DRAFT DOCUMENT

Amendment 44 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Amendment 55 to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico

Catch Level Adjustments and Allocations for Southeastern U.S. Yellowtail Snapper

Environmental Assessment

September 2023

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National Oceanic and Atmospheric Administration Award
No FNA15NMF4410010

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No. NA20NMF4410007

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Snapper Grouper Amendment 44 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region/Reef Fish Amendment 55 to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico

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Proposed actions: The actions in Amendment 44 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region and Amendment 55 to the FMP for the Reef Fish Resources of the Gulf of Mexico would modify management of Southeastern U.S. yellowtail snapper. Actions would revise the jurisdictional allocation, annual catch limits, and South Atlantic sector allocations.

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This Environmental Assessment (EA) 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 EA began on [Date] and accordingly proceeds under the 2020 regulations as modified by the Phase I revisions.

Abbreviations Used in This Document

TO BE UPDATED/COMPLETED

ABC	acceptable biological catch
ACL	annual catch limit
ACT	annual catch target
AM	accountability measure
APAIS	Access Point Angler Intercept Survey
CHTS	Coastal Household Telephone Survey
Councils	South Atlantic Fishery Management Council and Gulf of Mexico Fishery Management Council
EA	Environmental Assessment
EEZ	exclusive economic zone
F	Fishing mortality
FES	Fishing Effort Survey
FHS	For-hire Survey
FMP	Fishery Management Plan
F_{MSY}	Fishing mortality at maximum sustainable yield
GMFMC	Gulf of Mexico Fishery Management Council
Gulf	Gulf of Mexico
Gulf Council	Gulf of Mexico Fishery Management Council
lb	pound
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MFMT	maximum fishing mortality threshold
mp	million pounds
MRIP	Marine Recreational Information Program
MRFSS	Marine Recreational Fisheries Statistics Survey
MSST	minimum stock size threshold
MSY	Maximum sustainable yield
mt	metric tons
nm	nautical miles
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	overfishing limit
OY	Optimum yield
Reef Fish FMP	Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico
SAFMC	South Atlantic Fishery Management Council
SEDAR	Southeast Data Assessment and Review
South Atlantic Council	South Atlantic Fishery Management Council
SPR	Spawning potential ratio
SSB	Spawning stock biomass
SSC	Scientific and Statistical Committee
ww	whole weight

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Summary

Why are the South Atlantic and Gulf of Mexico Fishery Management Councils considering action?

Southeastern U.S. Yellowtail snapper is considered a single stock in the South Atlantic and the Gulf of Mexico (Gulf). It is jointly managed by the South Atlantic Fishery Management Council (South Atlantic Council) and the Gulf of Mexico Fishery Management Council (Gulf Council) (together, Councils) under two separate fishery management plans (FMP). An Interim Analysis (2022 SEDAR 64 Interim Analysis) was conducted for yellowtail snapper following the 2020 Southeast Data Assessment and Review (SEDAR) assessment (SEDAR 64), which used data through 2017. Both the South Atlantic Council and the Gulf Council determined that too much time had passed after SEDAR 64 had been completed to address the acceptable biological catch (ABC) guidance they received from the Councils' Scientific and Statistical Committees (SSC) review of SEDAR 64. Therefore, both Councils requested an interim analysis to the 2020 SEDAR 64 using data through 2020. The 2022 SEDAR 64 Interim Analysis applied updated landings and discards data for each fleet from 2018 through 2020. Adjusted projections of spawning stock biomass (SSB), recruitment, retained yield, and updated landings and discards were used to inform the OFL and the ABC. The Councils will use this information when they consider the jurisdictional allocation, catch limits, and South Atlantic sector allocations. The 2022 SEDAR 64 Interim Analysis estimated that the stock was **not overfished nor undergoing overfishing** as of 2020. In addition, the 2020 SEDAR 64 assessment and the 2022 SEDAR 64 Interim Analysis used revised estimates for recreational landings and discards from the Marine Recreational Information Program (MRIP) Fishing Effort Survey (FES). In 2018, MRIP fully transitioned its estimation of recreational effort to the mail-based FES. Previous estimates of recreational landings and discards for yellowtail snapper were made using the Marine Recreational Fisheries Statistics Survey (MRFSS). The latter was not considered as reliable and robust as the new FES survey method (see Section 1.6). Updated projections of catch and data changes incorporated in the 2022 SEDAR 64 Interim Analysis provided information to update the OFL, ABC, South Atlantic annual optimum yield ([OY], see section 1.4 for stock OY information), and annual catch limits (ACL), see Table 1.4.1.

Both the South Atlantic and Gulf's SSCs jointly recommended a new OFL and ABC for the stock based on results of the 2022 SEDAR 64 Interim Analysis. Because SEDAR 64 includes updated recreational landings estimates based on MRIP-FES the Councils are reviewing the jurisdictional allocation. The South Atlantic and Gulf ACLs would be adjusted based on the preferred jurisdictional allocation. In addition, South Atlantic sector allocations need to be reviewed to comply with the South Atlantic Council's Allocation Review Trigger Policy (Appendix C).

Purpose and Need

Purpose: The *purpose* of this fishery management plan amendment is to revise southeastern U.S. yellowtail snapper overfishing limit, acceptable biological catch, and the jurisdictional allocation between the South Atlantic and Gulf of Mexico Fishery Management Councils, South Atlantic annual optimum yield, and revise South Atlantic and Gulf annual catch limits, and South Atlantic sector allocations, based on the results of the 2020 SEDAR 64 stock assessment and the subsequent 2022 SEDAR 64 Interim Analysis.

Need: The *need* for this fishery management plan amendment is to update existing catch limits and allocations for southeastern U.S. yellowtail snapper to be consistent with the best scientific information available, and achieve optimum yield while minimizing, to the extent practicable, adverse social and economic effects.

What actions are being proposed in this plan amendment?

Amendment 44 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper Amendment 44)/Amendment 55 to the FMP for the Reef Fish Resources of the Gulf of Mexico (Reef Fish Amendment 55) proposes three actions.

Action 1: Modify the yellowtail snapper stock acceptable biological catch and the jurisdictional allocation of the stock acceptable biological catch between the South Atlantic and Gulf of Mexico Fishery Management Councils' Jurisdictions

Purpose of Action: This action will update the OFL and stock ABC for southeastern U.S. yellowtail snapper, based on the results of the Scientific and Statistical Committees' review of the 2022 SEDAR 64 Interim Analysis. This action will also divide the SSC's recommended yellowtail snapper ABC between the South Atlantic and Gulf jurisdictions. The Councils are considering revising the jurisdictional allocation because of the change to the MRIP-FES data units for estimating and monitoring recreational landings.

Action 2: Revise the total annual catch limit and annual optimum yield for yellowtail snapper in the South Atlantic and revise the total annual catch limit for yellowtail snapper in the Gulf of Mexico

Sub-Action 2a: Revise the South Atlantic total annual catch limit and annual optimum yield for yellowtail snapper to reflect the new overfishing limit, acceptable biological catch, and jurisdictional allocation of the stock acceptable biological catch limit

Purpose of Sub-Action: The yellowtail snapper total ACL is being revised to incorporate the best scientific information available (BSIA) via the new ABC

recommendations of the SSC's, based on the 2022 SEDAR 64 Interim Analysis, both of which included updated recreational landings and discards from the MRIP-FES. The total ACL and South Atlantic annual OY in pounds whole weight that results from each alternative depends on the preferred alternative selected in **Action 1**.

Sub-Action 2b: Revise the Gulf of Mexico acceptable biological catch buffer to set the total annual catch limit for yellowtail snapper

Purpose of Sub-Action: The yellowtail snapper total ACL is being revised based on the jurisdictional allocation selected in Action 1, and to incorporate the BSIA as reflected in the SSC's new ABC recommendations, based on the 2022 SEDAR 64 Interim Analysis, which includes updated recreational landings and discards in MRIP-FES units.

Action 3: Revise the South Atlantic yellowtail snapper sector allocations and sector annual catch limits

Purpose of Action: Sector allocations need to be reviewed since the recreational landings estimates changed in the new assessment. Recreational landings and discards are now estimated in MRIP-FES rather than the Coastal Household Telephone Survey (CHTS).

Chapter 1. Introduction

1.1 What actions are being proposed in this plan amendment?

The actions in Amendment 44 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper Amendment 44)/Amendment 55 to the FMP for the Reef Fish Resources of the Gulf of Mexico (Reef Fish Amendment 55) would modify management of southeastern U.S. yellowtail snapper in the South Atlantic and Gulf of Mexico (Gulf). Actions include revising the overfishing limit (OFL) and acceptable biological catch level (ABC) consistent with the best scientific information available (BSIA), the jurisdictional allocation of the ABC between the South Atlantic and Gulf, annual catch limits (ACL), and South Atlantic annual optimum yield (OY) and sector allocations.

Management Agencies

Gulf of Mexico and ***South Atlantic Fishery Management Councils*** – Engage in a process to determine a range of actions/alternatives and recommend action to the National Marine Fisheries Service.

National Marine Fisheries Service and ***Council staffs*** – Develop alternatives based on guidance from the Council and analyze the environmental impacts of those alternatives.

Secretary of Commerce – Will approve, disapprove, or partially approve the amendment as recommended by the Councils.

1.2 Who is proposing the amendment?

The southeastern U.S. yellowtail snapper stock is considered a single unit in the South Atlantic and Gulf. As such, the fishery is managed jointly by the South Atlantic Fishery Management Council (South Atlantic Council) and Gulf of Mexico Fishery Management Council (Gulf Council) (together, Councils) under two separate FMPs. This is a joint FMP amendment for each Council's FMP and must be approved by both Councils. Once both Councils approve the amendment, it will be submitted to the National Marine Fisheries Service (NMFS) for approval and implementation by the Secretary of Commerce. NMFS is a line office in the National Oceanic and Atmospheric Administration.

1.3 Where is the project located?

Management of the South Atlantic stock of yellowtail snapper occurs in the 3-200 nautical miles (nm) U.S. exclusive economic zone (EEZ) in the South Atlantic, and 9-200 nm in the Gulf (Figures 1.3.1 and 1.3.2) and is conducted under the Snapper Grouper FMP (SAFMC 1983) and Reef Fish FMP (GMFMC 1984).

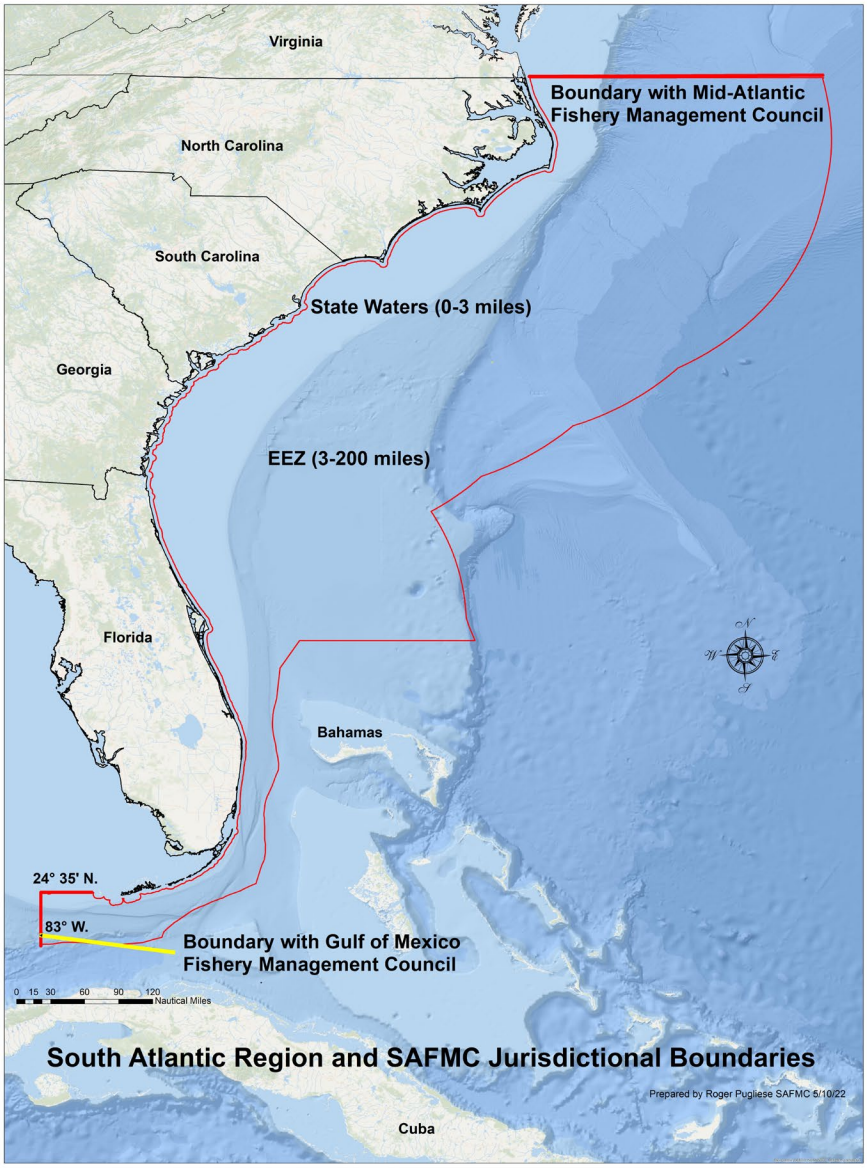


Figure 1.3.1. Jurisdictional boundaries of the South Atlantic Council.

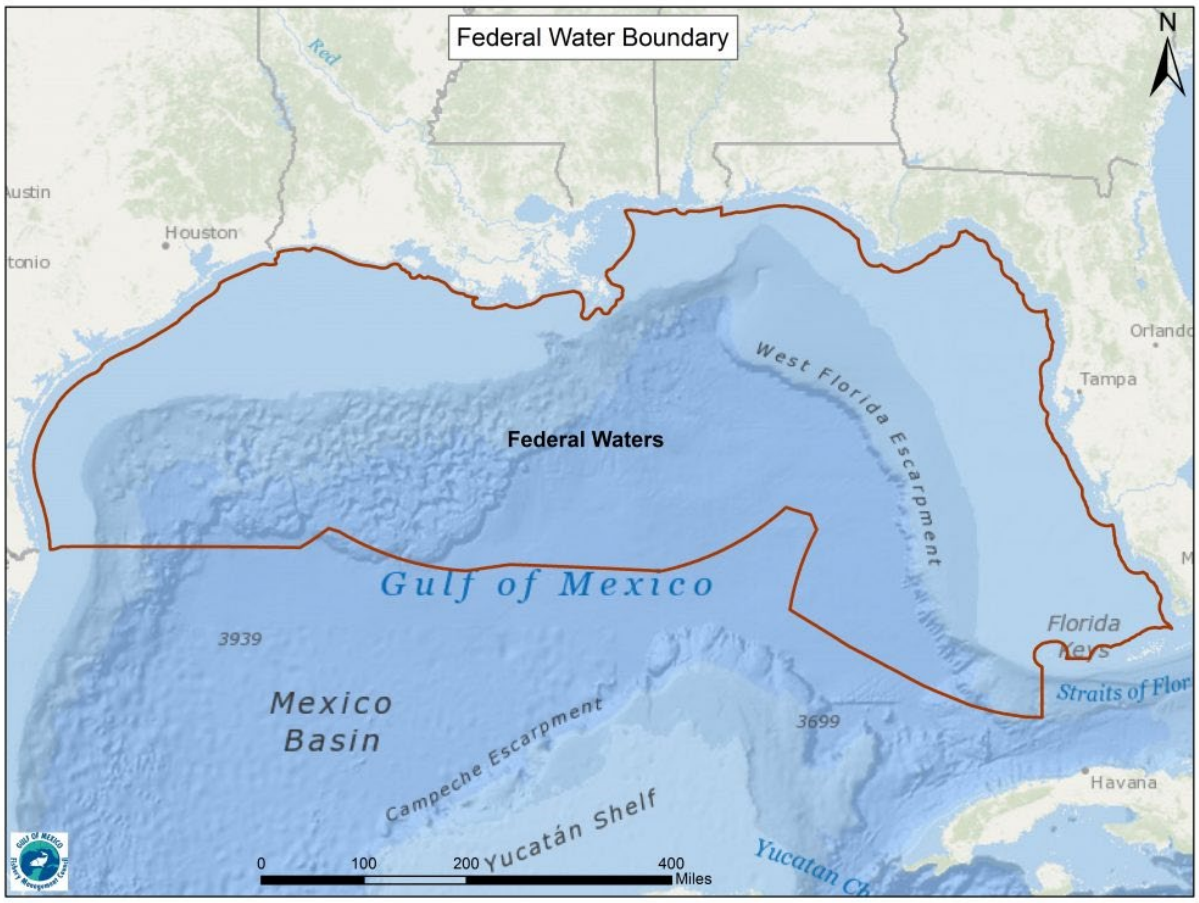


Figure 1.3.2. Jurisdictional boundaries of the Gulf Council.

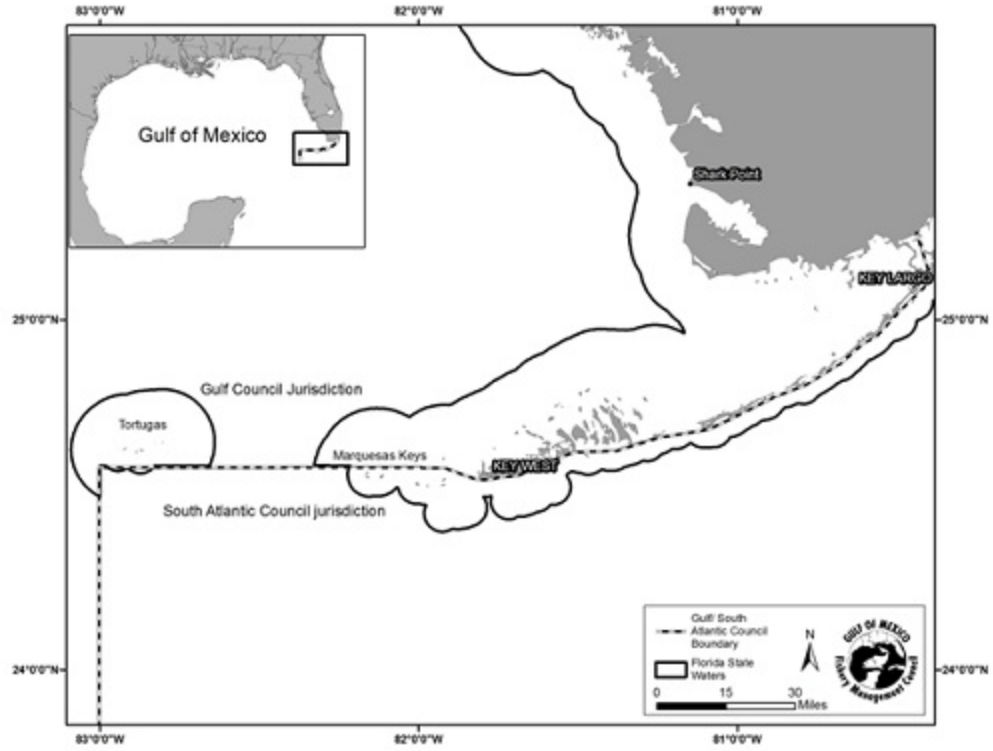


Figure 1.3.3. Inter-Council jurisdiction boundary in southern Florida, Florida Keys and Monroe County between the Gulf of Mexico and South Atlantic Councils. A full description of the inter-Council boundary can be found: 61 FR 32540, June 24, 1996, as amended at 63 FR 7075, February 12, 1998 or (CFR 600.105).

Figure 1.3.3 provides a more detailed map of the jurisdictional boundary. Both the FMP for Reef Fish Resources in the Gulf of Mexico ("Reef Fish FMP") and the FMP for Snappers and Groupers in the South Atlantic ("Snapper-Grouper FMP") include yellowtail snapper, which are primarily caught around the southern half of Florida, with the majority of landings coming from the Florida Keys.

1.4 Why are the Councils considering action (Purpose and Need statement)?

Purpose: The *purpose* of this fishery management plan amendment is to revise southeastern U.S. yellowtail snapper overfishing limit, acceptable biological catch, and the jurisdictional allocation between the South Atlantic and Gulf of Mexico Fishery Management Councils, South Atlantic annual optimum yield, and revise South Atlantic and Gulf annual catch limits, and South Atlantic sector allocations, based on the results of the 2020 SEDAR 64 stock assessment and the subsequent 2022 SEDAR 64 Interim Analysis.

Need: The *need* for this fishery management plan amendment is to update existing catch limits and allocations for southeastern U.S. yellowtail snapper to be consistent with the best scientific information available, and achieve optimum yield while minimizing, to the extent practicable, adverse social and economic effects.

The Councils are considering action to respond to catch recommendations from their respective Scientific and Statistical Committees (SSC's), based on the most recent stock assessment for southeastern U.S. yellowtail snapper (2022 SEDAR 64 Interim Analysis). The findings of this analysis indicated that the southeastern U.S. yellowtail snapper stock is not overfished or undergoing overfishing. The Interim Analysis was finalized in 2022, using data through 2020. The South Atlantic and Gulf Council's SSC reviewed the 2022 SEDAR 64 Interim Analysis and determined that the assessment is based on the BSIA. The current OFL and ABC for yellowtail snapper is based on the 2012 SEDAR 27A stock assessment. That assessment used landings information that has since been revised by the 2020 SEDAR 64 stock assessment, and then again by the 2022 SEDAR 64 Interim Analysis. The OFL and ABC, and all subsequent catch level recommendations proposed in this document are based on the 2022 SEDAR 64 Interim Analysis. The most recent landings data through the 2020/2021 fishing year will be reviewed by the Councils. Landings from the 2021/2022 fishing year are still considered preliminary as of this publishing. The current fishing year is August 1 to July 31.

SEDAR 27A (2012) used the following maximum fishing mortality threshold (MFMT), minimum stock size threshold (MSST), maximum sustainable yield (MSY), and OY for yellowtail snapper. Amendments shown in Table 1.4.1 established the following values:

- MFMT (fishing mortality [F] 30% spawning potential ratio [SPR]): 3,072 metric tons (mt) or 6.8 million pounds (mp)
- MSST (0.75*spawning stock biomass [SSB] at 30%SPR): 5,079,750 pounds (lbs) whole weight (ww)
- OFL (equilibrium MSY) (recommended by Joint SSCs): 4.51 mp (landed catch without discards). 4.61 mp (landings plus dead discards).

Table 1.4.1. Existing status determination criteria for Southeaster U.S. yellowtail snapper.

Criteria	Definition	Amendment	Year Established
MSST	$0.75*SSB_{30\%SPR}$	SG Reg Am 21 RF Am 48	2015
MFMT	$F_{30\%SPR}$	SG Reg Am 15 RF Am 48	2014
MSY	Yield $F_{30\%SPR}$	SG Reg Am 15 RF Am 48	2014
OY	40% (static) SPR	SG Amendment 11	1998
	90% of MSY or MSY proxy	RF Amendment 48	2022

Snapper-Grouper Amendment 15 and Reef Fish Amendment 48 defined MFMT, MSST, MSY, and OY. MFMT is defined as $F_{30\%SPR}$. SEDAR 64 (2020) estimated $F_{current}$ for yellowtail snapper to be 0.438 yr^{-1}. MSST is defined as 75% of the spawning stock biomass (SSB) associated with $F_{30\%SPR}$ ($0.75*SSBF_{30\%SPR}$) and estimated to be 1,428 metric tons (mt) or 3,148,201 pounds (lb). Reef Fish Amendment 48 established a stock OY as 90% of MSY or MSY proxy, and Snapper-Grouper Amendment 15 established an annual OY for the South

Atlantic portion of the ABC. Snapper-Grouper Amendment 15 and Reef Fish Amendment 48 also established an MSY proxy as the yield at $F_{30\%SPR}$.

1.5 What are the overfishing limit and acceptable biological catch recommendations for yellowtail snapper?

The current OFL and ABC for yellowtail snapper is based on the 2012 SEDAR 27A[1] stock assessment. The Councils accepted their SSCs' recommendations of a stock ABC of 4.05 million pounds (mp) for yellowtail snapper (landed catch without dead discards) (Joint SSC Report[2]). This apportionment of the stock ABC was based on a jurisdictional allocation of the ABC of 75% to the South Atlantic and 25% to the Gulf, which resulted in 3.0375 mp whole weight (ww) for the South Atlantic and 1.0125 mp (ww) for the Gulf. The Councils implemented this stock ABC and jurisdictionally allocated ABCs through Snapper Grouper Regulatory Amendment 15 (SAFMC 2013) and a 2013 Reef Fish Framework Action (GMFMC 2013). The jurisdictional allocation was implemented with the Generic ACL/AM Amendment (GMFMC 2011) and the Comprehensive Annual Catch Limit Amendment (SAFMC 2011).

Recreational landings of yellowtail snapper are estimated using the Marine Recreational Information Program (MRIP) Fishing Effort Survey (FES), and are converted to be comparable to the OFL, ABC, and ACLs, which were originally derived, in part, using recreational landings estimates from the Marine Recreational Fisheries Statistics Survey (MRFSS). In general, landings estimates are higher using MRIP-FES as compared to prior methods. Information about the changes to the recreational data collection survey and the implications of those changes is provided in Section 1.6.

The OFL, ABC, and all subsequent catch level recommendations, proposed in this document are based on the 2022 SEDAR 64 Interim Analysis and are directly comparable to recreational landings estimates in MRIP-FES units (Table 1.5.1).

The Councils are not exploring options for adjusting the stock status determination criteria or formulae for determining the associated stock status values in this FMP amendment (Table 1.5.2).

Table 1.5.1. Annual combined (South Atlantic and Gulf) OFLs and ABCs for yellowtail snapper, based on the 2022 SEDAR 64 Interim Analysis. Values are in mp ww and were derived, in part, using MRIP-FES recreational landings estimates.

Year	OFL from SEDAR 64 Interim Analysis	ABC (mp ww) from SEDAR 64 Interim Analysis
2023	3.922	3.887
2024	3.774	3.749
2025	3.684	3.665

[1] https://sedarweb.org/documents/sedar-27a-stock-assessment-report-southeastern-yellowtail-snapper/
[2] https://sedarweb.org/documents/joint-gmfmc-safmc-ssc-review/

2026	3.625	3.610
2027+	3.584	3.572

Note: ABC was provided by calendar year. Fishing year for yellowtail snapper for both commercial and recreational sectors in both jurisdictions is August 1 through July 31.

For the purpose of associating the calendar year provided catch limits to the fishing year, 2023 refers to the 2023/2024 fishing year, 2024 refers to the 2024/2025 fishing year, 2025 refers to the 2025/2026 fishing year, 2026 refers to the 2026/2027 fishing year, and 2027+ refers to the 2027/2028 and all fishing years thereafter. While the SSCs provided OFLs and ABCs based on the calendar year, the OFLs and ABCs need to be associated with the fishing year, which runs August 1 through July 31. Due to the SSCs providing a decreasing yield stream where catch levels are the highest in year 1 (2023/2024) and decrease until 2027/2028 and remain in place until modified, but based on the fact the yellowtail stock is not overfished or undergoing overfishing, the IPT decided to associate the calendar year catch limits with the forward fishing year as described above.

Table 1.5.2. The stock status determination criterion for southeastern U.S. yellowtail snapper according to the 2022 SEDAR 64 Interim Analysis.

Criteria	Definition	Interim Base Model Value
$F_{30\%SPR}$	The fishing mortality rate associated with 30% SPR and the proxy used for F_{MSY}	0.429 yr^{-1}
MFMT (Maximum Fishing Mortality Threshold)	$F_{30\%SPR}$	0.429 yr^{-1}
$F_{current}$ (recent average fishing mortality rate on age-4 fish)	The geometric mean of F on age-4 fish for 2018-2020	0.292 yr^{-1}
$SSB_{F30\%SPR}$	the estimated spawning stock biomass associated with F at 30% SPR	1,915.86 mt (4,223,743 lbs.)
MSST (Minimum Stock Size Threshold)	$0.75*SSB_{F30\%SPR}$	1,436.90 mt (3,167,807 lbs.)
$SSB_{current}$ (recent average of SSB)	The geometric mean of SSB for 2018-2020	2,810.33 mt (6,195,718 lbs.)
MSY (Maximum Sustainable Yield)	Yield at $F_{30\%SPR}$	1,587.08 mt (3,498,908 lbs.)

1.6 How has recreational data collection changed in the southeast?

MRFSS was created in 1979 by NMFS. The program included the Access Point Angler Intercept Survey (APAIS), which consisted of onsite interviews at public marinas and other points where recreational anglers fish, to determine catch. MRFSS also included a Coastal Household Telephone Survey (CHTS), which used random digit dialing of homes in coastal counties to contact anglers to determine fishing effort. In 2000, the For-Hire Survey (FHS) was implemented to incorporate for-hire effort due to lack of coverage of charter boat anglers by the

CHTS. The FHS used a directory of all known charter boats and a weekly telephone sample of the charter boat operators to obtain effort information.

MRIP[3] replaced MRFSS in 2013 to meet the increasing demand for more precise, accurate, and timely recreational catch estimates. MRIP is considered a more scientifically sound methodology for estimating catch because it reduces some sources of potential bias as compared to MRFSS, resulting in more accurate catch estimates. Specifically, CHTS was used to better estimate private angling effort. Instead of random telephone calls, MRIP-CHTS used targeted calls to anglers registered with a federal or state saltwater fishing registry. MRIP also incorporated a new survey design for 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 provides for consistent increases or decreases in APAIS angler catch rate statistics, which are used in stock assessments and management, for at least some species (NMFS 2021).

MRIP also transitioned from using CHTS to a new mail survey (FES) beginning in 2015, and in 2018, FES replaced CHTS. 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. The new mail-based FES uses angler license and registration information as one way to identify and contact anglers (supplemented with data from the U.S. Postal Service, which includes virtually all U.S. households). Because FES and CHTS are so different, NMFS conducted side-by side testing of the two methods from 2015 to 2018 and developed calibration procedures to convert the historical catch estimates (MRFSS, and MRIP-CHTS) into MRIP-FES.[4] In general, landings estimates are higher using the MRIP-FES as compared to prior methods. This is because FES is designed to more accurately measure fishing activity than CHTS, not because there was a sudden rise in fishing effort. NMFS developed a calibration model to adjust historic effort estimates so that they can be accurately compared to new estimates from FES. The new effort estimates alone do not lead to definitive conclusions about stock size or status in the past or at present. NMFS determined that the MRIP-FES data, when fully calibrated to ensure comparability among years and across states, was consistent with BSIA for use in stock assessments and management (NMFS 2021).

1.7 What is the history of management for the yellowtail snapper fishery?

Snapper grouper regulations in the South Atlantic were first implemented in 1983 and reef fish regulations in the Gulf were first implemented in 1984. The reader is referred to the following link for the management history, summary of changes under each amendment, implementation dates, an up-to-date list of amendments under development and more, for all of the species in the Snapper Grouper FMP: https://safmc.net/fishery-management-plans/snapper-grouper/ and Reef

[3] https://media.fisheries.noaa.gov/2021-09/MRIP-Survey-Design-and-Statistical-Methods-2021-09-15.pdf/

[4] Although both MRFSS and MRIP-FES generate estimates measured in pounds of fish, these estimates are not directly comparable because FES generates larger estimates than MRFSS, as described below. To signify that the estimates use different scales, this document uses the terms "MRFSS units" and "MRIP-FES units" to describe the recreational catch limits.

Fish FMP: https://gulfcouncil.org/fishery-management-2/implemented-plans/reef-fish/. Below are amendments to the Snapper Grouper FMP and Reef Fish FMP addressing southeastern yellowtail snapper within both the South Atlantic and Gulf of Mexico EEZ.

Snapper Grouper FMP (1983)
The Snapper Grouper FMP included provisions to prevent growth overfishing in thirteen species in the snapper grouper complex and established a procedure for preventing overfishing in other species; established minimum size limits for red snapper, yellowtail snapper, red grouper, Nassau grouper, and black sea bass; established a 4-inch trawl mesh size to achieve a 12-inch total length minimum size limit for vermilion snapper; and included additional harvest and gear limitations.

Reef Fish FMP (1984)
The Reef Fish Fishery Management Plan implemented regulations designed to rebuild declining reef fish stocks, included: (1) prohibitions on the use of fish traps, roller trawls, and powerhead-equipped spear guns within an inshore stressed area; (2) a minimum size limit of 13 inches total length (TL) for red snapper with the exceptions that for-hire boats were exempted until 1987 and each angler could keep 5 undersized fish; and, (3) data reporting requirements. It also established a calendar fishing year for managed reef fish species.

Reef Fish Amendment 1 (1990)
This amendment established a 12-inch minimum size limit and a 10-fish per person bag limit within the 10-fish per person reef fish snapper aggregate for the Gulf of Mexico region.

Snapper Grouper Amendment 4 (1992)
This amendment established a 12-inch total length minimum for yellowtail snapper in the South Atlantic.

Snapper Grouper Amendment 8 (1997)
This amendment established initial eligibility for two limited entry snapper grouper permits: a non-transferable permit with a 225-pound trip limit and transferrable unlimited landings permit in the South Atlantic.

Snapper Grouper Amendment 9 (1998)
Snapper grouper Amendment 9 established a recreational 20-fish snapper aggregate inclusive of all snappers that did not currently have a bag limit for the South Atlantic region.

Snapper Grouper Amendment 11 (1998)
Amendment 11 defined MSY for snapper grouper species, including yellowtail snapper, as a proxy of 30% static spawning potential ratio (SPR), the OY as 40% static SPR and the OFL as the fishing mortality rate (F) in excess of the fishing mortality rate at 30% static SPR, which is the snapper grouper MSY proxy.

Snapper Grouper Amendment 17A (2010)
This amendment required the use of non-stainless steel, and non-offset circle hooks, when fishing for or possessing snapper grouper species with hook and line gear north of 28º N

Latitude. The circle hook requirement was not required below 28º N Latitude to exclude the yellowtail fishery, which is unable to use circle hooks.

Comprehensive Annual Catch Limit Amendment (2011)
This amendment established ACL Control Rule, ABC levels, ACLs, sector and jurisdictional allocations, and accountability measures for species not undergoing overfishing; including yellowtail snapper.

Generic ACL Amendment (2012)
This amendment established a stock ACL of 725,000 lbs gutted weight and ACT of 645,000 lbs gutted weight for yellowtail snapper for the Gulf of Mexico region. However, the ACT was never used for management purposes. This amendment also established jurisdictional allocation between the South Atlantic and Gulf of Mexico.

Snapper Grouper Regulatory Amendment 15 (2013)
This amendment revised the total South Atlantic ACL and set it equal to the South Atlantic ABC based on the 2012 Florida Fish and Wildlife Research Institute (FWRI) stock assessment. Regulatory Amendment 15 also updated both the commercial and recreational sector allocations for the South Atlantic region.

Reef Fish Framework Action Addressing Vermilion Snapper, Yellowtail Snapper, and Venting Tool Requirements (2013)
This framework action increased the Gulf of Mexico annual catch limit from 725,000 lbs gutted weight to 901,125 lbs gutted weight. The action also removed the requirement to have onboard and use venting tools when releasing reef fish.

Snapper Grouper Regulatory Amendment 21 (2014)
Regulatory Amendment 21 modified the minimum stock size threshold (MSST) for select species (including yellowtail snapper) to 75% of spawning stock biomass at maximum sustainable yield (SSB_{MSY}) for the South Atlantic portion of the stock.

