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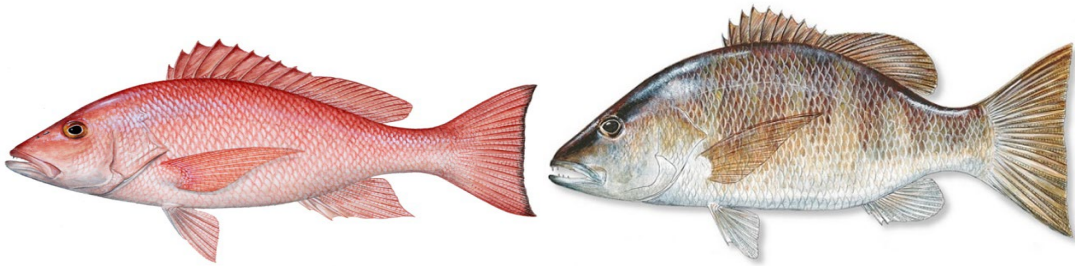
Update to Red Snapper Calibrations and Gray Snapper Catch Limits



Final Framework Action
Under the Fishery Management Plan for
Reef Fish Resources of the Gulf of Mexico

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

December 2023

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ENVIRONMENTAL ASSESSMENT COVER SHEET

Framework Action to the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico: Update to Red Snapper and Gray Snapper Catch Limits, including Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Act Analysis.

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This Environmental Assessment is being prepared using the 2020 CEQ NEPA Regulations as modified by the Phase I 2022 revisions. The effective date of the 2022 revisions was May 20, 2022 and reviews begun after this date are required to apply the 2020 regulations as modified by the Phase I revisions unless there is a clear and fundamental conflict with an applicable statute. This Environmental Assessment began on February 16, 2023, and accordingly proceeds under the 2020 regulations as modified by the Phase I revisions.

ABBREVIATIONS USED IN THIS DOCUMENT

ABC	acceptable biological catch
ACL	annual catch limit
AM	accountability measure
BEA	Bureau of Economic Analysis
BiOp	biological opinion
BLL	bottom longline
CFR	code of federal regulations
CHTS	Coastal Household Telephone Survey
CFpA	cash flow per angler
Council	Gulf of Mexico Fishery Management Council
CS	consumer surplus
CV	coefficient of variation
Data Calibration FA	Gulf of Mexico Red Snapper Recreational Data Calibration and Recreational Catch Limits Framework Action
DLMToolkit	Data Limited Methods Toolkit
DPS	distinct population segment
EA	environmental assessment
EEZ	exclusive economic zone
EIS	economic impact statement
EFH	essential fish habitat
EFP	exempted fishing permit
EJ	environmental justice
E.O.	executive order
ESA	Endangered Species Act
F	fishing mortality rate
FES	fishing effort survey
FMP	Fishery Management Plan
GDP	Gross Domestic Product
GRSC	Great Red Snapper Count
GSAD	Gulf and South Atlantic Dealers
Gulf	Gulf of Mexico
gw	gutted weight
HCR	harvest control rule
IFQ	individual fishing quota
IPCC	Intergovernmental Panel on Climate Change
LDWF	Louisiana Department of Wildlife and Fisheries
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MFMT	maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
mp	million pounds
MRIP	Marine Recreational Information Program
MSST	minimum stock size threshold
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

OFL	overfishing limit
PAH	polycyclic aromatic hydrocarbons
PS	producer surplus
PW	product weight
Reef Fish FMP	Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico
RFA	Regulatory Flexibility Act
RFFA	reasonably foreseeable future actions
RIR	regulatory impact review
RQ	regional quotient
Secretary	Secretary of Commerce
SEDAR	Southeast Data and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SPR	spawning potential ratio
SRHS	Southeast Region Headboat Survey
SSC	Scientific and Statistical Committee
TAC	total allowable catch
TL	total length
TNR	trip net revenue
TPWD	Texas Parks and Wildlife Department
tpy	tons per year
UCB	uncharacterized bottom
VOC	volatile organic compounds
VMS	vessel monitoring system\
ww	whole weight

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CHAPTER 1. INTRODUCTION

1.1 Background

The Gulf of Mexico (Gulf) red snapper and gray snapper stocks are managed under the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP). Each of the five Gulf states is allocated a portion of the red snapper private angling component annual catch limit (ACL) and delegated the authority to set the fishing season, bag limit, and size limit for the private angling component of the recreational sector. Because the states estimate recreational catch using different methodologies, the estimates produced by the states are not comparable to each other or the federal estimates. Therefore, calibration ratios were adopted to convert the state specific ACLs into the same units[1] as each states' landings estimates (GMFMC, 2022).

Gray snapper is managed as a stock, with a combined ACL for the recreational and commercial sectors. The Gulf of Mexico Fishery Management Council's (Council) Scientific and Statistical Committee (SSC) reviewed the results of Southeast Data, Assessment, and Review 75 (SEDAR 75 2022) during its January 2023 meeting. The SSC determined that the assessment was consistent with the best scientific information available.

This document will consider changes to the Gulf red snapper calibration ratios for Alabama, Florida, and Mississippi, and will consider updates to catch limits for Gulf gray snapper.

1.2 Background: Red snapper private recreational data collection and calibrations

The red snapper stock is currently in a rebuilding plan. Consistent with this rebuilding plan, both commercial and recreational catch limits have been allowed to increase as the stock has recovered.

In 2015, the recreational red snapper sector was divided into a private angling component and a federal for-hire component (GMFMC 2014), which receive 57.7% and 42.3% of the total recreational ACL, respectively. The federal for-hire component consists of fishermen fishing from vessels with a federal charter/headboat permit for Gulf reef fish and is unaffected by the actions considered in this framework action. The private angling component consists of fishermen fishing from privately owned and rented vessels, and for-hire vessels (charter boats and headboats) without a federal permit (i.e., state-licensed for-hire vessels). For-hire vessels without federal permits are restricted to fishing for red snapper in state waters.[2]

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[1] Although the state and federal surveys generate estimates measured in pounds of fish, these estimates are not directly comparable, as described above. To signify that the estimates use different scales, this document uses the term "units" to differentiate between the federal and various state catch limits.

[2] Federal waters refer to the area extending from the seaward boundaries of the Gulf states of Alabama, Florida, Louisiana, Mississippi, and Texas, as those boundaries have been defined by law, out to 200 nautical miles (nm)

Beginning in 2014, the Gulf states began establishing recreational monitoring programs for red snapper landed by anglers from their state with the exception of Texas, which has always had its own monitoring program.[3] However, each of these monitoring programs is unique and does not produce results that are comparable to each other or to federal estimates generated by the Marine Recreational Information Program (MRIP). In 2022, NMFS published a final rule that implemented ratios to be applied to state catch limits (except for Texas) that adjusted the state catch limits to account for the monitoring programs used by each Gulf state (GMFMC, 2021). This action would revise those ratios (and thus associated catch limits) for Alabama, Florida, and Mississippi, based on updated information.

Red Snapper Federal Recreational Data Collection and Recalibration

NMFS created the Marine Recreational Fisheries Statistics Survey (MRFSS) shortly after the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) mandated a national program for the management of U.S. fishery resources (Papacostas and Foster 2018). MRFSS estimates are available beginning in 1981 for the catch, effort, and participation of U.S. recreational fishing, including for Gulf red snapper. This survey included both offsite telephone surveys to collect information about recreational fishing activity and onsite interviews at marinas and other recreational access points to collect information about the fish that were caught. In response to a peer-review by the National Research Council (2006), MRFSS was replaced by MRIP to meet increasing demand for more precise, accurate, and timely recreational catch estimates.

MRIP introduced a new survey design for the Access Point Angler Intercept Survey (APAIS) in 2013. This new design addressed concerns regarding the validity of the survey approach; specifically, that trips recorded during a given time period are representative of trips for a full day (Foster et al. 2018). The more complete temporal coverage with the new survey design provided for consistent increases or decreases in APAIS angler catch rate statistics, which are used in stock assessments and management, for at least some species (NOAA 2019).

MRIP also transitioned from the legacy Coastal Household Telephone Survey (CHTS) to a new mail survey (Fishing Effort Survey [FES]). Launched in 2015, FES replaced CHTS in 2018. Both survey methods collect data needed to estimate marine recreational fishing effort (number of fishing trips) by shore and private/rental boat anglers on the Atlantic and Gulf coasts. CHTS used random-digit dialing of homes in coastal counties to contact fishermen. The new mail-based FES uses fishing license and registration information as one way to identify and contact fishermen (supplemented with data from the U.S. Postal Service). NMFS conducted side-by-

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from shore. State waters refer to the area from shore out to the seaward boundary of each state. For the purpose of reef fish management, state waters extend 9 nm from shore for all five Gulf states.

[3] The survey designs used in Louisiana, Mississippi, Alabama, and Florida have been certified by NMFS (https://www.fisheries.noaa.gov/topic/recreational-fishing-data/ensuring-sound-science). This certification means that NMFS has evaluated and accepted the statistical rigor of a recreational fishing survey design, but it does not mean that the estimates produced by the state surveys are equivalent to the MRIP-CHTS estimates or are appropriate to use for management, since each survey design is subject to various methodological assumptions and methods that could affect estimates of catch and effort.

side testing of CHTS and FES from 2015 to 2017 to develop a calibration model for transitioning between the two data currencies. Landings estimates since 2018 are back-calculated from MRIP-FES to MRIP-CHTS for quota monitoring purposes because red snapper catch limits were developed using MRIP-CHTS data.

Reef Fish Amendments 50(A-F)

In 2017, the Council began working on a series of amendments to create a state management program for red snapper that would allow each state to set various management measures that apply to private anglers and state permitted charter vessels landing red snapper in that state. This comprehensive process included the development of six amendments (Amendments 50A-F) for the Reef Fish FMP, including a Program Amendment (GMFMC 2019a) and five individual state amendments, one for each Gulf state (GMFMC 2019b-f). NMFS published a final rule implementing these amendments in 2020 (85 FR 6819, February 6, 2020). The rule allocated each state a portion of the red snapper private angling component ACL and required each state to constrain landings to its ACL.

State Fishery-Dependent Reporting Programs and Need for Calibration

Under state management, each state uses its own data collection program to estimate private angler red snapper harvest and constrain landings to its state specific ACL. However, NMFS has observed differences (sometimes substantial) between federal estimates of recreational catch and each state's own estimate. Specifically, the Alabama and Mississippi surveys tend to generate much lower landings estimates than MRIP-CHTS. Further, the red snapper catch limits, such as the overfishing limit (OFL) and total recreational ACL, are based, in part, on private-angling landings estimated using the federal data collection system, and NMFS uses the estimates from the federal survey to determine whether landings exceed the total recreational ACL (quota) and the stock OFL. Therefore, there is a need to calibrate state and federal landing estimates. The calibration allows estimates produced using one method to be compared to the estimates produced using a different method. In the case of the red snapper, calibrations facilitate the conversion of ACLs in MRIP-CHTS units to the state survey units, which are used to monitor harvest. In July 2019, NMFS published a white paper[4] detailing the data available and the need for calibration of the Gulf state survey-generated catch and effort data if they are to be considered for use in stock assessment models.

Initial Red Snapper Calibration Determination

In January of 2023, NMFS implemented a framework action under the Reef Fish FMP (GMFMC 2022) that applied calibration ratios to the federal ACLs for each state by which states would manage to in their own units. The calibration ratios that are currently in place are in Table 1.1.1.

[4] https://media.fisheries.noaa.gov/dam-migration/94100569.pdf

Table 1.1.1. Current calibration for each of the Gulf states. The ratio is multiplied by the state-specific federal ACL to get state ACLs in each state's units.

State	Ratio of state landings to MRIP-CHTS landings
Florida	1.0602
Alabama	0.4875
Mississippi	0.3840
Louisiana	1.06
Texas	1*

*No calibration adjustment is made to Texas's data because Texas anglers have never participated in the NMFS recreational data collection surveys.

Alabama's Snapper Check to MRIP-CHTS ratio was calculated from the ratio of the means of the 2018-2019 landings in pounds (lb), and was equal to 0.4875. For Florida and Mississippi, two ratios were used to convert from the state surveys to MRIP-CHTS. Both Florida and Mississippi used the mean of a three-year (i.e., 2015-2017) time series of MRIP-FES to MRIP-CHTS red snapper private mode landings. For Florida, private mode red snapper landings from May 2015 through December 2019 were used to estimate a Gulf Reef Fish Survey (GRFS; now, State Reef Fish Survey [SRFS]) to MRIP-FES ratio. When the Florida ratios were combined, the result was a ratio of 1.0602 between GRFS and MRIP-CHTS. The Mississippi Tails n' Scales (TNS) to MRIP-FES ratio was based on the mean red snapper landings from 2018 and 2019. When the two ratios were combined, the result was a TNS to MRIP-CHTS ratio of 0.3840. Louisiana only had one year of MRIP data (2015) from which to generate its ratio of state survey (LA Creel) data to MRIP-CHTS, which resulted in a ratio of 1.06. No ratio adjustment was available for Texas because catch information collected by the Texas Parks and Wildlife Division is used in the SEDAR stock assessment without modification. The SSC concluded that the methods used to generate conversion ratios between Gulf state surveys and MRIP-CHTS data are appropriate for the monitoring of the red snapper state-specific ACLs (Table 1.1.1).

Updating Red Snapper Calibrations for Mississippi, Alabama, and Florida

At its June 2022 meeting, the Council directed the SSC to review state private recreational red snapper calibration ratios using more recent state survey data and provide a recommendation to the Council on change(s) to ratios, if necessary, prior to the January 2023 Council meeting. State agency staff from Mississippi, Alabama, and Florida analyzed contemporary landings data and produced updated calibration ratios. A summary of each state's presentation and subsequent SSC discussions can be found in the January 2023 SSC meeting summary report.[5] The SSC reviewed the proposed calibration using the following criteria:

- Is the proposed revised calibration ratio calculated in a method that is not dissimilar from that which was approved as consistent with the best scientific information available (BSIA) by the SSC in August 2022?

[5] https://gulfcouncil.org/wp-content/uploads/Gulf-Standing-RF-Socio-Eco-SSC-Summary-Jan-2023-01202023.pdf

- Is the justification for the year(s) and MRIP waves(s) recommended for calculating the proposed revised calibration ratio sufficient? If not, describe why and if possible, offer alternatives.
- Are there any additional clarifications necessary for considering a state's proposed revised calibration ratio as being consistent with BSIA?

The SSC provided rationale and recommended updated calibration values for all three states, which are summarized below.

Florida

Florida did not select a preferred method for updating calibrations, relying instead on the judgment of the SSC to determine the most appropriate time series. The SSC discussed potential changes to Florida's calibrations and agreed with Florida's justification for excluding 2020 due to disruption of the catch portion of the survey during the COVID-19 pandemic. In addition, the SSC discussed the merits of not using 2015 – 2017 data due to the inclusion of the CHTS telephone survey, which included biases not in the current survey. The SSC discussed whether it was more appropriate to sum the landings between the surveys and then determine the ratio, or to average the ratios for the years considered. The SSC noted that the direction from NOAA Office of Science and Technology was to sum the landings between the surveys and then determine the ratio.

The SSC noted that, while Florida saw higher proportional standard errors (PSE) for the option of including only 2018, 2019, and 2021 data, the data were still appropriate for use in calculating the conversion ratio. The SSC recommended that the proposed Florida calibration from SRFS to MRIP-CHTS for the private angling component of red snapper using data from 2018, 2019, and 2021 to determine the updated calibration ratio of 1.34. In addressing the terms of reference, the SSC found that the methodology used by Florida was not dissimilar to that proposed as BSIA in August 2020. The SSC recommended using 2018, 2019, and 2021 for Florida's updated calibration ratio based on the aforementioned justification. After discussing the changing relationship between MRIP-CHTS and MRIP-FES from 2015 to 2021, the SSC sought no further clarification on Florida's proposal.

Alabama

Alabama's preferred method for updating calibrations was to include data solely from 2020 and 2021. Alabama reported that the number of trips estimated to be taken in 2018 and 2019 were more than for 2020 and 2021. The SSC questioned whether it was appropriate for Alabama to exclude 2018 and 2019 data, solely based on the calibration ratio for 2018 and 2019 being lower. The SSC noted that there was not a significant methodological change in sampling between 2018 and 2021, and that the rationale for including 2020 was solid, given that Alabama's angler intercepts and effort survey were functioning as intended during 2020. Daily effort, daily harvest, and red snapper body length and average weight of landed fish declined in 2020 and 2021 compared to 2018 and 2019.

Alabama reported that there were 28 days of recreational red snapper fishing in 2018, 34 days in 2019, 43 days in 2020, and 124 days in 2021. The Alabama representative added that longer season durations reduce the propensity for derby fishing behavior, resulting in lower daily estimates of catch and effort. The SSC noted that management was consistent from 2018 – 2021, but the correlation between Snapper Check data and MRIP-CHTS data was diverging with time, and Alabama acknowledged that the reason for that changing relationship should be investigated. The SSC discussed whether 2021 may be more different from 2018 – 2020, given the near three-fold increase in the 2021 fishing season duration, and in the daily estimates of catch and effort. However, the SSC concluded that 2018 – 2021 were similar enough in most respects to be considered together.

The SSC recommended using Alabama Snapper Check recreational red snapper data from 2018 through 2021, resulting in an updated calibration ratio to 0.548. In addressing the terms of reference, the SSC found that the methodology used by Alabama was not dissimilar from that proposed as BSIA in August 2020. The SSC did not think there was adequate justification for using only 2020 and 2021 for Alabama's calibration ratio.

Mississippi

Mississippi's preferred scenario for updating the calibration ratio from Tails n' Scales data to federal MRIP-CHTS data uses only waves 3 and 4 from 2018 – 2020. Mississippi reported the magnitude of catch in MRIP estimates for Wave 3 in 2019 and 2021 were both implausibly high, but accepted including 2019 to have a consistent, three-year time series to inform its calibration. The SSC discussed the propriety of including waves 3 and 4 from 2019 but not 2021 to inform calibration, and ultimately concluded that the method was acceptable. They noted that it was unlikely there was much risk to the red snapper stock in recommending Mississippi's proposal, versus also including waves 3 and 4 from 2021.

The SSC recommended that the proposed Mississippi calibration from Tails n' Scales to MRIP-CHTS use data from waves 3 and 4 from 2018-2020. The updated calibration ratio is 0.503. In addressing the terms of reference, the SSC found that the methodology used by Mississippi was not dissimilar from that proposed as BSIA in August 2020. The SSC agreed with excluding 2021 due to the implausibility of the MRIP estimate for Wave 3, and accepted the justification provided by Mississippi for using only waves 3 and 4 from 2018-2020.

Calibration Update Summary

With these recommendations, red snapper private recreational calibration ratios would change for Florida, Alabama, and Mississippi with the initial calibration ratios being retained for Louisiana and Texas (Table 1.1.2).

Table 1.1.2. Updated calibration ratios indicated as an appropriate method for quota monitoring by the SSC to convert state landings data collected in their respective state-specific data collection program to MRIP-CHTS units for monitoring the state ACLs.

State	Ratio of state landings to MRIP-CHTS landings
Florida	1.34
Alabama	0.548
Mississippi	0.503
Louisiana	1.06†
Texas	1*

†Calibration ratio not updated.
*No calibration adjustment is made to Texas's data because Texas anglers have never participated in the NMFS recreational data collection surveys.

Current Red Snapper landings and management

The current red snapper catch limits were established in a June 2023 framework action (GMFMC 2022). NMFS published a final rule that became effective July 10, 2023, that updated catch limits as outlined in Table 1.2.4.

Table 1.2.4. Current Gulf red snapper catch limits by type and sector in pounds whole weight (MRIP-CHTS units for recreational catch limits) as of July 10, 2023.

Catch Limit Type	Current Catch Limits	Calculation
OFL	18,910,000	N/A
ABC	16,310,000	13.7% less than OFL
Total ACL	16,310,000	ACL = ABC
Commercial ACL	8,318,100	51% of ABC
Recreational ACL	7,991,900	49% of ABC
Federal For-Hire ACL	3,380,574	42.3% of Recreational ACL
Federal For-Hire ACT	3,076,322	9% less than For-Hire ACL
Private Angling ACL	4,611,326	57.7% of Recreational ACL
Private Angling ACT*	*3,689,061*	*20% below Private Angling ACL*
Florida ACL	2,066,889	44.822% of Private Angling ACL
Alabama ACL	1,212,687	26.298% of Private Angling ACL
Mississippi ACL	163,702	3.55% of Private Angling ACL
Louisiana ACL	881,686	19.12% of Private Angling ACL
Texas ACL	286,363	6.21% of Private Angling ACL

* The private angling ACT is not currently used for management, but remains in place as part of the default federal regulations that would apply in the event a state's delegation is no longer in effect.

1.3 History of Management: Red snapper

The **Fishery Management Plan (FMP) for Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP)** was implemented in November 1984. The original list of species included in the management unit consisted of snappers, groupers, and sea basses. This summary focuses on management actions pertinent to catch limits of red snapper. A complete history of management for the **Reef Fish FMP** is available on the Council's website[6] including other actions affecting red snapper management (GMFMC 1984).

In 1990, **Amendment 1** established the first red snapper rebuilding plan. From 1990 through 2009, red snapper harvest was managed using an annual total allowable catch (TAC), which was divided 51% to the commercial and 49% to the recreational based on the average of historical landings during 1979 through 1987. Amendment 1 also established a commercial red snapper quota of 3.1 million pounds (mp) whole weight (ww). There was no recreational quota specified, only a bag limit of seven fish and a minimum size limit of 13 inches total length (TL) (GMFMC 1989). Based on the 51:49 commercial to recreational sector allocation, the commercial quota implied a TAC of approximately 6.1 mp ww in 1990, followed by explicit TACs of 4.0 mp ww in 1991 (GMFMC 1991) and 1992, 6.0 mp ww in 1993 through 1995, and 9.12 mp ww from 1996 through 2006. The TAC was reduced to 6.5 mp ww in 2007 and 5.0 mp ww in 2008 and 2009 (GMFMC 1990).

The **Generic Sustainable Fisheries Act Amendment** (GMFMC 1999) required the establishment of quotas for recreational and commercial fishing that, when reached, result in a prohibition on the retention of fish caught for each sector for the remainder of the fishing year. With the establishment of a recreational quota in 1997, the NMFS Southeast Regional Administrator was authorized to close the recreational season for each species when the quota is reached, as required by the Magnuson-Stevens Act.

In 2006, **Amendment 26** established a red snapper individual fishing quota (IFQ) program for the commercial sector. Commercial fishermen received red snapper shares based on their catch history. Allocation of the annual commercial harvest of red snapper is awarded to red snapper IFQ shareholders each year based on the commercial ACL and the percentage of shares they hold. They are then able to fish that allocation throughout the year until they run out of allocation. Both shares and allocation are transferable, so a fisherman may purchase shares or allocation from others during the fishing year (GMFMC 2006).

From 2010 through 2012, the SSC recommended the red snapper acceptable biological catch (ABC) at 75% of the OFL and the Council set the ACL equal to the ABC (GMFMC 2012). In 2010, the total ACL was increased to 6.945 mp ww. This increased the commercial quota from 2.550 mp ww to 3.542 mp ww and the recreational quota from 2.450 mp ww to 3.403 mp ww. In 2011, the ACL was raised to 7.185 mp ww, resulting in a 3.664 mp ww commercial quota and a 3.525 mp ww recreational quota. On August 12, 2011, NMFS published an emergency rule that, in part, increased the recreational red snapper quota by 345,000 lb for the 2011 fishing year.

[6] https://gulfcouncil.org/fishery-management/implemented-plans/reef-fish/

In 2012, the SSC recommended that the ABC should be set at the yield corresponding to 75% of $F_{SPR26\%}$. The Council set the ACL equal to the ABC, which increased the ACL to 8.080 mp ww, resulting in a commercial quota of 4.121 mp ww and recreational quota of 3.96 mp ww (GMFMC 2012).

The **Generic ACLs/Accountability Measures (AMs) Amendment** (GMFMC 2011a) addressed a requirement in the Magnuson-Stevens Reauthorization Act of 2006 to establish ACLs and AMs for federally managed species.

