3.3.2.9 may be considered a lower bound on the economic activity associated with those trips that targeted lane snapper.

Estimates of the business activity associated with headboat effort are not available. Headboat vessels are not covered in MRIP in the Southeast, so, in addition to the absence of estimates of target effort, estimation of the appropriate business activity coefficients for headboat effort has not been conducted.

**Table 3.3.2.9.** Estimated average annual economic impacts (2019-2023) from Gulf charter, private vessel, and shore lane snapper target trips, by state,\* using state-level multipliers. All monetary estimates are in 2023 dollars in thousands.

	FL	AL	LA
<b>Charter Mode</b>			
Target Trips	6,435	27	117
Value Added Impacts	\$4,235	\$11	\$75
Sales Impacts	\$6,708	\$19	\$131
Income Impacts	\$2,887	\$8	\$54
Employment (Jobs)	61	0	2
<b>Private/Rental Mode</b>			
Target Trips	397,376	8,829	4,859
Value Added Impacts	\$13,884	\$336	\$779
Sales Impacts	\$23,192	\$725	\$1,681
Income Impacts	\$6,808	\$144	\$391
Employment (Jobs)	135	3	9
<b>Shore</b>			
Target Trips	208,925	0	0
Value Added Impacts	\$11,758	\$0	\$0
Sales Impacts	\$19,443	\$0	\$0
Income Impacts	\$6,275	\$0	\$0
Employment (Jobs)	125	0	0
<b>All Modes</b>			
Target Trips	612,736	8,856	4,976
Value Added Impacts	\$29,877	\$347	\$854
Sales Impacts	\$49,343	\$743	\$1,813
Income Impacts	\$15,970	\$152	\$445

Employment (Jobs)	322	3	10
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\*No recorded target effort for lane snapper in Texas or Mississippi

The estimates provided in Table 3.3.2.9 use state-level multipliers and thus only apply at the state-level. For example, estimates of business activity in Florida represent business activity in Florida only and not to other states (for e.g., a good purchased in Florida may have been manufactured in a neighboring state) or the nation as a whole. The same holds true for each of the other states. Income impacts should not be added to output (sales) impacts because this would result in double counting. The results provided should be interpreted with caution and demonstrate the limitations of these types of assessments. These results are based on average relationships developed through the analysis of many fishing operations that harvest many different species.

Addition of the state-level estimates to produce a regional (or national) total may underestimate the actual amount of total business activity because state-level impact multipliers do not account for interstate and interregional trading. National-level multipliers must be used to account for interstate and interregional trading. Between 2019 and 2023, and using national-level multipliers, lane snapper target effort generated employment, income, value-added, and output (sales) impacts of 440 jobs, \$27.5 million, \$52.2 million, and \$99.7 million per year, respectively, on average.

### 3.4 Description of the Social Environment

This framework action affects the commercial and recreational management of lane snapper in the Gulf. Commercial and recreational lane snapper landings by state, reef fish permits by state, and for-hire reef fish permits by state are included to provide information on the geographic distribution of fishing involvement. Descriptions of the top-ranking communities by the number of commercial reef fish permits are included, top communities based on commercial landings of lane snapper, commercial engagement and reliance for the top communities based on commercial landings of lane snapper, top-ranking communities by the number of for-hire reef fish permits, and top communities based on recreational engagement and reliance. Community level data are presented in order to meet the requirements of National Standard 8 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), which requires the consideration of the importance of fishery resources to human communities when changes to fishing regulations are considered.

#### 3.4.1 Commercial Sector

##### Permits

Gulf reef fish permits are issued to individuals in Florida (81.4% of Gulf reef fish vessels), Texas (7.8%), Alabama (4.5%), Louisiana (3.8%), and Mississippi (0.9%) (Southeast Regional Office (SERO) permit office, July 8, 2021). Residents of other states (Arkansas, Georgia, Illinois, Maryland, Missouri, North Carolina, New York, Oklahoma, and South Carolina) also hold commercial reef fish permits, but these states represent a smaller percentage of the total number of issued permits.

Gulf reef fish permits are held by individuals with mailing addresses in 232 communities (SERO permit office, July 8, 2021). Communities with the most commercial reef fish permits are located in Florida and Texas (Table 3.4.1.1). The communities with the most reef fish permits are Panama City, Florida (9.1% of reef fish permits), Key West, Florida (4.8%), and St. Petersburg, Florida (3.3%).

**Table 3.4.1.1.** Top communities by number of Gulf reef fish permits.

State	Community	Permits
FL	Panama City	82
FL	Key West	43
FL	St. Petersburg	30
FL	Largo	26
TX	Galveston	22
FL	Destin	22
FL	Cortez	21
FL	Pensacola	21
FL	Seminole	20
FL	Clearwater	16
FL	Tampa	16
FL	Lynn Haven	13
FL	Naples	13
FL	Steinhatchee	13
FL	Apalachicola	11
FL	Tarpon Springs	11

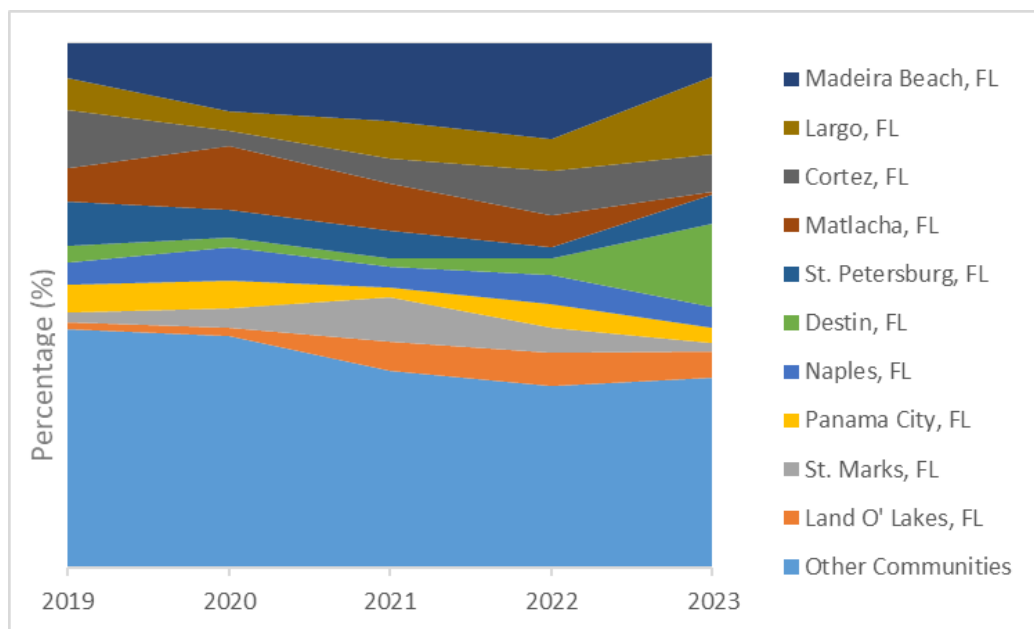
Source: SERO permit office, July 8, 2021.

## Landings

Nearly all the commercial catch of lane snapper is landed in Florida (average of 95.3% from 2019-2023, SEFSC ACL Files). The landings for Alabama, Louisiana, Mississippi, and Texas are confidential, but the landings attributed to these states are minor.

## Regional Quotient

The descriptions of communities include information about the top communities based on a “regional quotient” (RQ) of commercial landings for lane snapper. The RQ is the proportion of landings out of the total landings of that species for that region and that year, and is a relative measure. The RQ is reported individually only for the top 10 communities by total landings for the years of 2019 through 2023 and communities are presented in the order of their total landings combined for all years. All other communities that landed lane snapper are grouped as “Other Communities.” Figure 3.4.1.1 shows the RQ in percentage of pounds from 2019 to 2023. A time series is presented because landings of lane snapper by community are variable by year. The top lane snapper communities are located in Florida. Several of the top communities (Madeira Beach, Largo, and St. Petersburg) are located in Pinellas County, Florida. About 26% of the total lane snapper landings from 2019 to 2023 is landed in the top three communities of Madeira Beach, Largo, and Cortez, Florida, combined.

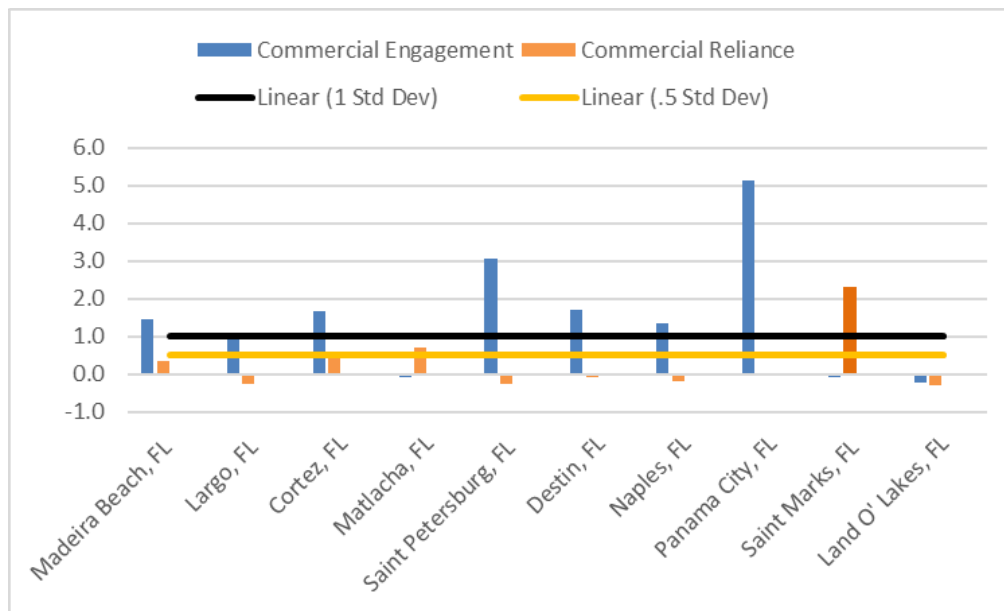


**Figure 3.4.1.1.** Regional Quotient (pounds) for top Gulf communities by lane snapper landings from 2019 through 2023. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality. Source: SERO, Community ALS.

## Engagement and Reliance

Figure 3.4.1.2 is an overall measure of a community’s commercial fishing engagement and reliance and includes the communities with the strongest relationship to the commercial sector for lane snapper as depicted in Figure 3.4.1.1. Most of the communities in Figure 3.4.1.2 would be considered to be highly or moderately engaged in commercial fishing, as several are at or above 1 standard deviation of the mean factor score and a few are at or above ½ standard deviation. Of those communities depicted in Figure 3.4.1.1, Matlacha, Saint Marks, and Land O’ Lakes, Florida show the least amount of engagement in commercial fishing overall. Most of the included communities demonstrate low commercial reliance; however several included

communities demonstrate high or moderate commercial reliance (Saint Marks, Matlacha, and Cortez, Florida).



**Figure 3.4.1.2.** Commercial fishing engagement and reliance for top lane snapper communities. Source: SERO, Community Social Vulnerability Indicators Database 2019.

### 3.4.2 Recreational Sector

#### Permits

Charter/headboat for reef fish permits are issued to individuals in Florida (60% of charter/headboat for reef fish vessels), Texas (15.7%), Alabama (10.6%), Louisiana (7.4%), and Mississippi (2.6%, SERO permit office, July 8, 2021). Residents of other states (Arkansas, Arizona, California, Colorado, Georgia, Illinois, Michigan, Missouri, Montana, North Carolina, New Jersey, New York, Ohio, Oklahoma, Tennessee, Virginia, and Wisconsin) also hold charter/headboat permits, but these states represent a smaller percentage of the total number of issued permits.

Charter/headboat for reef fish permits are held by individuals with mailing addresses in 355 communities (SERO permit office, July 8, 2021). Communities with the most charter/headboat for reef fish permits are located in Florida, Alabama, and Texas (Table 3.4.2.1). The communities with the most charter/headboat permits are Panama City, Florida (4.6% of charter/headboat permits), Destin, Florida (4.4%), and Orange Beach, Alabama (4.1%).