Snapper Grouper Regulatory Amendment 25 (2016)
This amendment modified both the commercial and recreational yellowtail snapper fishing season from a calendar year to August 1 – July 31 in the South Atlantic.

Reef Fish Framework Action Addressing Gear Requirements and Fishing Year for Yellowtail Snapper in the Gulf of Mexico (2017)
This amendment changed the Gulf of Mexico commercial and recreational yellowtail snapper fishing year so that it opens on August 1 and runs through July 31, each year. The amendment also modified the circle hook requirement so that the use of circle hooks is not required while commercial fishing with natural bait for yellowtail snapper south of Cape Sable (the line extending due west from 25°09' N. latitude off the west coast of Monroe County, Florida, to the Gulf and South Atlantic Councils' shared boundary).

Reef Fish Amendment 48 (2022)

This amendment confirmed status determination criteria (including MSY, MFMT, and MSST) for reef fish, including yellowtail snapper to be consistent with the South Atlantic's definitions. It also set the stock OY as 90% of MSY.

Chapter 2. Proposed Actions and Alternatives

2.1 Action 1. Modify the yellowtail snapper stock overfishing limit and stock acceptable biological catch and jurisdictional allocation of the stock acceptable biological catch between the South Atlantic and Gulf of Mexico Fishery Management Councils' Jurisdictions

2.1.1 Alternatives

Alternative 1 (No Action). Retain the **current** yellowtail snapper stock overfishing limit and stock acceptable biological catch, and allocation of the stock acceptable biological catch for yellowtail snapper between the South Atlantic and Gulf of Mexico Fishery Management Councils' jurisdictions. **The current jurisdictional allocation between the South Atlantic and the Gulf of Mexico is 75% and 25% of the stock acceptable biological catch, respectively, and is in Marine Recreational Fisheries Statistics Survey data units**. This jurisdictional allocation is based on 50% of the average landings from 1993-2008, plus 50% of the average landings from 2006-2008.

Alternative 2. Update the yellowtail snapper stock overfishing limit and stock acceptable biological catch based on the results of the 2022 SEDAR 64 Interim Analysis and the Scientific and Statistical Committees' recommendations. Retain the current jurisdictional allocation of yellowtail snapper **updated stock acceptable biological catch** between the South Atlantic and Gulf of Mexico Fishery Management Councils' jurisdictions at 75% for the South Atlantic and 25% for the Gulf of Mexico. The updated stock acceptable biological catch to be allocated is in the Marine Recreational Information Program's Fishing Effort Survey data units.

Alternative 3. Update the yellowtail snapper stock overfishing limit and stock acceptable biological catch based on the results of the 2022 SEDAR 64 Interim Analysis and the Scientific and Statistical Committees' recommendations. Allocate 80% of the **updated stock acceptable biological catch** to the South Atlantic and 20% to the Gulf of Mexico. These allocation percentages strike a balance between the other reasonable alternatives and were recommended by the South Atlantic Snapper Grouper Advisory Panel. The updated stock acceptable biological catch to be allocated is in the Marine Recreational Information Program's Fishing Effort Survey data units.

Alternative 4. Update the yellowtail snapper stock overfishing limit and stock acceptable biological catch based on the results of the 2022 SEDAR 64 Interim Analysis and the Scientific and Statistical Committees' recommendations. Apply the Marine Recreational Information Program's Fishing Effort Survey data units to the 2012 – 2021 fishing years. The average landings from that period yield a jurisdictional allocation of 84% of the updated stock acceptable biological catch to the South Atlantic and 16% to the Gulf of Mexico. The updated stock acceptable biological catch to be allocated is in the Marine Recreational Information Program's Fishing Effort Survey data units.

Alternative 5. Update the yellowtail snapper stock overfishing limit and stock acceptable biological catch based on the results of the 2022 SEDAR 64 Interim Analysis and the Scientific and Statistical Committees' recommendations. Allocate 84% of the **updated stock acceptable biological catch** to the South Atlantic and 16% to the Gulf of Mexico based on 50% of the average landings from 1993-2008, plus 50% of the average landings from 2006-2008 using recreational landings from the Marine Recreational Information Program's Fishing Effort Survey.

NOTE: For all alternatives through 5 above, recreational landings from Monroe County, Florida, are attributed to the South Atlantic region. Commercial landings are attributed to the location of reporting from state trip tickets.

Discussion:

SEDAR 64 was completed in 2020 and then reviewed by the South Atlantic Fishery Management Council (South Atlantic Council) and Gulf of Mexico Fishery Management Council (Gulf Council; collectively, Councils) respective Science and Statistical Committees (SSC). The Southeast Data, Assessment, and Review (SEDAR) 64 assessment incorporated the revised recreational landings and discards estimates using data from the Marine Recreational Information Program's Fishing Effort Survey (MRIP-FES). The use of MRIP-FES data changed the understanding of the magnitude of historical recreational catch and the relative rates of participation from the recreational and commercial sectors. In October 2020, the SSCs held a joint meeting and accepted SEDAR 64 (2020) as being consistent with best scientific information available (BSIA) and agreed with the assessment's estimation that southeastern U.S. yellowtail snapper was not overfished or experiencing overfishing as of 2017. The 2022 SEDAR 64 Interim Analysis updated the time series of landings used through 2020, and confirmed this stock status as of 2020. The SSCs made overfishing limit (OFL) and acceptable biological catch (ABC) recommendations, noting that the change in recreational data units from the Marine Recreational Fisheries Statistics Survey (MRFSS) to MRIP-FES affects estimates of historical landings and stock productivity. As such, the new catch level recommendations are not directly comparable to those in previous assessments or related management actions. New recommended catch levels result in a decreasing yield stream. This is due to the current spawning stock biomass (SSB) being greater than the yield at SSB of maximum sustainable yield ([MSY] SSB_{MSY}), which is considered the stock's equilibrium. This decreasing yield stream allows for fishing to the stock's equilibrium SSB_{MSY} (Table 2.1.1.1). Because SEDAR 64 (2020) or the Interim Analysis (2022), did not include an estimate of ABC if MRIP-FES had been available for SEDAR 27A, the Environmental Consequences analysis in Chapter 4 of this document use five-year averages of recent commercial landings and recreational landings in MRIP-FES units to compare the impacts of **Alternative 1** and each of the action alternatives (**Alternatives 2-5**). While the fishery is managed jointly by the Councils under two separate fishery management plans, both Councils decided to proceed with a joint document to reduce workload and time to implement the new catch limits.

Alternative 1 (No Action) would retain the current jurisdictional allocation percentages between the South Atlantic and the Gulf as 75% and 25%, respectively, of the current stock ABC, which

is based on 50% of the average landings from 1993-2008 + 50% the of average landings from 2006-2008. This formula was applied to landings as of 2011. The Councils implemented the jurisdictional allocation through the Generic Annual Catch Limit (ACL)/Accountability Measure (AM) Amendment [GMFMC 2011] and the Comprehensive ACL Amendment [SAFMC 2011]) to obtain the current ABC jurisdictional allocation in weight of fish (lbs). The allocation formula used recreational landings estimated by the MRFSS, which has been since replaced by MRIP-FES. The catch limits in **Alternative 1** also do not reflect the outcomes of, the 2022 SEDAR 64 Interim Analysis, and the SSC's OFL and ABC recommendations, and thus is not considered to be consistent with BSIA. Therefore, it would not be consistent with National Standard 2 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to retain the OFL and stock ABC under **Alternative 1**.

The stock ABC based on the 2022 Interim Analysis and the SSCs' recommendation in **Alternatives 2-5** is allocated between the Gulf and South Atlantic based on the percentage considered in each alternative (Table 2.1.1.1). **Alternative 2** retains current jurisdictional allocation percentages between the South Atlantic and the Gulf as 75% and 25%, respectively, but applies these percentages to the updated stock ABC from the 2022 SEDAR 64 Interim Analysis. The new ABC is in MRIP- FES data units, which are considered by the National Marine Fisheries Service (NMFS) to be consistent with BSIA. **Alternative 3** selects allocation percentages that strike a balance between **Alternatives 2** and **Alternatives 4** and **5.** For this same reason, **Alternative 3** was also a recommendation from the Snapper Grouper Advisory Panel (AP) during their April 2023 meeting. Both **Alternative 4** and **Alternative 5** use recreational landings estimates in MRIP-FES units, but provide two different methods for calculating the same jurisdictional allocation (84% for the South Atlantic and 16% for the Gulf). They include using the most recent ten years of landings data (2012-2021) (**Alternative** 4) or using 50% of the average landings from 1993-2008 + 50% of the average landings from 2006-2008 **(Alternative 5**), but using recreational landings estimates from the MRIP-FES. **Alternative 4** and **Alternative 5** represent the largest allocation to the South Atlantic and the smallest to the Gulf of the alternatives considered in this action. Using 2012-2021 data addresses more recent commercial and recreational effort while the aforementioned formula provides consistency with how the current jurisdictional allocation was calculated.

Table 2.1.1.1 The yellowtail snapper OFL, stock ABC, and allocations for the Gulf and South Atlantic jurisdictions, for all alternatives under Action 1. Note: Alternative 1 (No Action) is not a viable alternative (not consistent with BSIA) and cannot be directly compared to the other alternatives due to differences in data units. 2027/2028 values will remain in effect until modified.

Year	OFL (lb ww)	ABC (lb ww)	Gulf Stock ABC (lb ww)	South Atlantic Stock ABC (lb ww)
Alternative 1 (No Action) GOM 25%/SA 75% - Current Stock ABC				
2023/2024	4,510,000	4,050,000	1,012,500	3,037,500
2024/2025	4,510,000	4,050,000	1,012,500	3,037,500
2025/2026	4,510,000	4,050,000	1,012,500	3,037,500
2026/2027	4,510,000	4,050,000	1,012,500	3,037,500
2027/2028	4,510,000	4,050,000	1,012,500	3,037,500
Alternative 2 GOM 25%/SA 75% - Updated Stock ABC				
2023/2024	3,922,000	3,887,000	971,750	2,915,250
2024/2025	3,774,000	3,749,000	937,250	2,811,750
2025/2026	3,684,000	3,665,000	916,250	2,748,750
2026/2027	3,625,000	3,610,000	902,500	2,707,500
2027/2028	3,584,000	3,572,000	893,000	2,679,000
Alternative 3 GOM 20%/SA 80% -Updated Stock ABC				
2023/2024	3,922,000	3,887,000	777,400	3,109,600
2024/2025	3,774,000	3,749,000	749,800	2,999,200
2025/2026	3,684,000	3,665,000	733,000	2,932,000
2026/2027	3,625,000	3,610,000	722,000	2,888,000
2027/2028+	3,584,000	3,572,000	714,400	2,857,600
Alternative 4 GOM 16%/SA 84% - Updated Stock ABC				
2023/2024	3,922,000	3,887,000	621,920	3,265,080
2024/2025	3,774,000	3,749,000	599,840	3,149,160
2025/2026	3,684,000	3,665,000	586,400	3,078,600
2026/2027	3,625,000	3,610,000	577,600	3,032,400
2027/2028	3,584,000	3,572,000	571,520	3,000,480
Alternative 5 GOM 16%/SA 84% - Updated Stock ABC				
2023/2024	3,922,000	3,887,000	621,920	3,265,080
2024/2025	3,774,000	3,749,000	599,840	3,149,160
2025/2026	3,684,000	3,665,000	586,400	3,078,600
2026/2027	3,625,000	3,610,000	577,600	3,032,400
2027/2028	3,584,000	3,572,000	571,520	3,000,480

Note: The recreational portion of Alternative 1 is in MRFSS units. The recreational portion of Alternatives 2-5 are in MRIP-FES units.

2.1.2 Comparison of Alternatives:

TO BE COMPLETED UPON COMPLETION OF CHAPTER 4.

2.2 Action 2. Revise the total annual catch limit and annual optimum yield for yellowtail snapper in the South Atlantic and revise the total annual catch limit for yellowtail snapper in the Gulf of Mexico

2.2.1 Sub-action 2a. Revise the South Atlantic total annual catch limit and annual optimum yield for yellowtail snapper to reflect the new overfishing limit, acceptable biological catch, and jurisdictional allocation of the stock acceptable biological catch

2.2.1.1 Alternatives

NOTE: Annual catch limit totals for all alternatives under Action 2 will be dependent on the jurisdictional allocation from Action 1.

Alternative 1 (No Action): The South Atlantic total annual catch limit and annual optimum yield for yellowtail snapper are **equal to the current South Atlantic acceptable biological catch** (3,037,500 pounds whole weight). The current acceptable biological catch and overfishing limit are based on the results of SEDAR 27A, which included recreational landings estimates from the Marine Recreational Fisheries Statistics Survey.

Alternative 2. The total annual catch limit and annual optimum yield for yellowtail snapper is **equal to the updated South Atlantic acceptable biological catch level** resulting from the jurisdictional allocation in Action 1. The updated South Atlantic acceptable biological catch and overfishing limit are based on the results of the 2022 SEDAR 64 Interim Analysis, which included recreational landings estimates from the Marine Recreational Information Program's Fishing Effort Survey.

Alternative 3. The total annual catch limit and annual optimum yield for yellowtail snapper is equal to **90% of the updated South Atlantic acceptable biological catch level** resulting from the jurisdictional allocation in Action 1. The updated South Atlantic acceptable biological catch and overfishing limit are based on the results of the 2022 SEDAR 64 Interim Analysis, which included recreational landings estimates from the Marine Recreational Information Program's Fishing Effort Survey.

Alternative 4. The total annual catch limit and annual optimum yield for yellowtail snapper is equal to **95% of the South Atlantic acceptable biological catch level** resulting from the jurisdictional allocation in Action 1. The updated South Atlantic acceptable biological catch and overfishing limit are based on the results of the 2022 SEDAR 64 Interim Analysis, which included recreational landings estimates from the Marine Recreational Information Program's Fishing Effort Survey.

Alternative 5. The total annual catch limit and annual optimum yield for yellowtail snapper is equal to the lowest updated South Atlantic acceptable biological catch value. The updated South Atlantic acceptable biological catch and overfishing limit are inclusive of recreational estimates from the Marine Recreational Information Program's Fishing Effort Survey.

Alternative 6. The total annual catch limit and annual optimum yield for yellowtail snapper is equal to the constant catch at the fishing mortality rate at a 30% spawning potential ratio at equilibrium.

Discussion:

Alternative 1 (No Action) would retain the current South Atlantic ACL. Since updated catch levels have been provided through the 2022 SEDAR 64 Interim Analysis, this alternative is not consistent with BSIA and is therefore non-viable. **Alternative 2** would set the South Atlantic ACL and annual optimum yield OY equal to the updated South Atlantic ABC (Action 1). **Alternatives 3** and **4** would include a 10 and 5% buffer between the ACL/South Atlantic annual OY and the updated South Atlantic ABC, respectively.

Alternative 5 would set the ACL and South Atlantic annual OY equal to the lowest ABC value, which would be implemented and remain in place until modified. Similarly, **Alternative 6** would set the ACL and South Atlantic annual OY equal to the yield at the fishing mortality rate at 30% of the spawning potential ratio ($F_{30\%SPR}$) at equilibrium and this would remain in place until modified.

Table 2.2.1.1.1 The total ACLs for each option for Action 2 under each jurisdictional allocation of Action 1 (**Alternatives 2-4**). All values are in pounds whole weight.

Alternative	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Current SA ABC (lbs ww)	**3,037,500**	**3,037,500**	**3,037,500**	**3,037,500**	**3,037,500**
Alternative 1 (No Action)	3,037,500	3,037,500	3,037,500	3,037,500	3,037,500
Updated SA ABC (lbs ww) 75%	**2,915,250**	**2,811,750**	**2,748,750**	**2,707,500**	**2,679,000**
Alternative 2	2,915,250	2,811,750	2,748,750	2,707,500	2,679,000
Alternative 3	2,623,725	2,530,575	2,473,875	2,436,750	2,411,100
Alternative 4	2,769,488	2,671,163	2,611,313	2,572,125	2,545,050
Alternative 5	2,679,000				
Alternative 6	2,555,728				
Updated SA ABC (lbs ww) 80%	**3,109,600**	**2,999,200**	**2,932,000**	**2,888,000**	**2,857,600**
Alternative 2	3,109,600	2,999,200	2,932,000	2,888,000	2,857,600
Alternative 3	2,798,640	2,699,280	2,638,800	2,599,200	2,571,840
Alternative 4	2,954,120	2,849,240	2,785,400	2,743,600	2,714,720
Alternative 5	2,857,600				
Alternative 6	2,726,110				
Updated SA ABC (lbs ww) 84%	**3,265,080**	**3,149,160**	**3,078,600**	**3,032,400**	**3,000,480**
Alternative 2	3,265,080	3,149,160	3,078,600	3,032,400	3,000,480
Alternative 3	2,938,572	2,834,244	2,770,740	2,729,160	2,700,432
Alternative 4	3,101,826	2,991,702	2,924,670	2,880,780	2,850,456
Alternative 5	2,907,251				
Alternative 6	2,862,415				
Updated SA ABC (lbs ww) 84%	**3,265,080**	**3,149,160**	**3,078,600**	**3,032,400**	**3,000,480**
Alternative 2	3,265,080	3,149,160	3,078,600	3,032,400	3,000,480
Alternative 3	2,938,572	2,834,244	2,770,740	2,729,160	2,700,432
Alternative 4	3,101,826	2,991,702	2,924,670	2,880,780	2,850,456
Alternative 5	2,907,251				
Alternative 6	2,862,415				

2.2.1.2 Comparison of Alternatives:

TO BE COMPLETED UPON COMPLETION OF CHAPTER 4.

2.2.2 Sub-action 2b. Revise the Gulf of Mexico acceptable biological catch buffer to set the total annual catch limit for yellowtail snapper

2.2.2.1 Alternatives

NOTE: Annual catch limit totals for all alternatives under Action 2 will be dependent on the jurisdictional allocation from Action 1.

Alternative 1 (No Action). Retain the current 11% buffer between the Gulf of Mexico's acceptable biological catch and the total annual catch limit. Use this acceptable biological catch buffer to update the Gulf of Mexico annual catch limit based on the Gulf of Mexico Fishery Management Council's jurisdictional allocation of the yellowtail snapper stock acceptable biological catch selected in Action 1. The 11% buffer is based on the calculation of the Gulf of Mexico Fishery Management Council's Annual Catch Limit/Annual Catch Target Control Rule using Marine Recreational Fisheries Statistics Survey landings data from 2008 – 2011.

Alternative 2. Modify the buffer between the Gulf of Mexico's jurisdictional allocation of the total acceptable biological catch and total annual catch limit, based on the preferred alternative in Action 1. Modify this buffer using the Gulf of Mexico Fishery Management Council's Annual Catch Limit/Annual Catch Target Control Rule, based on Marine Recreational Information Program Fishing Effort Survey landings data from the 2017/2018 – 2020/2021 fishing years. This results in an 8% buffer between the Gulf of Mexico Fishery Management Council's jurisdictional allocation of the yellowtail snapper stock acceptable biological catch and the Gulf of Mexico annual catch limit.

Alternative 3. Eliminate the buffer between the Gulf of Mexico's allocation of the total acceptable biological catch and total annual catch limit. The Gulf of Mexico annual catch limit for yellowtail snapper is equal to the updated Gulf of Mexico Fishery Management Council's jurisdictional allocation of the stock acceptable biological catch level in the Marine Recreational Information Program's Fishing Effort Survey data units as calculated in Action 1.

Discussion:

Alternatives in Action 2, Sub-Action 2b address the buffer between the Gulf of Mexico's allocation of the total ABC and the total Gulf ACL. The resulting ACLs are based on the jurisdictional allocations selected in Action 1 and the ABC buffer selected in Action 2. A 2013 Reef Fish Framework Action (GMFMC 2013) established the buffer between the ABC and ACL using the Gulf ACL/ACT Control Rule, which resulted in a buffer of 11% (**Alternative 1**). The ACL/ACT Control Rule considers the number of times the ACL was exceeded, the precision of recreational landings based on annual proportional standard error, the precision of commercial landings, in-season accountability measures (AM), and stock status. The 11% buffer was based on using the years 2008-2011 and recreational landing estimates were in MRFSS units. These same factors were considered for **Alternative 2** (Appendix B, buffer of 8%), using a more recent time series (2017/2018-2020/2021) and recreational landing estimates in MRIP-FES units. The ABC is set equal to the ACL under **Alternative 3.**

Alternative 1 retains the existing ABC buffer (11%) that was established in the 2013 Reef Fish Framework (GMFMC 2013) and is based in part on MRFSS units. There has never been a yellowtail snapper quota closure in the Gulf based on this buffer. However, the time series used to calculate the ABC buffer is over 10 years old. It also was based on landings in MRFSS units, which are not considered to be consistent with BSIA. If selected, this buffer would be used to update the jurisdictionally allocated ABC selected in Action 1. Based on average landings (Table 2.2.2.1.1, Appendix A), no closures are projected regardless of the jurisdictional allocation selected in Action 1 (Table 2.2.2.1.2).

Like **Alternative 1, Alternative 2** uses the Gulf ACL/ACT Control Rule to calculate the ABC buffer. However, it uses a more recent time series of available landings (2017/2018-2020/2021). It also incorporates the current fishing year, which splits the calendar year. This results in an ABC buffer of 9% (Appendix B). This is a reduction from the current buffer of 11% and is due in part to a more recent time series being used in the ACL/ACT Control Rule. This buffer would be used to update the jurisdictionally allocated ABC selected in Action 1. Similar to **Alternative 1,** no closures are projected regardless of jurisdictional allocation selected in Action 1 (Table 2.2.2.2.2) under average landings.

No closures are projected using average landings or higher than average landings under the new catch limits if the Gulf retains an allocation of 25% of the stock ABC (Action 1, Alternative 2, Table 2.2.2.2), whether there is a buffer between the ABC and ACL (**Alternatives 1** and **2**) or no buffer between the ABC and ACL (**Alternative 3**).

Table 2.2.2.1.1 Commercial and recreational landings in pounds (lbs) whole weight (ww) of yellowtail snapper in the Gulf of Mexico for fishing years 2012-2021. The recreational portion of the landings are in MRIP-FES units.

Yellowtail Snapper Commercial and Recreational Landings			
Fishing Year	**Rec. Landings (lbs ww)**	**Comm. Landings (lbs ww)**	**Total Landings (lbs ww)**
2012	5,163	630,984	636,147
2013	9,343	734,112	743,455
2014	27,715	466,968	494,683
2015	64,743	504,193	568,936
2016	13,401	209,283	222,684
2016/2017*	249,512	682,875	932,387
2017/2018	206,785	589,868	796,653
2018/2019	104,527	527,112	631,638
2019/2020	12,348	287,940	300,289
2020/2021	79,765	212,630	292,395

* On March 13, 2017, a framework action to the Reef Fish FMP was effective that changed the fishing year for both the recreational and commercial sectors to August 1 through July 31 to be consistent with the fishing year in the South Atlantic, which was implemented in 2016. For this reason, 2016 includes January through July 31, 2016 landings. August 1, 2016 through July 31, 2017 landings are attributed to the 2016/17 fishing year.
Source: SEFSC Commercial ACL Dataset (August 31, 2022) and SEFSC MRIP FES Recreational ACL Dataset (October 25, 2022).

Table 2.2.2.1.2 Predicted dates when the ACL will be met for Gulf of Mexico yellowtail snapper for each proposed ABC buffer to set the ACL (**Action 2**) and each proposed jurisdictional allocation (**Action 1**). Gulf of Mexico yellowtail snapper are managed as a stock annual catch limit without sector allocations. No closure is projected for all alternatives and proposed annual catch limits.

Action 1, Alternative 1 (No Action): GOM 25% / SA 75% Current Gulf of Mexico ACL (lb ww)					
Action 2 Alternative 1	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Current GOM ACL= 89% ABC	ACL not met 901,125				
Action 1, Alternative 2: GOM 25% / SA 75%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	ACL not met 864,858	ACL not met 834,153	ACL not met 815,463	ACL not met 803,225	ACL not met 794,770
Alternative 2 (ACL=92% Updated ABC)	ACL not met 894,010	ACL not met 862,270	ACL not met 842,950	ACL not met 830,300	ACL not met 821,560
Alternative 3 (ACL= Updated ABC)	ACL not met 971,750	ACL not met 937,250	ACL not met 916,250	ACL not met 902,500	ACL not met 893,000
Action 1, Alternative 3: GOM 20% / SA 80%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	ACL not met 691,886	ACL not met 667,322	ACL not met 652,370	ACL not met 642,580	ACL not met 635,816
Alternative 2 (ACL=92% Updated ABC)	ACL not met 715,208	ACL not met 689,816	ACL not met 674,360	ACL not met 664,240	ACL not met 657,248
Alternative 3 (ACL= Updated ABC)	ACL not met 777,400	ACL not met 749,800	ACL not met 733,000	ACL not met 722,000	ACL not met 714,400
Action 1, Alternative 4: GOM 16% / SA 84%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	ACL not met 553,509	ACL not met 533,858	ACL not met 521,896	ACL not met 514,064	ACL not met 508,653
Alternative 2 (ACL=92% Updated ABC)	ACL not met 572,166	ACL not met 551,853	ACL not met 539,488	ACL not met 531,392	ACL not met 525,798
Alternative 3 (ACL= Updated ABC)	ACL not met 621,920	ACL not met 599,840	ACL not met 586,400	ACL not met 577,600	ACL not met 571,520
Action 1, Alternative 5: GOM 16% / SA 84%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	ACL not met 553,509	ACL not met 533,858	ACL not met 521,896	ACL not met 514,064	ACL not met 508,653
Alternative 2 (ACL=92% Updated ABC)	ACL not met 572,166	ACL not met 551,853	ACL not met 539,488	ACL not met 531,392	ACL not met 525,798
Alternative 3 (ACL= Updated ABC)	ACL not met 621,920	ACL not met 599,840	ACL not met 586,400	ACL not met 577,600	ACL not met 571,520

2.2.2.2 Comparison of Alternatives:

TO BE COMPLETED

2.3 Action 3. Revise the South Atlantic yellowtail snapper sector allocations and sector annual catch limits

2.3.1 Alternatives

Alternative 1 (No Action). Retain the current commercial and recreational sector allocations as 52.56% and 47.44%, respectively, of the revised total annual catch limit for yellowtail snapper.

Alternative 2. Allocate 40.73% of the revised total annual catch limit for yellowtail snapper to the commercial sector and 59.27% of the revised total annual catch limit for yellowtail snapper to the recreational sector.

Discussion:

Alternative 1 (No Action) retains the current South Atlantic sector allocation percentages and applies them to the updated South Atlantic ACL. The sector allocations proposed under **Alternative 1 (No Action)** result from applying the allocation formula adopted through the Comprehensive ACL Amendment (SAFMC 2011) for unassessed snapper grouper species: ACL = ((mean landings 2006-2008)*0.5)) + ((mean landings 1986-2008)*0.5). The same formula has also been used to allocate the total ACL for some assessed species (i.e., golden tilefish). When this method was originally applied, the formula used recreational landings estimates from MRFSS.

Alternative 2 uses the same formula as **Alternative 1 (No Action)** to recalculate the South Atlantic sector allocations percentages, using the same year ranges but incorporating recreational landings estimates from MRIP-FES. These updated percentages would be applied to the updated South Atlantic ACL.

Table 2.3.1.1. Sector allocation options for Action 3. Allocations are shown for each viable jurisdictional allocation of Action 1 with an ACL=South Atlantic ABC (**Alternative 2** of Sub-Action 2a).

Year	SA Total ACL (lbs ww)	Commercial ACL (lbs ww)	Recreational ACL (lbs ww)
BASED ON 75% SA JURISDICTIONAL ALLOCATION			
Alternative 1 (No Action) Com: 52.56% Rec: 47.44%			
2023/2024	2,915,250	1,532,255	1,382,995
2024/2025	2,811,750	1,477,856	1,333,894
2025/2026	2,748,750	1,444,743	1,304,007
2026/2027	2,707,500	1,423,062	1,284,438
2027/2028	2,679,000	1,408,082	1,270,918
Alternative 2 Com: 40.73% Rec: 59.27%			
2023/2024	2,915,250	1,187,381	1,727,869
2024/2025	2,811,750	1,145,226	1,666,524
2025/2026	2,748,750	1,119,566	1,629,184
2026/2027	2,707,500	1,102,765	1,604,735
2027/2028	2,679,000	1,091,157	1,587,843
BASED ON 80% SA JURISDICTIONAL ALLOCATION			
Alternative 1 (No Action) Com: 52.56% Rec: 47.44%			
2023/2024	3,109,600	1,634,406	1,475,194
2024/2025	2,999,200	1,576,380	1,422,820
2025/2026	2,932,000	1,541,059	1,390,941
2026/2027	2,888,000	1,517,933	1,370,067
2027/2028	2,857,600	1,501,955	1,355,645
Alternative 2 Com: 40.73% Rec: 59.27%			
2023/2024	3,109,600	12,666,540	1,843,060
2024/2025	2,999,200	1,221,574	1,777,626
2025/2026	2,932,000	1,194,204	1,737,796
2026/2027	2,888,000	1,176,282	1,711,718
2027/2028	2,857,600	1,163,900	1,693,700
BASED ON 84% SA JURISDICTIONAL ALLOCATION			
Alternative 1 (No Action) Com: 52.56% Rec: 47.44%			
2023/2024	3,265,080	1,716,126	1,548,954
2024/2025	3,149,160	1,655,198	1,492,962
2025/2026	3,078,600	1,618,112	1,460,488
2026/2027	3,032,400	1,593,829	1,438,571
2027/2028	3,000,480	1,577,052	1,423,428
Alternative 2 Com: 40.73% Rec: 59.27%			
2023/2024	3,265,080	1,329,867	1,935,213
2024/2025	3,149,160	1,282,653	1,866,507
2025/2026	3,078,600	1,253,914	1,824,686
2026/2027	3,032,400	1,235,097	1,797,303
2027/2028	3,000,480	1,222,096	1,778,384
BASED ON 84% SA JURISDICTIONAL ALLOCATION			
Alternative 1 (No Action) Com: 52.56% Rec: 47.44%			

Year	SA Total ACL (lbs ww)	Commercial ACL (lbs ww)	Recreational ACL (lbs ww)
2023/2024	3,265,080	1,716,126	1,548,954
2024/2025	3,149,160	1,655,198	1,492,962
2025/2026	3,078,600	1,618,112	1,460,488
2026/2027	3,032,400	1,593,829	1,438,571
2027/2028	3,000,480	1,577,052	1,423,428
Alternative 2 Com: 40.73% Rec: 59.27%			
2023/2024	3,265,080	1,329,867	1,935,213
2024/2025	3,149,160	1,282,653	1,866,507
2025/2026	3,078,600	1,253,914	1,824,686
2026/2027	3,032,400	1,235,097	1,797,303
2027/2028	3,000,480	1,222,096	1,778,384

2.3.2 Comparison of Alternatives:

TO BE COMPLETED UPON COMPLETION OF CHAPTER 4

Chapter 3. Affected Environment

This section describes the affected environment in the proposed project area. The affected environment is divided into four major components:

- **Habitat Environment** (Section 3.1)
- **Biological and Ecological Environment** (Section 3.2)
- **Economic and Social Environment** (Sections 3.3)
- **Administrative Environment** (Section 3.4)

3.1 Habitat Environment

Information on the South Atlantic habitat utilized by species in the snapper grouper fishery management unit (Snapper Grouper FMU) and managed through the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) is included in Volume II of the Fishery Ecosystem Plan (FEP; SAFMC 2012) and the FEP II Dashboard (under revision) which are incorporated here by reference. South Atlantic Fishery Management Council (Council) designated essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPC) are presented in the SAFMC User Guide[5]. Web Services and spatial representations of EFH and other habitat related layers are accessible through the Council's SAFMC Atlas[6], a platform for searching and visualizing GIS data relevant to the Council's mission and download of GIS layers and information on regional partners is available through the SAFMC Digital Dashboard[7].

The Gulf of Mexico physical environment for yellowtail snapper is detailed in the Environmental Impact Statement (EIS) for the Generic Essential Fish Habitat (EFH) Amendment (GMFMC 2004), Generic EFH Amendment 3 (GMFMC 2005), and the Generic ACL/AM Amendment (GMFMC 2011a), which are hereby incorporated by reference and summarized below.

[5] https://safmc.net/documents/efh-user-guide/
[6] https://safmc-myfwc.hub.arcgis.com/
[7] https://ocean.floridamarine.org/safmc_dashboard/

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 3.2.1).

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 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[8]. In general, mean sea surface temperature increases from north to south with large seasonal variations in shallow waters.

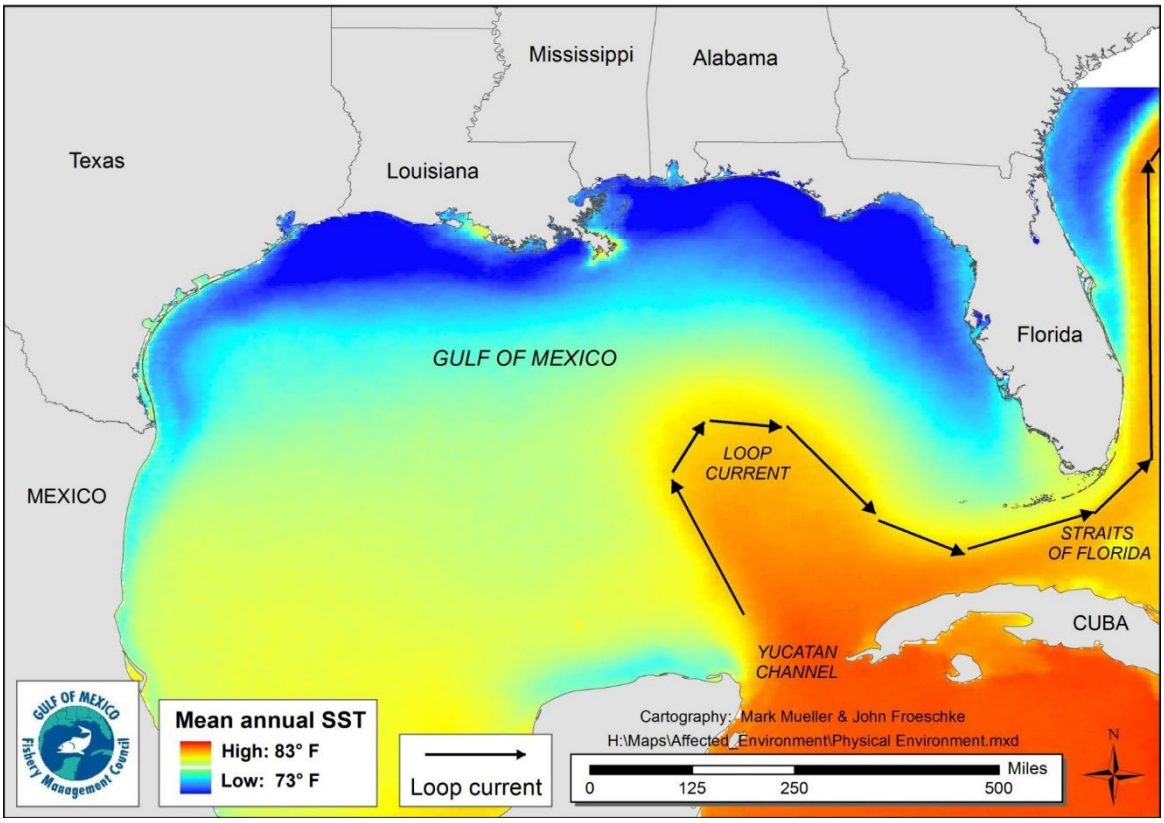


Figure 3.1.1. Mean annual sea surface temperature derived from the Advanced Very High-Resolution Radiometer Pathfinder Version 5 sea surface temperature data set.[9]

In general, reef fish are widely distributed in the Gulf, occupying both pelagic and benthic habitats during their life cycle. A planktonic larval stage lives in the water column and feeds on zooplankton and phytoplankton (GMFMC 2004). Juvenile and adult reef fish are typically

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

[9] http://pathfinder.nodc.noaa.gov

demersal and usually associated with bottom topographies on the continental shelf (less than 100 m) which have high relief, i.e., coral reefs, artificial reefs, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings. However, several species are found over sand and soft-bottom substrates. For example, juvenile red snapper is common on mud bottoms in the northern Gulf, particularly off Texas through Alabama. Also, some juvenile snapper (e.g., mutton, gray, red, dog, lane, and yellowtail snappers) and grouper (e.g., goliath, red, gag, and yellowfin groupers) are associated with inshore seagrass beds, mangrove estuaries, lagoons, and larger bay systems.