A scheduled ACL increase in 2013 to 8.69 mp ww was cancelled due to an overharvest in 2012 by the recreational sector. After an analysis of the impacts of the overharvest on the red snapper rebuilding plan, the 2013 ACL was increased to 8.46 mp ww. In July 2013, the SSC reviewed a new benchmark assessment (SEDAR 31 2013), which showed that the red snapper stock was rebuilding faster than projected. The SSC used Tier 1 of the ABC and the rebuilding yield level was set as the yield that would rebuild the stock to 26% spawning potential ratio (SPR) by 2032 under a constant fishing mortality rate strategy ($F_{rebuild26\% SPR}$) (GMFMC 2013). This increased the ABC for 2013 to 13.50 mp ww, but the SSC warned that the catch levels would have to be reduced in future years if recruitment returned to average levels. To reduce the possibility of having to decrease the ACL later, the Council set the 2013 stock ACL to 11.00 mp ww and the commercial quota at 5.61 mp ww and the recreational quota at 5.39 mp ww. Beginning in 2014, the recreational season length was set using an annual catch target (ACT) that is 20% below the recreational ACL. A post-season AM that required an overage adjustment if the recreational ACL was exceeded if the stock was overfished was also implemented in 2014. The total ACL was set at 10.40 mp ww in 2014, 14.30 mp ww in 2015, 13.96 mp ww in 2016, and 13.74 mp ww in 2017 and subsequent years.

Amendment 40 divided the recreational quota into a federal for-hire component quota (42.3%) and a private angling component quota (57.7%) (GMFMC 2014). In 2015, this resulted in an ACT of 2.371 mp ww for the federally permitted for-hire component and 3.234 mp ww for the private angling component. The amendment also included a 3-year sunset provision on the separation of the recreational sector into distinct components. **Amendment 45** extended the separate management of the federal for-hire and private angling components for an additional 5 years through the 2022 red snapper fishing season (GMFMC 2016).[7] In 2018, the ACT and ACL were 2.278 mp ww and 2.848 mp ww for the federally permitted for-hire component, and 3.108 mp ww and 3.885 mp ww for the private angling component.

For 2018, NMFS established a 51-day red snapper fishing season for the federal for-hire component [83 FR 17623] based on the component's ACT. For the private angling component, the 2018 and 2019 red snapper fishing seasons were set by the individual states through exempted fishing permits (EFP) approved by NMFS. The EFPs allocated a portion of the private-angling ACL to each state for harvest during the 2018 and 2019 fishing years.[8]

[7] Amendment 50A changed this permanently. See next page.
[8] For more information: https://www.fisheries.noaa.gov/southeast/state-recreational-red-snapper-management-exempted-fishing-permits

Amendment 36A (GMFMC 2017a) modified the commercial IFQ programs. It included a provision that allows NMFS to withhold a portion of IFQ allocation at the start of the year equal to an anticipated quota reduction, which became effective in 2018.

A 2018 Framework Action titled **Modification of the Recreational Red Snapper Annual Catch Target Buffers** reduced the federal for-hire buffer by setting the ACT at 9% below the component's ACL for the 2019 fishing season only. **Amendments 50A-F** (GMFMC 2019a-f) became effective February 6, 2020, establishing a state management program in each Gulf state for the private angling component's harvest of red snapper. Under Amendments 50A-F, each Gulf state is responsible for managing its annual allocation of the private angling component ACL for red snapper using size limits, bag limits, and seasonal closures. If a state exceeds its allocation in a given fishing year, then the amount of the overage would be deducted from that state's quota for the following fishing year. The individual Gulf states are responsible for their own quota monitoring, and each has a data collection program in place to monitor that state's private angling landings. The individual states would determine if additional catch limit buffers (e.g., an ACT set lower than an ACL, with the fishing season based on the ACT) are necessary to successfully manage that state's allocated quota. A private angling ACT remains in place in the event a state's delegation is no longer effective. The federal for-hire component's harvest of red snapper will continue to be federally managed.

A Framework Action implemented in 2019 titled **Modify Red Snapper and Hogfish Catch Limits** increased the ACL for red snapper for 2019 and subsequent years. In 2019, another Framework Action titled **Modification to the Recreational For-hire Red Snapper ACT Buffer** established a federal for-hire ACT 9% below the component's ACL, extending the buffer reduction adopted through the 2018 Framework Action.

Two Framework Actions titled **Gulf of Mexico Red Snapper Recreational Data Calibration and Recreational Catch Limits** and **Modification of Annual Catch Limits for Gulf of Mexico Red Snapper** were implemented on January 1, 2023. The Data Calibration Framework modified recreational catch limits for the state-specific private angling ACLs. The Catch Limits Framework increased red snapper catch limits for both the commercial and recreational sectors.

Another Framework Action titled **Modification of Catch Limits for Gulf of Mexico Red Snapper** reduced the OFL but increased other catch limits for red snapper. A final rule to implement this framework action was published June 8, 2023, and the rule is effective as of July 10, 2023.

1.4 Background: Gray snapper management and landings

Southeast Data, Assessment, and Review (SEDAR) 51 and Amendment 51

Gray snapper is managed as a single stock in the Gulf, with a combined ACL for the recreational and commercial sectors. Prior to 2018, the status of the gray snapper stock had not been evaluated in a stock assessment. In 2018, a gray snapper benchmark stock assessment was completed (SEDAR 51 2018) and reviewed by the Council's SSC. The SSC accepted SEDAR 51 as consistent with BSIA and determined that the stock was experiencing overfishing as of

2015. The SSC did not determine if the stock is overfished because the MSY proxy and minimum stock size threshold (MSST) for gray snapper were undefined.

At the SSC's January 2019 meeting, the Southeast Fisheries Science Center (SEFSC) presented updated projections for gray snapper using three different values for F_{MSY} proxies ($F_{26\%SPR}$, $F_{30\%SPR}$, and $F_{40\%SPR}$ where F is fishing mortality and SPR is spawning potential ratio), along with changing the MSST from 1-M*B_{MSY} to 0.5*B_{MSY}. The SSC found the analyses to be statistically sound and appropriate, and ultimately recognized that $F_{26\%SPR}$ is scientifically acceptable as a proxy for the maximum sustainable yield (MSY). However, the SSC retained its previous recommendation of the more risk-averse proxy using $F_{30\%SPR}$ because of the uncertainty in the SEDAR 51 assessment. In Amendment 51 (GMFMC 2019g), the Council established stock status reference points for gray snapper, setting the MSY proxy as the yield at $F_{26\%SPR}$. The Council set maximum fishing mortality threshold (MFMT) equal to $F_{26\%SPR}$, the MSST equal to half of $B_{MSY\ (or\ MSY\ proxy)}$, and the OY at 90% of $F_{MSY\ or\ MSY\ PROXY}$. Amendment 51 also set updated catch limits for gray snapper based on the SSC's recommendations. The Council applied the ACL/ACT Control Rule (using landings from 2014-2017) to establish an 11% buffer between the ABC and the ACL.

Table 1.4.1. Current catch levels for gray snapper established in Amendment 51. Note that recreational data used to generate these catch limits is from MRIP-CHTS.

OFL (mp ww)	ABC (mp ww)	ACL (mp ww)
2.57	2.51	2.23

Gray Snapper Landings

Total annual landings of gray snapper have ranged from 2.576 mp ww in 2010 to 5.453 mp ww in 2012 (Table 1.4.2). Note that all recreational landings in Table 1.4.2 are in MRIP-FES units, so estimates of catch are not comparable to the catch limits in place at the time, because those were in MRIP-CHTS units. From 2012 through 2017, landings averaged 4.96 mp ww without trend. The landings in 2010 may have been unusually low because of reduced fishing effort following the *Deepwater Horizon* MC252 oil spill. The majority of landings are from the recreational sector and gray snapper are frequently harvested by anglers in both inshore and offshore waters off the west coast of Florida. The other Gulf states have low landings. Since the implementation of an ACL and ACT in 2012, total landings have not exceeded the ACL (again, note that landings in Table 1.4.2 are not directly comparable to the catch limits in place at the time). If the ACL is exceeded for gray snapper, the AM requires in-season monitoring of the stock in the following year and, if the stock ACL is reached or projected to be reached, NMFS will close the harvest of gray snapper for the remainder of the fishing year (GMFMC 2011a).

Table 1.4.2. Commercial and recreational landings of gray snapper by sector from 2001 through 2021. Recreational data are in Marine Recreational Information Program Fishing Effort Survey (MRIP-FES) units.

Year	Recreational Landings (lb ww)	Commercial Landings (lb ww)	Total Landings (lb ww)
2001	3,975,355	198,474	4,173,829
2002	2,467,762	231,703	2,699,465
2003	4,023,545	197,524	4,221,069
2004	5,160,472	230,789	5,391,261
2005	3,682,875	234,513	3,917,388
2006	2,995,692	203,103	3,198,795
2007	3,205,806	150,458	3,356,264
2008	3,870,136	150,990	4,021,126
2009	3,437,455	179,479	3,616,934
2010	2,463,242	112,307	2,575,549
2011	3,412,355	192,906	3,605,261
2012	5,273,610	179,006	5,452,616
2013	4,689,603	143,651	4,833,254
2014	4,924,553	198,897	5,123,450
2015	4,034,437	164,787	4,199,224
2016	4,994,530	156,192	5,150,722
2017	4,862,017	136,857	4,998,874
2018	4,209,127	111,892	4,321,019
2019	4,486,085	114,165	4,600,250
2020	4,571,986	91,113	4,663,099
2021	4,691,134	103,788	4,794,923

Source: SEFSC Recreational MRIP - FES Data (January 26, 2023); Commercial ACL Data (2001-2013: October 9, 2020; 2014-2021: October 19, 2022). Note Gulf Recreational landings reported to MRIP exclude Monroe County. Also, note that SEDAR 75 used landings from all of Monroe County as defined in the Stock ID for SEDAR 51.

SEDAR 75 and SSC recommendations

In December 2022, the SEFSC finalized a new stock assessment report for gray snapper (SEDAR 75 2022).[9] SEDAR 75 resolved several concerns from the previous model (SEDAR 51 2018), and incorporated updated recreational landings data calibrated to MRIP-FES. The assessment incorporated data through 2020.

The SSC reviewed the results of SEDAR 75 during its January 2023 meeting. A summary of the presentation and SSC discussion is available in the meeting summary report.[10] The SSC determined that the assessment was consistent with BSIA. The assessment concluded that the stock was not overfished or undergoing overfishing as of 2020. In addition, the assessment

[9] https://sedarweb.org/documents/sedar-75-gulf-of-mexico-gray-snapper-final-stock-assessment-report/
[10] https://gulfcouncil.org/wp-content/uploads/Gulf-Standing-RF-Socio-Eco-SSC-Summary-Jan-2023-01202023.pdf

determined that the stock was not likely to be experiencing overfishing in 2015, as was concluded in SEDAR 51.

When reviewing SEDAR 75, the SSC requested projections using an MSY proxy of $F_{26\%SPR}$, consistent with Amendment 51 to compare to the results of the current proposed base model. However, the SSC acknowledged that recruitment and biomass would be expected to change with time, and noted that $F_{26\%SPR}$ is likely at the lower end of the acceptable spectrum of plausible MSY proxies for gray snapper. The SSC did not consider gray snapper less productive than red snapper, with respect to selecting an F_{MSY} proxy, but did comment that $F_{26\%SPR}$ was among the lowest observed in the Gulf.

The SSC discussed recruitment recommendations for the projections. Currently, the OFL for gray snapper uses the average model-derived recruitment deviations over the time period from the Beverton-Holt stock recruit relationship, and the ABC is set at 75% of the F_{MSY} proxy. The SSC noted that, although recruitment has been observed to be much higher than the recent long-term mean, this is not typical and is not expected to continue into the future. SSC members discussed the merits of using long- and short-term recruitment means for OFL versus the ABC. An $F_{26\%SPR}$ represents the most optimistic plausible stock productivity estimate by the SSC in 2019, and recruitment is higher than the mean in recent history; however, the model does carry substantial uncertainty about certain parameters like recruitment, so it may be reasonable to consider those factors when evaluating the amount of risk to accept in the OFL and ABC projections. The SSC expressed some reservation about relying heavily on the recent recruitment estimates because there is no definitive explanation for the strong recruitment signal. As such, the SSC recommended continuing to use the long-term average recruitment deviations for the OFL. The SSC agreed that the ABC should be projected using 75% of the F_{MSY} proxy (Table 1.4.3).

Table 1.4.3: SSC recommended catch levels for gray snapper with OFL set to the yield at $F_{26\%SPR}$ and the ABC set to 75% of $F_{26\%SPR}$ for the period of 2024-2028.

Year	OFL (mp ww)	ABC (mp ww)
2024	9.402	7.063
2025	8.351	6.633
2026	7.405	6.199
2027	6.610	5.795
2028	5.969	5.438

As a second alternative, the SSC presented a constant catch recommendation. The OFL and ABC are calculated using a 5-year average of the projected yield (2024-2028) at $F_{26\%SPR}$ (Table 1.4.4). This approach would account for some of the uncertainty in the assumed recruitment relationship.

Table 1.4.4: SSC recommended constant catch levels for gray snapper with OFL and ABC set to a 5-year average of projected yield at $F_{26\%SPR}$.

Years	OFL (mp ww)	ABC (mp ww)
2024 - 2028	7.547	6.226

1.5 History of Management: Gray snapper

The following summary describes management actions that affect the gray snapper component of the reef fish fishery in the Gulf. More information on the Reef Fish FMP and other Council FMPs can be obtained from the Council website.[11]

Fishery management unit: Gray snapper was included in the 33 species (15 snappers, 15 groupers, and 3 sea basses) that comprised the original fishery management unit (FMU) of the Reef Fish FMP (GMFMC 1981). Species have been added and subtracted through **Amendments 1** and **15** (GMFMC 1989, 1997) and the **Generic ACL/AM Amendment**[12] (GMFMC 2011a). These changes did not affect gray snapper, which has always been in the FMU.

Stock status determination criteria: **Amendment 1** (GMFMC 1989) established an OY goal for all reef fish of 20% spawning stock biomass per recruit (SSBR) relative to the SSBR that would occur with no fishing, and an overfished stock was defined as a stock biomass below 20% SSBR. Overfishing was defined, for a stock that is not overfished, as fishing at a rate that would not allow harvest of OY on a continuing basis, and for a stock that is overfished, as fishing at a rate that is not consistent with rebuilding the stock to 20% SSBR. The SSBR terminology was later replaced with SPR. The **Generic Sustainable Fisheries Act Amendment** (GMFMC 1999) was partially approved and measures were implemented in November 1999 that set MFMT for gray snapper at $F_{30\% \text{ SPR}}$. Estimates of MSY, MSST, and OY were disapproved because they were based on SPR proxies rather than biomass-based estimates. The **Generic ACL/AM Amendment** (GMFMC 2011a), established a gray snapper OFL of 2.88 mp ww, ACL of 2.42 mp ww, ACT of 2.08 mp ww, and an AM. Note that these catch limits are in MRFSS units, and are thus not directly comparable to the recommendations in this document.

Catch limits and stock status determination criteria: **Amendment 51** established MSY, MSST, and OY for gray snapper. This amendment also modified the MFMT. The amendment additionally modified the gray snapper catch limits and removed the annual catch target. The 2020 gray snapper ACL was set to 2,240,000 lb and the annual catch limit for 2021 and subsequent years was set at 2,230,000 lb. The final rule was effective December 17, 2020.

Other management measures: A 12-inch TL minimum size limit was established for gray snapper in federal waters in **Amendment 1** (GMFMC 1989) for the commercial and recreational sectors. Gray snapper was also included in the 10-snapper recreational aggregate bag limit established through that amendment.

[11] http://www.gulfcouncil.org/fishery_management_plans/index.php

[12] Generic Annual Catch Limits/Accountability Measures Amendment for the Gulf of Mexico Fishery Management Council's Red Drum, Reef Fish, Shrimp, Coral and Coral Reefs Fishery Management Plans

1.6 Purpose and Need

The purposes of this action are to 1) update state specific private angling component calibration ratios and ACLs to provide a more accurate estimate of state landings for red snapper management; and 2) update gray snapper catch limits including the OFL, ABC, and ACL based on SEDAR 75 and consistent with BSIA.

The need for this action is to improve management of red snapper and gray snapper. For red snapper, more contemporary state private recreational landings data are being used to modify calibration ratios for Mississippi, Alabama, and Florida, and these updated calibration ratios would be used to inform catch levels for the private recreational sector. For gray snapper, a more recent stock assessment has produced contemporary yield projections and considering an update to stock catch levels consistent with BSIA is necessary.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1: Update red snapper private recreational catch limits for Mississippi, Alabama, and Florida based on calibration adjustments

Alternative 1: No Action. Retain the current state private recreational data calibration ratios for Mississippi, Alabama, and Florida. Catch limits are in pounds whole weight (lb ww).

State	ACL – MRIP-CHTS Units	Ratio	ACL (State Units)
Alabama	1,212,687	**0.4875**	591,185
Florida	2,066,889	**1.0602**	2,191,316
Mississippi	163,702	**0.3840**	62,862

Preferred Alternative 2: Update state private recreational data calibration ratios of red snapper for Mississippi, Alabama, and Florida; annual catch limits (ACLs) are modified based on the revised ratios. The ratios would be applied to the federal state-specific ACLs that are in place. Catch limits are in lb ww.

State	ACLs – MRIP-CHTS Units	Ratio	2024+ ACL (State Units)
Alabama	1,212,687	**0.548**	664,552
Florida	2,066,889	**1.34**	2,769,631
Mississippi	163,702	**0.503**	82,342

Discussion:

In this action, the Gulf of Mexico Fishery Management Council (Council) would modify the Gulf of Mexico (Gulf) state-specific red snapper calibration ratios and associated state-specific ACLs for Alabama, Florida, and Mississippi based on updated landings data from these three states and recommendations from the Council's Scientific and Statistical Committee (SSC).

Amendments 50A-F (GMFMC 2019a-f) to the Fishery Management Plan for Reef Fish Resources in the Gulf (Reef Fish FMP) established state management for the harvest of red snapper by the private angling component of the recreational sector. The state allocations and ACLs established in Amendment 50A were: Alabama, 26.298%; Florida, 44.822%; Louisiana, 19.120%; Mississippi, 3.550%; and Texas, 6.210%.

A framework action (GMFMC, 2021) effective January 1, 2023, implemented calibration ratios developed by the NOAA Office of Science and Technology (OST) and the Gulf states to convert the state-specific ACLs from the Marine Recreational Information Program – Coastal Household

Telephone Survey (MRIP-CHTS) units to Gulf state-specific survey units. These ratios are currently multiplied by the state-specific federal ACL (in MRIP-CHTS units) to arrive at the ACLs in state-specific units. The ratios implemented in GMFMC 2021 are shown in Alternative 1 and Table 2.1.1.

The states of Florida, Alabama, and Mississippi were the only states that updated calibration ratios using more contemporary private recreational landings data and these updates were reviewed by the SSC. Therefore, the SSC only provided recommendations for updating Alabama, Florida, and Mississippi's calibration ratios, resulting in the two alternatives considered in this Action. Texas has a red snapper private recreational calibration ratio equal to 1. Louisiana's state survey, LA Creel, is calibrated to MRIP-CHTS.

Under **Alternative 1,** each state would continue to operate under the calibration ratios implemented in the Calibration Framework (GMFMC 2021). The calibration ratios that are currently used to convert ACLs in MRIP-CHTS units to ACLs in state units do not use the most recent state landings data and are no longer consistent with best scientific information available. Under **Alternative 1**, the ratios that are used to convert federal catch limits into ACLs in state units are not based on the most recent landings data for each state. Thus, although **Alternative 1** would result in a federal state-specific ACL that is the same as in **Alternative 2**, the landings allowed for each state would be lower than what the federal catch limits specified. Thus, under **Alternative 1**, recreational fishermen in each of these three states would be allowed to harvest less red snapper than the federal ACL for that state specifies.

Under **Preferred Alternative 2**, the calibration ratios for Alabama, Florida, and Mississippi would be updated using more recent state landings data for each state as compared the MRIP-CHTS landings for those years. The updated ratios would allow for higher state specific ACLs in the state-specific units (Table 2.1.1) but the state ACLs in MRIP-CHTS units would remain the same. Thus, no increase of total catch is being allowed in this document but was recently implemented for all sectors in GMFMC 2022. But because the understanding of the relationships between each states' landings estimates and the federal landings estimates have changed, each of the three states would be expected to increase the number of days that private anglers are permitted to harvest red snapper.

Table 2.1.1. Private angling component state ACLs (lb ww) under **Preferred Alternative 2** for Alabama, Florida, and Mississippi in state units, and increased ACLs based on updated calibration ratios.

State	State ACL (old calibration)	State ACL (new calibration)	Increase in state-specific units	Percent increase	Total Increase*
AL	591,198	664,552	73,354	12.4	106,352
FL	2,191,315	2,769,631	578,316	26.4	700,578
MS	62,862	82,342	19,480	31.0	22,988

*Equal to State ACL (new calibration) minus Current State ACL (old calibration).

If implemented, **Preferred Alternative 2**, is expected to result in longer season durations and increased fishing effort by anglers landing fish in these three states. Mississippi's 31% increase to its state ACL is likely to affect season duration the most of any state.

As stated above, the federal ACLs in MRIP-CHTS units for Alabama, Florida, and Mississippi would not change based in this action. Although the calibration ratios that are currently in effect were based on the best available science when they were implemented, more recent landings data from the three Gulf states are available. Consequently, the SSC determined that the current calibration ratios no longer accurately represent the current relationship between each states' survey and the federal survey.

Council Conclusions

The Council chose **Alternative 2** as preferred. P**referred Alternative 2** is expected to allow each state to increase the number of fishing days, but would still constrain harvest to the total private angling ACL in MRIP-CHTS units. The Council reasoned that the more contemporary data used to estimate the new calibration ratios for Alabama, Florida, and Mississippi more accurately portrayed the current relationship between MRIP-CHTS and each state's survey, and that the updated ratios should be implemented for the states.

2.2 Action 2: Update gray snapper stock catch limits

Alternative 1: No Action. The overfishing limit (OFL) for gray snapper will remain 2.57 million pounds (mp) ww (whole weight) and the acceptable biological catch (ABC) will remain 2.51 mp ww. The ACL for gray snapper will be reduced from the ABC by 11% (2.23 mp ww). The recreational catch data will remain in Marine Recreational Information Program (MRIP) - Coastal Household Telephone Survey (CHTS) units.

OFL (mp ww)	ABC (mp ww)	ACL (mp ww)
2.57	2.51	2.23

Alternative 2: Catch limits for gray snapper will be updated based on projections informed by SEDAR 75 and recommendations from the SSC. Recreational catch data will be modified to MRIP-Fishing Effort Survey (FES) units. OFL is set to the yield at $F_{26\%SPR}$ and the ABC is set to 75% of $F_{26\%SPR}$ for the period of 2024-2028. The ACL is set using the Council's ACL/ACT Control with a buffer of 8% between the ABC and ACL.

Year	OFL (mp ww)	ABC (mp ww)	ACL (mp ww)
2024	9.402	7.063	6.498
2025	8.351	6.633	6.102
2026	7.405	6.199	5.703
2027	6.610	5.795	5.331
2028+	5.969	5.438	5.003

Preferred Alternative 3: Catch limits for gray snapper will be updated based on projections informed by SEDAR 75 and recommendations from the SSC. Recreational catch data will be modified to MRIP-FES units. The OFL and ABC are set to a 5-year average of projected yield at $F_{26\%SPR}$. The ACL is set using the Council's ACL/ACT Control Rule with a buffer of 8% between the ABC and ACL.

Years	OFL (mp ww)	ABC (mp ww)	ACL (mp ww)
2024 – 2028+	7.547	6.226	5.728

Discussion:

Action 2 would consider updates to the catch limits (OFL, ABC, and ACL) for gray snapper based on SEDAR 75 and OFL and ABC recommendations from the SSC. Additionally, **Alternatives 2** and **3** would update the catch limits to reflect that recreational catch and effort data are now estimated by MRIP-FES as opposed to the MRIP-CHTS (See Chapter 1).

Alternative 1 (No Action) would maintain the current catch limits as set in Amendment 51 to the Reef Fish FMP. These catch limits were based on Southeast Data, Assessment, and Review 51 (SEDAR 51 2018) and were derived using recreational data from MRIP-CHTS. Recreational harvest data for gray snapper are now collected and estimated using MRIP-FES. The catch limits in **Alternative 1** do not reflect the SSC's recent OFL and ABC recommendations. In

addition, because federal recreational data are now collected using MRIP-FES, **Alternative 1** would require landings to be converted to MRIP-CHTS for management purposes.

Alternative 2 would modify catch limits for 2024 through 2028^{+} by setting the OFL at the yield at $F_{26\%SPR}$ and the ABC at 75% of $F_{26\%SPR}$ each year. Catch limits in 2029 and future years would be set at the 2028 levels. The SSC recommended setting the OFL based on long-term recruitment estimate variability, since they observed that recent recruitment had been very high and did not think it was likely to be sustained. Because the stock biomass is above the maximum sustainable yield, the OFL, ABC, and ACL would decrease each year from 2024 (OFL-9.402 mp ww; ABC-7.063 mp ww; ACL 6.498 mp ww) to 2028 (OFL-5.969 mp ww; ABC-5.438 mp ww; ACL-5.003 mp ww). The ACL would be set using an 8% buffer below the ABC as calculated from the Council's ACL/ACT Control Rule.