**Table 3.4.2.1.** Top communities by number of Gulf charter/headboat for reef fish permits.

State	Community	Permits
FL	Panama City	65
FL	Destin	62
AL	Orange Beach	57
FL	Naples	45
FL	Key West	43
FL	Pensacola	30
FL	Sarasota	27
FL	St. Petersburg	23
TX	Galveston	21
FL	Panama City Beach	19
TX	Corpus Christi	19
FL	Cape Coral	18
FL	Clearwater	18
FL	Fort Myers	18
FL	Crystal River	16
FL	Tampa	16
FL	Gulf Breeze	14

Source: SERO permit office, July 8, 2021.

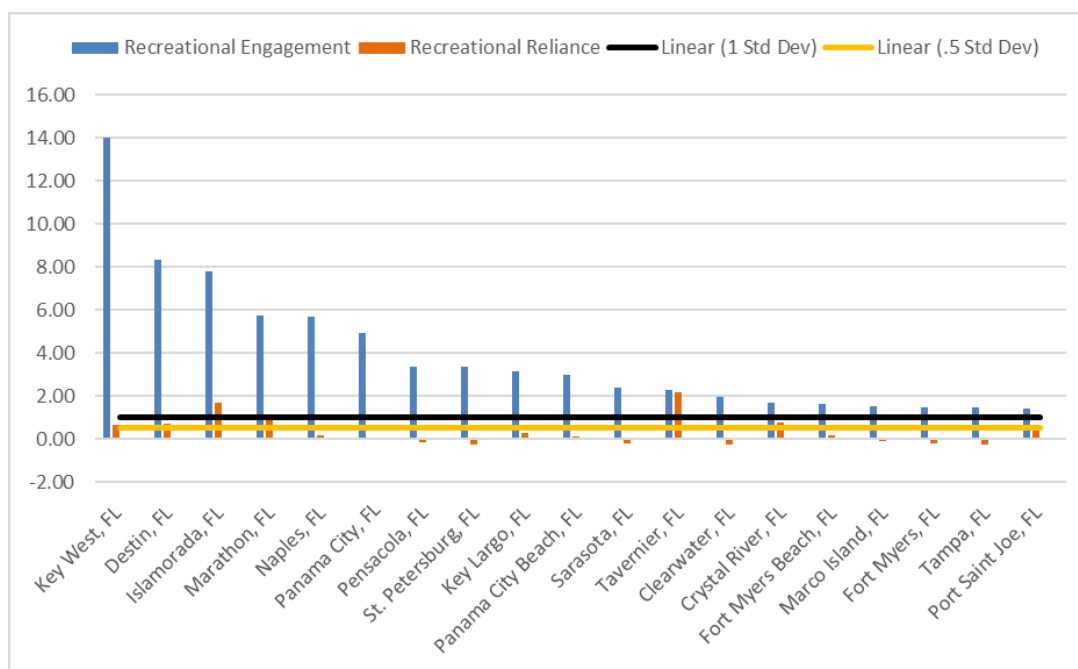
## Landings

Nearly all recreational lane snapper landings are from the waters adjacent to the west coast of Florida (average of 98.3%% from 2019-2023), followed by Alabama (1%), Louisiana and Mississippi (0.4%), and Texas (0.3%, SEFSC MRIP-FES Recreational ACL Dataset and LA Creel Data). Louisiana and Mississippi are combined together because of the manner in which headboat landings are reported.

## Engagement and Reliance

Landings for the recreational sector based on MRIP data are not an accurate representation of the species caught at the community level, making it difficult to identify communities as dependent on recreational fishing for lane snapper or reef fish in general. Because limited data are available concerning how communities are engaged and reliant on specific species in the recreational sector, indices were created using secondary data from permit and infrastructure information for the southeast recreational fishing sector at the community level (Jepson and Colburn 2013, Jacob et al. 2013). Recreational fishing engagement is represented by the number of recreational permits and vessels designated as “recreational” by homeport and owner’s address. Fishing reliance includes the same variables as fishing engagement, divided by population. Factor scores of both engagement and reliance were plotted by community.

Figure 3.4.2.1 identifies the Gulf communities located in Florida that are the top communities by engagement upon recreational fishing in general. Two thresholds of one and one-half standard deviation above the mean were plotted to help determine a threshold for significance. Communities are presented in ranked order by fishing engagement and all included communities demonstrate high levels of recreational engagement, although this is not specific to fishing for lane snapper. Because the analysis used discrete geo-political boundaries, Panama City and Panama City Beach had separate values for the associated variables. Calculated independently, each still ranked high enough to appear in the top list, suggesting a greater importance for recreational fishing in that area. The communities of Tavernier and Islamorada, Florida demonstrate the highest reliance on recreational fishing. The communities of Key West, Destin, Marathon, Crystal River, and Port Saint Joe, Florida demonstrate a moderate to high reliance.



**Figure 3.4.2.1.** Recreational fishing engagement and reliance for top Florida communities. Source: SERO, Community Social Vulnerability Indicators Database 2019.

The description of fishing activities presented above highlights which communities may be most involved in lane snapper fishing. It is expected that the impacts from the regulatory action in this framework action, whether positive or negative, will most likely affect those communities identified above.

## **3.5 Description of the Administrative Environment**

### **3.5.1 Federal Fishery Management**

Federal fishery management is conducted under the authority of the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the EEZ. The EEZ is defined as an area extending 200 nautical miles from the seaward boundary of each of the coastal states. The Magnuson-Stevens Act also claims 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 of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for approving those plans and promulgating regulations to implement proposed plans and amendments after ensuring management measures are consistent with the Magnuson-Stevens Act and with other applicable laws summarized in Appendix A. In most cases, the Secretary has delegated this authority to NMFS. The Council is responsible for fishery resources in federal waters of the Gulf. For reef fish, these waters extend 200 nautical miles offshore from the seaward boundaries of Alabama, Florida, Louisiana, Mississippi, and Texas, as those boundaries have been defined by law. The length of the Gulf coastline is approximately 1,631 miles. Florida has the longest coastline extending 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.

### **3.5.2 State Fishery Management**

The purpose of state representation at the Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters. The state governments of Texas, Louisiana, Mississippi, Alabama, and Florida have the authority to manage their respective state fisheries. Each of the five Gulf states exercises legislative and regulatory authority over their 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. Descriptions of individual state management and data collection programs can be found at the web pages shown in Table 3.5.2.1.

**Table 3.5.2.1.** Individual state management and data collection programs

<b>State Marine Resource Agency</b>	<b>Web page</b>
Alabama Marine Resources Division	<a href="http://www.outdooralabama.com/saltwater-fishing-alabama">http://www.outdooralabama.com/saltwater-fishing-alabama</a>
Florida Fish and Wildlife Conservation Commission	<a href="http://myfwc.com/">http://myfwc.com/</a>
Louisiana Department of Wildlife and Fisheries	<a href="http://www.wlf.louisiana.gov/">http://www.wlf.louisiana.gov/</a>
Mississippi Department of Marine Resources	<a href="http://www.dmr.ms.gov/">http://www.dmr.ms.gov/</a>
Texas Parks and Wildlife Department	<a href="http://tpwd.texas.gov/">http://tpwd.texas.gov/</a>

## CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

### 4.1 Effects on the Physical Environment

Participants in the commercial sector of the Gulf of America (Gulf) reef fish fishery primarily use vertical lines (i.e., electric reel, bandit rig, hook-and-line, and trolling) and longlines. Participants in the recreational sector (headboat, charter, and private modes) primarily use vertical line gear (hook-and-line). On average (from 1999 through 2019) approximately 14% of lane snapper was landed by the commercial sector. Bottom longline gear is deployed over hard bottom habitats using weights to keep the gear in direct contact with the bottom, with anchors used at the end of the longline to prevent movement, which is standard practice in the commercial reef fish fisheries. The potential for this gear to adversely impact the bottom depends on the type of habitat it is set on, the presence or absence of currents and the behavior of fish after being hooked. In addition, this gear, upon retrieval, can abrade, snag, and dislodge smaller rocks, corals, and sessile invertebrates (Hamilton 2000; Barnette 2001). Vertical lines include multi-hook lines known as bandit gear, handlines, and rod-and-reels. Vertical line gear is less likely to contact the bottom than longlines, but still has the potential to snag and entangle bottom structures and cause attached organisms, such as soft corals and sponges, to tear off or be abraded (Barnette 2001). Vertical line gear is in direct contact with the bottom for only a short period of time. Barnette (2001) suggested that physical impacts may include entanglement and minor degradation of benthic species from line abrasion and the use of weights (sinkers). Anchor damage is also associated with vertical line fishing vessels where anglers may repeatedly visit well-marked or known fishing locations. The cumulative effects of repeated anchoring could damage the hard bottom areas where reef fish fishing occurs, as well as repeated drops of weighted fishing rigs onto the reef. Recreational and commercial vessels that use vertical line gear are typically known to anchor more frequently over the reef sites.

The alternatives in this framework action would not substantially modify the way in which the reef fish fishery is prosecuted in terms of gear types used. This action would have no effect on the physical environment because the action is unlikely to alter the fishing effort or methods used in the reef fish fishery overall.

### 4.2 Effects on the Biological/Ecological Environment

Under **Alternative 1** (No Action), it is expected that in-season closures could be necessary if recent catch rates continue. **Preferred Alternative 2** and **Alternative 3** are expected to meet the purpose of this framework action to reduce landings; however, **Alternative 3** would result in a higher overall reduction in landings given a great majority of landed fish are less than 12 inches total length (TL). Table 4.2.1 details the estimated percent reduction in landings that would be achieved under the various size limit alternatives. These percent reduction estimates assume that fishing effort for lane snapper would not change from the rate observed in 2021-2023, and that effort would not be shifted based on the new size limit (e.g. anglers fish longer to catch bigger fish to keep). Neither of these caveats are assured, and thus Table 4.2.1 likely contains optimistic estimates of the percent reduction that would occur with a size limit increase. The method used to determine the percent reductions in harvest is in Appendix B. **Preferred Alternative 2** would result in a smaller reduction in estimated total landings (31.83%) in

comparison to **Alternative 3** (76.46%). **Preferred Alternative 2** may result in an estimated ~32% reduction in landings for Headboat and MRIP-reporting states; while an estimated 13.8% reduction in landings may occur for Texas, should landings be similar to those observed in 2021-2023. The recreational sector typically targets lane snapper off Florida, where there would likely be the highest impact due to a minimum size change. **Alternative 3**, a minimum size limit of 12 inches TL, may result in a large percent reduction in landings (76.46%) because most of the lane snapper harvested had lengths less than 12 inches TL. It is important to note that these estimations are utilizing data from 2021-2023, where landings have been historically high. Should overall landings be less than those averaged from 2021-2023, the estimated reduction in landings as a result of an increased size limit are likely lower.

**Table 4.2.1.** Estimated percent reduction in lane snapper landings based on the four recreational surveys from increasing the minimum size limit from 8 to 10- or 12-inches TL. Data come from the recreational intercept data from TPWD, LA Creel, Headboat, and MRIP from 2021 through 2023. The current minimum size limit is 8 inches TL.

Size Limit	TPWD	LA Creel	Headboat	MRIP	Total Reduction in Landings
<b>8 inches TL (Status Quo)</b>	0.0%	0.0%	0.0%	0.0%	0.0%
<b>10 inches TL</b>	13.8%	0.0%	32.7%	32.6%	31.83%
<b>12 inches TL</b>	48.4%	0.0%	60.6%	79.2%	76.46%

Source: M. Larkin (SERO), pers. comm., January 2024

For the commercial sector, a 10 inch TL size limit may reduce landings by an estimated 2.3% if landings are consistent with 2021-2023 values in the future (Table 4.2.2). Approximately 45% of commercial landings were below 12 inches, and a 12 inch TL size limit during this time may reduce commercial landings by ~31.3% (Table 4.2.2).

**Table 4.2.2.** Estimated percent reduction in lane snapper commercial landings from increasing the minimum size limit from 8 to 10- or 12-inches TL. Data come from the Trip Interview Program (TIP) program from 2021 to 2023. The current minimum size limit is 8 inches TL.

Size Limit	Percent Reduction in Landings
<b>8 inches TL (Status Quo)</b>	0.0%
<b>10 inches TL</b>	2.3%
<b>12 inches TL</b>	31.1%

Source: M. Larkin (SERO), pers. comm., January 2024

**Preferred Alternative 2** and **Alternative 3** are expected to reduce landings enough to extend the season length and prevent an in-season closure (Table 4.2.3).