3.1.1 Essential Fish Habitat

EFH is defined in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S. C. 1802(10)). EFH for species in the Snapper Grouper FMU includes coral reefs, live/hard bottom, submerged aquatic vegetation, artificial reefs and medium to high profile outcroppings on and around the shelf break zone from shore to at least 600 ft (but to at least 2000 ft for wreckfish) where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical complex. EFH includes the spawning area in the water column above the adult habitat and the additional pelagic environment, including *Sargassum*, required for larval survival and growth up to and including settlement. In addition, the Gulf Stream is an EFH because it provides a mechanism to disperse snapper grouper larvae. All of the Gulf of Mexico is considered EFH for reef fish species.

3.1.2 Habitat Areas of Particular Concern

EFH-Habitat Areas of Particular Concern (EFH-HAPCs) in the South Atlantic for species in the snapper-grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; nearshore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the Oculina Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and Council-designated Artificial Reef Special Management Zones (SMZs). Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, post-larval, juvenile, and adult stages).

South Atlantic EFH-HAPCs for the snapper grouper complex include the following deepwater marine protected areas (MPA) as designated in Snapper Grouper Amendment 14: Snowy Grouper Wreck MPA, Northern South Carolina MPA, Edisto MPA, Charleston Deep Artificial Reef MPA, Georgia MPA, North Florida MPA, St. Lucie Hump MPA, and East Hump MPA.

The South Atlantic Council established the special management zone (SMZ) designation process in 1983 in the Snapper Grouper FMP, and SMZs have been designated in federal waters off North Carolina, South Carolina, Georgia, and Florida since that time. The purpose of the

original SMZ designation process, and the subsequent specification of SMZs, was to protect snapper grouper populations at the relatively small, permitted artificial reef sites and "create fishing opportunities that would not otherwise exist." Thus, the SMZ designation process was centered around protecting the relatively small habitats, which are known to attract desirable snapper grouper species.

Similarly, in the Comprehensive Ecosystem-Based Amendment 1 (CE-BA 1; SAFMC 2009b), the South Atlantic Council designated EFH areas and EFH-HAPCs under the Snapper Grouper FMP. Under the Magnuson-Stevens Act, FMPs are required to describe and identify EFH and to minimize the adverse effects of fishing on such habitat to the extent practicable. An EFH-HAPC designation adds an additional layer to the EFH designation. Under the Snapper Grouper FMP, EFH-HAPCs are designated based upon ecological importance, susceptibility to human-induced environmental degradation, susceptibility to stress from development, or rarity of habitat type. The Council determined in CE-BA 1 that the Council-designated SMZs met the criteria to be EFH-HAPCs for species included in the Snapper Grouper FMP. Since CE-BA 1, the Council has designated additional SMZs in the Snapper Grouper FMP including Spawning SMZs. The SMZ and EFH-HAPC designations serve similar purposes in pursuit of identifying and protecting valuable and unique habitat for the benefit of fish populations, which are important to both fish and fishers. Therefore, the Council determined that a designated SMZ meets the criteria for an EFH-HAPC designation, and the Council intends that all SMZs designated under the Snapper Grouper FMP also be designated as EFH-HAPCs under the Snapper Grouper FMP.

Detailed information pertaining to HAPCs in the Gulf of Mexico is provided in Generic Amendment 3 for addressing EFH, HAPC (GMFMC 2005b) and Amendment 9 to the Fishery Management Plan for the Coral and Coral Reefs of the Gulf of Mexico, U.S. Waters (GMFMC 2018). Detailed information pertaining to the Gulf area closures and marine reserves is provided in Amendment 32 to the Fishery Management Plan for the Reef Fish Resources in the Gulf of Mexico (GMFMC 2011b). There are environmental sites of special interest that are discussed in the Generic EFH Amendment (GMFMC 2004) that are relevant to reef fish management. These documents are hereby incorporated by reference.

3.2 Biological and Ecological Environment

3.2.1 Yellowtail Snapper

3.2.1.1 Life History

The biological environment of the Gulf, including the species addressed in this amendment, is described in detail in the Generic EFH Amendment (GMFMC 2004) and the Generic ACL/AM Amendment (GMFMC 2011a), which are hereby incorporated by reference and summarized below.

Yellowtail snapper, *Ocyurus chrysurus*, occurs in the Western Atlantic, ranging from Massachusetts to southeastern Brazil, including the Gulf of Mexico and Caribbean Sea, but is most common in the Bahamas, off south Florida, and throughout the Caribbean (Randall 1967, Fischer 1978, Allen 1985, Hoese and Moore 1998). Most U.S. landings are from the Florida Keys and southeastern Florida. Yellowtail snapper inhabits waters as deep as 180 m (590 ft), and

usually is found well above the bottom (Allen 1985). Muller et al. (2003) state that adults typically inhabit sandy areas near offshore reefs at depths ranging from 10 to 70 m (33-230 ft). Thompson and Munro (1974) indicate that this species is most abundant at depths of 20-40 m (66-131 ft) near the edges of shelves and banks off Jamaica. Juveniles are usually found over back reefs and seagrass beds (Thompson and Munro 1974; Muller et al. 2003). Yellowtail snapper exhibits schooling behavior (Thompson and Munro 1974).

Maximum reported size is 86.3 cm (34.2 in) TL (male) and 4.98 kg (11 lbs) (*Yellowtail Snapper* International Game Fish Association 2023). Maximum age is 28 years with the oldest fish collected from Florida waters at 20 years old (2020 SEDAR 64). Natural mortality is estimated at 0.147 yr^{-1} with a range of 0.125-0.204 yr^{-1} (2020 SEDAR 64).

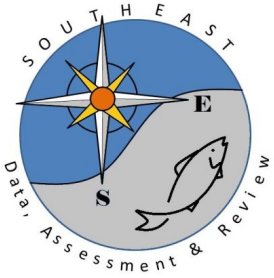
Yellowtail snapper have separate sexes throughout their lifetime (i.e., they are gonochoristic). Figuerola et al. (1997) estimated size at 50% maturity as 22.4 cm (8.9 in) FL (males) and 19.2 cm (7.6 in) FL (females), based on fishery independent and dependent data collected off Puerto Rico.

Yellowtail Snapper are gonochoristic (individuals remain the same sex throughout their lifetime) and are multiple (batch) spawners with indeterminate fecundity (Barbieri and Colvocoresses 2003). In the Florida Keys, spawning peaks during April to August but can occur year-round (McClellan and Cummings 1998; Collins and Finucane 1989). Gonadosomatic indices from studies in the Florida Keys (e.g. Collins and Finucane 1989; Pinkard and Shenker 2001; Barbieri and Colvocoresses 2003) reported increasing values beginning in April and remained high through July or August. In Cuban waters, peak spawning occurs in April with another less intensive peak in September (Claro et al. 2001). Large spawning aggregations have been reported to form seasonally off the coasts of Cuba, the Turks and Caicos Islands, U.S. Virgin Islands, and during May – July southwest of Key West, FL, at Riley's Hump off the Dry Tortugas (Lindeman et al. 2000). Spawning occurs in offshore waters (Figuerola et al. 1997; Thompson and Munro 1974) and during the new moon (Figuerola et al. 1997).

Yellowtail snapper feed primarily at night (Friedlander et al. 2013) and opportunistically throughout the day (Cummings 2004). Juveniles feed primarily on plankton (Allen 1985; Thompson and Munro 1974). Adults eat a combination of planktonic (Allen 1985), pelagic (Thompson and Munro 1974), and benthic organisms, including fishes, crustaceans, worms, gastropods, and cephalopods (Allen 1985, Barbieri and Colvocoresses 2003). Bortone and Williams (1986) stated that both juveniles and adults feed on fish, shrimp, and crabs.

3.2.1.2 Stock Status

The Southeast Data, Assessment, and Review (SEDAR) process is a cooperative Fishery Management Council initiative to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and U.S. Caribbean. SEDAR seeks improvements in the scientific quality of stock assessments, constituent and stakeholder participation in assessment development, transparency in the assessment process, and a rigorous and independent scientific review of completed stock assessments.



SEDAR is organized around three public workshops. First is the Data Workshop, during which fisheries monitoring and life history data are reviewed and compiled. Second is the Assessment Workshop, which may be conducted via a workshop and several webinars, during which assessment models are developed and population parameters are estimated using the information provided from the Data Workshop. Third and final is the Review Workshop, during which independent experts review the input data, assessment methods, and assessment products. The completed assessment, including the reports of all three workshops and all supporting documentation, are then forwarded to the Council's Scientific and Statistical Committee (SSC). The SSC considers whether the assessment represents the best available science and develops fishing level recommendations for Council consideration.

Yellowtail snapper is considered a single stock in the South Atlantic and the Gulf of Mexico. It is jointly managed by the South Atlantic Fishery Management Council (South Atlantic Council) and the Gulf of Mexico Fishery Management Council (Gulf Council) (together, Councils) under two separate fishery management plans (FMP). In 2003, the yellowtail snapper stock was assessed through the 2003 SEDAR 3 stock assessment which indicated that the stock was not overfished and not undergoing overfishing. In 2012, the yellowtail snapper stock was assessed through 2012 SEDAR 27A as a standard assessment which indicated that the yellowtail snapper stock was not overfished and undergoing overfishing. In response to 2012 SEDAR 27A, the Councils and National Marine Fisheries Service (NMFS) modified the annual catch limits (ACL) and sector allocations and annual catch limits through Regulatory Amendment 15 to the Snapper Grouper FMP (SAFMC 2013) and a Reef Fish Framework (GMFMC 2013). They retained the jurisdictional allocation of the ABC.

The most recent update assessment 2022 SEDAR 64 Interim Analysis was finalized in 2022, using data through 2020. The Councils' SSCs reviewed the 2022 SEDAR 64 Interim Analysis in August 2022 and determined that the assessment is consistent with best scientific information available (BSIA). The 2022 SEDAR 64 Interim Analysis determined that yellowtail snapper stock is not overfished because $SSB_{F30\%SPR}$ (1915.62 mt) is greater than the minimum stock size threshold (MSST) (1,436.72 mt) and is not subject to overfishing because $F_{current}$ (geometric mean of F on age-4 fish for 2018-2020, 0.295) is less than the maximum fishing mortality threshold (MFMT) (0.433) (Figure 3.2.1.2.1).

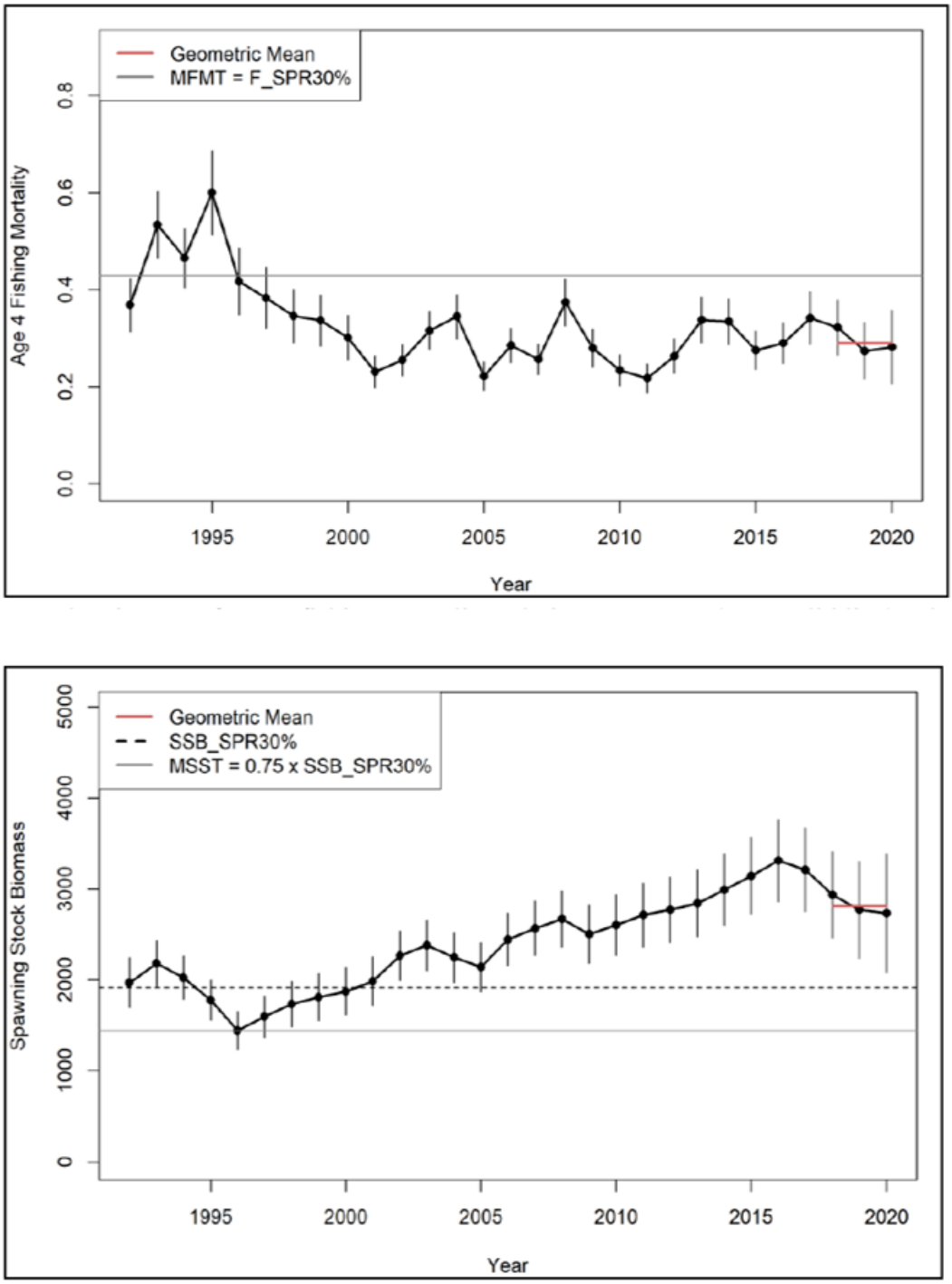


Figure 3.2.1.2.1. Top panel: annual estimates of age-4 fishing mortality relative to MFMT (grey solid line). The geometric mean of fishing mortality in the last three years ($F_{current}$) is shown in red. Bottom panel: Annual estimates of spawning stock biomass (SSB) relative to MSST (grey solid line) and $SSB_{F30\%SPR}$ (black dashed line). The geometric mean of SSB in the last three years ($SSB_{current}$) is shown in red. For both panels: vertical lines represent approximate symmetric 95% confidence intervals.

3.2.1.3 Landings

Yellowtail snapper are usually caught commercially near the ocean surface with recreational catch being deeper. With hook-and-line being the primary gear, physical impacts to the environment could occur when weights, hooks, and anchors hit and damage the substrate and surrounding habitat. Fishing line has the potential to snag and entangle bottom structures and cause tear-offs or abrasions (Barnette 2001). If gear is lost or improperly disposed of, it can entangle marine life. Entangled gear often becomes fouled with algal growth.

Vertical lines

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 2004). Vertical lines include multi-hook lines known as bandit gear, handlines, and rod-and-reels. Vertical-line gear is less likely to contact the bottom than longlines, but still has the potential to snag and entangle bottom structures and cause attached organisms, such as soft corals and sponges, to tear off or be abraded (Barnette 2001). In using bandit gear, a weighted line is lowered to the bottom, and then the lead is raised slightly off the bottom (Siebenaler and Brady 1952). The gear is in direct contact with the bottom for only a short period of time. Barnette (2001) suggests that physical impacts may include entanglement and minor degradation of benthic species from line abrasion and the use of weights (sinkers).

Anchor damage is also associated with vertical-line fishing vessels, particularly by the recreational sector where fishermen may repeatedly visit well marked or known fishing locations. Hamilton (2000) points out that "favorite" fishing areas, such as reefs, are targeted and revisited multiple times, particularly with the advent of global positioning technology. The cumulative effects of repeated anchoring could damage the hard bottom areas and Essential Fish Habitat (EFH) where fishing for greater amberjack and other reef fish occurs. The for-hire sector and commercial sector that uses vertical line gear are typically known to anchor more frequently over the reef sites.

Gulf of Mexico Landings

Table 3.2.1.3.1. Commercial and recreational landings in pounds (lbs) whole weight (ww) of yellowtail snapper in the Gulf of Mexico for fishing years 2012-2021.

Yellowtail Snapper Commercial and Recreational Landings			
Fishing Year	**Rec. Landings (lbs ww)**	**Comm. Landings (lbs ww)**	**Total Landings (lbs ww)**
2012	5,163	630,984	636,147
2013	9,343	734,112	743,455
2014	27,715	466,968	494,683

Yellowtail Snapper Commercial and Recreational Landings			
Fishing Year	**Rec. Landings (lbs ww)**	**Comm. Landings (lbs ww)**	**Total Landings (lbs ww)**
2015	64,743	504,193	568,936
2016	13,401	209,283	222,684
2017*	249,512	682,875	932,387
2017/2018	206,784.83	589,868	796,653
2018/2019	104,527	527,112	631,638
2019/2020	12,348	287,940	300,289
2020/2021	79,765	212,630	292,395

* In 2017, a framework action to the Reef Fish FMP changed the fishing season for both the recreational and commercial sectors to August 1 through July 31 to be consistent with the fishing season in the South Atlantic. For this reason, 2016 includes January through July 31, 2016 landings and 2016/17 fishing season landings are provided separately.
Source: SEFSC Commercial ACL Dataset (August 31, 2022) and SEFSC MRIP FES Recreational ACL Dataset (October 25, 2022).

South Atlantic Landings

Table 3.2.1.3.2 Commercial and recreational landings in lbs ww of yellowtail snapper in the South Atlantic for fishing years 2012-2021.

Yellowtail Snapper Commercial and Recreational Landings			
Fishing Year	**Rec. Landings (lbs ww)**	**Comm. Landings (lbs ww)**	**Total Landings (lbs ww)**
2012	1,129,915	1,439,586	2,569,501
2013	1,695,188	1,328,974	3,024,162
2014	2,122,485	1,544,038	3,666,523
2015[a]	1,495,150	1,652,438[a]	3,147,588
2016*	1,184,513	1,393,495	2,578,008
2016/2017[b]	1,491,509	2,336,970[b]	3,828,479
2017/2018[c]	1,481,290	1,703,541[c]	3,184,830
2018/2019[d]	1,405,783	1,662,102[d]	3,067,885
2019/2020	1,330,659	1,435,167	2,766,566
2020/2021	1,131,075	1,204,637	2,335,712

*The fishing season for yellowtail snapper was modified in Regulatory Amendment 25, which took effect on August 12, 2016. For this reason, 2016 includes January through August 12, 2016 landings and 2016/17 fishing season landings are provided separately.
[a]In-season closure for commercial sector from October 31, 2015 to December 31, 2015.
[b]In-season closure for commercial sector from June 3, 2017 to July 31, 2017.
[c]In-season closure for commercial sector from June 5, 2018 to July 31, 2018.
[d]In-season closure for commercial sector from June 7, 2019 to July 31, 2019.
Source: SEFSC Commercial ACL Dataset (August 31, 2022) and SEFSC MRIP FES Recreational ACL Dataset (October 25, 2022).

3.2.2 Bycatch

The implications of bycatch on the yellowtail stock and snapper grouper fishery are discussed in Appendix G (Bycatch Practicability Analysis [BPA]).

3.2.3 Other Species Affected

Yellowtail snapper are also occasionally found in the eastern Atlantic along with the gray, queen, and lane snappers (Fischer 1978, Allen 1985).

3.2.4 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.[10] There are 29 ESA-listed species or Distinct Population Segments (DPS) of marine mammals, sea turtles, fish, and corals managed by NMFS that may occur in federal waters of the South Atlantic or Gulf of Mexico. There are 91 stocks of marine mammals managed within the Southeast region plus the addition of the stocks such as North Atlantic right whales (NARW), and humpback, sei, fin, minke, and blue whales that regularly or sometimes occur in Southeast region managed waters for a portion of the year (Hayes et al. 2017). All marine mammals in U.S. waters are protected under the MMPA. The MMPA requires that each commercial fishery be classified by the number of marine mammals they seriously injure or kill. NMFS's List of Fisheries[11] classifies U.S. commercial fisheries into three categories based on the number of incidental mortality or serious injury they cause to marine mammals.

The whale species that may be present in the South Atlantic and Gulf of Mexico (blue, sperm, sei, fin, NARW, and Rice's[12]) are listed as endangered under the ESA. Rice's whales are the only resident baleen whales in the Gulf recently being listed as endangered. 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 South Atlantic and Gulf of Mexico. These include the following: five species (six DPS) 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) in the Gulf of Mexico; nine species or DPSs of fish in the South Atlantic (the smalltooth sawfish; five DPSs of Atlantic sturgeon; Nassau grouper; oceanic whitetip shark, and giant manta ray); six species of coral (elkhorn, staghorn, lobed star, mountainous star, boulder star, and rough cactus) in the Gulf of Mexico; and seven species of coral (elkhorn coral, staghorn coral, rough cactus coral, pillar coral, lobed star coral, mountainous star coral, and boulder coral) in the South Atlantic. Habitat designated under the ESA for 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. Portions of designated critical habitat for NARW, the Northwest

[10] https://www.fisheries.noaa.gov/about/office-protected-resources
[11] https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act-list-fisheries/
[12] The Gulf Bryde's whale has recently been 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 to be named *Balaenoptera ricei* or Rice's whale.

Atlantic DPS of loggerhead sea turtles, and *Acropora* corals occur within the South Atlantic 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 September 29, 2016, NMFS requested re-initiation of Section 7 consultation on the operation of reef fish fishing managed by the Reef Fish FMP because new species (i.e., Nassau grouper [81 FR 42268] and green sea turtle North Atlantic and South Atlantic DPSs [81 FR 20057]) were listed under the ESA that may be affected by the proposed action. NMFS documented a determination that the operation of the fishery to continue during the re-initiation period is not likely to adversely affect these species.

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 (now Rice's whale) whale as endangered. In a memorandum dated June 20, 2019, NMFS revised the re-initiation request to include the Gulf Bryde's (Rice's whale) 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.[13]

NMFS completed a formal consultation and resulting biological opinion (Bi-Op) on the conservation regulations under the ESA and the authorization of the South Atlantic snapper grouper fishery in federal waters under the Magnuson-Stevens Act, including the fishery managed by the FMP, on threatened and endangered species and designated critical habitat dated December 1, 2016. NMFS concluded that the activities addressed in the consultation are not likely to jeopardize the continued existence of any threatened or endangered species.

Since completing the December 2016 Bi-Op, NMFS published several final rules that listed additional species and designated critical habitat. NMFS has reinitiated formal consultation to

[13] Any official change to the name of the species listed under the ESA as the Gulf of Mexico Bryde's whale 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 reinitiation period.

address these listings and concluded the authorization of the South Atlantic snapper grouper fishery in federal waters during the re-initiation period will not violate ESA Sections 7(a)(2) or 7(d). For summary information on the protected species that may be adversely affected by the snapper grouper fishery and how they are affected refer to Section 3.2.5 in Vision Blueprint Regulatory Amendment 27 to the FMP (SAFMC 2019).

There is no information to indicate marine mammals and birds rely on yellowtail snapper for food, and they are not generally caught by fishermen harvesting yellowtail snapper. The primary gear type in the Gulf of Mexico Reef Fish fishery and the South Atlantic Snapper Grouper fishery used to harvest yellowtail snapper is hook-and-line. This gear is classified in the 2023 final MMPA List of Fisheries as a Category III fishery (88 FR 16899), 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 of Mexico and South Atlantic Snapper Grouper yellowtail snapper portions of the reef fish fishery as a whole is adversely affecting seabirds. Dolphins are the only species documented as interacting with the reef fish and snapper grouper fisheries. Bottlenose dolphin prey upon bait, catch, and/or released discards of fish from the reef fish fishery. They are also a common predator around reef fish and snapper grouper vessels, feeding on the discards.

3.3 Economic Environment

3.3.1 South Atlantic Commercial Sector

A description of the yellowtail snapper stocks affected by the actions considered in this amendment is provided in Section 3.2. Details on the South Atlantic snapper grouper fishery in general can be found at: https://safmc.net/fishery-management-plans/snapper-grouper/, and the Gulf of Mexico reef fish fishery in general can be found at: https://gulfcouncil.org/fishery-management-2/implemented-plans/reef-fish/.

Permits
Yellowtail snapper (*Lutjanus campechanus*) are one of 55 species managed by the South Atlantic Fishery Management Council's Snapper Grouper Fishery Management Plan. Any fishing vessel that harvests and sells any of the snapper grouper species from the South Atlantic Exclusive Economic Zone (EEZ) must have a valid South Atlantic commercial snapper grouper permit, which is a limited access permit. After a permit expires, it can be renewed or transferred up to one year after the date of expiration. As of August 26, 2021 there were 516 Snapper Grouper unlimited permits and 94 snapper grouper trip limited permits. As shown in Table 3.3.1.1, the number of permits that were valid at any point in a given year decreased steadily from 2016-2020. There were approximately 2% fewer valid permits in 2020, relative to 2016.

Table 3.3.1.1. Number of valid South Atlantic snapper grouper permits, 2016-2020.

Year	Unlimited Permits	225-lb Trip-limited	Total Permits
2016	565	116	681
2017	554	114	668
2018	549	110	659
2019	543	108	651
2020	535	104	639

Source: NMFS SERO Sustainable Fisheries (SF) Access permits database. Accessed 10/17/22

Vessels

The information in Tables 3.3.1.2 describes the landings and revenue for vessels that harvested South Atlantic yellowtail snapper in each year from 2017-2021, as well as their revenue from other South Atlantic and Gulf species. Vessel participation has declined overall from 2017-2021, with 24% fewer vessels harvesting yellowtail snapper in 2021, relative to 2017. In 2021, landings and revenue declined by 34% and 27% respectively, relative to 2017. Revenue from other South Atlantic species also declined during this time period. In 2021 revenue from other jointly caught South Atlantic species on yellowtail trips declined by 32%, relative to 2017. Revenue from species landed in the Gulf decreased by 1%. Total gross revenue for yellowtail vessels declined by 23% in 2021 relative to 2017, but the average total gross revenue per vessel increased by 2%. On average from 2017-2021, yellowtail snapper accounted for 22% of total revenue by vessels harvesting South Atlantic yellowtail snapper indicating a moderate financial dependency on yellowtail snapper landings.

Table 3.3.1.2. Number of vessels, landing (lbs whole weight [ww]), and ex-vessel revenues (2021$) by year for South Atlantic yellowtail snapper.

Year	Number of Vessels	Statistic	Yellowtail Landings (ww)	Yellowtail Revenue	Other SATL Landings	Other SATL Revenue	Other Gulf Revenue	Total Gross Revenue
2017	265	Max	88,210	$341,740	208,785	$812,060	$422,652	$1,223,459
		Mean	7,842	$26,973	18,354	$69,772	$11,109	$107,853
		Total	2,093,934	$7,201,663	4,900,562	$18,629,054	$2,966,071	$28,796,788
2018	257	Max	77,777	$306,197	109,631	$1,059,541	$468,952	$1,059,561
		Mean	5,466	$20,160	16,228	$66,186	$8,748	$95,094
		Total	1,421,288	$5,241,481	4,219,295	$17,208,429	$2,274,437	$24,724,347
2019	246	Max	90,768	$375,213	313,599	$1,099,348	$612,076	$1,099,378
		Mean	6,799	$24,382	19,393	$77,487	$7,048	$108,916
		Total	1,679,342	$6,022,373	4,790,142	$19,139,238	$1,740,764	$26,902,374
2020	236	Max	76,392	$226,853	153,360	$691,902	$470,320	$717,723
		Mean	4,967	$16,612	16,764	$66,813	$7,282	$90,706
		Total	1,177,274	$3,936,943	3,973,041	$15,834,604	$1,725,727	$21,497,274
2021	201	Max	76,698	$332,574	89,313	$552,859	$671,829	$786,698
		Mean	6,834	$25,845	16,479	$69,308	$14,494	$109,647
		Total	1,387,285	$5,246,588	3,345,182	$14,069,571	$2,942,281	$22,258,440

Source: Atlantic States Marine Fisheries Commission – ACCSP Data Warehouse, accessed: 4/27/2023

The most recent analysis that calculated estimates of economic returns for South Atlantic commercial fishing vessels was Liese (SEFSC, pers. comm. 2022). Liese (SEFSC, pers. comm. 2022) calculated economic returns for South Atlantic yellowtail snapper vessels as well as other segments of interest (SOI). In most cases, these SOIs are at the species or species group. Liese (SEFSC, pers. comm. 2022) produced estimates for a 2018 South Atlantic Yellowtail Snapper SOI. This SOI consists of all logbook trips by permitted vessels where at least one pound of yellowtail snapper fish managed by the South Atlantic Snapper-Grouper FMP was landed in 2018 using any gear type. These estimates are specific to economic performance in the years 2014-2018. The analysis also provides average estimates of economic returns across 2014-2018, which are the most useful for current purposes. Estimates in the analysis are based on a combination of Southeast Coastal logbook data, a supplemental economic add-on survey to the

logbooks, and an annual economic survey at the vessel level. The economic surveys collect data on gross revenue, variable costs, fixed costs, as well as some auxiliary economic variables (e.g., market value of the vessel). The analysis provides estimates of critical economic variables for the commercial sector in the South Atlantic yellowtail snapper fishery. In addition, estimates provided are at the trip level and the annual vessel level, of which the latter are most important for current purposes. Findings from the analysis are summarized below.

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

Table 3.3.1.3 illustrates the economic "margins" generated on South Atlantic yellowtail snapper trips, i.e., trip net cash flow and trip net revenue as a percentage of trip revenue. As shown in this table, 46.2% of the average revenues generated on South Atlantic snapper grouper trips were used to pay for crew labor costs. Fuel/supplies costs accounted for a further 35% of revenues and 38% of revenue is cash flow back to the owner(s). The margin associated with trip net revenue was lower at about 19%, as it accounts for the value of an owner/operator's time. Thus, trip cash flow and trip net revenue were both positive on average from 2014 -2018, generally indicating that South Atlantic snapper grouper trips were profitable during this time.

Table 3.3.1.3. Economic characteristics of South Atlantic yellowtail snapper trips 2014-2018(2021$).

	2014	2015	2016	2017	2018	Average
Number of Observations	912	865	900	1,434	902	
Response Rate (%)	79%	80%	92%	87%	90%	
Trips						
Owner-Operated	84%	84%	80%	77%	70%	79.0%
Fuel Used per Day at Sea (gallons/day)	17	21	27	28	26	24
Total Revenue	100%	100%	100%	100%	100%	100%
Costs (% of Revenue)						
Fuel	10.8%	10.7%	9.4%	7.4%	8.6%	9.4%
Bait	18.0%	19.7%	16.0%	17.8%	17.8%	17.9%
Ice	2.3%	2.0%	2.9%	2.6%	2.5%	3%
Groceries	2.8%	1.7%	3.7%	2.6%	3.1%	2.8%
Miscellaneous	2.1%	2.4%	2.3%	2.5%	2.1%	2.3%
Hired Crew	24.5%	33.1%	26.2%	26.1%	24.4%	26.9%
IFQ Purchase	0%	0%	0%	0%	0%	0%
Owner-Captain Time	24.7%	16.9%	18.0%	19.7%	17.9%	19.4%
Trip Net Cash Flow	39%	30.5%	39.6%	40.9%	41.5%	38%
Trip Net Revenue	15%	13.6%	21.6%	21.2%	24%	19%
Labor - Hired & Owner	49%	50.0%	44.1%	45.8%	42.3%	46.2%
Fuel & Supplies	36%	36.5%	34.3%	33.0%	34.1%	35%
Input Prices						
Fuel Price (per gallon)	$4.43	$4.25	$2.97	$3.11	$3.30	$3.61
Hire Crew Wage (per crew-day)	$201	$259	$195	$254	$207	$223
Productivity Measures						
Landings/Fuel Use (lbs./gallon)	10.4	10.7	7.9	11.6	9.6	10
Landings/Labor Use (lbs./crew-day)	104	119	110	164	132	126

Source: Liese (SEFSC, pers. comm. 2022)

Table 3.3.1.4 provides estimates of the important economic variables at the annual level for all vessels that had South Atlantic yellowtail snapper fishery landings from 2014-2018. Similar to the trip level, the three of the most important estimates of economic returns are net cash flow, net revenue from operations, as well as economic return on asset value. Of these measures, net revenue from operations most closely represents economic profits to the owner(s). Net cash flow is total annual revenue minus the costs for fuel, other supplies, hired crew, vessel repair and maintenance, insurance, overhead, loan payments, and purchases of annual allocation. Net revenue from operations is total annual revenue minus the costs for fuel, other supplies, hired

crew, vessel repair and maintenance, insurance, overhead, and the opportunity cost of an owner's time as captain as well as the vessel's depreciation. Economic return on asset value is calculated by dividing the net revenue from operations by the vessel value. As shown in Table 3.3.1.4, net cash flow and net revenue from operations at the annual vessel level were both positive from 2014-2018, generally indicating that South Atlantic yellowtail snapper vessels in the commercial sector were profitable. Specifically, net cash flow and net revenue from operations averaged 25% and 10%, respectively.

In general, producer surplus (PS) is the difference between total annual revenue and variable costs. PS is a measure of net economic benefits to producers. Overstreet and Liese (2018b) state that "sale of IFQ allocation or shares is also not accounted for, as these transactions cannot be associated with a vessel." If revenue from the sale of allocation is not accounted for, then the cost of buying allocation should also not be considered in the calculation of PS. Therefore, a more accurate estimate of PS in percentage terms would be 34% of gross revenue based on estimates of variable costs in Table 3.3.1.3.14

14 PS =TR%-(Labor%+Fuel&Supplies%)

Table 3.3.1.4. Economic characteristics of South Atlantic yellowtail snapper vessels from 2014-2018 (2021$).