Preferred Alternative 3 would modify catch limits for 2024 through 2028^{+} by using a constant catch approach in making catch limits equal for each year. The OFL and ABC would be set to a 5-year average of projected yield $F_{26\%SPR}$ which equate to an OFL of 7.547 mp ww and an ABC of 6.226 mp ww. The ACL would be set at 5.728 mp ww using an 8% buffer below the ABC as calculated from the Council's ACL/ACT Control Rule.

The catch limits proposed in **Alternative 2** and **Preferred Alternative 3** differ from **Alternative 1** because of the recreational survey data used to generate those limits, and because the catch limits are based on projections obtained from SEDAR 75 rather than SEDAR 51. In **Alternative 1**, the catch limits are calculated using recreational data from MRIP-CHTS, while **Alternative 2** and **Preferred Alternative 3,** catch limits are generated using recreational data from MRIP-FES. Conversions from MRIP-CHTS to MRIP-FES have generally resulted in higher recreational catch and effort values because MRIP-FES estimates more recreational fishing effort than MRIP-CHTS. MRIP-FES estimated recreational landings were 2.18 times higher than MRIP-CHTS recreational landings estimates on average between 2001 and 2021. The proposed gray snapper ACL in **Alternative 2** is nearly triple the current ACL (**Alternative 1**), and the proposed 2024 ACL in **Preferred Alternative 3** is nearly 2.5 times the current ACL (**Alternative 1**). However, much of the increase in the ACL in **Alternative 2** and **Preferred Alternative 3** are due to the conversion from MRIP-CHTS to MRIP-FES. When comparing the alternatives in Action 2 using recreational data collected in MRIP-CHTS for reference, the ACL in 2024 for **Alternative 2** increases by about 25%, and drops each year until 2028, when the ACL would only be about 3% higher than the current ACL (**Alternative 1**). Under **Preferred Alternative 3**, the ACL for each year between 2024 and 2028 would be about 15% higher than the current ACL (**Alternative 1**).

Alternative 2 and **Preferred Alternative 3** would result in equal allowable catch over the 2024 through 2028 fishing years. The OFL, ABC, and ACL in **Alternative 2**, when averaged over the 5-year period from 2024 through 2028 are equal to the corresponding catch limits in **Preferred Alternative 3**. **Alternative 2** allows for higher catch limits in the initial years of management, but catch limits decline each successive year (becoming less than **Preferred Alternative 3** in 2026). **Preferred Alternative 3** accounts for the reduced future recruitment estimates by setting initial catch limits lower than **Alternative 2**, but while **Alternative 2** catch limits decrease each

year, **Preferred Alternative 3** stays the same. This allows for a more constant harvest each year, as catch limits do not fluctuate.

Council Conclusions

The Council chose **Alternative 3** as preferred because it uses the most current recreational source of data (MRIP-FES), and is more conservative than **Alternative 2** initially, in that it would implement lower catch limits for 2024 and 2025. The Council reasoned that given the high gray snapper recruitment in recent years was not able to be explained, and was not expected to continue, a more conservative management strategy outlined in **Preferred Alternative 3** was a more advisable approach.

CHAPTER 3. AFFECTED ENVIRONMENT

The actions considered in this framework action with associated environmental assessment would affect fishing in federal waters of the Gulf of Mexico (Gulf). Descriptions of the physical, biological, economic, social, and administrative environments (affected environments) completed in the environmental impact statements (EISs) in the Generic Essential Fish Habitat (EFH) Amendment (GMFMC 2004a), and the Generic Annual Catch Limits/Accountability Measures (ACL/AM) Amendment (GMFMC 2011a) apply to the Fishery Management Plan (FMP) for Reef Fish Resources in the Gulf of Mexico (Reef Fish FMP). Descriptions of the affected environments for reef fish are further described in Reef Fish Amendments 30B (GMFMC 2008b), 32 (GMFMC 2011b), 40 (GMFMC 2014), 28 (GMFMC 2015), and 50A (GMFMC 2019a). Below, information on each of these environments is summarized or updated, as appropriate.

3.1 Description of the Physical Environment

The Gulf has a total area of approximately 600,000 square miles (1.5 million km^2), including state waters (Gore 1992). It is a semi-enclosed, oceanic basin connected to the Atlantic Ocean by the Straits of Florida and to the Caribbean Sea by the Yucatan Channel (Figure 3.1.1). 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 54º F to 84º F (12º C to 29º C) depending on time of year and depth of water. Mean annual sea surface temperatures ranged from 73º F through 83º F (23-28º C) including bays and bayous (Figure 3.1.1) between 1982 and 2009, according to satellite-derived measurements (NODC 2012[13]). Daily mean temperatures in the Gulf ranged from approximately 70º F--88º F from 1984 – 2023, with an average annual temperature ranging from approximately 79º F--81º 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.

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 2004a). 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 protected areas, habitat areas of particular concern (HAPC), and restricted fishing gear areas in the Gulf. These are detailed in GMFMC (2005). Included in

[13] http://accession.nodc.noaa.gov/0072888

these are the Madison-Swanson and Steamboat Lumps (219 square nautical miles combined) marine protected areas (MPAs), which encompass known gag spawning aggregation areas. A 2021 framework action to the Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico (Reef Fish FMP; GMFMC 2020) and final rule 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 EFH Amendment (GMFMC 2004a) 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 2004a).

The *Deepwater Horizon* MC252 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 (Figure 3.1.2). 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. For more information on the *Deepwater Horizon* MC252 oil spill,[14] see Section 3.2.2 below.

[14] http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm

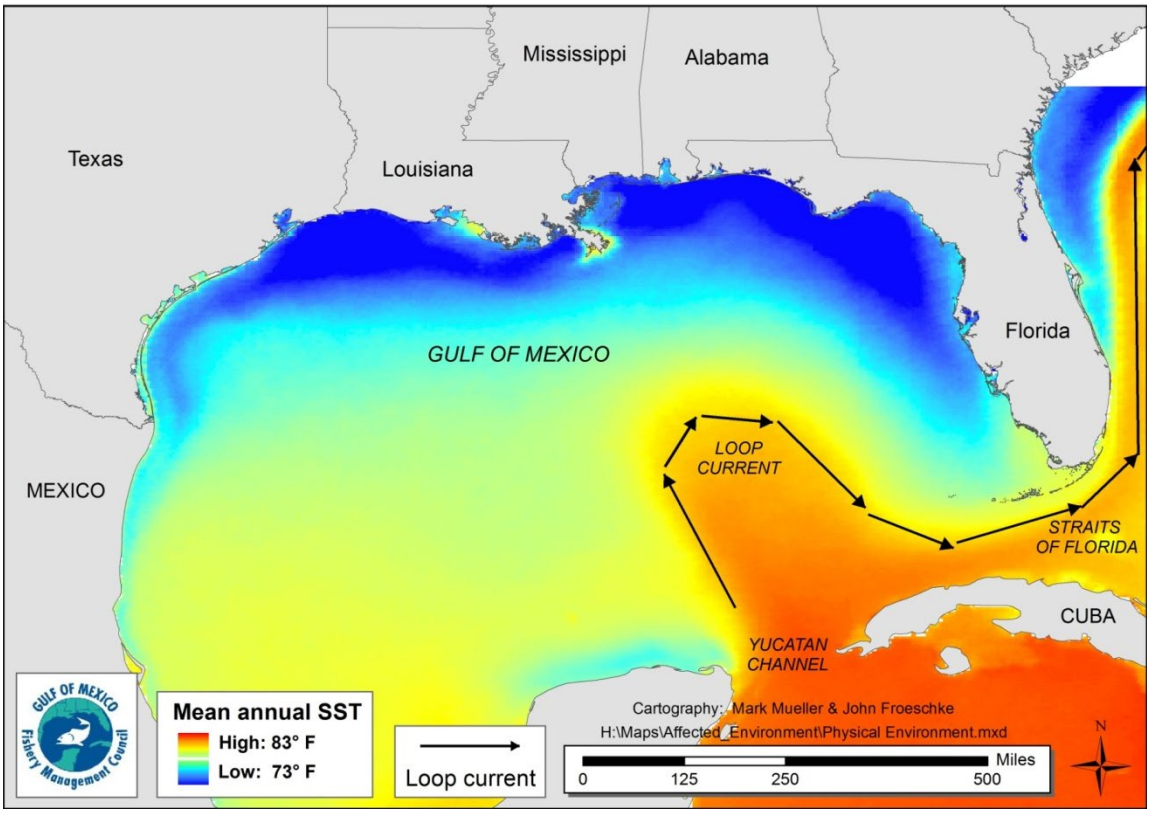

Figure 3.1.1. Physical environment of the Gulf including major feature names and mean annual sea surface temperature as derived from the Advanced Very High-Resolution Radiometer Pathfinder Version 5 sea surface temperature data set (http://accession.nodc.noaa.gov/0072888).

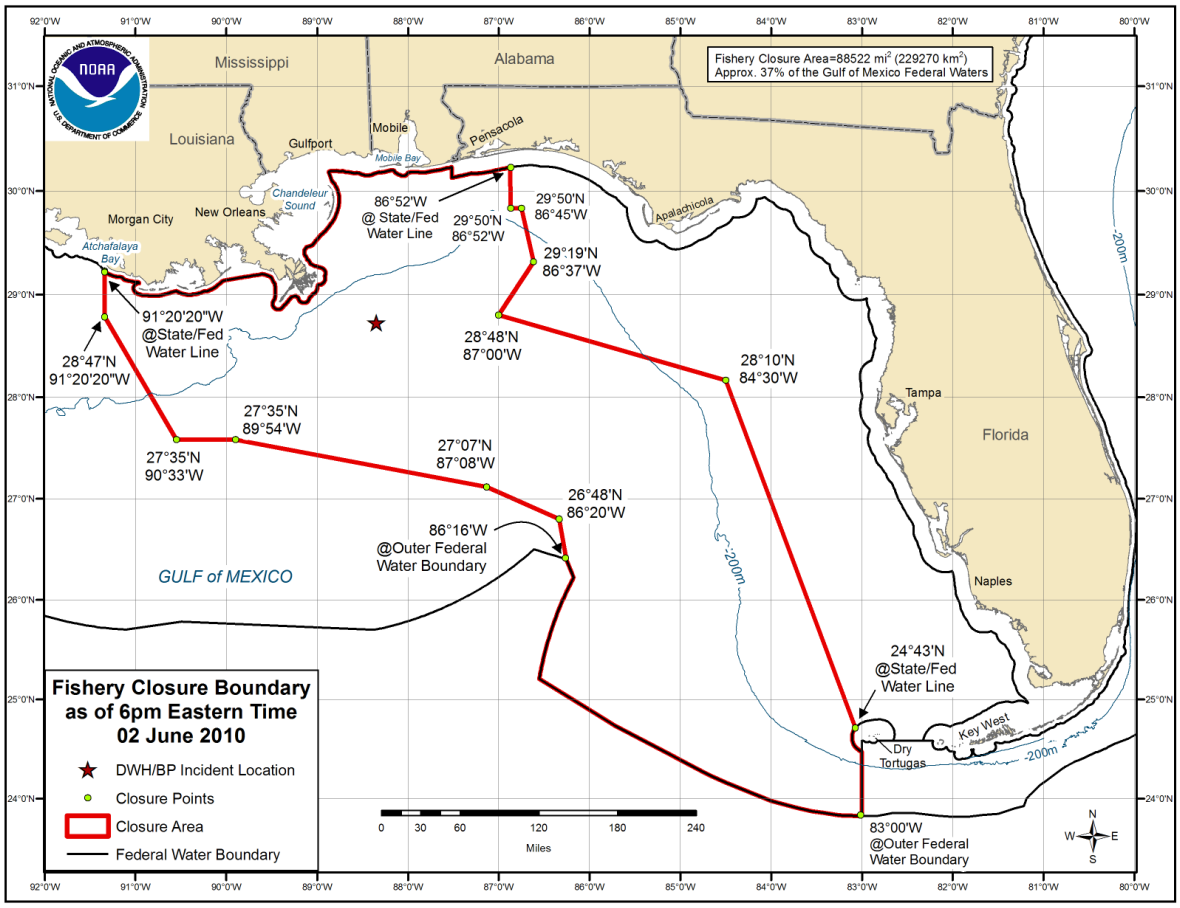

Figure 3.1.2. Fishery closure at the height of the *Deepwater Horizon* MC252 oil spill.

3.2 Description of the Biological and Ecological Environment

The biological environment of the Gulf is described in detail in the final EIS for the Generic EFH Amendment (GMFMC 2004a) and is incorporated herein by reference.

The National Ocean Service collaborated with the National Marine Fisheries Service (NMFS) and the Gulf of Mexico Fishery Management Council (Council) to develop distributions of reef fish (and other species) in the Gulf (SEA 1998).

3.2.1 Red Snapper

Red Snapper Life History and Biology

Red snapper demonstrates a typical reef fish life history pattern. Eggs and larvae are pelagic (Lyczkowski-Shultz and Hanisko 2007) while juveniles are found over mud bottom and oyster shell reef (Szedlmayer and Conti 1999; Rooker et al. 2004). Red snapper is associated with both natural and artificial habitats (Wilson and Nieland 2001; Szedlmayer and Lee 2004; Glenn 2014) but larger, older fish occur over open habitat in deeper water (Gallaway et al. 2009). The Great

Red Snapper Count (Stunz et al. 2021) found that the majority of large Gulf red snapper age-2^{+} occur in this open habitat of uncharacterized bottom. Spawning is protracted from April through September throughout the Gulf with peak spawning in June through August (Futch and Bruger 1976; Collins et al. 1996). Adult females mature as early as two years and most are mature by four years (Schirripa and Legault 1999). Red snapper has been aged up to 57 years (SEDAR 31 2013). Until 2013, most red snapper caught by the directed fishery were 2 to 4 years old, but the SEDAR 31 stock assessment suggested that the age and weight of red snapper in the directed fishery has increased (SEDAR 31 2013). Red snapper adults exhibit high site fidelity (Szedlmayer and Shipp 1994; Strelcheck et al. 2007). However, other conventional tagging studies have suggested the occurrence of hurricanes can greatly affect the magnitude of red snapper movement (Patterson et al. 2001).

Status of the Red Snapper Stock

Southeast Data, Assessment, and Review (SEDAR) 52 Assessment and Stock Status

The SEDAR 52 (2018) base model was similar to the 2014 SEDAR 31 Update, with select updates to model fitting procedures. The SEDAR 52 stock assessment found that the red snapper resource continues to rebuild from the severely overfished and depleted conditions during of the 1980s and 1990s. Under current conditions, it is expected that the resource will continue to rebuild. Biomass estimates show the western Gulf continues to rebuild, while the eastern Gulf has leveled off over the last few years. The number of older fish present has increased Gulf-wide, indicating rebuilding age structure.

The Council's Scientific and Statistical Committee (SSC) reported that based on the results from SEDAR 52, red snapper, although in a rebuilding plan, is not considered to be undergoing overfishing or to be overfished. The ratio of the current fishing mortality rate (F)/maximum fishing mortality threshold (MFMT) = 0.823, which is less than 1.0 indicating the stock is not undergoing overfishing. The Gulf red snapper stock is not considered to be overfished because the ratio of the spawning stock biomass (SSB)/minimum stock size threshold (MSST) = 1.41, which is greater than 1.0. The change in the MSST value to 50% of the SSB at the maximum sustainable yield (26% spawning potential ratio [SPR]) in Amendment 44 (GMFMC 2017b) was the primary reason for the change in stock status from overfished to not overfished. The stock is still in a rebuilding plan, and fishing at $F_{Rebuild}$, the stock is not expected to be rebuilt until 2032.

3.2.2 Gray Snapper

Life History and Biology

Distribution

Gray snapper occur in marine and estuarine waters from Florida through Brazil including Bermuda, the Caribbean, and the northern Gulf (Tolan and Fisher 2009). Juvenile gray snapper have been collected as far north as Cape Cod, Massachusetts (Denit and Sponaugle 2004) but cannot survive water temperatures below 10°C, and this likely limits the northward distribution of this species.

Gray snapper occur in estuaries and shelf waters of the Gulf, and are particularly abundant off south and southwest Florida. Gray snapper inhabit shallow waters to depths up to 180 m. Adults are demersal and mid-water dwellers, occurring in marine, estuarine, and riverine habitats; they occur offshore on natural and artificial reefs and inshore including freshwater creeks, rivers and freshwater springs. Gray snapper are found among mangroves, sandy grass beds, and coral reefs, and over sandy, muddy, and rocky bottoms.

Spawning occurs offshore around reefs and shoals from May to September (SEDAR 51 2018). Eggs are pelagic, and are present June through September after the summer spawn, occurring in offshore shelf waters and near coral reefs. Larvae are planktonic, occurring in peak abundance from June through August in offshore shelf waters and near coral reefs from Florida through Texas. Postlarvae move into estuarine habitat and are found especially over dense grass beds of shoal grass (*Halodule spp.*) and manatee grass (*Syringodium spp.*). Juveniles are marine, estuarine, and riverine dwellers, often found in estuaries, channels, bayous, ponds, grass beds, marshes, mangrove swamps, and freshwater creeks; they appear to prefer turtle grass (*Thalassia spp.*) flats, marsh bottoms, seagrass meadows, and mangrove roots (GMFMC 2004a).

Age/Growth

Fischer et al. (2005) estimated a maximum age of 28 years for gray snapper and subsequent studies have estimated a maximum age of 32 (SEDAR 51 2018). However, regional differences in size and age structure have been observed. Larger, older fish are more common in north Florida than in south Florida, although this could be the result of greater fishing pressure in the south rather than a biological difference (Burton, 2001). Reproductive gray snapper spawn from May through September (Fitzhugh et al. 2017). Fifty percent of individuals are estimated to attain functional maturity by 2.5 years of age or 269 mm (10.6 in.) FL (Garner et al., 2022).

Natural Mortality

The life history working group convened as part of the SEDAR 51 assessment recommended a natural mortality (M) estimate where M = 0.15.

Status of the Gray Snapper Stock

The status of the Gulf gray snapper stock was most recently assessed in SEDAR 75 (2022). SEDAR 75 resolved several concerns from the previous model (SEDAR 51 2018), and incorporated updated recreational landings data calibrated to the Marine Recreational Information Program's Fishing Effort Survey (MRIP-FES). The estimates of natural mortality, maximum age (28), and sex ratio (50:50) were unchanged from SEDAR 51. The ratio of fecundity to length was updated with additional samples, with functional maturity estimated at 2.5 years and 269.8 mm fork length (FL); 90% of individuals are estimated to be sexually mature by 5 years and 358.8 mm FL. These estimates are slightly greater than the physiological maturity, but better represent what is thought to be effectual maturity for this species within the stock.

Recreational landings made up the majority of gray snapper landings (greater than 90% in recent years), with most of these occurring in the recreational private vessel mode. Calibrating the recreational data to MRIP-FES resulted in approximately a 2.3x increase in estimated landings from the former MRIP Coastal Household Telephone Survey (CHTS), and also an increase in the estimate of recreational shore landings in recent years. This increase is largely due to the way each survey estimates effort, as MRIP-FES estimates vastly higher fishing recreational fishing effort than MRIP-CHTS. Commercial discards are estimated to be quite low, due in part because there is no commercial trip limits. Recreational discards are estimated to comprise a large proportion of recreational catch (approximately 80% for private vessels, 90% for shore, and 60% for for-hire vessels in 2020). Commercial discard mortality was estimated at 6.9%, and recreational discard mortality at 14% (SEDAR 75 2022).

Gray snapper recruitment is estimated to have increased from historical averages, although there was a decrease in 2019 and 2020. SEDAR 75 estimates that the stock size is larger than estimated by SEDAR 51, and also estimates a larger number of younger fish than SEDAR 51. SEDAR 75 concluded that the stock is not overfished, is not undergoing overfishing, and has not been overfished or undergoing overfishing throughout the time period assessed (1945-2021). At the SSC's January 2022 meeting, the Southeast Fisheries Science Center (SEFSC) presented updated projections for gray snapper using three different values for fishing mortality at MSY (F_{MSY}) proxies ($F_{26\%SPR}$, $F_{30\%SPR}$, and $F_{40\%SPR}$), along with changing the MSST from 1-M*B_{MSY} to 0.5*B_{MSY}. The SSC found the presented analyses to be statistically sound and appropriate, and ultimately recognized that 26% SPR is scientifically acceptable as a proxy for MSY.

General Information on Reef Fish

Reef fish are widely distributed in the Gulf, occupying both pelagic and benthic habitats during their life cycle. In general, both eggs and larval stages are planktonic. Larval fish feed on zooplankton and phytoplankton. Gray triggerfish are exceptions to this generalization as they lay their eggs in nests on the sandy bottom (Simmons and Szedlmayer 2012), as are gray snapper whose larvae are found around submerged aquatic vegetation.

Status of Reef Fish Stocks

The NMFS Office of Sustainable Fisheries updates its Status of U.S. Fisheries Report to Congress[15] on a quarterly basis utilizing the most current stock assessment information. There are currently 31 species managed under the Reef Fish FMP. Stock assessments and status determinations have been conducted and designated for 14 stocks and can be found on the Council[16] and SEDAR[17] websites. Of the 14 stocks for which stock assessments have been conducted and accepted by the SSC, the 2023 Quarter 1 Update Summary of Stock Status for

[15] http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/status_updates.html
[16] www.gulfcouncil.org
[17] http://sedarweb.org/

non-FSSI stocks classifies two stocks as overfished (greater amberjack and gag), and four additional stocks (in addition to greater amberjack and gag) as undergoing overfishing (cobia, mid-water snapper complex, jacks complex, and cubera snapper). The status of both assessed and unassessed stocks, as of the writing of this amendment is provided on NMFS' Fishery Stock Status Updates webpage.[18]

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 the Reef Fish FMP is 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 2004b, GMFMC 2007, GMFMC 2014, GMFMC 2015), grouper (GMFMC 2008b, GMFMC 2008c, GMFMC 2011a, GMFMC 2011b), greater amberjack (GMFMC 2008a), 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. Discard mortality rates for red snapper from the most recent stock assessment (SEDAR 52 2018) are shown in Table 3.2.2.2. Bycatch practicability analyses have not been completed for gray snapper, although gray snapper was included in the bycatch practicability analysis for reef fish as part of the Generic ACL Amendment (GMFMC, 2011a).

[18] https://www.fisheries.noaa.gov/national/population-assessments/fishery-stock-status-updates

Table 3.2.2.2. Discard mortality rates for red snapper by fleet and season from the SEDAR 52 stock assessment. The discard mortality rate has been found to increase with depth and decrease with venting. "East" and "West" are defined as Gulf waters east and west of the Mississippi River. Although venting has not been mandatory since 2013, limited information was available to determine discard mortality rates for the most recent time block. Therefore, the values from the mandatory venting period were maintained from 2013 – 2016.

Sector	Venting	Year	East	East	West	West
	Y/N	Pre/Post 2008	Closed	Open	Closed	Open
Recreational	N	Pre	0.21	0.21	0.22	0.22
Recreational	Y	Post	0.118	0.118	0.118	0.118
Commercial vertical line	N	Pre	0.74	0.75	0.87	0.78
Commercial vertical line	Y	Post	0.55	0.56	0.74	0.6
Commercial longline	N	Pre	0.74	0.81	0.87	0.91
Commercial longline	Y	Post	0.55	0.64	0.74	0.81

Protected Species

NMFS manages marine protected species in the Southeast region under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). A brief summary of these two laws and more information is available on NMFS Office of Protected Resources website.[19] ESA-listed species or Distinct Population Segments (DPS) of marine mammals, sea turtles, fish, and corals occur in the exclusive economic zone (EEZ) of the Gulf. There are numerous stocks of marine mammals managed within the Southeast region. All marine mammals in U.S. waters are protected under the MMPA.

The five whale species that may be present in the Gulf (blue, sperm, sei, fin, and Rice's[20]) are listed as endangered under the ESA. Rice's whales are the only resident baleen whales in the Gulf. Manatees, listed as threatened under the ESA, also occur in the Gulf and are the only marine mammal species in this area managed by the U.S. Fish and Wildlife Service.

Sea turtles, fish, and corals that are listed as threatened or endangered under the ESA occur in the Gulf. These include the following: six species of sea turtles (Kemp's ridley, loggerhead (Northwest Atlantic Ocean DPS), green (North Atlantic and South Atlantic DPSs), 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 habitat designated under the ESA for

[19] https://www.fisheries.noaa.gov/about/office-protected-resources

[20] 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 of Mexico.

smalltooth sawfish, Gulf sturgeon, and the Northwest Atlantic Ocean DPS of loggerhead sea turtles occur in the Gulf, though only loggerhead critical habitat occurs in 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 managed under the Reef Fish FMP is not likely to adversely affect ESA-listed marine mammals or coral, 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, 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).