**Table 4.2.3.** Predicted closure dates and expected landings for the lane snapper stock with changes to the size limits. Closure dates are when the stock ACL (1,088,873 lb ww) is expected to be met.

Regulation	Closure Date	Expected Landings
<b>8 inches TL (Status Quo)</b>	29-Nov	1,088,873 lb ww
<b>10 inches TL</b>	No Closure	854,683 lb ww
<b>12 inches TL</b>	No Closure	285,984 lb ww

Source: M. Larkin (SERO), pers. comm., January 2024a

As noted above, this analysis assumes the high lane snapper stock landings that were observed in 2023 and 2024 will continue. If future landings are lower and similar to the 2020, 2021, and 2022 lane snapper stock landings, then the stock annual catch limit (ACL) is not expected to be met even without any changes to the size limits (Appendix B).

The SEDAR 49 (2016) stock assessment used 9.1 inches TL as the length at which 50% of females achieved sexual maturity (L50) based on Freitas et al. (2014). However, that estimate is lower than from a recent study (Fernandes et al. 2022) which estimated L50 for females at 27 cm or ~10.7 in TL. Both studies estimate L50 for females to be larger than the current minimum size limit under **Alternative 1**. Therefore, **Preferred Alternative 2** and **Alternative 3** would increase the likelihood that landed females are mature when harvested, resulting in beneficial impacts when compared to **Alternative 1**. Of these, **Alternative 3** would be expected to result in greater beneficial impacts than **Preferred Alternative 2** because it would presumably encompass a greater proportion of reproductively active individuals in the population.

An increase in size limit would likely increase discards because a large proportion of the catch is historically below the size limits proposed in **Preferred Alternative 2** and **Alternative 3**. However, the increased size limit is anticipated to decrease overall fishing mortality. As minimum size limits increase from 8 inches TL, overall discards may increase, but discard mortality is expected to remain relatively low for the reasons discussed above. Thus, it is possible that under **Preferred Alternative 2** and **Alternative 3**, there may be an increase in discards of smaller individuals but their mortality would be expected to be low, and requiring the release of those smaller fish would provide the potential for those fish to reach sexual maturity and lower overall mortality of the stock.

### 4.3 Effects on the Economic Environment

Increasing the recreational and commercial minimum size limit for lane snapper from 8-inch TL to either 10-inch TL or 12-inch TL is expected to reduce the harvest rate of lane snapper. Under

a new size limit, the season duration necessary to harvest the stock ACL is expected to be longer for **Preferred Alternative 2** and **Alternative 3** in comparison with **Alternative 1**, as seen in Table 4.2.3, with a reduced likelihood of in-season closures. As displayed in Table 1.1.1, the stock ACL was exceeded in 2016-2020 and in 2022-2023.

## Recreational Sector

Estimated changes in economic value to recreational fishermen are approximated by multiplying the expected change in the number of fish harvested by a consumer surplus (CS) estimate. The most recent proxy for a CS estimate for lane snapper is the estimated value of the CS for a 1 fish change in snapper harvest. A value of \$15.13 (Haab et al. 2012; values updated to 2023\$) reflects recreational willingness-to-pay (WTP) for 1 additional snapper harvest.

The recreational sector accounted for 97.42% of lane snapper landings from 2019 to 2023. The first column in Table 4.3.1 shows the change in expected landings, in pounds, specific to the recreational sector under **Preferred Alternative 2** and **Alternative 3**. This change in expected recreational landings was derived by determining the change in expected total landings from **Preferred Alternative 2** and **Alternative 3**, using the data in Table 4.2.3, and multiplying that change in total landings by 97.42%. The expected reduction in number of fish as compared to **Alternative 1** is shown in the second column of Table 4.3.1. For **Preferred Alternative 2**, this reduction in the number of fish was determined by dividing the change in expected recreational landings by the average weight of a recreationally landed lane snapper of 8-inch TL to less than 10-inch total length (TL) (0.471385 lb ww) from 2019 to 2023 (M. Larkin, SERO, pers. comm. 2025). For **Alternative 3**, similar steps are followed, with the use of the average weight of a recreationally landed lane snapper of 8-inch TL to less than 12-inch TL (0.629792 lb ww) from 2019 to 2023. The reduction in the number of fish is then multiplied by the value of \$15.13 to calculate the expected change in the recreational sector's CS, as seen in Table 4.3.1. While not quantifiable, two key issues are noted. First, a change in the size limit from **Preferred Alternative 2** and **Alternative 3** is expected to allow lane snapper to grow to a longer size, which would have a positive effect on the abundance of longer lane snappers and the resulting catchability, although the effect would be tempered by anglers now targeting longer lane snappers. Overall, this would be expected to reduce the expected change in recreational landings in Table 4.3.1. Second, longer lane snappers, as with all fish, are generally expected to have a greater WTP value associated with them. The substitution by recreational anglers of longer lane snapper for shorter lane snapper, to comply with the new size limit, would be expected to have a greater WTP associated with those fish, which would offset some of the expected change in the recreational sector's CS in Table 4.3.1. Additionally, anglers may adjust their fishing practices to target larger lane snapper, and this may offset some of the reduction in overall expected harvest.

**Table 4.3.1.** Expected change in the recreational sector’s CS (2023\$) from **Preferred Alternative 2** and **Alternative 3**, in comparison with **Alternative 1**.

	<b>Expected Change in Rec Landings (lb ww)</b>	<b>Expected Change in Rec Landings, Expressed as Number of Fish</b>	<b>Expected Change in Rec Sector CS</b>
<b>Preferred Alternative 2 – Alternative 1</b>	-228,148	-483,995	-\$7,322,842
<b>Alternative 3 – Alternative 1</b>	-782,174	-1,241,957	-\$18,790,807

The producer surplus (PS) of the for-hire component of the recreational sector, composed of charter vessels and headboats, would be impacted by a change in the number of targeted trips. In the long run, factors of production, such as labor and capital, can be used elsewhere in the economy, and so only short-term changes to PS are expected. In the Gulf, headboat trips take a diverse set of anglers on a single vessel, generally advertising a diverse range of species to be caught. Therefore, an assumption that no headboat trips would be gained or lost due to a change in size limit would be reasonable and is supported by the information in Table 3.3.2.1, which shows the percent distribution by mode of recreational landings, such that charter vessels and headboats may be expected to capture 27% of the recreational sector’s landings, with 22% from charter vessels and only 5% from headboats. However, charter vessel trips that are targeting lane snapper may be added by anglers and are the focus of the recreational sector PS analysis. From 2020-2024, season closures occurred in 2021, 2022, and 2024, and the stock ACL was exceeded in 2020, 2022, and 2023. Therefore, with the number of season closures over the past five years, increasing the size limit is expected to lengthen the season as shown in Table 4.2.3, while ensuring the stock ACL is not exceeded. **Preferred Alternative 2** and **Alternative 3** are expected to allow the season to remain open until the end of the fishing year, which would allow for additional target trips for charter vessels. Table 3.3.2.4 displays that the average number of target trips was 6,579, and Table 3.3.2.5 displays that the average number of catch trips accounted for was 141,685.<sup>16</sup> Under **Alternative 1** the expected closure is November 29 (Table 4.2.3), and assuming a uniform distribution of trips from January 1 through November 28, the average number of target trips of 6,579 would equate to approximately 20 target trips per day. With no season closure, as expected under **Preferred Alternative 2** and **Alternative 3**, the number of target trips could increase to 7,233 for the year. This is an additional 654 target trips under **Preferred Alternative 2** and **Alternative 3** compared to **Alternative 1**. The trip net cash flow per angler trip is \$166 (2023\$) for charter vessels, as seen in Table 3.3.2.8. Multiplying that value by the number of additional target trips produces an expected change in the

<sup>16</sup> The number of lane snapper target trips were 4.64% of the number of lane snapper catch trips, which suggests that lane snapper is not an overly targeted species. Combined with lower catchability of longer lane snapper, demand for trips may be less than that provided under a uniform distribution. Therefore, this analysis may be an upper bound of benefits to the for-hire component of the recreational sector.

recreational PS of \$108,564 from **Preferred Alternative 2** and **Alternative 3** as seen in Table 4.3.2.

**Table 4.3.2.** Expected change in the for-hire component’s PS, based on the number of expected additional target trips by charter vessels under **Preferred Alternative 2** or **Alternative 3**, in comparison with **Alternative 1**. PS values are in 2023\$.

	<b>Expected Additional Target Trips by Charter Vessels</b>	<b>Expected Change in For-Hire Component’s PS</b>
<b>Preferred Alternative 2 – Alternative 1</b>	654	\$108,564
<b>Alternative 3 – Alternative 1</b>	654	\$108,564

The expected net economic benefits to the recreational sector are a summation of the changes in the recreational sector’s CS and PS. The expected net economic benefits to the recreational sector from **Preferred Alternative 2** and **Alternative 3** are -\$7,214,288 and -\$18,682,253, respectively.

### Commercial Sector

With the stated assumption that the same historical landing percentages by sector and by component would be expected with any change to the size limit, no expected change in harvest by the commercial sector would be expected to result in no change to either the commercial CS or the commercial PS for lane snapper. Some benefits may result from the commercial sector being able to harvest lane snapper longer into the year, without an in-season closure, but any benefits would likely be minor as the commercial sector has only accounted for 2.58% of lane snapper landings based on the commercial and recreational sector-specific landings from 2019-2023.

The commercial sector accounted for 2.58% of lane snapper landings from 2019 to 2023. The change in expected landings specific to the commercial sector was derived by determining the change in expected total landings under **Preferred Alternative 2** and **Alternative 3** using the data in Table 4.2.3, and multiplying that change in total landings by 2.58%. For **Preferred Alternative 2**, that is an expected reduction in landings of 6,042 lb ww; for **Alternative 3**, that is an expected reduction in landings of 20,715 lb ww. The expected reduction in landings is then multiplied by the average ex-vessel price per lb ww of \$3.47 for lane snapper from 2019-2023 (2023\$) to generate the expected change in commercial ex-vessel revenue, as seen in Table 4.3.3. The low overall landings of lane snapper suggests this to be an incidental species. As a result, if there is no expectation of a change in effort or operating costs as a result of this action, the expected change in commercial ex-vessel revenue may be considered representative of the expected change in PS.

**Table 4.3.3.** Expected change in the commercial sector’s revenue and PS, based on the expected reduction in landings under **Preferred Alternative 2** or **Alternative 3**, in comparison with **Alternative 1**. Revenue and PS values are in 2023\$.

	<b>Expected Change in Commercial Sector’s Ex-Vessel Revenue and PS</b>
<b>Preferred Alternative 2 – Alternative 1</b>	-\$20,966
<b>Alternative 3 – Alternative 1</b>	-\$71,879

### Net Economic Benefits

The expected net economic benefits under **Preferred Alternative 2** are -\$7,235,244, and the expected net economic benefits under **Alternative 3** are -\$18,754,122.

## 4.4 Effects on the Social Environment

Changes to the size limit for lane snapper would primarily affect landings and the likelihood of in-season closures, with varying effects on fishing participants depending on the selected alternative.

Under **Alternative 1**, the current 8-inch TL minimum size limit would remain in place, maintaining the status quo for both commercial and recreational fishers. While this would not impose new regulatory requirements, it would also not address the recent pattern of frequent stock ACL exceedances (Table 1.1.1). If landings continue to exceed the stock ACL, there remains a likelihood of in-season closures, similar to those in previous years. These closures may disrupt fishing plans, particularly for recreational anglers and for-hire operators who rely on consistent access to the fishery.

Under **Preferred Alternative 2**, increasing the minimum size limit to 10 inches TL is likely to constrain landings to the stock ACL for both the recreational and commercial sectors (Table 4.2.1 and Table 4.2.2), which would allow for a year-round fishing season (Table 4.2.3). This balance may be viewed positively by stakeholders who prefer stable access to the fishery over unpredictable closures. However, recreational anglers, particularly those fishing off Florida where landings are highest, may experience increased discards if they catch fish smaller than the new size limit. Overall, this alternative is expected to provide greater predictability for both commercial and recreational participants while requiring modest adjustments to fishing practices for the recreational sector and minimal changes for the commercial sector.