	2014	2015	2016	2017	2018	Average
Number of Observations	35	44	52	40	51	
Response Rate (%)	44%	68%	72%	67%	78%	
Vessels						
Owner-Operated	79%	89%	96%	83%	87%	87%
For-Hire Active	7%	13%	3%	21%	7%	10%
Vessel Value	$96,752	$82,962	$101,905	$126,124	$94,869	$100,523
Total Revenue	100%	100%	100%	100%	100%	100%
Costs (% of Revenue)						
Fuel	11.4%	11.6%	8.4%	8.9%	11.4%	10.3%
Other Supplies	11.6%	16.1%	16.6%	14.1%	12.3%	14.1%
Hired Crew	30.3%	22.4%	30.3%	28.8%	25.4%	27.4%
Vessel Repair & Maintenance	12.8%	15.1%	13.9%	9.2%	10.0%	12.2%
Insurance	1.1%	1.1%	1.7%	1.5%	1.3%	1.3%
Overhead	5.4%	9.1%	9.3%	5.0%	6.3%	7.0%
Loan Payment	1.9%	4.2%	4.2%	1.6%	1.4%	2.7%
IFQ Purchase	0.0%	0.3%	0.1%	0.3%	0.0%	0.1%
Owner-Captain Time	12.4%	15.6%	16.0%	9.7%	7.9%	12.3%
Net Cash Flow	25.0%	19.9%	15.6%	30.7%	31.9%	25.0%
Net Revenue for Operations	10.0%	2.8%	−2.3%	18.6%	20.7%	10.0%
Depreciation	4.7%	6.2%	6.1%	4.2%	4.7%	5.2%
Fixed Costs	19.0%	25.4%	24.9%	15.7%	17.6%	21.0%
Labor - Hired & Owner	43.0%	37.9%	46.3%	38.5%	33.3%	40.0%
Fuel & Supplies	23.0%	27.7%	25.0%	23.0%	23.7%	24.0%
Economic Return (on asset value)	11.1%	2.2%	-1.9%	22.2%	22.0%	11.1%

Source: Liese (SEFSC, pers. comm. 2022)

Dealers

The information in Table 3.3.1.5 illustrates the purchasing activities of dealers that bought South Atlantic yellowtail snapper landings from vessels from 2017-2021. In 2021, the total number of dealers purchasing yellowtail snapper decreased by 20%, relative to 2017. Total value of yellowtail snapper purchases by dealers also decreased overall between 2017 and 2021. Purchases of yellowtail snapper landings declined by 27% in 2021, relative to 2017. The average value of yellowtail snapper purchases per dealer decreased roughly 9% during this timeframe.

The overall value of other jointly caught South Atlantic species purchases decreased by 10% in 2021, relative to 2017. The average value of other species purchased per dealer, however, increased by 12% in 2021, relative to 2017. The overall value of other Gulf species purchases by South Atlantic yellowtail snapper dealers increased by 38% in 2021, relative to 2017. The average value of other Gulf species purchased per dealer, however, increased by 72% in 2021, relative to 2017. Overall, yellowtail snapper made up only approximately 9% of total purchases by yellowtail snapper dealers, indicating that there is a relatively low financial dependency on yellowtail snapper landings.

Table 3.3.1.5. Dealer statistics for dealers that purchased yellowtail snapper landings by year, 2017-2021. All dollar estimates are in 2021$.

Year	Number Dealers	Statistic	Yellowtail Snapper Purchases	Other SATL Species Purchases	Other Gulf Species Purchases	Total Purchases
2017	96	Maximum	$1,219,212	$7,755,743	$5,138,722	$7,755,872
		Mean	$75,017	$470,622	$130,335	$675,975
		Total	$7,201,663	$45,179,723	$12,512,181	$64,893,567
2018	90	Maximum	$1,164,538	$6,251,579	$5,838,977	$6,304,322
		Mean	$58,239	$534,558	$193,629	$786,426
		Total	$5,241,481	$48,110,255	$17,426,620	$70,778,356
2019	85	Maximum	$1,176,412	$8,021,956	$4,115,620	$8,022,243
		Mean	$70,851	$592,849	$126,717	$790,417
		Total	$6,022,373	$50,392,189	$10,770,907	$67,185,469
2020	88	Maximum	$828,730	$6,116,516	$4,052,618	$6,116,888
		Mean	$44,738	$435,770	$105,806	$586,315
		Total	$3,936,943	$38,347,792	$9,310,959	$51,595,694
2021	77	Maximum	$1,020,505	$6,655,378	$5,356,919	$7,013,109
		Mean	$68,138	$528,541	$223,548	$820,227
		Total	$5,246,588	$40,697,653	$17,213,233	$63,157,474

Source: Atlantic States Marine Fisheries Commission – ACCSP Data Warehouse, accessed: 4/27/2023

Imports

Imports of foreign seafood products compete in the domestic seafood market. In fact, imports have dominated many segments of the domestic seafood market. Imports aid in determining the price for domestic seafood products and tend to set the price in the market segments in which they dominate. Seafood imports can have downstream effects on the local fish market. At the

harvest level, imports can affect the returns to fishermen through the ex-vessel prices they receive for their landings. As substitutes to domestic production, imports tend to cushion the adverse economic effects on consumers resulting from a reduction in domestic landings. The following describes the imports of fish products that directly compete with domestic harvest of snappers including the species in this amendment.

According to NMFS' foreign trade data,15 snapper are not exported from the U.S. to other countries. Thus, the following describes the imports of fresh and frozen snapper products, which directly compete with domestic harvest of snapper species. All monetary estimates are in 2021 dollars. As shown in Table 3.3.1.6, imports of fresh snapper products were 31.2 million lbs product weight (pw) in 2017. They peaked at 36.0 million lbs pw in 2021, an increase of 15% relative to 2017. Total revenue from fresh snapper imports increased from $99.0 million (2021 dollars) in 2017 to a five-year high of $148.6 million in 2021. The average price per pound for fresh snapper products was $3.54 from 2017-2021. Imports of fresh snapper products primarily originated in Mexico or Central America and primarily entered the U.S. through the port of Miami.

Table 3.3.1.6. Annual pounds and value of fresh snapper imports and share of imports by country, 2017-2021.

	2017	2018	2019	2020	2021
Pounds of fresh snapper imports (product weight, million pounds)	31.2	30.5	32.8	32.4	36.0
Value of fresh snapper imports (millions $, 2021$)	99.0	103.5	115.3	113.4	148.6
Average price per lb (2021$)	$3.17	$3.39	$3.52	$3.50	$4.13
Share of Imports by Country					
Mexico	35.8	32.5	34.9	40.4	32.8
Nicaragua	15.4	17.0	14.6	15.1	13.3
Panama	14.8	16.6	13.9	11.0	14.0
All others	33.9	33.9	36.6	33.5	39.9

Source: NOAA Foreign Trade Query Tool, accessed 11/16/22

As shown in Table 3.3.1.7, imports of frozen snapper products were 12.8 million lbs pw in 2017. They peaked at 18.2 million lbs pw in 2021, an increase of 42% relative to 2017. Total revenue from frozen snapper imports increased from $38.2 million (2021 dollars) in 2017 to a five-year high of $66.6 million in 2021. The average price per pound for frozen snapper products was $3.20 from 2017-2021. Imports of frozen snapper products primarily originated in Brazil or South America and primarily entered the U.S. through the port of Miami.

15 https://foss.nmfs.noaa.gov/

Table 3.3.1.7. Annual pounds and value of frozen snapper imports and share of imports by country, 2017-2021.

	2017	2018	2019	2020	2021
Pounds of frozen snapper imports (product weight, million pounds)	12.8	12.2	11.4	15.9	18.2
Value of frozen snapper imports (millions $, 2021$)	38.2	37.6	36.7	48.4	66.6
Average price per lb (2021$)	$2.98	$3.08	$3.22	$3.05	$3.65
Share of Imports by Country					
Brazil	61.0	63.8	54.6	55.4	58.6
Indonesia	11.0	11.3	6.8	5.4	3.9
Suriname	7.9	6.9	13.5	10.3	10.5
All others	20.1	17.9	25.0	28.9	27.0

Source: NOAA Foreign Trade Query Tool, accessed 11/16/22

Economic Impacts

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

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

and indirect economic impacts. For example, businesses experiencing increased revenue from the direct and indirect impacts will subsequently increase spending on labor by hiring more employees, increasing work hours, raising salaries/wage rates, etc. In turn, households will increase spending at local businesses. The induced impact is a measure of this increase in household-to-business activity

Estimates of the U.S. average annual business activity associated with the commercial harvest of South Atlantic yellowtail snapper were derived using the model developed for and applied in NMFS (2022)16 and are provided in Table 3.3.1.8. Specifically, these impact estimates reflect the expected impacts from average annual gross revenues generated by landings of South Atlantic yellowtail snapper from 2017 through 2021. This business activity is characterized as jobs (full time equivalents), income impacts (wages, salaries, and self-employed income), value-added impacts (the difference between the value of goods and the cost of materials or supplies), and output impacts (gross business sales). Income impacts should not be added to output (sales) impacts because this would result in double counting.

The results provided should be interpreted with caution. These results are based on average relationships developed through the analysis of many fishing operations that harvest many different species. Separate models specific to individual species such as yellowtail snapper are not available. Between 2017 and 2021, landings of South Atlantic yellowtail snapper resulted in approximately $5.5 million (2021$) in gross revenue on average. In turn, this revenue generated employment, income, value-added, and output impacts of 20,443 jobs, $11.9 million, $19.6 million, and $51.9 million per year, respectively, on average.

16 A detailed description of the input/output model is provided in NMFS (2022).

Table 3.3.1.8. Average annual economic impacts of the commercial sector for yellowtail snapper in the South Atlantic. All monetary estimates are in thousands of 2021$ and employment is measured in full-time equivalent jobs.

Harvesters	Direct	Indirect	Induced	Total
Employment impacts	109	17	22	149
Income impacts	2,826	525	1,269	4,620
Total value-added impacts	3,013	1,889	2,171	7,073
Output Impacts	5,235	4,259	4,215	13,709
Primary dealers/processors	Direct	Indirect	Induced	Total
Employment impacts	23	9	16	48
Income impacts	922	850	804	2,576
Total value-added impacts	983	1,084	1,513	3,581
Output impacts	2,968	2,236	2,958	8,162
Secondary wholesalers/distributors	Direct	Indirect	Induced	Total
Employment impacts	11	2	10	23
Income impacts	549	163	578	1,291
Total value-added impacts	586	274	987	1,847
Output impacts	1,472	537	1,919	3,928
Grocers	Direct	Indirect	Induced	Total
Employment impacts	45	5	10	60
Income impacts	1,130	376	567	2,073
Total value-added impacts	1,205	605	960	2,770
Output impacts	1,932	983	1,885	4,800
Restaurants	Direct	Indirect	Induced	Total
Employment impacts	282	19	46	346
Income impacts	4,534	1,375	2,597	8,505
Total value-added impacts	4,833	2,458	4,375	11,666
Output impacts	8,836	3,846	8,634	21,316
Harvesters and seafood industry	Direct	Indirect	Induced	Total
Employment impacts	469	52	104	626
Income impacts	9,962	3,289	5,815	19,065
Total value-added impacts	10,619	6,311	10,007	26,937
Output impacts	20,443	11,860	19,612	51,915

Source: Calculated by NMFS SERO using the model developed for and applied in NMFS (2022).
*Converted to 2021$ using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

3.3.2 Gulf of Mexico Commercial Sector

Any fishing vessel that harvests and sells any of the reef fish species, including yellowtail snapper, managed under the Reef Fish FMP from the Gulf of Mexico (Gulf) EEZ must have a valid Gulf commercial reef fish permit. The commercial sector of the reef fish fishery has been managed under a limited access program since 1992, which in turn capped the number of commercial reef fish permits. Therefore, new entrants must buy a permit in order to participate in the commercial sector. As shown in Table 3.3.2.1, the number of permits that were valid or renewable in a given year has continually decreased in the years after the red snapper (RS)-individual fishing quota (IFQ) program was implemented in 2007. This decline has continued since the grouper-tilefish (GT)-IFQ program was implemented in 2010, but at a slower rate. As of July 8, 2021, there were 825 valid or renewable commercial reef fish permits, 748 of which were valid. A renewable permit is an expired limited access permit that cannot be actively fished, but can be renewed for up to one year after expiration.

Table 3.3.2.1. Number of valid or renewable Gulf commercial reef fish permits, 2016-2020.

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

Source: NMFS SERO Sustainable Fisheries (SF) Access permits database. Accessed 10/17/22

Vessels

The information in Tables 3.3.2.2 describes the landings and revenue for vessels that harvested Gulf yellowtail snapper in each year from 2017-2021, as well as their revenue from other Gulf and South Atlantic species. Similar to South Atlantic vessels, vessel participation in the Gulf has declined overall from 2017-2021, with 31% fewer vessels harvesting yellowtail snapper in 2021 compared to 2017. Overall landings and ex-vessel revenue of yellowtail snapper declined considerably more so in the Gulf than in the South Atlantic. In 2021, landings and revenue declined by 64% and 59% respectively relative to 2017. Revenue from other Gulf species, however, increased during this time. In 2021 revenue from other Gulf species increased by 2%, relative to 2017. Conversely, in 2021 revenue from other South Atlantic species by Gulf yellowtail snapper vessels declined by 48%, relative to 2017. Total revenue by vessels landing Gulf yellowtail snapper declined by 9% percent in 2021, relative to 2017. However, average total gross revenue per vessel increased by 31% in 2021, relative to 2017. On average from 2017-2021, yellowtail snapper accounted for 5% of total revenue by vessels harvesting Gulf yellowtail snapper indicating a very small financial dependency on yellowtail snapper landings.

Table 3.3.2.2. Number of vessels, landing (lbs whole weight [ww]), and ex-vessel revenues (2021$) by year for Gulf yellowtail snapper.

Year	Number of Vessels	Statistic	Yellowtail Landings (ww)	Yellowtail Revenue	Other Gulf Landings	Other Gulf Revenue	Other SATL Revenue	Total Gross Revenue
2017	230	Max	104,709	$308,126	181,295	$633,938	$812,060	$1,217,499
		Mean	2,990	$9,287	28,374	$111,127	$21,293	$141,707
		Total	687,611	$2,135,911	6,526,132	$25,559,324	$4,897,298	$32,592,534
2018	207	Max	74,392	$247,570	174,500	$806,833	$327,603	$806,870
		Mean	2,575	$9,086	25,665	$109,943	$11,527	$130,556
		Total	532,942	$1,880,700	5,312,612	$22,758,190	$2,386,171	$27,025,062
2019	185	Max	68,728	$208,152	167,895	$711,841	$918,442	$1,000,295
		Mean	2,653	$8,525	26,807	$115,054	$20,809	$144,388
		Total	490,868	$1,577,169	4,959,370	$21,284,909	$3,849,648	$26,711,726
2020	160	Max	38,570	$114,624	219,860	$593,543	$240,075	$606,083
		Mean	1,365	$4,109	31,541	$132,708	$8,567	$145,384
		Total	218,331	$657,472	5,046,594	$21,233,308	$1,370,717	$23,261,497
2021	159	Max	51,101	$179,596	143,631	$727,949	$552,859	$760,258
		Mean	1,563	$5,479	35,885	$164,553	$16,007	$186,039
		Total	248,444	$871,240	5,705,743	$26,163,901	$2,545,108	$29,580,250

Source: Atlantic States Marine Fisheries Commission – ACCSP Data Warehouse, accessed: 4/27/2023, and Gulf States Marine Fisheries Commission, accessed: 4/11/23.

The most recent analysis that calculated estimates of economic returns for Gulf commercial fishing vessels was Liese (SEFSC, pers. comm. 2022). Liese (SEFSC, pers. comm. 2022) calculated economic returns for Gulf yellowtail snapper vessels as well as other segments of interest (SOI). In most cases, these SOIs are at the species or species group. Liese (SEFSC, pers. comm. 2022) produced estimates for a 2018 Gulf Yellowtail Snapper SOI. This SOI consists of all logbook trips by permitted vessels where at least one pound of yellowtail snapper fish managed by the Gulf Snapper-Grouper FMP was landed in 2018 using any gear type. These estimates are specific to economic performance in the years 2014-2018. The analysis also provides average estimates of economic returns across 2014-2018, which are the most useful for current purposes. Estimates in the analysis are based on a combination of Southeast Coastal logbook data, a supplemental economic add-on survey to the logbooks, and an annual economic survey at the vessel level. The economic surveys collect data on gross revenue, variable costs, fixed costs, as well as some auxiliary economic variables (e.g., market value of the vessel). The analysis provides estimates of critical economic variables for the commercial sector in the Gulf

yellowtail snapper fishery. In addition, the estimates provided are at the trip level and the annual vessel level, of which the latter are most important for current purposes. Findings from the analysis are summarized below.

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

Table 3.3.2.3 illustrates the economic "margins" generated on Gulf yellowtail snapper trips, i.e., trip net cash flow and trip net revenue as a percentage of trip revenue. As shown in this table, 30.3% of the average revenues generated on Gulf snapper grouper trips were used to pay for crew labor costs. Fuel/supplies costs accounted for a further 21% of revenues and 34% of revenue is cash flow back to the owner(s). The margin associated with trip net revenue was higher at about 39%. Thus, trip cash flow and trip net revenue were both positive on average from 2014 -2018, generally indicating that Gulf snapper grouper trips were profitable during this time.

Table 3.3.2.3. Economic characteristics of Gulf yellowtail snapper trips 2014-2018(2021$).

	2014	2015	2016	2017	2018	Average
Number of Observations	83	143	173	231	182	
Response Rate (%)	66%	84%	95%	91%	97%	
Trips						
Owner-Operated	51%	61%	66%	47%	53%	55.6%
Fuel Used per Day at Sea (gallons/day)	34	36	34	44	36	37
Total Revenue	100%	100%	100%	100%	100%	100%
Costs (% of Revenue)						
Fuel	7.2%	6.1%	5.3%	5.9%	7.7%	6.4%
Bait	4.1%	7.4%	5.7%	6.7%	7.2%	6.2%
Ice	1.5%	2.0%	1.7%	2.1%	2.1%	2%
Groceries	2.9%	3.6%	3.9%	4.3%	5.0%	3.9%
Miscellaneous	2.7%	3.2%	2.9%	1.9%	3.8%	2.9%
Hired Crew	29.4%	30.3%	31.7%	32.3%	27.7%	30.3%
IFQ Purchase	15%	15%	21%	11%	11%	15%
Owner-Captain Time	9.5%	9.9%	11.1%	8.6%	9.9%	9.8%
Trip Net Cash Flow	38%	32.2%	27.8%	36.0%	35.9%	34%
Trip Net Revenue	43%	37.5%	37.8%	38.2%	37%	39%
Labor - Hired & Owner	39%	40.2%	42.8%	40.9%	37.6%	40.1%
Fuel & Supplies	18%	22.3%	19.5%	21.0%	25.7%	21%
Input Prices						
Fuel Price (per gallon)	$4.29	$3.00	$2.41	$2.65	$2.98	$3.07
Hire Crew Wage (per crew-day)	$290	$275	$297	$323	$205	$278
Productivity Measures						
Landings/Fuel Use (lbs./gallon)	13.5	11.4	9.8	10.6	8.6	11
Landings/Labor Use (lbs./crew-day)	179	160	143	191	128	160

Source: Liese (pers. comm. 2022)

Table 3.3.2.4 provides estimates of the important economic variables at the annual level for all vessels that had Gulf yellowtail snapper fishery landings from 2014-2018. Similar to the trip level, the three of the most important estimates of economic returns are net cash flow, net revenue from operations, as well as economic return on asset value. Of these measures, net revenue from operations most closely represents economic profits to the owner(s). Net cash flow is total annual revenue minus the costs for fuel, other supplies, hired crew, vessel repair and maintenance, insurance, overhead, loan payments, and purchases of annual allocation. Net revenue from operations is total annual revenue minus the costs for fuel, other supplies, hired

crew, vessel repair and maintenance, insurance, overhead, and the opportunity cost of an owner's time as captain as well as the vessel's depreciation. Economic return on asset value is calculated by dividing the net revenue from operations by the vessel value. As shown in Table 3.3.2.4, net cash flow and net revenue from operations at the annual vessel level were both positive from 2014-2016, generally indicating that Gulf yellowtail snapper vessels in the commercial sector were profitable. Specifically, net cash flow and net revenue from operations averaged 23 % and 34%, respectively.

In general, producer surplus (PS) is the difference between total annual revenue and variable costs. PS is a measure of net economic benefits to producers. Overstreet and Liese (2018b) state that "sale of IFQ allocation or shares is also not accounted for, as these transactions cannot be associated with a vessel." If revenue from the sale of allocation is not accounted for, then the cost of buying allocation should also not be considered in the calculation of PS. Therefore, a more accurate estimate of PS in percentage terms would be 52.2% of gross revenue based on estimates of variable costs in Table 3.3.1.2.4.

Table 3.3.2.4. Economic characteristics of Gulf yellowtail snapper vessels from 2014-2018 (2021$).

	2014	2015	2016	2017	2018	Average
Number of Observations	17	25	39	34	35	
Response Rate (%)	50%	64%	80%	63%	81%	
Vessels						
Owner-Operated	47%	68%	77%	53%	67%	62%
For-Hire Active	0%	11%	12%	15%	9%	9%
Vessel Value	$182,050	$108,972	$107,125	$135,689	$108,925	$128,552
Total Revenue	100%	100%	100%	100%	100%	100%
Costs (% of Revenue)						
Fuel	6.2%	5.9%	6.1%	6.4%	8.3%	6.6%
Other Supplies	10.5%	11.2%	10.9%	13.9%	16.5%	12.6%
Hired Crew	26.3%	24.3%	26.4%	29.2%	25.5%	26.3%
Vessel Repair & Maintenance	4.0%	6.2%	7.9%	11.9%	10.7%	8.1%
Insurance	0.3%	0.6%	1.0%	0.5%	0.7%	0.6%
Overhead	3.5%	5.7%	5.6%	2.9%	3.5%	4.2%
Loan Payment	0.6%	2.0%	2.1%	0.5%	1.1%	1.3%
IFQ Purchase	13.7%	23.7%	22.2%	8.1%	17.3%	17.0%
Owner-Captain Time	3.3%	4.9%	6.4%	3.5%	6.5%	4.9%
Net Cash Flow	35.0%	20.4%	17.7%	26.7%	16.4%	23.0%
Net Revenue for Operations	43.0%	38.9%	33.0%	28.7%	24.0%	34.0%
Depreciation	2.6%	2.2%	2.7%	3.1%	4.3%	3.0%
Fixed Costs	8.0%	12.5%	14.6%	15.3%	14.9%	13.0%
Labor - Hired & Owner	30.0%	29.2%	32.8%	32.7%	32.1%	31.0%
Fuel & Supplies	17.0%	17.1%	16.9%	20.2%	24.8%	19.0%
Economic Return (on asset value)	84.2%	87.3%	60.3%	46.6%	27.7%	61.2%

Source: Liese (SEFSC, pers. comm. 2022)

Dealers

The information in Table 3.3.2.5 illustrates the purchasing activities of dealers that bought Gulf yellowtail snapper landings from vessels from 2017 through 2021. Similar to Gulf vessels, the total number of dealers purchasing yellowtail snapper decreased overall from 2017-2021. In 2021, the total number of dealers purchasing yellowtail snapper decreased by 27%, relative to

2017. Total value of yellowtail snapper purchases by dealers also decreased overall between 2017 and 2021. The total value of yellowtail snapper landings purchases declined by 59% in 2021, relative to 2017. However, the average value of yellowtail snapper purchases per dealer increased by 39% during this timeframe.

The overall value of other Gulf species purchases increased by 4% in 2021, relative to 2017. The average value of other Gulf species purchases per dealer increased by 42% in 2021, relative to 2017. Conversely, the overall value of other South Atlantic species purchases by Gulf dealers declined by 63% in 2021, relative to 2017. The average value of other South Atlantic species purchases per dealer declined by 49% in 2021, relative to 2017. Overall, yellowtail snapper made up only approximately 2% of total purchases by yellowtail snapper dealers, indicating that there is a very low financial dependency on yellowtail snapper landings.

Table 3.3.2.5. Dealer statistics for dealers that purchased Gulf yellowtail snapper landings by year, 2017-2021. All dollar estimates are in 2021$.

Year	Number Dealers	Statistic	Yellowtail Snapper Purchases	Other Gulf Species Purchases	Other SATL Species Purchases	Total Purchases
2017	74	Maximum	$1,015,574	$5,138,722	$3,931,571	$7,261,044
		Mean	$28,861	$621,976	$244,111	$894,947
		Total	$2,135,703	$46,026,192	$18,064,180	$66,226,074
2018	77	Maximum	$862,137	$5,838,977	$3,383,792	$6,762,401
		Mean	$24,423	$623,042	$227,877	$875,342
		Total	$1,880,593	$47,974,271	$17,546,503	$67,401,367
2019	72	Maximum	$884,217	$4,115,620	$4,176,883	$4,983,117
		Mean	$21,890	$547,833	$283,792	$853,515
		Total	$1,576,083	$39,443,968	$20,433,006	$61,453,057
2020	57	Maximum	$294,967	$4,052,618	$2,307,282	$4,342,555
		Mean	$11,525	$635,507	$166,717	$813,748
		Total	$656,903	$36,223,892	$9,502,847	$46,383,642
2021	54	Maximum	$478,348	$5,356,919	$2,336,193	$7,047,674
		Mean	$16,124	$884,373	$123,284	$1,023,781
		Total	$870,716	$47,756,163	$6,657,318	$55,284,198

Source: Atlantic States Marine Fisheries Commission – ACCSP Data Warehouse, accessed: 4/27/2023, and Gulf States Marine Fisheries Commission, accessed: 4/11/23.

Imports
For information on snapper imports, please refer back to Section 3.3.1 and specifically Tables 3.3.1.6 and 3.3.1.7.

Economic Impacts
Estimates of the U.S. average annual business activity associated with the commercial harvest of Gulf yellowtail snapper were derived using the model developed for and applied in NMFS (2021)17 and are provided in Table 3.3.2.6. Specifically, these impact estimates reflect the expected impacts from average annual gross revenues generated by landings of Gulf yellowtail snapper from 2017 through 2021. This business activity is characterized as jobs (full time equivalents), income impacts (wages, salaries, and self-employed income), value-added impacts (the difference between the value of goods and the cost of materials or supplies), and output impacts (gross business sales). Income impacts should not be added to output (sales) impacts because this would result in double counting.

The results provided should be interpreted with caution. These results are based on average relationships developed through the analysis of many fishing operations that harvest many different species. Separate models specific to individual species such as yellowtail snapper are not available. Between 2017 and 2021, landings of Gulf yellowtail snapper resulted in approximately $1.4 million (2021$) in gross revenue on average. In turn, this revenue generated employment, income, value-added, and output impacts of 800 jobs, $2.4 million, $3.4 million, and $6.6 million per year, respectively, on average.

17 A detailed description of the input/output model is provided in NMFS (2022).

Table 3.3.2.6. Average annual economic impacts of the commercial sector for yellowtail snapper in the Gulf. All monetary estimates are in thousands of 2021$ and employment is measured in full-time equivalent jobs.

Harvesters	**Direct**	**Indirect**	**Induced**	**Total**
Employment impacts	140	22	29	190
Income impacts	3,614	671	1,622	5,907
Total value-added impacts	3,852	2,416	2,776	9,044
Output Impacts	6,693	5,446	5,389	17,528
Primary dealers/processors	**Direct**	**Indirect**	**Induced**	**Total**
Employment impacts	29	12	20	61
Income impacts	1,179	1,087	1,028	3,294
Total value-added impacts	1,257	1,387	1,935	4,578
Output impacts	3,795	2,859	3,782	10,436
Secondary wholesalers/distributors	**Direct**	**Indirect**	**Induced**	**Total**
Employment impacts	13	3	13	30
Income impacts	702	209	739	1,650
Total value-added impacts	749	350	1,262	2,361
Output impacts	1,882	686	2,454	5,022
Grocers	**Direct**	**Indirect**	**Induced**	**Total**
Employment impacts	58	7	13	77
Income impacts	1,445	480	725	2,650
Total value-added impacts	1,540	774	1,228	3,542
Output impacts	2,470	1,257	2,411	6,137
Restaurants	**Direct**	**Indirect**	**Induced**	**Total**
Employment impacts	360	24	59	443
Income impacts	5,796	1,758	3,320	10,875
Total value-added impacts	6,179	3,142	5,594	14,915
Output impacts	11,298	4,917	11,039	27,254
Harvesters and seafood industry	**Direct**	**Indirect**	**Induced**	**Total**
Employment impacts	600	67	134	800
Income impacts	12,737	4,205	7,434	24,376
Total value-added impacts	13,577	8,069	12,795	34,440
Output impacts	26,137	15,164	25,075	66,377

Source: Calculated by NMFS SERO using the model developed for and applied in NMFS (2022).

*Converted to 2021$ using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

3.3.3 South Atlantic Recreational Sector

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

Landings

Recreational South Atlantic yellowtail snapper landings have been variable from 2017-2021, but decreased by 20% in 2021, relative to 2017 (Table 3.3.3.1). Landings peaked in 2017 at approximately 1.6 million pounds ww. Private vessels accounted for the majority of yellowtail snapper landings on average from 2017-2021. Private vessels on average from 2017-2021 accounted for 69% of South Atlantic yellowtail snapper landings, charter vessels 20% and headboats 8%. Waves 1, 3 and 4 which includes the months of Jan/Feb, May/June, and July/Aug accounted for the majority of landings on average from 2017-2021 (Table 3.3.3.2).

Table 3.3.3.1. Recreational landings (lbs whole weight [ww]) and percent distribution of South Atlantic yellowtail snapper across all states by mode for 2017-2021.

	Landings (pounds ww)					Percent Distribution			
	Charter vessel	Headboat	Private	Shore	Total	Charter vessel	Headboat	Private	Shore
2017	207,134	101,248	1,252,327	46,742	1,607,451	13%	6%	78%	3%
2018	240,698	99,876	1,191,294	52,905	1,584,773	15%	6%	75%	3%
2019	280,882	101,739	479,972	7,189	869,782	32%	12%	55%	1%
2020	278,655	66,680	1,135,877	40,962	1,522,174	18%	4%	75%	3%
2021	297,301	125,392	822,549	43,266	1,288,508	23%	10%	64%	3%
AVG	**260,934**	**98,987**	**976,404**	**38,213**	**1,374,537**	**20%**	**8%**	**69%**	**3%**

Source: MRIP FES ACL dataset (April 2022 version).

Table 3.3.3.2. Recreational landings (lbs ww) and percent distribution of South Atlantic yellowtail snapper by MRIP wave for 2017-2021.

Landings (pounds ww)						
	Wave 1	**Wave 2**	**Wave 3**	**Wave 4**	**Wave 5**	**Wave 6**
2017	396,489	172,574	260,853	351,786	217,209	208,541
2018	250,849	255,767	166,529	417,937	368,336	125,355
2019	177,625	245,591	222,525	113,974	30,094	79,973
2020	548,129	113,029	365,053	277,073	90,842	128,049
2021	72,458	290,446	254,081	313,349	216,437	141,738
AVG	**289,110**	**215,481**	**253,808**	**294,824**	**184,583**	**136,731**
Percent Distribution						
	Wave 1	**Wave 2**	**Wave 3**	**Wave 4**	**Wave 5**	**Wave 6**
2017	25%	11%	16%	22%	14%	13%
2018	16%	16%	11%	26%	23%	8%
2019	20%	28%	26%	13%	3%	9%
2020	36%	7%	24%	18%	6%	8%
2021	6%	23%	20%	24%	17%	11%
AVG	**21%**	**17%**	**19%**	**21%**	**13%**	**10%**

Source: MRIP FES ACL dataset (April 2022 version).

Permits

For-hire Permits

There are no specific federal permitting requirements for recreational anglers to fish for or harvest yellowtail snapper. The same is true of private recreational vessel owners. Instead, private anglers are required to either possess 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 or private recreational vessels would be expected to be affected by the actions in this amendment.

A federal charter/headboat (for-hire) vessel permit is also required for fishing in federal waters for South Atlantic snapper-grouper. For-hire Atlantic Snapper Grouper permits are open access permits (i.e., access is not restricted). As of August 26th, 2021 there were 1,765 valid or renewable for-hire Atlantic Snapper Grouper permits. From 2016-2020, the number of for-hire South Atlantic Snapper Grouper permits that were valid in a given year has increased every year until 2019 as illustrated in Table 3.3.3.3. The number of for-hire South Atlantic Snapper Grouper permits that were valid fell by 2% in 2020, relative to 2019.

Table 3.3.3.3. Number of valid For-hire South Atlantic Snapper Grouper permits, 2016-2020.

Year	Number of Permits
2016	1,867
2017	1,982
2018	2,126
2019	2,183
2020	2,136

Source: NMFS SERO SF Access Permits Database 07/08/22.

Angler Effort

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

- Target effort - The number of individual angler trips, regardless of duration, where the intercepted angler indicated that the species or a species in the species group was targeted as either the first or the second primary target for the trip. The species did not have to be caught.
- Catch effort - The number of individual angler trips, regardless of duration and target intent, where the individual species or a species in the species group was caught. The fish did not have to be kept.
- Total recreational trips - The total estimated number of recreational trips in the Gulf, regardless of target intent or catch success.

Other measures of effort are possible, such as directed trips (the number of individual angler trips that either targeted or caught a particular species).[18]

Tables 3.3.3.4 and 3.3.3.5 describe the recreational target and catch trips for yellowtail snapper in the South Atlantic from 2017-2021. Since all recorded recreational target and catch effort in the South Atlantic occurred in the state of Florida, Tables 3.3.3.4 and 3.3.3.5 present recreational target and catch effort for the east coast of Florida.

Private vessels represent 89% of yellowtail snapper target effort in the recreational sector. Shore mode further accounted for 8% of average target effort (though 2019 and 2020 had no recorded target effort) and charter vessels made up the remaining 6% (Table 3.3.2.4). Private vessels are also responsible for the majority of catch effort for yellowtail snapper (66%). Shore mode accounted for 20% of recreational catch effort for yellowtail snapper, and charter mode comprised the remaining 14%. Contrary to total recreational landings, catch effort for South Atlantic yellowtail snapper peaked in 2018, rather than 2017 (Table 3.3.2.5).

[18] https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index

Table 3.3.3.4. South Atlantic yellowtail snapper recreational target trips, 2017-2021.

Year	Charter	Private	Shore	Total
2017	6,018	63,727	4,281	74,026
2018	3,830	227,436	18,719	249,985
2019	8,659	63,774	0	72,433
2020	8,833	137,437	0	146,270
2021	17,599	147,200	12,030	176,829
Average	**8,988**	**127,915**	**12,163**	**143,909**

Source: SEFSC MRIP FES Recreational ACL Dataset (October 25, 2022)

Table 3.3.3.5. South Atlantic yellowtail snapper recreational catch trips, 2017-2021.

Year	Charter	Private	Shore	Total
2017	13,560	291,620	97,511	402,691
2018	8,172	593,201	103,508	704,881
2019	6,466	211,878	196,315	414,659
2020	6,090	241,082	19,669	266,841
2021	17,656	403,532	111,388	532,576
Average	**10,389**	**348,263**	**105,678**	**464,330**

Source: SEFSC MRIP FES Recreational ACL Dataset (October 25, 2022)

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

Headboat angler days were variable across the South Atlantic states from 2017 through 2021 (Table 3.3.2.6). Florida/Georgia[19] were responsible for the vast majority of headboat effort during this time, accounting for about 67% of the total headboat effort. Headboat effort in Florida/Georgia declined considerably in 2020, about 32% relative to the previous three years. Headboat effort in North Carolina and South Carolina effort during this time period, but to a much lesser extent than Florida/Georgia.

[19] East Florida and Georgia are combined for confidentiality purposes. East Florida is primarily responsible for effort presented in this combination.