On April 6, 2016, NMFS and the U.S. Fish and Wildlife Service published a final rule (81 FR 20057) removing the range-wide and breeding population ESA-listings of the green sea turtle and listing eight DPSs as threatened and three DPSs as endangered. Two of the green sea turtle DPSs, the North Atlantic DPS and the South Atlantic DPS, occur in the Gulf and are listed as threatened. In addition, on June 29, 2016, NMFS published a final rule (81 FR 42268) listing Nassau grouper as threatened under the ESA. NMFS has reinitiated consultation on the FMP to address these listings. In a memorandum dated September 29, 2016, NMFS determined that fishing under the Reef Fish FMP during the re-initiation period is not likely to jeopardize the continued existence of the North Atlantic and South Atlantic DPSs of green sea turtles or Nassau grouper.

On January 22, 2018, NMFS published a final rule (83 FR 2916) listing the giant manta ray as threatened under the ESA. On January 30, 2018, NMFS published a final rule (83 FR 4153) listing the oceanic whitetip shark as threatened under the ESA. In a memorandum dated March 6, 2018, NMFS revised the request for re-initiation of consultation on the Reef Fish FMP to address the listings of the giant manta and oceanic whitetip. In that memorandum, NMFS also determined that fishing under the Reef Fish FMP during the extended re-initiation period will not jeopardize the continued existence of the giant manta ray, oceanic whitetip shark, Nassau grouper, or the North Atlantic and South Atlantic DPSs of green sea turtles.

NMFS published a final rule on April 15, 2019, listing the Gulf Bryde's whale (now Rice's whale, see footnote 19 above) as endangered. In a memorandum dated June 20, 2019, NMFS revised the re-initiation request to include the Gulf Bryde's whale (Rice's whale) and determined that fishing under the Reef Fish FMP during the re-initiation period will not jeopardize the continued existence of any of the newly listed species discussed above.[21]

There is no information to indicate marine mammals and birds rely on red or gray snapper for food, and they are not generally caught by fishermen harvesting red or gray snapper. The primary gear in the Gulf Reef Fish fishery used to harvest red and gray snapper is hook-and-line, and they are occasionally captured on bottom longlines and with spearfishing gear. These gear

[21] The official change to the name has no effect on NMFS's conclusion that the activities associated with the Reef Fish FMP will not jeopardize the continued existence of the species during the revised re-initiation period

types are classified in the 2023 Marine Mammal Protection Act List of Fisheries as a Category III fishery (88 FR 16899; March 1, 2023), 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 Gulf red snapper or gray snapper portion of the reef fish fishery as a whole is adversely affecting seabirds. Dolphins are the only species documented as interacting with the reef fish fishery. Bottlenose dolphin prey upon bait, catch, and/or discarded fish from the reef fish fishery.

Climate Change

Climate change projections predict increases in sea-surface temperature and sea level; decreases in sea-ice cover; and changes in salinity, wave climate, and ocean circulation (Intergovernmental Panel on Climate Change [IPCC]).[22] These changes are likely to affect plankton biomass and fish larvae abundance that could adversely impact fish, marine mammals, seabirds, and ocean biodiversity. Kennedy et al. (2002) and Osgood (2008) have suggested global climate change could affect temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; change precipitation patterns and cause a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influence the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs. The National Oceanic and Atmospheric Association (NOAA) Climate Change Web Portal[23] predicts the average sea surface temperature in the Gulf will increase by approximately 2ºC for 2006-2100 compared to the average sea surface temperature from 1956-2005. For reef fishes, Burton (2008) speculated climate change could cause shifts in spawning seasons, changes in migration patterns, and changes to basic life history parameters such as growth rates. It is unclear if reef fish distribution in the Gulf and South Atlantic has been affected. The smooth puffer (Fujiwara et al., 2019) and common snook (Purtlebaugh et al., 2020) are examples of species for which there has been a distributional trend to the north in the Gulf. For other species, such as red snapper and the dwarf sand perch, there has been a distributional trend towards deeper waters. For additional fish species, such as the dwarf goatfish, there has been a distributional trend both to the north and to deeper waters.

The distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Hollowed et al. (2013) provided a review of projected effects of climate change on the marine fisheries and dependent communities. Integrating the potential effects of climate change into the fisheries assessment is currently difficult due to the time scale differences (Hollowed et al. 2013). The fisheries stock assessments rarely project through a time span that would include detectable climate change effects.

Greenhouse gases

[22] http://www.ipcc.ch/
[23] https://www.esrl.noaa.gov/psd/ipcc/

The IPCC has indicated greenhouse gas emissions are one of the most important drivers of recent changes in climate. Wilson et al. (2014) inventoried the sources of greenhouse gases in the Gulf from sources associated with oil platforms and those associated with other activities such as fishing. A summary of the results of the inventory are shown in Table 3.2.2.3 with respect to total emissions and from fishing. Commercial fishing and recreational vessels make up a small percentage of the total estimated greenhouse gas emissions from the Gulf (2.04% and 1.67%, respectively).

Table 3.2.2.3. Total Gulf greenhouse gas 2014 emissions estimates (tons per year [tpy]) from oil platform and non-oil platform sources, commercial fishing, and percent greenhouse gas emissions from commercial fishing vessels of the total emissions*.

Emission source	CO_2	Greenhouse CH_4	Gas N_2O	Total CO_{2e}**
Oil platform	5,940,330	225,667	98	11,611,272
Non-platform	14,017,962	1,999	2,646	14,856,307
Total	**19,958,292**	**227,665**	**2,743**	**26,467,578**
Commercial fishing	531,190	3	25	538,842
Recreational fishing	435,327	3	21	441,559
Percent commercial fishing	2.66%	>0.01%	0.91%	2.04%
Percent recreational fishing	2.18%	>0.01%	0.77%	1.67%

*Compiled from Tables 6-11, 6-12, and 6-13 in Wilson et al. (2014). **The CO_2 equivalent (CO_2e) emission estimates represent the number of tons of CO_2 emissions with the same global warming potential as one ton of another greenhouse gas (e.g., CH_4 and N_2O). Conversion factors to CO_{2e} are 21 for CH_4 and 310 for N_2O.

Deepwater Horizon MC252 Oil Spill

The presence of polycyclic aromatic hydrocarbons (PAH), which are highly toxic chemicals that tend to persist in the environment for long periods of time, in marine environments can have detrimental impacts on marine finfish, especially during the more vulnerable larval stage of development (Whitehead et al. 2012). The future reproductive success of fish species may be negatively affected by episodic events resulting in high-mortality years or low recruitment. These episodic events could leave gaps in the age structure of the population, thereby affecting future reproductive output (Mendelssohn et al. 2012). Other studies have described the vulnerabilities of various marine finfish species, with morphological and/or life history characteristics similar to species found in the Gulf, to oil spills and dispersants (Hose et al. 1996; Carls et al. 1999; Heintz et al. 1999; Short 2003).

In addition to the crude oil, over a million gallons of the dispersant, Corexit 9500A®, was applied to the ocean surface and an additional hundreds of thousands of gallons of dispersant was pumped to the mile-deep wellhead (National Commission 2010). No large-scale applications of dispersants in deep water had been conducted until the *Deepwater Horizon* MC252 oil spill.

Thus, no data exist on the environmental fate of dispersants in deep water. Twenty-first century dispersant applications are thought to be less harmful than their predecessors. However, the combination of oil and dispersants has proven to be more toxic to marine fishes than either dispersants or crude oil alone. Marine fish, which are more active (e.g. a pelagic species versus a demersal species), appear to be more susceptible to negative effects from interactions with weathered oil/dispersant emulsions. These effects can include mobility impairment and inhibited respiration (Swedmark et al. 1973).

In accordance with the Oil Pollution Act of 1990 (OPA), NOAA and NOAA contractors assessed damage to the environment from the Deepwater Horizon oil spill. They found that outside of Louisiana, coastal environments were generally from the impact of the DWH oil spill, except for those of Louisiana (Weisenberg, et al, 2021). Many acres of wetlands, especially in Louisiana, were damaged, and depending on the extent of oil coverage, it was estimated that marsh recovery would take from two to four years for intensely treated areas and eight years for those that were untreated (Michel and Rutherford, 2014; DHNRDAT, 2016). Some residual oil is still found in the Louisiana coastal sediment (Farrington, et al, 2021). Looking at degradation rates from oil spilled in Prince William Sound, Lindeberg et al. (2018) projected recovery to be extremely slow.

Direct kill and forgone production of fish and invertebrates exposed to DWH oil in the surface slick and the subsurface mixed zone were able to be calculated. This surface oil resulted in the death of between 2 trillion and 5 trillion fish larvae and between 37 trillion and 68 trillion planktonic invertebrates (DHNRDAT, 2016). The National Resource Damage Assessment process also quantified direct fish and invertebrate mortality exposed to both the rising cone of oil and the deepwater oil plumes. This resulted in the death of between 86 million and 26 billion fish larvae and between 10 million and 7 billion planktonic invertebrates (DHNRDAT, 2016). However, fish communities of the coastal Gulf were found to generally not suffer long-term damage from the DWH oil spill. Fish communities have generally recovered, and there has so far been no evidence of long-term sublethal impacts (Patterson et al., 2015).

The effect of oil, dispersants, and the combination of oil and dispersants on fishes of the Gulf has been an area of concern. More information about the *Deepwater Horizon* MC252 oil spill is available on the NOAA Southeast Regional Office website.[24]

3.3 Description of Economic Environment

Because the red snapper action in this document does not affect the red snapper commercial sector, the description of the commercial sector is not included. For more information on the commercial sector, see the Red Snapper Individual Fishing Quota Program 5-Year Review (https://gulfcouncil.org/wp-content/uploads/c._Background_Red-Snapper-5-year-Review-FINAL.pdf). Note that all dollar figures in this section are in 2021 dollars.

[24] https://www.fisheries.noaa.gov/news/deepwater-horizon-10-years-later-10-questions

3.3.1 Commercial Sector

3.3.1.1 Gray Snapper

Commercial vessels that harvest gray snapper from the Gulf EEZ must have a valid Gulf reef fish (RF) permit. Any commercial vessel that harvests reef fish under the permit must also have an operating vessel monitoring system (VMS) on board (50 CFR §622.28). Moreover, the owner or operator of a RF-permitted vessel must ensure that the required VMS unit transmits a signal indicating the vessel's accurate position at least once an hour, 24 hours a day every day when out of port or in port and not in dry dock unless exempted under paragraphs (c) and (d) of Section 622.28.

The total number of valid RF permits represents the maximum number of vessels that would be able to harvest reef fish in the Gulf EEZ. However, not all RF permits are valid during the course of a calendar year. Permits expire and once expired, the permit holder has up to a year after the expiration date to either renew or transfer the permit. A permit that is not renewed or transferred within that time is terminated, and as shown in Table 3.3.1.1, the number of vessels with a valid RF permit has declined.

Table. 3.3.1.1. Number of vessels with a valid RF permit, and number and percentage of those vessels with reported reef fish landings, 2017 – 2021.

Year	Valid RF-Permitted Vessels	RF-Permitted Vessels that Reported RF Landings	RF-Permitted Vessels with Reported GS Landings	Percentage of RF-Permitted Vessels with GS Landings
2017	850	564	392	46.12%
2018	845	549	378	44.73%
2019	842	517	352	41.81%
2020	837	496	364	43.49%
Average	**844**	**532**	372	44.04%
2021	814[1]	457	311	38.21%[2]

1. This is the number of vessels with a valid RF permit for at least one day from January 1 through August 26, 2021. Previous years' figures are for the number of permits that were valid for at least one day during the entire calendar year. The number of valid RF permits for the entire calendar year is currently unavailable.
2. The number of RF vessels that reported landings of gray snapper is for the entire calendar year, whereas the figure for the number of valid RF permits is only for part of the 2021 calendar year (January 1 – August 26). The percentage for the entire calendar year would be at most 43% if there is no increase in the number of valid permits after August 26.
Source: NMFS SERO Sustainable Fisheries Division (SFD) Access Permits database and SEFSC Socioeconomic Panel (Sep22) accessed by the SEFSC Economic Query System (March 2023).

In step with the decline in the number of RF permits has been the increase in their market value.[25] Substantially less than 100% of RF-permitted vessels report any GS landings in any

[25] For more information about the market price of a commercial reef fish permit, see the Red Snapper and Grouper-Tilefish Individual Fishing Quota Programs Review (2021).

given year. From 2017 through 2021, an annual average of 43% of RF-permitted vessels reported landings of gray snapper (GS) (Table 3.1.1.1).

From 2017 through 2021, an annual average of 359 RF-permitted vessels reported landings of gray snapper. The average vessel with these landings (GS vessels) made 7 GS trips and landed 265 lb of gray snapper during the course of a year (Table 3.3.1.2). The average GS trip landed 40 lb of gray snapper with an ex-vessel value of $147, and had total revenue from the GS trip of $9,753 (Table 3.3.1.3). On average, gray snapper accounted for about 1.50% of revenue from GS trips.[26]

Table. 3.3.1.2. Number of vessels and trips with reported gray snapper landings, landings (lb gw) of gray snapper, average GS trips and landings per vessel, and average GS landings per trip, 2017 – 2021.

Year	GS Vessels	GS Trips	GS lb	Average GS Trips per Vessel	Average GS lb per Vessel	Average GS lb per GS Trip
2017	392	2,846	118,075	7	301	41
2018	378	2,318	105,786	6	280	46
2019	352	2,277	81,706	6	232	36
2020	364	2,206	84,282	6	232	38
2021	311	2,171	87,072	7	280	40
Average	**359**	**2,364**	**95,384**	**7**	**265**	**40**

Source: SEFSC Socioeconomic Panel (Sep 22) accessed by the SEFSC Economic Query System (March 2023).

Table. 3.3.1.3. Revenue from GS landings, jointly caught species, total revenue from GS trips, average GS revenue per trip, average revenue per GS trip and percentage of GS trip revenue from GS landings, 2017 – 2021.

Year	GS Revenue	Joint Revenue	GS Trip Revenue	Average GS Revenue per Trip	Average Revenue per GS Trip	Percentage of GS Trip Revenue from GS
2017	$472,024	$24,595,590	$25,067,614	$166	$8,808	1.88%
2018	$468,342	$20,772,749	$21,241,091	$202	$9,164	2.20%
2019	$215,323	$20,920,682	$21,136,004	$95	$9,282	1.02%
2020	$249,474	$22,026,003	$22,275,478	$113	$10,098	1.12%
2021	$330,392	$25,205,672	$25,536,064	$152	$11,762	1.29%
Average	**$347,111**	**$22,704,139**	**$23,051,250**	**$147**	**$9,753**	1.50%

Source: SEFSC Socioeconomic Panel (Sep 22) accessed by the SEFSC Economic Query System (March 2023) and BEA GDP deflator (issued April 27, 2023).

The average GS vessel had total annual revenue from all landings of about $123 thousand to $155 thousand from 2017 through 2021 (Table 3.3.1.4). Revenue from landings of gray snapper accounted for less than one percent of the average GS vessel's total annual revenue.

[26] While the average GS trip landed 40 lb gw of gray snapper, it also landed 2,026 lb gw of jointly caught species.

Table. 3.3.1.4. Revenue from GS trips and other trips, total revenue, average total revenue per GS vessel, and percentages of revenue from GS landings and trips.

Year	GS Trip Revenue	Other Trips Revenue	Total Revenue	Average Total Revenue per GS Vessel	Percentage of Total Revenue from GS Landings	Percentage of Total Revenue from GS Trips
2017	$25,067,614	$26,658,284	$51,725,898	$131,954	0.91%	48.46%
2018	$21,241,091	$25,121,100	$46,362,191	$122,651	1.01%	45.82%
2019	$21,136,004	$26,135,716	$47,271,721	$134,295	0.46%	44.71%
2020	$22,275,478	$23,725,068	$46,000,545	$126,375	0.54%	48.42%
2021	$25,536,064	$22,672,543	$48,208,607	$155,012	0.69%	52.97%
Average	**$23,051,250**	**$24,862,542**	**$47,913,792**	**$133,316**	**0.72%**	**48.11%**

Source: SEFSC Socioeconomic Panel (Sep 22) accessed by the SEFSC Economic Query System (March 2023) and BEA GDP deflator (issued April 27, 2023).

Most gray snapper is landed by vessels using vertical line gear. On average, from 2017 through 2021, vertical gear accounted for almost 65% of gray snapper annual landings by GS vessels (Table 3.3.1.5). Vertical gear also accounted for about 73% of GS trips (Table 3.3.1.6).

Table. 3.3.1.5. Percentage of annual gray snapper landings by GS vessels by gear, 2017 – 2021.

Year	Vertical Gear	Bottom Longline	Divers	Total
2017	60.65%	13.93%	25.43%	100.00%
2018	66.43%	14.10%	19.48%	100.00%
2019	62.92%	14.53%	22.55%	100.00%
2020	69.09%	10.71%	20.20%	100.00%
2021	65.61%	16.39%	18.00%	100.00%
Average	**64.94%**	**13.93%**	**21.13%**	**100.00%**

Source: SEFSC Socioeconomic Panel (Sep 22) accessed by the SEFSC Economic Query System (April 2023).

Table. 3.3.1.6. Percentage of annual GS trips by gear, 2017 – 2021.

Year	Vertical Gear	Bot Longline	Divers	Total
2017	74.56%	15.81%	9.63%	100.00%
2018	74.63%	15.75%	9.62%	100.00%
2019	72.77%	15.06%	12.17%	100.00%
2020	71.97%	17.01%	11.02%	100.00%
2021	70.98%	18.01%	11.01%	100.00%
Average	**72.98%**	**16.33%**	**10.69%**	**100.00%**

Source: SEFSC Socioeconomic Panel (Sep 22) accessed by the SEFSC Economic Query System (April 2023).

There are considerable differences in average revenues per GS trip and per GS vessel by gear. Average total revenue from a GS trip (from gray snapper and jointly caught species) varies from $2,301 for divers to $25,950 for bottom longline (Table 3.3.1.7). Average annual total revenue (from all reported landings) per GS vessel varies from almost $18 thousand to almost $281 thousand (Table 3.3.1.8).

Table. 3.3.1.7. Average total revenue per GS trip by gear, 2017 – 2021.

Year	Vertical Gear	Bottom Longline	Divers
2017	$6,347	$24,566	$1,986
2018	$6,726	$24,752	$2,556
2019	$6,943	$26,391	$2,089
2020	$7,783	$25,009	$2,239
2021	$8,744	$29,176	$2,732
Average	**$7,229**	**$25,950**	**$2,301**

Source: SEFSC Socioeconomic Panel (Sep 22) accessed by the SEFSC Economic Query System (April 2023) and BEA GDP deflator (issued April 27, 2023).

Table. 3.3.1.8. Average annual total revenue per GS vessel by gear, 2017 – 2021.

Year	Vertical Gear	Bottom Longline	Divers
2017	$108,599	$281,070	$13,574
2018	$103,640	$256,691	$19,063
2019	$112,519	$285,553	$17,714
2020	$106,951	$272,283	$16,675
2021	$131,088	$313,161	$24,678
Average	**$111,861**	**$280,804**	**$17,905**

Source: SEFSC Socioeconomic Panel (Sep 22) accessed by the SEFSC Economic Query System (April 2023) and BEA GDP deflator (issued April 27, 2023).

Overstreet and Liese (2018) and Liese (SEFSC, pers communication, 2022) estimated average trip net cash flow and average trip net revenue for trips that land Gulf reef fish by all gear are 38% and 51% of total trip revenue, respectively, which indicates Gulf reef fish trips are profitable. [27] Using those percentages for the average GS trip, average trip net cash flow and average trip revenue are about $51 thousand and $68 thousand, respectively, for trips that land gray snapper by all gear from 2017 through 2021 (Table 3.3.1.9). Overstreet and Liese (2018) estimate average net cash flow and net revenue per reef fish trip by vertical gear are 38% and 53% of total trip revenue, respectively.[28] Average net cash flow and net revenue for trips that use longline are 36% and 46% of total trip revenue, respectively; and average net cash flow and net revenue for trips that use divers are 38% and 32%, respectively.

[27] Trip net cash flow is revenue minus the costs for fuel, bait, ice, groceries, miscellaneous, hired crew, and IFQ purchase for a trip. Trip net revenue is revenue less the costs of fuel, bait, ice, groceries, miscellaneous hired crew, and owner labor. Trip net revenue does not include IFQ purchase or any other transfer payment. Overstreet and Liese used 2014 through 2018 data to generate the estimates.

[28] Using data from 2014 through 2018. More recent years estimates of net cash flow and net revenue by gear are not currently available.

Table 3.3.1.9. Average total revenue, net revenue (economic profit) and net cash flow (financial performance) per GS trip by gear, 2017 – 2021.

Average per GS Trip	Vertical Gear	Bottom Longline	Divers	All Gear Combined
Total Revenue	$7,229	$25,950	$2,301	$9,753
Net Revenue	$3,831	$11,937	$736	$50,660
Net Cash Flow	$2,747	$9,342	$874	$67,991

Source: SEFSC Socioeconomic Panel (Sep22) accessed by the SEFSC Economic Query System (March 2023), BEA GDP deflator (issued April 27, 2023), and Overstreet and Liese (2018).

Overstreet and Liese (2018) and Liese (SEFSC pers communication, 2022) estimate average annual net revenue for operations for vessels that land reef fish by all gear is approximately 32% of annual total revenue, which indicates RF-vessels are profitable. Using that percentage, average annual net revenue per GS vessel is about $42.7 thousand (Table 3.3.1.10). Overstreet and Liese (2018) also provide estimates of average annual net cash flow and net revenue per reef fish vessel by selected gear, and those estimates are used to estimate average annual net cash flow and net revenue per GS vessel. Estimates of average annual net cash flow and average annual net revenue per GS vessel by gear are provided in Table 3.3.1.10.

Table 3.3.1.10. Average annual total revenue, net revenue (economic profit) and net cash flow (financial performance) per GS vessel by gear, 2017 – 2021.

Average per GS Trip	Vertical Gear	Bottom Longline	Divers	All Gear Combined
Total Revenue	$111,861	$280,804	$17,905	$133,316
Net Revenue	$39,151	$95,473	$3,402	$42,661
Net Cash Flow	$29,084	$70,201	$1,791	$34,662

Source: SEFSC Socioeconomic Panel (Sep22) accessed by the SEFSC Economic Query System (March 2023), BEA GDP deflator (issued April 27, 2023), and Overstreet and Liese (2018) and Liese (perso communication, 2022).

Producer surplus at the reef fish vessel level is its total annual revenue less the costs of fuel, other supplies, hired crew, and the opportunity cost of the owner's time as captain, which is estimated to be about 52%. From that percentage, producer surplus is estimated to be $69,324. Average economic return (on the asset value) of a reef fish vessel is estimated to be about 46% of annual revenue.

Commercial landings of gray snapper generate economic impacts in the form of jobs, income, value added, and sales. From 2017 through 2021, average annual gray snapper landings with an ex-vessel value of $347,111 generated 41 jobs, and other economic impacts as shown in Table 3.3.1.11.

Table 3.3.1.11. Average annual economic impacts from reported gray snapper commercial landings of RF-permitted (GS) vessels, 2017 – 2021.

Business	Jobs	Income (1,000s)	Value-Added (1,000s)	Sales (1,000s)
Harvesters	10	$306.341	$468.996	$908.990
Primary Dealers/Processors	3	$170.801	$237.432	$541.205
Secondary Wholesalers/Distributors	2	$85.575	$122.447	$260.419
Grocers	4	$137.445	$183.673	$318.245
Restaurants	23	$563.947	$773.491	$1,413.377
All	41	$1,264.109	$1,786.039	$3,442.236

Source: Calculated by NMFS SERO using the model developed for and applied in NMFS (2021).

3.3.2 Recreational Sector

3.3.2.1 Red Snapper

The recreational sector is composed of the private and (federal) for-hire recreational fishing components. The private component is composed of anglers (recreational fishers) fishing from shore (all land-based structures), private/rental boats and for-hire vessels that do not have a federal permit to take reef fish from federal waters. The (federal) for-hire component is composed of for-hire fishing vessels that have a valid federal charter/headboat permit to take reef fish from the EEZ. Because the proposed action does not affect the (federal) for-hire component, the remainder of the discussion of the red snapper recreational sector focuses almost entirely on the private component. Moreover, because the proposed action does not affect red snapper anglers in Louisiana or Texas, the remainder of this section focuses exclusively on the private component in Alabama, Florida and Mississippi.

There are no specific federal permitting requirements for anglers to fish for or harvest reef fish species, including red snapper. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or 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 anglers would be expected to be affected by this action.