Under **Alternative 3**, increasing the minimum size limit to 12 inches TL could result in a more substantial reduction in recreational landings (Table 4.2.1). This may significantly alter fishing opportunities for the recreational sector, particularly among private anglers and for-hire operations that depend on lane snapper as a reliable target species. The commercial sector may

experience a more drastic reduction in landings under **Alternative 3** compared to **Preferred Alternative 2** (Table 4.2.2). While this alternative is expected to provide the greatest biological benefit by ensuring more fish reach reproductive maturity, it would also result in a significant reduction in landings, which would likely disrupt fishing operations and participation in the fishery.

In summary, **Alternative 1** would maintain the status quo, allowing continued harvest at the current size limit but maintains a higher likelihood of in-season closures, as historical landings have exceeded the stock ACL in the last 5 years. **Preferred Alternative 2** is expected to reduce landings enough to prevent closures while maintaining a year-round fishing season, which may provide the greatest benefit in terms of stability for stakeholders, while not having a substantial impact on annual landings and fishing behavior. **Alternative 3** would provide greater biological benefits but could significantly reduce harvest opportunities and increase discards. The communities most affected by these changes are described in Section 3.4.

## 4.5 Effects on the Administrative Environment

**Preferred Alternative 2** would modify the recreational and commercial size limit to 10 inch TL for lane snapper. Increasing the minimum size limit may reduce the proportion of retained catch and thereby slow the harvest rate, especially for the recreational sector, and it may result in increased discards. Regardless, the administrative burden of monitoring to the appropriate catch limits is not expected to change based upon a change in the size limit. Therefore, no significant administrative burden is expected. NMFS monitors both the recreational and commercial landings in cooperation with the Southeast Fisheries Science Center and Gulf states to determine if landings are meeting or exceeding the specified catch limits. A minor reduction in administrative burden may occur if the increase in size limit reduces catch to the extent that closures of the lane snapper portion of the reef fish fishery are not necessary in future years. Some minor administrative burden is anticipated with respect to outreach as it relates to notifying stakeholders of the changes to minimum size.

# CHAPTER 5. REGULATORY IMPACT REVIEW

## 5.1 Introduction

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: 1) it provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action; 2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem; and 3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. The RIR also serves as the basis for determining whether the regulations are a “significant regulatory action” under the criteria provided in Executive Order (E.O.) 12866. This RIR analyzes the impacts this action would be expected to have on the lane snapper component of the Gulf of America (Gulf) reef fish fishery.

## 5.2 Problems and Objectives

The problems and objectives addressed by this action are discussed in Section 1.2.

## 5.3 Description of Fisheries

A description of the economic environment of the lane snapper component of the Gulf reef fish fishery is provided in Section 3.3.

## 5.4 Impacts of Management Measures

### 5.4.1 Action: Modify the size limit for recreational and commercial lane snapper

A detailed analysis of the economic effects and impacts expected to result from this action is provided in Section 4.3. The following discussion analyzes the expected economic effects and impacts of the preferred alternative relative to the No Action alternative.

Under **Preferred Alternative 2**, the recreational and commercial size limit would increase from 8-inch total length (TL) to 10-inch TL for lane snapper. The increase in size limit is expected to prevent in-season closures and reduce the exceedance of the stock annual catch limit (ACL). While no changes to the stock ACL occur as a result of this framework action, total landings are expected to be reduced by 234,190 lb ww as fishers shift landings towards longer lane snapper, based on the expected landings in Table 4.2.3 which assumes the high lane snapper stock landings that were observed in 2023 and 2024 will continue. If future landings are lower and similar to the 2020, 2021, and 2022 lane snapper stock landings, then the stock ACL is not expected to be met even without any changes to the size limits.

The recreational sector accounted for 97.42% of lane snapper landings from 2019 to 2023. Multiplying that percentage by the expected reduction in landings from **Preferred Alternative 2**

provides the change in expected landings specific to the recreational sector. For **Preferred Alternative 2**, the change in expected landings is divided by the average weight of a recreationally landed lane snapper of 8-inch TL to less than 10-inch TL (0.471385 lb ww) from 2019 to 2023 to determine the reduction in the number of fish (M. Larkin, SERO, pers. comm. 2025) in comparison with **Alternative 1**. The reduction in the number of fish (-483,995, as seen in Table 4.3.1) is then multiplied by the value of \$15.13 (Haab et al. 2012; values updated to 2023\$) to calculate the expected change in the recreational sector's consumer surplus (CS), which equates to -\$7,322,842.

The producer surplus (PS) of the for-hire component of the recreational sector, composed of charter vessels and headboats, would be impacted by a change in the number of targeted trips. In the long run, factors of production, such as labor and capital, can be used elsewhere in the economy, and so only short-term changes to PS are expected. In the Gulf, headboat trips take a diverse set of anglers on a single vessel, generally advertising a diverse range of species to be caught. Therefore, an assumption that no headboat trips would be gained or lost due to a change in size limit would be reasonable and is supported by the information in Table 3.3.2.1, which shows the percent distribution by mode of recreational landings, such that charter vessels and headboats may be expected to capture 27% of the recreational sector's landings, with 22% from charter vessels and only 5% from headboats. However, charter vessel trips that are targeting lane snapper may be added by anglers and are the focus of the recreational sector PS analysis. In addition, when accounting specifically for charter vessel landings from 2019-2023 where lane snapper may be landed either during target trips or catch trips, Table 3.3.2.4 displays that the average number of target trips was 6,579, and Table 3.3.2.5 displays that the average number of catch trips accounted for was 141,685.<sup>17</sup> Under **Alternative 1**, the expected closure date is November 29 (based on Table 4.2.3), and assuming a uniform distribution of trips from January 1 through November 28, the average number of target trips of 6,579 would equate to approximately 20 target trips per day. With no season closure, as expected under **Preferred Alternative 2**, the number of target trips could increase to 7,233 for the year. This is an additional 654 target trips under **Preferred Alternative 2**. Multiplying the trip net cash flow per angler trip of \$166 (2023\$) for charter vessels, as seen in Table 3.3.2.8, by the number of additional target trips produces an expected change in the recreational PS of \$108,564 from **Preferred Alternative 2**.

The commercial sector accounted for 2.58% of lane snapper landings from 2019 to 2023. Multiplying that percentage by the expected reduction in landings from **Preferred Alternative 2** provides the change in expected landings specific to the commercial sector. For **Preferred Alternative 2**, that is an expected reduction in landings of 6,042 lb whole weight (ww). The expected reduction in landings is then multiplied by the average ex-vessel price per lb ww of \$3.47 for lane snapper from 2019-2023 (2023\$) to generate the expected change in commercial ex-vessel revenue, which equates to -\$20,966. The low overall landings of lane snapper suggests this to be an incidental species. As a result, if there is no expectation of a change in effort or

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<sup>17</sup> The number of lane snapper target trips were 4.64% of the number of lane snapper catch trips, which suggests that lane snapper is not an overly targeted species. Combined with lower catchability of longer lane snapper, demand for trips may be less than that provided under a uniform distribution. Therefore, this analysis may be an upper bound of benefits to the for-hire component of the recreational sector.

operating costs as a result of this action, the expected change in commercial ex-vessel revenue may be considered representative of the expected change in PS.

Net economic benefits to the commercial and recreational sectors from **Preferred Alternative 2**, relative to **Alternative 1**, would be expected to decrease by \$7,235,244. Over a four-year timeframe of 2026-2029, the expected change in the discounted net present value of economic benefits to both sectors would be -\$27,700,936 and -\$26,222,810 using a 3% discount rate and a 7% discount rate, respectively. This analysis uses a four-year timeframe based on the SEDAR timeline for when the overfishing limit (OFL) and acceptable biological catch (ABC) values for lane snapper will be analyzed again as part of a Full Assessment, although an Interim Analysis has been requested, which may allow the Gulf Council may review those values sooner, and on the estimated time for completion of a subsequent framework action and associated rulemaking.

## 5.5 Public and Private Costs of Regulations

The preparation, implementation, enforcement, and monitoring of this or any federal action involves the expenditure of public and private resources, which can be expressed as costs associated with the regulations. Costs to the private sector and program-related administrative costs to NMFS are discussed in the effects of management measures. Public costs associated with the development of this action, including Council costs of document preparation, meetings, public hearings, and information dissemination, as well as NMFS administrative costs of document preparation, meetings and review, are treated as sunk costs and excluded from this analysis per Office of Management and Budget (OMB) guidance. Council and NMFS administrative costs directly attributable to the development of this framework action and the rulemaking process would be incurred prior to the effective date of the final rule implementing this framework action.

Additionally, this analysis does not include any additional law enforcement costs. Any enforcement duties associated with this action would be expected to be covered under routine enforcement costs rather than an expenditure of new funds.

## 5.6 Net Benefits of the Regulatory Action

It is important to specify the time period being considered when evaluating benefits and costs. According to the OMB's Frequently Asked Questions regarding Circular A-4,<sup>18</sup> "When choosing the appropriate time horizon for estimating costs and benefits, agencies should consider how long the regulation being analyzed is likely to have resulting effects. The time horizon begins when the regulatory action is implemented and ends when those effects are expected to cease. Ideally, analysis should include all future costs and benefits. Here as elsewhere, however, a 'rule of reason' is appropriate, and the agency should consider for how long it can reasonably predict the future and limit its analysis to this time period. Thus, if a regulation has no predetermined sunset provision, the agency will need to choose the endpoint of its analysis on the basis of a judgment about the foreseeable future. For most agencies, a standard time period of analysis is 10 to 20 years."

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<sup>18</sup> See p. 4 at [https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/OMB/circulars/a004/a-4\\_FAQ.pdf](https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/OMB/circulars/a004/a-4_FAQ.pdf)

For current purposes, the reasonably “foreseeable future” is considered to be the next 4 years (2026-2029). The reason that this analysis uses a four-year timeframe is based on the SEDAR timeline for when the OFL and ABC values for lane snapper will be analyzed again as part of a Full Assessment, although an Interim Analysis has been requested whereupon the Gulf Council may review those values sooner, and on the estimated time for completion of a subsequent framework action and associated rulemaking.

Net economic benefits to the commercial and recreational sectors from **Preferred Alternative 2**, relative to **Alternative 1**, would be expected to decrease by \$7,235,244. Over a four-year timeframe of 2026-2029, the expected change in the discounted net present value of economic benefits to both sectors would be -\$27,700,936 and -\$26,222,810 using a 3% discount rate and a 7% discount rate, respectively. Based on this information, this regulatory action is expected to decrease net economic benefits to the Nation.

## 5.7 Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a “significant regulatory action” if it is likely to result in: 1) an annual effect of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, territorial, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; 3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this E.O. Based on the information in Sections 5.4-5.5, the annual costs of this proposed action are \$7,343,808 and the annual benefits are \$108,564, well below the \$100 million threshold. Thus, this action has been determined to not be economically significant for the purposes of E.O. 12866.

## CHAPTER 6. INITIAL REGULATORY FLEXIBILITY ANALYSIS (IRFA)

The purpose of the Regulatory Flexibility Act (RFA) is to establish a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure such proposals are given serious consideration. The RFA does not contain any decision criteria; instead the purpose of the RFA is to inform the agency, as well as the public, of the expected economic effects of various alternatives contained in the regulatory action and to ensure the agency considers alternatives that minimize the expected economic effects on small entities while meeting the goals and objectives of the applicable statutes (e.g., the Magnuson-Stevens Fishery Conservation and Management Act [Magnuson-Stevens Act]).

With certain exceptions, the RFA requires agencies to conduct an Initial Regulatory Flexibility Analysis (IRFA) for each proposed rule. The IRFA is designed to assess the effects various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those effects. An IRFA is primarily conducted to determine whether the proposed regulatory action would have a significant economic effect on a substantial number of small entities. In addition to analyses conducted for the Regulatory Impact Review (RIR), the IRFA provides: 1) a description of the reasons why action by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for, the proposed regulatory action; 3) a description and, where feasible, an estimate of the number of small entities to which the proposed regulatory action will apply; 4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed regulatory action, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; 5) an identification, to the extent practicable, of all relevant federal rules, which may duplicate, overlap, or conflict with the proposed rule; and 6) a description of any significant alternatives to the proposed regulatory action which accomplish the stated objectives of applicable statutes and would minimize any significant economic effects of the proposed regulatory action on small entities.