Table 3.3.3.6. South Atlantic headboat angler days and percent distribution by state (2017-2021).

	Angler Days			Percent Distribution		
	EFL/GA*	**NC**	**SC**	**EFL/GA**	**NC**	**SC**
2017	126,126	20,170	36,914	68.80%	11.00%	20.10%
2018	120,560	16,813	37,611	68.90%	9.60%	21.50%
2019	119,712	15,546	41,470	67.70%	8.80%	23.50%
2020	84,003	14,152	34,079	63.53%	10.70%	25.77%
2021	120,359	19,715	47,907	64.03%	10.49%	25.49%
Average	114,152	17,279	39,596	66.59%	10.12%	23.27%

Source: NMFS Southeast Region Headboat Survey (SRHS) data 09/20/22.
*Florida and Georgia are combined for confidentiality purposes.

Economic Value

Participation, effort, and harvest are indicators of the value of saltwater recreational fishing. However, a more specific indicator of value is the satisfaction that anglers experience over and above their costs of fishing. The economic value of this satisfaction is referred to as consumer surplus (CS). The value or benefit derived from the recreational experience is dependent on several quality determinants, which include fish size, catch success rate, and the number of fish kept. These variables help determine the value of a fishing trip and influence total demand for recreational fishing trips. Currently, there are no recent studies that estimate CS for yellowtail snapper in the South Atlantic. Carter & Liese (SEFSC, Pers. Communication May 16, 2023) recently utilized methods described in Carter, Liese, and Lovell (2022) to covert the option price for a 5 to 10 fish increase in the snapper bag limit reported in Carter, Lovell, and Liese (2020) to the CS for a one fish increase in the expected harvest of snapper. Carter & Liese (SEFSC, Pers. Communication May 16, 2023) estimated that the CS for one additional snapper kept is $19.77 (2021$).

Estimates of average annual gross revenue for charter vessels are only available from Holland (2012). After adjusting for inflation, the best available estimate of average annual charter vessel revenue is $132,038 (2021$). Holland (2012) also provided an estimate of average annual gross revenue for South Atlantic headboats, which is $233,436 (2021$). However, a more recent estimate of average annual gross revenue for South Atlantic headboats is available from D. Carter (SEFSC, pers. comm., March 15, 2018). D. Carter (SEFSC, pers. comm., March 15, 2018) recently estimated that average annual gross revenue for South Atlantic headboats was approximately $320,323 (2021$) in 2017. This estimate is likely the best current estimate of annual gross revenue for South Atlantic headboats as it is based on a relatively large sample and is more recent. The difference in the Holland (2012) and D. Carter (SEFSC, pers. comm., March 15, 2018) estimate for headboats suggests that the estimate for charter vessels based on Holland (2012) is likely an underestimate of current average annual revenue for charter vessels.

However, gross revenues overstate the annual economic value and profits generated by for-hire vessels. Economic value for for-hire vessels can be measured by annual PS. 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 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). Estimates of PS and economic profit for headboats is not available from D. Carter (SEFSC, pers. comm., March 15, 2018) as that study did not collect cost data. Although Holland (2012) did collect cost data, concerns have been raised about the accuracy of their cost estimates, and thus estimates of average annual vessel PS and profit have not been generated using those estimates.

With regard to for-hire trips, economic value can be measured by 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 trip revenue, trip costs, and trip net revenue trips taken by headboats and charter vessels in 2017 are available from Souza and Liese (2019). They also provide estimates of net cash flow per angler trip, which approximate PS per angler trip. As shown in Table 3.3.3.7, after accounting for transactions fees, supply costs, and labor costs, net revenue per trip was 40% of revenue for South Atlantic charter vessels and 54% of revenue for Southeast headboats, or $583 and $1,911 (2021$), respectively. Given the respective average number of anglers per trip for each fleet, PS per angler trip is estimated to be $124 for charter vessels and $68 for headboats.

Table 3.3.3.7. Trip economics for offshore trips by South Atlantic charter vessels and Southeast headboats in 2017 (2021$).

	South Atlantic Charter Vessels	Southeast Headboats
Revenue	100%	100%
Transaction Fees (% of revenue)	3%	6%
Supply Costs (% of revenue)	29%	19%
Labor Costs (% of revenue)	28%	22%
Net Revenue per trip including Labor costs (% of revenue)	40%	54%
Net Revenue per Trip	$583	$1,911
Average # of Anglers per Trip	4.7	28.2
Trip Net Cash Flow per Angler Trip	$124	$68

Source: Souza and Liese (2019)

Business Activity

The desire for recreational fishing generates economic activity as consumers spend their income on various goods and services needed for recreational fishing. This spurs economic activity in the region where recreational fishing occurs. It should be clearly noted that, in the absence of the opportunity to fish, the income would presumably be spent on other goods and services and these expenditures would similarly generate economic activity in the region where the expenditure occurs. As such, the analysis below represents a distributional analysis only.

Estimates of the business activity (economic impacts) associated with recreational angling for South Atlantic yellowtail snapper were calculated using average trip-level impact coefficients derived from the 2019 Fisheries Economics of the U.S. report (NMFS 2022) and underlying data provided by the National Oceanic and Atmospheric Administration (NOAA) Office of Science and Technology. Economic impact estimates in 2018 dollars were adjusted to 2021 dollars using the annual, not seasonally adjusted gross domestic product (GDP) implicit price deflator provided by the U.S. Bureau of Economic Analysis.

Business activity (economic impacts) for the recreational sector is characterized in the form of jobs (full- and part-time), income impacts (wages, salaries, and self-employed income), output impacts (gross business sales), and value-added impacts (contribution to the GDP in a state or region). Estimates of the average annual economic impacts (2017–2021) resulting from yellowtail charter and private vessel target trips are provided in Table 3.3.3.8. To calculate the multipliers from Table 3.3.3.8, simply divide the desired impact measure (sales impact, value-added impact, income impact or employment) associated with a given state by the number of target trips for that state.

The estimates provided in Table 3.3.3.8 only apply at the state-level. Addition of the state-level estimates to produce a regional (or national) total may underestimate the actual amount of total business activity, because state-level impact multipliers do not account for interstate and interregional trading. It is also important to note that these economic impact estimates are based on trip expenditures only and do not account for durable expenditures. Durable expenditures cannot be reasonably apportioned to individual species. As such, the estimates provided in Table 3.3.3.8 may be considered a lower bound on the economic activity associated with those trips that targeted yellowtail snapper.

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

Table 3.3.3.8. Estimated average annual economic impacts (2017-2021) from South Atlantic yellowtail snapper target trips*, by mode, using state-level multipliers. All monetary estimates are in 2021 dollars in thousands.

Charter Mode	
Target Trips	8,988
Value Added Impacts	$2,221
Sales Impacts	$3,728
Income Impacts	$1,313
Employment (Jobs)	33
Private/Rental Mode	
Target Trips	127,915
Value Added Impacts	$3,714
Sales Impacts	$5,542
Income Impacts	$1,835
Employment (Jobs)	51
Shore Mode	
Target Trips	12,613
Value Added Impacts	$289
Sales Impacts	$426
Income Impacts	$146
Employment (Jobs)	4
All Modes	
Target Trips	149,516
Value Added Impacts	$6,224
Sales Impacts	$9,696
Income Impacts	$3,295
Employment (Jobs)	88

*All target effort for South Atlantic yellowtail snapper occurred on Florida's East coast. As such, the estimated average annual economic impacts presented in this table are specific to the State of Florida.

3.3.4 Gulf of Mexico Recreational Sector

Landings

Recreational Gulf yellowtail snapper landings have been variable from 2017-2021 (Table 3.3.4.1), but declined overall during this time. Landings peaked in 2017 at approximately 389,700 pounds ww, greatly exceeding any other year's landings. Recreational landings of Gulf yellowtail snapper declined by nearly 89% in 2021, relative to 2017. Private vessels accounted for the majority of yellowtail snapper landings on average from 2017-2021. Private vessels on average from 2017-2021 accounted for 48% of Gulf yellowtail snapper landings, charter vessels 34%, and headboats landings comprising the remaining 2%. No reported shore mode landings were recorded during this time frame. As shown in Table 3.3.4.2**,** the majority of landings occur

in Waves 3, 4, and 6 which included the months from May and June, July and August, and November and December.

Table 3.3.4.1. Recreational landings (lbs whole weight [ww]) and percent distribution of Gulf yellowtail snapper across all states by mode* for 2017-2021.

	Landings (pounds ww)				Percent Distribution		
	Charter vessel	Headboat	Private	Total	Charter vessel	Headboat	Private
2017	86,753	16,724	286,171	389,647	22%	4%	73%
2018	9,465	5,092	60,796	75,353	13%	7%	81%
2019	3,779	15,997	67,290	87,066	4%	18%	77%
2020	50,619	6,978	1,726	59,323	85%	12%	3%
2021	19,445	20,073	3,183	42,701	46%	47%	7%
AVG	**34,012**	**12,973**	**83,833**	**130,818**	**34%**	**18%**	**48%**

Source: MRIP FES ACL dataset (April 2022 version).
*No recorded landings from Shore were recorded

Table 3.3.4.2. Recreational landings (lbs ww) and percent distribution of Gulf yellowtail snapper by MRIP wave for 2017-2021.

Landings (pounds ww)						
	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
2017	85,878	5,468	112,681	60,893	1,201	123,526
2018	33,664	4,313	8,307	12,186	381	16,501
2019	16,202	6,443	57,945	1,712	3,681	1,084
2020	932	474	2,876	4,931	1,547	48,564
2021	12,759	3,226	8,309	5,310	7,192	5,904
AVG	**29,887**	**3,985**	**38,024**	**17,007**	**2,800**	**39,116**
Percent Distribution						
	Wave 1	**Wave 2**	**Wave 3**	**Wave 4**	**Wave 5**	**Wave 6**
2017	22%	1%	29%	16%	0%	32%
2018	45%	6%	11%	16%	1%	22%
2019	19%	7%	67%	2%	4%	1%
2020	2%	1%	5%	8%	3%	82%
2021	30%	8%	19%	12%	17%	14%
AVG	**23%**	**5%**	**26%**	**11%**	**5%**	**30%**

Source: MRIP FES ACL dataset (April 2022 version).

Permits

A federal charter/headboat (for-hire) vessel permit is required for fishing from a for-hire vessel in federal waters for Gulf reef fish. Gulf reef fish for-hire permits are limited access permits. From a historical perspective, the number of permits that were valid in a given year has continually decreased over the past several years, as illustrated in Table 3.3.4.3. However, the rate of attrition with for-hire reef fish permits has been relatively slow and far less compared to commercial reef fish permits.

As of July 8, 2021, there were 1,286 valid or renewable for-hire reef fish permits, 1,179 of which were valid. A renewable permit is an expired limited access permit that cannot be actively fished, but is renewable for up to one year after expiration. Although the for-hire permit application collects information on the primary method of operation[20], the permit itself does not identify the permitted vessel as either a headboat or a charter vessel and vessels may operate in both capacities. However, if a vessel meets the selection criteria used by the SRHS and is selected to report by the Science Research Director of the SEFSC, it is determined to operate primarily as a headboat and is required to submit harvest and effort information to the SRHS.

Information on Gulf charter vessel and headboat operating characteristics is included in Savolainen et al. (2012) and is incorporated herein by reference. The average charter vessel operation took 46 full-day (9 hours) and 55 half-day (5 hours) trips per year, carried 4.8 and 4.6 passengers per trip type, respectively, targeted reef fish species on 64% of all trips, and took 68% of all trips in the EEZ. The average headboat operation took 83 full-day (10 hours) and 37 half-day (6 hours) trips per year, carried 13.1 and 14.6 passengers per trip type, respectively, targeted reef fish species on 84% of all trips, and took 81% of all trips in the EEZ.

Table 3.3.4.3. Number of valid or renewable for-hire Gulf reef fish permits, 2016-2020.

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

Source: NMFS SERO SF Access Permits Database 07/08/22.

The number of federally permitted Gulf headboats in the SRHS has been slightly variable from 2016-2020. In 2016, there were 69 federally permitted Gulf headboats in the SRHS. In 2017, the number of federally permitted Gulf headboats increased to 73, but subsequently declined to 69 in 2020. Souza and Liese (2019) estimate that approximately 10% of all permitted Southeast (Gulf

[20] In 2020, of the 1,289 vessels with valid for-hire permits, 87 were primarily used for commercial fishing, 79 were primarily used as headboats, and 1,122 were primarily used as charter vessels.

and South Atlantic) for-hire vessels determined to be headboats were not actively fishing in 2017.[21] Further, of those that were active, 14% were not active in offshore waters. Thus, approximately 23% of the permitted Southeast headboats were likely not active in the EEZ. With respect to permitted Gulf charter vessels, they estimate that 24% were not active in 2017, while 10% of those that were active were not active in offshore waters. Thus, approximately 34% of the permitted Gulf charter vessels were likely not active in the EEZ in 2017.

Angler Effort

Tables 3.3.4.4 and 3.3.4.5 describe the recreational target and catch trips for yellowtail snapper in the Gulf from 2017-2021. Since all recorded recreational target and catch effort in the Gulf occurred in the state of Florida, Tables 3.3.4.4 and 3.3.4.5 present recreational target and catch effort for the west coast of Florida.

As shown in Table 3.3.4.4, private vessels represent 98% of yellowtail snapper target effort in the recreational sector. Charter vessels accounted for 1% of average target effort, and the shore mode just 1 %, though some years had no target effort. Private vessels are also responsible for the majority of catch effort for yellowtail snapper (53%). While it is shown that shore mode accounted for 44% of recreational catch effort for yellowtail snapper in the Gulf, species misidentification issues are inflating these estimates and therefore should be interpreted with caution[22]. As expected, the trends in catch effort mimic the trends in landings, with the peak occurring in 2017 (Table 3.3.4.5).

Table 3.3.4.4. Gulf yellowtail snapper recreational target trips, 2017-2021.

Year	Charter	Private	Shore	Total
2017	1,808	108,908	0	110,716
2018	239	81,223	0	81,462
2019	0	80,109	0	80,109
2020	1,316	116,617	0	117,933
2021	0	144,554	8,104	152,658
Average	**673**	**106,282**	**1,621**	**108,576**

Source: SEFSC MRIP FES Recreational ACL Dataset (October 25, 2022)

[21] Sample sizes were too small to generate reliable estimates for Gulf and South Atlantic headboats separately.

[22] It should be noted that catch effort estimates for the recreational Gulf shore mode of yellowtail snapper are likely inflated due to misidentification with leatherjackets (*Oligoplites saurus*). Leatherjackets are frequently caught along the shorelines, bridges and piers of the Gulf and are commonly described with a yellow caudal fin.

Table 3.3.4.5. Gulf yellowtail snapper recreational catch trips, 2017-2021.

Year	Charter	Private	Shore	Total
2017	20,483	382,112	335,108	737,703
2018	13,646	280,124	198,250	492,020
2019	6,080	227,994	163,347	397,421
2020	21,173	320,239	343,237	684,649
2021	26,515	337,875	253,704	618,094
Average	**17,579**	**309,669**	**258,729**	**585,977**

Source: SEFSC MRIP FES Recreational ACL Dataset (October 25, 2022)

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

Headboat angler days declined overall across the Gulf States from 2018 through 2020, but increased by about 9% in 2021, relative to 2018 (Table 3.3.4.6). Texas, however, saw little decline in headboat angler days from 2018-2020, and had significant increase in 2021. On average (2018 through 2021), Florida accounted for the majority of headboat angler days reported, followed by Texas and Alabama; whereas, Mississippi and Louisiana combined, accounted for only a small percentage (Table 3.3.2.6).

Table 3.3.4.6. Gulf headboat angler days and percent distribution by state, 2017-2021.

	Angler Days				Percent Distribution			
	FL	AL	MS-LA*	TX	FL	AL	MS-LA*	TX
2017	178,814	17,839	3,186	51,570	71.1%	7.1%	1.3%	20.5%
2018	171,996	19,851	3,235	52,160	69.6%	8.0%	1.3%	21.1%
2019	161,564	18,607	2,632	52,456	68.7%	7.9%	1.1%	22.3%
2020	126,794	13,091	1,728	51,498	65.7%	6.8%	0.9%	26.7%
2021	181,632	13,844	3,197	71,344	67.3%	5.1%	1.2%	26.4%
Average	160,497	16,348	2,698	56,865	67.8%	7.0%	1.1%	24.1%

Source: NMFS Southeast Regional Headboat Survey (SRHS) (February 2022).
*headboat data from Mississippi and Louisiana are combined for confidentiality purposes.

Economic Value

Currently, there are no recent studies that estimate CS for yellowtail snapper in the Gulf. Carter & Liese (SEFSC, Pers. Communication May 16, 2023) recently utilized methods described in Carter, Liese, and Lovell (2022) to covert the option price for a 5 to 10 fish increase in the snapper bag limit reported in Carter, Lovell, and Liese (2020) to the CS for a one fish increase in

the expected harvest of snapper. Carter & Liese (SEFSC, Pers. Communication May 16, 2023) estimated that the CS for one additional snapper kept is $19.77(2021$).

Estimates of average annual gross revenue for charter vessels in 2009 are provided in Savolainen et al. (2012). According to Savolainen et al. (2012), the average annual gross revenue for a Gulf headboat is $286,500, while the average annual gross revenue for a Gulf charter vessel is $94,552 (2021$) More recent estimates of average annual gross revenue for Gulf headboats are provided in Abbott and Willard (2017) and D. Carter (SEFSC, pers. comm., 2018). Abbott and Willard (2017) suggest that Savolainen et al.'s (2012) estimate of average annual gross revenue for headboats may be an underestimate as data in the former suggest that average gross revenue in 2009 for the vessels in their sample was about $505,972 (2021 dollars). Further, their data suggests average annual gross revenue per vessel had increased to about $611,383 (2021$) by 2014. However, Abbott and Willard's estimates are based on a sample of 17 headboats that chose to participate in the Headboat Collaborative Program in 2014, while Savolainen et al.'s (2012) are based on a random sample of 20 headboats. The headboats that participated in the Collaborative may be economic highliners, in which case Abbott and Willard's (2017) estimates would overestimate average annual gross revenue for Gulf headboats. D. Carter (SEFSC, pers. comm., 2018) recently estimated that average annual gross revenue for Gulf headboats was approximately $450,737 (2021$) in 2017, while the maximum gross revenue for a single headboat was about $1.45 million. This estimate is likely the best current estimate of annual gross revenue for Gulf headboats as it is based on a relatively large sample of 63 boats, or more than 90% of the active fleet, and is more recent.

However, gross revenues overstate the annual economic value and profits generated by for-hire vessels. Economic value for for-hire vessels can be measured by annual producer surplus (PS). 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 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$, Savolainen et al. (2012) estimated the annual PS for Gulf headboats and charter vessels was approximately $200,456 and $62,181, respectively[23]. Their best estimates of economic profit were $83,632 and $27,948 (2021$), respectively. Estimates of PS and economic profit for headboats is not available from Abbott and Willard (2017) or D. Carter (SEFSC, pers. comm., 2018) as they did not collect comprehensive cost data at the vessel level.[24]

With regard to for-hire trips, economic value can be measured by 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 trips taken by headboats and charter vessels in 2017 are available from Souza and Liese (2019). They also provide estimates of trip net cash flow per angler trip, which are approximates of PS per angler trip. As shown in Table 3.3.4.7, after accounting for transactions fees, supply costs, and labor costs, net revenue per trip

[23] Although Savolainen, et al. (2012) account for all explicit variable and fixed costs, they do not account for implicit costs, and thus they over-estimate actual economic profits for these vessels.
[24] Abbott and Willard (2017) do report revenue net of fuel costs, but this ignores important costs such as processing fees, commissions, ice, bait, tackle, and labor.

was 42% of revenue for Gulf charter vessels and 54% of revenue for Southeast headboats, or $824 and $1,912 (2021$), respectively. Given the respective average number of anglers per trip for each fleet, PS per trip is estimated to be $150 for charter vessels and $68 for headboats.

Table 3.3.4.7. Trip economics for offshore trips by Gulf charter vessels and Southeast headboats in 2017 (2021$).

	Gulf Charter Vessels	Southeast Headboats
Revenue	100%	100%
Transaction Fees (% of revenue)	3%	6%
Supply Costs (% of revenue)	27%	19%
Labor Costs (% of revenue)	27%	22%
Net Revenue per trip including Labor costs (% of revenue)	42%	54%
Net Revenue per Trip	$824	$1,912
Average # of Anglers per Trip	5.5	28.2
Trip Net Cash Flow per Angler Trip	$150	$68

Source: Souza and Liese (2019)

Economic Impacts

Estimates of the business activity (economic impacts) associated with recreational angling for Gulf yellowtail snapper were calculated using average trip-level impact coefficients derived from the 2019 Fisheries Economics of the U.S. report (NMFS 2022)[25] and underlying data provided by the National Oceanic and Atmospheric Administration (NOAA) Office of Science and Technology. Economic impact estimates in 2018 dollars were adjusted to 2021 dollars using the annual, not seasonally adjusted gross domestic product (GDP) implicit price deflator provided by the U.S. Bureau of Economic Analysis.

Business activity (economic impacts) for the recreational sector is characterized in the form of jobs (full- and part-time), income impacts (wages, salaries, and self-employed income), output impacts (gross business sales), and value-added impacts (contribution to the GDP in a state or region). Estimates of the average annual economic impacts (2017–2021) resulting from yellowtail charter and private vessel target trips are provided in Table 3.3.4.8. To calculate the multipliers from Table 3.3.4.8, simply divide the desired impact measure (sales impact, value-added impact, income impact or employment) associated with a given state by the number of target trips for that state.

The estimates provided in Table 3.3.4.8 only apply at the state-level. Addition of the state-level estimates to produce a regional (or national) total may underestimate the actual amount of total business activity, because state-level impact multipliers do not account for interstate and interregional trading. It is also important to note that these economic impacts estimates are based

[25] A detailed description of the input/output model is provided in Lovell, S. S. Steinback, and J. Hilger (2013).

on trip expenditures only and do not account for durable expenditures. Durable expenditures cannot be reasonably apportioned to individual species. As such, the estimates provided in Table 3.3.4.8 may be considered a lower bound on the economic activity associated with those trips that targeted Gulf yellowtail snapper.

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

Table 3.3.4.8. Estimated economic impacts from average annual Gulf yellowtail snapper recreational target trips* by mode (2017-2021), using state-level multipliers. All monetary estimates are in thousands of 2021$ and employment is in full-time equivalent jobs.

Charter Mode	
Target Trips	673
Value Added Impacts	$245
Sales Impacts	$412
Income Impacts	$143
Employment (Jobs)	4
Private/Rental Mode	
Target Trips	106,282
Value Added Impacts	$3,991
Sales Impacts	$6,185
Income Impacts	$2,094
Employment (Jobs)	54
Shore Mode	
Target Trips	1,621
Value Added Impacts	$62
Sales Impacts	$97
Income Impacts	$33
Employment (Jobs)	1
All Modes	
Target Trips	108,576
Value Added Impacts	$4,298
Sales Impacts	$6,694
Income Impacts	$2,270
Employment (Jobs)	59

All target effort for Gulf yellowtail snapper occurred in Florida's West coast. As such, the estimated average annual economic impacts presented in this table are specific to the State of Florida.

3.4 Social Environment

This section describes select social, demographic, and geographic aspects of the yellowtail snapper fishery sectors in the South Atlantic and Gulf of Mexico. The discussion provides essential background context for social effects analysis in Chapter 4. Trends in landings and permit issuance are included to indicate distribution of fishing effort, with emphasis on identifying communities from which yellowtail is most recreationally pursued and/or commercially harvested. As prescribed in Executive Orders that address environmental justice concerns, the section also identifies vulnerabilities to prospective change in communities where the yellowtail resource is of known importance.

3.4.1 Yellowtail Snapper Commercial Sector

Yellowtail snapper is widely distributed in the Atlantic, but particularly abundant in certain regions, including state and federal jurisdiction waters around South Florida (SAFMC 2023). Distribution of the species is of obvious and overarching social importance since its availability drives both targeted effort and incidental capture. Yellowtail landings, accordingly, are most extensive in South Florida communities, and especially in the Florida Keys, where ecological conditions appear to foster localized yellowtail populations (SEDAR 27 2012) within the routine range of local fishing operations (MacLauchlin-Buck 2018). SEDAR 64 (2020) reports that more than 98% of yellowtail landings in the Southeast were harvested with hook and line gear between 1962 and 2018. This is the case, in part, because such gear is well-suited to the schooling and carnivorous behaviors of this semi-pelagic fish (Lindholm et al. 2005; Begossi et al. 2011). Use of traps and nets to harvest yellowtail was precluded by regulation in the Gulf and South Atlantic regions during the early and mid-1990s (SEDAR 64 2020).

Type of gear and manner of use are significant social considerations since these affect how captain and crew operate and interact at sea. The approach in this case involves attention to electronic and/or other indicators of schooling fish, effective dispersal of various chum formulations, and coordinated deployment and retrieval of baited lines and landing of successfully hooked yellowtail. As discussed by Stoffle and Stoltz (2021), key yellowtail behaviors and environmental interactions are subjects of extensive traditional ecological knowledge among commercial harvesters in South Florida, most of whom pursue the species in select areas and depths using well-practiced chumming and related fishing techniques. The authors also assert that yellowtail is typically but one of a larger array of species pursued and/or captured incidentally during any given fishing year (annual round) in the subject region.

Commercial Landings by State and Florida Region

SEDAR (2020) reports that Florida-based operations have consistently accounted for nearly all commercial yellowtail landings harvested from Gulf and South Atlantic waters between 1982 and 2018, with less than 1% of landings occurring in other Gulf or South Atlantic states during that period. More specifically, the vast majority (90%) of Florida landings have occurred in Monroe County communities (encompassing the Florida Keys) since 1962, with the percentage increasing steadily over time, ultimately reaching approximately 98% during 2018 (SEDAR 2020). This pattern is clearly indicated in Table 3.4.1 below, which depicts the community distribution of yellowtail snapper landings in the South Atlantic and Gulf of Mexico fishery management regions during 2021. As indicated in the table, the vast majority of yellowtail

landings occur in Florida Keys communities. Less extensive landings occur in counties and communities situated along Florida's southeast and southwest coastlines.

Readers should note that commercial landings documented in communities around the Florida Keys and along the southeast Florida coastline are discussed here in relation to the South Atlantic fishery management region. Landings in communities along the southwest coastline of Florida are discussed in relation to the Gulf of Mexico fishery management region. Of note with regard to yellowtail fishing in areas adjacent to the Florida Keys, SEDAR 64 Section II (2019) states that yellowtail landings in the southwest [Florida] region around the Keys are harvested almost exclusively in federal jurisdiction waters, while landings from southeast Florida tend to be from state jurisdictional waters.

Table 3.4.1. Percentage distribution of yellowtail snapper commercial landings in South Atlantic and Gulf of Mexico communities during 2021.

Landings Community	% of Overall Landings*	Area of Jurisdiction†
Miami	41.27	South Atlantic
Key West	27.64	South Atlantic
Marathon	9.63	South Atlantic
Hollywood	7.41	South Atlantic
Fort Lauderdale	5.18	South Atlantic
Key Largo	4.35	South Atlantic
Sub-total	95.48%	South Atlantic
Tavernier	*	South Atlantic
Pompano Beach	*	South Atlantic
Marco Island	*	Gulf of Mexico
West Palm Beach	*	South Atlantic
Summerland Key	*	South Atlantic
Cudjoe Key	*	South Atlantic
Islamorada	*	South Atlantic
Delray Beach	*	South Atlantic
Matlacha	*	Gulf of Mexico
Jupiter	*	South Atlantic
Naples	*	Gulf of Mexico
Dania Beach	*	South Atlantic
Cortez	*	Gulf of Mexico

*Relative percentages are provided only for communities with three or more local dealers.
Source: NOAA SERO ALS Database

3.4.1.1 South Atlantic Commercial Harvest Sector

Commercial landings of yellowtail snapper accrue primarily to Monroe County communities and to Miami-based seafood dealers in Miami-Dade County, with less extensive landings in adjacent South Atlantic counties and communities. Only trace landings of the species are documented elsewhere in the larger South Atlantic region. As such, this subsection focuses on indications of community involvement in the commercial yellowtail harvest sector in the Florida Keys proper, and in Broward, Palm Beach, and Miami-Dade counties along the southeast Florida coastline.

Distribution of Permits

With regard to the South Atlantic region, an unlimited (SG1) or 225-lb. trip-limited snapper grouper (SG2) permit is required for captains/vessels to legally participate in the federally managed commercial yellowtail snapper fishery. The distribution of such permits indicates communities from which active vessels typically operate. Based on the rationale that relatively small fishing vessels of limited range deploy hook and line gear for yellowtail snapper, it is logical to assume that most such operations are based in communities closest to the subject fishing grounds.[26] The number of SG1 and SG2 permittees with postal addresses in such communities (in Monroe, Broward, Palm Beach, and Miami-Dade counties) are provided in Table 3.4.2 for 2020, the latest year for which valid and reliable permit information is presently available.

Table 3.4.2. Distribution of commercial snapper grouper unlimited & 225-lb trip-limited permits among the top permit-holding communities closest to Florida's yellowtail fishing grounds: 2020.

Leading Communities (Florida): Unlimited SG Permits	Permits*	Leading Communities (Florida): 225-lb Trip-Limited SG Permits	Permits*
Key West, Monroe County	92	Key West, Monroe County	11
Key Largo, Monroe County	22	Marathon, Monroe County	10
Miami, Miami-Dade County	21	Miami, Miami-Dade County	9
Marathon, Monroe County	19	Jupiter, Palm Beach County	6
Jupiter, Palm Beach County	12	Big Pine Key, Monroe County	5
Big Pine Key, Monroe County	11	Key Largo, Monroe County	4
Islamorada, Monroe County	8	West Palm Bch, Palm Beach Cty	3
Summerland Key, Monroe County	7	Summerland Key, Monroe County	2
Tavernier, Monroe County	5	Cudjoe Key, Monroe County	2
Boynton Beach, Palm Beach Cty	5	Boca Raton, Palm Beach County	2
Cudjoe Key, Monroe County	3	Middle Torch Key, Monroe County	2
West Palm Beach, Palm Bch Cty	3	--	--
Palm Beach, Palm Bch Cty	3	--	--
Conch Key, Monroe County	2	--	--

Source: SERO Sustainable Fisheries (SF) Access permits database, accessed July 2023.

Regional and Local Quotients

Figure 3.4.1 depicts the distribution of commercial yellowtail snapper landings and associated ex-vessel value among South Atlantic communities with the greatest share of such landings during 2021. The distribution is expressed as a regional quotient, or the share of community-specific landings and ex-vessel values respectively divided by landings and values for the overall

[26]While consistently close proximity to fishing grounds of interest obviously is ideal, certain participants in the commercial and recreational sectors hailing from other South Atlantic and Gulf regions are known to invest in travel and place of mooring in order to purposely or incidentally harvest snappers and other resources in state and federal waters around the Florida Keys and/or in adjacent grounds during any given fishing season.

region (recapitulating Table 3.4.1 above). As depicted in the figure, Miami accounts for the greatest regional percentage of yellowtail landings, followed by Key West and other Florida Keys and southeast Florida communities proximal to productive yellowtail fishing grounds.

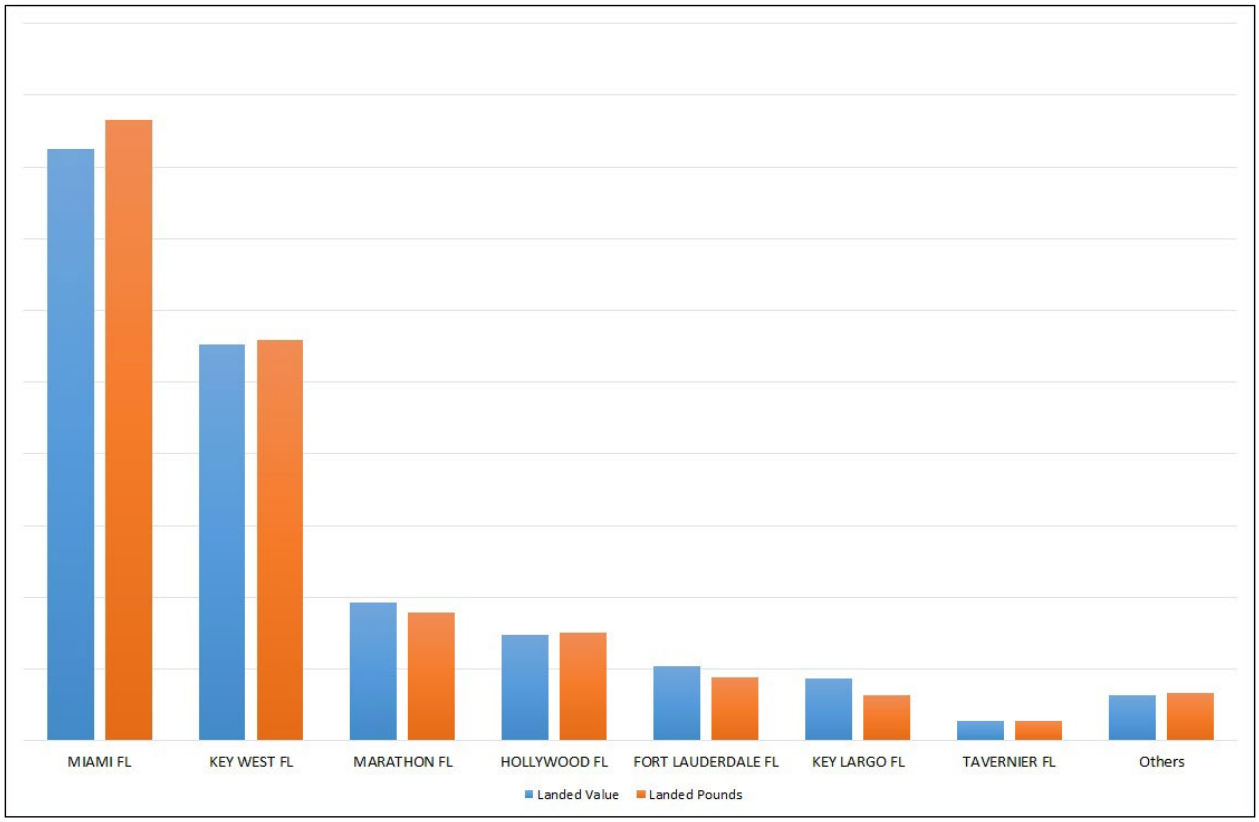


Figure 3.4.1. Distribution of regional landings and value among the principal commercial yellowtail landings communities in the South Atlantic and Gulf regions during 2021. Actual RQ figures are omitted from the graphic given data confidentiality concerns. Source: SEFSC, Community ALS File, accessed July 2023.

Figure 3.4.2 below depicts the local quotient (LQ) of yellowtail snapper landings and value among communities depicted in the figure above. The LQ metric is calculated by dividing the total pounds or value of landings of a given species in a given community by the total pounds or value of all commercial species accruing to that same community. In this case, the LQ represents the proportion of yellowtail landings relative to other locally landed species, thereby indicating the relative importance of yellowtail to the communities in question. As discernable from the figure, yellowtail constitutes a relatively high percentage of overall commercial landings in Miami and Key West despite relatively low ex-vessel values for the harvest—reportedly an effect of competitive pricing among community-specific retailers who consistently sell high volumes of the species. Of note, both the RQ and LQ forms of analysis derive from community-level data that are not available for the recreational sectors in the South Atlantic or Gulf fishery management regions.