Red snapper angler (recreational fishing) effort is derived from the Marine Recreational Information Program (MRIP) database and can be characterized in terms of the number of trips as follows:

- Target effort - The number of individual angler trips, regardless of duration, where the intercepted angler indicated that red snapper was targeted as either the first or the second primary target for the trip. Red snapper did not have to be caught.
- Catch effort - The number of individual angler trips, regardless of duration and target intent, where red snapper 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.

A target trip may be considered an angler's revealed preference for red snapper, and thus may carry more relevant information when assessing the economic effects of regulations on red

snapper than the following two measures of recreational effort. For that reason, the following focuses on individual angler trips that targeted red snapper (first or second species targeted). The most dominant mode of the private component is the private/rental mode, which accounts for, on average, at least 99.5% of angler trips that target red snapper from 2017 through 2021(Table 3.3.2.1). During the 5-year period, an annual average of approximately 1.30 million angler trips targeted red snapper.

Table 3.3.2.1. Gulf red snapper private component target trips and percentage of total private angler component by mode, 2017 – 2021.

Year	AL	FL	MS	Total	AL	FL	MS
	Private/Leased						
2017	643,163	962,252	77,092	1,682,507	99.34%	99.00%	100.00%
2018	364,538	836,260	91,733	1,292,531	100.00%	99.94%	99.93%
2019	562,351	736,971	106,163	1,405,485	100.00%	99.94%	99.44%
2020	383,835	709,558	41,149	1,134,542	99.96%	99.17%	100.00%
2021	315,652	442,079	110,655	868,386	99.85%	99.45%	100.00%
Average	**453,908**	**737,424**	**85,358**	**1,276,690**	**99.83%**	**99.50%**	**99.87%**
	State Charter						
2017	4,298	9,720	3	14,021	0.66%	1.00%	0.00%
2018	0	490	62	552	0.00%	0.06%	0.07%
2019	3	444	594	1,041	0.00%	0.06%	0.56%
2020	154	5,955	0	6,109	0.04%	0.83%	0.00%
2021	482	2,554	0	3,036	0.15%	0.55%	0.00%
Average	**987**	**3,833**	**132**	**4,952**	**0.17%**	**0.50%**	**0.13%**
	Shore						
2017	0	0	0	0	0.00%	0.00%	0.00%
2018	7,166	21,983	0	29,149	1.97%	2.63%	0.00%
2019	1,236	0	0	1,236	0.22%	0.00%	0.00%
2020	0	17,688	0	17,688	0.00%	2.47%	0.00%
2021	5,898	19,734	0	25,632	1.87%	4.44%	0.00%
Average	**2,860**	**11,881**	**0**	**14,741**	**0.81%**	**1.91%**	**0.00%**
	Total Private Angler Component						
2017	647,461	971,972	77,095	1,696,528	100.00%	100.00%	100.00%
2018	364,538	836,750	91,795	1,322,232	100.00%	100.00%	100.00%
2019	562,354	737,415	106,757	1,407,762	100.00%	100.00%	100.00%
2020	383,989	715,513	41,149	1,158,339	100.00%	100.00%	100.00%
2021	316,134	444,633	110,655	897,054	100.00%	100.00%	100.00%
Average	**454,895**	**741,257**	**85,490**	**1,296,383**	**100.00%**	**100.00%**	**100.00%**

Source: MRIP database, SERO NMFS (March 2023).

Note 1: Charter effort from waves when the federal for-hire season was closed are all assigned to state charters (for-hire vessels without a federal reef fish permit) regardless of area fished. All charter effort from the Gulf EEZ and a portion of charter effort from state waters was assigned to the federal for-hire fleet from waves when the federal for-hire season was open. If the federal season was open during a wave, but a state season was open during days outside the federal season in that wave, federal season effort was considered to be effort from the EEZ plus a portion of the effort in state waters computed from the ratio of the federal season length in the wave to the state season length in

the wave. If the state season ended before the federal season in a wave, then all effort was assumed to come from the federal season.
Note 2: Headboat information is unavailable.

The numbers of anglers, targeted trips, and red snapper landed are indicators of the value of recreational red snapper fishing. A more specific indicator of value, however, is the satisfaction that anglers experience over and above their costs of fishing. The monetary value of this satisfaction is referred to as consumer surplus (CS). The value or benefit derived from recreational fishing is dependent on several quality determinants, which include fish size, catch success rate, and the number of fish that can be kept.[29] These variables help determine the value of a fishing trip and influence total demand for recreational fishing trips. The estimated value of the CS for catching and keeping a second red snapper on an angler trip is $90.21 (values updated to 2021 dollars), and decreases thereafter ($60.14 for a third red snapper) (Carter and Liese 2012).

With regard to for-hire trips, economic value can be measured by producer surplus (PS) per angler trip, which represents 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 for trips taken by charter vessels and headboats 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. As shown in Table 3.3.2.2, after accounting for transactions fees[30], supply costs[31], and labor costs[32], net revenue per trip was 43% of revenue for Gulf charter vessels and 55% of revenue for Gulf headboats, or $847 and $1,944 (2021 dollars), respectively. Given the respective average number of anglers per trip for each fleet, PS per angler trip is estimated to be $154 for Gulf charter vessels and $73 for Gulf headboats.

Table 3.3.2.2. Trip-level economics for offshore trips by Gulf charter vessels and headboats in 2017 (2021$).

Average Per Trip	Gulf Charter Vessels	Gulf Headboats
Revenue	$1,952 (100%)	$3,535 (100%)
Transaction Fees	$59 (3%)	$177 (5%)
Labor Costs	$527 (27%)	$742 (21%)
Supply Costs	$527 (27%)	$672 (19%)
Net Revenue	$847 (43%)	$1,944 (55%)
Anglers	5.5	26.6
Trip Net Cash Flow Per Angler	$154	$73

Source: Souza and Liese (2019) and BEA GDP price deflator (April 27, 2023).

Economic value for for-hire vessels can be measured by annual producer surplus (PS) as well. In general, PS is the amount of money a vessel owner earns in excess of variable (trip) costs. Economic profit is the amount of money a vessel owner earns in excess of variable and fixed

[29] The minimum size limit is 16 inches TL in Alabama, Florida and Mississippi. The bag limit for red snapper is currently two red snapper per person per day in Alabama, Florida and Mississippi.
[30] Transaction fees include processing fees and commissions.
[31] Supply costs include fuel, ice, bait and tackle.
[32] Labor costs include hired crew, tips going to hired crew, and opportunity cost to owner for time as captain.

costs, inclusive of all implicit costs, such as the value of a vessel owner's time as captain and as entrepreneur, and the cost of using physical capital (i.e., depreciation of the vessel and gear). In 2021 dollars, Savolainen, et al. (2012) estimated the annual PS for Gulf headboats and charter vessels was $201,262 and $62,431, respectively. Their best estimates of economic profit were $83,969 and $32,517, respectively.

Anglers' expenditures for trips that target red snapper generate economic impacts in the form of jobs, income, sales and value-added. These expenditures include car and/or boat fuel, bait, ice, fishing gear, parking or site access fees, food and drink from grocery stores and/or restaurants, and so on. It should be noted that if anglers stopped fishing for red snapper, the dollars that would have been spent for their red snapper trips would likely go instead to purchasing goods and/or services that support other activities that may not be recreational fishing and those alternative expenditures generate economic impacts. Consequently, the following estimated economic impacts of trips in the private component that target red snapper are distributed across businesses and communities that support recreational fishing. Angler trips that target red snapper in the private component in Alabama, West Florida, and Mississippi, combined, generate 741 jobs, approximately $25.4 million in income, $53.7 million in valued-added, and $83.8 million in sales impacts (Table 3.3.2.3).

Table 3.3.2.3. Average annual economic impacts of angler trips that target red snapper, 2017 – 2021.

	AL	West FL	MS	Total
	Charter Mode			
Target Trips	987	3,833	132	4,952
Value Added Impacts	$430	$1,401	$62	$1,893
Sales Impacts	$781	$2,353	$117	$3,251
Income Impacts	$245	$819	$36	$1,099
Employment (Jobs)	8	21	1	30
	Private/Leased Mode			
Target Trips	453,908	737,424	85,358	1,276,690
Value Added Impacts	$21,441	$27,778	$1,947	$51,166
Sales Impacts	$33,176	$43,055	$3,232	$79,463
Income Impacts	$8,345	$14,576	$1,024	$23,945
Employment (Jobs)	293	377	31	408
	Shore Mode			
Target Trips	2,860	11,881	0	11,881
Value Added Impacts	$22,081	$29,634	$2,009	$53,724
Sales Impacts	$34,321	$46,118	$3,349	$83,788
Income Impacts	$8,698	$15,635	$1,060	$25,393
Employment (Jobs)	4	6	0	10
	Combined Modes			
Target Trips	457,755	753,138	85,490	838,628
Value Added Impacts	$22,081	$29,634	$2,009	$53,724
Sales Impacts	$34,321	$46,118	$3,349	$83,788
Income Impacts	$8,698	$15,635	$1,060	$25,393
Employment (Jobs)	305	404	32	741

Source: Effort data from MRIP (Table 3.3.2.1), estimates of economic impacts calculated by NMFS SERO using NMFS (2021), underlying data provided by the NOAA Office of Science and Technology, and BEA GDP price deflator (April 27, 2023).

3.3.2.1 Gray Snapper

Anglers take more shore trips that target gray snapper than red snapper. From 2017 through 2021, an annual average of approximately 1.52 million angler trips targeted gray snapper. Although the private/leased mode accounted for the largest number of trips out of Alabama and Mississippi, the most popular mode in Florida was the shore mode, and it accounted for over half of angler trips in Florida that targeted gray snapper. Note that there are more average annual trips that target gray snapper (1.52 million) than red snapper (1.30 million). The primary reason for that is that the season for gray snapper is open year-round, while the open season for red snapper is much shorter. Also, note that in 2018 there were no angler trips that targeted gray snapper in Mississippi.

Table 3.3.2.4. Gulf gray snapper target trips and percentage of total by mode, 2017 – 2021.

Year	AL	West FL	MS	Total	Percentage of AL GS Trips (All Modes)	Percentage of W FL GS Trips (All Modes)	Percentage of MS GS Trips (All Modes)
	Private/Leased						
2017	1,474	507,901	212	509,587	12.94%	35.04%	100.00%
2018	6,786	459,916	0	466,702	94.80%	36.83%	
2019	1,400	639,329	9,069	649,798	24.62%	47.60%	100.00%
2020	11,522	787,013	8,081	806,616	94.28%	41.70%	99.37%
2021	4,394	878,646	10,476	893,516	41.71%	54.95%	100.00%
Average	**5,115**	**654,561**	**5,568**	**665,244**	**53.67%**	**43.23%**	**99.84%**
	Charter						
2017	160	18,503	0	18,663	1.40%	1.28%	0.00%
2018	372	12,694	0	13,066	5.20%	1.02%	
2019	385	25,353	0	25,738	6.77%	1.89%	0.00%
2020	261	35,482	51	35,794	2.14%	1.88%	0.63%
2021	335	43,196	0	43,531	3.18%	2.70%	0.00%
Average	**303**	**27,046**	**10**	**27,358**	**3.74%**	**1.75%**	**0.16%**
	Shore						
2017	9,760	923,292	0	933,052	85.66%	63.69%	0.00%
2018	0	776,038	0	776,038	0.00%	62.15%	0.00%
2019	3,902	678,397	0	682,299	68.61%	50.51%	0.00%
2020	438	1,064,630	0	1,065,068	3.58%	56.42%	0.00%
2021	5,805	677,017	0	682,822	55.11%	42.34%	0.00%
Average	**3,981**	**823,875**	**0**	**827,856**	**42.59%**	**55.02%**	**0.00%**
	Combined Modes						
2017	11,394	1,449,696	212	1,461,302	100.00%	100.00%	100.00%
2018	7,158	1,248,648	0	1,255,806	100.00%	100.00%	
2019	5,687	1,343,079	9,069	1,357,835	100.00%	100.00%	100.00%
2020	12,221	1,887,125	8,132	1,907,478	100.00%	100.00%	100.00%
2021	10,534	1,598,859	10,476	1,619,869	100.00%	100.00%	100.00%
Average	**9,399**	**1,505,481**	**5,578**	**1,520,458**	**100.00%**	**100.00%**	**100.00%**

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division (March 23, 2023).

D. Carter (SEFSC pers. comm., 2023) recommends $17 (2013 dollars) as the estimate of the CS for catching and keeping one additional snapper (but not red snapper) in the Gulf of Mexico for both private/leased and charter boats. When updated to 2021 dollars, the CS estimate is $19.87 (BEA GD deflator issued May 19, 2023).

As already discussed in the private angler component of the red snapper recreational sector, the estimated NOR value in 2021 dollars is $176 per Gulf charter angler trip (Liese and Carter

2012). The estimated NOR value per Gulf headboat angler trip is $61. These NOR values also apply to both red snapper and gray snapper.

Angler trips that target gray snapper in Alabama, West Florida, and Mississippi, combined, generate 926 jobs, approximately $35.7 million in income, $66.9 million in valued-added, and $105.4 million in sales impacts (Table 3.3.2.5).

Table 3.3.2.5. Average annual economic impacts of angler trips that target gray snapper, 2017 – 2021.

	AL	West FL	MS	Total
	Charter Mode			
Target Trips	303	27,046	10	27,359
Value Added Impacts	$132	$9,887	$5	$10,024
Sales Impacts	$240	$16,604	$9	$16,852
Income Impacts	$75	$5,778	$3	$5,856
Employment (Jobs)	3	146	0	149
	Private/Rental Mode			
Target Trips	5,115	654,561	5,568	665,244
Value Added Impacts	$242	$24,657	$127	$25,026
Sales Impacts	$374	$38,217	$211	$38,801
Income Impacts	$94	$12,938	$67	$13,099
Employment (Jobs)	3	334	2	340
	Shore			
Target Trips	3,981	823,875	0	827,856
Value Added Impacts	$294	$31,536	$0	$31,830
Sales Impacts	$506	$49,283	$0	$49,789
Income Impacts	$151	$16,612	$0	$16,763
Employment (Jobs)	5	433	0	437
	Combined Modes			
Target Trips	9,399	1,505,482	5,578	1,520,459
Value Added Impacts	$667	$66,080	$132	$66,879
Sales Impacts	$1,119	$104,103	$220	$105,442
Income Impacts	$320	$35,328	$70	$35,718
Employment (Jobs)	11	913	2	926

Source: Effort summary data from Table 3.3.2.4, estimates of economic impacts calculated by NMFS SERO using NMFS (2021), underlying data provided by the NOAA Office of Science and Technology, and BEA GDP price deflator (April 27, 2023).

3.4 Description of the Social Environment

This framework action affects commercial and recreational management of gray snapper and the recreational management of red snapper in the Gulf. The following description includes permits related to the commercial and recreational reef fish fishing by state in order to provide a geographic distribution of fishing involvement. Top communities based on the number of permits are presented. Commercial and recreational landings by state for gray snapper and

recreational landings by state for red snapper are included to provide information on the geographic distribution of fishing involvement. The top communities in the Gulf by commercial gray snapper landings are identified and commercial engagement and reliance for these communities are described. Descriptions of the top communities based on recreational engagement are also included. 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. Lastly, social vulnerability data are presented to assess the potential for environmental justice concerns.

Additional detailed information about communities in the following analysis can be found on NMFS' Southeast Regional Office (SERO) Community Snapshots website.[33]

3.4.1 Commercial Sector

3.4.1.1 Gray Snapper

Permits

A federal Gulf commercial permit for reef fish is required to catch federally managed species, such as gray snapper in the EEZ. Gulf commercial permits for reef fish 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%) (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%).

[33] https://www.fisheries.noaa.gov/southeast/socioeconomics/snapshots-human-communities-and-fisheries-gulf-mexico-and-south-atlantic

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

State	Community	Reef Fish Permits (RR)
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

The majority of the commercial gray snapper catch is landed along the west coast of Florida (average of 87.9% from 2017-2021), followed by Louisiana (11.1%), Alabama (0.5%), Mississippi (0.4%), and Texas (less than 0.1%, SEFSC Commercial ACL Data).

Regional Quotient

Regional Quotient (RQ) is the proportion of gray snapper landed within a community out of the total amount of gray snapper landed within the Gulf. It is an indicator of the percent contribution in pounds or value of gray snapper landed within that community relative to the regional fishery. Figure 3.4.1.1 includes the top gray snapper communities by RQ landings and value in 2021. The top gray snapper communities are located in Florida. Approximately 17% of gray snapper is landed in the top community of Key West, Florida, representing 19.6% of Gulf-wide ex-vessel value for the species. St. Petersburg, Florida ranks second and included 11.6% of gray snapper landings, representing 11.3% of Gulf ex-vessel value. Several of the top 10 communities are located in Pinellas County (Saint Petersburg, Largo, Madeira Beach, and Clearwater) and are within close proximity to each other. This indicates a strong localized relationship to the gray snapper resource.

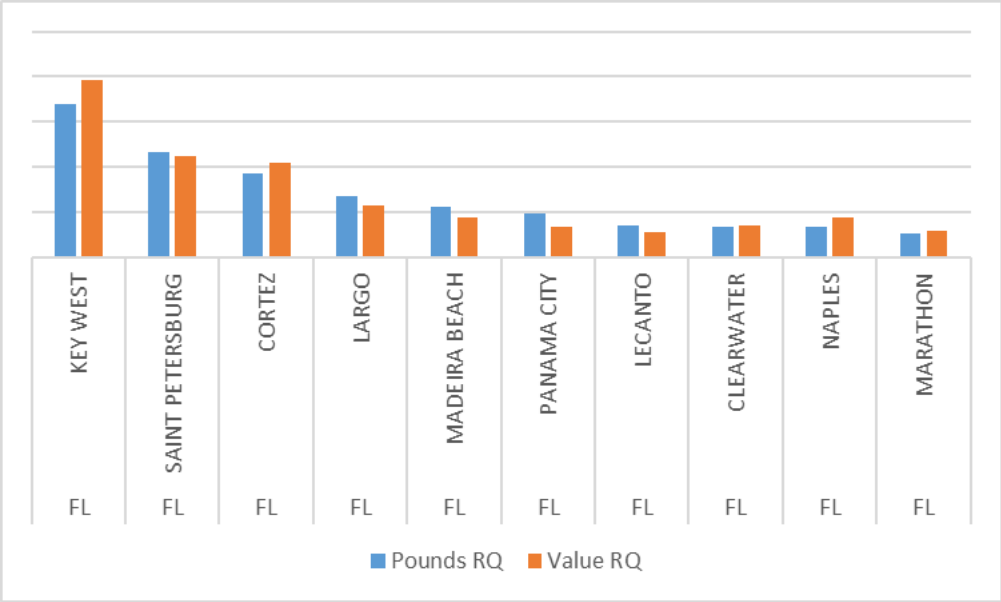

Figure 3.4.1.1. Top Gulf communities ranked by pounds and value RQ of gray snapper.
Source: SERO, Community ALS 2021.

Engagement and Reliance

In addition to examining the RQs to understand how Gulf communities are engaged and reliant on fishing, indices were created using secondary data from permit and landings information for the commercial sector (Jepson and Colburn 2013, Jacob et al. 2013). Fishing engagement is primarily based on the absolute numbers of permits, landings, and value. The analysis used the number of vessels designated commercial by homeport and owner address, value of landings, and total number of commercial permits for each community. Fishing reliance includes the same variables as fishing engagement divided by population to give an indication of the per capita influence of this activity.

Taking the communities with the highest RQs, factor scores of both engagement and reliance for commercial fishing were plotted. Two thresholds of one and one-half standard deviation above the mean are plotted onto the graphs to help determine a threshold for significance. The factor scores are standardized; therefore, a score above one is also above one standard deviation. A score above one-half standard deviation is considered engaged or reliant, with anything above one standard deviation to be very engaged or reliant.

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 gray snapper as depicted in Figure 3.4.1.1. Several communities in Figure 3.4.1.2 would be considered to be highly engaged in commercial fishing, as several are at or above one standard deviation of the mean factor score. Lecanto, Florida shows the least amount of engagement in commercial fishing overall. Cortez, Madeira Beach, and Marathon, Florida demonstrate a moderate level of commercial reliance.

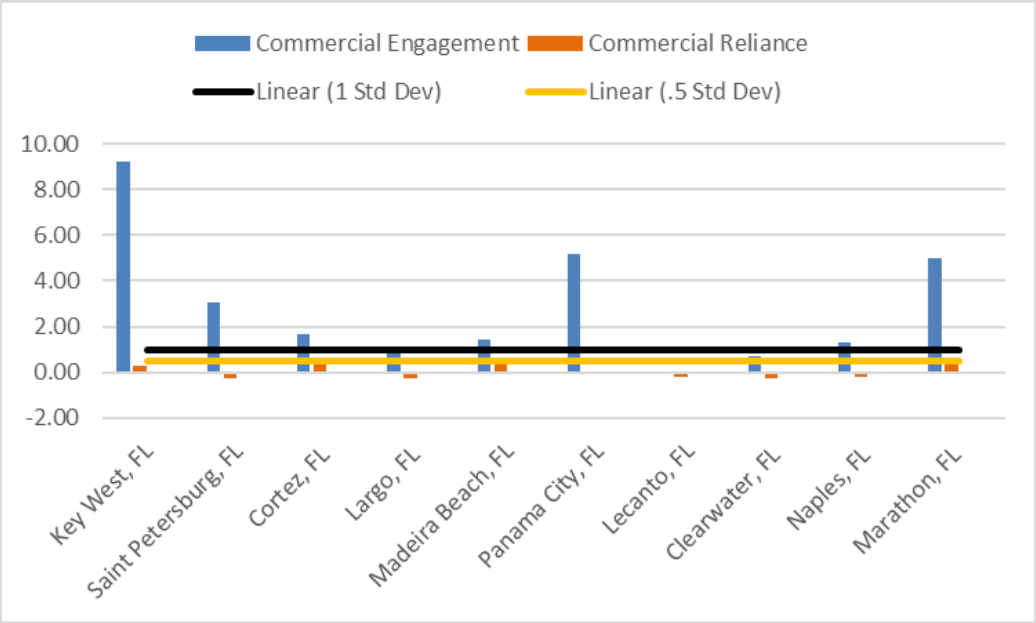

Figure 3.4.1.2. Commercial fishing engagement and reliance for top gray snapper communities.
Source: SERO Community Social Vulnerability Indicators Database 2019.

3.4.2 Recreational Sector

3.4.2.1 Gray Snapper

Permits

A federal permit is required to take paying passengers fishing for federally managed species, such as gray snapper in the Gulf. Charter/headboat permits for reef fish 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 permits for reef fish 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	Charter/Headboat for Reef Fish Permits (RCG)
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

The greatest proportion of recreational gray snapper landings are from waters adjacent to Florida, followed by Louisiana and Mississippi, Alabama, and Texas (Table 3.4.2.2). Table 3.4.2.2 includes gray snapper recreational landings in MRIP-CHTS units and in MRIP-FES units for the purpose of comparison. Louisiana and Mississippi are combined in order to maintain confidentiality.

Table 3.4.2.2. MRIP-CHTS landings by state compared to MRIP-FES landings by state for gray snapper, 2017-2021.

MRIP-CHTS Landings						MRIP-FES Landings				
Year	**AL**	**FL**	**LA/MS**	**TX**		**Year**	**AL**	**FL**	**LA/MS**	**TX**
2017	2.6%	79.6%	15.5%	2.2%		**2017**	3.8%	88.6%	6.7%	0.9%
2018	5.0%	76.7%	16.8%	1.5%		**2018**	5.5%	86.7%	7.2%	0.6%
2019	3.8%	78.0%	15.5%	2.6%		**2019**	3.3%	87.7%	7.9%	1.1%
2020	3.9%	75.1%	17.5%	3.6%		**2020**	2.9%	89.4%	6.6%	1.1%
2021	3.3%	65.0%	30.6%	1.2%		**2021**	1.8%	85.0%	12.7%	0.5%

Source: SEFSC MRIP CHTS Recreational ACL Data and SEFSC MRIP FES Recreational ACL Data.

Engagement and Reliance

Landings for the recreational sector are not available by species at the community level, making it difficult to identify communities as dependent on recreational fishing for gray snapper. 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 owners 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 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 gray 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 Venice, Louisiana; Tavernier, Florida; Islamorada, Florida; and Orange Beach, Alabama demonstrate the highest reliance on recreational fishing. The communities of Marathon, Key West, Destin, and Crystal River, Florida and Port Aransas, Texas demonstrate a moderate to high reliance.