In addition to the information provided in this section, additional information on the expected economic effects of the proposed action is included in Chapter 4 and the RIR.

### 6.1 Statement of the need for, objective of, and legal basis for the proposed action

A discussion of the reasons why action by the agency is being considered is provided in Chapter 1. In summary, there is a need to decrease the likelihood of overfishing the lane snapper stock consistent with National Standard 1 of the Magnuson-Stevens Act. The objective of this proposed action is to modify the recreational and commercial size limit for lane snapper to better constrain harvest to the stock annual catch limit (ACL) and to prevent in-season closures by

reducing lane snapper landings. The Magnuson-Stevens Act serves as the legal basis for the proposed regulatory action. All monetary estimates in the following analysis are in 2023 dollars.

## **6.2 Description and estimate of the number of small entities to which the proposed action would apply**

This proposed action would modify the recreational and commercial size limit from 8-inch TL to 10-inch TL for lane snapper, which would apply to all commercial fishing businesses, for-hire fishing businesses, and recreational anglers that fish for lane snapper in federal waters of the Gulf of America (Gulf).

A valid commercial Gulf reef fish vessel permit is required in order for commercial fishing vessels to legally harvest lane snapper in the Gulf. At the end of 2020, 837 vessels possessed a valid commercial Gulf reef fish vessel permit. However, not all vessels with a commercial Gulf reef fish permit actually harvest lane snapper in the Gulf. From 2019 through 2023, the average number of vessels that commercially harvested lane snapper was 272. Ownership data regarding vessels that harvest lane snapper is incomplete. Therefore, it is not currently feasible to accurately determine affiliations between these particular vessels. Because of the incomplete ownership data, for purposes of this analysis, it is assumed each of these vessels is independently owned by a single business, which is expected to result in an overestimate of the actual number of businesses directly regulated by this proposed action. Thus, it is assumed this proposed action would regulate 272 commercial fishing businesses.

Although the proposed change to the lane snapper recreational size limit would apply to recreational anglers, the RFA does not consider recreational anglers to be entities. Small entities include small businesses, small organizations, and small governmental jurisdictions (5 U.S.C. 601(6) and 601(3)-(5)). Recreational anglers are not businesses, organizations, or governmental jurisdictions and so they are outside the scope of this analysis (5 U.S.C. 603).

A valid charter-headboat (for-hire) Gulf reef fish vessel permit is required in order for for-hire vessels to legally harvest lane snapper in the Gulf. The National Marine Fisheries Service (NMFS) does not possess complete ownership data regarding vessels that hold charter-headboat (for-hire) Gulf reef fish vessel permits, and thus potentially harvest lane snapper. Therefore, it is not currently feasible to accurately determine affiliations between these vessels and the businesses that own them. As a result, for purposes of this analysis, it is assumed each for-hire vessel is independently owned by a single business, which is expected to result in an overestimate of the actual number of for-hire fishing businesses regulated by this proposed action.

This proposed action would only be expected to alter the fishing behavior of for-hire businesses that target lane snapper in the Gulf (i.e., the behavior of for-hire businesses that incidentally harvest lane snapper in the Gulf is not expected to change). Therefore, only for-hire vessels that target lane snapper in the Gulf are expected to be directly affected by this proposed action. NMFS does not possess data indicating how many for-hire vessels actually harvest or target lane snapper in a given year. However, in 2020, there were 1,289 vessels with valid charter-headboat Gulf reef fish vessel permits. Further, lane snapper is primarily targeted in waters off the west

coast of Florida. Of the 1,289 vessels with valid charter-headboat Gulf reef fish vessel permits, 803 were homeported in Florida. Of these permitted vessels, 62 are primarily used for commercial fishing rather than for-hire fishing purposes and thus are not considered for-hire fishing businesses. In addition, 41 of these permitted vessels are considered headboats, which are considered for-hire fishing businesses. However, headboats take a relatively large, diverse set of anglers to harvest a diverse range of species on a trip, and therefore do not typically target a particular species. Therefore, it is assumed that no headboat trips would be canceled, and thus no headboats would be directly affected as a result of this proposed action. However, charter vessels often target lane snapper. Of the 803 vessels with valid charter-headboat Gulf reef fish vessel permits that are homeported in Florida, 700 of them are assumed to be charter vessels. Souza and Liese (2019) reported that 76% of charter vessels with valid charter-headboat permits in the Gulf were active in 2017 (i.e., 24% were not fishing). A charter vessel would only be directly affected by this proposed action if it is fishing. Given this information, the number of charter vessels that are likely to target lane snapper in a given year is 532. Thus, this proposed action is estimated to regulate 532 for-hire fishing businesses.

On December 29, 2015, NMFS issued a final rule establishing a small business size standard of \$11 million in annual gross receipts (revenue) for all businesses primarily engaged in the commercial fishing industry (NAICS code 11411) for RFA compliance purposes only (80 FR 81194, December 29, 2015). In addition to this gross revenue standard, a business primarily involved in commercial fishing is classified as a small business if it is independently owned and operated, and is not dominant in its field of operations (including its affiliates). From 2019 through 2023, the maximum annual gross revenue earned by a single commercial reef fish vessel during this time was about \$3.76 million, while the average annual gross revenue for a vessel commercially harvesting lane snapper was \$194,994. Based on this information, all commercial fishing businesses directly regulated by this proposed action are determined to be small entities for the purpose of this analysis.

For other industries, the Small Business Administration has established size standards for all major industry sectors in the U.S., including for-hire businesses (NAICS code 487210). A business primarily involved in for-hire fishing is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has annual receipts (revenue) not in excess of \$14 million for all its affiliated operations worldwide. NMFS does not have data to estimate the maximum gross revenue for charter vessels. However, the maximum annual gross revenue for a single headboat in the Gulf was about \$1.45 million in 2017 (D. Carter, SEFSC, pers. comm. 2025), and according to Savolainen et al. (2012), on average, annual gross revenue for headboats in the Gulf is about three times greater than annual gross revenue for charter vessels. Based on this information, all for-hire fishing businesses directly regulated by this proposed action are determined to be small businesses for the purpose of this analysis.

### **6.3 Description of the projected reporting, record-keeping and other compliance requirements of the proposed action**

This proposed action would not establish any new reporting, record-keeping, or other compliance requirements.

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

No federal rules have been identified that duplicate, overlap or conflict with the proposed action.

## 6.5 Significance of economic impacts on a substantial number of small entities

### Substantial number criterion

If implemented, this proposed action is expected to directly affect 272 of the 837 vessels with commercial Gulf reef fish permits, or approximately 33% of those commercial fishing businesses. Further, this proposed action is expected to directly affect 532 of the 1,227 for-hire fishing businesses with valid charter/headboat permits in the Gulf reef fish fishery, or approximately 43% of those for-hire fishing businesses. All regulated commercial and for-hire fishing businesses have been determined, for the purpose of this analysis, to be small entities. Based on this information, the proposed action is expected to affect a substantial number of small businesses.

### Significant economic effects

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

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

All entities directly regulated by this regulatory action have been determined to be small entities. Thus, the issue of disproportionality does not arise in the present case.

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

For vessels that commercially harvest lane snapper in the Gulf, currently available data indicates that economic profits are approximately 32% of annual average gross revenue. Given that their average annual gross revenue is \$194,994, annual average economic profit per vessel is estimated to be approximately \$62,398. The proposed action to modify the minimum size limit for lane snapper would decrease the total amount of lane snapper available for harvest by the commercial sector. Specifically, the proposed action is expected to reduce lane snapper commercial landings by 6,042 lb whole weight (ww). This decrease in commercial landings is expected to have a minimal effect on the average ex-vessel price due to a relatively high number of substitute products (e.g., imports, other reef fish species landed in the Gulf and South Atlantic, etc.). Thus, assuming the average ex-vessel price of \$3.47/lb ww from 2019-2023, annual gross revenue is expected to decrease by \$20,966 and economic profit is expected to decrease by

\$6,709. On a per vessel basis, annual gross revenue and economic profit are expected to decrease by \$77 and \$25, respectively.

According to Savolainen et al. (2012), which contains the most recent estimates of economic returns, including economic profits, in the for-hire sector, average annual economic profits are approximately \$29,000 per charter vessel. This proposed action is expected to lengthen the recreational season for lane snapper through the end of the year, while ensuring the stock ACL is not exceeded. Based on a predicted closure date of November 29 and an average daily rate of approximately 20 target trips per day under the status quo, it is estimated that up to 654 additional target trips would occur as a result of the proposed action. The trip net cash flow per angler trip is \$166 for charter vessels, as seen in Table 3.3.2.8. Multiplying that value by the number of additional target trips produces a value of \$108,564 for the charter vessels that target lane snapper. On a per vessel basis, economic profits are expected to increase by \$206. This assumes relatively high demand for lane snapper target trips and minimal effects on that demand from the proposed increase to the minimum size limit and the reduced probability of catching a legal fish. Therefore, these estimates should be considered upper bound economic benefits to for-hire fishing businesses.

## **6.6 Description of the significant alternatives to the proposed action and discussion of how the alternatives attempt to minimize economic impacts on small entities**

Two alternatives, including the status quo, were considered for the proposed action to modify the size limit for recreational and commercial lane snapper. The no action alternative would retain the recreational and commercial size limit of 8-inch total length (TL). Under the status quo minimum size limit, no changes in landings, effort, or direct economic effects would be expected on any small entities. This alternative was not selected by the Gulf Council because it would not decrease the likelihood of overfishing, nor reduce the likelihood of an in-season closures.

The second alternative to the proposed action would increase the recreational and commercial size limit to 12-inch TL for lane snapper. Compared to the proposed minimum size limit, 10-inches TL, this alternative would result in an additional estimated reduction in commercial landings of 14,673 lb ww, worth \$50,915 in ex-vessel revenue. Similar to the proposed minimum size limit, there would be no closure expected under a 12-inch TL, and thus no additional effects to for-hire fishing businesses would be expected, assuming the demand for for-hire trips remains the same. This alternative was not selected by the Gulf Council because it would have greater negative economic effects on commercial fishing businesses and recreational anglers than the proposed minimum size limit, and the goals of constraining harvest to the stock ACL to prevent overfishing and in-season closures would be met with proposed minimum size limit.

## CHAPTER 7. LIST OF PREPARERS

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

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## APPENDIX A. OTHER APPLICABLE LAW

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.) provides the authority for management of stocks included in fishery management plans (FMP) in federal waters of the exclusive economic zone (EEZ). However, management decision-making is also affected by a number of other federal statutes designed to protect the biological and human components of U.S. fisheries, as well as the ecosystems that support those fisheries. Major laws affecting federal fishery management decision-making include the Endangered Species Act (Section 3.3.3) and E.O. 12866 (Regulatory Planning and Review, Chapter 5). Other applicable laws are summarized below.

### **Administrative Procedure Act**

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

### **Coastal Zone Management Act**

Section 307(c)(1) of the federal Coastal Zone Management Act of 1972 (CZMA), as amended, requires federal activities that affect any land or water use or natural resource of a state’s coastal zone be conducted in a manner consistent, to the maximum extent practicable, with approved state coastal management programs. The requirements for such a consistency determination are set forth in the National Oceanic and Atmospheric Administration (NOAA) regulations at 15 CFR part 930, subpart C. According to these regulations and CZMA Section 307(c)(1), when taking an action that affects any land or water use or natural resource of a state’s coastal zone, NMFS is required to provide a consistency determination to the relevant state agency at least 90 days before taking final action.

Upon submission to the Secretary of Commerce, NMFS will determine if this framework action is consistent with the Coastal Zone Management programs of the states of Alabama, Florida, Louisiana, Mississippi, and Texas to the maximum extent possible. Their determination will then be submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management programs for these states.

### **Data Quality Act**

The Data Quality Act (Public Law 106-443) effective October 1, 2002, requires the government to set standards for the quality of scientific information and statistics used and disseminated by federal agencies. Information includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical, cartographic, narrative, or

audiovisual forms (includes web dissemination, but not hyperlinks to information that others disseminate; does not include clearly stated opinions).