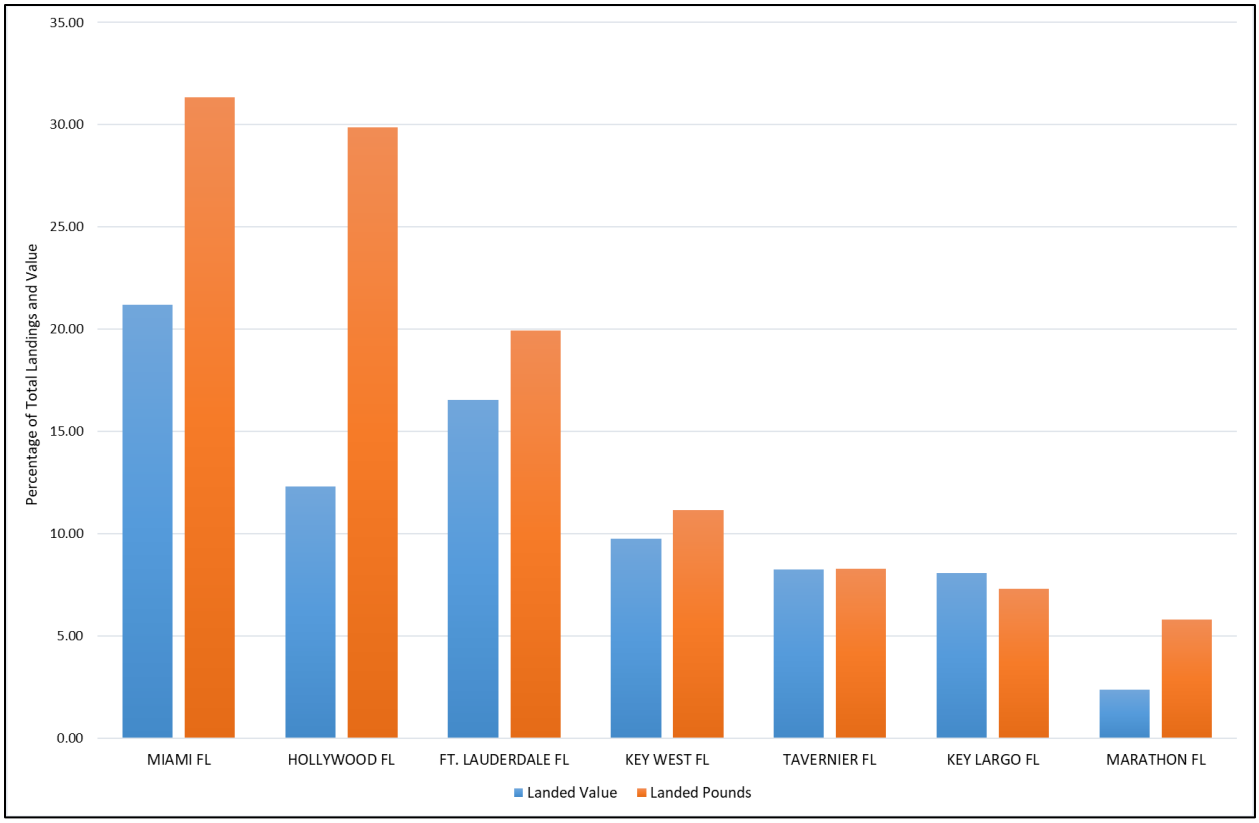


Figure 3.4.2. Local quotient of commercial yellowtail snapper landings and values among communities with the highest absolute percentage of such landings in 2021.
Source: SEFSC Community ALS data file, accessed July 2023.

Community Engagement & Reliance: Florida's Commercial Yellowtail Snapper Sector
As depicted in Figure 3.4.3 below, the Florida communities of Key West and Marathon, along with Miami along the southeast Florida coastline, score above the one standard deviation threshold in terms of relative extent of *engagement* in the commercial yellowtail snapper fishery. Standard deviations are depicted along the y-axis in the graphic. The measure of engagement provided here is a generalizable composite indicator based on: (a) pounds of fish landed by the local commercial fleets during 2021, (b) associated ex-vessel revenue (as presented above), and (c) the number of commercial fishery participants and seafood dealers present in a given community. The measure of *reliance* used here incorporates the same variables above divided by the total local population figure. Notably, statistically significant levels of reliance on the yellowtail harvest are not indicated for any of the principal yellowtail landings communities identified here, suggesting relatively greater reliance on the harvest of other species. Readers may consult Jacob et al. (2013), Jepson and Colburn (2013), and Hospital and Leong (2021) for discussion of the underlying rationale and approach for using indicators to assess local engagement in and reliance on regional marine fisheries. Both metrics are useful means for indicating communities where any prospective effects of yellowtail management actions are likely to be experienced.

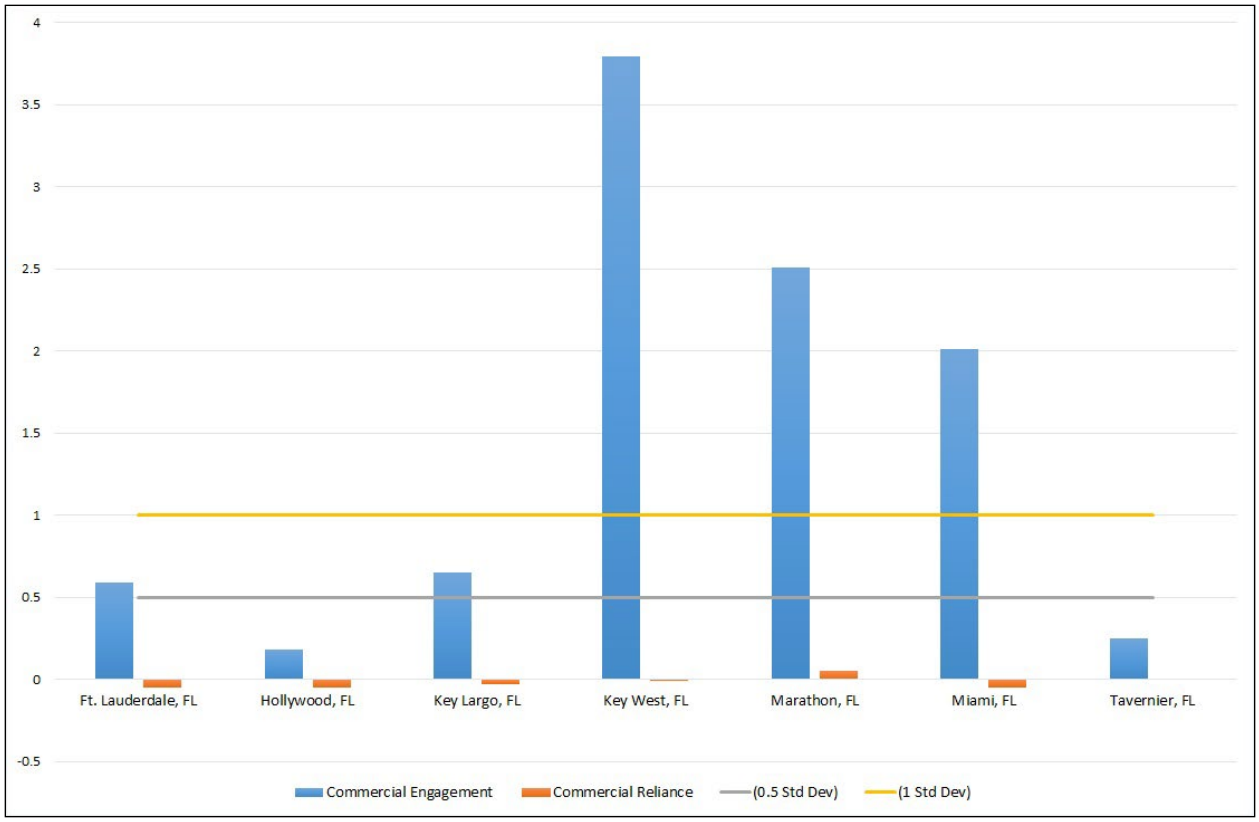


Figure 3.4.3. Measures of engagement and reliance among the leading principal commercial yellowtail snapper landings communities during 2020. Source: SERO, Community Social Vulnerability Indicators Database, accessed July 2023

3.4.1.2 Gulf of Mexico Commercial Harvest Sector

As stated previously, commercial landings of yellowtail snapper accrue primarily to Monroe County communities and communities in adjacent South Atlantic counties. Yellowtail landings in communities along the southwest coastline of Florida are minimal, and almost non-existent among communities located elsewhere along the Gulf coastline.

Distribution of Permits

For captains and crew to legally harvest yellowtail snapper and other reef fish species on a commercial basis in the federal jurisdiction waters of the Gulf, the active vessel must be permitted with a commercial reef fish permit. The distribution of such permits indicates communities from which vessels that harvest reef fish species most likely operate. Based on the rationale that operations based in relatively close proximity to the principal yellowtail grounds are most likely to harvest the species, Table 3.4.3 depicts the number of permittees with postal addresses in communities located in Charlotte, Lee, and Collier counties along the southwest Florida coastline. While most Florida-based commercial reef fish permittees are situated in Key West and in certain southwest Florida communities, notable here is some crossover from the Atlantic to the Gulf on the part of operations with postal addresses in Miami.

Table 3.4.3. Distribution of commercial reef fish permits among the top commercial reef fish permit-holding communities closest to Florida's yellowtail snapper grounds. 2020.

State/County	Community	Permits
Florida/Monroe	Key West	63
Florida/Collier	Naples	13
Florida/Monroe	Marathon	7
Florida/Lee	Fort Myers	6
Florida/Lee	Bokeelia	6
Florida/Miami-Dade	Miami	5
Florida/Lee	Fort Myers Beach	4
Florida/Lee	Matlacha	4
Florida/Lee	Pine Island	4
Florida/Lee	Cape Coral	4
Florida/Monroe	Big Pine Key	4
Florida/Collier	Goodland	3

Source: NMFS SERO Sustainable Fisheries (SF) Access permits database, accessed July 2023.

Southwest Florida Communities with Vessels Involved in Commercial Yellowtail Harvest
Few communities along the southwest Florida coastline accrued any yellowtail snapper landings during 2021. Such landings occurred only in the communities of Marco Island, Matlacha, Naples, and Cortez (and no further north or west). Indeed, yellowtail snapper landings in these areas registered well below one percent of landings attributable to vessels based around the Keys and larger South Florida region. As such, RQ and LQ metrics are not readily or meaningfully calculable for these communities and, as such, are not provided here.

3.4.2 Yellowtail Snapper Recreational Sector

As discussed by Stoffle and Stoltz (2021), experienced operators of for-hire (and commercial) vessels who fish regularly or periodically for yellowtail typically demonstrate considerable knowledge of the resource, conditions indicative of its presence, areas where it can be successfully pursued, and effective means for its capture. The authors report the perspective of numerous interviewees that consistent use of chum has had a positive effect on yellowtail populations in certain areas. Finally, the authors assert that for-hire operators have demonstrated reliance on yellowtail as a "fall back" species when fishing is slow or when weather conditions are less than optimal, and that it is often considered a readily available source of seafood for participants in the private recreational sector.

Of note from a recreational perspective, while yellowtail over the 12-inch minimum size limit (as per State of Florida and both federal waters jurisdictions) are fair game for harvest and consumption among anglers not practicing a catch-and-release approach, many participants seek and occasionally hook larger yellowtail, with specimens in particularly large size classes colloquially termed "flags." Some contemporary for-hire operators report that they will target large yellowtail in certain unspecified areas using similarly unspecified techniques. Formulations of chum are also often considered proprietary, with ingredients not readily revealed to patrons or competing for-hire operators. It should be noted here that certain private recreational anglers also possess detailed experiential knowledge of the yellowtail resource,

along with preferred fishing locations and techniques that are shared only with discretion. As discussed by Cooke et al. (2021), rapid advances in vessel, engine, remote sensing, communications, and other technologies are forcing rapid changes in recreational fishing capacity and efficiency, with implications for pressure on marine resources and related management decisions around the world—including those related to the perennially popular recreational fisheries of South Florida and the Florida Keys.

Scyphers and Furman (2019) also discuss recreational pursuit of yellowtail snapper, examining public satisfaction with its availability, size of catch, and regulations governing recreational pursuit of the species. Based on a randomized survey of 1,000 recreational anglers licensed by the State of Florida, the authors determined that yellowtail was ranked 8th in terms of perceived importance as part of one's fishing activities—behind snook, red drum, red snapper, spotted (speckled) seatrout, dolphinfish (mahi-mahi), gag grouper, and red grouper. It was further determined that among the 227 responding anglers who (at times) purposely target yellowtail: (a) 36.1% do so primarily in federal jurisdiction waters along the South Florida coastline(s); (b) 34.8% reported being very satisfied with the current level of *availability* of the species, 51.8% reported being somewhat satisfied with that level, and 11.3% reported being not at all satisfied; and (c) 30.1% reported being very satisfied with *size* of yellowtail captured, 56.1% reported being somewhat satisfied with size of catch, and 12.2% reported being not at all satisfied. Finally, the authors queried respondents about their level of satisfaction with then-current yellowtail *regulations* (jurisdiction(s) not specified). Of the 227 responding survey participants, 17.5% reported being very satisfied with the regulatory framework, 50% reported being somewhat satisfied with the current regulations, and 30.9% reported being not at all satisfied (Scyphers and Furman 2019).

Distribution of Recreational Yellowtail Landings in the Respective Florida Regions

As is the case for the commercial harvest sector, most successful for-hire and private recreational yellowtail fishing activity occurs especially in waters around the Florida Keys, and in waters along southeast Florida. This pattern is clearly indicated for the private recreational sector by MRIP-FES data for 2021 and recent prior data years. For example, during 2021, 653,237 lbs. (ww) of recreational yellowtail landings were documented in MRIP-FES units for the Florida West portion of the South Atlantic, which incorporates the Florida Keys. Meanwhile, 509,879 lbs. of yellowtail were documented during the same data year for the adjacent Florida East region, which encompasses waters east and north of the Keys. During the same data year, only 42,634 lbs. of yellowtail landings were documented along the west Florida coastline, with no other reportable landings in states along the Gulf. Data limitations and confidentiality concerns preclude use of MRIP-FES data to describe community-specific recreational landings in this and other regions.

3.4.2.1 South Atlantic Recreational Sector

Snapper-Grouper For-Hire Permits

Vessels used by for-hire captains to pursue yellowtail snapper in South Atlantic federal waters must possess a snapper grouper charter/headboat permit. In the interest of enhanced focus on communities from which captains and crew pursue and/or incidentally find yellowtail, Table 3.4.4 below depicts the distribution of such permits among Florida Keys communities and

communities in southeast and southwest Florida during data year 2020. For purposes of analysis, southeast Florida is defined here to include the counties of Palm Beach, Broward, and Miami-Dade, with southwest Florida defined to include the counties of Charlotte, Lee, and Collier. Of note in the table is participation in the South Atlantic charter/headboat sector by vessels whose owners or operators receive permits at postal addresses along the southwest Florida coastline, suggestive of crossover fishing activity from Gulf to Atlantic—undoubtedly involving extensive activity in the Florida Keys. The greatest proportion of South Atlantic for-hire/headboat permits was held by persons with postal addresses in Key West, with 196 issued in that community during 2020, down from a high of 206 in 2018.

Table 3.4.4. Distribution of South Atlantic for-hire/headboat snapper grouper permits in the top 30 SC permit-holding communities closest to yellowtail snapper grounds: 2020.

State/County	Leading Communities	Permits
Florida/Monroe	Key West	196
Florida/Monroe	Islamorada	98
Florida/Monroe	Marathon	81
Florida/Miami-Dade	Miami	41
Florida/Monroe	Key Largo	33
Florida/Palm Beach	Jupiter	33
Florida/Collier	Naples	27
Florida/Broward	Fort Lauderdale	22
Florida/Collier	Marco Island	14
Florida/Monroe	Big Pine Key	13
Florida/Monroe	Cudjoe Key	12
Florida/Monroe	Tavernier	13
Florida/ Palm Beach	Palm Beach	11
Florida/Broward	Pompano Beach	11
Florida/Monroe	Key Colony Beach	9
Florida/Monroe	Little Torch key	9
Florida/ Palm Beach	Boynton Beach	8
Florida/Lee	Fort Myers	7
Florida/Monroe	Summerland Key	7
Florida/ Palm Beach	West Palm Beach	6
Florida/Charlotte	Port Charlotte	5
Florida/Lee	Fort Myers Beach	5
Florida/Miami-Dade	Key Biscayne	4
Florida/Lee	Cape Coral	4
Florida/Miami-Dade	Miami Beach	4
Florida/ Palm Beach	Riviera Beach	3
Florida/Monroe	Duck Key	3
Florida/ Palm Beach	Boca Raton	3
Florida/Charlotte	Englewood	3
Florida/Charlotte	Placida	3
Florida/Lee	Pine Island	3

Source: NMFS SERO Sustainable Fisheries (SF) Access permits database, accessed July 2023

The extensive level of involvement of Key West captains and crew in yellowtail snapper and other fisheries merits summary description of the community. As of April 1, 2020, Key West was home to 24,649 permanent residents (U.S. Census Bureau 2020), but with a characteristically large expansion of the local population as seasonal residents and tourists arrive during the winter months. Key West is the southernmost city in the mainland U.S., with a consistently mild tropical-maritime climate (NOAA 2021). The combination of favorable winter weather, close proximity to productive fishing grounds, a long history of local involvement in recreational fishing ventures (e.g., Epstein 2013), and increasing rates of seasonal residence and visitation following a period of gentrification initiated in decades past (Shivlani 2014) help explain the extensive nature of for-hire fishing opportunities and services available in the community.

3.4.2.2 Gulf of Mexico Recreational Sector

Charter/Headboat Permits for Reef Fish (For-hire Permits)

For-hire captains pursuing yellowtail snapper in federal jurisdiction waters of the Gulf must possess a Gulf charter/headboat permit for reef fish. As discussed previously, while yellowtail snapper is most commonly found and pursued in the Florida Keys and along the southeast and southwest Florida coastline, vessels hailing from more distant communities in Florida (and other Gulf states) may also actively or incidentally participate in the for-hire yellowtail fishery. The intent here is examination of communities where for-hire operators most likely interact with yellowtail snapper. Again, Charlotte, Lee, Collier, Monroe, Miami-Dade, Broward, and Palm Beach are used to define the overall region of interest. Of note, only three Gulf charter/headboat permits for reef fish are collectively held by persons with postal addresses in southeast Florida—all in Broward County.

Table 3.4.5. Distribution of Gulf charter/headboat reef fish (RF) permits among the top RF permit-holding communities closest to yellowtail snapper grounds: 2020.

State	Community	Permits*
Florida	Key West	47
Florida	Naples	45
Florida	Marco Island	16
Florida	Fort Myers	15
Florida	Fort Myers Beach	14
Florida	Englewood	8
Florida	Cape Coral	7
Florida	Marathon	6
Florida	Boca Grande	5
Florida	Islamorada	4
Florida	Placida	4
Florida	Port Charlotte	4
Florida	Cudjoe Key	3
Florida	Pine Island	3
Florida	Bokeelia	3

Source: NMFS SERO SF Access permits database, accessed July 2023.

3.4.2.3 Community Engagement & Reliance in Florida's Recreational Yellowtail Sectors

The full range of data indicative of social involvement in the Gulf and South Atlantic yellowtail fishery sectors is not readily available at the level of the community. As such, it is not possible with available information to identify communities that are specifically engaged in and/or reliant on recreational fishing for yellowtail in particular.

Given that information regarding community-specific interaction with any given species is limited for the recreational sector, NOAA Fisheries social scientists have developed indices of utility for identifying communities where recreational fishing is an important component of local society and economy in general (Jacob et al. 2013, Jepson and Colburn 2013, Hospital and Leong 2021). Based on these indices, and by selecting for presentation those Florida-specific communities that are at once proximal to yellowtail fishing grounds and most extensively involved in recreational fishing activities overall, Figure 3.4.4 below depicts measures of engagement and reliance among Gulf and South Atlantic communities most likely interacting with yellowtail on a recreational basis. The measure of *engagement* depicted here derives from the number of all for-hire permits and vessels actively used by residents in a given community. The measure of *reliance* derives from the same variables divided by the total local population figure. Standard deviations are depicted along the y-axis. While numerous communities demonstrate truly extensive engagement in recreational fisheries, only the communities of Key West, Islamorada, Bokeelia, and Duck Key exceed the one standard deviation threshold for reliance on the recreational sector. The measures of engagement and reliance provided here are useful means for indicating where any prospective effects of yellowtail snapper management actions are likely to be experienced.

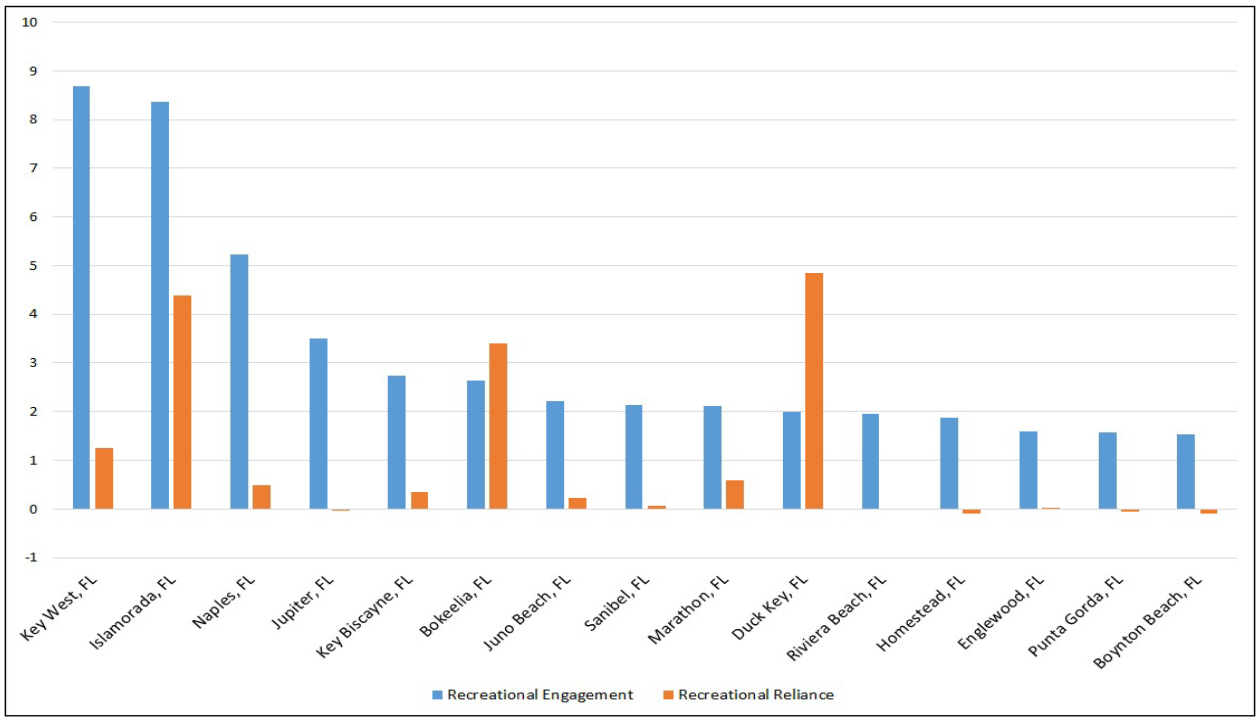


Figure 3.4.4. Measures of engagement and reliance among Gulf & South Atlantic communities most likely involved in recreational pursuit of yellowtail: 2020. Source: SERO, Community Social Vulnerability Indicators Database, accessed July 2023.

3.4.3 Environmental Justice

Executive Order (EO) 12898 was established in 1994 to require that personnel working in federal agencies examine the human health and socioeconomic implications of federal regulatory actions among low-income and minority groups and populations around the nation. The order requires that such agencies conduct programs, policies, and activities in a manner that ensures no individuals or populations are excluded, denied the benefits of, or subjected to discrimination due to race, color, or nation of origin. Of particular relevance in the context of marine fisheries, federal agencies are further required to collect, maintain, and analyze data regarding patterns of consumption of fish and wildlife among persons who rely on such foods for dietary and cultural purposes. In sum, the principal intent of EO 12898 is to require assessment and due consideration of any "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."

Established in 2021, EO 13985 also calls for social equity in the context of federal decision-making and policy actions. Titled "Advancing Racial Equity and Support for Underserved Communities through the Federal Government," this order requires that federal policies and programs are designed and undertaken in a manner that delivers resources and benefits equitably to all citizens, including those who are members of historically underserved communities. Here, the phrase "underserved communities" refers to populations and persons who have been systematically denied full and equitable opportunity to participate in economic, social, and civic aspects of life in the nation. Similarly, EO 14008, also established in 2021**,** calls on federal agencies to incorporate Environmental Justice as part of their ongoing missions. This is to be accomplished through development of programs, policies, and activities that address any disproportionately high and/or adverse "human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts."

Various data are available to indicate equity and environmental justice issues among minority and low-income populations and/or indigenous populations and other historically underserved communities potentially affected by federal regulatory decisions and other actions. With the intent of enhancing capacity to determine whether environmental justice issues may be affecting communities around the U.S. where fishing-related industry is an important aspect of local society and economy, NOAA Fisheries social scientists undertook an extensive series of deliberations and review of pertinent data and literature. The scientists ultimately selected key social, economic, and demographic variables that could function to identify social vulnerabilities at the community level of analysis (see Jacob et al. 2013; Jepson and Colburn 2013). Census data such as community-specific rates of poverty, number of households maintained by single females, number of households with children under the age of five, rates of crime, and rates of unemployment exemplify the types of information chosen to aid in such analysis. Pertinent variables were subsequently used to develop composite indices that could be applied to assess vulnerability to environmental, regulatory, and other sources of change among the communities where fishing and related activities are of demonstrable importance.

As provided in the following figures, three composite indices—termed here as poverty, population composition, and personal disruption—are applied to indicate relative degrees of

vulnerability among those communities with the greatest percentages of yellowtail snapper landings in the Gulf and South Atlantic regions—noting that, in this case (as stated previously), the yellowtail-productive Florida Keys communities are treated as part of the South Atlantic for purposes of analysis. Mean standardized scores for each community are provided along the y-axis, with means for the vulnerability measures and threshold standard deviations indicated along the y-axis. Scores exceeding the .5 standard deviation level indicate local social vulnerability to regulatory and other sources of change. As can be discerned from Figure 3.4.6 below, three of the principal landings communities—Hollywood, Marathon, and Miami—exceed the designated vulnerability thresholds for one or more indices.

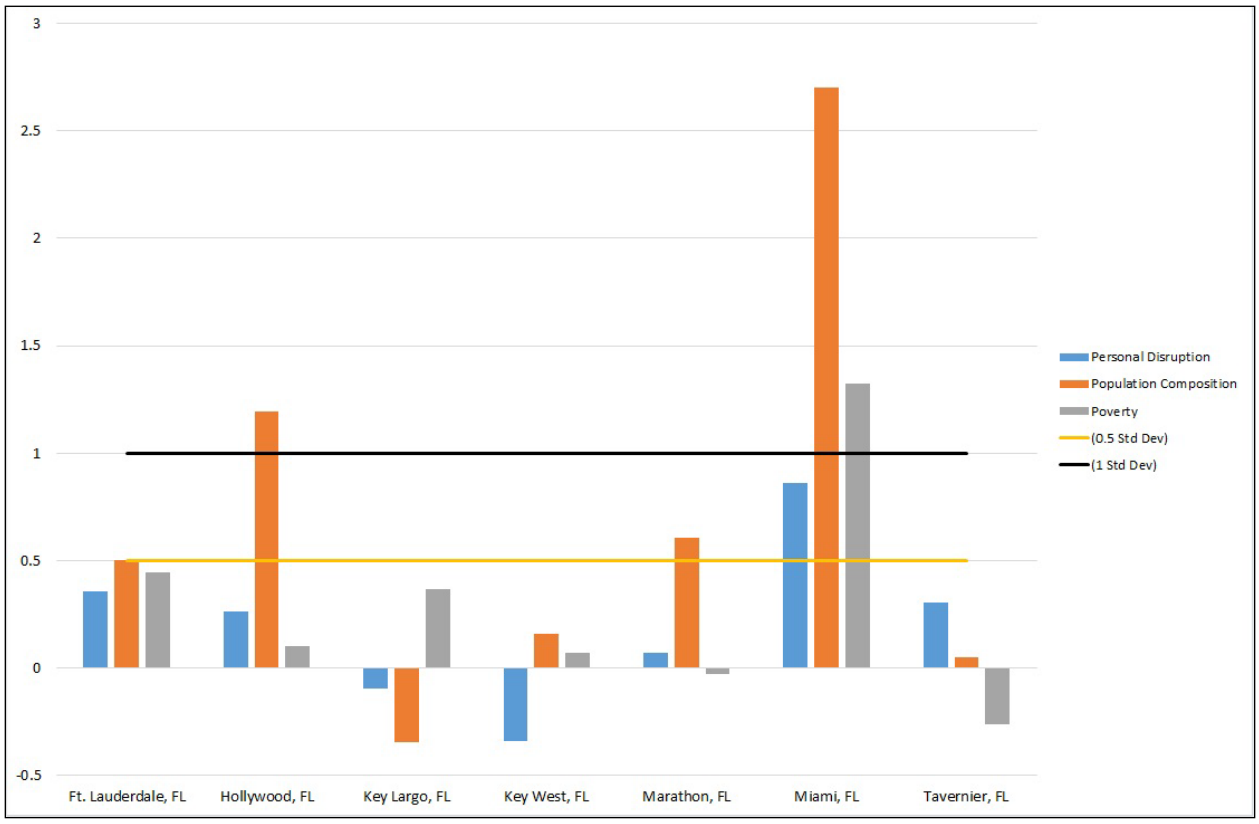


Figure 3.4.6. Social/economic vulnerability measures for Florida communities with the greatest percentages of commercial yellowtail snapper landings during 2021. Source: SERO CSVI Database.

Finally, Figure 3.4.7 depicts social vulnerability measures for Florida communities most extensively involved in the regional recreational fishing industry. The data presented here indicate social vulnerabilities in the communities of Key Biscayne and Marathon in the Florida Keys; Bokeelia along the Gulf coastline; and Juno Beach, Riviera Beach, Boynton Beach, and especially Homestead along the South Atlantic coastline. Both figures derive from data available in the SERO Community Social Vulnerability Indicators (CSVI) Database.

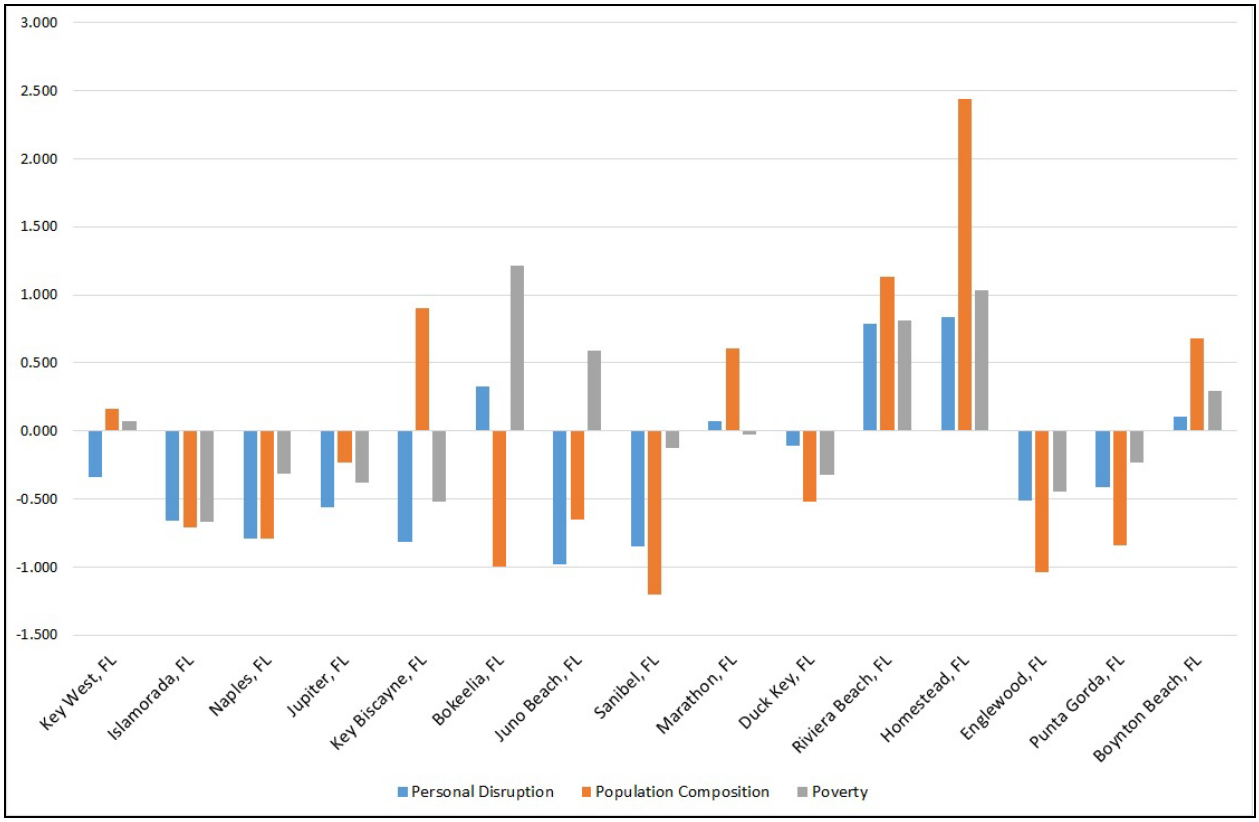


Figure 3.4.7. Social/economic vulnerability measures for Gulf and South Atlantic Florida communities that are both extensively involved in the recreational fishery sectors and proximal the yellowtail fishing grounds. Source: SERO CSVI Database.

3.5 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, an area extending 200 nm from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the U.S. EEZ.

Responsibility for federal fishery management decision-making is divided between the U.S. 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 collecting and providing the data necessary for the councils to prepare fishery management plans and for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act and with other applicable laws. In most cases, the Secretary has delegated this authority to NMFS.

The South Atlantic Council is responsible for conservation and management of fishery resources in federal waters of the U.S. South Atlantic. These waters extend from 3 to 200 miles offshore from the seaward boundary of North Carolina, South Carolina, Georgia, and east Florida to Key West. The South Atlantic Council has thirteen voting members: one from NMFS; one each from the state fishery agencies of North Carolina, South Carolina, Georgia, and Florida; and eight public members appointed by the Secretary. On the South Atlantic Council, there are two public members from each of the four South Atlantic States. Non-voting members include representatives of the U.S. Fish and Wildlife Service, U.S. Coast Guard (USCG), State Department, and Atlantic States Marine Fisheries Commission (ASMFC). The South Atlantic Council has adopted procedures whereby the non-voting members serving on the Council Committees have full voting rights at the Committee level but not at the full Council level. The South Atlantic Council also established two voting seats for the Mid-Atlantic Council on the South Atlantic Mackerel Committee. South Atlantic Council members serve three-year terms and are recommended by state governors and appointed by the Secretary from lists of nominees submitted by state governors. Appointed members may serve a maximum of three consecutive terms.

The Gulf of Mexico Fishery Management 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 of Mexico Fishery Management 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.