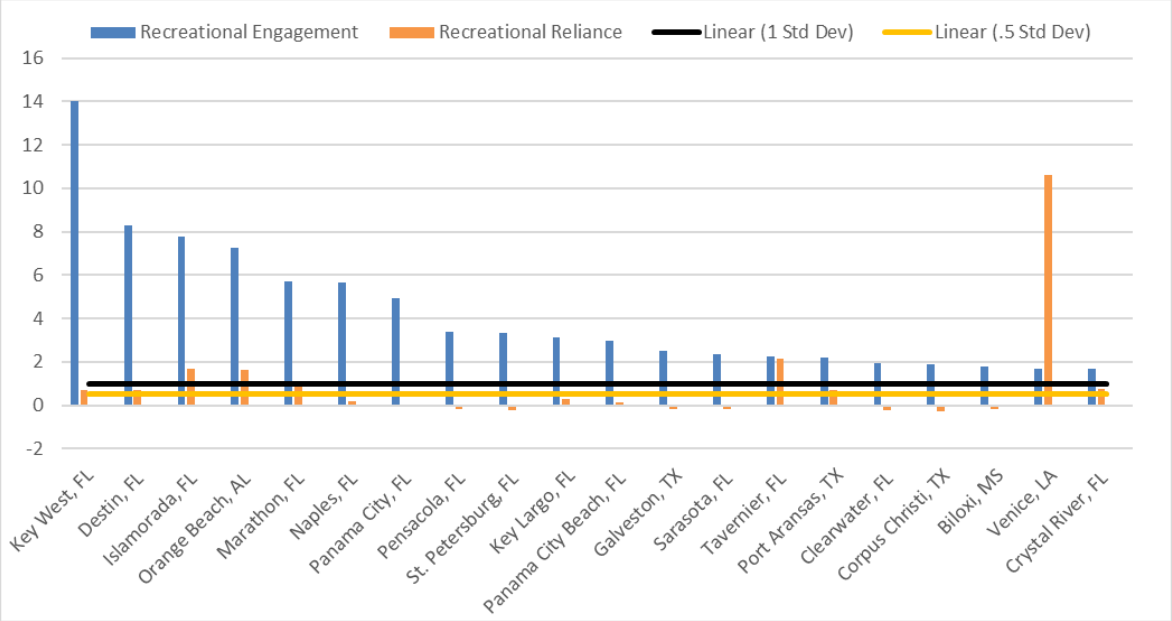

Figure 3.4.2.1. Recreational fishing engagement and reliance for top Gulf communities.
Source: SERO, Community Social Vulnerability Indicators Database 2019.

3.4.2.2 Red Snapper

The red snapper action considered in this framework affects the states of Alabama, Florida, and Mississippi and the private angling component of the red snapper recreational sector, including private vessels and state for-hire vessels within these states. These portions of the recreational sector are the main focus of the section below; however all recreational landings by state are presented in order to provide context. Recreational landings are described below by component for only Alabama, Florida, and Mississippi because the private angling component of these states is the focus of the considered action.

Landings

The greatest proportion of all recreational red snapper landings are from the waters adjacent to the west coast of Florida (average of 44.4%% from 2018-2021), followed by Alabama (25.6%), Louisiana (16.1%), Texas (11.4%) and Mississippi (2.5%, SEFSC MRIP-FES Recreational ACL Dataset and Individual State Surveys). Data from 2018 to 2021 are presented because state survey data were available for these years for all states.

Within Florida, the greatest proportion of recreational red snapper landings are by the private angling and state charter component (average of 60.5% from 2018-2021; SEFSC MRIP-FES Recreational ACL Dataset and Individual State Surveys), followed by the federal for-hire component (39.5%). Within Alabama, the greatest proportion of recreational red snapper landings are by the private angling and state charter component (61.5%), followed by the federal for-hire component (38.5%). And within Mississippi, the greatest proportion of the recreational red snapper landings are by the private angling and state charter component (87.3%), followed by the federal for-hire component (12.7%).

Engagement and Reliance

As described in Section 3.4.2.1, landings for the recreational sector are not available by species at the community level which makes it difficult to identify communities as dependent on recreational fishing for specific species, such as red snapper. Indices were created using permit and infrastructure information for the recreational fishing sector because of the limited data available concerning engagement and reliance at the community level. These indicators are described in detail in Section 3.4.2.1.

The following description focuses on the top communities in the states of Alabama, Florida, and Mississippi. The Florida communities of Key West, Destin, Islamorada, Marathon, Naples, Panama City, Pensacola, St. Petersburg, Key Largo, Panama City Beach, Sarasota, Tavernier, Clearwater, and Crystal River are identified in Figure 3.4.2.1 as being highly engaged in recreational fishing. The communities of Tavernier, Florida and Islamorada, Florida demonstrate the highest reliance on recreational fishing and Marathon, Key West, Destin, and Crystal River, Florida demonstrate a moderate to high reliance. The community of Orange Beach is highly recreationally engaged in Alabama and also demonstrates a high reliance on recreational fishing. The community of Biloxi, Mississippi is identified as highly engaged in Figure 3.4.2.1.

The description of fishing activities presented here highlights those communities that may be most involved in commercial and recreational fishing for Gulf gray snapper and the private angling component of recreational Gulf red snapper. It is expected that the impacts from the regulatory actions in this amendment, would most likely affect those communities identified above.

3.4.3 Environmental Justice, Equity, and Underserved Communities

Federal agencies are required to consider the impacts and/or address the inequalities of their policies on minority populations, low-income populations, disadvantaged communities, and/or underserved communities. These requirements are outlined in the following Executive Orders (E.O.).

E.O. 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. The main focus of E.O. 12898 is to consider "the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories…" This E.O. is generally referred to as environmental justice.

E.O. 13985 requires federal agencies to recognize and work to redress inequalities in their policies and programs that serve as barriers to equal opportunity, including pursuing a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality. Federal agencies must assess how programs and policies perpetuate systemic barriers to opportunities and benefits to people of color and other underserved groups in order to equip agencies to develop policies and programs that deliver resources and benefits equitably to all.

E.O. 13985 provides definitions for equity and underserved communities, which expand the definition of a community from being geographically situated, or place-based, as defined through the Magnuson-Stevens Act, to also include communities that share a particular characteristic (e.g., crew of commercial gray snapper or red snapper fishing vessels). Equity means the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. The term ''underserved communities'' refers to populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, as exemplified by the list in the preceding definition

of ''equity.'' According to NOAA Fisheries Equity and Environmental Justice Strategy,[34] "specific to the fisheries context, underserved groups within fishing communities may include, for example, subsistence fishery participants and their dependents, fishing vessel crews, and fish processor and distribution workers.

E.O. 14008 calls on agencies to make achieving EJ part of their missions "by developing programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts." Census data are available to examine the status of communities with regard to minorities and low-income populations. These data describe geographically based communities (e.g., Panama City, Florida) and are descriptive of the total population, not limited to the fishing components of the community. Information is not available at this time to examine the status of underserved populations engaged in Gulf fisheries. To help assess whether EJ concerns may be present within regional place-based communities, a suite of indices were created using census data to examine the social vulnerability of coastal communities within the region. The three indices are poverty, population composition, and personal disruption. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community's vulnerability. Poverty includes poverty rates for different groups; population composition includes more single female-headed households, households with children under the age of five, minority populations, and those that speak English less than well; and personal disruption includes disruptions such as higher separation rates, higher crime rates, and unemployment. Increased rates in the indicators are signs of populations experiencing vulnerabilities. Again, for those communities that exceed the threshold it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

Figures 3.4.3.1 and 3.4.3.2 provide social vulnerability rankings for place-based communities identified in Section 3.4 as important to commercial and recreational fishing for gray snapper or for recreational fishing for red snapper. Two communities exceed the threshold of one standard deviation above the mean for at least one of the indices (Crystal River, Florida and Venice, Louisiana). Several communities exceed the threshold of one-half standard deviation above the mean for at least one of the indices (Apalachicola, Fort Myers, Marathon, Panama City, and Tampa, Florida; Biloxi, MS; and Corpus Christi and Galveston, Texas). These communities would be the most likely to exhibit vulnerabilities to social or economic disruption resulting from regulatory change.

[34] https://media.fisheries.noaa.gov/2022-05/2022-05-NOAAFisheries-EEJ_508.pdf

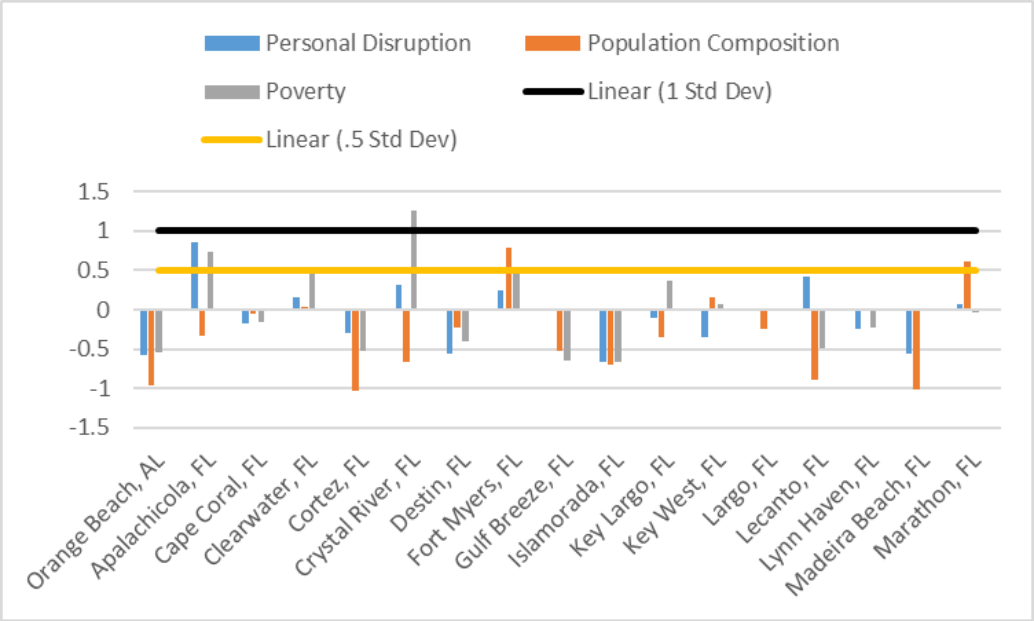

Figure 3.4.3.1. Social vulnerability indices for top commercial and recreational gray snapper and recreational red snapper communities.
Source: SERO, Community Social Vulnerability Indicators Database 2020.

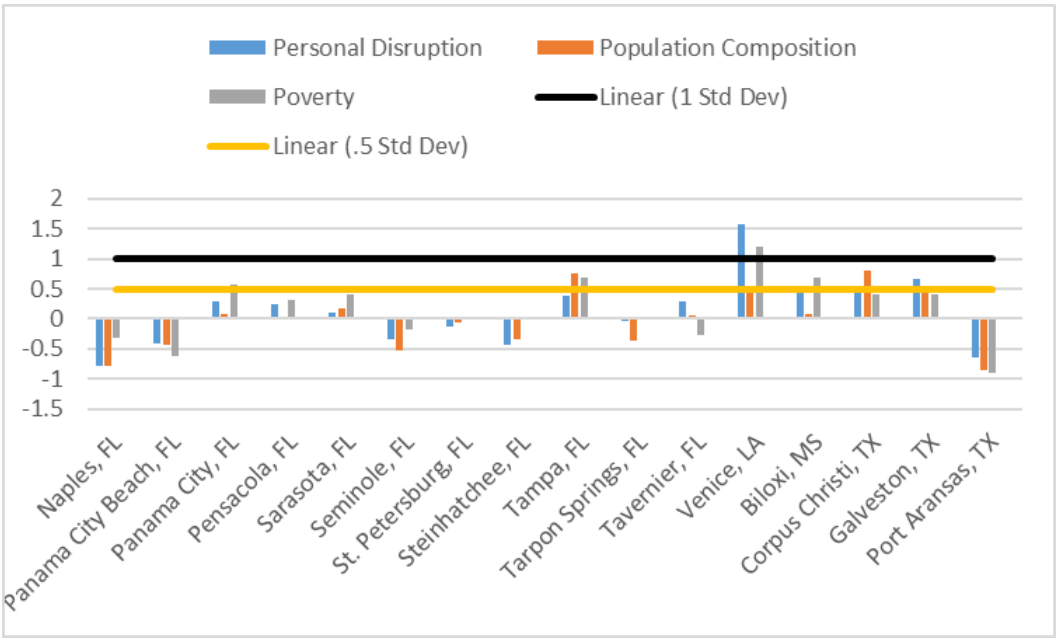

Figure 3.4.3.2. Social vulnerability indices for top commercial and recreational gray snapper and recreational red snapper communities continued.
Source: SERO, Community Social Vulnerability Indicators Database 2020.

People in these communities may be affected by fishing regulations in two ways: participation and employment. Although the place-based communities identified in Figures 3.4.3.1 and 3.4.3.2 may have the greatest potential for EJ concerns, complete data are not available on the race and income status for those involved in the local fishing industry (employment), or for their dependence on gray snapper or red snapper specifically (participation). The potential effects of

the actions on place based communities and non-place based communities, such as commercial fishermen and recreational stakeholders are discussed in Sections 4.1.4 and 4.2.4. There are no known populations that rely on the consumption of gray snapper and red snapper for subsistence. However, because the private angling component is the focus of the red snapper action, it is more likely that subsistence users could be impacted because boat access is not required to fish as part of the private angling component, although the effects of this action are expected to be positive. Although no EJ issues have been identified, the absence of potential EJ concerns cannot be assumed.

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 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 Section 10. In most cases, the Secretary has delegated this authority to NMFS.

The Gulf Council is responsible for fishery resources in federal waters of the Gulf. These waters extend to 200 nautical miles offshore from the seaward boundaries of 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 Gulf 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 states exercises legislative and regulatory authority over their states' natural resources through discrete administrative units. Although each agency is the primary administrative body with respect to the states' natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources. A more detailed description of each state's primary regulatory agency for marine resources is provided on their respective web pages (Table 3.5.2.1).

The states are responsible for establishing some management measures (i.e., fishing seasons, bag limits, size limits; these may vary by state and year) for the private angling component's harvest of red snapper (Amendment 50A; GMFMC 2019a).

Table 3.5.2.1. State marine resource agencies and web pages.

State Marine Resource Agency	Web Page
Alabama Marine Resources Division	http://www.outdooralabama.com/
Florida Fish and Wildlife Conservation Commission	http://myfwc.com/
Louisiana Department of Wildlife and Fisheries	http://www.wlf.louisiana.gov/
Mississippi Department of Marine Resources	http://www.dmr.ms.gov/
Texas Parks and Wildlife Department	http://tpwd.texas.gov/

The states are now responsible for establishing some management measures (i.e., fishing seasons, bag limits, size limits; these may vary by state and year) for the private angling component's harvest of red snapper (Amendment 50A; GMFMC 2019a) for 2020 and subsequent years. In-season quota monitoring for the private angling component is performed by the states, with the states being responsible for closing the waters adjacent to their state once the state's ACL has been projected to be met. Private recreational fishing vessels are not required to have a federal permit to harvest individual species or species complexes in the reef fish fishery from the Gulf EEZ. However, anglers aboard these vessels must either be federally registered or licensed in states that have a system to provide complete information on the states' saltwater anglers to the national registry.

The federal for-hire component of the recreational sector in the Gulf is managed by NMFS. In 2015, the for-hire component was given a separate quota from the private angling component (GMFMC 2014); consequently, the duration of the for-hire fishing season may vary from the season durations for the private angling component as specified by each Gulf state. Presently, the for-hire component's fishing season begins on June 1 and closes when the component's annual catch target is predicted to be harvested (see Section 1.3 for more information on for-hire quota monitoring). Any for-hire fishing vessel that takes anglers into the Gulf EEZ where anglers harvest species or complexes in the reef fish fishery must have a limited-access charter vessel/headboat (for-hire) permit for reef fish that is specifically assigned to that vessel. Since 2003, there has been a moratorium on the issuance of new federal reef fish for-hire permits. This means that participation in the federal for-hire component is capped; no additional federal permits are available. Although the for-hire permit application collects information on the primary method of operation, the permit itself does not identify the permitted vessel as either a

headboat or a charter vessel, and vessels may operate in both capacities. However, only federally permitted headboats are required to submit harvest and effort information to NMFS Southeast Regional Headboat Survey (SRHS). Participation in the SRHS is based on determination by the SEFSC that the vessel primarily operates as a headboat. Federally permitted charter and headboats are no longer required to report through the Southeast For-Hire Integrated Electronic Reporting program. Most charter vessel trips occur in the exclusive economic zone and target reef fish species (i.e., snappers and groupers; Savolainen et al. 2012).

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

4.1 Action: Update to Red Snapper Calibrations

4.1.1 Effects on the Physical Environment

The alternatives in this action would modify the state-specific red snapper private angling component annual catch limits (ACL) for Florida, Alabama, and Mississippi. While this action would not directly affect the physical environment, catch levels that allow for more or less harvest may change fishing activity, which could indirectly affect this environment. Any effects from this action are not expected to be significant, as this action is not expected to change how the reef fish fishery is prosecuted overall. The reef fish fishery in the Gulf of Mexico (Gulf) is a multi-species fishery targeting many species. This action would only affect the private angling component of the recreational sector targeting red snapper.

Participants in the private angling component of the recreational sector of the reef fish fishery primarily use vertical lines (i.e., hook-and-line, and trolling). Concentrations of many managed reef fish species are higher on hard bottom areas than on sand or mud bottoms, thus vertical line gear fishing generally occurs over hard bottom areas (GMFMC 2004a). Vertical line gear includes rod-and-reels, and while less likely to contact the bottom than other gear types (e.g., bottom longline gear), it 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). 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, particularly by the recreational sector, where anglers may repeatedly visit well-marked or known fishing locations. Hamilton (2000) pointed out that "favorite" fishing areas such as reefs are targeted and revisited multiple times, particularly with the advent of GPS technology. 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 vessels that use vertical line gear are typically known to anchor more frequently over the reef sites. Spears are used by some recreational fishermen to harvest reef fish, but represent a relatively minor component of fishing effort. Barnette (2001) summarized a previous study that concluded spearfishing on reef habitat might result in some coral breakage, and could result in some impacts from divers touching coral with their hands or from re-suspension of sediment by fins.

Alternative 1 (No Action) would maintain the current state-specific calibration ratios for the private angling component for Florida, Alabama, and Mississippi, based on GMFMC (2021).[35] Under **Alternative 1**, the effects on the physical environment in these states would be similar to what has been experienced in recent years (2018-2020, i.e., the years used to determine the calibration ratios in **Alternative 1**) under the respective state-specific ACLs. **Preferred Alternative 2** would modify the state-specific ACLs for these states consistent with the most

[35] https://gulfcouncil.org/wp-content/uploads/Red-Snapper-Data-Calibration-and-ACL-Modification-10132021-FINAL.pdf

recent understanding of the relationship between the landings estimates produced by each state's survey and the estimates produced by Marine Recreational Information Program (MRIP)-Coastal Household Telephone Survey (CHTS). Relative to **Alternative 1**, the calibration ratios proposed for these states in **Preferred Alternative 2** represent an increase in each state's ACL as determined by their respective state surveys. However, the federal ACL, to which the respective state ACLs are calibrated, does not allow any additional harvest by any state under **Preferred Alternative 2** relative to **Alternative 1**. Thus, selection of **Preferred Alternative 2** is expected to have similar effects to those determined in the Calibration Framework (GMFMC, 2022) because **Preferred Alternative 2** would implement catch levels that are consistent with the analyses done in that Action. In addition, because of the multi-species nature of the reef fish fishery, the actions taken in this framework action are not expected to change the overall fishing pressure or nature of the fishery as a whole under either **Alternative 1** or **Preferred Alternative 2**, and thus the impacts of this action on the physical environment are expected to be negligible.

4.1.2 Effects on the Biological Environment

Direct and indirect effects from fishery management actions have been discussed in detail for a variety of reef fish species in past amendments to the Fishery Management Plan for Reef Fish Resources in the Gulf (Reef Fish FMP; e.g., GMFMC 2018, 2019a, 2021) and are incorporated here by reference. Management actions that affect the biological and ecological environment mostly relate to the impacts of fishing on a species' population size, life history, and the role of the species within its habitat. Removal of fish from the population through fishing reduces the overall population size. Fishing gear types have different selectivity patterns that refer to a fishing method's ability to target and capture organisms by size and species. This includes the number of discards, which are expected to be mostly sublegal fish or fish caught during seasonal closures, and the mortality associated with releasing these fish. Fishing can affect life history characteristics of reef fish such as growth and maturation rates. For example, Fischer et al. (2004) and Nieland et al. (2007) found that the average size-at-age of red snapper had declined and associated this trend with fishing pressure. Woods (2003) found that the size at maturity for Gulf red snapper had declined and speculated this change may also have been due to increases in fishing effort. If fish are released due to catch limits, seasons, or other regulatory measures, these fish are considered regulatory discards. Bycatch includes regulatory discards, economic discards, and fish discarded at sea or elsewhere for any other reason. Bycatch practicability analyses have been completed for red snapper (GMFMC 2004b, GMFMC 2007, GMFMC 2014, GMFMC 2019a). In general, these analyses found that reducing bycatch provides biological benefits to managed species, as well as benefits to the fishery through less waste, higher yields, and less forgone yield. Some management measures can increase bycatch through regulatory discards such as increased minimum sizes and closed seasons. However, these measures are implemented in situations where the biological benefit to the managed species outweighs any increases in discards. For this action, any effects on bycatch are likely to be negligible because the action is not expected to change how the reef fish fishery is prosecuted.

Fishing for species in the reef fish fishery can also affect species outside the reef fish complex. However, the reef fish fishery is not likely to jeopardize the continued existence of any endangered species and has a remote likelihood of, and no known incidental mortality or serious injury of, marine mammal species. Modifying the state-specific private recreational ACL

calibrations through this action is not expected to change how the reef fish fishery is prosecuted or result in any impacts beyond those described in Section 3.2.

Alternative 1 (No Action) would maintain the current state-specific ACL calibration ratios and the corresponding ACLs for Florida, Alabama, and Mississippi. Under **Alternative 1**, due to the multi-species nature of the reef fish fisheries, effects on the biological/ecological environment would be similar to what has been experienced in recent years in these states (2018-2020). Landings would still be limited insofar as the stock is managed under the current state-specific ACLs, and once these landings are calibrated, do not in turn result in an overage of the private recreational component's federal ACL. **Alternative 1** would continue to allow the monitoring of landings in Florida, Alabama, and Mississippi using the calibration ratios established in GMFMC (2021), which were effective as of January 1, 2023. **Alternative 1** is expected to maintain the landings that were implemented in the 2023 framework action. **Alternative 1** is expected to have positive effects on the red snapper stock because catch level allowances contained in the alternative would allow for continued rebuilding of the red snapper stock.

Preferred Alternative 2 would modify the state-specific ACLs for Florida, Alabama, and Mississippi consistent with the most recent understanding of the relationship between the landings estimates produced by each state's survey and the estimates produced by MRIP-CHTS. This would to allow for an increase each of these state's private angling component landings relative to **Alternative 1**. **Preferred Alternative 2** uses updated landings data for these three states to revise the calibration ratios between each state's respective survey and MRIP-CHTS. Although **Preferred Alternative 2** is expected to result in an increase in the state-specific ACLs for red snapper relative to **Alternative 1**, the revised calibration ratios in **Preferred Alternative 2** are expected to continue to constrain the harvest of red snapper to the state-specific ACLs in MRIP-CHTS units. Therefore, the biological and ecological effects from **Preferred Alternative 2** are expected to be similar to those of **Alternative 1**. Overall, due to the multi-species nature of the reef fish fishery, effects of Action 1 are expected to be negligible, since they are not expected to change how the reef fish fishery is prosecuted.

4.1.3 Effects on the Economic Environment

Under **Alternative 1** (No Action), the states of Florida, Alabama, and Mississippi would continue to rely on outdated calibration ratios which do not reflect the adequate conversion ratios between each state's measurement unit for recreational landings and the federal measurement. **Alternative 1**, which is not consistent with the best scientific information available, would lead states to unnecessarily shorten their recreational red snapper fishing seasons and curtail fishing opportunities to their private recreational anglers.