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

Scientific information and data are key components of FMPs and amendments, and the use of best available information is the second national standard under the Magnuson-Stevens Act. To be consistent with the Magnuson-Stevens Act, FMPs and amendments must be based on the best information available. They should also properly reference all supporting materials and data and be reviewed by technically competent individuals. With respect to original data generated for FMPs and amendments, it is important to ensure that the data are collected according to documented procedures or in a manner that reflects standard practices accepted by the relevant scientific and technical communities. Data will also undergo quality control prior to being used by the agency and a pre-dissemination review.

### **National Historic Preservation Act**

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

Historical research indicates that over 2,000 ships have sunk on the Federal Outer Continental Shelf between 1625 and 1951; thousands more have sunk closer to shore in state waters during the same period. Only a handful of these have been scientifically excavated by archaeologists for the benefit of generations to come. Further information can be found at: <http://www.boem.gov/Environmental-Stewardship/Archaeology/Shipwrecks.aspx>

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

## **Executive Orders (E.O.)**

### **E.O. 12630: Takings**

The E.O. on Government Actions and Interference with Constitutionally Protected Property Rights that became effective March 18, 1988, requires each federal agency prepare a Takings Implication Assessment for any of its administrative, regulatory, and legislative policies and actions that affect, or may affect, the use of any real or personal property. Clearance of a regulatory action must include a takings statement and, if appropriate, a Takings Implication Assessment. The NOAA Office of General Counsel will determine whether a Taking Implication Assessment is necessary for this framework action.

### **E.O. 12962: Recreational Fisheries**

This E.O. requires federal agencies, in cooperation with states and tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods including, but not limited to, developing joint partnerships; promoting the restoration of recreational fishing areas that are limited by water quality and habitat degradation; fostering sound aquatic conservation and restoration endeavors; and evaluating the effects of federally-funded, permitted, or authorized actions on aquatic systems and recreational fisheries, and documenting those effects. Additionally, it establishes a seven-member National Recreational Fisheries Coordination Council (NRFCC) responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The NRFCC also is responsible for developing, in cooperation with federal agencies, States and Tribes, a Recreational Fishery Resource Conservation Plan - to include a five-year agenda. Finally, the E.O. requires NMFS and the United States Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

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

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

Regulations are already in place to limit or reduce habitat impacts within the Flower Garden Banks National Marine Sanctuary. Additionally, NMFS approved and implemented Generic Amendment 3 for Essential Fish Habitat (GMFMC 2005), which established additional habitat

areas of particular concern (HAPCs) and gear restrictions to protect corals throughout the Gulf. There are no implications to coral reefs by the actions proposed in this framework action.

### **E.O. 13132: Federalism**

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

No Federalism issues were identified relative to the action to modify the management of the recreational harvest of greater amberjack. Therefore, consultation with state officials under Executive Order 12612 was not necessary. Consequently, consultation with state officials under Executive Order 12612 remains unnecessary.

### **E.O. 13158: Marine Protected Areas**

This E.O. requires federal agencies to consider whether their proposed action(s) will affect any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural or cultural resource within the protected area. There are several marine protected areas, HAPCs, and gear-restricted areas in the eastern and northwestern Gulf. The existing areas are entirely within federal waters of the Gulf. They do not affect any areas reserved by federal, state, territorial, tribal or local jurisdictions.

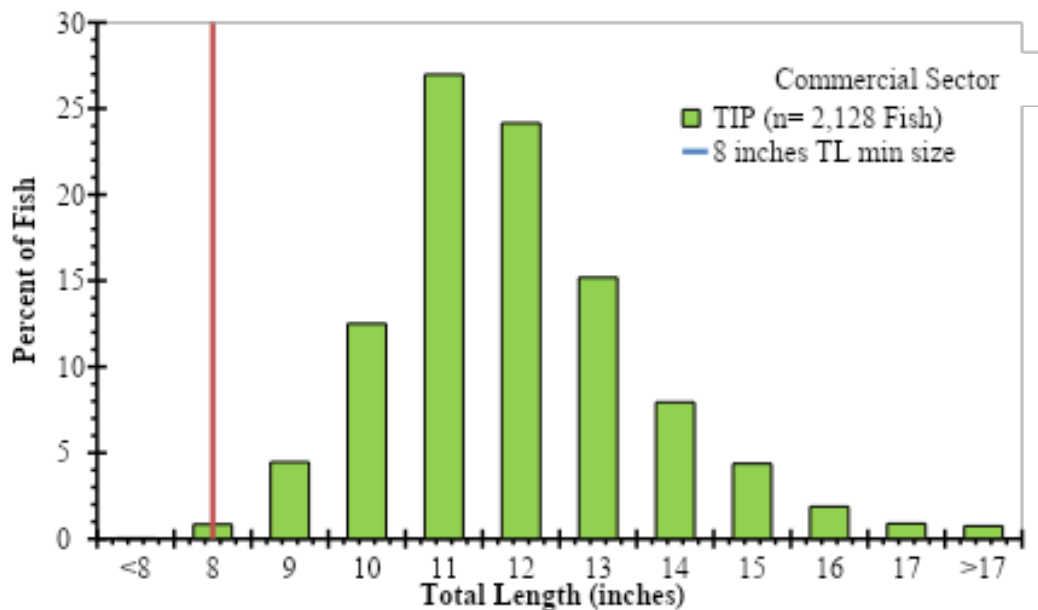
# APPENDIX B. GULF LANE SNAPPER MINIMUM SIZE LIMIT, RECREATIONAL BAG LIMIT, AND SEASON PREDICTION ANALYSIS

## Lane snapper Minimum Size Limit, and Season Prediction Analysis

The Gulf Council is considering changes to the lane snapper minimum size limit for both the commercial and recreational sector, and also changing the bag limit for the recreational sector. The lane snapper fishery has had some high landings in recent years which has led to closures due to the stock annual catch limit (ACL) being reached or projected to be reached. New regulations are being considered in hopes of reducing harvest and avoiding closures. The size and bag limit changes were analyzed and compared to predicted landings to determine if they will reduce landings and prevent landings from exceeding the stock ACL in the future.

### Minimum Size Limit Analysis for the Commercial Sector

The current minimum size limit for the commercial sector is 8 inches total length (TL) and the Gulf Council is considering increasing the minimum size limit to 10- and 12-inches TL. The Trip Interview Program (TIP) collects detailed commercial fisheries information at the individual trip level. TIP data has both lengths and weights for the lane snapper harvested in the commercial sector, however some lane snapper TIP samples only had length available. Weight estimates were generated for TIP lane snapper samples that only had length and no weight by applying the weight-length equation from SEDAR 49. Figure 1 provides the distribution of harvested lane snapper from the commercial sector from 2021 to 2023.



**Figure 1.** Distribution of the Gulf commercial lane snapper harvested by size bin. Data comes from the TIP program from 2021 through 2023. The red line is the current minimum size limit of 8 inches total length.

The stock ACL is set in pounds so a percent reduction of landings in pounds was done to match the ACL. Percent reductions in harvest weight were calculated by imposing the two potential minimum size limits of 10- and 12-inches total length. The analysis assumed that harvest of lane snapper less than 10- or 12-inches total length would cease because these fish would be released if the 10- or 12-inch total length size limit was implemented. Percent reductions in landings came from comparing the sum of the weight of the fish weights without the fish less than 10- or 12-inches total length to the total weight of all the fish using the equation of:

$$\text{Percent Reduction} = (\text{Adjusted Weight}-\text{Total Weight})/(\text{Total Weight})$$

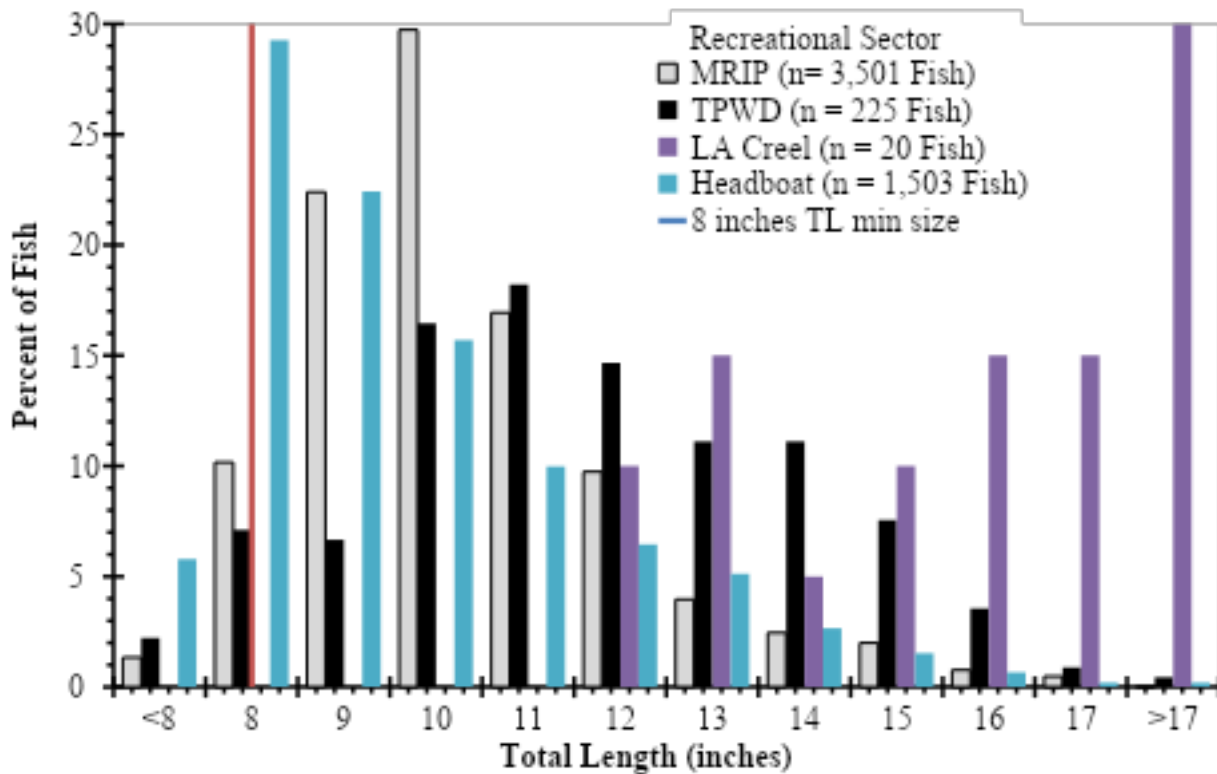
Where Adjusted Weight is the sum of the weight of all the lane snapper minus the weights from the lane snapper less than 10- or 12-inches total length, and Total Weight is the weight of all the lane snapper samples. The results of the percent reduction in the commercial landings for increasing the size limit from 8 to 10 and 12 inches by dataset are shown in Table 1.

**Table 1.** Estimated percent reduction in lane snapper commercial landings from increasing the minimum size limit from 8 to 10- or 12-inches total length. Data comes from the TIP program from 2021 to 2023. The current minimum size limit is 8 inches total length.

Size Limit	Percent Reduction in Landings
8 inches TL (Status Quo)	0.0%
10 inches TL	2.3%
12 inches TL	31.1%

#### *Minimum Size Limit Analysis for the Recreational Sector*

The current minimum size limit for the recreational sector is 8 inches total length (TL) and the Gulf council is considering increasing the minimum size limit to 10- and 12-inches TL. This potential regulation change to the recreational sector was analyzed with the Gulf recreational datasets of Texas Parks and Wildlife Department’s Marine Sport-Harvest Monitoring Program (TPWD), Louisiana Department of Wildlife and Fisheries’ recreational creel survey (LA Creel), Southeast Region Headboat survey (Headboat), and Marine Recreational Information Program (MRIP). The datasets were explored to determine the size of lane snapper that were harvested. Figure 2 provides the distribution of lane snapper harvested in the recent time period of 2021 through 2023.



**Figure 2.** Distribution of the lane snapper harvested in the recreational sector by size bin. Data comes from the recreational intercept data from TPWD, LA Creel, Headboat, and MRIP from 2021 through 2023. The red line is the current minimum size limit of 8 inches total length.