Public interests also are involved in the fishery management process through participation on Advisory Panels and through council meetings, which, with few exceptions for discussing personnel and legal matters, are open to the public. The Councils use their SSC to review the data and science being used in assessments and fishery management plans/amendments. In addition, the regulatory process is in accordance with the Administrative Procedure Act, in the form of "notice and comment" rulemaking.

3.5.2 State Fishery Management

The state governments of North Carolina, South Carolina, Georgia, and Florida have the authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. North Carolina's marine fisheries are managed by the Marine Fisheries Division of the North Carolina Department of Environmental Quality. The Marine Resources Division of the South Carolina Department of Natural Resources manages South Carolina's marine fisheries. Georgia's marine fisheries are managed by the Coastal Resources Division of the Department of Natural Resources. The Division of Marine Fisheries Management of the Florida Fish and Wildlife Conservation Commission is responsible for managing Florida's marine fisheries. Each state fishery management agency has a designated seat on the Council.

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 South Atlantic states are also involved through ASMFC in management of marine fisheries. This commission was created to coordinate state regulations and develop management plans for interstate fisheries. It has significant authority, through the Atlantic Striped Bass Conservation Act and the Atlantic Coastal Fisheries Cooperative Management Act, to compel adoption of complementary state regulations to conserve coastal species. The ASFMC is also represented at the Council but does not have voting authority at the Council level.

NMFS's State-Federal Fisheries Division is responsible for building cooperative partnerships to strengthen marine fisheries management and conservation at the state, inter-regional, and national levels. This division implements and oversees the distribution of grants for two national (Inter-jurisdictional Fisheries Act and Anadromous Fish Conservation Act) and two regional (Atlantic Coastal Fisheries Cooperative Management Act and Atlantic Striped Bass Conservation Act) programs. Additionally, it works with the ASMFC to develop and implement cooperative State-Federal fisheries regulations.

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).

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/

3.5.3 Enforcement

Both the NMFS Office for Law Enforcement (NOAA/OLE) and the USCG have the authority and the responsibility to enforce Council regulations. NOAA/OLE agents, who specialize in living marine resource violations, provide fisheries expertise and investigative support for the

overall fisheries mission. The USCG is a multi-mission agency, which provides at sea patrol services for the fisheries mission.

Neither NOAA/OLE nor the USCG can provide a continuous law enforcement presence in all areas due to the limited resources of NOAA/OLE and the priority tasking of the USCG. To supplement at sea and dockside inspections of fishing vessels, NOAA entered into Cooperative Enforcement Agreements with all but one of the states in the Southeast Region (North Carolina), which granted authority to state officers to enforce the laws for which NOAA/OLE has jurisdiction. In recent years, the level of involvement by the states has increased through Joint Enforcement Agreements, whereby states conduct patrols that focus on federal priorities and, in some circumstances, prosecute resultant violators through the state when a state violation has occurred.

The NOAA Office of General Counsel Penalty Policy and Penalty Schedule is available online at http://www.gc.noaa.gov/enforce-office3.html.

Chapter 4. Environmental Effects and Comparison of Alternatives

4.1 Action 1. Modify the yellowtail snapper stock overfishing limit and stock acceptable biological catch and jurisdictional allocation of the stock acceptable biological catch between the South Atlantic and Gulf of Mexico Fishery Management Councils' Jurisdictions

Alternatives*

1. (No Action). Current stock ACL and OFL and retain the jurisdictional allocation of 75% South Atlantic and 25% Gulf of Mexico.

2. Adopt the updated stock ABC and OFL and retain the current jurisdictional allocation of 75% South Atlantic and 25% Gulf of Mexico.

3. Adopt the updated stock ABC and OFL and allocate 80% to the South Atlantic and 20% to the Gulf of Mexico.

4. Adopt the updated ABC and OFL and allocate 84% to the South Atlantic and 16% to the Gulf of Mexico.

5. Adopt the updated ABC and OFL and allocate 84% to the South Atlantic and 16% to the Gulf of Mexico.

*See Chapter 2 for detailed language of alternatives. Preferred indicated in bold.

4.1.1 Biological Effects

Expected effects to yellowtail snapper and co-occurring species

Overall, alternatives with a greater percentage of allocation to the South Atlantic jurisdiction results in a modest reduction of total allowable annual harvest for the Gulf jurisdiction (e.g., **Alternative 2** compared to **Alternative 4**). Therefore, the effects under **Alternatives 2-5** on the biological environment are not expected to be measurably different from each other but provide a benefit to the yellowtail snapper stock over **Alternative 1 (No Action)**. The catch limits under **Alternative 1 (No Action)** are based on the Marine Recreational Fisheries Statistics Survey (MRFSS) and Southeast Data Assessment and Review (SEDAR) 27A (2012). MRFSS and SEDAR 27A (2012) are no longer considered consistent with the best scientific information available (BSIA) and could result in negative effects to the yellowtail snapper stock. **Alternatives 2-5** are expected to have positive effects on the yellowtail snapper stock compared to **Alternative 1 (No Action)**, since catch limits would be based on Marine Recreational Information Program's (MRIP) Fishing Effort Survey (FES), SEDAR 64 (2020), and SEDAR 64 Interim Analysis (2022) that is considered best scientific information available (BSIA). While positive biological effects are expected under **Alternatives 2-5,** those effects are not expected to be substantive.

The actions in this amendment are not expected to negatively impact snapper grouper or reef fish essential fish habitat (EFH). Fishing effort is not expected to significantly increase as a result of

this action, nor are changes in fishing techniques or behavior expected that would affect EFH. The predicted effects on EFH are applicable to all actions in this plan amendment.

Expected effects to protected species
Overall, it is unlikely that changes to the yellowtail snapper jurisdictional allocation, OFL, and ABC will substantially change snapper grouper or reef fish fishing effort and result in any substantive effects on the biological environment, including non-target species, because this action would not substantially change the prosecution of the snapper grouper or reef fish fishery. For this same reason, no additional impacts to Endangered Species Act (ESA)-listed species or introduction of invasive species are anticipated as a result of this action. There are no additional impacts ESA-listed species or designated critical habitats anticipated as a result of this action (see Section 3.2.4 for a more detailed description of ESA-listed species and critical habitat in the action area). The predicted effects on ESA-listed species and designated critical habitats are applicable to all actions in this plan amendment.

4.1.2 Economic Effects

In general, catch levels such as the overfishing limit (OFL) and acceptable biological catch (ABC) that allow for more fish to be landed can result in increased economic benefits if harvest increases without notable effects on the stock of a given fish. The catch level does not directly impact the fishery for a species unless harvest changes, fishing behavior changes, or the closely connected annual catch limit is exceeded, thereby potentially triggering accountability measures (AM) such as harvest closures or other restrictive measures. As such, catch levels that allow the closely connected ACLs to be set above observed landings in a fishery for a species and do not change harvest or fishing behavior may not have realized economic effects each year. Nevertheless, such catch levels do allow for a gap between a catch limit and typical landings that may be utilized in years of exceptional abundance or accessibility to a species, thus providing the opportunity for increased landings and a reduced likelihood of triggering restrictive AMs. Thus, there are potential economic benefits from catch levels that allow for such a gap. The opposite is true for catch levels that result in constraining harvest or fishing effort within a fishery or reduce the previously described gap between average landings and a catch limit on a fishery.

Alternative 1 (No Action) is not a viable alternative since it does not implement BSIA in relation to yellowtail snapper stock OFL and ABC. The remaining alternatives in Action 1 (**Alternatives 2**, through **5**) would implement BSIA, and thus are viable for consideration. The jurisdictional allocations in **Alternatives 2** through **5** would result in distributional economic effects between fishery participants in the South Atlantic and Gulf of Mexico regions. **Alternative 2** would result in the lowest jurisdictional allocation of the yellowtail snapper stock ABC for the South Atlantic region and highest jurisdictional allocation of the yellowtail snapper stock ABC for the Gulf of Mexico region. **Alternative 3** would result in a comparatively higher allocation for the South Atlantic region and a lower allocation for the Gulf of Mexico region, while **Alternatives 4** and **5** (with identical jurisdictional allocation percentages) would result in the highest allocation for the South Atlantic region and lowest allocation for the Gulf of Mexico region. The resulting potential economic benefits of these alternatives would be highest for the South Atlantic region under **Alternatives 4** and **5**, followed by **Alternative 3** and **Alternative 2**.

For the Gulf of Mexico region, the ranking would be the opposite with **Alternative 2** resulting in the highest potential economic benefits, followed by **Alternative 3** and **Alternatives 4** and **5**.

4.1.3 Social Effects

Additional effects would not be expected from **Alternative 1 (No Action)**, which would retain the existing OFL, ABC, and jurisdictional allocation. However, these catch levels do not reflect the best available science, as the recreational data units would remain in MRIP-CHTS units. In theory, there should be no effects from converting the ACL from MRIP-CHTS units to MRIP-FES units, as the change in units is intended to be a conversion. While MRIP-FES has been determined to be the best available science, the adoption of the data units has been controversial for stocks with a sector allocation, because the conversion has been adopted concurrent to changes in the allowable catch levels. It is possible for unintended indirect effects to result for the different user groups depending on perceptions.

Additionally, the OFL and ABC for any stock does not directly affect resource users unless the subsequent annual catch limit (Action 2) is met or exceeded, in which case accountability measures (AMs) that restrict or close harvest could negatively impact the commercial, for-hire, and private recreational sectors by restricting harvest in the current season or subsequent seasons. Overall, ensuring catch levels are based on the most recent information contributes to sustainable management goals, and is expected to be beneficial to fishermen and communities in the long term.

Apportioning the ACL between two jurisdictions is an allocation decision, and allocation is an inherently controversial topic as discrete user groups benefit from obtaining the largest share for their group. **Alternatives 2** through **5** would adopt MRIP-FES, which is considered BSIA For the Gulf of Mexico, positive effects would be greater under **Alternative 2** followed by **Alternative 3**, and **Alternatives 4** and **5**. For the South Atlantic positive effects would be greater under **Alternatives 4** and **5**, followed by **Alternative 3** and **Alternative 2**. Although the shift in jurisdictional allocation is relatively small, apportionments have broader social implications as an indicator of cultural significance that quantifies the access of different user groups. The directional change, in this case, towards the South Atlantic, would indicate an increasing social valuation of yellowtail snapper in the South Atlantic.

4.1.4 Administrative Effects

Modifying jurisdictional allocation, OFL, and ABC does not typically result in substantive effects on the administrative environment. **Alternative 1 (No Action)** is not expected to affect the administrative environment by not changing the current jurisdictional allocation, OFL, or ABC, however, overall, it would have a greater administrative burden due to the need to convert landings back to MRFSS for management. **Alternatives 2-5** would no longer require NMFS to convert landings from MRIP-FES to MRFSS. This conversion is model-derived, and NMFS considers landings estimates from MRIP-FES to be BSIA. Changing jurisdictional allocations, OFL, or ABC is not something that is codified, so modifying those under **Alternatives 2-5** would result in no administrative effect. There is also no effect on the administrative burden for law enforcement as law enforcement officers do not monitor catch limits but would only continue to monitor compliance with any established closed season. Some administrative burden is anticipated under **Alternatives 2-5** with respect to outreach as it relates to notifying

stakeholders of the changes to the jurisdictional allocation, OFL, and ABC. None of the effects are expected to be substantive.

Chapter 9. References

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Appendix A. Data Analyses

DRAFT

Expected Closure Dates of the Commercial and Recreational Yellowtail Snapper Fisheries in the Gulf of Mexico and South Atlantic Under Proposed Regional and Sector Allocations

August 2023
LAPP/DM Branch
Southeast Regional Office

Yellowtail snapper is considered a single stock in the Gulf of Mexico (Gulf) and the South Atlantic. The Gulf of Mexico Fishery Management Council (GMFMC) manages yellowtail snapper in Gulf federal waters under the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP). In 2012, the Generic Annual Catch Limits/Accountability Measures Amendment to the Reef Fish FMP established a stock (combined recreational and commercial) annual catch limit (ACL) for yellowtail snapper. The amendment also established an apportionment of acceptable biological catch (ABC), with 75% apportioned to the South Atlantic jurisdiction and 25% to the Gulf jurisdiction. The South Atlantic Fishery Management Council (SAFMC) manages yellowtail snapper from federal waters at the Virginia/North Carolina border through the Atlantic side of the Florida Keys under the Snapper-Grouper Fishery Management Plan (FMP). In 2016, Regulatory Amendment 25 to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region changed the commercial season to August 1 through July 31 for both the recreational and commercial sectors. In 2017, a framework action to the Gulf Reef Fish FMP changed the fishing season for both the recreational and commercial sectors to August 1 through July 31 to be consistent with the fishing season in the South Atlantic.

This analysis investigates when the commercial and recreational sectors will be expected to close under the proposed jurisdictional allocation options (**Tables A.1.1 and A.1.2)** and sector allocation options **(Table A.1.3)** for both the Gulf and the South Atlantic using observed landings in pounds (lb) whole weight (ww) between 2019 and 2021 (**Tables A.1.4 and A.1.5)**. No closures were predicted for Gulf of Mexico yellowtail snapper for each proposed annual catch limits. Projected closure dates for South Atlantic yellowtail snapper are described in **Tables A.1.6 through A.1.12**.

Table A.1.1. Gulf of Mexico yellowtail snapper proposed annual catch limits (**Action 2**) for each proposed jurisdictional allocation (**Action 1**). Gulf of Mexico yellowtail snapper are managed as stock annual catch limits.

Action 1, Alternative 1 (No Action): GOM 25% / SA 75% Current Gulf of Mexico ACL (lb ww)					
Action 2 Alternative 1	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Current GOM ACL= 89% ABC	901,125				
Action 1, Alternative 2: GOM 25% / SA 75%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	864,858	834,153	815,463	803,225	794,770
Alternative 2 (ACL=92% Updated ABC)	894,010	862,270	842,950	830,300	821,560
Alternative 3 (ACL= Updated ABC)	971,750	937,250	916,250	902,500	893,000
Action 1, Alternative 3: GOM 20% / SA 80%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	691,886	667,322	652,370	642,580	635,460
Alternative 2 (ACL=92% Updated ABC)	715,208	689,816	674,360	664,240	656,880
Alternative 3 (ACL= Updated ABC)	777,400	749,800	733,000	722,000	714,400
Action 1, Alternative 4: GOM 16% / SA 84%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	553,509	533,858	521,896	514,064	508,653
Alternative 2 (ACL=92% Updated ABC)	572,166	551,853	539,488	531,392	525,798
Alternative 3 (ACL= Updated ABC)	621,920	599,840	586,400	577,600	571,520
Action 1, Alternative 5: GOM 16% / SA 84%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	553,509	533,858	521,896	514,064	508,653
Alternative 2 (ACL=92% Updated ABC)	572,166	551,853	539,488	531,392	525,798
Alternative 3 (ACL= Updated ABC)	621,920	599,840	586,400	577,600	571,520

Table A.1.2. South Atlantic yellowtail snapper proposed annual catch limits (**Action 2**) for each proposed jurisdictional allocation (**Action 1**).

Action 1, Alternative 1 (No Action): Current South Atlantic ACL (lb ww)					
Action 2 Alternative 1	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Current SA ABC=ACL=OY	3,037,500				
Action 1, Alternative 2: GOM 25% / SA 75%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 2 (ACL=updated ABC)	2,915,250	2,811,750	2,748,750	2,707,500	2,679,000
Alternative 3 (ACL=90% Updated ABC)	2,623,725	2,530,575	2,473,875	2,436,750	2,411,100
Alternative 4 (ACL=95% Updated ABC)	2,769,488	2,671,163	2,611,313	2,572,125	2,545,050
Alternative 5 (ACL/OY=Lowest ABC)	2,679,000				
Alternative 6 (F30%SPR at equilibrium)	2,555,728				
Action 1, Alternative 3: GOM 20% / SA 80%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 2 (ACL=updated ABC)	3,109,600	2,999,200	2,932,000	2,888,000	2,857,600
Alternative 3 (ACL=90% Updated ABC)	2,798,640	2,699,280	2,638,800	2,599,200	2,571,840
Alternative 4 (ACL=95% Updated ABC)	2,954,120	2,849,240	2,785,400	2,743,600	2,714,720
Alternative 5 (ACL/OY=Lowest ABC)	2,857,600				
Alternative 6 (F30%SPR at equilibrium)	2,726,110				
Action 1, Alternative 4: GOM 16% / SA 84%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 2 (ACL=updated ABC)	3,265,080	3,149,160	3,078,600	3,032,400	3,000,480
Alternative 3 (ACL=90% Updated ABC)	2,938,572	2,834,244	2,770,740	2,729,160	2,700,432
Alternative 4 (ACL=95% Updated ABC)	3,101,826	2,991,702	2,924,670	2,880,780	2,850,456
Alternative 5 (ACL/OY=Lowest ABC)	2,907,251				
Alternative 6 (F30%SPR at equilibrium)	2,862,415				
Action 1, Alternative 5: GOM 16% / SA 84%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 2 (ACL=updated ABC)	3,265,080	3,149,160	3,078,600	3,032,400	3,000,480
Alternative 3 (ACL=90% Updated ABC)	2,938,572	2,834,244	2,770,740	2,729,160	2,700,432
Alternative 4 (ACL=95% Updated ABC)	3,101,826	2,991,702	2,924,670	2,880,780	2,850,456

Action 1, Alternative 1 (No Action): Current South Atlantic ACL (lb ww)					
Action 2 Alternative 1	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 5 (ACL/OY=Lowest ABC)	2,907,251				
Alternative 6 (F30%SPR at equilibrium)	2,862,415				

Table A.1.3. South Atlantic yellowtail snapper proposed annual catch limits for each proposed sector allocations (**Action 3**). Allocations are based on **Sub-Alternative 2a** from **Action 2** (75% SA jurisdictional allocation, ACL = OY = updated SA ABC).

Option 1 (No Action): 52.56% commercial and 47.44% recreational			
Year	SA Total ACL (lb ww)	Commercial ACL (lb ww)	Recreational ACL (lb ww)
2023/2024	2,915,250	1,532,255	1,382,995
2024/2025	2,811,750	1,477,856	1,333,894
2025/2026	2,748,750	1,444,743	1,304,007
2026/2027	2,707,500	1,423,062	1,284,438
2027/2028+	2,679,000	1,408,082	1,270,918
Option 2: 41% commercial and 59% recreational			
Year	SA Total ACL (lb ww)	Commercial (mp ww)	Recreational (mp ww)
2023/2024	2,915,250	1,195,253	1,719,998
2024/2025	2,811,750	1,152,818	1,658,933
2025/2026	2,748,750	1,126,988	1,621,763
2026/2027	2,707,500	1,110,075	1,597,425
2027/2028+	2,679,000	1,098,390	1,580,610

Table A.1.4. Commercial and recreational landings in pounds (lb) ww of yellowtail snapper in the Gulf of Mexico for fishing years 2012-2021.

Yellowtail Snapper Commercial and Recreational Landings			
Fishing Year	**Rec. Landings (lb ww)**	**Comm. Landings (lb ww)**	**Total Landings (lb ww)**
2012	5,163	630,984	636,147
2013	9,343	734,112	743,455
2014	27,715	466,968	494,683
2015	64,743	504,193	568,936
2016	13,401	209,283	222,684
2017*	249,512	682,875	932,387
2017/2018	206,784.83	589,868	796,653
2018/2019	104,527	527,112	631,638
2019/2020	12,348	287,940	300,289
2020/2021	79,765	212,630	292,395

* In 2017, a framework action to the Reef Fish FMP changed the fishing season for both the recreational and commercial sectors to August 1 through July 31 to be consistent with the fishing season in the South Atlantic. For this reason, 2016 includes January through July 31, 2016 landings and 2016/17 fishing season landings are provided separately.
Source: SEFSC Commercial ACL Dataset (August 31, 2022) and SEFSC MRIP FES Recreational ACL Dataset (October 25, 2022).

Table A.1.5. Commercial and recreational landings in pounds (lb) ww of yellowtail snapper in the South Atlantic for fishing years 2012-2021.

Yellowtail Snapper Commercial and Recreational Landings			
Fishing Year	**Rec. Landings (lb ww)**	**Comm. Landings (lb ww)**	**Total Landings (lb ww)**
2012	1,129,915	1,439,586	2,569,501
2013	1,695,188	1,328,974	3,024,162
2014	2,122,485	1,544,038	3,666,523
2015[a]	1,495,150	1,652,438[a]	3,147,588
2016*	1,184,513	1,393,495	2,578,008
2016/2017[b]	1,491,509	2,336,970[b]	3,828,479
2017/2018[c]	1,481,290	1,703,541[c]	3,184,830
2018/2019[d]	1,405,783	1,662,102[d]	3,067,885
2019/2020	1,330,659	1,435,167	2,766,566
2020/2021	1,131,075	1,204,637	2,335,712

*The fishing season for yellowtail snapper was modified in Regulatory Amendment 25, which took effect on August 12, 2016. For this reason, 2016 includes January through August 12, 2016 landings and 2016/17 fishing season landings are provided separately.
[a]In-season closure for commercial sector from October 31, 2015 to December 31, 2015.
[b]In-season closure for commercial sector from June 3, 2017 to July 31, 2017.
[c]In-season closure for commercial sector from June 5, 2018 to July 31, 2018.
[d]In-season closure for commercial sector from June 7, 2019 to July 31, 2019.
Source: SEFSC Commercial ACL Dataset (August 31, 2022) and SEFSC MRIP FES Recreational ACL Dataset (October 25, 2022).

Commercial Sector

Final commercial landings for 2012 through 2021 were provided from the Southeast Fisheries Science Center (SEFSC) on August 31, 2022. Monthly Gulf commercial yellowtail snapper landings were averaged from 2019 through 2021 to project future landings. Due to commercial closures in the South Atlantic, landings from different time periods were used to predict future landings. Monthly South Atlantic commercial yellowtail snapper landings were averaged from 2019 through 2021 to project future landings for January through May and August through

December months, and June and July months were projected using 2016 and 2020-2021. Landings in 2016 were used to project future landings for June and July due to in-season closures in 2017 through 2019 (**Figures A.1.1 and A.1.2**). The changes to the commercial fishing year in response to South Atlantic Regulatory Amendment 25 and the Gulf Framework Action to the Reef Fish FMP are assumed to have minimal impact on monthly fishing behavior, and no adjustments were made to monthly landings. Monthly predicted landings were cumulatively summed for the fishing year (August 1 through July 31) until the landings met the ACL.

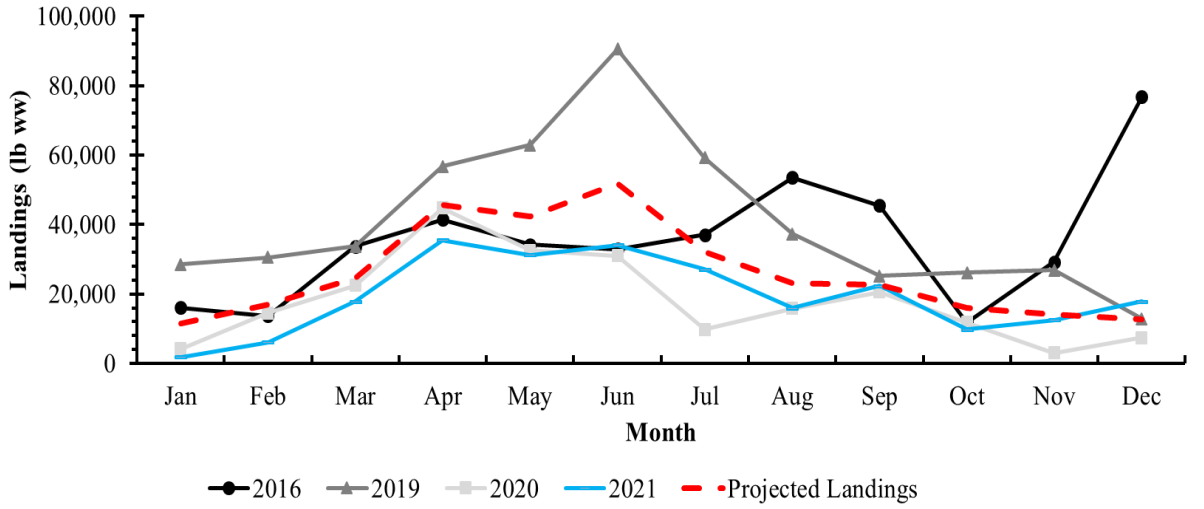

Figure A.1.1. Gulf of Mexico yellowtail snapper monthly commercial landings (lb ww) for 2016-2021, and projected future landings. Source: SEFSC Commercial ACL Dataset (August 31, 2022).

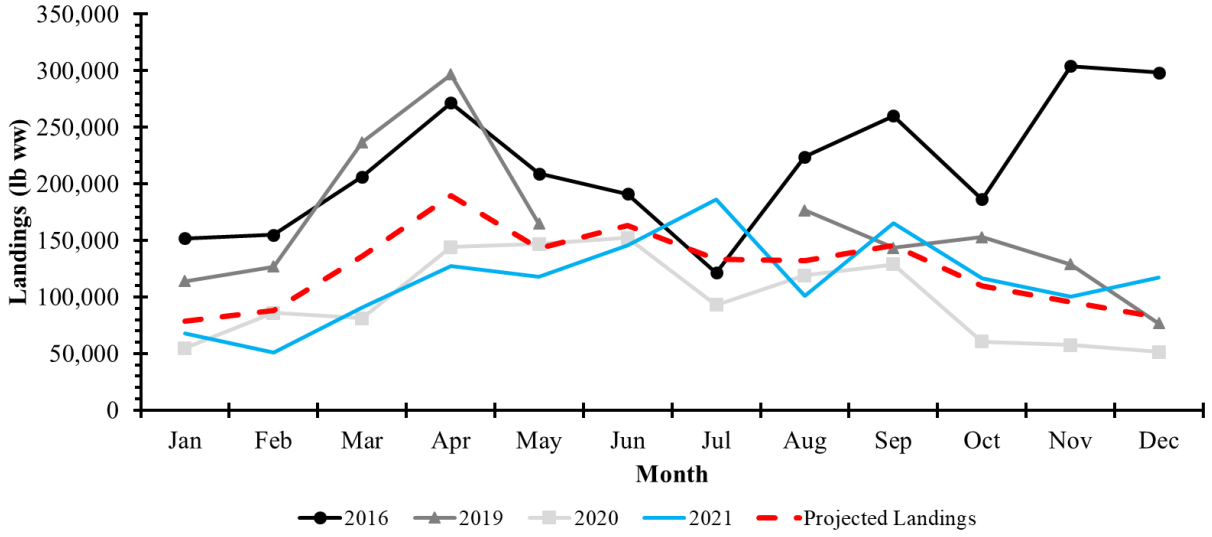

Figure A.1.2. South Atlantic yellowtail snapper monthly commercial landings (lb ww) for 2016-2021, and projected future landings. No landings are shown for months June and July in 2019 due to an in-season closure. Source: SEFSC Commercial ACL Dataset (August 31, 2022).

Recreational Sector

A recreational landings dataset was provided from the SEFSC on October 25, 2022. This dataset includes landings from the Texas Parks and Wildlife recreational creel survey (TPWD), Louisiana Department of Wildlife and Fisheries creel survey (LA Creel), Southeast Region Headboat Survey (SRHS) and Marine Recreational Information Program Fishing Effort Survey (MRIP FES). TPWD and SRHS data provide monthly landings estimates whereas MRIP and LACreel data are provided in two-month waves (e.g., January and February = wave 1, March and April = wave 2, etc.). To estimate monthly landings, MRIP waves were used to estimate to monthly landings by assuming equal daily catch rates for months within a wave, and then SRHS and TPWD landings were added back in. Average monthly landings from 2019-2021 were used to project future landings for most months, with the exception of March and April when 2018-2019 and 2021 data were used due to atypical landings in response to the 2020 pandemic (**Figures A.1.3 and A.1.4**). The changes to the recreational fishing year in response to South Atlantic Regulatory Amendment 25 and the Gulf Framework Action to the Reef Fish FMP are assumed to have minimal impact on monthly fishing behavior, particularly since the recreational sector has never reached their ACL, and consequently no adjustments were made to monthly landings.

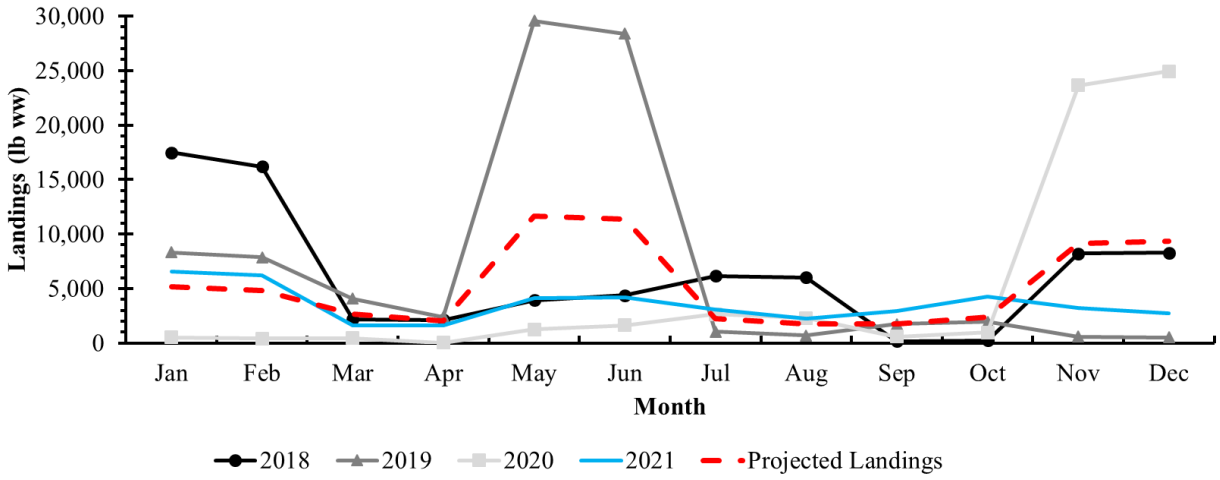

Figure A.1.3. Gulf of Mexico yellowtail snapper monthly recreational landings (lb ww) for 2018-2021, and projected future landings. Source: SEFSC Recreational ACL Dataset (October 25, 2022).

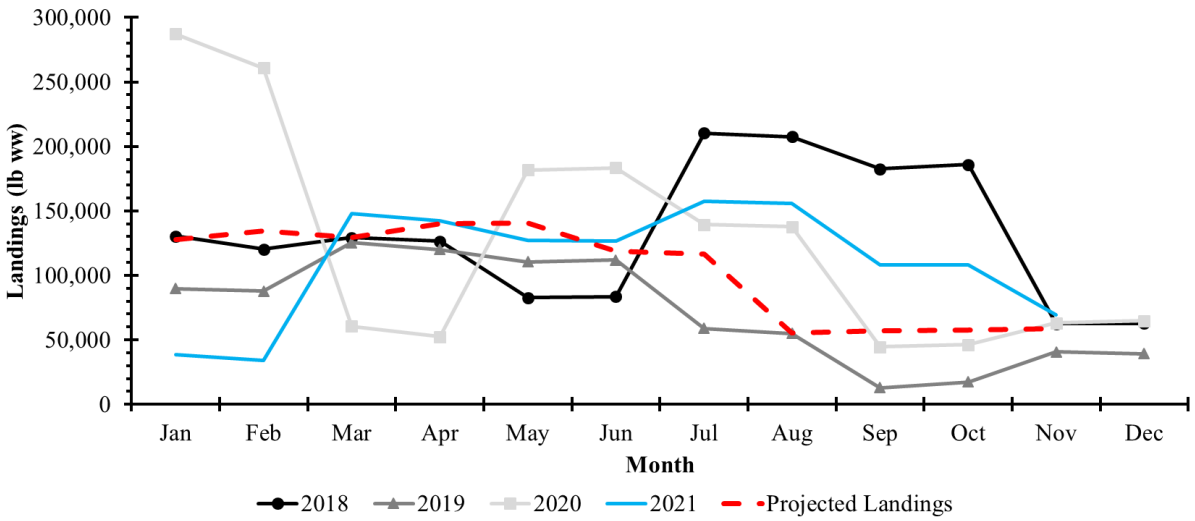

Figure A.1.4. South Atlantic yellowtail snapper monthly recreational landings (lb ww) for 2018-2021, and projected future landings. Source: SEFSC Recreational ACL Dataset (October 25, 2022).

Table A.1.6. Predicted dates when the ACL will be met for Gulf of Mexico yellowtail snapper for each proposed annual catch limits (**Action 2**) and each proposed jurisdictional allocation (**Action 1**). Gulf of Mexico yellowtail snapper are managed as stock annual catch limits. All projected closure dates are predicted only if future landings are higher than expected (at the upper 95% confidence interval), otherwise no closure is expected for all alternatives and proposed annual catch limits.

Action 1, Alternative 1 (No Action): GOM 25% / SA 75% Current Gulf of Mexico ACL (lb ww)					
Action 2 Alternative	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Current GOM ABC=ACL	ACL not met ACL=901,125				
Action 1, Alternative 2: GOM 25% / SA 75%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	ACL not met ACL=864,858	ACL not met ACL=834,153	ACL not met ACL=815,463	ACL not met ACL=803,225	ACL not met ACL=794,770
Alternative 2 (ACL=92% Updated ABC)	ACL not met ACL=894,010	ACL not met ACL=862,270	ACL not met ACL=842,950	ACL not met ACL=830,300	ACL not met ACL=821,560
Alternative 3 (ACL= Updated ABC)	ACL not met ACL=971,750	ACL not met ACL=937,250	ACL not met ACL=916,250	ACL not met ACL=902,500	ACL not met ACL=893,000
Action 1, Alternative 3: GOM 20% / SA 80%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	ACL not met ACL=691,886	ACL not met ACL=667,322	ACL not met ACL=652,370	ACL not met ACL=642,580	ACL not met ACL=635,816
Alternative 2 (ACL=92% Updated ABC)	ACL not met ACL=715,208	ACL not met ACL=689,816	ACL not met ACL=674,360	ACL not met ACL=664,240	ACL not met ACL=657,248
Alternative 3 (ACL= Updated ABC)	ACL not met ACL=777,400	ACL not met ACL=749,800	ACL not met ACL=733,000	ACL not met ACL=722,00	ACL not met ACL=714,400
Action 1, Alternative 4: GOM 16% / SA 84%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	ACL not met ACL=553,509	ACL not met ACL=533,858	ACL not met ACL=521,896	ACL not met ACL=514,064	ACL not met ACL=508,653
Alternative 2 (ACL=92% Updated ABC)	ACL not met ACL=572,166	ACL not met ACL=551,853	ACL not met ACL=539,488	ACL not met ACL=531,392	ACL not met ACL=525,798
Alternative 3 (ACL= Updated ABC)	ACL not met ACL=621,920	ACL not met ACL=599,840	ACL not met ACL=586,400	ACL not met ACL=577,600	ACL not met ACL=571,520
Action 1, Alternative 5: GOM 16% / SA 84%					
Action 2	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 1 (ACL=89% Updated ABC)	ACL not met ACL=553,509	ACL not met ACL=533,858	ACL not met ACL=521,896	ACL not met ACL=514,064	ACL not met ACL=508,653
Alternative 2 (ACL=92% Updated ABC)	ACL not met ACL=572,166	ACL not met ACL=551,853	ACL not met ACL=539,488	ACL not met ACL=531,392	ACL not met ACL=525,798

Action 1, Alternative 1 (No Action): GOM 25% / SA 75% Current Gulf of Mexico ACL (lb ww)					
Action 2 Alternative	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028+
Alternative 3 (ACL= Updated ABC)	ACL not met ACL=621,920	ACL not met ACL=599,840	ACL not met ACL=586,400	ACL not met ACL=577,600	ACL not met ACL=571,520

Table A.3.7. Predicted closure dates for South Atlantic yellowtail snapper for each proposed annual catch limits (**Action 2**) based on current jurisdictional allocations (**Action 1, Alternative 2: GOM 25% and SA 75%**) and current sector allocations (**Action 3, Alternative 1: 52.56% commercial and 47.44% recreational**).