For the states of Alabama, Florida, and Mississippi, **Preferred Alternative 2** would apply to each state a calibration ratio consistent with the best scientific information available. **Preferred Alternative 2** would allow these states to monitor recreational red snapper landings and set seasons based on calibration ratios that reflect the adequate conversion rate between the federal and each state's measurement unit. Although it would not change the federal recreational red snapper ACL, the recalibration of states' landings using updated conversion ratios would result in increases in each state's ACL, thereby increasing fishing opportunities for anglers in each

state. The economic effects expected to result from the adjustments to states' calibration ratios is evaluated based on changes in consumer surplus (CS) to anglers in of the state impacted. The CS per additional fish kept during a trip is defined as the amount of money an angler would be willing to pay for a fish in excess of the cost to harvest the fish. Changes in CS are evaluated based on differences between each state's ACL measured in the current state unit and the ACL measured in the corresponding state unit adjusted using the state's updated calibration ratio. Differences between each state's adjusted ACL and current ACL, which are provided in Table 2.1.3, are converted in number of fish using an average weight of 6.09 pounds (lb) whole weight (ww) per red snapper (GMFMC, 2022). Based on information provided in Section 3.3.1., a CS of $90.21 ($2021) per red snapper is used. Table 4.1.3.1 provides changes in each state's ACL in pounds and in number fish, and in consumer surplus to anglers.

Table 4.1.3.1. Changes in states' ACL (lb ww), in number of fish and in consumer surplus ($2021).

State	Difference relative to Alternative 1		
	State ACL (lb ww)	Number of fish	Consumer surplus ($2021)
Alabama	106,352	17,463	$1,575,372
Florida	700,578	115,037	$10,377,527
Mississippi	22,988	3,775	$340,517

For the states of Alabama, Florida, and Mississippi, **Preferred Alternative 2** would increase the calibrated state ACL by 106,352 lb ww, 700,578 lb ww, and 22,988 lb ww, respectively. For these states, corresponding increases in consumer surplus to anglers are estimated at $1.58 million, $10.38 million, and $0.34 million ($2021), respectively. In addition to increases in states' calibrated ACLs and associated increases in consumer surplus to anglers, the updated calibration ratios proposed in **Preferred Alternative 2** are expected to result in better management measures in the future because they are consistent with the best scientific information available.

4.1.4 Effects on the Social Environment

Although additional effects would not usually be expected from **Alternative 1**, the current calibration ratios do not reflect the most recent state landings data and are no longer consistent with the best scientific information available. Thus, retaining the current calibration ratios would result in the state-specific ACLs of Florida, Alabama, and Mississippi being met sooner, forgoing fishing opportunities as anglers in those states fish under a lower quota than a more appropriate conversion factor would allow, thereby resulting in direct negative effects.

Preferred Alternative 2 would update the calibration ratios for Florida, Alabama, and Mississippi to better approximate a conversion from the units used to monitor landings in each state's data collection program to MRIP-CHTS units in which the federal recreational ACL for

red snapper is set. Positive effects would be expected from updating the calibration ratios as more red snapper would be allowed to be harvested without exceeding the state's ACL in MRIP-CHTS units. These positive effects would accrue to the anglers in each state in relation to the increased amount of fish available to be landed, compared to the amount of fish allowed under the current calibration ratios. Alabama's anglers would benefit from a 12.4% increase to its state ACL, representing an additional 106,352 lb ww of fish in its state units; Florida's anglers would benefit from a 26.4% increase, representing 700,578 lb ww of fish in its state units; and Mississippi would benefit from a 31.0% increase, representing 22,988 lb ww of fish in its state units (Table 2.1.3). Because the change in each state's calibration ratio represents a conversion to bring consistency between state measurement units and federal measurement unites, there is not an increase in the likelihood of the state's ACL being exceeded despite the additional fish provided for harvest in the state's data units.

4.1.5 Effects on the Administrative Environment

Modifying catch limits does not typically result in substantial direct or indirect effects on the administrative environment. This is expected to be the case with regard to **Preferred Alternative 2**, which sets viable catch limits that are expected to constrain catch below the ACL and overfishing limit (OFL). Regardless, the administrative burden of monitoring to various catch limits would not be significant because monitoring to these limits is routine for the Southeast Regional Office (SERO). Once these catch limits are implemented, regulations to manage red snapper would remain unchanged regardless of the choice of harvest levels. SERO monitors both the recreational and commercial landings in cooperation with the Southeast Fisheries Science Center (SEFSC) and Gulf states to determine if landings are meeting or exceeding the specified catch limits. Some administrative burden is anticipated with respect to outreach as it relates to notifying stakeholders of the changes to harvest levels.

Alternative 1 may have slightly more risk of increased administrative burden because the lower state ACLs under **Alternative 1** may be slightly more likely to be exceed than the ACL for each state under **Preferred Alternative 2.** If they are exceeded, the National Marine Fisheries Service (NMFS) would require a payback of the quota overage in the following year, which would be an increase in administrative burden for both NMFS and any the state that exceeded their ACL.

4.2 Action: Update gray snapper stock catch limits

4.2.1 Effects on the Physical Environment

Modifying gray snapper catch limits is not expected to significantly affect the physical environment. Effects on the physical environment from fishing are associated with gear coming into contact with the bottom. Different gear types have different levels of impact. Commercial and recreational gray snapper fishing uses vertical line gear (rod and reel, bandit gear for commercial vessels) most frequently, which can interact with and affect bottom habitat. Commercial longline fishing gear, which interacts with bottom habitat over the length of the deployed gear, may also occasionally capture gray snapper (Scott-Denton et al. 2011). Anchor damage is also associated with vertical line fishing vessels, particularly by the recreational sector

where anglers may repeatedly visit well-marked fishing locations. Preferred fishing sites, like reefs, are targeted and revisited multiple times (Bohnsack 2000). Effects from fishing on the physical environment are generally tied to fishing effort. The greater the fishing effort, the more gear interacts with the bottom. Fouled fishing gear may entangle and harm deep-water coral habitats, and may also contribute to algal growth on and adjacent to fouled gear (Bohnsack 2000).

Alternative 1 (No Action,) would not change the current catch limits, and therefore would not result in a change in effects to the physical environment. **Alternative 2** and **Preferred Alternative 3** would increase the catch limits and are expected to increase fishing pressure for gray snapper. **Alternative 2** would allow greater harvest in the initial years (2024 and 2025), but allowable harvest would gradually decrease between 2024 and 2028. **Preferred Alternative 3** would have comparatively lower allowable harvest in the initial years, but allowable catch would remain constant between 2024 and 2028, and beyond. Both **Alternative 2** and **Preferred Alternative 3** would allow the same overall harvest between 2024 and 2028, and thus, effects from these two alternatives on the physical environment are expected to be similar.

Effects to the physical environment under either **Alternative 2** or **Preferred Alternative 3** are expected to be negligible, because no significant change in overall fishing effort in the reef fish fishery is expected. Fishing for reef fish species in the Gulf is historically a multi-species endeavor for both commercial and recreational fishermen, and especially so for the latter. Therefore, minor changes in effort targeting a specific species are not expected to change how the overall reef fish fishery is prosecuted in the Gulf.

4.2.2 Effects on the Biological Environment

All Action 2 alternatives are expected to have a positive effect on the gray snapper stock because they each promote sustainable harvest of gray snapper within the limits recommended by the Gulf of Mexico Fisheries Management Council's (Council) Scientific and Statistical Committee (SSC) as best scientific information available and are not expected to result in overfishing of the Gulf gray snapper stock.

Alternative 1 (No Action) would maintain lower catch limits than those recommended by the SSC, and would therefore result in more positive effects to the gray snapper stock than **Alternative 2** and **Preferred Alternative 3**. This is because the higher catch limits under **Alternative 2** and **Preferred Alternative 3** are expected to increase the removal of gray snapper from the stock more so than **Alternative 1**. Thus, **Alternative 2** and **Preferred Alternative 3** would have a less positive effect on the gray snapper stock compared to **Alternative 1** through greater removals from 2024 through 2028. Because **Alternative 2** and **Preferred Alternative 3** result in the same allowable harvest between 2024 and 2028, they are expected to have similar effects on the gray snapper stock. **Alternative 2** would have more less positive effects on the gray snapper stock in 2024 and 2025 than **Preferred Alternative 3** because catch limits would be lower under **Preferred Alternative 3**, which uses a constant catch approach to management. However, **Preferred Alternative 3** is expect to have less positive effects in 2027, 2028, and beyond, as it allows for higher catch limits in those years.

The relationships among species in marine ecosystems are complex and poorly understood, making the nature and magnitude of ecological effects difficult to predict with any accuracy. It is possible that forage species and competitor species could increase or decrease in abundance in response to a decrease or increase in gray snapper abundance. In addition, the relationships between gray snapper and non-target species caught on trips where gray snapper are directly targeted are not fully understood. However, effects of any of the alternatives in this action on the biological environment are expected to be negligible, because the actions herein are not expected to appreciably change how the reef fish fishery as a whole is prosecuted, so no additional effects to non-target species or protected resources are anticipated.

4.2.3 Effects on the Economic Environment

Alternative 1 (No Action) would maintain the current gray snapper OFL, acceptable biological catch (ABC), and ACL. Therefore, **Alternative 1** would not be expected to result in economic effects. However, **Alternative 1** is not consistent with the SSC's latest recommendations. In addition, **Alternative 1**, which is based on MRIP-CHTS, is obsolete because landings are now monitored in MRIP-Fishing Effort Survey (FES) units.

Alternative 2 and **Preferred Alternative 3** would modify gray snapper catch limits in accordance with the SSC's recommendations based on SEDAR 75. **Alternative 2** would set decreasing catch limits between 2024 and 2028. **Preferred Alternative 3** would set catch limits based on a constant catch scenario.

For the recreational sector, the economic effects expected to result from **Alternative 2** and **Preferred Alternative 3** were measured in changes in economic value, i.e., changes in consumer surplus (CS) for anglers and changes in producer surplus (PS) to for-hire operators. Changes in CS are evaluated based on differences between estimated recreational portions of the ACLs in **Alternative 2** and **Preferred Alternative 3** and 2017-2021 average recreational gray snapper landings. Changes in PS are evaluated based on expected changes in the number of for-hire trips targeting gray snapper. Expected economic effects provided in this section assume that the totality of the ACL increases estimated to accrue to the recreational sector is harvested. Should the recreational sector harvest less than its estimated allotted portion, economic effects would be prorated accordingly.

CS per additional fish kept during a trip is defined as the amount of money an angler would be willing to pay for a fish in excess of the cost to harvest the fish. Changes in CS expected to result from ACL changes in **Alternative 2** and **Preferred Alternative 3** were based on an estimated CS per gray snapper and on the expected changes in recreational gray snapper landings relative to the status quo alternative (**Alternative 1**). Expected changes in recreational gray snapper landings were determined by subtracting 2017-2021 average recreational gray snapper landings from estimated recreational portions of the ACLs in **Alternative 2** and **Preferred Alternative 3**. As provided in Table 1.4.2., recreational gray snapper landings averaged 4,564,070 lb ww between 2017 and 2021 and accounted for 97.6% of the gray snapper landings. Expected changes in recreational gray snapper landings were converted into numbers of fish based on a 2017-2021 average weight of 2.28 lb ww per gray snapper (M. Larkin, SERO personal. comm. 2023). Based on information provided in Section 3.3.2., a CS of $19.87

($2021) per gray snapper is used. For **Alternative 2** and **Preferred Alternative 3**, expected changes in recreational gray snapper landings expressed in lb ww and in number of fish, and associated expected changes in economic value are provided in Table 4.2.3.1.

Table 4.2.3.1. Annual and cumulative (2024-2028) recreational shares of gray snapper stock ACLs, estimated changes in landings, number of fish, and consumer surplus ($2021).

Alternative 2					
Year	**ACL (mp ww)**	**Recreational Share of ACL (mp ww)**	**Changes relative to Alternative 1**		
			Landings (lb ww)	**Number of fish**	**Consumer Surplus ($2021)**
2024	6.498	6.342	1,777,978	779,815	$15,494,924
2025	6.102	5.956	1,391,482	610,299	$12,126,645
2026	5.703	5.566	1,002,058	439,499	$8,732,849
2027	5.331	5.203	638,986	280,257	$5,568,709
2028	5.003	4.883	318,858	139,850	$2,778,821
Total	28.637	27.950	5,129,363	2,249,721	$44,701,949
Average	5.727	5.590	1,025,873	449,944	$8,940,390
Preferred Alternative 3					
2024	5.728	5.591	1,026,458	450,201	$8,945,493

Between 2024 and 2028, **Alternative 2** is estimated to cumulatively increase recreational gray snapper landings by 5.13 mp ww. The associated cumulative increase in consumer surplus to recreational anglers is estimated at $44.70 million ($2021). On average, **Alternative 2** is expected to increase recreational gray snapper landings and associated consumer surplus by 1.03 mp ww and $8.94 million ($2021) annually, respectively. **Preferred Alternative 3**, which would implement a constant catch approach, is expected to result in annual increases in recreational landings and associated consumer surplus estimated at 1.03 mp ww and $8.95 million ($2021) per year, respectively.

In addition to increases in consumer surplus to anglers, **Alternative 2** and **Preferred Alternative 3** are expected to result in increases in producer surplus to for-hire operators due to expected increases in for-hire trips targeting gray snapper. Based on information provided in Section 3.3.2, a PS per angler trip is estimated at $176 ($2021). Between 2017 and 2021, for-hire trips targeting gray snapper averaged 27,358 trips per year (Table 3.3.2.4). Changes in number of for-hire trips targeting gray snapper were computed by applying estimated percentage increases in recreational landings to the average annual number of gray snapper for-hire trips. Table 4.2.3.2. provides percentage changes in recreational landings and changes in for-hire trips targeting gray snapper and PS.

Table 4.2.3.2. Changes in recreational landings (percent), in gray snapper for-hire trips and in producer surplus ($2021).

Alternative 2			
Year	Change relative to Alternative 1		
	Recreational Landings (%)	Number of Trips	Producer Surplus ($2021)
2024	28.03%	7,670	$1,349,876
2025	23.36%	6,392	$1,125,000
2026	18.00%	4,925	$866,836
2027	12.28%	3,360	$591,330
2028	6.53%	1,786	$314,423
Average	18.40%	5,034	$885,961
Total		29,167	$5,133,427
Preferred Alternative 3			
2024	18.36%	5,023	$884,068

Between 2024 and 2028, **Alternative 2** is estimated to cumulatively increase the number of for-hire trips targeting gray snapper by 29,167 trips. The corresponding cumulative increase in producer surplus to for-hire operators is estimated at $5.13 million ($2021). On average, **Alternative 2** is expected to increase for-hire gray snapper trips and associated producer surplus by 5,034 trips and $0.89 million ($2021) yearly, respectively. **Preferred Alternative 3** is expected to result in annual increases in for-hire trips targeting gray snapper and producer surplus estimated at 5,023 trips and $0.88 million ($2021), respectively.
For the commercial sector, **Alternative 2** and **Preferred Alternative 3**, which would both increase commercial gray snapper landings, are expected to result in increased commercial revenues and in producer surplus. Expected economic effects provided in this section assume that the totality of the ACL increases estimated to accrue to the commercial sector is harvested. Should the commercial sector harvest less than its estimated allotted portion, economic effects would be prorated accordingly.

Expected changes in commercial gray snapper landings were determined by subtracting 2017-2021 average commercial gray snapper landings from estimated commercial shares of the ACLs in **Alternative 2** and **Preferred Alternative 3**. As provided in Table 1.4.2., commercial gray snapper landings averaged 111,563 lb ww between 2017 and 2021 and accounted for 2.4% of the gray snapper landings. Based on information provided in Section 3.3.1.2 and 3.3.1.3, an ex-vessel price of $3.64 ($2021) per lb ww was estimated. Based on information in Section 3.3., producer surplus to commercial fishermen is estimated at approximately 52% of revenues. For **Alternative 2** and **Preferred Alternative 3**, expected changes in commercial gray snapper landings, in ex-vessel revenues and in producer surplus are provided in Table 4.2.3.3.

Table 4.2.3.3. Commercial shares of gray snapper ACLs and changes in commercial gray snapper landings, ex-vessel revenues and producer surplus ($2021).

Alternative 2				
Year	Commercial Share of ACL (lb ww)	Change relative to Alternative 1		
		Landings (lb ww)	Revenue ($2021)	Producer surplus ($2021)
2024	155,952	44,389	$161,576	$84,019
2025	146,448	34,885	$126,981	$66,030
2026	136,872	25,309	$92,125	$47,905
2027	127,944	16,381	$59,627	$31,006
2028	120,072	8,509	$30,973	$16,106
Total	687,288	129,473	$471,282	$245,066
Average	137,458	25,895	$94,256	$49,013
Preferred Alternative 3				
2024	137,472	25,909	$94,309	$49,041

Between 2024 and 2028, **Alternative 2** is estimated to cumulatively increase commercial gray snapper landings by 129,473 lb ww. Associated cumulative increases in commercial ex-vessel revenues and producer surplus are estimated at $471,282 ($2021) and $245,066 ($2021), respectively. On average, **Alternative 2** is expected to increase commercial gray snapper landings and associated producer surplus by 25,895 lb ww and $49,013 ($2021) yearly, respectively. **Preferred Alternative 3** is expected to result in annual increases in commercial gray snapper landings, revenues and, producer surplus estimated at 25,909 lb ww, $94,309 ($2021), and $49,041, respectively.

4.2.4 Effects on the Social Environment

Changing harvest levels does not affect fishing behavior directly. Rather, indirect social effects would be expected if a change to allowable harvest levels results in harvest restrictions, which in turn affects existing fishing activity. In general, an increase in harvest levels would be associated with positive effects by providing additional fishing opportunities, while a decrease in harvest levels would be associated with negative effects as fishing opportunities are restricted. Although this action would modify the OFL, ABC, and ACL for gray snapper, the ACL serves as the limit to the amount of fish that may be retained in a given year and is used here to discuss the potential indirect social effects.

Although additional effects would not be expected from retaining the current catch levels (**Alternative 1**), the gray snapper catch levels reflect the previous stock assessment (SEDAR 51 2018) and remain in MRIP-CHTS units. **Alternative 2** and **Preferred Alternative 3** would revise the catch levels based on the most recent stock assessment (SEDAR 75 2022) and SSC recommendation, including the adoption of MRIP-FES units for the recreational sector that were used in SEDAR 75. Because the data units for the recreational sector differ between **Alternative 1** (MRIP-CHTS) and **Alternative 2** and **Preferred Alternative 3** (MRIP-FES), the average

landings for the most recent 5 years (2017-2021) using MRIP-FES data provided in Table 1.4.2 is used to examine the change in catch limits from recent fishing practices and to compare the alternatives. For **Alternative 2** and **Preferred Alternative 3,** Table 4.2.4.1 provides the proposed ACLs, the difference between the proposed ACLs and the average landings from 2017-2021, and the percent change for each proposed ACL.

Table 4.1.4.2. Comparison of the proposed ACLs for **Alternative 2** and **Preferred Alternative 3,** the difference between each proposed ACL and the average landings (2017-2021), and the percent increase represented by each proposed ACL.

Alternative	Year	Proposed ACL	Difference from 5-yr Avg Landings	Increase (%) from 5-yr Avg Landings
2	2024	6,498,000	1,822,367	39%
	2025	6,102,000	1,426,367	31%
	2026	5,703,000	1,027,367	22%
	2027	5,331,000	655,367	14%
	2028+	5,003,000	327,367	7%
Pref. 3	2024+	5,728,000	1,052,367	23%

If the gray snapper ACL is exceeded in a given fishing year, the fishing season will be closed in the following year if the ACL is met or projected to be met. Each of the proposed ACLs under **Alternative 2** and **Preferred Alternative 3** is greater than the average landings for 2017-2021. While **Preferred Alternative 3** provides a constant catch ACL for 2024 and future years, the decreasing yield stream under **Alternative 2** would set a lower ACL each year through 2028, at which time the ACL would be only 7% greater than the 5-year average landings for 2017-2021. Given that it is more likely that effort increases over time, it is more likely that greater positive effects would result from the constant catch ACL provided under **Preferred Alternative 3** than **Alternative 2**, as the **Alternative 2** ACLs would be more likely to be met in the latter years of the declining yield stream, triggering an in-season closure in the following year when the ACL is lower than the year before (Table 4.1.4.2).

Although there is no sector allocation, over the last 5 years the recreational sector harvested 97.6% of the average landings, and the commercial sector harvested 2.4%. Nearly all of the landings are made in Florida. Thus, the effects of this action would be expected to accrue primarily to recreational anglers fishing for gray snapper in Florida.

4.2.5 Effects on the Administrative Environment

This action would affect the administrative environment by raising the gray snapper catch limits, which reduces the likelihood of exceeding the overall and recreational ABC/ACL, and of overfishing the Gulf gray snapper stock. The gray snapper component of the reef fish fishery operates under a stock ACL, where the ACL is combined for the recreational and commercial sectors. If the gray snapper ACL is exceeded in a given fishing year, the fishing season will be closed in the following year if the ACL is met or projected to be met. Any closure of fishing affecting the gray snapper stock would have a minor effect on the administrative environment

because the process is routine and the closure would be short-term. Overfishing could have effects that are more substantial, as this could result in an overfished stock, which would require development and implementation of a rebuilding plan. However, with the increased OFL and higher ABC/ACL proposed in this action, the likelihood of overfishing is lower under the action alternatives than under the no action. In addition, **Alternative 1** sets catch limits using recreational data from the MRIP-CHTS, but **Alternative 2** and **Preferred Alternative 3** use recreational data from the MRIP-FES. Because the SEFSC no longer estimates recreational landings using MRIP-CHTS, all landings under **Alternative 1** would have to be converted from MRIP-FES to MRIP-CHTS, which is a minor administrative burden.

In comparison to no action **Alternative 1**, **Alternative 2** and **Preferred Alternative 3** would increase the OFL, ABC and ACL. Thus, retaining the lower catch limits in **Alternative 1** in the recreational sector is more likely to result in the fishery exceeding the recreational and overall ACL (and potentially the OFL) due to the increased OFL, ABC and ACL in **Alternative 2** and **Preferred Alternative 3**. **Alternative 2** and **Preferred Alternative 3** have the same overall allowable catch between 2024 and 2028, and thus are likely to have similar, and minimal, administrative burden.

Although the alternatives have different effects on the administrative environment, these effects are expected to be minor. Assessing the effects of management decisions on stock status are routine endeavors by NMFS. Actions to control harvest by the Council and NMFS are mostly routine and conducted through the Council system established by the Magnuson-Stevens Fishery Conservation and Management Act.

4.3 Cumulative Effects Analysis

Federal agencies preparing an environmental assessment (EA) must also consider cumulative effects of a proposed action and other actions. Cumulative effects are those effects that result from incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions (RFFA), regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative effects can result from individually minor, but collectively significant actions that take place over a period of time (40 C.F.R. § 1508.1(g)(3)). Below is our five-step cumulative effects analysis that identifies criteria that must be considered in an EA.

1. *The area in which the effects of the proposed action will occur* - The affected area of this proposed action encompasses the state and federal waters of the Gulf as well as Gulf communities that are dependent on reef fish fishing. Most relevant to this proposed action is red snapper and those who fish for them in the waters off of Alabama, Florida, and Mississippi, and gray snapper and those who fish for them. For more information about the area in which the effects of this proposed action will occur, please see Chapter 3, Affected Environment which describes these important resources as well as other relevant features of the human environment.

2. *The impacts that are expected in that area from the proposed action* - The proposed action would modify the red snapper private angling calibration ratios for Alabama, Florida, and Mississippi, resulting in increases the state ACLs in the state-specific units. The total private angling ACL in MRIP-CHTS units would remain the same. In addition, the proposed action

would increase catch limits for Gulf gray snapper. The environmental consequences of the proposed action are analyzed in Section 4.1. The actions taken in this framework action regarding red and gray snapper are expected to have very little effect on the physical and biological environments, because the action is not expected to alter the manner in which either the red snapper or the gray snapper portion of the reef fish fishery is prosecuted (Sections 4.1.1 and 4.1.2). Both species are often part of a multi-species fishing strategy and fishermen would continue to discard them if they are opportunistically harvested and the season is closed, or continue to harvest them if it is open. Changing fishing practices on one stock does not generally change overall fishing effort or fishing practices. This action would likely have some positive effects on the social and economic environments (Sections 4.1.3 and 4.1.4). The modifications to the red snapper calibration ratios and the increase in catch limits gray snapper is not expected to lead appreciable changes in costs for fishermen, or have a noticeable effect on the social environment. The action is not expected to significantly affect the administrative environment (Section 4.1.5).

3. *Other past, present and reasonably foreseeable future actions (RFFAs) that have or are expected to have impacts in the area* - There are numerous actions under development in the Gulf annually. Many of these activities are expected to have impacts associated with them and are listed below.