The stock ACL is set in pounds so a percent reduction of landings in pounds was done to match the ACL. The majority of the lane snapper harvest data only has lengths, so lengths were converted to weight using a lane snapper weight-length equation from SEDAR 49. Then percent reductions in harvest weight were calculated by imposing the two potential minimum size limits of 10- and 12-inches total length. The analysis assumed that harvest of lane snapper less than 10- or 12-inches total length would cease because these fish would be released if the 10- or 12-inch total length size limit was implemented. Percent reductions in landings came from comparing the sum of the weight of the fish weights without the fish less than 10- or 12-inches total length to the total weight of all the fish using the equation of:

$$\text{Percent Reduction} = \frac{(\text{Adjusted Weight} - \text{Total Weight})}{(\text{Total Weight})}$$

Where Adjusted Weight is the sum of the weight of all the lane snapper minus the weights from the lane snapper less than 10- or 12-inches total length, and Total Weight is the weight of all the lane snapper samples.

The results of the percent reduction in the recreational landings for increasing the size limit from 8 to 10 and 12 inches by dataset are shown in Table 2. LA creel had a 0% percent reduction because all of the recent lengths of lane snapper captured by this survey were greater than the size limits being considered. For the other three recreational landings surveys the minimum size limit of 12 inches is expected to have a large percent reduction in landings (>48%) because most of the lane snapper harvested had lengths less than 12 inches TL.

**Table 2.** Estimated percent reduction in the lane snapper landings for the four recreational surveys from increasing the minimum size limit from 8 to 10- or 12-inches total length. Data comes from the recreational intercept data from TPWD, LA Creel, Headboat, and MRIP from 2021 through 2023. The current minimum size limit is 8 inches total length.

Size Limit	TPWD	LA Creel	Headboat	MRIP
8 inches TL (Status Quo)	0.0%	0.0%	0.0%	0.0%
10 inches TL	13.8%	0.0%	32.7%	32.6%
12 inches TL	48.4%	0.0%	60.6%	79.2%

To make the size limit percent reductions by dataset easier to comprehend the size limit percent reductions were combined into one recreational sector percent reduction. This was done by weighting the percent reductions in Table 2 by the proportion of recreational landings generated by each dataset from 2021, 2022, and 2023. Table 3 has the result of the overall recreational sector lane snapper size limit reduction in landings.

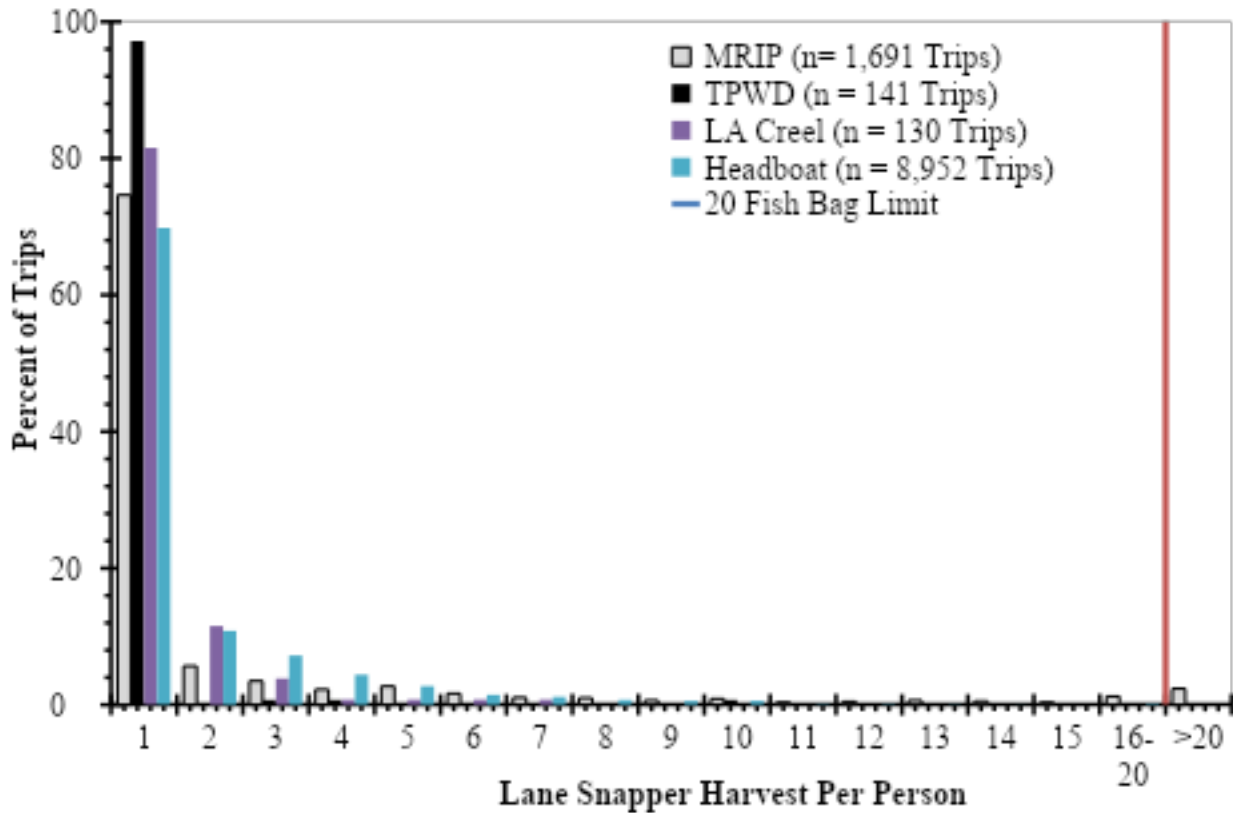
**Table 3.** Estimated percent reduction in the lane snapper landings for the overall recreational sector from increasing the minimum size limit from 8 to 10- or 12-inches total length. Data comes from the recreational intercept data from TPWD, LA Creel, Headboat, and MRIP from 2021 through 2023. The current minimum size limit is 8 inches total length.

Size Limit	Recreational Sector
8 inches TL (Status Quo)	0.0%
10 inches TL	31.83%
12 inches TL	76.46%

### *Bag limit for the Recreational Sector*

The current bag limit for the recreational sector has lane snapper included in the 20-reef fish aggregate bag limit. The aggregate bag limit includes lane snapper and the species of vermilion snapper, gray triggerfish, almaco jack, golden tilefish, goldface tilefish, and blueline tilefish. The Gulf council is considering reducing the bag limit for lane snapper within the aggregate bag limit with the options of only 2, 5, 10, or 15 lane snapper.

This potential bag limit regulation change to the recreational sector was analyzed with the Gulf recreational datasets of TPWD, LA Creel, Headboat, and MRIP. The datasets were explored to determine the number of lane snapper harvested per person. Figure 3 provides the distribution of lane snapper harvested per person in the recent time period of 2021 through 2023.



**Figure 3.** Distribution of the Gulf recreational lane snapper harvested per person for each recreational dataset. Data comes from the recreational intercept data from TPWD, LA Creel, Headboat, and MRIP from 2021 to 2023.

Lane snapper are currently part of the 20-reef fish aggregate bag limit that also includes: vermilion snapper, gray triggerfish, almaco jack, tilefish (golden), goldface tilefish, and blueline tilefish. An analysis of the 2021 through 2023 TPWD, LA Creel, Headboat, and MRIP data showed that less than 1% of the trips (n = 392 trips) reached the 20-reef fish aggregate bag limit when all seven species in the aggregate were included (Figure 4). Also, the majority of the trips (65%, 23,614 trips) harvested just 1 of the seven aggregate species on a trip. Since the current 20 fish bag limit is rarely met the other species should not be impacted by reducing the lane snapper bag limit within the 20-reef fish aggregate.



**Table 4.** Estimated percent reduction in lane snapper recreational landings for the four recreational surveys from changing the 20 fish bag limit to 2, 5, 10, and 15 lane snappers. Data comes from the recreational intercept data from TPWD, LA Creel, Headboat, and MRIP from 2021 through 2023. The current bag limit is 20 fish.

Bag Limit	TPWD	LA Creel	Headboat	MRIP
20 Lane Snapper (Status Quo)	0.0%	0.0%	0.0%	0.0%
2 Lane Snapper	10.7%	30.1%	40.0%	29.0%
5 Lane Snapper	3.8%	11.8%	14.4%	16.1%
10 Lane Snapper	0%	0%	1.6%	4.9%
15 Lane Snapper	0%	0%	<1%	<1%

To make the bag limit percent reductions by dataset easier to comprehend the bag limit percent reductions were combined into one recreational sector percent reduction. This was done by weighting the percent reductions in Table 4 by the proportion of recreational landings generated by each dataset from 2021, 2022, and 2023. Table 5 has the result of the overall recreational sector lane snapper bag limit reduction in landings.

**Table 5.** Estimated percent reduction in lane snapper recreational landings for the overall recreational sector from changing the 20 fish bag limit to 2, 5, 10, and 15 lane snappers. Data comes from the recreational intercept data from TPWD, LA Creel, Headboat, and MRIP from 2021 through 2023. The current bag limit is 20 fish.

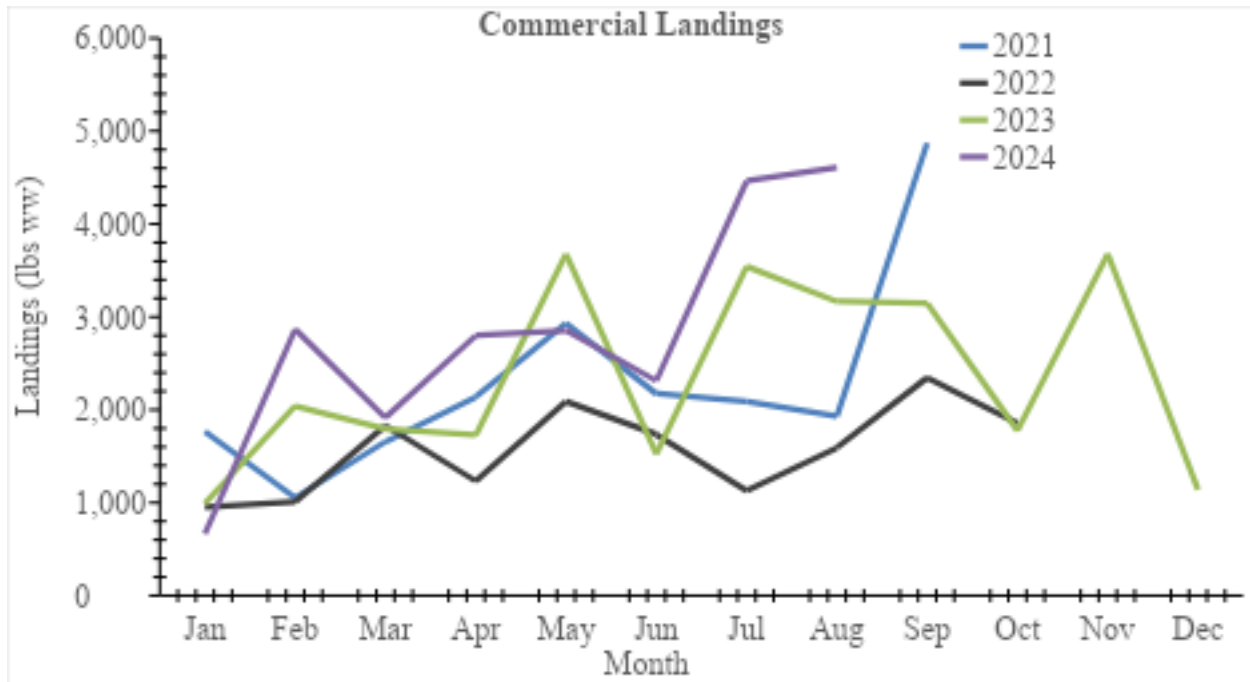
Bag Limit	Recreational Sector
20 Lane Snapper (Status Quo)	0.0%
2 Lane Snapper	29.2%
5 Lane Snapper	15.7%
10 Lane Snapper	4.6%
15 Lane Snapper	<1%