Action 2, Alternative 1 (No Action): Current South Atlantic ACL (lb ww)			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	3,037,500	No Closure ACL=1,596,510	No Closure ACL=1,440,990
Action 2, Alternative 2: ACL = Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,915,250	No Closure ACL=1,532,255	No Closure ACL=1,382,995
2024/2025	2,811,750	**Jul 27** ACL=1,477,856	No Closure ACL=1,333,894
2025/2026	2,748,750	**Jul 19** ACL=1,444,743	No Closure ACL=1,304,007
2026/2027	2,707,500	**Jul 14** ACL=1,423,062	No Closure ACL=1,284,438
2027/2028+	2,679,000	**Jul 11** ACL=1,408,082	No Closure ACL=1,270,918
Action 2, Alternative 3: ACL = 90% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,623,725	**Jul 4** ACL=1,379,030	No Closure ACL=1,244,695
2024/2025	2,530,575	**Jun 24** ACL=1,330,070	**Jul 28** ACL=1,200,505
2025/2026	2,473,875	**Jun 19** ACL=1,300,269	**Jul 22** ACL=1,173,606
2026/2027	2,436,750	**Jun 15** ACL=1,280,756	**Jul 18** ACL=1,155,994
2027/2028+	2,411,100	**Jun 13** ACL=1,267,274	**Jul 16** ACL=1,143,826
Action 2, Alternative 4: ACL = 95% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,769,488	**Jul 22** ACL=1,455,643	No Closure ACL=1,313,845
2024/2025	2,671,163	**Jul 10** ACL=1,403,963	No Closure ACL=1,267,200
2025/2026	2,611,313	**Jul 3** ACL=1,372,506	No Closure ACL=1,238,807
2026/2027	2,572,125	**Jun 28** ACL=1,351,909	No Closure ACL=1,220,216
2027/2028+	2,545,050	**Jun 26** ACL=1,337,678	**Jul 30** ACL=1,207,372
Action 2, Alternative 5: ACL/OY = Lowest ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,679,000	**Jul 11** ACL=1,408,082	No Closure ACL=1,270,918
Action 2, Alternative 6: F30%SPR at equilibrium			

Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,555,728	**Jun 27** ACL=1,343,291	**Jul 31** ACL=1,212,437

Table A.3.8. Predicted closure dates for South Atlantic yellowtail snapper for each proposed annual catch limits (**Action 2)** based on proposed jurisdictional allocation (**Action 1, Alternative 3: GOM 20% and SA 80%**) and current sector allocations (**Action 3, Alternative 1: 52.56% commercial and 47.44% recreational**).

Action 2, Alternative 1 (No Action): Current South Atlantic ACL (lb ww)			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	3,037,500	No Closure ACL=1,596,510	No Closure ACL=1,440,990
Action 2, Alternative 2: ACL = Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	3,109,600	No Closure ACL=1,634,406	No Closure ACL=1,475,194
2024/2025	2,999,200	No Closure ACL=1,576,380	No Closure ACL=1,422,820
2025/2026	2,932,000	No Closure ACL=1,541,059	No Closure ACL=1,390,941
2026/2027	2,888,000	No Closure ACL=1,517,933	No Closure ACL=1,370,067
2027/2028+	2,857,600	No Closure ACL=1,501,955	No Closure ACL=1,355,645
Action 2, Alternative 3: ACL = 90% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,798,640	**Jul 25** ACL=1,470,965	No Closure ACL=1,327,675
2024/2025	2,699,280	**Jul 13** ACL=1,418,742	No Closure ACL=1,280,538
2025/2026	2,638,800	**Jul 6** ACL=1,386,953	No Closure ACL=1,251,847
2026/2027	2,599,200	**Jul 1** ACL=1,366,140	No Closure ACL=1,233,060
2027/2028+	2,571,840	**Jun 28** ACL=1,351,759	No Closure ACL=1,220,081
Action 2, Alternative 4: ACL = 95% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,954,120	No Closure ACL=1,552,685	No Closure ACL=1,401,435
2024/2025	2,849,240	No Closure ACL=1,497,561	No Closure ACL=1,351,679
2025/2026	2,785,400	**Jul 24** ACL=1,464,006	No Closure ACL=1,321,394
2026/2027	2,743,600	**Jul 19** ACL=1,442,036	No Closure ACL=1,301,564
2027/2028+	2,714,720	**Jul 15** ACL=1,426,857	No Closure ACL=1,287,863
Action 2, Alternative 5: ACL/OY = Lowest ABC			

Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,857,600	No Closure ACL=1,501,955	No Closure ACL=1,355,645
Action 2, Alternative 6: F30%SPR at equilibrium			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,726,110	**Jul 21** ACL=1,432,843	No Closure ACL=1,293,267

Table A.3.9. Predicted closure dates for South Atlantic yellowtail snapper for each proposed annual catch limits (**Action 2**) based on proposed jurisdictional allocation (**Action 1, Alternative 4 and Alternative 5: GOM 16% and SA 84%**) and current sector allocations (**Action 3, Alternative 1: 52.56% commercial and 47.44% recreational**).

Action 2, Alternative 1 (No Action): Current South Atlantic ACL (lb ww)			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	3,037,500	No Closure ACL=1,596,510	No Closure ACL=1,440,990
Action 2, Alternative 2: ACL = Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	3,265,080	No Closure ACL=1,716,126	No Closure ACL=1,548,954
2024/2025	3,149,160	No Closure ACL=1,655,198	No Closure ACL=1,493,962
2025/2026	3,078,600	No Closure ACL=1,618,112	No Closure ACL=1,460,488
2026/2027	3,032,400	No Closure ACL=1,593,829	No Closure ACL=1,438,571
2027/2028+	3,000,480	No Closure ACL=1,577,052	No Closure ACL=1,423,428
Action 2, Alternative 3: ACL = 90% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,938,572	No Closure ACL=1,544,513	No Closure ACL=1,394,059
2024/2025	2,834,244	**Jul 30** ACL=1,489,679	No Closure ACL=1,344,565
2025/2026	2,770,740	**Jul 22** ACL=1,456,301	No Closure ACL=1,314,439
2026/2027	2,729,160	**Jul 17** ACL=1,434,446	No Closure ACL=1,294,714
2027/2028+	2,700,432	**Jul 13** ACL=1,419,347	No Closure ACL=1,281,085
Action 2, Alternative 4: ACL = 95% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	3,101,826	No Closure ACL=1,630,320	No Closure ACL=1,471,506
2024/2025	2,991,702	No Closure ACL=1,572,439	No Closure ACL=1,419,263
2025/2026	2,924,670	No Closure ACL=1,537,207	No Closure ACL=1,387,463
2026/2027	2,880,780	No Closure	No Closure

		ACL=1,514,138	ACL=1,366,642
2027/2028+	2,850,456	No Closure ACL=1,498,200	No Closure ACL=1,352,256
Action 2, Alternative 5: ACL/OY = Lowest ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,907,251	No Closure ACL=1,528,051	No Closure ACL=1,379,200
Action 2, Alternative 6: F30%SPR at equilibrium			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,862,415	No Closure ACL=1,504,485	No Closure ACL=1,357,930

Table A.3.10. Predicted closure dates for South Atlantic yellowtail snapper for each proposed annual catch limits (**Action 2**) based on current jurisdictional allocations (**Action 1, Alternative 2: GOM 25% and SA 75%**) and proposed sector allocations (**Action 3, Alternative 2: 40.73% commercial and 59.27% recreational**).

Action 2, Alternative 1 (No Action): Current South Atlantic ACL (lb ww)			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	3,037,500	No Closure ACL=1,596,510	No Closure ACL=1,440,990
Action 2, Alternative 2: ACL = Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,915,250	**May 29** ACL=1,187,381	No Closure ACL=1,727,869
2024/2025	2,811,750	**May 19** ACL=1,145,226	No Closure ACL=1,666,524
2025/2026	2,748,750	**May 14** ACL=1,119,566	No Closure ACL=1,629,184
2026/2027	2,707,500	**May 10** ACL=1,102,765	No Closure ACL=1,604,735
2027/2028+	2,679,000	**May 8** ACL=1,091,157	No Closure ACL=1,587,843
Action 2, Alternative 3: ACL = 90% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,623,725	**May 3** ACL=1,068,643	No Closure ACL= 1,555,082
2024/2025	2,530,575	**Apr 26** ACL=1,030,703	No Closure ACL= 1,499,872
2025/2026	2,473,875	**Apr 23** ACL=1,007,609	No Closure ACL= 1,466,266
2026/2027	2,436,750	**Apr 20** ACL=992,488	No Closure ACL= 1,444,262
2027/2028+	2,411,100	**Apr 19** ACL=982,041	No Closure ACL= 1,429,059
Action 2, Alternative 4: ACL = 95% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,769,488	**May 16** ACL=1,128,012	No Closure ACL= 1,641,476
2024/2025	2,671,163	**May 7**	No Closure

		ACL=1,087,965	ACL= 1,583,198
2025/2026	2,611,313	**May 2** ACL=1,063,588	No Closure ACL= 1,547,725
2026/2027	2,572,125	**Apr 29** ACL=1,047,627	No Closure ACL= 1,524,498
2027/2028+	2,545,050	**Apr 27** ACL=1,036,599	No Closure ACL= 1,508,451
Action 2, Alternative 5: ACL/OY = Lowest ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,679,000	**May 8** ACL=1,091,157	No Closure ACL= 1,587,843
Action 2, Alternative 6: F30%SPR at equilibrium			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,555,728	**Apr 28** ACL=1,040,948	No Closure ACL= 1,514,780

Table A.3.11. Predicted closure dates for South Atlantic yellowtail snapper for each proposed annual catch limits (**Action 2**) based on proposed jurisdictional allocation (**Action 1, Alternative 3: GOM 20% and SA 80%**) and proposed sector allocations (**Action 3, Alternative 2: 40.73% commercial and 59.27% recreational**).

Action 2, Alternative 1 (No Action): Current South Atlantic ACL (lb ww)			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	3,037,500	No Closure ACL=1,596,510	No Closure ACL=1,440,990
Action 2, Alternative 2: ACL = Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	3,109,600	**June 13** ACL=1,266,540	No Closure ACL=1,843,060
2024/2025	2,999,200	**June 4** ACL=1,221,574	No Closure ACL=1,777,626
2025/2026	2,932,000	**May 30** ACL=1,194,204	No Closure ACL=1,737,796
2026/2027	2,888,000	**May 26** ACL=1,176,282	No Closure ACL=1,711,718
2027/2028+	2,857,600	**May 24** ACL=1,163,900	No Closure ACL=1,693,700
Action 2, Alternative 3: ACL = 90% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,798,640	**May 18** ACL=1,139,886	No Closure ACL=1,658,754
2024/2025	2,699,280	**May 10** ACL=1,099,417	No Closure ACL=1,599,863
2025/2026	2,638,800	**May 4** ACL=1,074,783	No Closure ACL=1,564,017
2026/2027	2,599,200	**May 1** ACL=1,058,654	No Closure ACL=1,540,546
2027/2028+	2,571,840	**April 29** ACL=1,047,510	No Closure ACL=1,524,330
Action 2, Alternative 4: ACL = 95% Updated ABC			

Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,954,120	**Jun 1** ACL=1,203,213	No Closure ACL=1,750,907
2024/2025	2,849,240	**May 23** ACL=1,160,495	No Closure ACL=1,688,745
2025/2026	2,785,400	**May 17** ACL=1,134,493	No Closure ACL=1,650,907
2026/2027	2,743,600	**May 13** ACL=1,117,468	No Closure ACL=1,626,132
2027/2028+	2,714,720	**May 11** ACL=1,105,705	No Closure ACL=1,609,015
Action 2, Alternative 5: ACL/OY = Lowest ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,857,600	**May 24** ACL=1,163,900	No Closure ACL=1,693,700
Action 2, Alternative 6: F30%SPR at equilibrium			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,726,110	**May 12** ACL=1,110,345	No Closure ACL=1,615,765

Table A.3.12. Predicted closure dates for South Atlantic yellowtail snapper for each proposed annual catch limits (**Action 2**) based on proposed jurisdictional allocation (**Action 1, Alternative 4 and Alternative 5: GOM 16% and SA 84%**) and proposed sector allocations (**Action 3, Alternative 2: 40.73% commercial and 59.27% recreational**).

Action 2, Alternative 1 (No Action): Current South Atlantic ACL (lb ww)			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	3,037,500	No Closure ACL=1,596,510	No Closure ACL=1,440,990
Action 2, Alternative 2: ACL = Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	3,265,080	**Jun 24** ACL=1,329,867	No Closure ACL=1,935,213
2024/2025	3,149,160	**Jun 16** ACL=1,282,653	No Closure ACL=1,866,507
2025/2026	3,078,600	**Jun 10** ACL=1,253,914	No Closure ACL=1,824,686
2026/2027	3,032,400	**Jun 7** ACL=1,235,097	No Closure ACL=1,797,303
2027/2028+	3,000,480	**Jun 4** ACL=1,222,096	No Closure ACL=1,778,384
Action 2, Alternative 3: ACL = 90% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	2,938,572	**May 31** ACL= 1,196,880	No Closure ACL= 1,741,692
2024/2025	2,834,244	**May 21** ACL= 1,154,388	No Closure ACL= 1,679,856
2025/2026	2,770,740	**May 16** ACL= 1,128,522	No Closure ACL= 1,642,218
2026/2027	2,729,160	**May 12**	No Closure

		ACL= 1,111,587	ACL= 1,617,573
2027/2028+	2,700,432	**May 10** ACL= 1,099,886	No Closure ACL= 1,600,546
Action 2, Alternative 4: ACL = 95% Updated ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024	3,101,826	**Jun 12** ACL= 1,263,374	No Closure ACL= 1,838,452
2024/2025	2,991,702	**Jun 4** ACL= 1,218,520	No Closure ACL= 1,773,182
2025/2026	2,924,670	**May 29** ACL= 1,191,218	No Closure ACL= 1,733,452
2026/2027	2,880,780	**May 26** ACL= 1,173,342	No Closure ACL= 1,707,438
2027/2028+	2,850,456	**May 23** ACL= 1,160,991	No Closure ACL= 1,689,465
Action 2, Alternative 5: ACL/OY = Lowest ABC			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,907,251	**May 28** ACL= 1,184,123	No Closure ACL= 1,723,128
Action 2, Alternative 6: F30%SPR at equilibrium			
Year	SA Total ACL (lb ww)	Commercial	Recreational
2023/2024+	2,862,415	**May 24** ACL= 1,165,862	No Closure ACL= 1,696,553

The reliability of these results is dependent upon the accuracy of the underlying data and input assumptions. We have attempted to create a realistic baseline as a foundation for comparisons, under the assumption that projected future landings will accurately reflect actual future landings. These closure dates are our best estimate, but uncertainty still exists as economic conditions, weather events, changes in catch-per-unit effort, fisher response to management regulations, and a variety of other factors may cause departures from any assumption.

Appendix B. Gulf of Mexico Annual Catch Limit/Annual Catch Target Control Rule

Figure B.1 shows the method of implementing the Gulf of Mexico's ACL/ACT Control Rule, which was developed through the Generic Annual Catch Limits/Accountability Measures Amendment (GMFMC 2011a). Figure B.2 shows the application of the control rule for the Gulf of Mexico's portion of the yellowtail snapper for the fishing years 2017/2018 through 2020/2021. Table B.1 shows the recreational reference years used in Figure B.1.

ACL/ACT Buffer Spreadsheet v. 4.1			Gulf Yellowtail Snapper	Sector: both	
sum of points	3			Years: 2017/18-2020/21	
max points	7.0		Buffer between ACL and ACT (or ABC and ACL)	Unweighted	8
Min. Buffer	**0**	**min. buffer**	User adjustable	Weighted	**8**
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	0	Catch limit has been exceeded 0 or 1 times in last 4 years	x	0
	Constrain Catch	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		
		0	Method of absolute counting		2
	Precision of	1	MRIP proportional standard error (PSE) <= 20		
	Landings Data	2	MRIP proportional standard error (PSE) > 20	x	
			Apply this component to commercial fisheries or any fishery under an IFQ program		
	Precision of	0	Landings from IFQ program		1
	Landings Data	1	Landings based on dealer reporting	x	
		2	Landings based on other		
	Timeliness	0	In-season accountability measures used or fishery is under an IFQ	x	0
		1	In-season accountability measures not used		
	Weighting factor				
		Element weight	Element	Selection	Weighting
	Overfished status	0	1. Stock biomass is at or above B_{OY}.	x	0
		0.1	2. Stock biomass is below B_{OY} but at or above B_{MSY}.		
		0.2	3. Stock biomass is below B_{MSY} but at or above MSST.		
		0.3	4. Stock is overfished, below MSST.		
		0.3	5. Status criterion is unknown.		

Figure B.1. Application of the Gulf of Mexico Fishery Management Council's (Gulf Council) Annual Catch Limit/Annual Catch Target (ACL/ACT) Control Rule (GMFMC 2012) for southeastern U.S. yellowtail snapper landed in the Gulf Council's jurisdiction from the 2017/2018 – 2020/2021 fishing years

Table B.1. Recreational reference years used for the Gulf of Mexico ACT/ACL Control Rule.

Fishing Year	Comm	Rec	Total
2017/18	589,868	206,785	796,653
2018/19	527,112	104,527	631,638
2019/20	287,940	12,348	300,289
2020/21	212,630	79,765	292,395

Source: SERO ACL Monitoring Database 8/9/2022

Appendix C. South Atlantic Allocations Review Trigger Policy

In a letter to the NOAA Assistant Administrator dated July 16, 2019, the South Atlantic Fishery Management Council (Council) responded to NOAA's Fisheries Allocation Review Policy (NMFS Policy Directive 01-119) and the associated Procedural Directive on allocation review triggers (NMFS Procedural Directive 01-119-01). The Policy established the responsibility for the Regional Fishery Management Councils to set allocation review triggers and consider three types of trigger criteria: indicator, public interest, and time. Councils were directed to establish triggers for consideration of allocation reviews by August 2019. The Council's response follows:

The Council has reviewed species allocations on numerous occasions in the past. However, these reviews may not have been formally documented in a fishery management plan amendment if a decision was made not to modify sector allocations. This new policy will ensure all species currently having sector allocations will be reviewed on a regular basis and will formalize the allocation review process so the Council's consideration of allocations will be documented.

The Council reviewed their current sector allocations and began discussions on the Policy and Procedural Directives and criteria for considering fishery allocation reviews at their December 2018 meeting. At their June 2019 meeting, the Council adopted two types of criteria for triggering consideration of an allocation review: indicator and time.

The Council chose several indicator-based criteria as triggers:

- Either sector exceeds its ACL or closes prior to the end of its fishing year three out of five consecutive years,
- Either sector under harvests its ACL or OY by at least 50% three out of five consecutive years,
- After a stock assessment is approved by the SSC and presented to the Council, and
- After the Council reviews a species Fishery Performance Report.

The Council chose a time-based trigger to ensure allocation reviews are regularly considered. Each species will have its sector allocations reviewed not less than every seven years. Table I.1.1 shows by species when the next sector allocation review will be considered by the Council should an indicator-based criterion not be triggered. Regardless of whether consideration of an allocation review is triggered by an indicator or time criterion once it occurs the next one will automatically be scheduled for consideration seven years later. For species which are jointly managed with the Gulf of Mexico Fishery Management Council, the timing for consideration of allocation reviews was coordinated with that council.

A public interest-based criterion was not selected because the Council currently receives substantial and regular comment from the public through scoping and public hearing sessions, general public comment periods held at every Council meeting, the public comment form on the Council's website, and through other more informal channels. Thus, the Council decided the existing Council process provides sufficient opportunity for public input on allocation

Table C.1. Next year for allocation reviews (as of 2019) for Council managed species.

Assessed Species	Review Year	Unassessed Species	Review Year	Grunts Complex	Review Year
Black grouper	2026	Atlantic spadefish	2022	White grunt	2024
Black sea bass	2023	Bar jack	2022	Sailor's choice grunt	2024
Blueline Tilefish	2020	Scamp	2022	Tomtate	2024
Gag	2022	Speckled hind	*	Margate	2024
Golden tilefish	2021	Warsaw grouper	*	**Shallow-Water Groupers Complex**	**Review Year**
Gray triggerfish	2023	**Deepwater Species**	**Review Year**	Red hind	2026
Greater amberjack	2021	Yellowedge grouper	2024	Rock hind	2026
GA-NC Hogfish	2023	Silk snapper	2024	Yellowmouth grouper	2026
FLK/EFL Hogfish	2023	Misty grouper	2024	Yellowfin grouper	2026
Mutton napper	2023	Sand tilefish	2024	Coney	2026
Red grouper	2023	Queen Snapper	2024	Graysby	2026
Red porgy	2021	Blackfin snapper	2024	**Porgy Complex**	**Review Year**
Red snapper	2024	**Jacks Complex**	**Review Year**	Jolthead porgy	2027
Snowy grouper	2021	Almaco jack	2025	Knobbed porgy	2027
Vermilion snapper	2021	Banded rudderfish	2025	Saucereye porgy	2027
Wreckfish	2019	Lesser amberjack	2025	Scup	2027
Yellowtail snapper	2021	**Snappers Complex**	**Review Year**	Whitebone porgy	2027
Atlantic Group King mackerel	2021	Gray snapper	2025	**Dolphin/Wahoo**	**Review Year**
Atlantic Group Spanish mackerel	2022	Lane snapper	2025	Dolphin	2019
Gulf Group Cobia FL East Coast zone	2021	Cubera snapper	2025	Wahoo	2019

*ACL=0 for this species. If ACL>0 in the future, allocations will be reviewed when the ACL is increased

Appendix D. Gulf Council's Allocation Review Guidelines

I. Background

In conjunction with the Council Coordination Committee (CCC), the National Marine Fisheries Services (NMFS) developed a Fisheries Allocation Review Policy (NMFS Policy Directive 01-119)[27] and an associated procedural directive addressing criteria for initiating allocation reviews (NMFS Procedural Directive 01-119-01)[28]. In a subsequent policy directive, NMFS recommended practices and factors to consider when reviewing and making allocation decisions (NMFS Procedural Directive 01-119-02)[29]. These allocation review policies and procedural directives required regional fisheries management develop allocation review triggers that would be considered to initiate allocation reviews. The Gulf Council's selected review triggers are included in its allocation review policy (Appendix A).

In NMFS Allocation Review Policy, a fishery allocation (or "allocation" or "assignment" of fishing privileges) is defined by NMFS as a "direct and deliberate distribution of the opportunity to participate in a fishery among identifiable, discrete user groups or individuals." 50 CFR 600.10. The Allocation Review Policy makes a clear distinction between an allocation review and an evaluation of fisheries allocation options for an FMP amendment. A fisheries allocation review is the evaluation that leads to the decision of whether or not the development and evaluation of allocation options is warranted, but is not, in and of itself, an implicit trigger to consider alternative allocations. An evaluation of fisheries allocation options for an FMP amendment is the full analysis and evaluation of allocation options that is initiated if the allocation review determines a reallocation may be warranted. The goal will be an FMP amendment (or framework adjustment if applicable) that either updates the allocation or retains the status quo.

Allocation review guidelines in this document detail the process that the Gulf Council would follow to conduct its allocation reviews mandated by NMFS Allocation Review Policy. In some instances, e.g., following a stock assessment, the Council may elect to skip a formal allocation review and directly proceed with the development of an FMP amendment. In these cases, these guidelines would not apply.

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[27] NMFS Policy Directive 01-119
[28] NMFS Procedural Directive 01-119-01
[29] https://media.fisheries.noaa.gov/dam-migration/01-119-02.pdf

II. Terms of Reference

Prior to each allocation review, the Council will formally adopt terms of reference (TORs) for the review. TORs will either be developed by the SEFSC or by Council staff in conjunction with the SEFSC and SERO. The SSC will review draft TORs and provide recommendations to the Council. Draft TORs have to be reviewed and possibly amended by the Council prior to approval. A Council motion would be required to formally approve the TORs.

III. Membership of the Review Panel

Prior to each allocation review, the Council will appoint an allocation review panel or specify the method by which the panel will be appointed. During the selection of a review panel, the Council will pay special attention to potential conflicts of interest by avoiding the appointment of individuals with affiliation to a particular sector. For example, individuals who belong to (or represent) a particular sector should not be appointed to serve on allocation review panels. To determine the composition of the review panel the Council could:

- Allow the Council staff, SERO and the SEFSC to select members of an Interdisciplinary Planning Team (IPT) to conduct the review. The IPT typically includes SERO, SEFSC and, Council staff. Members would be selected by the Council Office, SERO, and the SEFSC following the usual IPT selection process.

- Select SSC members (with NMFS and Council staff support).

- Appoint independent experts.

If deemed necessary, the Council may select members of the review panel by relying on a combination between the alternative approaches listed. The Council will determine the size of the review panel based on the specifics of the species or species group allocation to be reviewed.

IV. Review Notice

A *Federal Register* notice (FRN) must be published prior to the initiation of each allocation review. At a minimum, the FRN notice will indicate the species and allocation(s) to be reviewed, list the membership of the review panel, and provide the starting date of the review and anticipated locations and dates of the review panel meetings as applicable. However, allocation reviews that would be entirely conducted by an IPT are exempt from meeting notice requirements.

V. Allocation Review Criteria

Allocation reviews will typically be conducted based on information and data that are routinely available. Reviews are expected to utilize existing ecological, biological, and socio-economic studies relevant to the species (or group of species) and user groups under consideration. Prior to each allocation review, the Council will determine the suite of ecological, biological, economic,

and social factors consistent with the NMFS Allocation Review Policy to be included in the review. It is expected that a subset of the list provided in this section would be used for a particular allocation review, depending on their relevance to the species under review, sectors, user groups, or states concerned, and data availability.

FMP Objectives

Re-evaluate goals and objectives to determine whether they are current, clear, and measurable. As directed by NMFS Allocation Review Policy, allocation reviews must include an evaluation of the relevant FMP objectives. Specifically, the review should assess whether the allocation is consistent with the FMP objectives.

Regulatory Structure

- Mainly discuss relevant current management measures
- However, if warranted consider changes over time (bag limit changes)
- Several elements could be gathered from history of management sections included in Council's regulatory actions

Status of the Stock(s)

- Discuss findings of the latest stock assessment

Acceptable Biological Catch (ABC), Quotas, Annual Catch Limits and Targets (ACLs and ACTs)

- List allowable biological catch (ABC), annual catch limits and targets (ACLs and ACTs); Discuss buffers between the catch limits and targets.
- If warranted, include changes to these variables over time and to the metrics used (e.g., MRIP-CHTS to FES)

Accountability Measures

- Season closures and quota paybacks
- Include comparison across user groups

Landings history

- Provide detailed landings history by sector, within sector (gear, components of a particular sector), by region or by state. Discuss relevant changes in units of measurement used (e.g., conversion of recreational landings from MRIP-CHTS to MRIP-FES)
- Provide aggregate landings including other species in the FMP. Discuss the relative dependence of a given user group on the species under review (for example, include red snapper landings and total reef fish landings)

ACL/Quota Utilization Rates

- Trends for each user group
- Include comparison across user groups

Participation and Effort Measures

- Provide numbers of participants, as measured by permits or licenses, vessels, and anglers where available. Include total numbers as well as active (non-latent) participation based on the allocation(s) being reviewed
- Provide effort measures including number of trips (e.g., catch and target trips for private recreational anglers and for-hire operators)
- Include evaluation of participation and effort trends

Discards and Discard Mortality Rates

- Include comparison across user groups

Protected Species Bycatch Numbers and Rates

- Include comparison across user groups

Habitat Impacts

- Include comparison across user groups
- Discuss impacts of relevant environmental events. For example, discuss spatial considerations in allocation between Gulf states such as red tide, oil spills, etc.

Economic Factors

An allocation review should provide, to the extent practicable, metrics to evaluate economic factors relevant to the species and allocation under review.

- Consumer surplus commercial
- Consumer surplus rec anglers
- Producer surplus for-hire vessels, revenues, variable and fixed costs
- Producer surplus commercial vessels, revenues, variable and fixed costs
- Share and allocation transfer price (catch share managed species only)
- Economic impacts by sector as measured by employment, output, income and value-added.

Social Factors

Allocation reviews should include, to the extent practicable, metrics to evaluate social considerations of allocation. However, available human dimensions data are limited and data are typically not available to make comparisons across sectors or for recreational fishing among states.

- Demographics (e.g., race/ethnicity, age) – These data are not currently available, but have recently been collected among federal permitholders for a single year, only. It remains unknown whether these data would become available in the future.

- Community Regional and Local Quotients – These analyses are available for the commercial sector, only. Data are not currently available to associate recreational landings with a particular community.
- Community engagement and reliance indicators – Measurements of fishing activity specific to a particular stock (commercial sector) or for fishing in general (recreational fishing).
- Community social vulnerability indicators – Measure of social vulnerability for the community in general and not specific to the fishing aspects of a community, and not distinguished by sector.

VI. Allocation Review Stages

Allocation reviews will include a minimum of three steps:

- **Stage One** will be the data review phase. During this phase, potential data sources are identified and available data are gathered. Data collected should be consistent with the evaluations/requirements detailed in the TORs.

- **Stage Two** will include the core of the allocation review. During this phase, data collected are interpreted, trends are identified and discussed. The evaluation of trends performed should be consistent with the requirements detailed in the TORs.

- **Stage Three** will focus on producing the allocation review report. A preliminary report is drafted during this phase. The draft report will include the deliverables specified in the TORs. The report should include: a section discussing historical allocations and how they were established; a discussion of the types of data collected and sources, data trends, and data gaps. If requested by the Council, the report would include potential re-allocation scenarios. The draft report should also discuss research that could improve future allocation reviews and present recommendations provided by the review panel. In addition, all datasets used during the review must be attached to the report.

VII. Advisory Panels and SSC Recommendations

A draft allocation review prepared by the review panel must be discussed by the Standing and Socioeconomic SSCs and relevant advisory panel(s) (APs) to garner their recommendations. The draft report, along with recommendations provided by the SSCs and APs will be presented to the Council. Stakeholder engagement throughout the allocation review process is a key component of reviews. In addition to the formal presentation of the draft allocation review report to the relevant APs, stakeholders will have several opportunities to provide input and discuss the different phases of an allocation review by either attending review proceedings or by providing public comments. Electronic comments pertaining to an ongoing allocation review can be submitted to the Council's website at any time. Furthermore, stakeholders may provide comments during public testimony sessions scheduled during each Council meeting.

VIII. Council Decisions

Upon completion, designated members of the allocation review panel will present the draft report to the Council. Council staff will present recommendations provided by the SSCs and relevant APs. Council staff will also provide a summary of public comments received. The Council may ask the allocation review panel to amend the report and provide additional information as needed. Following the submission of a final allocation review report, including revisions suggested by the Council, the Council will formally approve the report and make recommendations to either direct staff to initiate an amendment to the relevant FMP to consider alternative reallocations or elect to conclude the review without considering revisions to the existing allocation.

IX. Resetting the Allocation Review Clock

Following the completion of an allocation review, the Council may maintain the existing allocation until its future review or elect to initiate an allocation FMP amendment. If the Council determines that an amendment to the relevant FMP to consider alternative reallocation scenarios is not warranted, then the clock resets immediately and the next allocation review will be scheduled based on the time interval set by the corresponding time-based trigger. If the Council determines that a reallocation amendment to the relevant FMP is warranted, then the clock resets on the effective date of the final rule that implements the allocation FMP amendment.

Gulf Council's Allocation Review Policy

The Fisheries Allocation Review Policy (NMFS Policy Directive 01-119) and the associated Procedural Directive on allocation review triggers (NMFS Procedural Directive 01-119-01) present three types of triggers (indicator-based, public interest-based, and time-based criteria) and request that Regional Fishery Management Councils establish review triggers.

The Gulf Council initially reviewed a discussion paper introducing the allocation review policy and procedural directive during its August 2018 meeting. Follow-up discussions during the October 2018 meeting included an evaluation of the types of triggers considered in the policy and procedural directives and a preliminary identification of Gulf allocations that would be subject to the policy. Additional discussions, including the formal selection of triggers for relevant Gulf of Mexico allocations and the adoption of the policy on allocation reviews detailed below were held in January 2019 and finalized during the April 2019 Council meeting. The Gulf Council adopted the following policy on allocation reviews:

The Council selects time-based criteria as primary allocation review triggers bolstered by general monitoring of indicators for reallocation justification through the Council's general deliberative process including public input channels as a secondary trigger. Consistent with the adaptive management process suggested in the Allocation Review Policy (referenced above), the incorporation of the Council's public input process as secondary public interest-based review triggers will include the consideration of relevant social, economic, and ecological indicators as an intermediate step before determining whether an allocation review is triggered. For example, economic tools that might contribute to the development of indicator-based review triggers could include cost-benefit analysis, economic impact analysis, economic efficiency, and others. Social indicators could include a range of social metrics such as community resilience, vulnerability and well-being. Examples of ecological criteria include changes in fishery status resulting from a stock assessment, undocumented sources of mortality, increases in discards, or changes in species distribution and food web dynamics. Allocations included are:

- red snapper allocations within the recreational sector, i.e., between the federal for-hire and private angling components (with a 4-year timeframe);
- red snapper allocations between the five Gulf states (with a 5-year timeframe);
- gray triggerfish and greater amberjack allocations between the commercial and recreational sectors (with a 6-year timeframe);
- Gulf of Mexico group king mackerel allocations between the recreational and commercial sectors, zones, and gear types (with a 6-year timeframe);
- recreational and commercial allocations of red snapper, gag, red grouper, shallow water grouper IFQ aggregate, deep water grouper IFQ aggregate, and tilefish IFQ aggregate (with a 7-year timeframe);
- black grouper, mutton snapper, yellowtail snapper allocations between the Gulf and South Atlantic Councils (with a 7-year timeframe).

The table below lists the time intervals to be used with the time-based allocation review triggers and provides anticipated start dates for the initial allocation reviews. In addition to the allocation reviews scheduled based on the review triggers selected above, the Council may initiate

supplementary allocation reviews at any time. For example, the Council could initiate an allocation review should relevant new information, e.g., data recalibration, be made available.

Timeframes for the time-based allocation review triggers and expected starts of initial reviews

Allocations	**Time Intervals**	**Expected start of the first review**
Recreational red snapper ACL allocation between the private angling and federal for-hire components	4 years	April 2023
Red snapper allocations between the Gulf states	5 years	April 2024
Gray triggerfish and greater amberjack allocations between the recreational and commercial sectors	6 years	April 2025
Gulf of Mexico group king mackerel allocations between the recreational and commercial sectors, zones, and gear types	6 years	April 2025
Recreational and commercial allocations of red snapper, gag, red grouper, shallow water grouper IFQ aggregate, deep water grouper IFQ aggregate, and tilefish IFQ aggregate	7 years	April 2026
Black grouper, mutton snapper, yellowtail snapper allocations between the Gulf and South Atlantic Councils	7 years	April 2026