Other fishery related actions - – The cumulative effects of establishing state management of the private angling component of the red snapper fishery was analyzed in the environmental impact statements (EIS) for Amendment 50 (A-F). In addition, cumulative effects relative to changes in red snapper and gray snapper management have been analyzed in the EISs for Amendments 22 (GMFMC 2004b), 26 (GMFMC 2006), and 27/14 (GMFMC 2007), and relative to the reef fish fishery in Amendment 29 (GMFMC 2008c), Amendment 30A (GMFMC 2008a), Amendment 30B (GMFMC 2008b), Amendment 31 (GMFMC 2009), and Amendment 32 (GMFMC 2011b). These cumulative effects analyses are incorporated here by reference. Other pertinent actions are summarized in the history of management (Section 1.5). Currently, there are multiple present actions and RFFAs that are being developed by the Council or considered for implementation by NMFS that could affect reef fish stocks. These include: Amendment 55, which proposes to revise yellowtail snapper catch limits; Amendment 56, which proposes to revise gag allocations and catch limits and implement a rebuilding plan; a framework that would modify greater amberjack recreational fixed closed season and commercial trip limits; a generic framework, which would modify the Gulf of Mexico Fishery Management Council's Acceptable Biological Catch Control Rule; and a generic amendment that addresses essential fish habitat.

Non-fishery related actions - The cumulative effects from managing the reef fish fishery have been analyzed in multiple other actions.[36] They include detailed analysis of the reef fish fishery, cumulative effects on non-target species, protected species, and habitats in the Gulf. In general, the effects of these actions are positive as they ultimately act to restore/maintain the stocks at a level that will allow the maximum benefits in yield and recreational fishing opportunities to be achieved. However, for actions that reduce allowable harvest, some short-term negative impacts on the fisheries' social and economic environments may occur due to the need to limit directed

[36] https://gulfcouncil.org/reef-fish/

harvest and reduce bycatch mortality. These negative impacts can be minimized by using combinations of management measures that provide the least disruption to the fishery while holding harvest to sustainable levels. None of the present and RFFAs under the Reef Fish FMP, identified above, are expected to affect how the reef fish fishery as a whole is prosecuted.

Impacts from the *Deepwater Horizon* MC252 oil spill are still being examined; however, as indicated in Section 3.3, the oil spill had some adverse effects on fish species. Further, the impacts on the food web from phytoplankton, to zooplankton, to mollusks, to top predators may be significant in the future. Reef fish species are mobile and are able to avoid hypoxic conditions, so any effects from the Northern Gulf Hypoxic Zone on reef fish species are likely minimal. Some localized red tide events in coastal and estuarine areas may adversely affect reef fish species like gray snapper that inhabit these areas.

There is a large and growing body of literature on past, present, and future impacts of global climate change. Some of the likely effects commonly mentioned are sea level rise, increased frequency of severe weather events, and change in air and water temperatures. The Environmental Protection Agency's climate change web page provides basic background information on these and other measured or anticipated effects. In addition, the Intergovernmental Panel on Climate Change has numerous reports addressing their assessments of climate change. Global climate changes could affect the Gulf fisheries as discussed in Sections 3.2 and 3.3. In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Climate change may significantly impact Gulf reef fish species in the future, but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts would occur. The proposed action is not expected to significantly contribute to climate change through the increase or decrease in the carbon footprint from fishing, as this action should not change how the fishery is prosecuted. As described in Section 3.2, the contribution to greenhouse gas emissions from fishing is minor compared to other emission sources (e.g., oil platforms).

4. The impacts or expected impacts from these other actions - The cumulative effects from managing the reef fish fishery have been analyzed in other actions as listed in part three of this section. They include detailed analysis of the reef fish fishery, cumulative effects on non-target species, protected species, and habitats in the Gulf. The effects of this action are positive, as they ultimately act to allow increased fishing effort and harvest, yet restore/maintain the stocks at a level that will allow the maximum benefits in yield and increased fishing opportunities to be achieved. However, no significant impacts are expected on the reef fish fishery overall, as it is assumed that reef fish trips would occur regardless of whether red and gray snapper are open for harvest, as fishing for each species is generally part of a multi-species fishing strategy.

5. *The overall impact that can be expected if the individual impacts are allowed to accumulate:* This action, combined with other past actions, present actions, and RFFAs, is not expected to have significant beneficial or adverse effects on the physical and biological environments, because this action is not expected to affect current fishing practices (Sections 4.1.1 and 4.1.2). For the social and economic environments, some positive effects are expected to result for fishing communities from updating the red snapper calibration ratios and increasing the catch limits for gray snapper (Sections 4.1.3 and 4.1.4), although the effects for red snapper would be

localized to those fishing for that species in Alabama, Florida, and Mississippi. These effects are likely minimal, as the proposed action, along with other past actions, present actions, and RFFAs, are not expected to alter the manner in which the fishery is prosecuted. Because it is unlikely there would be any changes in how the fishery is prosecuted, this action, combined with past actions, present actions, and RFFAs, is not expected to have significant adverse effects on public health or safety.

6. Summary: The proposed action is not expected to have individual significant effects to the physical, biological, economic, or social environments. Any effects of the proposed action, when combined with other past actions, present actions, and RFFAs are not expected to be significant. The effects of the proposed action are, and will continue to be, monitored through collection of landings data by NMFS, individual state programs, stock assessments and stock assessment updates, life history studies, economic and social analyses, and other scientific observations. Landings data for the commercial sector in the Gulf are collected through trip ticket programs, port samplers, and logbook programs. Landings data for the recreational sector in the Gulf are collected through the Marine Recreational Information Program, Louisiana Creel Survey, Southeast Region Headboat Survey, and Texas Parks and Wildlife Department.

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 red snapper and gray snapper components of the Gulf of Mexico (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

An economic description of the gray snapper component and the private recreational red snapper component of Gulf of Mexico reef fish fishery is provided in Section 3.33.

5.4 Impacts of Management Measures

5.4.1 Action 1: Update red snapper private recreational catch limits for Mississippi, Alabama, and Florida based on calibration adjustments

A detailed analysis of the economic effects expected to result from this action is provided in Section 4.1.3. The following discussion summarizes the expected economic effects of the preferred alternatives.

For the states of Alabama, Florida, and Mississippi, **Preferred Alternative 2** would increase the calibrated state ACL by 106,352 pounds (lb) whole weight (ww), 700,578 lb ww, and 22,988 lb ww, respectively. For these states, corresponding increases in consumer surplus to anglers are estimated at $1.58 million, $10.38 million, and $0.34 million ($2021), respectively. In addition to increases in states' calibrated annual catch limits and associated increases in consumer surplus (CS) to anglers, the updated calibration ratios proposed in **Preferred Alternative 2** are expected to result in better management measures in the future because they are consistent with the best scientific information available.

5.4.2 Action 2: Update gray snapper stock catch limits

A detailed analysis of the economic effects expected to result from this action is provided in Section 4.2.3. The following discussion summarizes the expected economic effects of the preferred alternatives.

Preferred Alternative 3, which would implement a constant catch approach, is expected to result in annual increases in recreational landings and associated CS estimated at 1.03 mp ww and $8.95 million ($2021) per year, respectively. In addition to CS increases, **Preferred Alternative 3** is expected to result in annual increases in for-hire trips targeting gray snapper and producer surplus estimated at 5,023 trips and $0.88 million ($2021), respectively. For the commercial sector, **Preferred Alternative 3** is expected to result in annual increases in commercial gray snapper landings, revenues and, producer surplus estimated at 25,909 lb ww, $94,309 ($2021), and $49,041, respectively.

In addition to changes in economic value, **Preferred Alternative 3** is expected to result in increased gross revenues in the commercial sector, which would be expected to increase economic impacts in the onshore sector (e.g., dealers and processors) and related industries (e.g., grocers and restaurants). More specifically, **Preferred Alternative 3** is expected to increase annual gross revenues by approximately $94,309 (2021$) on average in the Gulf harvesting sector. Based on the model used to estimate the average annual economic impacts of the commercial sector for gray snapper, as illustrated in Table 3.3.1.11, the expected increase in annual gross revenue in the commercial sector is expected to increase employment, income, total value added, and output by 22 jobs, $24,000, $685,000 and, $970,000 in 2021$, respectively.

Preferred Alternative 3 is also expected to result in more for-hire trips targeting gray snapper, which would be expected to increase spending on various goods and services needed to conduct charter fishing trips and increase the economic impacts resulting from those expenditures. This assumes the income that would have been spent on gray snapper target trips by charter vessels is not spent on other goods and services unrelated to charter fishing (e.g., tourists choose not to spend that income on other activities such as site-seeing tours). **Preferred Alternative 3** is expected to result in an increase of 5,023 gray snapper target trips by charter vessels. Based on the model used to estimate the average annual economic impacts of the recreational sector for gag grouper, as illustrated in Table 3.3.2.3, the expected increase in gray snapper target trips by charter vessels is expected to increase employment, income, total value added, and output by 31 jobs, $1.38 million, $2.35 million, and $4.13 million in 2021$, respectively.

5.5 Public and Private Costs of Regulations

The preparation, implementation, 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. Estimated costs associated with this action include:

Council costs of document preparation, meetings, public hearings, and information dissemination……$34,000

NMFS administrative costs of document preparation, meetings and review ….....$31,500

TOTAL ….....$65,500

5.6 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 $200 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments 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 legal or policy issues for which centralized review would meaningfully further the President's priorities or the principles set forth in this Executive order, as specifically authorized in a timely manner by the Administrator of OIRA in each case. Based on the information provided above, this action has been determined to not be economically significant for the purposes of E.O. 12866

CHAPTER 6. REGULATORY FLEXIBILITY ANALYSIS

6.1 Introduction

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

With certain exceptions, the RFA requires agencies to conduct a regulatory flexibility analysis for each proposed rule. The regulatory flexibility analysis is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. The following regulatory flexibility threshold analysis was conducted to determine if the proposed rule would have a significant economic impact on a substantial number of small entities or not. As evidenced below, there would not be a significant economic impact on a substantial number of small entities.

6.2 Statement of the need for, objective of, and legal basis for the proposed rule

The primary purpose and need, issues, problems, and objectives of the proposed action are presented in Section 1.2 and are incorporated herein by reference.

6.3 Identification of federal rules which may duplicate, overlap or conflict with the proposed rule

No federal rules have been identified that duplicate or conflict with the proposed rule.

6.4 Description and estimate of the number of small entities to which the proposed action would apply

The proposed rule has two actions. The first action concerns recreational fishing for red snapper in federal waters of the Gulf of Mexico (Gulf) and would apply to or regulate the states of Alabama, Florida and Mississippi. Specifically, this proposed action would update state private recreational data calibrations of red snapper for Alabama, Florida and Mississippi. As such, this action would authorize those three states to allow for increased recreational landings of red snapper by anglers (recreational fishers) fishing from private vessels and for-hire fishing vessels that do not have a valid federal for-hire reef fish permit any time during the fishing year. States are not small governmental jurisdictions or other entities as defined by the RFA and thus are not germane to this analysis. Therefore, it is concluded that this action would not regulate any small entities.

The second action in the proposed rule would revise the catch limits for Gulf gray snapper. Specifically, the overfishing limit (OFL), acceptable biological catch (ABC), and stock annual catch limit (ACL) would be changed from 2.57 million pounds (mp) whole weight (ww), 2.51 mp ww, and 2.23 mp ww, respectively, using an 11% buffer between the ABC and stock ACL, to 7.547 mp ww, 6.226 mp ww, and 5.728 mp ww, respectively, using an 8% buffer between the ABC and stock ACL. The current catch limits were derived, in part, using recreational landings estimates calibrated to MRIP-CHTS while the proposed catch limits were derived, in part, using recreational landings estimates calibrated to MRIP-FES. This action would apply to commercial fishing businesses, for-hire fishing businesses, and recreational anglers. Although the proposed changes would apply to recreational anglers, the RFA does not consider recreational anglers to be small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions. Recreational anglers are not businesses, organizations, or governmental jurisdictions and so they are outside the scope of this analysis.

Any commercial fishing business that operates a fishing vessel that harvests gray snapper from federal waters must have a valid commercial Gulf reef fish permit attached to that vessel. From 2017 through 2021, an annual average of 359 vessels with a valid commercial permit reported landings of gray snapper (Table 6.1). These GS vessels made collectively 2,364 trips that landed gray snapper and those landings averaged about 95.4 thousand pounds gutted weight (lb gw) and had an ex-vessel value of approximately $347 thousand (Table 6.1). Note that all dollar figures in this analysis are in 2021 dollars.

Table. 6.1. Number of GS vessels, GS trips, GS landings, revenue from GS landings, and revenue from all landings by the GS vessels, 2017 – 2021.

Year	GS Vessels	GS Trips	GS Landings (lb gw)	GS Revenue	Total Revenue
2017	392	2,846	118,075	$472,024	$51,725,898
2018	378	2,318	105,786	$468,342	$46,362,191
2019	352	2,277	81,706	$215,323	$47,271,721
2020	364	2,206	84,282	$249,474	$46,000,545
2021	311	2,171	87,072	$330,392	$48,208,607
Average	**359**	**2,364**	**95,384**	**$347,111**	**$47,913,792**

Source: SEFSC Socioeconomic Panel (Sep22) accessed by the SEFSC Economic Query System (March 2023) and BEA GDP deflator issued April 27, 2023.

The average commercial vessel that landed gray snapper from 2017 through 2021 had annual revenue from all landings of about $133.3 thousand and less than one percent of that revenue came from reported gray snapper landings (Table 6.2). Maximum annual revenue for any of the GS vessels was less than $3.1 million. Average net revenue and net cash flow was about $42.7 thousand and $34.7 thousand, respectively (Table 3.3.1.10).

Table 6.2. Average GS and total revenue per GS vessel and percentage of total revenue from GS landings, 2017 – 2021.

Year	Average GS Revenue per Vessel	Average Total Revenue per Vessel	Percentage of Total Revenue from GS
2017	$1,204	$131,954	0.91%
2018	$1,239	$122,651	1.01%
2019	$612	$134,295	0.46%
2020	$685	$126,375	0.54%
2021	$1,062	$155,012	0.69%
Average	**$967**	**$133,316**	**0.73%**

Source: Socioeconomic Panel (Sep22) accessed by the SEFSC Economic Query System (March 2023) and BEA GDP deflator (issued April 27, 2023).

For RFA purposes, NMFS has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (50 CFR 200.2). A business primarily involved in the commercial fishing industry (North American Industrial Classification Code (NAICS) code 11411) 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 its combined annual receipts are no more than $11 million for all of its affiliated operations worldwide. Average annual revenue from all landings for the 359 Gulf vessels that report gray snapper landings is less than $11 million per vessel. Moreover, maximum annual revenue for any of the vessels was less than $11 million. If each of the 359 vessels represents a unique commercial fishing business, then the action to revise the gray snapper catch limits would regulate 359 small businesses.

Charter fishing is contained with the broader industry of scenic and sightseeing transportation, water (NAICS code 487210) and the small business size standard for this industry is $14.0 million. NMFS does not possess data indicating how many for-hire vessels target Gulf gray snapper in a given year. However, the data shows Gulf gray snapper is almost entirely targeted in waters off the west coast of Florida. In 2020, there were 1,289 vessels with valid charter-headboat Gulf reef fish vessel permits. Of these 1,289 vessels, 803 were homeported in Florida. Of these vessels, 62 are primarily used for commercial fishing rather than for-hire fishing purposes and thus are not considered for-hire fishing businesses (i.e., 1,227 permitted vessels are for-hire fishing businesses). In addition, 46 of the permitted vessels homeported in Florida are considered headboats, which are also 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 headboats would be regulated as a result of the proposed action. However, charter vessels often target gray snapper. From 2017 through 2021, an annual average of 27,358 charter trips targeted gray snapper. Of the 803 vessels with valid charter-headboat Gulf reef fish vessel permits that

are homeported in Florida, 695 vessels are 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 regulated or directly affected by this proposed action if it is fishing. Given this information, our best estimate of the number of charter vessels that are likely to target Gulf gray snapper in a given year is 528. It is assumed in this analysis that each charter fishing vessel that makes trips targeting gray snapper represents a unique small business. Thus, the proposed action to revise the gray snapper catch limits is estimated to regulate 528 for-hire fishing businesses.

According to Savolainen, et al. (2012), average annual economic profit is approximately $27,000 per charter vessel. Further, the maximum annual gross revenue for a single headboat in the Gulf was about $1.45 million in 2017 (D. Carter, pers. comm.). 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, reflecting the fact that businesses that own charter vessels are typically smaller than businesses that own headboats. Based on this information, all for-hire fishing businesses regulated by this proposed action are determined to be small businesses for the purpose of this analysis.

6.5 Description of the projected reporting, record-keeping and other compliance requirements of the proposed rule and their impacts

The proposed actions would not impose any additional reporting or record-keeping requirements on small businesses.

6.6 Significance of economic impact on small entities

Substantial number criterion

If implemented, the action to update red snapper private recreational catch limits for Mississippi, Alabama, and Florida based on calibration adjustments would not directly affect any small entities. The action to revise the Gulf gray snapper catch limits is expected to directly affect 359 small commercial fishing businesses. Those 359 businesses represent 69.4% of active commercial fishing businesses with federal permits that harvest reef fish. Those 359 small businesses represent about 42% of all commercial fishing businesses with a valid federal permit to harvest reef fish. This action is also expected to directly affect 528 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 to revise the Gulf gray snapper catch limits is expected to directly affect a substantial number of small businesses.

Significant economic impact criterion

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 regulated by the proposed 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?

With respect to the action to revise the catch limits for gray snapper, potential changes in commercial gray snapper landings were determined by subtracting the 2017-2021 average commercial gray snapper landings from the estimated commercial share of the proposed stock ACL for Gulf gray snapper. Commercial gray snapper landings averaged 111,563 lb ww between 2017 and 2021 and accounted for 2.4% of the total gray snapper landings. The commercial share of the proposed stock ACL is estimated to be 137,472 lb ww. Economic profit is estimated to be approximately 32% of revenues. Given that annual average revenue is about $133,300 per commercial fishing business, economic profit per commercial fishing business is estimated to be about $42,700. The average ex-vessel price of gray snapper was $3.64 per lb ww during this time. Therefore, the change in the stock ACL may result in annual increases in commercial gray snapper landings, revenues, and economic profit of 25,909 lb ww, $94,309, and $30,179, respectively. Thus, economic profit per commercial fishing business could increase by around $84. These estimates assume that the totality of the stock ACL increase estimated to accrue to the commercial sector is harvested. However, only about 77% of the stock ACL was harvested on average per year from 2017-2021. Should the commercial sector harvest less than its estimated allotted portion, the increase in commercial landings, revenues, and economic profit would be less.

The proposed change to the stock ACL for Gulf gray snapper may also increase economic profits to for-hire fishing businesses if they increase the number of trips targeting gray snapper. Based on the most recent information available, average annual economic profit is approximately $27,000 per charter vessel. Between 2017 and 2021, for-hire trips targeting gray snapper averaged 27,358 trips per year. The potential change in the number of for-hire trips targeting gray snapper was computed by applying the estimated percentage increase in recreational landings to the average annual number of gray snapper for-hire trips. This approach yielded a potential increase of 5,034 for-hire trips targeting gray snapper per year. Economic profit per angler trip is estimated at $176. Therefore, economic profit for for-hire fishing businesses could increase by as much as $886,000 per year, which would represent an increase of almost $1,700, or about 6.3 percent, per for-hire fishing business. These estimates assume that the totality of the stock ACL increase estimated to accrue to the recreational sector is harvested. However, only about 77% of the stock ACL was harvested on average per year from 2017-2021. Should the

recreational sector harvest less than its estimated allotted portion, the increase in target trips by charter vessels and their economic profit would be less.

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

This proposed rule, if implemented, is not expected to reduce the profits of any small businesses regulated by this action. As a result, the issue of significant alternatives is not relevant.

CHAPTER 7. LIST OF PREPARERS

PREPARERS

Name	Expertise	Responsibility	Agency
Lisa Hollensead	Fishery Biologist	Co-Team Lead – Amendment development, biological analyses	GMFMC
Dan Luers	Fishery Biologist	Co-Team Lead – Amendment development, biological analyses	SERO
Assane Diagne	Economist	Economic analyses	GMFMC
Denise Johnson	Economist	Economic analyses	SERO
Ava Lasseter	Anthropologist	Social analyses	GMFMC
Christina Package-Ward	Anthropologist	Social analyses	SERO
Dominique Lazarre	Fishery Biologist	Data analyses	SERO

REVIEWERS

Name	Expertise	Responsibility	Agency
Mara Levy	General Counsel	Legal review	NOAA GC
Scott Sandorf	Technical writer and editor	Regulatory writer	SERO
Francesca Forrestal	Research Ecologist	Review	SEFSC
David Carter	Economist	Review	SEFSC
Mike Travis	Economist	Review	SERO
Jessica Steven	Branch Chief	Review	SERO
Michael Barnette	Protected Resources	Review	SERO
Peter Hood	Branch Chief	Review	SERO
Ryan Rindone	Fishery Biologist	Review	GMFMC
John Froeschke	Fishery Biologist	Review	GMFMC
Carrie Simmons	Fishery Biologist	Review	GMFMC

GMFMC = Gulf of Mexico 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

CHAPTER 8. LIST OF AGENCIES, ORGANIZATIONS, AND PERSON CONSULTED

National Marine Fisheries Service
- Southeast Fisheries Science Center
- Southeast Regional Office
    - Protected Resources
    - Habitat Conservation
    - Sustainable Fisheries

NOAA General Counsel
U.S. Coast Guard
Alabama Department of Conservation and Natural Resources/Marine Resources Division
Florida Fish and Wildlife Conservation Commission
Louisiana Department of Wildlife and Fisheries
Mississippi Department of Marine Resources
Texas Parks and Wildlife Department

CHAPTER 9. REFERENCES

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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. 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 3.2.2), E.O. 12866 (Regulatory Planning and Review, Chapter 5) and E.O. 12898 (Environmental Justice, Section 3.4.3). 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. Proposed and final rules will be published before implementing the actions in this framework.

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 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 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.[37]

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 of Mexico (Gulf), the *U.S.S. Hatteras*, located in federal waters off Texas, is listed in the National Register of Historic Places.[38] 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

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

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 amendment.

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 2004a), which established additional habitat areas of particular concern (HAPC) and gear restrictions to protect corals throughout the Gulf. There are no implications to coral reefs by the actions proposed in this amendment.

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 gray triggerfish catch levels. Therefore, consultation with state officials under Executive Order 12612 was not necessary.

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. GRAY SNAPPER ACL/ACT CONTROL RULE BUFFER

As of 03/07/2023

ACL/ACT Buffer Spreadsheet version 4.1 - April 2011

Gulf Gray Snapper
Sector: Both
Years: 2018-2021

sum of points 3
max points 7.0

Buffer between ACL and ACT (or ABC and ACL) Unweighted 8
Weighted **8**

Min. Buffer	**0**	**min. buffer**	User adjustable
Max Unw.Buff	19	max unwt. Buff	
Max Wtd Buff	**25**	**max wtd. buffer**	User adjustable

Component	Element score	Element	Selection	Element result	
Stock assemblage	0	This ACL/ACT is for a single stock.	x	0	
	1	This ACL/ACT is for a stock assemblage, or an indicator species for a stock assemblage			
Ability to Constrain Catch	0	Catch limit has been exceeded 0 or 1 times in last 4 years	x	0	
	1	Catch limit has been exceeded 2 or more times in last 4 years			
		For the year with max. overage, add 0.5 pts. For every 10 percentage points (rounded up) above ACL	0.0		
		Not applicable (there is no catch limit)			
		Apply this component to recreational fisheries, not commercial or IFQ fisheries			
Precision of Landings Data Recreational	0	Method of absolute counting		2	
	1	MRIP proportional standard error (PSE) <= 20			
	2	MRIP proportional standard error (PSE) > 20	x		PSE > 20 in 2019
		Not applicable (will not be included in buffer calculation)			
		Apply this component to commercial fisheries or any fishery under an IFQ program			
Precision of Landings Data Commercial	0	Landings from IFQ program		1	
	1	Landings based on dealer reporting	x		
	2	Landings based on other			
		Not applicable (will not be included in buffer calculation)			
Timeliness	0	In-season accountability measures used or fishery is under an IFQ	x	0	
	1	In-season accountability measures not used			

Sum 3

Weighting factor

	Element weight	Element	Selection	Weighting
Overfished status	0	1. Stock biomass is at or above B_{OY} (or proxy).	x	0
	0.1	2. Stock biomass is below B_{OY} (or proxy) but at or above B_{MSY} (or proxy).		
	0.2	3. Stock biomass is below B_{MSY} (or proxy) but at or above minimum stock size threshold (MSST).		
	0.3	4. Stock is overfished, below MSST.		
	0.3	5. Status criterion is unknown.		

APPENDIX C. SUMMARY OF PUBLIC COMMENT

Summary of Written Public Comment

Framework Action: Update to Red Snapper Calibrations and Gray Snapper Catch Limits

Comments Summarized through May 31, 2023

1617 Public Hearing video views
1 comment was received

- Calibrations are and inherent and ongoing component of the state management system.
- Support for a standardized database to house all state survey data and regular reports to Council from each state pre- and post-season to improve transparency.