### Predicted Landings

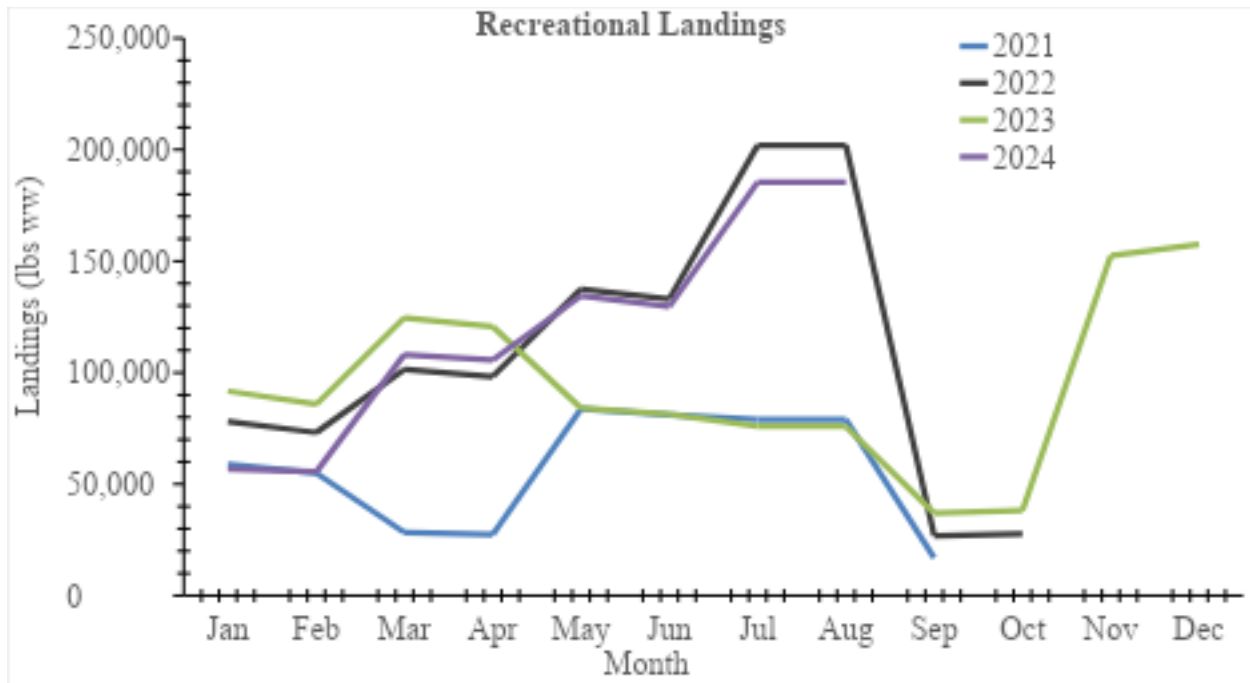
The lane snapper stock is monitored by combining the commercial and recreational landings against a single ACL. This stock has been closed three out of the past four years because the ACL was met or predicted to be met. Changes to the size limit and bag limit are being considered with the hope of preventing future closures of the lane snapper stock. The percent reductions from the size limit and bag limit changes done above are applied to predicted future landings to determine if the ACL will be met. Therefore, an estimate of predicted future landings are needed.

In October of 2024, an Abbreviated Framework increased the ACL to 1,088,873 pounds whole weight (lbs ww). The combined commercial and recreational landings for each year from 2020, 2021, and 2022 were not high enough to exceed the new ACL. However, the more recent years of 2023 and 2024 have higher lane snapper stock landings. Predicted future landings came from the 2023 and available 2024 landings because this assumes future landings will reflect the most recent landings. At this time available 2024 commercial and recreational landings are available

from January 1 through August 31, 2024. The commercial landings for the past three years of available and complete data (2021, 2022, and 2023), and available 2024 landings are shown in Figure 5. The recreational landings are generated in two-month waves (e.g., January/February, April/May) but were converted to monthly landings to match the commercial landings. The recreational landings were converted from a two-month wave to monthly landings by assuming uniform landings within each individual wave. Also, the MRIP Fishing Effort Survey (FES) data was used because the most recent ACL set in the Abbreviated Framework was based on MRIP FES data. The recreational landings for the past three years of available and complete data (2021, 2022, and 2023), and available 2024 landings are shown in Figure 6.

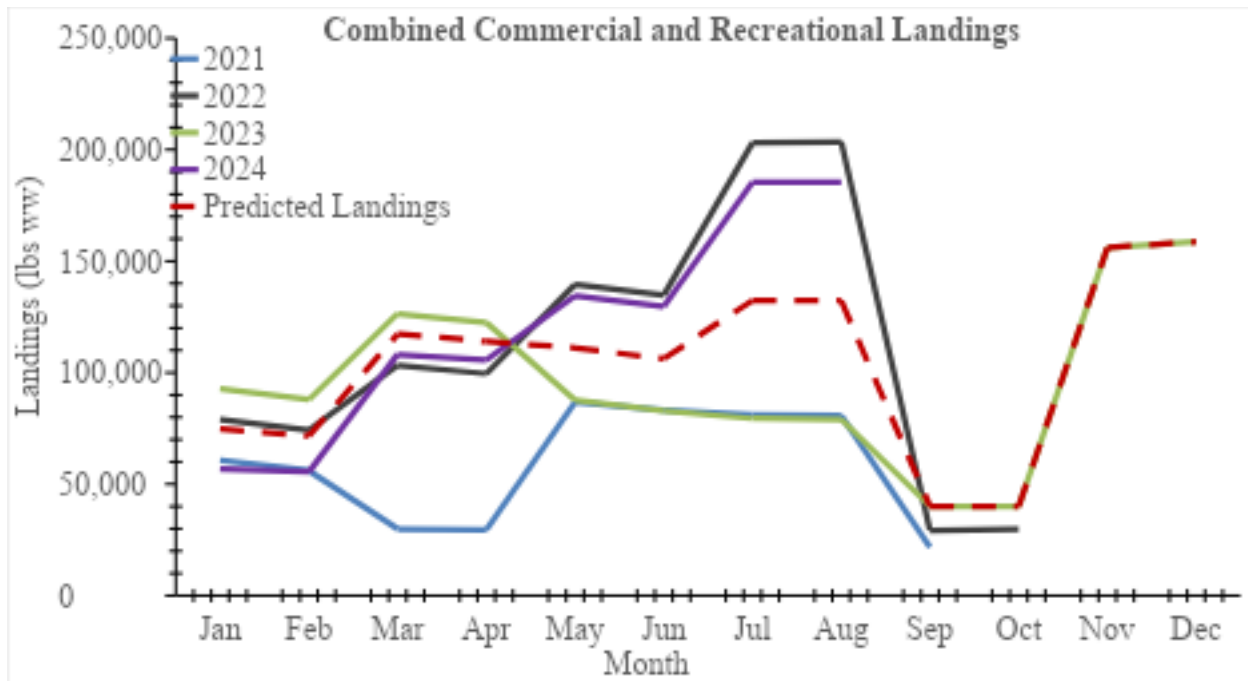


**Figure 5.** lane snapper commercial landings by month from 2021, 2022, 2023, and 2024. Landings in months with a closure were removed and not included in the figure. At this time 2024 landings are only available from January 1 through August 31, 2024.



**Figure 6.** lane snapper recreational landings by month from 2021, 2022, 2023, and 2024. Landings in months with a closure were removed and not included in this figure. At this time the 2024 landings are only available from January 1 through August 31, 2024.

Predicted landings came from a two-year average of available monthly landings from 2023 and 2024, and just 2023 monthly landings when 2024 landings are not available. As discussed earlier, these recent years of data were chosen since the lane snapper stock is displaying higher overall landings in the 2023 and 2024 years than in past years. lane snapper stock landings from 2020, 2021, and 2022 were low and would not result in an ACL overage. The predicted monthly landing from January 1 through August 31 landings came from average monthly landings of 2023 and 2024. Predicted monthly landings form September 1 through December 31 were 2023 monthly landings. The lane snapper stock is monitored with the combined commercial and recreational landings. Figure 7 provides the combined landings and also the predicted landings.



**Figure 7.** lane snapper commercial and recreational landings by month from 2021, 2022, 2023, 2024, and predicted landings. Landings in months with a closure were removed and not included in this figure.

*Combining reductions from size and bag limits to predicted landings to evaluate if ACL will be met*

The percent reductions for the size limit was done for the commercial sector and for the four recreational surveys. The weight these size limit percent reductions are applied to the predicted landings are based on the contribution the commercial sector and the four recreational surveys make to the total commercial and recreational landings. Table 4 provides the contribution the commercial sector and the four recreational surveys made to the total lane snapper landings from 2021, 2022, and 2023. The majority (>90%) of the lane snapper stock landings come from MRIP. The percent reductions from the bag limit options were only applied to the recreational landings and followed the same data weighting set in Table 6 but did not modify the commercial landings. The predicted landings per day were cumulatively summed to determine when and if the ACL (1,088,873 lbs ww) was predicted to be met. Table 7 provides the closure dates when and if the ACL was predicted to be met. The ACL is expected to be met as early as November 29 or the ACL is not expected to be met.

**Table 6.** lane snapper total landings (commercial and recreational) for the commercial sector and the four recreational surveys from 2021, 2022, and 2023. The landings are in pounds whole weight (lbs ww) and percent of the total landings.

Data	Landings (lbs ww)	Percent
Commercial Sector	67,625	2.4%
TPWD	3,581	<1%
LA Creel	6,916	<1%
Headboat	155,345	5.4%
MRIP	2,627,821	91.8
Total	2,861,289	100%

**Table 7.** Predicted closure dates when the ACL is expected to be met for the lane snapper stock with changes to the size and bag limits. Closure dates are when the ACL (1,088,873 lbs ww) is expected to be met.

Regulation	Closure Date
<b>20 Lane Snapper Bag Limit (Status Quo)</b>	
8 inches TL (Status Quo)	29-Nov
10 inches TL	No Closure
12 inches TL	No Closure
<b>2 Lane Snapper Bag Limit</b>	
8 inches TL (Status Quo)	No Closure
10 inches TL	No Closure
12 inches TL	No Closure
<b>5 Lane Snapper Bag Limit</b>	
8 inches TL (Status Quo)	10-Dec
10 inches TL	No Closure
12 inches TL	No Closure
<b>10 Lane Snapper Bag Limit</b>	
8 inches TL (Status Quo)	3-Dec
10 inches TL	No Closure
12 inches TL	No Closure
<b>15 Lane Snapper Bag Limit</b>	
8 inches TL (Status Quo)	30-Nov
10 inches TL	No Closure
12 inches TL	No Closure

This analysis assumes the high lane snapper stock landings that were observed in 2023 and 2024 will continue. If future landings are lower and similar to the 2020, 2021, and 2022 lane snapper stock landings then the ACL is not expected to be met even without any changes to the size or bag limits. However, if future landings are similar to the landings in 2023 and 2024 then the

regulation changes of 10- and 12-inch size limits for the stock and a 2 lane snapper bag limit for the recreational sector are expected to prevent the ACL from being met.

**References**

SEDAR 49. 2016. SEDAR 49. Gulf of Mexico Data-limited Species: Red Drum, Lane Snapper, Wenchman, Yellowmouth Grouper, Speckled Hind, Snowy Grouper, Almaco Jack, Lesser Amberjack. North Charleston, South Carolina.

## APPENDIX C. CONSIDERED BUT REJECTED

### January 2025 Council Meeting:

The Gulf Council (Council) chose to move Action 2, modification to the lane snapper recreational bag limit, to the Considered but Rejected Appendix. The Council determined that this action in addition to Action 1 was not necessary to achieve the Council's intent of constraining landings to the stock annual catch limit and maintaining an open season year-round.

### Action 2 – Modify the bag limit for recreational Gulf lane snapper

**Alternative 1:** No Action. Maintain Gulf lane snapper within the recreational aggregate bag limit of 20 reef fishes.

**Alternative 2:** Within the recreational Gulf reef fish aggregate bag limit of 20 fishes, modify the bag limit to allow for no more than 2 Gulf lane snapper.

**Alternative 3:** Within the recreational Gulf reef fish aggregate bag limit of 20 fishes, modify the bag limit to allow for no more than 5 Gulf lane snapper.

**Alternative 4:** Within the recreational Gulf reef fish aggregate bag limit of 20 fishes, modify the bag limit to allow for no more than 10 Gulf lane snapper.

**Alternative 5:** Within the recreational Gulf reef fish aggregate bag limit of 20 fishes, modify the bag limit to allow for no more than 15 Gulf lane snapper.